Metric 2.4.1- Institution provides opportunities for developing competencies and skills in different functional areas through specially designed activities / experiences that include

1. Organizing Learning (lesson plan)
2. Developing Teaching Competencies
3. Assessment of Learning
4. Technology Use and Integration
5. Organizing Field Visits
6. Conducting Outreach/ Out of Classroom Activities
7. Community Engagement
8. Facilitating Inclusive Education
9. Preparing Individualized Educational Plan (IEP)

Clarification Asked-

HEI has not provided any supporting documents as per SOP. HEI needs to provide Documentary evidence in support of the selected response/s and Reports of activities with video graphic support wherever possible

Response

1. Reports of activities conducted related to metric are attached. (Appendix-I)

2023-2024

Appendix-I

SHEELA MULTIPURPOSE SOCIETY

SHEELADEVI COLLEGE OF EDUCATION

DATTAWADI, WADI, NAGPUR

2023 - 2024

LESSON PLANNING BOOK
पाठ नियोजन पुस्तिका

Name: Ketaki Shrikant Ohale
नाव:

Number:
क्रमांक:

Subject: 1) Mathematics
विषय:

2)

अनुक्रमणिका
INDEX

पाठांक S.No.	दिनांक Date	शाळा School	वर्ग Class	विषय Subject	विषयांक Topic	स्वाक्षरी Signature
1	16/09	V.L. Convent	IX	Maths	Rational and Irrational numbers	Skalbande
2	18/09	— " —	IX	Maths	operations on Real numbers	Skalbande
3	23/09	— " —	IX	Maths	Heron's Formula	Skalbande
4	26/09	— " —	IX	Maths	Polynomials	Skalbande
5	05/10	— " —	IX	Maths	Zeros of a polynomial	Skalbande
6	09/10	— " —	IX	Maths	co-ordinate geometry	Skalbande
7	11/10	— " —	IX	Maths	Euclid's Geometry	Skalbande
8	13/10	— " —	IX	Maths	Lines and Angles	Skalbande
9	17/10	— " —	IX	Maths	Triangles - congruence criterions	Skalbande

अनुक्रमणिका
INDEX

पाठांक S.No.	दिनांक Date	शाळा School	वर्ग Class	विषय Subject	विषयांक Topic	स्वाक्षरी Signature
10	20/10	— " —	IX	Maths	quadrilaterals	Shalbinde
11	25/10	— " —	IX	Maths	circle and its parts	Shalbinde
12	27/10	— " —	IX	Maths	surface area of cube, cuboid, cone, sphere	Shalbinde
13	31/10	— " —	IX	Maths	volume of cube cuboid, cone, sphere	Shalbinde
14	20/11	— " —	VIII	Maths	square and square roots	Shalbinde
15	22/11	— " —	VIII	Maths	cube and cube roots	Shalbinde
16	24/11	— " —	VIII	Maths	Direct and inverse proportions	Shalbinde
17	25/11	— " —	VIII	Maths	comparing quantities	Shalbinde
18	21/12	— " —	VIII	Maths	Linear equation in one variable	Shalbinde

अनुक्रमणिका
INDEX

क्रमांक S.No.	दिनांक Date	शाळा School	वर्ग Class	विषय Subject	विषयांक Topic	स्वाक्षरी Signature
19	22/12	— " —	IX	Maths	Linear equation in two variables	Skulbande
20	23/12	— " —	IX	Maths	statistics	Skulbande

पाठांक S.No. 1

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Rational and Irrat

पाठ साहित्य Material Aids Chalk, Blackboard, Duster, chart showing Number system

पूर्व ज्ञान Previous Knowledge Whole numbers, Nat

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTIN	1] Rational Numbers	*] To enable students to identify Rational and Irrational Numbers.
	2] Irrational Numbers	*] To enable students to differentiate between Rational and Irrational Numbers.
	3] Real Numbers	*] To understand Number system and differentiate between the set of numbers.
Statement of Aim- Today, we are going to		

दिनांक Date 16/09/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to the asked questions.
Q 1] What are natural numbers?	Ans] The counting numbers from 1, 2, 3, 4 --- are called natural numbers.
Q 2] What are whole numbers?	Ans] Whole numbers are the collection of positive numbers with zero. 0, 1, 2, 3, 4 ----
Q 3] What are integers?	Ans] The collection of whole numbers with zero, and negative numbers -2, -1, 0, 1, 2 ----
Learn about Rational and Irrational Numbers.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Rational Numbers - The numbers in the form of $\frac{m}{n}$ are called rational numbers. Where, m and n are integers $n \neq 0$.	1] Knowledge - Students are able to know the concept of Rational numbers.
	Examples - -25 is a rational number, because it can be written in the form of $\frac{m}{n}$ as $-\frac{25}{1}$.	2] Understanding - Students are able to understand various rational numbers
	Decimal Expansion - The decimal expansion of rational numbers is either terminating or non-terminating, recurring. 0.687, $1.272727\ldots = 1.\overline{27}$	3] Application - Students are able to apply concept of rational numbers to various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What are Rational numbers?	Ans] when a number can be written in the form of $\frac{m}{n}$ where m, n are integers and $n \neq 0$ are rational numbers.
Q.2] Give any two examples of rational numbers.	Ans] $6, \frac{7}{6}, \frac{8}{6}, \frac{12}{6}, \frac{15}{3}, \frac{-19}{4}$ are examples of some rational numbers.
Q.3] How many rational numbers are there between any given two rational numbers?	Ans] There are infinitely many rational numbers between any given two rational numbers.
Q.4] Find three rational numbers between 6 and 7	Ans] $3+1=4$ $6 \times \frac{4}{4} = \frac{24}{4}$ $7 \times \frac{4}{4} = \frac{28}{4}$ Three numbers between 6 and 7 are $\left[\frac{25}{4}, \frac{26}{4}, \frac{27}{4}\right]$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Irrational Numbers - The numbers which cannot be written in the form of $\frac{m}{n}$ where, m and n are integers and $n \neq 0$	1] Knowledge - Students are able to know the concept of Irrational numbers
	Examples - $\sqrt{2}, \sqrt{3}, \sqrt{15}, \pi$ are some of the examples of irrational numbers.	2] Understanding Students are able to understand various Irrational Numbers
	Decimal Expansion - The decimal expansion of irrational numbers is non-terminating and non-recurring $\sqrt{2} = 1.4142135$ ---- $\pi = 3.14159265$ ----	3] Application - Students are able to apply the concept of Irrational numbers to various example

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q-1] What are irrational numbers?	Ans] The numbers which cannot be written in the form of $\frac{m}{n}$ where m, n are integers and $n \neq 0$ are called irrational numbers.
Q-2] Give some examples of irrational numbers.	Ans] $\sqrt{2}, \sqrt{3}, \sqrt{5}, \sqrt{6}, 0.10110\ldots$ π are some examples of irrational numbers.
Q-3] Are the square roots of all positive integers irrational?	Ans] No, the square roots of all positive integers are not irrational. for ex- $\sqrt{4} = 2$ - rational
Q-4] Find an irrational number between $\frac{1}{7}$ and $\frac{2}{7}$	Ans] $\frac{1}{7} = 0.\overline{142857}$ $\frac{2}{7} = 0.\overline{285714}$ So, an irrational number between $\frac{1}{7}$ and $\frac{2}{7}$ is $0.1501150011\ldots$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Rational numbers - i] Definition ii] Examples iii] Decimal Expansion 2] Irrational numbers - i] Definition ii] Examples iii] Decimal expansion	*] To revise the topic taught by the teacher. *] To evaluate the understanding of students *] To test the knowledge regarding the number system and examples

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What are real numbers.	Ans] The collection of all rational and irrational numbers is called real numbers.
Q.2] Classify the following as rational or irrational numbers- i] $\sqrt{9}$ ii] $\sqrt{2}$ iii] π iv] $\sqrt{225}$	Ans] i] $\sqrt{9} = 3$ .. rational ii] $\sqrt{2} = 1.414...$ irrational iii] $\pi = 3.1415$ ... irrational iv] $\sqrt{225} = 15$ ... rational.
Q.3] How can you classify rational and irrational numbers using their decimal expansions?	Ans] If the decimal expansion of a number is terminating or non-terminating recurring, then it is a rational number. If the decimal expansion of a number is non-terminating, non-recurring then it is an irrational number.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time *] To create interest in the topic taught *] To understand the taught concept properly

फलक सार

Black Board Summary

Day - Saturday
Date - 16/09/23

Class - IX
Sub - Mathematics
Topic - Rational and Irrational Numbers

On Roll -
Present -
Absent -

1] Rational Numbers
$Q = \{ \frac{p}{q}$, where p and q are integers $q \neq 0 \}$

2] Irrational Numbers
I = { non-rational numbers }

3] Real numbers
R = { rational, irrational }

Homework - classify the following numbers as rational or irrational numbers
1] $\sqrt{23}$ 2] $\sqrt{625}$ 3] 0.3796 4] 7.478478 -----

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the black-board. Homework- Classify the following numbers as rational or irrational numbers. i] $\sqrt{23}$ ii] $\sqrt{625}$ iii] 0.3796 iv] 7.478478--- v] 2.202002000--- vi] $\sqrt{3}$	students write it down and solve by themselves in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 2

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Operations on Rational

पाठ साहित्य Material Aids Chalk, Blackboard, Duster.

पूर्व ज्ञान Previous Knowledge Rational, Irrational

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Rationalisation of denominator. 2] Laws of exponents for real numbers.	*] To enable students to perform various operation on real numbers *] To enable students to apply laws of indices on real numbers *] To understand operations to be performed and apply it to solve various examples
statement of Aim - Today, we are going to		

दिनांक Date	18/09/23
वर्ग Class	IX th
तासिका अवधी Length of the Period	35 min

umbers, Irrational numbers
Real numbers
mbers, Laws of Indices

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some of the introductory questions.	students give satisfactory answers to the asked questions.
Q1] What is $(\sqrt{6})+(-\sqrt{6})$?	Ans] The answer of $(\sqrt{6})+(-\sqrt{6})$ is zero $\sqrt{6}+(-\sqrt{6})=0$
Q2] What is $(\sqrt{3})\cdot(\sqrt{3})$?	Ans] The answer of $(\sqrt{3})\cdot(\sqrt{3})$ is 3 $(\sqrt{3})\cdot(\sqrt{3})=3$
Q3] What is $\frac{\sqrt{17}}{\sqrt{17}}$?	Ans] The answer of $\frac{\sqrt{17}}{\sqrt{17}}$ is 1 $\frac{\sqrt{17}}{\sqrt{17}}=1$

Learn operations on real numbers.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Operations on Real Numbers- 1] The sum or difference of a rational number and an irrational number is irrational. ex- $2\sqrt{2}+\sqrt{2}=3\sqrt{2}$ 2] The product or quotient of a non-zero rational number with an irrational number is irrational. ex- $6\sqrt{3}\times 2 = 12\times\sqrt{3}$ $=12\sqrt{3}$ 3] If we add, subtract multiply or divide two irrationals, the result may be rational or irrational ex- $\frac{8\sqrt{15}}{2\sqrt{3}} = 4\sqrt{5}$ $\frac{3\sqrt{3}}{2\sqrt{3}} = \frac{3}{2}$	1] Knowledge- students are able to know the concept of rationalisation of numbers 2] Understanding students are able to understand why and how real numbers are rationalised. 3] Application- students are able to apply the concept of rationalisation in examples and solve them.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher ask some questions related to the topic	Students give appropriate answers to the asked questions.
Q1] Rationalise the denominator of $\frac{1}{\sqrt{2}}$	Ans] $\frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$
Q2] Rationalise the denominator of $\frac{1}{2+\sqrt{3}}$	Ans] $\frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} = \frac{2-\sqrt{3}}{(2)^2-(\sqrt{3})^2}$ $= \frac{2-\sqrt{3}}{1}$ $= 2-\sqrt{3}$
Q3] What is i] $\sqrt{a} \times \sqrt{b}$ - ii] $(\sqrt{a}+b)(\sqrt{a}-b)$	Ans] The answers of i] $\sqrt{a} \times \sqrt{b}$ is $\sqrt{ab}$ ii] $(\sqrt{a}+b)(\sqrt{a}-b)$ is $(\sqrt{a})^2 - b^2 = a - b^2$
Q4] What is rationalising the denominator?	Ans] When the the denominator contains a term with square root, the process of converting it to an expression whose denominator is a rational number is called Rationalising the denominator.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Laws of Exponents Let $a>0$ be a real number and p and q be the rational numbers, then, i] $a^p . a^q = a^{p+q}$ ii] $(a^p)^q = a^{pq}$ iii] $\frac{a^p}{a^q} = a^{p-q}$ iv] $a^p b^p = (ab)^p$	1] Knowledge - students are able to know the concept of laws of indices with respect to real numbers. 2] Understanding - students are able to understand various laws of indices 3] Application - students are able to apply the concept of laws of indices to solve examples

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] In the law $a^m \cdot a^n = a^{m+n}$ what are a, m, n called?	Ans] In the given law a is called the base and m and n are called exponents.
Q.2] What is i] $a^0 = ?$ ii] $\frac{1}{a^n} = ?$	Ans] The answer of i] $a^0 = 1$ ii] $\frac{1}{a^n} = a^{-n}$
Q.3] What is i] $\sqrt[n]{a} = ?$ ii] $2^{1/3} = ?$	Ans] The answer of i] $\sqrt[n]{a} = a^{\frac{1}{n}}$ ii] $2^{1/3} = \sqrt[3]{2}$
Q.4] Explain how you do see at $a^{\frac{m}{n}}$ in the view of Laws of exponents.	Ans] Let $a > 0$ be a real number. Let m and n are integers such that they don't have common factors. then, $a^{\frac{m}{n}} = (\sqrt[n]{a})^m = \sqrt[n]{a^m}$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] operations on real numbers. 2] Rationalisation of the denominator 3] Laws of exponents.	*] To revise the topic taught by the teacher. *] To evaluate the topic understood by the students. *] To test the knowledge gained by students regarding operations on real numbers.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What should we do to rationalise the denominator of $\frac{1}{\sqrt{a}+b}$?	Ans] To rationalise the given number, we should multiply it by $\frac{\sqrt{a}-b}{\sqrt{a}-b}$ where a, b are integers.
Q2] If r is rational and s is irrational, what are its addition, subtraction, multiplication and division?	Ans] If r is rational and s is irrational, then r+s and r-s are irrational and rs and $\frac{r}{s}$ are irrational where $r \neq 0$
Q3] Simplify - $2^{\frac{2}{3}} \cdot 2^{\frac{1}{3}}$	Ans] By using the laws of indices $a^p \cdot a^q = a^{p+q}$ $2^{\frac{2}{3}} \cdot 2^{\frac{1}{3}} = 2^{\frac{2}{3}+\frac{1}{3}}$ $= 2^1 = 2$ The answer is 2.
Q4] Simplify - $(3^{\frac{1}{5}})^4$	Ans] By using the laws of indices $(a^p)^q = a^{pq}$ $(3^{1/5})^4 = 3^{1/5 \times 4}$ $= 3^{4/5}$ The answer is $3^{4/5}$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
H		* To utilize the free time
O		
M		
E		* To create interest in the topic taught
W		
O		
R		* To understand the taught concept properly.
K		

फलक सार

Black Board Summary

Day- Monday
Date -18/09/23

Class- IX
Sub- Mathematics
Topic- operations on real numbers

On Roll-
Present-
Absent-

1] Rationalisation of denominator

$\sqrt{ab} = \sqrt{a} \times \sqrt{b}$

$(\sqrt{a}+\sqrt{b})(\sqrt{a}-\sqrt{b}) = a-b$

2] Laws of Indices

a] $a^p . a^q = a^{p+q}$

b] $a^p / a^q = a^{p-q}$

c] $(a^p)^q = a^{pq}$

d] $a^p . b^p = (ab)^p$

Homework- simplify -

1] $(3+\sqrt{3})(3-\sqrt{3})$

2] $(3+\sqrt{3})(2+\sqrt{2})$

3] $32^{2/5}$

4] $7^{1/2} . 8^{1/2}$

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework - Q] simplify i] $(3+\sqrt{3})(3-\sqrt{3})$ ii] $(3+\sqrt{3})(2+\sqrt{2})$ iii] $32^{\frac{2}{5}}$ iv] $7^{\frac{1}{2}} \cdot 8^{\frac{1}{2}}$	Students write it down and solve by themselves in their respective notebooks.

अभिप्राय (Remarks)

Very good.

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 3

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Heron's Formula

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Types of Triangles

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Perimeter 2] Semiperimeter 3] Heron's formula 4] Applications	*] To enable students to find area of scalene triangle *] To enable students to apply Heron's formula to find area of triangles. *] To enable students to apply Heron's formula in real life examples.
Statement of Aim - Today, we are going to		

दिनांक Date 23/09/23

and its Applications

वर्ग Class IX th

-Equilateral, Isosceles, Scalene triangle

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions.	Students give appropriate answers of the asked questions.
Q1] What are types of triangles with respect to sides?	Ans] The types of triangles based on sides are i] Equilateral triangle ii] Isosceles triangle iii] Scalene triangle
Q2] What are types of triangles with respect to angles	Ans] The types of triangles based on angles are i] Acute angled triangle ii] Obtuse angled triangle iii] Right angled triangle
Q3] What is the formula to calculate area of triangle?	Ans] The area of triangle can be calculated by $A = \frac{1}{2} \times base \times height$

Learn about Heron's Formula

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Perimeter of a triangle A triangle with three sides a, b, and c has its perimeter $P = a+b+c$ Semiperimeter of a triangle semiperimeter $S = \frac{a+b+c}{2}$	1] Knowledge - students are able to know the concept of perimeter and semiperimeter. 2] Understanding students are able to understand the use of perimeter and semi-perimeter 3] Application - students are able to apply learned concepts in real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q-1] What is perimeter of a triangle?	Ans] The sum of lengths of all three sides of a triangle is perimeter $P = a+b+c$
Q-2] What is the unit of perimeter and semiperimeter of a triangle?	Ans] The unit of perimeter and semiperimeter is same as that of length i.e. m, cm or unit
Q-3] Find the perimeter of a triangle whose sides are 3cm, 4cm and 5cm.	Ans] Perimeter of triangle $P = a+b+c$ $= 3+4+5$ $= 12\,cm$ $\therefore$ Perimeter $= 12\,cm$
Q-4] Find the semiperimeter of the triangle in the above question.	Ans] semiperimeter of a triangle $s = \frac{a+b+c}{2}$ $s = \frac{3+4+5}{2} = \frac{12}{2} = 6\,cm$ $\therefore$ semiperimeter $= 6\,cm$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Heron's Formula Area of a triangle $A = \sqrt{s(s-a)(s-b)(s-c)}$ where, A is area of triangle s is semiperimeter a, b, c are sides of a triangle. Applications - 1] To find the area of different types of a triangle 2] To find the area of a quadrilateral.	1] Knowledge - students are able to know the concept of Heron's formula 2] Understanding students are able to understand how Heron's formula is used to find area of triangles. 3] Application - students are able to apply learned concepts to real life examples and scenarios.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What is a scalene triangle?	Ans] A triangle whose all three sides are of unequal length is called a scalene triangl
Q2] Who gave Heron's Formula?	Ans] Hero of Alexandria derived formula for the calculation of the area of a triangle using lengths of all three sides.
Q3] What is the unit of area of a triangle?	Ans] The unit of area of a triangle is cm^2 or sq. cm, m^2 or sq. m, $unit^2$ or sq. units.
Q4] Find area of a triangle whose sides are 10m, 17m and 21m?	Ans] $S = \frac{a+b+c}{2} = \frac{10+17+21}{2} = 24$ m $A = \sqrt{s(s-a)(s-b)(s-c)}$ $= \sqrt{24(24-10)(24-17)(24-21)}$ $= \sqrt{24 \times 14 \times 7 \times 3} = \sqrt{7056}$ $= 84$ sq. m $\therefore$ Area $= 84$ sq. m / m^2

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Perimeter $P = a+b+c$ 2] Semiperimeter $s = \frac{a+b+c}{2}$ 3] Heron's Formula $A = \sqrt{s(s-a)(s-b)(s-c)}$ 4] Applications of Heron's formula	*] To revise the topic taught by the teacher. *] To evaluate the topic understood by the students. *] To test the knowledge gained by the students regarding Heron's formula.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] When do we use Heron's formula?	Ans] Heron's formula is used to find the area of triangle when all its three side-lengths are known to us.
Q.2] What is Heron's formula for equilateral triangle?	Ans] An equilateral triangle has all its three sides equal. so, Heron's formula to find its area is given by $A = \sqrt{s(s-a)^3}$
Q.3] A triangle has sides 4 cm, 13 cm and 15 cm. Find the area of the triangle.	Ans] $s = \frac{4+13+15}{2} = 16$ cm $A = \sqrt{s(s-a)(s-b)(s-c)}$ $= \sqrt{16(16-4)(16-13)(16-15)}$ $= \sqrt{16 \times 12 \times 3 \times 1} = \sqrt{576} = 24$ sq.cm
Q.4] How can we find the area of a quadrilateral using Heron's formula?	Ans] We can divide the given quadrilateral into two triangles and find the area for both using Heron's formula. At last add the two areas.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To utilize the free time * To create interest in the topic taught. * To understand the taught concept properly

फलक सार

Black Board Summary

Day - Monday
Date - 18/09/23

Class - IX
Sub - Mathematics
Topic - Heron's Formula

On Roll -
Present -
Absent -

Perimeter - sum of all the sides of a figure is called Perimeter

$P = a+b+c$

$s = \frac{a+b+c}{2}$

$A = \sqrt{s(s-a)(s-b)(s-c)}$

Homework - Find the area of a triangle whose perimeter is 54 cm and two of its sides measure 12 cm and 25 cm.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard. Homework - Q] Find the area of a triangle whose perimeter is 54 cm and two of its sides are 12 cm and 25 cm.	Students write it down and solve in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 4

विषय Subject Mathematics

शाळा School V.L-Convent

विषयांश Topic Polynomials (Degree

पाठ साहित्य Material Aids Chalk, duster, Blackboard.

पूर्व ज्ञान Previous Knowledge Basic algebraic

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Degree of Polynomials 2] Algebraic Identities	*] To enable students to recall algebraic identities. *] To enable students to predict the degree of the polynomials. *] Students are able to define co-efficient, degree of polynomials
Statement of Aim - Today we are going to		

दिनांक Date 26/09/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
Q1] What are polynomials?	Ans] An expression of more than two algebraic terms, contain sum and various powers of the variables is called a polynomial.
Q2] In the given polynomial, $5x^2 + 2y - 7$, what is the constant?	Ans] In the given polynomial, constant term is 7.
Q3]	Ans]
study the topic Polynomials.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Degree of a polynomial $5x^2 + 2y - 7$ Exponent coefficient variable The highest power of the variable in a polynomial is called as degree of the polynomial. In the given polynomial, highest power of variable is 2. so, degree of the polynomial is 2.	1] Knowledge - The students are able to know various algebraic identities 2] Understanding The students will be able to explain the term and coefficient of polynomials. 3] Application The students are able to predict the degree of the polynomials.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] What are polynomials having one and two terms called?	Ans] Polynomials having one term are called monomials while two terms are called binomials.
Q.2] What is a polynomial having degree one and two called?	Ans] A polynomial of degree one is called linear polynomial while one having degree two is called quadratic polynomial.
Q.3] What is the degree of a non-zero constant polynomial?	Ans] The degree of a non-zero constant polynomial is zero.
Q.4] What is a polynomial having degree three and four called?	Ans] A polynomial of degree three is called cubic polynomial whereas one having degree four is called as quartic polynomial.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Algebraic Identities 1] $(x+y)^2 = x^2+2xy+y^2$ 2] $(x-y)^2 = x^2-2xy+y^2$ 3] $x^2-y^2 = (x+y)(x-y)$ 4] $(x+a)(x+b)$ $= x^2+(a+b)x+ab$ 5] $(x+y+z)^2$ $= x^2+y^2+z^2+2xy$ $+2yz+2zx$ 6] $(x+y)^3 = x^3+y^3+$ $3xy(x+y)$ 7] $(x-y)^3 = x^3-y^3$ $-3xy(x-y)$ 8] $x^3+y^3+z^3-3xyz$ $= (x+y+z)$ $(x^2+y^2+z^2-xy$ $-yz-zx)$	1] Knowledge- students are able to know various algebraic identities. 2] Understanding The students will be able to explain the terms coefficients and degree of polynomials. 3] Application- The students are able to predict the degree of the polynomials.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] Find the product of $(x-3)(x+5)$	Ans] $(x-3)(x+5)$ $= x^2 + [-3+5]x + (-3)(5)$ $= x^2 + 2x - 15$
Q2] Evaluate 105×106 without multiplying directly.	Ans] $105 \times 106 = (100+5)(100+6)$ $= (100)^2 + (5+6) \times 100 + (5 \times 6)$ $= 10000 + 1100 + 30$ $= 11130$
Q3] Write $(3a+4b+5c)^2$ in expanded form.	Ans] let $x = 3a$, $y = 4b$, $z = 5c$ $(3a+4b+5c)^2 = 9a^2 + 16b^2 + 25c^2 + 24ab + 40bc + 30ac$
Q4] Evaluate $(104)^3$ without calculating numerically	Ans] $(104)^3 = (100+4)^3$ $(104)^3 = (100)^3 + (4)^3 + 3(100)(4)(100+4)$ $= 1000000 + 64 + 124800$ $= 1124864$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Degree of a polynomial → a] linear b] quadratic c] cubic d] quartic 2] Algebraic Identities	*] To revise the topic taught by the teacher. *] To evaluate the topic understood by the students. *] To test the knowledge gained by the students regarding polynomials.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	Students give appropriate answers to the asked questions.
Q.1] What is the coefficient of x^2 in the following- i] $2+x^2+x$ ii] $\pi/2\, x^2+x$	Ans] The coefficient of x^2 in i] $2+x^2+x$ is 1 ii] $\pi/2\, x^2+x$ is $\pi/2$
Q.2] Write the degree of each of the following i] $5x^3+4x^2+7x$ ii] $4-y^2$ iii] $5t-\sqrt{7}$	Ans] The degree of equations i] $5x^3+4x^2+7x$ is 3 ii] $4-y^2$ is 2 iii] $5t-\sqrt{7}$ is 1
Q.3] Give one example each of a binomial of degree 35 and a monomial of degree 100.	Ans] A binomial of degree 35 is $3x^{35}+25$ Monomial of degree 100 is y^{100}, $3x^{100}$
Q.4] Write the following cube in the expanded form $(3a+4b)^3$	Ans] $(3a+4b)^3$ $=(3a)^3+(4b)^3+3(3a)(4b)(3a+4b)$ $=27a^3+64b^3+108a^2b+144ab^2$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To utilize the free time * To create interest in the topic taught. * To understand the taught concept properly

फलक सार

Black Board Summary

Day - Saturday
Date - 23/09/23

Class - IX
Sub - Mathematics
Topic - Polynomials

On Roll -
Present -
Absent -

Standard form of a polynomial

$ax^2 + by + c = 0$

Degree of a Polynomial

1] Linear
2] Quadratic
3] Cubic
4] Quartic

Homework - Q.1] Classify the following polynomials as linear, quadratic and quartic.

a] $x^2 + x$ b] $x^4 + 7x^3$ c] $x + 1$ 4] x^2

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard. Homework - 1] Classify the following as linear, quadratic and cubic, quartic polynomials. 1] x^2+x 2] x^4+7x^3 3] $1+x$ 4] x^2 2] Expand 1] $(3x+4)(3x-5)$ 2] $(2a-3b)^3$	Students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 5

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Zeros of a Polynomial

पाठ साहित्य Material Aids Chalk, duster, blackboard

पूर्व ज्ञान Previous Knowledge Polynomials and

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Zero of a polynomial 2] Factor Theorem	*] To enable students to identify factors of a polynomial *] To enable students to predict the zeros of a polynomial *] students are able to define factor theorem

Statement of Aim – Today we are going to

	दिनांक Date 05/10/23
Factor Theorem	वर्ग Class IX th
Algebraic identities	तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	Students give appropriate answers to the asked questions.
Q.1] What is the variable in the equation/ polynomial $5x^3-2x^2+3x-2$?	Ans] In the polynomial $5x^3-2x^2+3x-2$, x is the variable. Its value varies from a lower range to higher.
Q.2] Which value will you get when you replace x by 1 in the equation?	Ans] $p(x)=5x^3-2x^2+3x-2$ $p(1)=5(1)^3-2(1)^2+3(1)-2$ $=5-2+3-2$ $p(1)=4$
Q.3] What can we say from above value?	Ans] We can say that the value of $p(x)$ at $x=1$ is 4.
Study zeros of a Polynomial.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Zeros of a Polynomial A zero of a polynomial $p(x)$ is a number c such that $p(c) = 0$ Ex - Finding a zero of $p(x)$ is same as solving the equation $p(x) = 0$ if $p(x) = 2x + 1$ $2x + 1 = 0$ $2x = -1$ $\boxed{x = -\frac{1}{2}}$ $\therefore -\frac{1}{2}$ is the zero of the polynomial $p(x) = 2x + 1$	1] Knowledge - The students are able to know zeros of a polynomial 2] Understanding students are able to understand how zeros of polynomial are calculated 3] Application students are able to calculate zeros of polynomial and apply it to solve examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask questions related to the topic	Students give appropriate answers to the asked questions.
Q1] How many zeros does a linear polynomial has?	Ans] Every linear polynomial has one and only one zero.
Q2] Can a polynomial have more than one zero?	Ans] Yes, a polynomial can have more than one zero.
Q3] Verify whether -2 is the zero of the polynomial $x+2$	Ans] let $p(x) = x+2$ $0 = x+2$ $x = -2$ $\therefore$ Yes, -2 is a zero of the polynomial $x+2$
Q4] Check whether 2 and 0 are zeros of the polynomial x^2-2x.	Ans] let $p(x) = x^2-2x$ $p(2) = (2)^2-2(2)$ $= 4-4$ $= 0$ $p(0) = (0)^2-2(0)$ $= 0-0$ $= 0$ Yes, 2 and 0 are both zeros of the polynomial x^2-2x

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Factor Theorem -	1] Knowledge - Students are able to know factor theorem of polynomials.
	If $p(x)$ is a polynomial of degree $n \geq 1$ and a is any real number, then	
	i] $x-a$ is a factor of $p(x)$ if $p(a)=0$	
	ii] $p(a)=0$ if $x-a$ is a factor of $p(x)$	2] Understanding - Students are able to understand how factors of a polynomial are predicted.
	Ex - Examine whether $x+2$ is a factor of $2x+4$.	
	The zero of $2x+4$ is $p(x) = 2x+4$ $0 = 2x+4$ $2x = -4$ $x = -2$	3] Application - Students are able to apply factor theorem to solve examples.
	$p(-2) = 2(-2)+4$ $= -4+4$ $= 0$	
	$\therefore (x+2)$ is a factor of $2x+4$	

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask questions related to the topic	students give appropriate answers to asked questions.
Q1] Factorise y^2-5y+6 by factor theorem.	Ans] $p(y)=(y-a)(y-b)$ $p(2)=2^2-(5\times 2)+6=0$ $\therefore y-2$ is a factor of $p(y)$ $p(3)=3^2-(5\times 3)+6=0$ $\therefore y-3$ is a factor of $p(y)$ $\therefore (y-2)(y-3)$ are factors
Q2] Factorise y^2-5y+6 by splitting the middle term	Ans] y^2-5y+6 $=y^2-3y-2y+6$ $=y(y-3)-2(y-3)$ $=(y-2)(y-3)$ $6y^2$ $-3y \quad -2y$ $-5y$ $\therefore (y-2)(y-3)$ are the factors.
Q3] If $p(a)=0$ by $p(x)$ then what can you say about its factor?	Ans] If $p(a)=0$ then $(x-a)$ is a factor of given $(p(x))$.
Q4] Find the value of 'k' if $x-1$ is a factor of $4x^3+3x^2-4x+k$.	Ans] $x-1$ is a factor of $p(x)$ $\therefore p(1)=0$ $p(1)=4(1)^3+3(1)^2-4(1)+k$ $0=4+3-4+k$ $\boxed{k=-3}$ $\therefore$ value of k is -3.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Zeros of a polynomial 2] Factor Theorem if $x-a$ is a factor of $p(x)$ then $p(a)=0$ 3] Splitting the middle term.	*] To revise the topic taught by the teacher *] To evaluate the topic understood by the students. *] To test the knowledge gained by the students regarding polynomials

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask questions related to the topic	students give appropriate answers to the asked questions.
Q.1] Find the value of the polynomial $5x - 4x^2 - 3$ at $x = 0$	Ans] let $p(x) = 5x - 4x^2 - 3$ $p(0) = 5(0) - 4(0)^2 - 3$ $= -3$ $\therefore$ at $x = 0$, value of polynomial is -3.
Q.2] Find $p(1)$ of the polynomial $p(y) = y^2 - y + 1$	Ans] let $p(y) = y^2 - y + 1$ $p(1) = (1)^2 - (1) + 1$ $p(1) = 1$ $\therefore p(1)$ of $p(y)$ is 1.
Q.3] Is it necessary that zero of a polynomial is zero?	Ans] No, a zero of a polynomial need not to be zero.
Q.4] Determine whether $g(x) = x + 1$ is a factor of $p(x) = 2x^3 + x^2 - 2x - 1$	Ans] $p(x) = 2x^3 + x^2 - 2x - 1$ $x + 1 = 0 \quad x = -1$ $p(-1) = 2(-1)^3 + (-1)^2 - 2(-1) - 1$ $= -2 + 1 + 2 - 1$ $= 0$ $\therefore g(x)$ is a factor of $p(x)$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create interest in the topic taught. *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Tuesday
Date - 26/09/23

Class - IX
Sub - Mathematics
Topic - Zero of a polynomial

On Roll -
Present -
Absent -

1] Zero of a polynomial $p(x)$ is $p(c) = 0$

2] Factor theorem
→ If $(x-a)$ is a factor of $p(x)$ then $p(a) = 0$

Homework - Q.1] Find the zero of $p(x)$ in each case.

1] $p(x) = 3x - 2$ 2] $p(x) = 2x + 5$

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अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - Q-1] Find zero of the polynomial $p(x)$ in each case i] $p(x) = 3x - 2$ ii] $p(x) = 2x + 5$ Q-2] Factorise i] $12x^2 - 7x + 1$ ii] $6x^2 + 5x - 6$	students write it do and solve it in th notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 6

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Co-ordinate Geom

पाठ साहित्य Material Aids Chalk, Duster, Blackboard, Graph Paper

पूर्व ज्ञान Previous Knowledge Position of point

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Cartesian system 2] Plotting the points in the cartesian plane	*] To enable students to know and understand co-ordinate geometry *] To enable students to determine x and y coordinates of the points. *] Students are able to plot points in the cartesian plane
Statement of Aim - Today, we are going to		

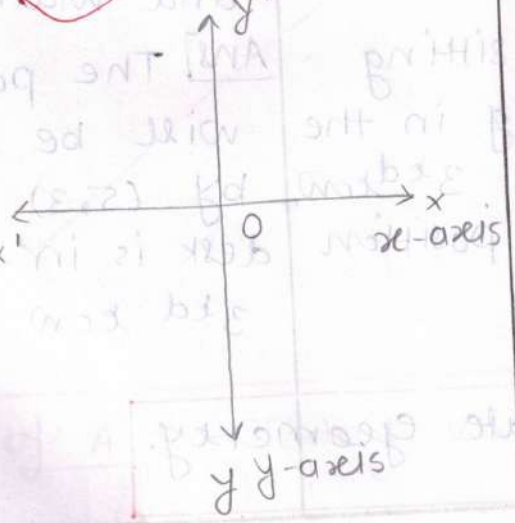
दिनांक
Date 09/10/23

वर्ग
Class IX th

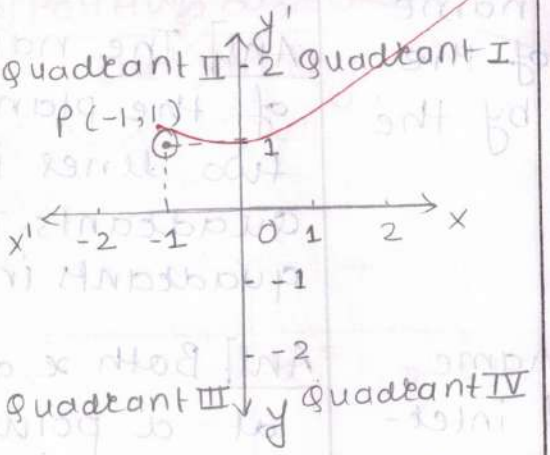
तासिका अवधी
Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give appropriate answers to the asked questions
Q1] How many informations do you need to represent a dot?	Ans] We need two independant informations to represent the position of a dot.
Q2] How will you describe the position of table lamp on your study table?	Ans] We will describe the position of table lamp with the help of length and width to the position.
Q3] If you are sitting on the desk lying in the 5th column and 3rd row, how will your position be represented?	Ans] The position of desk will be represented by (5, 3) as the position of desk is in 5th column and 3rd row.
learn co-ordinate geometry	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Cartesian system 1] x-axis x'x The horizontal line is called x-axis. 2] y-axis y'y The vertical line is called y-axis 3] Origin O The point where x and y axis cross is called origin. 4] Negative directions ox and oy 5] Positive directions ox' and oy'  	1] knowledge students are able to know about cartesian plane. 2] Understanding students are able to understand positions of a point on the graph paper 3] Application students are able to apply the knowledge to plot points on the graph paper.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask questions related to the topic	students give appropria answers to the asked questions.
Q1] The concept of co-ordinate geometry was mainly developed by which mathematician?	Ans] The concept of coordi geometry was developed French philosopher and mathematician Rene Descartes.
Q2] What is the name of horizontal and vertical lines drawn to determine the position of any point in the cartesian plane?	Ans] In the cartesian plane, horizontal line called x-axis and vertical line is called y-axis.
Q3] What is the name of each part of the plane formed by the two lines?	Ans] The name of the par of the plane formed by two lines is called quadrants. There are fo quadrants in cartesian pla
Q4] What is the name of the point of intersection of x and y axis?	Ans] Both x and y intersec at a point called orig co-ordinates of origin are O(0,0).

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Quadrants - x and y axes divide the cartesian plane into four parts, these parts are called quadrants x - coordinate - perpendicular distance measured along x-axis from y-axis. abscissa y - coordinate - perpendicular distance measured along y-axis from x-axis. ordinate.  The position of point P is represented by P(-1,1)	1] Knowledge students are able to know about cartesian plane and coordinates of points. 2] Understanding students are able to understand position of a point on the graph paper. 3] Application students are able to apply the knowledge of cartesian system to plot points on the graph paper.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers to the asked questions.
Q.1] To locate the position of an object in a plane, what do we need?	Ans] To determine position of an object in a plane, we require two perpendicular lines, one horizontal and one vertical.
Q.2] What are the plane and intersecting lines called?	Ans] The plane is called as cartesian plane and the lines are called co-ordinate axes. x-axis and y-axis
Q.3] Define x-coordinate.	Ans] The distance of a point from the y-axis is called x-coordinate or abscissa.
Q.4] Define y-coordinate	Ans] The distance of the point from the x-axis is called y-coordinate or ordinate

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] cartesian system → a] x-axis b] y-axis c] origin d] Negative direction e] Positive direction 2] Quadrants → a] Quadrant I (+,+) b] Quadrant II (−,+) c] Quadrant III (−,−) d] Quadrant IV (+,−) 3] x-coordinate abscissa 4] y-coordinate ordinate	*] To revise the topic taught by the teacher. *] To evaluate the topic understood by the students. *] To test the knowledge gained by students regarding co-ordinate geometry

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers to the asked questions.
Q.1] If the abscissa of a point is x and the ordinate is y, then what are the co-ordinates of the point?	Ans] If the abscissa of a point is x and the ordinate is y, then the co-ordinates of point are (x, y)
Q.2] What are the co-ordinates of a point lying on x-axis?	Ans] The co-ordinates of a point lying on x-axis is $(x, 0)$
Q.3] What are the co-ordinates of a point lying on y-axis?	Ans] The co-ordinates of a point lying on y-axis is $(0, y)$
Q.4] What are signs of the four quadrant co-ordinates?	Ans] The signs of four quadrants are $(+,+)$, $(-,+)$, $(-,-)$, $(+,-)$ respectively.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create the interest in the topic taught *] To understand the taught concept properly.

फलक सार

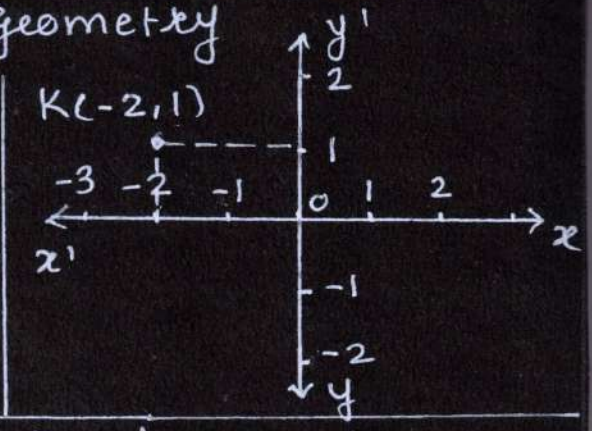
Black Board Summary

Day - Thursday
Date - 05/10/23

Class - IX
Sub - Mathematics
Topic - Co-ordinate geometry

On Roll -
Present -
Absent

Cartesian system
The co-ordinates of point K are (-2, 1)
x-co-ordinate = -2
y-coordinate = 1



Homework - Plot the following points on the graph paper - 1] M(-3,4) 2] L(-5,-4)

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - 1] Plot the following points on the graph paper. M(-3, 4) L(-5, -4) S(3, -4)	Students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 7

विषय Subject Mathematics

शाळा School V. L. Convent

विषयांश Topic Euclid's geomet

पाठ साहित्य Material Aids chalk, duster, blackboard

पूर्व ज्ञान Previous Knowledge Lines, angles, pair

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Euclid's Axioms 2] Euclid's Postulates.	*] To enable students to understand the term geometry. *] students are enable to know about Euclid and his work *] To enable students to about axioms and postulates of Euclid's geometry.
Statement	of Aim- Today, we	are going to

दिनांक Date 11/10/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give appropriate answers to the asked questions.
Q.1] What is the meaning of the word 'geometry'?	Ans] The word geometry comes from greek word 'geo' meaning 'earth' and 'metrein' meaning 'to measure'.
Q.2] What is a point?	Ans] A point is that which has no part. A mark of location is a point.
Q.3] What is a line?	Ans] A line is a breadthless length.
study Euclid's geometry	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Euclid's Axioms 1] Things which are equal to the same thing are equal to one another. 2] If equals are added to equals, the wholes are equals. 3] If equals are subtracted from equals, the remainders are equal. 4] Things which coincide with one another are equal to one another 5] The whole is always greater than the part.	1] Knowledge - students are able to know Euclid's Axioms and their importance. 2] Understanding students are able to understand Euclid's Axioms 3] Application - students are able to apply Euclid's Axioms to solve various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] What are Axioms?	Ans] Common notations in Mathematics which are specifically used throughout the whole Mathematics are called Axioms.
Q.2] What is a plane/ What is a surface?	Ans] A surface is that which has length and breadth only.
Q.3] What are ends of a line segment?	Ans] Ends of a line segment are points.
Q.4] How many diamensions does the following have? 1] solid 2] surface	Ans] A solid has three diamensions while a surface has two diamensions.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Euclid's Postulates -	1] Knowledge - Students are able to know Euclid's Postulates and their importance.
	1] A straight line may be drawn from any one point to any other point.	
	2] A terminated line can be produced indefinately	2] Understanding Students are able to understand Euclid's Postulates.
	3] A circle can be drawn with any centre and any radius.	
	4] All right angles are equal to one another	3] Application - Students are able to apply Euclid's Postulates to solve various examples.
	5] Two distinct intersecting lines cannot be parallel to the same line.	

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अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] What are postulates?	Ans] Common notations in mathematics which are specifically used in geometry are called postulates.
Q2] What are parallel lines?	Ans] Lines which never intersect each other and are always at a constant distance from each other are called parallel lines.
Q3] What are perpendicular lines?	Ans] Lines which intersect each other at right angles are called perpendicular lines.
Q4] What is radius of a circle?	Ans] A line from any point on the circumference of the circle to the centre of circle is called radius of a circle.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Euclid's Axioms 2] Euclid's Postulates	*] To revise the topic taught by the teacher. *] To evaluate the topic understood by the students. *] To test the knowledge gained by students regarding Euclid's geometry

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q.1] What are universal truths in mathematics?	Ans] Euclid assumed certain properties which were not to be proved. These assumptions are called universal truths.
Q.2] What is Euclid's geometry?	Ans] Euclidean geometry is the study of plane and solid figures on the basis of axioms and theorems employed by Euclid.
Q.3] What is an infinity point?	Ans] An ideal mathematical point in projective geometry that preserves the magnitudes of all angles is an infinity point
Q.4] Who was Alexandrian?	Ans] Alexandrian was a greek mathematician and engineer who was active in his native city of Alexandria, Roman Egypt.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time *] To revise the topic taught *] To create the interest in the topic taught

फलक सार

Black Board Summary

Day - Monday
Date - 09/10/23

Class - IX
Sub - Mathematics
Topic - Euclid's geometry

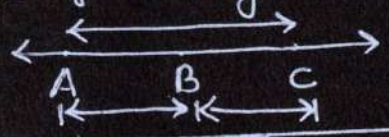
On Roll -
Present -
Absent -

Euclid's Axioms -

Things which are equal to the same thing are equal to one another.

Euclid's Postulates -

A terminated line can be produced indefinately



Homework - Q] If A, B, C are three points on a line, and B lies between A and C, prove that $AB + BC = AC$.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher gives homework written on the blackboard. Homework - 1] A, B, C are three points on a line and B lies between A and C, prove that AB + BC = AC	students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 8

विषय Subject Mathematics

शाळा School V.L. convent

विषयांश Topic Lines and Angles

पाठ साहित्य Material Aids Chalk, duster, blackboard

पूर्व ज्ञान Previous Knowledge Points, Parallel

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Angles 2] Linear pair of angles	*] To enable students to know various types of lines and angles
	3] Parallel lines and intersecting lines	*] To enable students to know concept of parallel lines
	4] Parallel lines and transversal	*] To enable students to know the concept of transversal

Statement of Aim - Today, we are going

दिनांक
Date 13/10/23

वर्ग
Class IX

तासिका अवधी
Length of the Period 35 min

types of angles

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
What is a line and what is a line segment?	Ans] A breadthless length is called a line. If a line has two end points then it is called a line segment.
What are collinear points?	Ans] If three or more points lie on a straight line are called collinear points.
What is an angle?	Ans] When two rays originate from same endpoint, angle is formed
to study about Lines and Angles.	

दिनांक Date 13/10/23

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

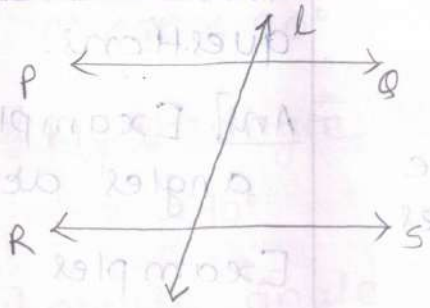
...es, types of angles

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
Q1] What is a line and what is a line segment?	Ans] A breadthless length is called a line. If a line has two end points then it is called a line segment.
Q2] What are collinear points?	Ans] If three or more points lie on a straight line are called collinear points.
Q3] What is an angle?	Ans] When two rays originate from same endpoint, angle is formed
To study about Lines	and Angles.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Types of Angles 1] Acute angle $0° < x < 90°$ 2] Right angle $x = 90°$ 3] obtuse angle $90° < x < 180°$ 4] Straight angle $x = 180°$ 5] Reflex angle $180° < x < 360°$ Linear pair of Angles If sum of two adjacent angles is equal to 180°, then the angles make a linear pair $\angle a + \angle b = 180°$ $\therefore \angle a$ and $\angle b$ make a linear pair	1] Knowledge - students are able to know types and details of angles. 2] Understanding students are able to understand linear pair of angles. 3] Application - students are able to apply types of angles to solve various examples

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What are two examples of obtuse and reflex angles.	Ans] Examples of obtuse angles are 112° and 177° Examples of reflex angles are 210° and 300°
Q2] Find the measure of angle that is supplementary to 137°?	Ans] let x be the angle needed $x + 137° = 180°$ $x = 180° - 137°$ $x = 43°$
Q3] What is the measure of a complete angle?	Ans] The measure of a complete angle is 360°
Q4] If $3x + 24°$ and $5x - 16°$ are congruent then find the value of x.	Ans] $3x + 24° = 5x - 16°$ $24° + 16° = 5x - 3x$ $2x = 40°$ $x = \frac{40°}{2}$ $x = 20°$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Parallel lines and a transversal  Any line which intersect two or more parallel lines is called a transversal.	1] Knowledge - students are able to know about parallel lines and transversal.
	1] Pair of corresponding angles are equal 2] Pair of alternate angles are equal. 3] Pair of alternate exterior and interior angles are equal. 4] Co-interior angles are supplimentary.	2] Understanding - students are able to understand angles formed by parallel lines and transversal 3] Application - students are able to apply the knowledge to solve various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	Students give appropriate answers to the asked questions.
Q1] What are parallel lines?	Ans] Two lines which do not intersect each other and are always at a constant distance from each other are called parallel lines.
Q2] What are intersecting lines?	Ans] Two lines which are not parallel but intersect each other in a common point are called intersecting lines.
Q3] What are perpendicular lines?	Ans] When two lines meet or intersect at an angle of 90°, then they are perpendicular to each other.
Q4] What are the characteristics of alternate angles?	Ans] The alternate interior angles are always equal.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Types of Angles → a] acute angle b] right angle c] obtuse angle d] straight angle e] Reflex angle	*] To revise the topic taught by the teacher.
	2] Linear pair of angles	*] To evaluate the topic understood by the students.
	3] Parallel lines and intersecting lines.	
	4] Parallel lines and a transversal	*] To test the knowledge gained by students regarding lines and angles.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What is a transversal?	Ans] Any line which intersects two or more parallel lines is called a transversal.
Q2] Three angles at a point are 135°, 75° and x. Find the value of x.	Ans] Sum of angles at a point is 360° $135° + 75° + x = 360°$ $210° + x = 360°$ $x = 360° - 210°$ $x = 150°$
Q3] Define line.	Ans] A line is a figure in geometry, which has only length and no width in a two-dimensional plane and extends indefinately.
Q4] What are corresponding angles?	Ans] The angles formed when a transversal intersects any two parallel lines are called corresponding angles.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		★] To utilize the free time ★] To revise the topic taught. ★] To create interest in the topic

फलक सार

Black Board Summary

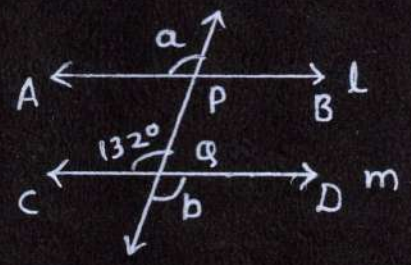
Day - Wednesday
Date - 11/10/23

Class - IX
Sub - Mathematics
Topic - Lines and Angles

On Roll -
Present -
Absent -

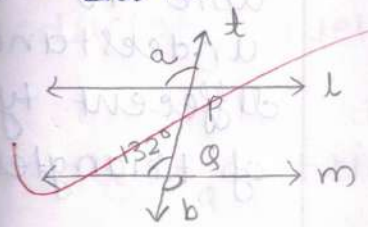
Parallel lines and a transversal

AB || CD i.e. l || m and line t is a transversal



Homework - In the figure, l || m and line t intersects lines l and m at P and Q. Find the sum - '2a + b'.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher gives homework written on the blackboard. Homework - In the figure $l \parallel m$ and line t intersect lines l and m at P and Q. Find - '2a+b'  	Students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 9

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Triangles - Congru

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Types of triangles

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Types of Triangles 2] congruence in triangles.	*] students are able to understand different types of triangles. *] To enable students to predict different congruence conditions *] To enable students to identify triangular inequalities.
statement of Aim - Today, we are going to		

दिनांक Date: 17/10/23

वर्ग Class: IX

तासिका अवधी Length of the Period: 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	Students give appropriate answers to the asked questions.
What is a triangle?	Ans] A polygon which has three sides and three angles is called triangle.
What is an equilateral triangle?	Ans] The triangle whose three sides are of equal length is called equilateral triangle.
What is the sum of three angles of a triangle?	Ans] Sum of three angles of a triangle is always 180°
Study the topic Triangles.	

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	Students give appropriate answers to the asked questions.
Q1] What are the types of triangles on the basis of angles?	Ans] Three types of triangles on the basis of angles are i] Acute angled triangle ii] Right angled triangle iii] obtuse angled triangle
Q2] What are the types of triangles on the basis of sides?	Ans] Three types of triangles on the basis of sides are i] Equilateral triangle ii] Isosceles triangle iii] Scalene triangle.
Q3] Identify the shape of triangle if in $\triangle PQR$, $\angle P = \angle Q + \angle R$.	Ans] By using angle sum property, $\angle P + \angle Q + \angle R = 180°$ $\angle P + \angle P = 180°$ $2\angle P = 180°$ $\angle P = 180°/2 = 90°$ $\therefore \triangle PQR$ is right angled $\triangle$
Q4] In $\triangle PQR$, $PQ = PR$ and $\angle Q = 70°$, Find P.	Ans] In $\triangle PQR$, $PQ = PR$ $\therefore \angle R = \angle Q$ $\angle P + \angle Q + \angle R = 180°$ $\angle P + 70° + 70° = 180°$ $\angle P + 140° = 180°$ $\angle P = 180° - 140°$ $\angle P = 40°$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Congruence in Triangles - Two triangles are congruent if their corresponding sides and angles are equal. There are five conditions to prove congruence in triangles. 1] SSS (side - side - side) 2] SAS (side - Angle - side) 3] ASA (Angle - side - Angle) 4] AAS (Angle - Angle - side) 5] RHS (Right angle - hypotenuse - side)	1] Knowledge - students are able to know congruence conditions in triangles. 2] understanding students are able to understand corresponding parts of congruent triangles. 3] Application - students are able to apply congruency criterion to solve various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q1] What can you say about angles in an isosceles triangle?	Ans] In an isosceles triangle two sides are equal. The angles opposite to equal sides are equal to one another.
Q2] Find the three equalities of the corresponding angle if $\triangle ABC \cong \triangle PQR$ using SSS congruence rule	Ans] Using SSS congruency criterion, three equalities are $\angle A = \angle P$, $\angle B = \angle Q$, $\angle C = \angle R$
Q3] Determine the longest side in $\triangle PQR$ if $\angle Q = 90°$	Ans] If $\angle Q = 90°$, then side opposite to $\angle Q$ is PR which is hypotenuse. $\therefore$ The longest side of $\triangle PQR$ is PR.
Q4] Determine the measure of all the angles in an equilateral triangle.	Ans] let each angle of equilateral triangle be x $x + x + x = 180°$ $3x = 180°$ $x = 180°/3$ $x = 60°$ $\therefore$ Each angle in equilateral triangle is 60°.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Types of Triangles → a] Acute angled b] Right angled c] obtuse angled → d] Equilateral e] Isosceles f] scalene 2] congruence in Triangles → a] SSS b] SAS c] ASA d] AAS e] RHS	*] To revise the topic taught by the teacher. *] To evaluate the topic understood by the students *] To test the knowledge gained by the students regarding Triangles

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q1] What can you say about sum of any two sides of a triangle wrt third side?	Ans] The sum of any two sides of a triangle is always greater than the third side.
Q2] If PQ = 6 cm, QR = 4cm and PR = 1.5 cm, is triangle PQR possible?	Ans] PQ = 6cm; QR = 4 cm; PR = 1.5 cm QR + PR = 4 + 1.5 = 5.5 cm which is less than PQ = 6 cm ∴ ΔPQR is not possible.
Q3] What is the measure of each exterior angle of an equilateral triangle?	Ans] Exterior angle = 180 - interior angle = 180 - 60 = 120° ∴ Each exterior angle is 120°
Q4] The sum of two angles of a triangle is equal to its third angle. Find the third angle.	Ans] In a triangle, 45° + 45° = 90° ∴ first angle = 45°/30° second angle = 45°/60° third angle = 90°

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To create interest in the taught topic * To utilize the free time. * To understand the taught concept properly

फलक सार

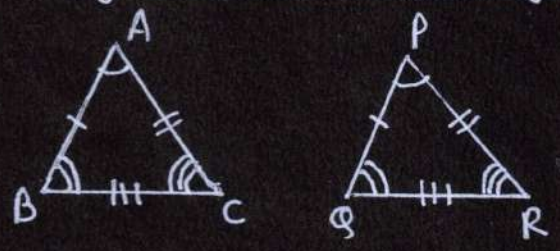
Black Board Summary

Day - Friday
Date - 13/10/23

Class - IX
Sub - Mathematics
Topic - Triangles

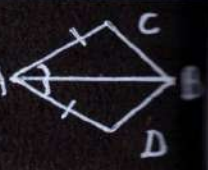
On roll -
Present -
Absent -

Congruence in Triangles

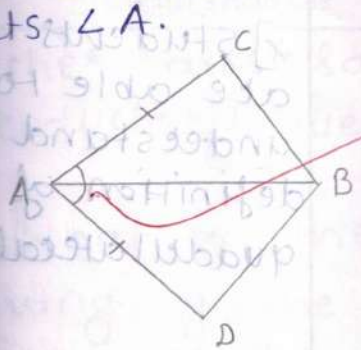


1] SSS - side-side-side
2] SAS - side-angle-side
3] ASA - angle-side-angle
4] AAS - angle-angle-side
5] RHS - Right angle - hypotenuse - side

Homework - In quadrilateral ABCD
AC = AD and AB bisects ∠A.
Show that △ABC ≅ △ABD



अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - In quadrilateral ABCD, AC = AD. Show that $\triangle ABC \cong \triangle ABD$. Also, AB bisects $\angle A$.  	students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 10

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Quadrilaterals

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Quadrilateral basic

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Types of quadrilaterals 2] Theorems on quadrilaterals	*] Students are able to understand definition of quadrilateral *] To enable students to know different types of quadrilaterals. *] To enable students to know theorems related to quadrilaterals.
Statement of Aim	- Today, we	are going to

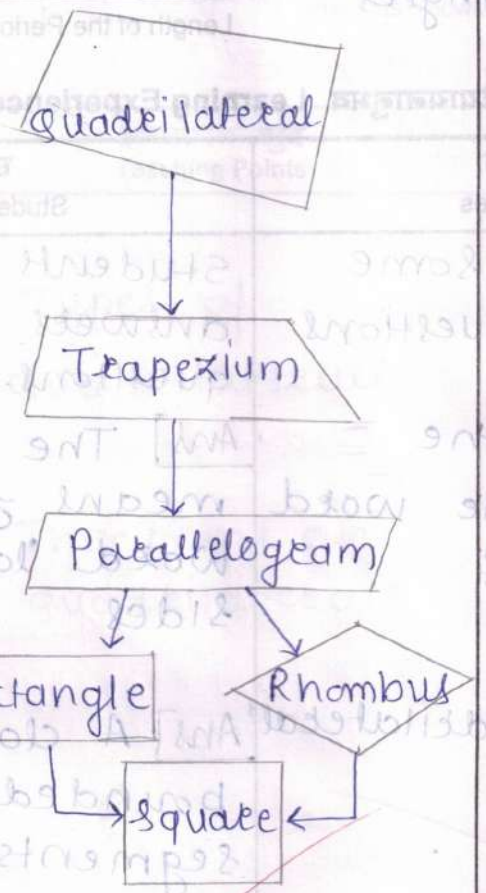
दिनांक Date 20/10/23

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	Students give appropriate answers to the asked questions.
Q.1] What is the meaning of the word quadrilateral?	Ans] The word 'quad' means four and the word 'lateral' means sides.
Q.2] Define 'quadrilateral'	Ans] A closed figure plane bounded by four line segments is called quadrilateral.
Q.3] Give some examples of quadrilaterals	Ans] Square, Rectangle, Rhombus, Kite are some examples of quadrilaterals.
learn about quadrilaterals.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Family of Quadrilaterals  All the different types of quadrilaterals have different properties depending upon their sides, angles and diagonals	1] Knowledge students are able to know the family of quadrilaterals. 2] Understanding students are able to understand the classification of quadrilaterals. 3] Application students are able to use classification to solve various example

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q-1] What is the name of a quadrilateral whose opposite sides are equal and all the angles 90°?	Ans] Rectangle is a quadrilateral whose opposite sides are equal and all angles are 90°
Q-2] What are the special types of parallelogram?	Ans] The special types of the parallelogram are square, Rectangle and Rhombus.
Q-3] A rhombus with right angle will represent which type of quadrilateral?	Ans] A rhombus with right angle will become a square.
Q-4] What is the sum of all the interior angles of a quadrilateral?	Ans] The sum of interior angles of a quadrilateral is 360°

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Theorems - Quadrilaterals 1] A diagonal of a $\parallel^m$ divides it into two congruent triangles. 2] In a $\parallel^m$, opposite sides are equal. 3] If each pair of opposite sides of a quadrilateral is equal, then it is a $\parallel^m$ 4] In a $\parallel^m$, opposite angles are equal 5] If in a quadrilateral each pair of opposite angles is equal, then it is a parallelogram 6] The diagonals of a $\parallel^m$ bisect each other	1] Knowledge - students are able to know various theorems based on quadrilaterals 2] Understanding students are able to understand proofs of all these theorems 3] Application - students are able to apply quadrilateral theorems to solve various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] The three angles of a quadrilateral are 60°, 30° and 110°. What is the fourth angle?	Ans] We know that, $\angle 1 + \angle 2 + \angle 3 + \angle 4 = 360°$ $60° + 30° + 110° + \angle 4 = 360°$ $\angle 4 = 360° - (60° + 30° + 110°)$ $= 100°$ $\therefore$ fourth angle is 100°
Q.2] In which quadrilateral, diagonals are equal and also bisect each other at 90°	Ans] In square, the diagonals are equal and bisect each other at 90°.
Q.3] Find all the angles of a $\|^m$, if one angle is 80°	Ans] In a $\|^m$, opposite angles are equal $\therefore \angle 1 = \angle 3 = 80°$ $\angle 2 = \angle 4 = 100°$
Q.4] Is it possible to draw a quadrilateral whose all angles are obtuse angles.	Ans] To have all obtuse angles, they will be greater than 360°. So, it is not possible for a quadrilateral to have all angles as obtuse angles.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Family of Quadrilaterals → a] Trapezium b] Parallelogram c] Rectangle d] Rhombus e] Square 2] Quadrilaterals - Theorems	*] To revise the topic taught by the teacher. *] To evaluate the topic understood by the students *] To test the knowledge gained by students regarding quadrilaterals

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q1] ABCD is a rhombus, If $\angle ACB = 30°$, then what is the measure of $\angle ADB$?	Ans] Angle $\angle A + \angle B + \angle C + \angle D = 360°$ $\angle C = \angle A = 30°$ let $\angle B = \angle D = x$ $30 + x + 30 + x = 360°$ $2x + 60 = 360°$ $x = 300/2 = 150°$
Q2] If the diagonals of a quadrilateral bisect each other, what is the name of the quadrilateral?	Ans] If the diagonals of a quadrilateral bisect each other, the quadrilateral is parallelogram.
Q3] A quadrilateral with one pair of opposite parallel sides is called?	Ans] A quadrilateral with one pair of opposite parallel sides is called Trapezium.
Q4] What is the name of quadrilateral in which both the diagonals are completely contained within the figure?	Ans] A quadrilateral in which both the diagonals are completely contained within a figure is called convex quadrilatera

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To create interest in the topic taught *] To utilize the free time *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Tuesday
Date - 17/10/23

Class - IX
Sub - Mathematics
Topic - Quadrilaterals

On Roll -
Present -
Absent -

Quadrilateral -

A closed figure plane bounded by four lines segment is called as quadrilateral.

Types of quadrilateral

1] Trapezium
2] Parallelogram
3] Rhombus
4] Rectangle
5] Square

Homework - 1] If the diagonals of a parallelogram are equal, then prove that it is a rectangle.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework- 1) The angles of a quadrilateral are in the ratio 3:5:9:13. Find all the angles of quadrilateral. 2) If the diagonals of a parallelogram are equal, then prove that it is a rectangle.	students write it down and solve in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 11

विषय Subject Mathematics

शाळा School V.L. convent

विषयांश Topic Circles Its parts

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Radius, Diameter

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Parts of circle 2] circles Theorems.	*] To enable students to know various parts of circle *] To develop thinking, reasoning and imagination among students *] To enable students to understand applications of circles.
statement of Aim - Today, we are going		

दिनांक Date: 25/10/23

Theorems

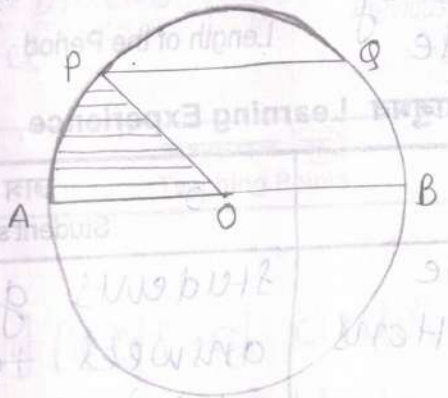
वर्ग Class: IX

Circumference, Area of circle

तासिका अवधी Length of the Period: 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	Students give appropriate answers to the asked questions.
Q1] What is a circle?	Ans] Collection of all points in a plane which are at a fixed distance from centre is called circle.
Q2] What are concentric circles?	Ans] Two or more circles having same centre but different radii are called concentric circles.
Q3] Who invented circle?	Ans] The first theorems relating to circles are attributed to Thales around 650 BC.
to study circles.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Parts of circle  1] center - O 2] Radius - OA, OB 3] Diameter - AB 4] Chord - PQ 5] Sector - AOP 6] minor arc - APQ 7] Major arc - QBA 8] segment - PQ	1] knowledge students are able to know about various parts of a circle and their relationship with each other. 2] understanding students are able to understand parts of circle. 3] Application students are able to apply knowledge of parts of circle to solve various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] If the radius of a circle is 2cm, what is its diameter?	Ans] If the radius of a circle is 2cm, its diameter is 4cm.
Q.2] What is the longest chord of a circle?	Ans] Diameter is the longest chord of a circle.
Q.3] How many lines of symmetry does a circle have?	Ans] A circle has infinite lines of symmetry.
Q.4] What is the circumference of a circle if the radius of the circle is 7cm?	Ans] The circumference of a circle is $2\pi r$ $C = 2 \times \frac{22}{7} \times 7$ $= 44cm$ $\therefore$ circumference of circle is 44 cm.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Circles Theorems- 1] Equal chords of a circle subtend equal angles at the centre 2] The perpendicular from the centre of a circle to a chord bisects the chord. 3] The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle. 4] Angles in the same segment of a circle are equal	1] Knowledge students are able to know about theorems of circle and their proofs with converse. 2] Understanding students are able to understand theorems of circle and their converse. 3] Application students are able to apply knowledge of circles to solve examples

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q-1] What is a cyclic quadrilateral?	Ans] A quadrilateral which has its all four vertices lying on a circle is called cyclic quadrilateral.
Q-2] What is the sum of either pair of opposite angle of a cyclic quadrilateral?	Ans] The sum of either pair of opposite angles of a cyclic quadrilateral is 180°
Q-3] What is the whole arc of a circle called?	Ans] The whole arc of a circle is called circumference of a circle.
Q-4] PS and RS are two chords such that PQ = 10 cm and RS = 24 cm and PQ ∥ RS. The distance between PQ and RS is 17 cm. Find the radius of circle.	Ans] PQ = 10 cm RS = 24 cm The radius of the given circle is 13 cm.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Parts of a circle → a] centre b] Radius c] Diameter d] chord e] sector f] minor arc g] major arc h] segment 2] circle - Theorems	* To revise the topic taught in the class * To evaluate the knowledge gained by students * To test the concepts understood by students regarding circles

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What can you say about angles subtended by equal chords at the centre?	Ans] Equal chords of the ~~sub~~ congruent circles subtend equal angles at the centers.
Q2] If there are two seperate circles drawn apart from each other, how many common points do they have?	Ans] If there are two seperate circles drawn apart from each other, then they have no common points in them.
Q3] What is the measure of the angle subtended by the diameter of a circle?	Ans] The angle subtended by a diameter at the centre is 180°.
Q4] If AB = 12 cm, BC = 16 cm and AB is perpendicular to BC, then the radius of circle passing through points A, B and C is?	Ans] AB = 12 cm BC = 16 cm $AC^2 = BC^2 + AB^2$ $= 12^2 + 16^2 = 144 + 256$ $= 400$ AC = 20 cm ∴ diameter = 20 cm ∴ radius of circle is 10 cm

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To utilize the free time * To create interest in the topic taught * To understand the taught concept properly

फलक सार

Black Board Summary

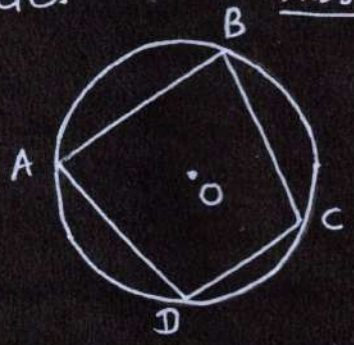
Day - Friday
Date - 20/10/23

Class - IX
Sub - Mathematics
Topic - circles

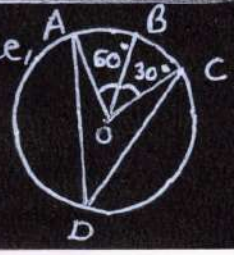
On Roll -
Present -
Absent -

Cyclic quadrilateral

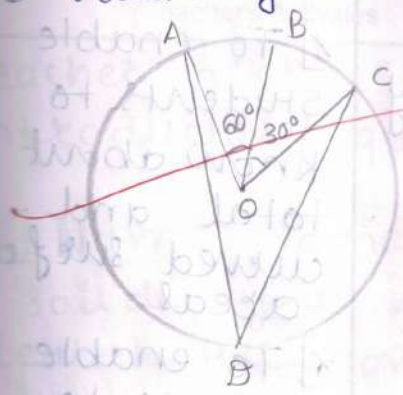
A quadrilateral which has its all four vertices lying on a circle is called cyclic quadrilateral.



Homework - In the given figure, find the value of ∠ADC



अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher gives homework written on the blackboard. Homework- In the given figure, the value of ∠ADC is-  	Students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 12

विषय Subject Mathematics

शाळा School V.L. convent

विषयांश Topic Surface area of

पाठ साहित्य Material Aids chalk, Blackboard, Duster

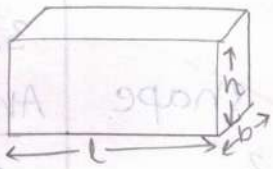
पूर्व ज्ञान Previous Knowledge Area of rectangle

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] surface areas of → a] cube b] cuboid c] cone d] sphere	*] To enable students to know about total and curved surface areas *] To enable students to understand how surface areas are calculated *] To develop thinking, reasoning and imagination among students.
Statement of Aim - Today, we are going to		

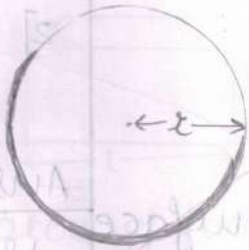
	दिनांक Date 27/10/23
cube, cuboid, cone, sphere	वर्ग Class IX
cube and circle	तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
Q-1] Name some 3D solids you have learnt till now?	Ans] cube, cuboid, cone, sphere, hemisphere and cylinder are some 3D solids.
Q-2] What is the shape of your book?	Ans] our book is cuboid shaped.
Q-3] How do you calculate how much paper you need to cover your textbook?	Ans] we need to find areas of two faces of textbook and one face of the binding side and add them.
learn about surface areas of solids.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Surface area of 1] cube  TSA = 6 × area of each face $= 6 \times (a \times a)$ $= 6a^2$ unit^2 or sq. units TSA of cube $= 6a^2$ 2] cuboid  TSA = 2 × area of face1 + 2 × area of face2 + 2 × area of face3 $= 2 \times lb + 2 \times bh + 2 \times lh$ $= 2(lb + bh + lh)$ sq. units or unit^2 TSA of cuboid $= 2(lb + bh + lh)$	1] Knowledge Students are able to know about surface areas of cube and cuboid 2] Understanding Students are able to understand how surface areas of cube and cuboid are calculated. 3] Application- Students are able to apply surface area formula to solve various example

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q.1] What is surface area?	Ans] The space occupied by a two diamensional flat surface is called the surface area.
Q.2] How many types of areas surface are there?	Ans] There are two types of surface areas 1] Total surface area 2] curved surface area
Q.3] How do you calculate total surface areas of a cube?	Ans] The side of a cube is a units. So its total surface area is equal to $6a^2$ unit^2
Q.4] How do you calculate total surface area of cuboid?	Ans] A cuboid has length, breadth and height. So, its total surface area is $2(lb + bh + lh)$ unit^2

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Surface area of 1] Cone  TSA = Area of curved surface + area of base $= \frac{1}{2} \times l \times 2\pi r + \pi r^2$ $= \pi r l + \pi r^2$ $= \pi r (l + r)$ 2] Sphere  TSA = 4 × area of a circle with radius r $= 4 \times \pi r^2$ $= 4\pi r^2$ TSA $= 4\pi r^2$	1] Knowledge - students are able to know about surface area of cone and sphere 2] Understanding students are able to understand how surface areas of cone and sphere are calculated. 3] Application - students are able to apply surface area formulas to solve examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q.1] Calculate total surface area of a cube having side 5cm.	Ans] TSA of cube $= 6a^2$ $= 6 \times 5 \times 5$ $= 6 \times 25$ $= 150\ cm^2$ ∴ Total surface area of cube is $150\ cm^2$
Q.2] Calculate total surface area of a cuboid whose length is 2cm, breadth is 1cm and height is 3cm.	Ans] TSA of cuboid $= 2(lb+bh+lh)$ $= 2(2\times1 + 1\times3 + 2\times3)$ $= 2(2+3+6) = 2 \times 11$ $= 22\ cm^2$ ∴ Total surface area of cuboid is $22\ cm^2$
Q.3] How do you calculate total surface areas of cone?	Ans] For a cone having radius 'r' and slanting height 'l', total surface area is calculated by formula $\pi r(l+r)$
Q.4] How do you calculate total surface area of a sphere?	Ans] For a sphere having radius r, total surface area is calculated by formula $4\pi r^2$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	Surface areas of 1] cube- $6a^2$ 2] cuboid $2(lb+bh+lh)$ 3] cone- $=\pi r(l+r)$ 4] sphere $4\pi r^2$	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by the students. *] To test the concepts understood by the students regarding surface areas of cube, cuboid cone, sphere.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher asks some introductory questions.	Students give appropriate answers to the asked questions.
Q1] Find the total surface area of a cone whose slant height is 10 cm and base radius is 7 cm.	Ans] TSA of cone $= \pi r(l+r)$ $= \frac{22}{7} \times 7 \times (10+7)$ $= 22 \times 17 = 374\ cm^2$ ∴ Total surface area of the given cone is $374\ cm^2$
Q2] Find the surface area of a sphere of radius 7 cm.	Ans] TSA of sphere $= 4\pi r^2$ $= 4 \times \frac{22}{7} \times 7 \times 7$ $= 4 \times 22 \times 7 = 88 \times 7 = 616\ cm^2$ Total surface area of the given sphere is $616\ cm^2$
Q3] Find the total surface area of a cuboid having equal length, breadth & height.	Ans] let length, breadth and height of the given cuboid be x cm $TSA = 2(x^2+x^2+x^2) = 2 \times 3x^2$ $= 6x^2$ unit^2
Q4] What is the total surface area of a hemisphere?	Ans] Total surface area of a sphere is $4\pi r^2$ ∴ For a hemisphere it is $2\pi r^2$ Adding base area to it πr^2 ∴ TSA of hemisphere $= 2\pi r^2 + \pi r^2$ $= 3\pi r^2$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create interest in the topic taught *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Wednesday
Date - 25/10/23

Class - IX
Sub - Mathematics
Topic - surface Areas of solids

On Roll -
Present -
Absent -

Total surface areas of solids -

1] Cube - $6a^2$

2] Cuboid - $2(lb+bh+lh)$

3] Cone - $\pi r(l+r)$

4] sphere - $4\pi r^2$

Homework - 1] Find the total surface area of a cone whose slant height is 5 cm and base radius is 7 cm

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher gives homework written on the blackboard. Homework- Q.1] Find total surface area of a cone whose slant height is 5 cm and base radius is 7 cm. Q.2] Find the surface area of a hemisphere of radius 7 cm.	Students write it down and solve in their notebooks.

INTRODUCTION

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 13

विषय Subject Mathematics

शाळा School V. L. convent

विषयांश Topic Volume of cube,

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Volume, capacity

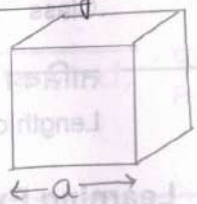
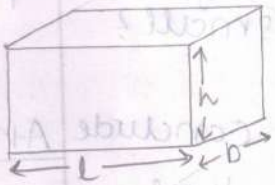
पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	volume of 1] cube 2] cuboid 3] cone 4] sphere	*] To enable students to know about volume of solids *] To enable students to understand volume *] To develop thinking, reasoning and imagination among students.

Statement of Aim - Today, we are going

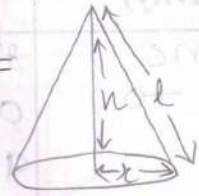
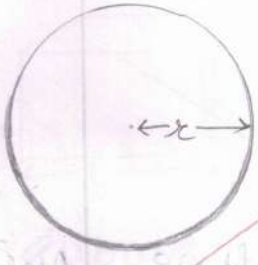
	दिनांक Date 31/10/23
cuid, cone and sphere	वर्ग Class IX th
containers	तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
The teacher asks some introductory questions.	students give appropriate answers to the asked questions.
Q-1] If you go to buy a juice bottle, which bottle do you prefer big or small?	Ans] We do prefer big bottle of juice, because it contains more juice
Q-2] How do you conclude that big bottle has more juice?	Ans] We prefer big bottle of juice because big bottle has more volume.
Q-3] What is volume in your words?	Ans] Volume is the amount of space occupied by any three-diamensional solid.
to learn about volume of 3D shapes	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Volume of 1] cube  Volume of cube = side × side × side = a × a × a = a^3 cu. units or unit^3 2] cuboid  Volume of cuboid = length × breadth × height = l × b × h cu units or unit^3	1] Knowledge - students are able to know about volumes of cube and cuboid 2] Understanding students are able to understand how formulas of volume of cube and cuboid are derived. 3] Application - students are able to apply formulas of volume to solve various examples

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q1] Find the volume of a cuboid whose length = 5cm, width = 2cm and height = 3cm.	Ans] $l = 5cm$; $b = 2cm$; $h = 3cm$ Volume of cuboid $= l \times b \times h$ $= 5 \times 2 \times 3 = 30$ cu.cm. ∴ volume of the given cuboid is 30 cu.cm.
Q2] Find the volume of a cube whose side is 10 cm.	Ans] $a = 10cm$. volume of a cube $= a \times a \times a$ $= 10 \times 10 \times 10$ $= 1000$ cu.cm. ∴ volume of the given cube is 1000 cu.cm
Q3] How do we define volume of cuboid?	Ans] volume of cuboid is the amount of space occupied by the walls of cuboid in a 3D space.
Q4] Does the order of cuboid matters to calculate the volume?	Ans] No, the order of cuboid does not matter if it is kept vertically or horizontally. The volume of the shape remains same.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Volume of 3] Cone  For a cone with perpendicular height h and base radius r. Volume of cone $= \frac{1}{3}\pi r^2 h$ cu-units or $unit^3$	1] Knowledge - students are able to know about volume of cone and sphere.
	4] Sphere  For a sphere with radius r; volume of sphere $= \frac{4}{3}\pi r^3$ cu-units or $unit^3$	2] Understanding students are able to understand formula of volume of cone and sphere 3] Application students are able to apply formulas of volume to solve various examples

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q-1] Find the volume of a sphere of radius 11.2 cm.	Ans] $r = 11.2\,cm$ volume of sphere $= \frac{4}{3}\pi r^3$ $= \frac{4}{3} \times \frac{22}{7} \times 11.2 \times 11.2 \times 11.2$ $= 5887.32\,cm^3$ $\therefore$ volume of given sphere is $5887.32\,cm^3$
Q-2] What is volume of a semisphere?	Ans] volume of a semisphere is half of the volume of a sphere. $\therefore$ volume of semisphere $= \frac{2}{3}\pi r^3$
Q-3] Find the volume of a cone whose radius is 6 cm and height is 7 cm.	Ans] volume of the given cone $= \frac{1}{3}\pi r^2 h$ $= \frac{1}{3} \times \frac{22}{7} \times 6 \times 6 \times 7$ $= 264\,cm^3$
Q-4] The height and the slant height of a cone are 21 cm and 28 cm. Find the volume of the cone.	Ans] $l = 28\,cm$ $h = 21\,cm$ $r = \sqrt{l^2 - h^2} = \sqrt{28^2 - 21^2}$ $= 7\sqrt{7}\,cm$ $\therefore$ volume of cone $= \frac{1}{3}\pi r^2 h$ $= \frac{1}{3} \times \frac{22}{7} \times 7\sqrt{7} \times 7\sqrt{7} \times 21$ $= 7546\,cm^3$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	Volume of 1] cube a^3 2] cuboid $l \times b \times h$ 3] Cone $\frac{1}{3}\pi r^2 h$ 4] sphere $\frac{4}{3}\pi r^3$	*] To revise the topic taught in the class *] To evaluate the knowledge gained by students. *] To test the concept understood by the students regarding volume of 3D shapes.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] If two cubes of side 6 cm are joined face to face, then find the volume of the resulting cuboid.	Ans] If we join two cubes $l = 6+6 = 12$ cm; $b = 6$ cm and $h = 6$ cm $\therefore$ volume of resulting cuboid $= l \times b \times h = 12 \times 6 \times 6 = 432 \text{ cm}^3$
Q2] Find the ratio of the total surface area and lateral surface area of a cube.	Ans] TSA of cube $= 6 \text{ side}^2$ LSA of cube $= 4 \text{ side}^2$ Ratio $= \frac{6 \text{ side}^2}{4 \text{ side}^2} = \frac{3}{2}$ 3:2
Q3] Find the volume of a cone whose radius is 3.5 cm and height is 12 cm.	Ans] volume of cone $= \frac{1}{3}\pi r^2 h$ $= \frac{1}{3} \times \frac{22}{7} \times 3.5 \times 3.5 \times 12$ $= 154 \text{ cm}^3$
Q4] A hemispherical bowl has a radius of 3.5 cm. How much volume of water it would contain?	Ans] volume of hemispherical bowl $= \frac{2}{3}\pi r^3$ $= \frac{2}{3} \times \frac{22}{7} \times 3.5 \times 3.5 \times 3.5$ $= 89.8 \text{ cm}^3$ $\therefore$ volume of the given bowl is 89.8 cm^3

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create the interest in the topic taught. *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Friday
Date - 27/10/23

Class - IX
Sub - Mathematics
Topic - Volume of solids

on roll -
Present -
Absent -

Volumes of solids

1] Cube $= a^3$

2] Cuboid $= l \times b \times h$

3] sphere $= \frac{4}{3}\pi r^3$

4] hemisphere $= \frac{2}{3}\pi r^3$

5] cylinder $= \pi r^2 h$

6] cone $= \frac{1}{3}\pi r^2 h$

Homework - Find the volume of a sphere whose radius is i] 7 cm ii] 0.63 m

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
gives homework on blackboard homework - The height of a cone is [illegible] its volume is [illegible] find the diameter [illegible] the volume [illegible] sphere whose [illegible] is - ii] 0.63 m.	students write it down and solve in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 14

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Square and square

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Multiplication

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] square 2] square roots	*] To enable students to know about square and square roots. *] To enable students to understand practical applications of square and square roots *] To develop thinking, reasoning and imagination among students

Statement of Aim - Today, we are going to

दिनांक
Date 20/11/23

वर्ग VIIth
Class

तासिका अवधी 35 mins
Length of the Period

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions
Q1] How do you calculate area of a square?	Ans] Area of square is side × side where side means the length of a side.
Q2] What is the square of 10?	Ans] The square of 10 is 10 × 10 = 100.
Q3] What is the square root of 100?	Ans] 100 can be expressed as product of 10 × 10. So, square root of 100 is 10.
study about square and square roots	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Square If a natural number m can be expressed as n^2 where n is also a natural numbe, then m is a square number.	1] knowledge - students are able to know about square numbers.

Number	Square
1	1
2	4
3	9
4	16
5	25
6	36
7	49
8	64
9	81
10	100
11	121
12	144
13	169
14	196
15	225

2] Understanding students are able to understand how squares are calculated

3] Application - students are able to apply calculation of squares to real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] What is a square of a number?	Ans] A square is a number that is obtained by multiplying a number by itself.
Q2] Give some examples of squares.	Ans] The squares of 1, 2 and 3 are 1, 4 and 9 respectively.
Q3] What are triangular numbers?	Ans] Triangular numbers are the numbers whose dot patterns can be arranged as triangles.
Q4] Find the square of 23 without actual multiplication.	Ans] $23 = 20+3$ $23^2 = (20+3)^2$ $= 20^2 + 2 \times 20 \times 3 + 3^2$ $= 400 + 120 + 9$ $= 529$ $\therefore$ square of 23 is 529.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Square Roots - square root is an inverse operation of square. Positive square root of a number is denoted by the symbol $\sqrt{}$.	1] knowledge - students are able to know about square roots.

Number	square root
1	$\sqrt{1} = 1$
4	$\sqrt{4} = 2$
9	$\sqrt{9} = 3$
16	$\sqrt{16} = 4$
25	$\sqrt{25} = 5$
36	$\sqrt{36} = 6$
49	$\sqrt{49} = 7$
64	$\sqrt{64} = 8$
81	$\sqrt{81} = 9$
100	$\sqrt{100} = 10$
121	$\sqrt{121} = 11$
144	$\sqrt{144} = 12$
169	$\sqrt{169} = 13$

2] Understanding students are able to understand to calculate square roots

3] Application students are able to apply the learned concept in real life situations.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions.
Q1] What is a square root?	Ans] A square root is the inverse operation of squaring. It is the number that when multiplied by it self gives the original number
Q2] Give some examples of square roots.	Ans] Some common examples of square roots are $\sqrt{1}=1$, $\sqrt{4}=2$; $\sqrt{9}=3$ and $\sqrt{16}=4$
Q3] Find the least number that must be subtracted from 5607 to get a perfect square	Ans] 74^2 is less than 5607 by 131. so, $5607-131=5476$ $\sqrt{5476}=74$ $\therefore$ 131 should be subtracted
Q4] Find the square root of by prime factorisation.	Ans] 2 | 64, 2 | 32, 2 | 16, 2 | 8, 2 | 4, 2 | 2, | 1 $64 = 2\times2\times2\times2\times2\times2$ $\sqrt{64} = 2\times2\times2 = 8$ $\therefore$ 8 is the square root of 64.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Square 2] Square roots 3] Triangular numbers 4] Pythagorean triplet 5] Prime factorisation 6] Applications of square and square roots	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the concept understood by the students regarding square and square roots

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.2 What are practical applications of squares?	Ans] The practical applications of squares are measuring area and calculating distances.
Q.3 What are the practical applications of square roots?	Ans] The practical applications of square roots are calculating side lengths of squares and finding distances.
Q.3 Square numbers end with which digits?	Ans] All square numbers can only have 0, 1, 4, 5, 6, 9 at its unit places.
Q.4 What is a pythagorean triplet?	Ans] For any natural number m, if $(2m)^2 + (m^2-1)^2 = (m^2+1)^2$ so, 2m, m^2-1 and m+1 forms a pythagorean triplet. for ex - 6, 8 and 10 is a pythagorean triplet.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create interest in the topic taught. *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Tuesday
Date - 31/10/23

Class - IX
Sub - Mathematics
Topic - Square and square roots

On roll -
Present -
Absent -

Squares

1	1
2	4
3	9
4	16

5	25
6	36
7	49
8	64

2	100
2	50
5	25
5	5
	1

$\sqrt{100} = 2 \times 5 = 10$

$100 = 2 \times 2 \times 5 \times 5$

Homework - Area of a square plot is 2304 m^2. Find the side of square plot.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework on blackboard Homework - Area of a square is 2304 m^2. Find the side of square plot. What will be the unit digit of the squares of the following numbers. i) 272 ii) 799	Students write it down and solve it in their notebook.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 15

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Cube and cube

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Multiplication

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Cube 2] Cube Roots	*] To develop twinking, reason and imagination among students *] To enable students to understand the concept of cube and cube root *] To enable students to know about applications of cube and cube root
Statement of Aim- Today, we are going to		

दिनांक Date 22/11/23

वर्ग Class VIIIth

तालिका अवधी Length of the Period 35 mins

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
Q-1] What is volume of a cube of side a units?	Ans] Volume of a cube is a^3 unit^3. or cu. units.
Q-2] What is the cube of 4^2.	Ans] The cube of 4 is $4 \times 4 \times 4 = 64$
Q-3] What is the cube root of 64?	Ans] The cube root of 64 is $4^3 = 64$ ie. 4.
study about cube and	cube roots

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Cubes A perfect cube or cube number is obtained when a number is multiplied by taking it three times.	1] Knowledge students are able to know about cubes of the numbers.

Number	cube
1	1
2	8
3	27
4	64
5	125
6	216
7	343
8	512
9	729
10	1000
11	1331
12	1728
13	2179
14	2744

2] Understanding
students are able to understand how cubes of numbers are calculated.

3] Application
students are able to apply knowledge of cubes to solve problems in real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What is cube of a number?	Ans] The cube of a number is the number raised to the power of three.
Q2] Give an example of cube of a number?	Ans] The cube of 2 is $2 \times 2 \times 2 = 8$
Q3] What are the cubes of odd numbers and cubes of negative numbers?	Ans] The cubes of odd numbers is odd and cubes of negative numbers is negative.
Q4] Find the cubes of a] 3 b] 5 c] -2	Ans] The cubes of given numbers are a] $3^3 = 3 \times 3 \times 3 = 27$ b] $5^3 = 5 \times 5 \times 5 = 125$ c] $(-2)^3 = -2 \times -2 \times -2 = -8$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Cube Roots Cube root is the inverse operation of finding cube. The symbol $\sqrt[3]{\ }$ denotes cube root	1] Knowledge Students are able to know about cube roots of the numbers.

Numbers	Cube Roots
1	$\sqrt[3]{1} = 1$
8	$\sqrt[3]{8} = 2$
27	$\sqrt[3]{27} = 3$
64	$\sqrt[3]{64} = 4$
125	$\sqrt[3]{125} = 5$
216	$\sqrt[3]{216} = 6$
343	$\sqrt[3]{343} = 7$
512	$\sqrt[3]{512} = 8$
729	$\sqrt[3]{729} = 9$
1000	$\sqrt[3]{1000} = 10$

2] Understanding
Students are able to understand how cube roots of numbers are calculated.

3] Application
Students are able to apply knowledge of cube roots to solve problems in daily life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What is cube root of a number?	Ans] The cube root of a number is the number that when cubed gives the original numbe
Q2] Give an example of cube root.	Ans] The cube root of 8 is 2 because $2 \times 2 \times 2 = 8$
Q3] Which is the method to find cube root of a number?	Ans] The cube root of a number can be found out by factorization and method of estimation.
Q4] Find the cube root of 125 by prime factorisation.	Ans] $\begin{array}{c\|c} 5 & 125 \\ \hline 5 & 25 \\ \hline 5 & 5 \\ \hline & 1 \end{array}$ $125 = 5 \times 5 \times 5$ $\sqrt[3]{125} = 5$. 5 is the cube root of 125

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] cubes 2] cube roots 3] Factorisation 4] Estimation	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students *] To test the concepts understood by the students regarding cube and cube roots

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What is the real life application of cube?	Ans] Cutting a vegetable into square sided shapes or in the shape of dice.
Q2] What is a cube?	Ans] In terms of geometry, a cube is a three-dimensional square cut from something.
Q3] What is the real life application of cube roots?	Ans] Cube roots are used in carpentry, engineering, designing buildings, flooring and technology
Q4] Is 243 a perfect cube?	Ans] $243 = \underline{3\times3\times3}\times3\times3$ In the above factorisation 3×3 remains ungrouped in the triplets. $\therefore$ 243 is not a perfect cube.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time *] To create interest in the topic taught *] To understand the taught concept properly

फलक सार

Black Board Summary

Day - Wednesday
Date - 22/11/23

Class - IX
Sub - Mathematics
Topic - Cube and cube roots

On roll -
Present -
Absent -

1	1
2	8
3	27
4	64
5	125

6 -	216
7	343
8	512
9	729
10	1000

$\sqrt[3]{1000} = 10$

2	1000
2	500
2	250
5	125
5	25
5	5
	1

Homework - Ketaki makes a cuboid of sides 5 cm, 2 cm, 5 cm. How many such cuboids will she need to form a cube?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher gives homework written on blackboard Homework - 1] Ketaki makes a cuboid of sides 5 cm, 2 cm, 5 cm. How many such cuboids will she need to form a cube? 2] Which of the following are perfect cubes? i] 400 ii] 9000	students write it down and solve it in their notebooks.

अभिप्राय (Remarks)

INTRODUCTION

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 16

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Direct and Inverse

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Multiplication, Di

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Direct Proportions.	*] To develop thinking, reasoning and imagination among students.
	2] Inverse Proportions	*] To enable students to understand direct and inverse proportio
		*] To enable students to know about practical applications of proportions.
statement of Aim - Today, we are going to		

दिनांक Date 24/11/23

वर्ग Class VIII th

तासिका अवधी Length of the Period 35 mins

Proportions and formation of ratios.

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	Students give appropriate answers to the asked questions
Q1] If you park your car at a parking where parking charges are ₹60 per hour. How much will you pay for two hours?	Ans] The charges of parking are ₹ 60 for one hour so, for two hours, charges will be 60×2=₹120
Q2] If you buy a pen, how can you explain the costing?	Ans] If we buy more pens, we need more money.
Q3] How can you explain number of workers and number of days?	Ans] The more number of workers will require less number of days to complete the work
Study about Direct and	Inverse Proportions.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Direct Proportion When the relationship between two quantities is such that if we increase one, the other will also increase and if we decrease one, the other quantity will also decrease. Example - The number of food items bought is directly proportional to the total money spent. Formula If $y \propto x$ $y = kx$ for a constant k	1] Knowledge - Students are able to know about direct proportion 2] Understanding students are able to understand how direct proportions are calculated 3] Application students are able to apply formulas of direct proportion to various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions about the topic.	Students give appropriate answers to the asked questions.
Q1] Explain direct proportion in terms of x and y.	Ans] In direct proportion, y increases as x increases and y decreases as x decreases.
Q2] If a man earns ₹ 805 per week, how much will he earn in 16 days.	Ans] 1 week = 7 days income per day $= \frac{805}{7}$ = ₹ 115 ∴ Income in 16 days $= 115 \times 16 =$ ₹ 1840
Q3] If two cardboard boxes occupy 500 cm^3 of space, then find the space occupied by one cardboard box?	Ans] 2 boxes occupy 500 cm^3 of space ∴ space for one box $= 500/2 = 250\ cm^3$
Q4] How the graph of direct proportion is denoted?	Ans] The graph of direct proportion is a straight line with an upward slope.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	Inverse Proportions When two quantities are related to each other inversely i.e. when an increase in one quantity brings a decrease in other and vice versa then they are said to be in inverse proportion. Example - More number of workers will complete the given work in less number of days. Formula $y \propto \frac{1}{x}$ $y = k \times \frac{1}{x}$ $y = \frac{k}{x}$ for a constant k.	1] Knowledge - students are able to know about inverse proportion. 2] Understanding students are able to understand how inverse proportions are calculated 3] Application - students are able to apply formulas of inverse proportion to solve various examples

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] Explain inverse proportion in terms of x and y	Ans] In inverse proportion y decreases as x increases and y increases as x decreases.
Q2] Suppose x and y are in inverse proportion. If $y = 12$ then $x = 4$. Find the value of y when $x = 8$.	Ans] $x \propto 1/y \Rightarrow x = \frac{k}{y}$ $4 = \frac{k}{12} \Rightarrow k = 48$ also $8 = \frac{48}{y} \Rightarrow y = 48/8$ $y = 6$.
Q3] If 35 men can do a work in 8 days, in how many days can 20 men complete the same work?	Ans] 1 man can do the work in 35×8 days $\therefore$ for 20 men $\frac{35 \times 8}{20}$ $= 14$ days will be required.
Q4] How the graph of Inverse proportion is denoted?	Ans] The graph of inverse proportion is usually a curve that bends towards the origin forming a shape of hyperbola.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	1] Direct proportion - Definition - Example - Formula 2] Inverse proportion - Definition - Example - Formula	* To revise the topic taught in the class * To evaluate the knowledge gained by students. * To test the concept understood by the students regarding direct and inverse proportion.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] Find the value of x if a and b are in inverse proportion a: 12, x b: 30, 5	Ans] $a = \frac{k}{b} \Rightarrow k = ab$ $k = 12 \times 30 = 360$ $x = \frac{360}{5} = 72$
Q2] If P is directly proportional to Q^2, then find a formula for P in terms of Q.	Ans] As P is directly proportional to Q^2. $P \propto Q^2$ $P = kQ^2$ is the formula required.
Q3] Give an example of direct proportion.	Ans] The cost of a banana is 70p. As the number of bananas increases, so does the cost increases.
Q4] Give an example of inverse proportion.	Ans] It takes 1 worker 9 hours to dig a hole. As the number of workers increases, the number of hours to dig the same hole decreases.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
HOMEWORK		*] To revise the topic taught *] To utilize free the time *] To create interest in the topic taught

फलक सार

Black Board Summary

Day - Friday
Date - 24/11/23

Class - IX
Sub - Mathematics
Topic - Direct and Inverse Proportions

On Roll -
Present -
Absent -

Direct proportion	Inverse Proportion
$y \propto x$	$y \propto 1/x$
$y = kx$	$y = k/x$
where k is constant	where k is constant

Homework - An electric pole 14 m casts a shadow of 10 m. Find the height of a tree that casts a shadow of 15 m under same situation.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the board.	students write it down and solve in their notebooks.
Homework - An electric pole, 14 m cast a shadow 10 m. Find the height of a tree that casts a shadow of 15 m under similar situations.	

INTRODUCTION

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 17

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Comparing Quan

पाठ साहित्य Material Aids Chalk, Blackboard, Duster

पूर्व ज्ञान Previous Knowledge Ratios, Percentag

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reason and imagination among students *] To enable students to understand quantities *] To enable students to know about how different quantities are compared.
statement of Aim - Today, we are going		

दिनांक Date 25/11/23

वर्ग Class VIII th

तासिका अवधी Length of the Period 35 mins

ary method

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	Students give appropriate answers to the asked questions.
Q1] What is the use of ratios?	Ans] Ratios are very commonly used for comparing two or more quantities.
Q2] If in a picnic, 60% of the total number of students are girls. Find the number of girls if total students are 18.	Ans] let x be 60% of girls $\frac{60}{100} \times x = 18$ $x = \frac{18 \times 100}{60} = 30$ students.
Q3] If in a class, there are 18 girls and 12 boys, find the ratio of girls to boys.	Ans] The number of girls is 18 and those of boys is 12. Their ratio is 18/12 3:2 read as 3 is to 2.

to study about comparing quantities

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Ratio and Percentages A basket has two types of fruits, say 20 apples and 5 oranges. Then the ratio of number of oranges to apples is $\boxed{5:20 \text{ or } 1:4}$ There are 5 oranges out of 25 fruits % of oranges $= \frac{5}{25} \times 100 = 20\%$ $\boxed{\% \text{ of oranges} = 20\%}$ similarly, $\boxed{\% \text{ of apples} = 80\%}$	1] knowledge students are able to know about ratio and percentages 2] Understanding students are able to understand how ratios and percentages are calculated 3] Application students are able to apply

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] Find the ratio of 50 paise to ₹5.	Ans] Since ₹1 = 100 p $\frac{50p}{₹5} = \frac{50}{5\times100} = \frac{50}{500} = \frac{1}{10}$ ∴ The required ratio is 1:10
Q2] 72% of 25 students are interested in maths. How many are not interested in maths?	Ans] % of students who are not good in maths = 100 − 72 = 28% ∴ number of these students $\frac{28}{100} \times 25 = 7$ ∴ 7 students are not good in maths
Q3] Find the ratio of 5 m to 10 km.	Ans] Since 10 km = 10000 m, $\therefore \frac{5}{10000} = \frac{1}{2000}$ ∴ The required ratio is 1:2000
Q4] Convert the ratio 3:4 to percentage.	Ans] $\frac{3}{4} \times 100$ $= 3 \times 25 = 75\%$ ∴ The required percentage is 75%

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Discount Discount is the reduction given on the marked price (MP) of the article. $\boxed{\text{Discount} = MP - SP}$ Profit $SP - CP = \text{Profit}$ $\boxed{\% \text{ Profit} = \frac{\text{Profit}}{CP} \times 100}$ Loss $\text{Loss} = CP - SP$ $\boxed{\% \text{ loss} = \frac{\text{loss}}{CP} \times 100}$	1] Knowledge students are able to know about discount, profit and loss values 2] Understanding students are able to understand about calculation of discount, profit and loss 3] Application students are able to apply formulas of profit and in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] An item marked at ₹ 840 is sold for ₹ 714. What is the discount and % discount?	Ans] Discount $= MP - SP$ $= 840 - 714$ $= ₹126$ $\therefore$ % discount $= \frac{126}{840} \times 100$ $= 15\%$
Q2] Your bill in a shop is ₹ 580 and the shopkeeper gives 15% discount. What is the amount to be paid?	Ans] 15% of 580 $= \frac{15}{100} \times 580$ $= ₹87$ $\therefore 580 - 87 = ₹493$ $\therefore$ ₹ 493 is the bill to be paid
Q3] By selling 100 books, a shopkeeper gains the SP of 20 books. What is his gain percentage?	Ans] let SP of one book be ₹1 and SP of 100 books be ₹100 gain = SP of 20 books = ₹20 $CP = SP - gain = 100 - 20$ $= ₹80$ gain % $= \frac{20}{80} \times 100 = 25\%$
Q4] What is overhead expense?	Ans] Additional expenses on transportation, rent, repair are included in the original CP. CP = original price + overhead expenses.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Ratio and percentages 2] Discount 3] Profit 4] Loss	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the concept understood by the students regarding comparing quantities.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] Find the ratio of speed of cycle 15 kmph to the speed of a scooter 30 kmph.	Ans] Ratio of speed of cycle to the speed of scooter $= \frac{15}{30} = \frac{1}{2} = 1:2$ ∴ The required ratio is 1:2
Q2] If the marked price of a book is ₹ 50 and ₹ 10 discount is given. What is % discount?	Ans] Discount % $= \frac{10}{50} \times 100$ $= 20\%$ ∴ Percentage discount is 20%
Q3] If CP of a fridge is ₹ 10,500 and SP is ₹ 11,500, then find the profit.	Ans] CP = ₹ 10,500 SP = ₹ 11,500 Profit = 11500 − 10500 = ₹ 1000 ∴ The required profit is ₹ 1000
Q4] A student bought a bag for ₹ 350 and sold it for ₹ 400. Find the profit %.	Ans] CP = ₹ 350 SP = ₹ 400 profit = 400 − 350 = ₹ 50 % profit $= \frac{50}{350} \times 100$ $= 14.28\%$ ∴ The percentage profit is 14.28%

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To revise the topic taught *] To utilize the free time *] To create interest in the topic taught

फलक सार

Black Board Summary

Date - 25/11/23 Class - IX On roll -
Day - Friday Sub - Mathematics Present -
Topic - Comparing quantities absent -

Discount = MP - SP
MP -- marked price
SP --- selling price
CP --- cost price

% profit = $\frac{\text{Profit}}{\text{CP}} \times 100$

% loss = $\frac{\text{loss}}{\text{CP}} \times 100$

Homework - 1] Convert the ratio 2:3 to %
2] A shopkeeper bought two TV sets at ₹[illegible] each. He sold one at a profit of 10% and [illegible] at a loss of 10%. Find overall profit or loss.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework- Convert the ratio 2:3 to percentage. A shopkeeper bought TV sets at ₹ 10000 each. He sold one at a profit 10% and other at a loss of 10%. Find overall profit or loss.	Students write it down and solve it in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 18

विषय Subject Mathematics

शाळा School V.L. convent

विषयांश Topic Linear Equation in

पाठ साहित्य Material Aids Chalk, Duster, Blackboard

पूर्व ज्ञान Previous Knowledge Equalities, expr

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	1] Linear equation in one variable 2] Solution of linear equation in one variable	*] To develop thinking, reasoning and imagination among students. *] To enable students to understand variables and their use *] To enable students to know about linear equation in one variable
Statement of Aim - Today, we are going to		

दिनांक Date 21/12/23

Variable

वर्ग Class VIII th

Variables

तासिका अवधी Length of the Period 35 mins

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give appropriate answers to the asked questions.
Q1] Let the cost of a pen be ₹x. Cost of a book is equal to two pens. How will you form equation?	Ans] cost of one pen = ₹x cost of a book = 2 × cost of pen = 2 × x = 2x
Q2] Age of mother is two times her child. How will you form equation?	Ans] Let age of the child = y years Age of mother = 2 × age of child = 2y
Q3] I have some candies. I gave you two candies. Represent this in the equation.	Ans] Let I have x candies ∴ The equation for this relationship is x − 2

Study about Linear Equation in one variable.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Linear Equation in one variable An equation which is expressed in the form of $ax+b=0$ where, a and b are two integers and x is a variable. It has only one solution. Examples- 1] $3x=1$ 2] $22x-1=0$ 3] $4x+9=0$ standard form- $\boxed{ax+b=0}$	1] Knowledge students are able to know about parts of linear equation and its standard form 2] Understanding students are able to understand how equations are formed 3] Application students are able to apply knowledge to solve in real situations

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] How many solutions does a linear equation in one variable have?	Ans] Every linear equation in one variable has one and unique solution.
Q.2] What is the formula of linear equation in one variable?	Ans] The formula of the standard form of an equation having only one variable is given as $ax + b = 0$.
Q.3] Form a linear equation. Sum of two numbers is 95. If one exceeds the other by 15.	Ans] let one number be x. Then the other number becomes $x + 15$. According to the question, $x + x + 15 = 95$ $2x + 15 = 95$
Q.4] Three consecutive integers add up to 51. What are these integers?	Ans] let consecutive integers be $x, x+1, x+2$ According to the question, $x + x + 1 + x + 2 = 51$ $3x + 3 = 51$ $3x = 51 - 3$ $3x = 48$ $\boxed{x = 16}$ 16, 17, 18 are the numbers

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Solving Linear Equation in one variable For solving an equation in one variable, following steps are followed. 1] Using LCM, clear the fractions if any 2] simplify both sides of the equation 3] Isolate the variable 4] verify your answer Ex → $5x - 9 = -3x + 19$ $5x + 3x = 19 + 9$ $8x = 28$ $x = 28/8$ $x = 14/4$ $\boxed{x = 7/2}$	1] Knowledge Students are able to know how linear equations in one variable are solved. 2] Understanding students are able to understand solutions of linear equation in one variable. 3] Application students are able to apply knowledge to solve problems in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions
1] solve : $2x - 4 = 0$	Ans] $2x - 4 = 0$ $2x = 4$ $x = 4/2$ $\boxed{x = 2}$
2] solve : $\frac{x}{5} = 10$	Ans] $\frac{x}{5} = 10$ $x = 10 \times 5$ $\boxed{x = 50}$
3] solve $\frac{5x}{3} + \frac{2}{5} = 1$ $15 \times \frac{5x}{3} + 15 \times \frac{2}{5} = 15$ $25x + 6 = 15$	Ans] LCM of 3 and 5 is 15 $25x + 6 = 15$ $25x = 15 - 6$ $25x = 9$ $\boxed{x = \frac{9}{25}}$
4] What are applications of Linear equations in real life?	Ans] 1] Finding unknown age 2] Finding unknown angles in geometry 3] For calculation of speed, distance or time 4] solving problems based on force and pressure

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Linear equation in one variable 2] Examples 3] Standard Form 4] Solving Linear Equation in one variable. 5] Steps of solving linear equation in one variable	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by the students. *] To test the concept understood by the students regarding linear equation in one variable

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q1] What is a linear equation?	Ans] A linear equation is an algebraic equation in which each term is either a constant or the product of constant and a variable $ax+b=0$
Q2] What is a linear equation with one variable?	Ans] A linear equation with one variable and degree one is called a linear equation in one variable. $ex - 3x + 5 = 0$
Q3] solve $12m - 10 = 6$	Ans] $12m - 10 = 6$ $12m = 6 + 10$ $12m = 16$ $m = \frac{16}{12}$ $\boxed{m = 4/3}$
Q4] Fifteen years from now Ravi's age will be four times his present age. What is Ravi's present age?	Ans] let x be Ravi's present age $x + 15 = 4x$ $15 = 4x - x$ $15 = 3x$ $x = 15/3$ $x = 5$ $\therefore$ present age of Ravi is 5 years

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time *] To create interest in the topic taught. *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Thursday
Date - 21/12/23

Class - IX
Sub - Mathematics
Topic - Linear Equations in one variable

on roll -
Present -
absent -

Linear Equation in one variable

$6x = 12$

$x = \frac{12}{6}$ $\boxed{x = 2}$

$10x = 100$

$x = \frac{100}{10}$

$\boxed{x = 10}$

Homework - 1] Three consecutive integers are such that when they are taken in increasing order and multiplied by 2, 3, 4 respectively add up to 74. Find these numbers.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework - i] Three consecutive integers are such that when they are taken in increasing order and multiplied by 2, 3 and 4 respectively, they add up to 74. Find these numbers.	students write it down and solve it in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 19

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Linear equation

पाठ साहित्य Material Aids Chalk, Blackboard Duster

पूर्व ज्ञान Previous Knowledge Equalities, expre

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among students *] To enable students to understand linear equations in two variables *] To enable students to know about linear equation in two variables

Statement of Aim - Today we are going

Two variables	दिनांक Date 22/12/23
	वर्ग Class IX th
ons, variables.	तासिका अवधी Length of the Period 35 mins

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	Students give appropriate answers to the asked questions.
Q1] Let the cost of pen be x cost of a book be ₹y. cost of a book is equal to two pens. Denote with an equation.	Ans] cost of one pen = ₹x cost of a book = ₹y ∴ Equation $y = 2x \Rightarrow \underline{2x - y = 0}$
Q2] Age of mother is two times of her child. How will you form equation?	Ans] Let age of child = x years Age of mother = y years Equation = $y = 2x \Rightarrow \underline{2x - y = 0}$
Q3] I am thirty years old. You are x years younger than me. Denote the relationship of variables.	Ans] Age of our teacher = 30 years we are x years younger Relationship in equation is $\underline{30 - x}$
→ study Linear Equation in Two variables	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Linear Equations in Two variables An equation is said to be linear equation in two variables if it is written in the form of $ax+by+c=0$ where a, b, c are real numbers and the coefficients of x and y i.e a and b respectively are not equal to zero Examples 1] $3x-6y=-13$ 2] $2x+5y=20$ 3] $3x+6y=12$ Standard Form $\boxed{ax+by+c=0}$	1] knowledge - students are able to know about linear equations in two variables 2] Understanding students are able to understand how linear equations in two variables are derived and solve 3] Application students are able to apply knowledge to solve linear equations in practical ques

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions
Q.1] What are the coefficients of the equation $3x-6y=-13$?	Ans] The coefficent of x is 3 and the coefficient of y is -6.
Q.2] What is the constant of the equation $3x-6y=-13$?	Ans] The constant of the equation $3x-6y=-13$ is -13.
Q.3] How to solve linear equation in two variables?	Ans] For a system of linear equations in two variables, we can find the solutions by the elimination method.
Q.4] How many solutions are there for linear equations in two variables?	Ans] For linear equation in two variables, there are infinitely many solutions.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Solving linear Equations in Two variables consider example $5x + 3y = 30$ let value of $y = 0$ then, $5x + 3(0) = 30$ $5x = 30$ $x = 30/5$ $x = 6$ solution is $(6, 0)$ let value of $x = 0$ then, $5(0) + 3y = 30$ $3y = 30$ $y = 30/3$ $y = 10$ solution is $(0, 10)$	1] Knowledge students are able to know about solutions of linear equations in two variables. 2] Understanding students are able to understand how to solve linear equations in two variables. 3] Application students are able to apply knowledge to solve problems in real life.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] Write the following equation in the form of $ax+by+c=0$	Ans] $2x+3y=4.37$ where $a=2; b=3; c=4.37$ $2x+3y-4.37=0$
Q2] write the following equation as an equation in two variables. $x=-5$	Ans] $x=-5$ can be written as $1\times x+0\times y=-5$ $x+0y=-5$
Q3] The cost of a book is twice the cost of a pen. Write a linear equation in two variables to represent this.	Ans] let cost of notebook $=₹x$ cost of pen $=₹y$ $\therefore$ linear equation in two variables will be $x=2y;\ x-2y=0.$
Q4] Find solution of the equation $4x+3y=12$	Ans] $4x+3y=12$ taking $x=0$, we get $3y=12$ $y=4$ $\therefore (0,4)$ is the solution of the given equation

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To utilize the free time * To create interest in the topic taught * To understand the taught concept properly.

फलक सार

Black Board Summary

Date - 22/12/23
Day - Friday

Class - IX
Sub - Mathematics
Topic - Linear Equations in two variables

On roll -
Present -
absent -

Standard form of linear equation in two variables is $ax + by + c = 0$	where, x and y are variables

Homework - If (2,0) is a solution of the linear equation $2x + 3y = k$, then find the value of k.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework- If (2,0) is a solution of the linear equation $2x+3y=k$, then find the value of k.	Students write it down and solve it in their notebooks

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 20

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Statistics

पाठ साहित्य Material Aids chalk, blackboard, duster, chart showing statistics

पूर्व ज्ञान Previous Knowledge Tally Marks, Fre

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop, thinking, reasoning and imagination among students. *] To enable students to understand statistics. *] To enable students to know about bar graph histogram and frequency polygon

Statement of Aim - Today we are going to

दिनांक Date 23/12/23

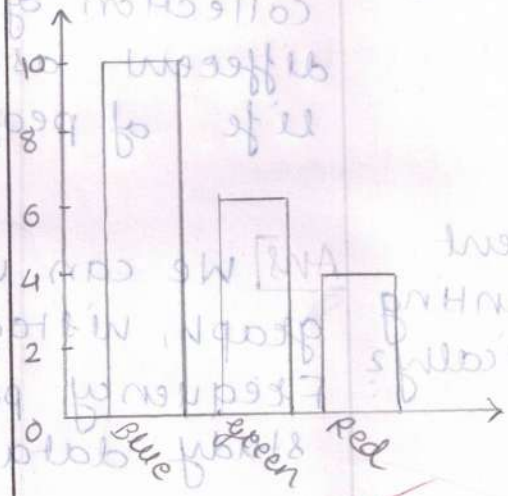
वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

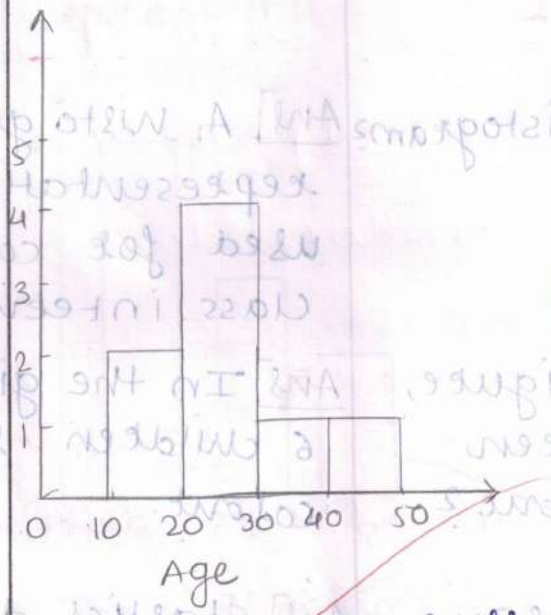
requency, Bar graph

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
Q.1] What is meaning of the word 'statistics?	Ans] Statistics is the collection of data on different aspects of the life of people.
Q.2] what are different methods of representing the data geometrically?	Ans] We can use bar graph, histogram and Frequency polygon to study data.
Q.3] what is a pie chart?	Ans] A pie chart is the pictorial representation of data inside a circle
Study about stastics.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Bar graph A bar graph is a chart or graph that presents data with rectangular bars with heights or lengths proportional to the values that they represent.  The following graph represents no. of children and their favourite colour	1] Knowledge students are able to know about bar graphs. 2] Understanding students are able to understand how bar graphs are drawn. 3] Application students are able to apply knowledge of stastics to solve questions related to bar graph

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions.
Q-1] What is a bar graph?	Ans] A bar graph is a pictorial representation of data in which usually bars of uniform width are drawn.
Q-2] What is a Histogram?	Ans] A histogram is a representation of data used for continuous class intervals.
Q-3] In the given figure, how many children like green colour?	Ans] In the given bar graph 6 children like green colour.
Q-4] What is stastics?	Ans] stastics deal with the study of collection, presentation and analysis of numerical data.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Histogram A histogram is a bar graph like representation of data that gives a range of classes into columns along the x-axis  x-axis represents age and y-axis represents frequency	1] knowledge students are able to know about bar graph and histogram. 2] understanding students are able to understand how histograms are drawn. 3] Application students are able to apply knowledge of stastics to solve questions related to histogram.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What is mode of data?	Ans] The value which appears very frequently in a data is called a mode.
Q2] What is the mode of given data? 4, 6, 5, 9, 3, 2, 7, 7, 6, 5, 4, 9, 10, 10, 3, 4, 7, 6, 9, 9	Ans] Arranging given data in ascending order 2, 3, 3, 4, 4, 4, 5, 5, 6, 6, 6, 7, 7, 7, 9, 9, 9, 9, 10, 10. Hence, mode of given data is 9.
Q3] What is mean?	Ans] The ratio of sum of observations and the total number of observations is called as Mean.
Q4] What is the mean of $x+2$, $x+3$, $x+4$ and $x-2$?	Ans] $\text{Mean} = \frac{x+2+x+3+x+4+x-2}{4}$ $\text{Mean} = \frac{4x+7}{4}$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	① Mean $\bar{x} = \frac{\Sigma x}{N}$ x - observations N - number of observations	* To revise the topic taught in the class.
	② Median Median $= \left(\frac{n+1}{2}\right)^{th}$ observation	* To evaluate the knowledge gained by students.
	③ Mode Mode = 3 × Median − 2 × Mean	* To test the concept understood by students regarding statics.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
1] The median of the data 4, 6, 8, 9, 11 is –	Ans] There are 5 observations Median $= \left(\frac{5+1}{2}\right) = \frac{6}{2} = 3^{rd}$ observation Median of given data is 8
2] What is data?	Ans] The collection of information collected for a purpose is called data.
3] What is the class mark of the class interval 90 - 120?	Ans] Class mark $= \frac{\text{upper limit} + \text{lower limit}}{2}$ $= \frac{120+90}{2} = 105$ Class mark of the given interval is 105.
4] What is the mean of the data 2, 3, 4, 5, 0, 1, 3, 3, 4, 3	Ans] Mean $= \frac{2+3+4+5+0+1+3+3+4+3}{10}$ $= \frac{28}{10} = 2.8$ Mean of the given data is 2.8

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To utilize the free time * To create interest in the topic taught * To understand the taught concept properly

फलक सार

Black Board Summary

Date - 23/12/23
Day - Friday

Class - IX
Sub - Mathematics
Topic - Stastics

On roll -
Present -
Absent -

Mean

$$\bar{x} = \frac{\Sigma x}{n}$$

$$\bar{x} = \frac{x_1 + x_2 + x_3}{3}$$

Median

$\left(\frac{n+1}{2}\right)^{th}$ observation

Mode

= 3 median − 2 mean

Homework - Find the value of x if the mean of 4, 5, 6, 7, 8 and x is 7.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - Find the value of x, if the mean of 4, 5, 6, 7, 8 and x is 7.	Students write it down and solve it in their notebooks.

अभिप्राय (Remarks)

S.K. Kabade

पर्यवेक्षकाची सही
(Sign. of Supervisor)

SHEELA MULTIPURPOSE SOCIETY

SHEELADEVI COLLEGE OF EDUCATION

DATTAWADI, WADI, NAGPUR

2023 - 2024

LESSON PLANNING BOOK
पाठ नियोजन पुस्तिका

Name: Ketaki Shelkant Ohale
नाव:

Number:
क्रमांक:

Subject: 1) Physical
विषय:

2)

अनुक्रमणिका
INDEX

पाठांक S.No.	दिनांक Date	शाळा School	वर्ग Class	विषय Subject	विषयांक Topic	स्वाक्षरी Signature
1	16/09	V.L. Convent	IX	Physics	speed & velocity	
2	18/09	— " —	IX	Physics	Equations of Motion	
3	23/09	— " —	IX	Physics	Force and types of Forces	
4	26/09	— " —	IX	Physics	Newton's first law of motion	
5	05/10	— " —	IX	Physics	Newton's second law of motion	
6	09/10	— " —	IX	Physics	Newton's Third law of motion	
7	11/10	— " —	IX	Physics	Universal Law of gravitation	
8	13/10	— " —	IX	Physics	Mass and weight	
9	17/10	— " —	IX	Physics	Buoyancy	
10	20/10	— " —	IX	Physics	Archimede's Principle	
11	25/10	— " —	IX	Physics	Work done and its unit	

पाठांक S.No.	1	विषय Subject	Physics
शाळा School	V.L. Convent	विषयांश Topic	Speed and
पाठ साहित्य Material Aids	Blackboard, chalk, Duster, chart showing formulae of speed, velocity, acceleration	पूर्व ज्ञान Previous Knowledge	Students sh

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व वि Objectives with Sp
INTRODUCTION		* To enab students define sp and vel * To ena students differentia between and velo * To und practical lications speed ar velocity examples
Statement of Aim - Today we are goi learn about speed velocity.		

दिनांक Date 16/09/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

about distance and time with displacement, motion

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to these question
Q.1] How does a rabbit run?	Ans] A rabbit runs very fast
Q.2] How does a tortoise walk?	Ans] A tortoise walks very slow
Q.3] Whose speed is more out of the above two?	Ans] Rabbit's speed is more than Tortoise
Q.4] How did you determine the speed of Rabbit and the Tortoise?	Ans] We divided given distance by time to get speed.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	1] Speed 2] Velocity 3] Difference between speed and velocity - a] Speed is a scalar quantity and velocity is a vector quantity - b] Speed is distance covered in a certain time and velocity is displacement done in a certain time. - c] Speed can never be negative or zero but velocity can be zero, negative or positive.	1] Knowledge - → Students are able to define speed and velocity 2] Understanding - → Students understand the difference between speed and velocity. 3] Application - → Students are able to apply and evaluate questions with the help of speed and velocity formulas.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers of the asked questions.
Q.1] Is speed a vector or a scalar quantity?	Ans] speed is a scalar quantity
Q.2] Is velocity a vector or a scalar quantity?	Ans] Velocity is a vector quantity
Q.3] How will you represent speed with equation?	Ans] Speed is equal to distance divided by time $speed = \frac{distance}{time}$
Q.4] How will you represent velocity in the form of equation?	Ans] velocity is equal to displacement divided by change in time. $velocity = \frac{displacement}{time}$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	1] distance = speed x time 2] Displacement = Final position - Initial position = change in position 3] Unit of speed = m/s or km/h 4] Unit of velocity = m/s or km/h (in a given direction)	1] Knowledge - → students are able to identify and know the units of speed and velocity 2] Understanding - → students are able to understand values and units of time, distance and displacement 3] Application - → students are able to find values of speed and velocity along with units in given word numericals/problems.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers of the asked questions.
Q.1] Ben is running at a speed of 3 m/s. How long will it take him to travel 720 m?	Ans] speed = 3 m/s distance = 720 m time = $\frac{\text{distance}}{\text{speed}}$ time = $\frac{720}{3}$ = 240 sec = 4 min (∴ It will take 4 min for Ben to travel 720 m)
Q.2] What does the odometer of an automobile measure?	Ans] The odometer measures the distance travelled by an automobile based on perimeter of wheel
Q.3] An athlete runs around a circular track from a point and comes back to the same point. What is the distance covered and the displacement?	Ans] Distance covered = circumference of the circular track. Displacement = Zero. (As the athlete starts from a point and comes back to the same point)

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
R E C A P I T U L A T I O N	1] speed 2] velocity 3] distance 4] displacement 5] time	1] Knowledge - → To revise the topic for student's knowledge 2] Understanding - → To evaluate the understanding of the students. 3] Application - To test the application of knowledge to practical application.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students given answers to the asked questions
Q.1] What is speed?	Ans] Speed is the rate at which an object covers a certain distance.
Q.2] What is velocity?	Ans] velocity can be defined as the rate at which an object changes position in a certain direction
Q.3] can speed be zero?	Ans] speed can never be negative or zero
Q.4] can velocity be zero?	Ans] velocity can be zero, negative or positive.
Q.5] What is the speed of a satellite if it covers a distance of 265571 km in 24 hours?	Ans] speed = distance/ti = 265571/24 = 11065.4 km ∴ speed of satellite is 11065.4 km per hour

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time *] To create interest in the topic. *] To understand the concept completely.

फलक सार

Black Board Summary

Date - 16/09/23 Class - IX On Roll -
Day - Saturday Sub - Physics Present -
Absent -

Topic - Speed and velocity

speed = $\frac{\text{distance}}{\text{time}}$

speed is scalar

velocity = $\frac{\text{displacement}}{\text{time}}$

velocity is vector

* Unit of speed and velocity are same
- m/s or km/h

Homework - 1] What is SI unit of speed & velocity?
2] A person travels 6 km in 2 hours. Find his speed (in $km\,h^{-1}$ and $m\,s^{-1}$)

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework - 1] What is SI unit of speed and velocity? 2] A person travels 6 km in 2 hours. Find his speed in $km h^{-1}$ and ms^{-1}.	student write it down and solve by themselve in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No 2

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Equations of Motion

पाठ साहित्य Material Aids Blackboard, chalk duster, chart showing uniform and non-uniform motion

पूर्व ज्ञान Previous Knowledge students should know

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among students *] To enable students to know about motion and its equations *] To enable students to understand practical application of equations of motion.
Statement of Aim - Today, we are going to		

दिनांक Date 18/09/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

know which objects are at rest and which objects are in motion

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	Students give satisfactory answers to these question
Q.1] What do we call the objects that do not change their position?	Ans] objects that do not change their position are at rest
Q.2] What do we call objects that changes their position?	Ans] Objects that change their position with respect to time are in motion.
Q.3] What is motion?	Ans] The change in position of an object with respect to its surroundings in a given interval of time is called motion.

learn about Equations of Motion

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	1] Uniform Motion- When an object covers equal distances in equal intervals of time, it is said to be uniform motion. 2] Non-Uniform Motion- When an object covers unequal distances in equal intervals of time, it is said to be in non-uniform motion 3] Acceleration- change in velocity of an object per unit time.	1] Knowledge → Students should be able to know about uniform and non-uniform motion 2] Understanding → Students should be able to understand equations of uniform motion. 3] Application → Students should be able to apply and evaluate questions with help of equations of motion.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropria answers to the asked questions.
Q.1] If an object travels 5 m in first second, 5 m more in the next and 5m in next. What type of motion is this?	Ans] As the object covers equal distances in equa intervals of time, it is said to be in uniform motion.
Q.2] When a car is moving on a crowded street or a person jogging in a park, what motion do these instances show?	Ans] As both of these objects cover unequal distances in equal intervals of time, car and person both are in non-uniform moti
Q.3] Give any three examples of non-uniform motion.	Ans] Bouncing ball, a running horse an moving train are examples of non-unifo motion.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	1] Equations of motion → When an object moves along a straight line with uniform accleration it follows a set of equations $v = u + at$ $s = ut + \frac{1}{2}at^2$ $2as = v^2 - u^2$ 2] Distance time graphs of uniform and non-uniform motion	1] Knowledge- → Students are able to know equations of uniform motion 2] Understanding- → Students are able to understand relation between velocity, accleration time and distance covered. 3] Application- → Students are able to apply equations according to situation and evaluate various parameters of uniform motion.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers to the asked questions.
Q.1] Give any two examples of uniform motion	Ans] Movement of ceiling fan's blades and motion of earth around the sun are examples of uniform motion.
Q.2] What does the area under the velocity time graph represent?	Ans] The area under velocity time graph represents the displacement of body.
Q.3] Starting from a stationary position, Rahul paddles his bicycle to attain a velocity of $6\,ms^{-1}$ in 30s. Find acceleration.	Ans] initial velocity (u) $= 0\,ms^{-1}$ final velocity (v) $= 6\,ms^{-1}$ time (t) = 30 sec $a = \frac{v-u}{t}$ $= \frac{6-0}{30} = 0.2\,ms^{-2}$ (∴ Acceleration of Rahul's bicycle $= 0.2\,ms^{-2}$)

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Uniform motion 2] Non-uniform motion 3] Acceleration 4] Equations of motion 5] Distance-time graphs of uniform and non-uniform motion.	*] To revise the topic *] To evaluate the knowledge of students *] To test the knowledge of practical application of formulas

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students have given answers to the asked questions.
Q.1] What is uniform motion?	Ans] When an object covers equal distance in equal intervals of time, it is said to be uniform motion.
Q.2] What is non-uniform motion?	Ans] When an object covers unequal distance in equal intervals of time, it is said to be in non-uniform motion.
Q.3] What is accleration?	Ans] Change in velocity of an object per unit time is acceleration
Q.4] What are three equations of motion?	Ans] i] $v = u + at$ ii] $s = ut + \frac{1}{2}at^2$ iii] $2as = v^2 - u^2$
Q.5] A bus starting from rest moves with a uniform acceleration of $0.1\ ms^{-2}$ for 2 min. Find the speed acquired.	Ans] initial velocity $(u) = 0$ acceleration $(a) = 0.1\ m/s^2$ time $(t) = 2$ min $= 120$ sec $v = u + at$ $= 0 + 0.1 \times 120$ $v = 12\ ms^{-2}$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize free time *] To create interest in the topic *] To understand the taught topic completely

फलक सार

Black Board Summary

Day - Monday
Date - 18/09/23

Class - IX
Sub - Physics
Topic - Equations of motion

on roll -
Present -
absent -

Acceleration

change in velocity of an object per unit time.

Equations of motion

1] $v = u + at$

2] $s = ut + \frac{1}{2}at^2$

3] $2as = v^2 - u^2$

Homework - 1] When will you say a body is in uniform acceleration?

2] A racing car has a uniform acceleration of $4 ms^{-1}$. What distance will it cover in 10 sec?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework - 1. When will you say a body is in uniform acceleration? 2. A racing car has a uniform acceleration of $4 ms^{-2}$. What distance will it cover in 10s after start?	student writes it down and solve by themselves in their notebooks

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No: 3

विषय Subject: Physics

शाळा School: V.L. Convent

विषयांश Topic: Force and Types

पाठ साहित्य Material Aids: chalk, blackboard, chart showing types of forces

पूर्व ज्ञान Previous Knowledge: students should

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop scientific aptitude and interest among the students. *] To develop power of thinking and reasoning in students. *] To make students aware about forces in their environment.
statement	of Aim- Today we	are going to

दिनांक Date 23/09/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

of Forces

know about moving objects

push and pull

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to these questions
Q.1] What will you do to move a ball?	Ans] Apply push or pull on the ball or kick the ball
Q.2] What is a push and what is a pull?	Ans] push is a jerk or effort exerted to move pull is effort exerted to draw.
Q.3] What will you do if you want to lift a heavy box?	Ans] we will apply force or pull in the opposite direction.
Q.4] What is direction of applied push or pull?	Ans] The direction in which body is pushed or pulled.
learn about force and its types	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	1] Force - A push or pull acting on a body which tends to change its state of rest or motion is called as force 2] Types of force - a] contact force b] Non contact force a] contact force - exists where there is contact between two surfaces. b] Non-contact force - exists where there is no contact between two surfaces.	1] Knowledge - → students are able to define force and types of forces. 2] Understanding - → students are able to understand forces in their own environment. 3] Application - → students are able to calculate and apply knowledge of forces

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers of the asked questions
1] How does force comes into play?	Ans] There should be two interacting objects on which force is applied and other who applies the force.
2] What is contact force?	Ans] For an object to be pulled or pushed, there should be a contact between the two objects is contact force.
3] What is non-contact force?	Ans] The force which can act even without any actual contact between the two objects is called non-contact force.
4] What are two main types of force?	Ans] There are two main types of force ① Contact force ② Non-contact force

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	1] Types of contact force - a] Muscular force b] Frictional force a] Muscular force - force exerted by muscles. b] Frictional force - force between two surfaces. 2] Types of non-contact force - a] Magnetic force - force exerted by magnet b] Electrostatic force - force exerted by electrified body c] Gravitational force - force of attraction between two objects with mass	1] Knowledge - → students are able to know about contact and non contact forces. 2] Understanding - → students are able to understand the classification of forces along with their types. 3] Application - → students are able to learn and apply the distinguishing factors related to forces and their types.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	Students give appropriate answers of the asked questions
Q.1] What is muscular force?	Ans] The force exerted by muscles of human or animal body is called muscular force.
Q.2] What is frictional force?	Ans] The force acting between two surfaces in contact which opposes the motion of one body over the other is called frictional force.
Q.3] What is magnetic force?	Ans] The force exerted by magnetic on other object or magnet is called magnetic force.
Q.4] What is gravitational force?	Ans] The force of attraction between any two objects depending upon constant of gravity, their masses and distance between objects is called gravitational force.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Force 2] Types of force -A] contact forces -a] Muscular force b] Frictional force -B] Non-contact forces -a] Magnetic force b] Electrostatic force c] gravitational force	*] To revise the topic taught *] To evaluate the knowledge gained *] To test the knowledge in application and classification scenarios

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions.
Q.1] give an example of contact force.	Ans] Pushing a box with hands is an example of contact force
Q.2] give an example of frictional force.	Ans] Rolling ball stops after some time due to frictional force between ball and ground.
Q.3] What is an example of magnetic force.	Ans] A magnet attracts nails and pins made up of iron.
Q.4] What is an example of electrostatic force?	Ans] A charged comb attracts tiny pieces of paper is an example of electrostatic force.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize free time *] To create interest in the topic taught

फलक सार

Black Board Summary

Day - Saturday
Date - 23/09/23

Class - IX
Sub - Physics
Topic - Force and types of force

On Roll -
Present -
Absent -

Force
- Contact
  - muscular
  - frictional
- Non-contact
  - magnetic
  - electrostatic
  - gravitational

A push or pull acting on a body is called force.

Homework - 1] What is the SI unit of force?
2] give an example of gravitational force.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework - 1] A pull or push acting on a body is called — 2] SI unit of force is — 3] Give an example of gravitational force.	students write it down and solve by themselves in their notebook.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 4

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Newton's first

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge objects at rest,

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To enable students to define which object is in state of rest *] students are able to know force applied on an object *] students are able to understand the consequences of force applied on an object.

statement of Aim - Today we are going to study

दिनांक Date 26/09/23

Law of Motion, force applied

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give satisfactory answers to these questions.
Q.1] Who was Sir Isaac Newton?	Ans] Sir Isaac Newton was an English philosopher.
Q.2] What happens to a book kept on table in absense of force?	Ans] The book stays at rest in absence of any force.
Q.3] What will you do to stop a moving car?	Ans] We will apply force by breaks to stop a moving car.

Newton's First law of Motion

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Newton's first law of motion- A body remains in the state of rest or uniform motion in a straight line until and also unless an external force acts on it. Object at rest when velocity $v=0$ and acceleration $a=0$ Object in motion when velocity $v \neq 0$ and acceleration $a=0$	1] Knowledge - students are able to know Newton's first law of motion and its importance. 2] Understanding students are able to understand importa of friction and gravity. 3] Application - students are able to apply effects of first law of motion on human body as well as other objects.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers to the asked questions.
1] Does force affect objects that are at rest or in motion?	Ans] Yes, force affects objects that are in motion or at rest.
2] What is external force?	Ans] The forces caused by external agents such as friction, norm force and air resistan are called external forc
3] give an example of Newton's first law of motion.	Ans] Wearing a seat belt in car while driving is an example of Newton's first law of motion.
4] What is a normal force?	Ans] A force that always acts perpendicular to the surface of contact is called a normal force.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Newton's law of motion - explained Take a block on a smooth surface. The block is at rest, there are two forces acting upon it. a] Force of gravity b] Normal reaction When we apply a constant force F, in a horizontal direction, the block starts moving in the direction of applied force.	1] Knowledge - Students are able to understand Newton's first law of motion with examples. 2] Understanding - Students are able to understand force of gravity and Normal force reaction. 3] Application - Students are able to apply first law in daily life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give answers appropriate according to the questions
Q1] What is an example of Newton's first law of motion in day-to-day life?	Ans] A small coin placed on a card and placed over a glass is flicked away with the finger, the coin drops into the glass.
Q2] If A and B are two objects with masses 10 kg and 30 kg respectively, then which has greater inertia.	Ans] Body B has more inertia than body A.
Q3] A book of weight 10 N is placed on a table. The force exerted by the surface of the table will be ?	Ans] The force exerted by the surface of the table on the book will be 10 N.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	*] Newton's first law of motion object at rest $v = 0$ $a = 0$ object in motion $v \neq 0$ $a = 0$	*] To revise the topic taught in the class. *] To evaluate the knowledge gained. *] To test the knowledge in application of first law of motion.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] Which law of motion is also known as law of inertia?	Ans] Newton's first law of motion is also known as 'law of inertia'.
Q.2] A straight moving bus takes a sharp right turn. What will happen to passengers sitting inside the bus?	Ans] When the bus takes a sharp turn, the passengers move towards the left.
Q.3] What causes motion of body which is initially in the state of rest?	Ans] According to the first law of motion, force causes the motion of body.
Q.4] What is Inertia?	Ans] It is the property of mass to remain unchanged in the absence of any external force.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utillize free time. *] To create interest in the topic taught *] To understand the concept properly.

फलक सार

Black Board Summary

Day - Tuesday
Date - 26/09/23

Class - IX
Sub - Physics
Topic - Newton's First Law of motion

On roll -
Present -
Absent -

Newton's first law of motion $v = 0$ and $a = 0$ object in motion $v \neq 0$ $a = 0$	A body remains in the state of rest until an external force acts on it

Homework - 1] Give an example of Newton's first law of motion.

Q. 2] What is Newton's first law of motion Explain

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard. Homework - 1] give an example of Newton's first law of motion. 2] What is Newton's first law of motion. Write and explain.	students write it down and solve in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 5

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Newton's second

पाठ साहित्य Material Aids duster, blackboard, chalk

पूर्व ज्ञान Previous Knowledge objects at rest,

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To enable students to define force applied on an object. *] students are able to know magnitude and direction of force applied *] students are able to calculate force applied in real time examples.
statement	of Aim- Today we	are going to

दिनांक Date 05/10/23

Law of Motion

वर्ग Class IX

Force applied, mass.

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to asked questions.
Q.1] What will you do to move an object which is at rest?	Ans] We will apply force to move the object at rest.
Q.2] Which will require more force to move a book or a table?	Ans] A table will need more force to move from one place to the other.
Q.3] Force is dependant on which entity? State their relation.	Ans] Force is dependant on mass of object. Force and mass are directly proportional to each other.

Study Newton's second Law of Motion.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Newton's second Law of motion- The force acting on an object is equal to the product of its mass and acceleration. Mathematical Expression $F = m \times a$ where F ... Force m ... mass of object a ... acceleration of object	1] Knowledge- students are able to know Newton's second law of motion and its importance 2] Understanding- students are able to understand the relationship between force and acceleration 3] Application- students are able to calculate the force applied in various cases.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] What is an example of Newton's second law of motion?	Ans] Riding a bicycle. In this example, bicycle is mass, Legs pushing the pedals of bicycle is the force.
Q.2] What is a unit force?	Ans] 1 unit force is defined as the force applied on an object of mass 1 kg to produce the acceleration of $1 ms^{-2}$.
Q.3] What is the unit of force?	Ans] The SI unit of force is Newton (N).
Q.4] How will you calculate acceleration if initial, final velocity and time are given?	Ans] If initial velocity (u) final velocity (v) and time (t) are given, we will calculate acceleration by formula $a = \frac{v-u}{t}$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Newton's second law of motion - explained Forces are unbalanced ↓ There is an acceleration ↳ a] The acceleration depends directly on the 'net force'. ↳ b] The acceleration depends inversly upon the object's mass. $F = m \times a$ $a = \frac{F}{m}$	1] Knowledge - students are able to know Newton's second law of motion and its importance. 2] Understanding - students are able to understand relationship between force and acceleration. 3] Application - students are able to calculate force applied in various examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask questions related to the topic	students give appropriate answers to the asked questions.
Q.1] give an example of Newton's second law of motion.	Ans] When we kick a a ball, we exert force in a specific direction.
Q.2] If a block of mass 2kg with a force of 10N, calculate the acceleration of block.	Ans] $F = 10N$ $m = 2kg$ $F = m \times a$ $a = \frac{F}{m}$ $a = 10/2 = 5 m/s^2$ (∴ Acceleration of block $= 5 m/s^2$)
Q.3] What is the other name for Newton's second law of motion?	Ans] The other name for Newton's second law of motion is the law of force and acceleration.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	*] Newton's second law of motion $F = m \times a$ $a = \frac{F}{m}$ $m = \frac{F}{a}$ where, F --- Force m --- mass of object a --- acceleration of object	*] To revise the topic taught in the class. *] To evaluate the knowledge gained *] To test the knowledge in application of second law of motion.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q-1] What is net force?	Ans] A net force ΣF is the sum of all forces acting on a body.
Q-2] State true or false - Net force is the vector sum of all forces acting on a body	Ans] Yes, the statement is True.
Q-3] A force of 20 N is acting on a body in positive x-direction and a force of 30 N in the negative x-direction. How much net force is acting on the body?	Ans] $F_{net} = 20N - 30N$ $= -10N$
Q-4] What is the formula for Newton's second law of motion?	Ans] The formula for Newton's second law of motion is $F = m \times a$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize free time *] To create interest in the topic taught *] To understand the concept properly.

फलक सार

Black Board Summary

Day - Thursday
Date - 05/10/23

Class - IX
Sub - Physics
Topic - Newton's second law of motion

on roll -
Present -
absent -

Newton's second law of motion says that force acting on an object is equal to product of mass and acceleration

$F = m \times a$

where F ... force
m ... mass
a ... acceleration

Homework - 1] give a daily life example of Newton's second law of motion.
2] How much force is required to accelerate a 1000 kg car at $4 m/s^2$?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework - 1] give a daily life example of Newton's second law of motion. 2] How much force is required to accelerate a 1000 kg car at 4 m/s^2?	students write it down and solve in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 6

विषय Subject Physics

शाळा School V.L. convent

विषयांश Topic Newton's Third

पाठ साहित्य Material Aids Chalk, board, duster

पूर्व ज्ञान Previous Knowledge Distance, force

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To enable students to define action and reaction forces.
		*] To make students aware about the most significant law of motion.
		*] To make students know that action-reaction pair law is seen in everyday life.
statement	of Aim - Today, we	are going to

दिनांक Date 09/10/23

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

Law of Motion

Acceleration, Mass

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions.	Students give satisfactory answers to the asked questions.
Q1] What happens when you throw a ball against the wall?	Ans] The wall puts a force on ball and ball bounces back.
Q2] By which force does the earth pulls you?	Ans] The earth pulls you with a gravitational force.
Q3] What is your weight?	Ans] Our weight is the force exerted by us on the earth.
Q4] What are the directions of gravitational pull and weight?	Ans] Gravitational pull and weight are in opposite directions.
Study Newton's Third	Law of Motion

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Newton's Third Law of Motion - When a body exerts a force on the other body, the first body experiences a force which is equal in magnitude in the opposite direction of the force which is exerted.	1] Knowledge - students are able to know action and reaction forces with Newton's third law of motion. 2] Understanding - students are able to understand the nature of action and reaction forces. 3] Application - students are able to apply magnitude and directions of action and reaction forces.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] Give an example of Newton's third law of motion?	Ans] A swimmer pushes against the water, while the water pushes back on the swimmer.
Q2] What is the nature of action and the reaction forces acting on an object?	Ans] The action and reaction forces are equal in magnitude and opposite in direction.
Q3] What happens when you use a stick to hit a wall?	Ans] When we hit the wall with a stick, the wall pushes against the stick.
Q4] Give reason - We are able to walk on the ground properly.	Ans] We are able to walk properly on the ground because of Newton's Third Law of Motion.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Newton's Third Law of motion- & explained If a body A puts force F_a on body B, then B at the same time exerts F_b on body A. F_a and F_b are same in magnitude and are reverse in direction. $F_a = -F_b$ where, F_a ... action force F_b ... reaction force	1] Knowledge- students are able to know action and reaction forces with Newton's Third Law of motion. 2] Understanding- students are able to understand the nature of action and reaction forces. 3] Application- students are able to apply magnitude and directions of action and reaction forces.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] give an example of Newton's third law of motion.	Ans] A man is at rest on a perfectly smooth ice in the middle of a pond. This is an example of Newton's Third law of motion.
Q2] Why the horse pulling the wagon is able to move forward? ~~because~~	Ans] The horse pulling the wagon is able to move forward because of the force exerted by the ground on the horse.
Q3] Why won't the man attempting to pull himself by tugging on his hair not succeed?	Ans] Man attempting to pull himself by tugging on his hair does not succeed because the force is applied is internal to the system.
Q4] When we jump out of the boat standing in still water, where does the boat moves?	Ans] When we jump out of the boat standing in still water, the boat moves backwards.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	*] Newton's Third Law of motion $F_a = -F_b$ where, F_a is action force F_b is reaction force	*] To revise the topic taught in the class *] To evaluate the knowledge gained *] To test the knowledge of Newton's Third law of motion.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic-	students give appropriate answers to the asked questions -
Q1] Passengers are pushed back when a bus starts abruptly. Which of the Newton's law shows this?	Ans] The law of inertia of rest, sometimes known as Newton's first law causes passengers to slide backwards when a bus abruptly starts moving.
Q2] What is the mass of a body that accelerates at a rate of $2.6 m/s^2$ with a force of 90N?	Ans] $F = m \times a$ $90 = 2.6 \times m$ $\frac{90}{2.6} = m = \frac{90 \times 10}{26}$ mass of body = 34.6 kg
Q3] Which component of contact force that is perpendicular to the surface in contact is?	Ans] The component of contact force that is perpendicular to the surface in contact is referred to as normal reaction force.
Q4] The quicker the momentum changes, how will the force change?	Ans] The quicker the momentum changes the force is greater.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To utilize free time * To create interest in the topic taught * To understand the concept properly.

फलक सार

Black Board Summary

Day - Monday
Date - 09/10/23

Class - IX
Sub - Physics
Topic - Newton's Third law of motion

on roll -
Present -
Absent -

Newton's Third Law of motion

$F_a = - F_b$

where,
F_a is action force and F_b is a reaction force.

Homework - 1] State Newton's third law of motion.
2] give three examples of Newton's third law of motion.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers give homework written on blackboard Homework - 1. State Newton's Third law of motion. 2. Give three examples of Newton's Third law of motion.	students write it down and solve in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 7

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Universal Law of

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Newton's law of

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To enable students to understand that every mass in the universe is attracted to every other mass. *] To make students use the force of attraction knowledge in real life. *] To make students familiar with gravitational concepts.
Statement of Aim - Today we	are going to	

दिनांक Date 11/10/23

Gravitation

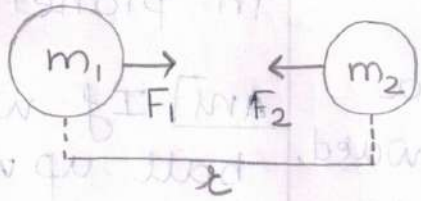
वर्ग Class IX

Motion, gravity

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to the asked questions.
Q1] Why are we able to walk or move on earth?	Ans] We are able to walk on the earth because of gravity.
Q2] Is there gravity in space?	Ans] Yes, gravity is every where. It exists in planets, solar system.
Q3] If you throw a ball vertically upward, what happens next?	Ans] If we throw a ball upwards, it will fall down.
Q4] Why, do you think the ball falls down?	Ans] The ball falls down due to the gravitational force.
Learn about universal	Law of gravitation

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Universal Law of gravitation - Every body on earth attracts every other body with a force which is directly proportional to the product of their masses and inversly proportional to the square of distance between them.  $F \propto m_1 m_2$ $F \propto \frac{1}{r^2}$	1] Knowledge - students will have knowledge of attractive force between objects in their daily life 2] Understanding - students are able to explain factors involved in the gravitational force 3] Application - students are able to apply factual and conceptual knowledge of universal law of gravitation

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher ask some questions related to the topic.	students give appropriate answers to the asked questions.
Who put forward the universal law of gravitation?	Ans] In 1687, sir Isaac Newton put forward the universal law of gravitation.
What is gravitational force?	Ans] The universal force of attraction acting between objects is known as the gravitational force.
Give one example for gravitational force.	Ans] The force acting between sun and the Earth is one example of gravitational force.
Give the universal gravitational equation.	Ans] The universal gravitational equation is given by - $F = G\frac{m_1 m_2}{r^2}$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Universal Law of Gravitation - Explained Magnitude of gravitational force is $F = G\frac{m_1 m_2}{r^2}$ where, F - is the force of attraction gravitational G - constant of gravitation m_1, m_2 - masses of two objects r - distance between the centres of two bodies	1] Knowledge - students will have knowledge of attractive force between objects in their daily life. 2] Understanding students are able to explain factors involved in the force of gravitation. 3] Application - students are able to apply factual and conceptual knowledge of Universal law of gravitation.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions
Q] What is the value of 'g'?	Ans] The value of g is 6.673×10^{-11} Nm^2/kg^2
Q] What is importance of Universal Law of Gravitation?	Ans] It explains the rotation of the earth around the sun. Also, it explains the formation of tides in the ocean due to the force of attraction between the moon and ocean water.
Q] Two spherical balls of mass 10 kg each are placed 10 cm apart. Find the gravitational force of attraction between them	Ans] gravitational force of attraction, $F = G\frac{m_1 m_2}{r^2}$ $F = \frac{6.67 \times 10^{-11} \times 10 \times 10}{(0.1)^2}$ $= \frac{6.67 \times 10^{-9}}{1 \times 10^{-2}}$ $F = 6.67 \times 10^{-7}$ N

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Universal law of gravitation $F = G\frac{m_1 m_2}{r^2}$	*] To revise the topic taught in the class.
	2] value of G $G = 6.67 \times 10^{-11}$ Nm^2/kg^2	*] To evaluate the knowledge gained.
	3] Distance between two objects r is the distance between their centres	*] To test the knowledge of Universal law of gravitation.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions.
Q-1] Calculate the gravitational force between two bodies 'a' and 'b' of mass 50 kg each at a distance of 1 m.	Ans] gravitational Force $F = G\frac{m_a m_b}{d^2}$ $= \frac{6.67\times10^{-11}\times50\times50}{1^2}$ $F = 1.6675\times10^{-7}\,N$
Q-2] Give the equations of force of gravitation if mass of any one object is doubled.	Ans] $m_1 = 2m_1$ $F = G\frac{m_2\times2m_1}{r^2}$ $F = 2\times\frac{Gm_1m_2}{r^2}$ $F = 2F$ (∴ The force is doubled.)
Q-3] Give the equation of force of gravitation if the distance between objects is doubled.	$r = 2r$ $F = G\frac{m_1m_2}{(2r)^2}$ $F = \frac{1}{4}\times G\frac{m_1m_2}{r^2}$ $F = \frac{1}{4}F_1$ (∴ The force is made one-fourth)

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize free time *] To create interest in the topic taught *] To understand the concept properly

फलक सार

Black Board Summary

Day - Wednesday
Date - 11/10/23

Class - IX
Sub - Physics
Topic - Universal law of gravitation

On roll-
Present-
Absent-

Universal Law of gravitation

$$F = G \frac{m_1 m_2}{r^2}$$

where,
G -- gravitational constant
m_1 and m_2 ... masses of objects
r --- distance between two objects.

Home work - Q.] What is the magnitude of gravitational force between earth and a 1 Kg object on its surface ?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives home-work written on blackboard. Homework - 1] What is the magnitude of gravitational force between earth and 1 kg object on its surface? Mass of earth $= 6 \times 10^{24}$ kg Radius of earth $= 6.4 \times 10^{6}$ m	Students write it down and solve by themselves in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No 8

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Mass and Weight

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Newton's first

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		* To enable students to identify weight as a force. * To recognize the difference between mass and weight of objects. * to calculate weight forces where acceleration due to gravity may vary.
statement	of Aim- Today we	are going to

and their difference

and second laws of motion

दिनांक Date 13/10/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to the asked questions.
Q.1] What is weight of your bag?	Ans] The weight of our bag is 2 kg approx.
Q.2] What is the mass of your bag?	Ans] The mass of our bag is 2 kg approximate
Q.3] Are mass and weight the same terms?	Ans] No, mass and weight are two different terms.
Q.4] Is it correct to use mass and weight term in place of each other?	Ans] No, It is not correct to use mass and weight in one another's place.
study Mass and weight and their difference	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Mass - Definition - Mass is the measure of amount of matter in a body. SI Unit - The SI unit of mass is Kilogram (Kg) Vector or Scalar - Mass is a scalar quantity. It has only magnitude. Properties of Mass - 1] Mass can never be zero. 2] Mass of an object does not change according to the location.	1] Knowledge - Students are able to know the concept of mass. 2] Understanding - Students are able to understand the properties of mass. 3] Application - Students are able to apply characteristic of mass to differentiate mass and weight.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions.
Q.1] What is meant by mass?	Ans] Mass can be stated as the measure of the quantity of matter in an object.
Q.2] Mass can be measured using which apparatus?	Ans] Mass can be measured using the beam balance.
Q.3] What is SI unit of mass?	Ans] The SI unit of mass is kilogram (kg)
Q.4] Is mass a vector or scalar quantity?	Ans] Mass is a scalar quantity
Q.5] What happens to the mass of an object if it is taken to a location with higher gravity?	Ans] The mass of the object remains unchanged or same even if it is taken to a location with higher gravity

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Weight - Definition - weight is the measure of the force of gravity acting on a body. Formula - $W = mg$ where, w is the weight m is the mass g is the acceleration due to gravity SI Unit - The SI unit of weight is Newton (N) Properties of Weight - 1] weight is a vector quantity 2] weight changes according to the location.	1] Knowledge - students are able to know the concept of weight. 2] Understanding students are able to understand the properties of weight. 3] Application - students are able to apply characteristics of weight to differentiate mass and weight.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q1] What is meant by weight?	Ans] Weight is the measure of the force of gravity acting on body.
Q2] What is the value of acceleration due to gravity on the surface of the earth?	Ans] The value of acceleration due to gravity on the surface of earth is $9.8\ m/s^2$
Q3] What is the weight of a body of mass 1 kg on earth?	Ans] $W = mg$ $= 1 \times 9.8$ $= 9.8\ N$ (∴ The weight of the given body is 9.8 N)
Q4] What is weightlessness?	Ans] Weightlessness is the condition of free fall in which gravity is cancelled by the other forces. It is experienced due to the absence of feeling weight.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Mass - It is the measure of amount of matter in a body 2] Weight- It is the measure of force of gravity acting on the body. 3] Relationship between mass and weight. 4] Weight of object on moon $= \frac{1}{6} \times$ weight of object on earth $W_m = \frac{1}{6} W_e$	*] To revise the topic taught in the class. *] To evaluate the knowledge gained. *] To test the knowledge regarding concept of mass and weight. *] To relate the concepts of mass and weight.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What is the relationship between mass and weight?	Ans] Weight is the mass of a body multiplied by acceleration due to gravity. $W = mg$
Q.2] What is weightlessness?	Ans] It is the condition which is experienced due to the absence of feeling weight.
Q.3] An object weighs 10 N when measured on the surface of the earth. What would be its weight when measured on the surface of the moon?	Ans] $W_e = 10N$ $W_m = \frac{1}{6} W_e$ $= \frac{1}{6} \times 10$ $= 1.67N$ Thus, the weight of object on the surface of the moon be 1.67 N

पाठाच्या पायऱ्या Steps of the Lesson	अद्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
H O M E W O R K		*] To utilize free time *] To create interest in the topic taught *] To understand the concept properly.

फलक सार

Black Board Summary

Date - 13/10/23
Day - Friday

Class - IX
Sub - Physics
Topic - Mass and Weight

On roll -
present -
absent -

Mass -	Weight -
Mass is the amount of matter in a body. - mass is measured in kg	Weight is the measure of force of gravity acting on a body. $W = mg = m \times g$

Homework - 1] Mass of an object is 10 kg. What is its weight on the earth?
2] Write difference between mass and weight.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - 1. Mass of an object is 5 kg. What is its weight on the earth? 2. Write the difference between mass and weight.	Students write it down and solve by themselves in their notebooks.

अभिप्राय (Remarks)

INTRODUCTION

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 9

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Buoyancy

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Force, pressure

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among students. *] To enable students to know about Buoyancy *] To enable students to understand applications of Buoyancy.
Statement of Aim- Today we are going to		

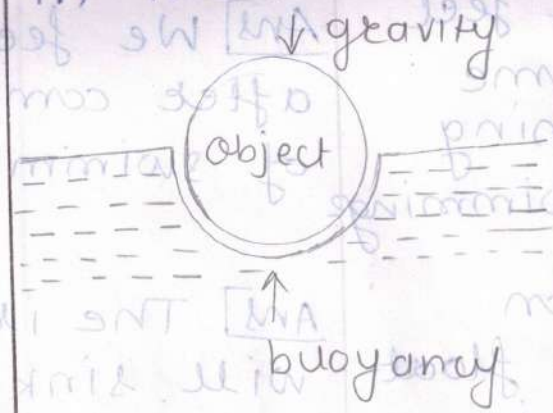
दिनांक Date 17/10/23

वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher ask some introductory questions	students give satisfactory answers to the asked questions.
Q1] How do you feel when you swim in pool?	Ans] We feel lighter in the pool while swimming
Q2] How do you feel when you come out of swimming pool after swimming?	Ans] We feel heavier after coming out of swimming pool
Q3] Will an iron nail sink or float when placed in bucket of water?	Ans] The iron nail will sink in the bucket filled with water.
study about Buoyancy	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Buoyancy- Buoyancy is the tendency of an object to float in a fluid. All liquids and gases in the presence of gravity exert an upward force known as buoyant force on any object immersed in them.  	1] Knowledge- Students are able to know about the concept of buoyancy. 2] Understanding Students are able to understand why some objects float or sink in liquids. 3] Application- Students are able to apply the concept of buoyancy in real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q-1] What is buoyant force?	Ans] Buoyant force is the upward force exerted by fluid on the body immersed in it partially or wholly.
Q-2] What is alternative word for buoyancy?	Ans] Upthrust is the alternative word for buoyancy.
Q-3] What is the direction of buoyant force experienced by the object immersed in a fluid?	Ans] The direction of buoyant force experienced by an object is always upwards.
Q-4] Give an example of buoyancy.	Ans] A boat or ship floating in the water and the floating of cork in water are examples of buoyancy.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Types of buoyancy 1] Positive buoyancy - when the immersed object is lighter than the fluid, the buoyancy is positive 2] Negative buoyancy - when the immersed object is denser than the fluid, then the buoyancy is negative. 3] Neutral buoyancy when the weight of the immersed object is equal to the fluid displaced, then the buoyancy is neutral.	1] Knowledge - students are able to know the concept of buoyancy. 2] Understanding students are able to understand why some objects float or sink when immersed in fluid. 3] Application - students are able to apply the concept of buoyancy in real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions
Q1] How are buoyancy and density related?	Ans] Buoyancy is directly proportional to the density of the immersed fluid.
Q2] What are three types of buoyancy?	Ans] Three types of buoyancy are- ① Positive buoyancy ② Negative buoyancy ③ Neutral buoyancy
Q3] Why swimming in sea water is easier than freshwater?	Ans] Swimming in sea water is easier than freshwater because seawater contains more salt than freshwater. So, its density and buoyant force increase which makes it simpler to swim in seawater.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Buoyancy - Tendency of an object to float in a fluid. 2] Types of buoyancy - a] Positive b] Negative c] Neutral 3] Buoyant force - Upward force exerted by fluid on the immersed body. 4] Factors affecting buoyancy	*] To revise the topic taught in the class. *] To evaluate the knowledge gained *] To test the knowledge regarding buoyancy and buoyant force

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions.
Q-1] What are the primary forces acting on an object when it is submerged in water?	Ans] There are two primary forces acting on an object submerged in water. ① gravity ② buoyancy
Q-2] Why objects float or sink when placed on the surface of water?	Ans] objects having density less than that of liquid in which they are immersed, float on the surface of liquid. If the density of the object is more than the density of liquid, then it sinks in liquid.
Q-3] What are factors affecting buoyancy?	Ans] The factors affecting buoyancy are ① density of fluid ② the volume of the fluid displaced ③ acceleration due to gravity.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
H O M E W O R K		*] To utilize the free time. *] To create interest in the topic taught. *] To understand the concept properly

फलक सार

Black Board Summary

Day - Tuesday
Date - 17/10/23

Class - IX
Sub - Physics
Topic - Buoyancy

on roll -
present -
absent -

Buoyancy -
It is the tendency of an object to float in a fluid.

Types of Buoyancy
- Positive
- Negative
- Neutral

Homework - 1] How are buoyancy and density related to each other?
2] Why is buoyant force is important in swimming?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives home-work written on the blackboard. Homework - 1] How are buoyancy and density related to each other? 2] Why is buoyant force important in swimming?	Students write it down and solve by themselves in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 10

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Archimedes'

पाठ साहित्य Material Aids Chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Density, Mass

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		* To develop thinking, reasoning and imagination among students * To enable students to know about Archimede's Principle. * To enable students to understand applications of Archimede's Principle.

Aim of statement - Today we are going to

दिनांक Date 20/10/23

Principle

वर्ग Class IX th

volume of materials

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher ask some introductory questions	students give satisfactory answers to the asked questions.
Q-1] What happens when you submerge a big stone in a bucket of water?	Ans] The stone will ~~sk~~ sink to the bottom of the bucket.
Q-2] What change do you observe in the level of water?	Ans] The level of water seems to be increased after we submerge a big stone in it.
Q-3] Which force is exerted on the body when it is immersed in a fluid?	Ans] The upward buoyant force is exerted on the body when it is immersed in fluid.
study Archimede's Principle	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरण (Objectives with Specification)
PRESENTATION	Archimedes' Principle- The buoyant force is equal to the fluid that body displaces and acts in the upward direction at the center of mass of the displaced fluid.  Apparent weight = weight of object − Thrust force where, weight of object is in the air Thrust force is buoyancy.	1] Knowledge- students are able to know about concept of Archimedes Principle. 2] Understanding students are able to understand the actual and apparant weight of objects 3] Application students are able to apply concept of Archimedes' Principle in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What does the Archimedes principle state?	Ans] An object when submerged in a liquid fully or partially, it experiences an upward buoyant force that is equal in magnitude to the force of gravity on the displaced fluid.
Q.2] What is the formula for density of a liquid?	Ans] The density is given by mass divided by volume. Density = Mass / Volume
Q.3] What is the alternative name for buoyant force?	Ans] Buoyant force is also known as Thrust force.
Q.4] Thrust force is given by which formula?	Ans] Thrust force is given by formula $P \times V \times g$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Archimedes' Principle Formula - $F_b = \rho \times g \times V$ where, F_b - buoyant force, ρ - density of the fluid, g - acceleration due to gravity. also, Density (ρ) $= \frac{\text{Mass (M)}}{\text{Volume (V)}}$	1] Knowledge - Students are able to know about the concept of Archimedes' Principle. 2] Understanding Students are able to understand the actual and apparent weight of objects. 3] Application - Students are able to apply concept of Archimedes' Principle in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] When does the object float?	Ans] The object will float when the weight of the water is displaced equal to the weight of the object.
Q.2] What is a hydrometer?	Ans] Hydrometer is a device used for calculating the relative density of liquids.
Q.3] How does the density of a material of body determine whether it will float or sink in the water?	Ans] If a body has a density greater than that of a liquid, it will sink in it but if a body has an average density that is equal to or less than that of the liquid, the body shall float on it.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Archimedes' Principle- An object submerged in a fluid, experiences an upward buoyant force that is equal in magnitude to the force of gravity on the displaced fluid. 2] Archimedes' principle formula- $F_b = \rho \times g \times V$	*] To revise the topic taught in the class. *] To evaluate the knowledge gained. *] To test the knowledge regarding Archimede's Principle.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] Who discovered the Archimede's principle?	Ans] Greek mathematician Archimedes discovered the Archimede's principle.
Q.2] Where is the Archimedes' principle used?	Ans] Archimedes' principle is used in design of ships and submarines.
Q.3] If density of water is 1000 kg m^3, and volume of a steel ball is 1 m^3, then, find the resulting force using the Archimedes' principle.	Ans] According to Archimedes' principle $F_b = \rho \times g \times v$ $= 1000 \times 9.8 \times 1$ $= 9800$ N (∴ The resulting force will be 9800 N)
Q.4] Give some applications of Archimedes' principle.	Ans] Some of the applications of Archimedes' principle are hot air balloon, hydrometer and submarine.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create interest in the topic taught *] To understand the concept properly.

फलक सार
Black Board Summary

Day - Friday
Date - 20/10/23

Class - IX
Sub - Physics
Topic - Archimede's Principle

On roll -
Present -
Absent -

The buoyant force is equal to the fluid that body displaces and acts in upward direction at the center of mass of liquid

$F_b = \rho \times g \times V$

where,
F_b -- buoyant force
ρ -- density of fluid
g -- acceleration due to gravity

Homework - Q] Write the applications of Archimede's Principle.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard. Homework - Write applications of Archimede's principle?	Students write it down and solve by themselves in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 11

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Work and Units

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Force, displacem

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among the students.
		*] To enable students to know about the concept of work.
		*] To enable students to understand practical applications of work
Statement of Aim- Today we are going to		

दिनांक Date 25/10/23

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

of work done and directions of force and displacement

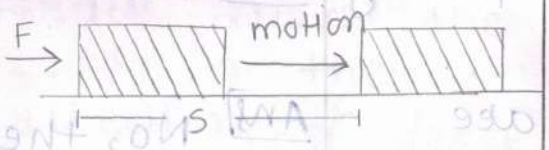
अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to the asked questions.
Q1] If I am reading a book. Is work done here?	Ans] No, the work is not done while reading a book.
Q2] If a boy is pulling a toy car with a string, is work done here?	Ans] Yes, the work is done by the boy on the toy car by pulling the string.
Q3] Is there a difference in meaning of work done in our day to day life and in physics?	Ans] Yes, there is a difference. In day to day life, if mental or physical efforts are applied, we say that work is done.

learn about work done and its units

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
P R E S E N T A T I O N	Work Done- Work is said to be done when a force displaces a body through certain distance in the direction of force. For example- A bullock pulling a cart, the cart moves. The bullock pulls the cart with a force which moves the cart in the direction of force and hence, the work is said to be done. Work done depends upon two factors ① Force ② Displacement	1] knowledge- students are able to know about the concept of work done. 2] Understanding- students are able to understand the meaning of work done. 3] Application- students are able to apply the concept of work done in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
1] What is work done?	Ans] When a force causes displacement in the same direction or opposite direction of force.
2] say, if the work is done or not in the following cases.	
a] Suma is swimming in a pond	Ans] Yes, the work is done
b] An engine is pulling a train.	Ans] Yes, the work is done
c] Food grains are getting dried in the sun.	Ans] No, the work is not done.
d] A sailboat is moving due to the wind energy.	Ans] Yes, the work is done.
e] A green plant is carrying out photosynthesis.	Ans] No, the work is not done.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Measurement of Work - Let a constant force F is acting on an object and displaces the object through a distance s in the direction of force applied then Work done = Force × displacement $W = F \times S$  If F = 1 N and S = 1 m then W = 1 Nm or 1 Joule	1] Knowledge - students are able to know about the concept of work done 2] Understanding - students are able to understand the meaning of work done. 3] Application - students are able to apply the concept of work done in real life examples/ situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q-1] A force of 5N is acting on an object displaced through 2m in the direction of force. What is the work done?	Ans] Work done = F×S = 5×2 = 10 Nm or 10 J (∴ The work done is 10 J)
Q-2] What are units of work done?	Ans] The units of work done are Nm or Joule
Q-3] If direction of force is perpendicular to the direction of displacement, then how much work is done?	Ans] If direction of force is perpendicular to the direction of displacement, then the work done will be zero.
Q-4] What is the work done by force of gravity on a satellite moving round the earth?	Ans] Force of gravity on the satellite is perpendicular to the displacement so, the work done on the satellite by the earth is zero.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Work - Two conditions are required - a] Force b] Displacement 2] Expression of work done $W = F \times S$ 3] Measurement Unit of work done - Nm or Joule	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the knowledge regarding work and its examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
1] What is the expression for work done?	Ans] Work done is given by the expression. $W = F \times S$ where W is the work done, F is the force and S is the displacement
2] What is the work done in the following cases?	
1] Direction of force and displacement are same.	Ans] The work done is positive.
2] Direction of force and displacement are opposite.	Ans] The work done is negative
3] Direction of force and displacement are perpendicular.	Ans] The workdone is zero.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create interest in the topic taught. *] To understand the taught concept thoroughly

फलक सार

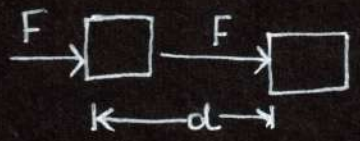
Black Board Summary

Day - Wednesday
Date - 25/10/23

Class - IX
Sub - Physics
Topic - work done

On roll -
Present -
absent -

Work done = F x d
= Force x displacement



Unit of work done
- Nm or Joule (J)

W = F x d
= 1 N x 1 m
= 1 Nm or 1 Joule

Homework - Q] A force of 7 N acts as an object. The displacement is 8 m in the direction of force. What is work done?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - 1] A force of 7N acts on an object. The displacement is 8m in the direction of force. What is the work done? 2] Define 1 J of work.	students write it down and solve by themselves in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 12

विषय Subject Physics

शाळा School V.L. convent

विषयांश Topic Energy - 1] Kine

पाठ साहित्य Material Aids chalk, duster blackboard

पूर्व ज्ञान Previous Knowledge Work, mass an

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specificati
INTRODUCTION		*] To develop thinking, reasoning and imagination among the students. *] To enable students to know about the concept of kinetic Energy *] To enable students to understand practical applications of kinetic Energy
Statement	of Aim- Today we	are going to

Energy and its Examples	दिनांक Date 27/10/23
	वर्ग Class IX
velocity	तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions.	students give satisfactory answers to the asked questions.
Q.1] Is it possible for you to do work without any energy?	Ans] No, it is not possible for us to do work without energy.
Q.2] How do you get energy to perform your day to day tasks?	Ans] We get energy from food we eat to perform our day to day tasks.
Q.3] Can you name some of the sources of energy?	Ans] Heat energy, light energy, electric energy, chemical energy are some of the sources of energy.

learn about Kinetic Energy

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Energy - Energy possessed by an object is its capacity of doing work. Unit of Energy - Unit of Energy is same as that of work i.e Joules Forms of Energy - 1] Mechanical Energy → a] kinetic Energy b] Potential Energy 2] Heat Energy 3] Light Energy 4] chemical Energy 5] Electrical Energy	1] Knowledge - students are able to know about the concept of kinetic Energy 2] understanding - Students are able to understand the energy acquired by the motion of an object 3] Application - Students are able to apply the concept of kinetic Energy to the real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] What is Energy?	Ans] Energy is the capacity of doing work.
Q.2] Define 1 J of energy.	Ans] 1 J is the energy required to do 1 J of work.
Q.3] 1 kJ = ?	Ans] 1 kJ = 1000 J
Q.4] Can a moving object do work?	Ans] Yes, a moving object possesses energy, so, it can do work.
Q.5] What is mechanical energy?	Ans] Mechanical energy is the sum of its kinetic and potential energy at given point of time.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Kinetic Energy - The energy possessed by an object in motion is kinetic Energy. $E_K = \frac{1}{2}mv^2$ E_K - kinetic Energy m - mass of object v - velocity	1] Knowledge - Students are able to know the concept of kinetic Energy.
	Examples - 1] A falling coconut 2] a speeding car 3] a flying aircraft 4] a running athlete	2] Understanding Students are able to understand the energy acquired by the motion of an object.
	Unit of KE - Joules (J)	3] Application - Students are able to apply concept of kinetic Energy to real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What is Kinetic Energy?	Ans] The energy possessed by an object due to its motion is kinetic Energy.
Q.2] What is mathematical expression for kinetic Energy?	Ans] The mathematical Expression for kinetic Energy is $E_K = \frac{1}{2}mv^2$
Q.3] What is the alternative formula for ~~kinetic Energy?~~ work done?	Ans] The formula for work done is W = change in kinetic Energy $= E_{Kf} - E_{Ki}$ = Final KE - Initial KE
Q.4] If an object is at rest, how much kinetic Energy does it has?	Ans] An object at rest has zero kinetic Energy.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Energy 2] Unit of Energy 3] Forms of Energy 4] Kinetic Energy 5] Expression of Kinetic Energy 6] Examples of Kinetic Energy 7] Unit of Kinetic Energy.	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the knowledge regarding Energy and its types

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q 1] A ball has a mass of 2kg. It travels at 10 m/s. Find the KE possessed by the body.	Ans] $m = 2kg$ $v = 10 m/s$ Kinetic energy possessed by the body $= \frac{1}{2}mv^2$ $= \frac{1}{2} \times 2 \times 10 \times 10$ $= 100 J$
Q 2] Which mechanical energy exists in moving bodies?	Ans] kinetic energy exists in moving bodies.
Q 3] If the speed of a body is doubled, then its kinetic Energy will be?	Ans] If the speed of a body is doubled, then its kinetic energy will be quadrupled.
Q 4] What will happen to the kinetic Energy of a body if its mass is doubled?	Ans] If the mass of a body is doubled, then its kinetic Energy will be doubled.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilise the free time *] To create interest in the topic taught. *] To understand the taught concept properly

फलक सार

Black Board Summary

Date - 27/10/23 Class - IX

Day - Friday Sub - Physics

Topic - Kinetic Energy

on roll -
Present -
absent -

Kinetic Energy

$E_k = \frac{1}{2} m v^2$

where,

E_k -- kinetic Energy

m ... mass of object

v ... velocity

$E_{kf} = \frac{1}{2} m v^2$

$E_{ki} = \frac{1}{2} m u^2$

$W = E_{kf} - E_{ki}$

unit of KE is Joules (J)

Homework - 1] An object of mass 15 kg is moving with a uniform velocity of $4 ms^{-1}$. What is the kinetic energy of the body.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - 1] An object of mass 15 kg is moving with a uniform velocity of $4 ms^{-1}$. What is the kinetic Energy of the body? 2] State the law of conservation of energy.	students write it down and solve by themselves in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No 13

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic [Energy - 2] Poten

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Mechanical Energ

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specificati
INTRODUCTION		*] To develop thinking, reasoning and imagination among the students. *] To enable students to know the concept of Potential Energy *] To enable students to understand practical applications of Potential Energy.

Statement of Aim - Today we are going

दिनांक Date 31/10/23

Energy and its Examples

वर्ग Class IX

Kinetic Energy

तासिका अवधी Length of the Period 35 min

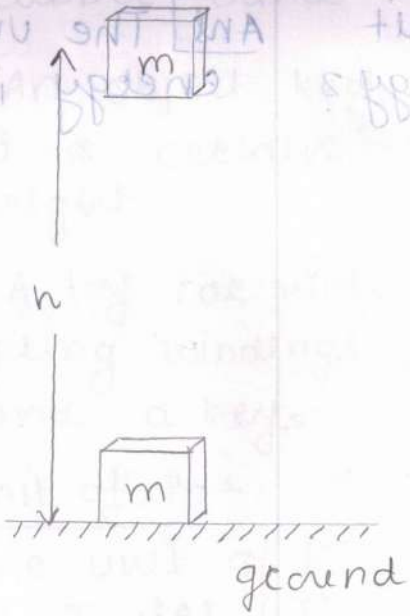
अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to the asked questions
Q.1] What is mechanical Energy of a body?	Ans] Mechanical Energy is the sum of kinetic and potential energy of the body at given point of time.
Q.2] If a body is at rest, what kind of energy will it have?	Ans] If a body is at rest, it will possess potential energy.
Q.3] A toy car on key, when placed on ground starts moving. From where did it gain its energy from?	Ans] A toy car with key has wounded spring. It gets energy from the number of windings of the key.

to learn about Potential Energy

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Potential Energy - The energy possessed by a body due to its change in the position or shape is called potential energy. Examples - 1] An arrow and the stretched string on the bow. 2] A stretched rubber band 3] An object kept at a certain height. 4] A toy car with spring windings and a key. Unit of PE - The unit of PE is Joules (J)	1] Knowledge - students are able to know the concept of potential Energy. 2] Understanding - students are able to understand energy possessed by virtue of position 3] Application - students are able to apply the concept of potential energy in real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What is potential energy?	Ans] The energy possessed by a body due to the virtue of its position or change in shape is called potential energy.
Q.2] What is the value of acceleration due to gravity on earth?	Ans] The value of 'g' i.e. acceleration due to gravity on the earth is $g = 9.8\ ms^{-2}$.
Q.3] What is the unit of potential energy?	Ans] The unit of potential energy is Joules (J).

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Mathematical Expression of PE - The gravitational potential energy of an object of mass m, raised through a height h from the earth's surface is given by $E_p = m \times g \times h$ $= mgh$ 	1] Knowledge - students are able to know the concept of potential energy and its unit. 2] Understanding - students are able to understand the ener possessed by object due to virtue of positio 3] Application - students are able to apply the concept of potential ener to real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q1] Can a body possess energy even if it is not in motion?	Ans] Yes, the body can possess potential energy even if it is not in motion.
Q2] Name the energy possessed by a stretched rubber band lying on table.	Ans] The energy possessed by a stretched rubber band is potential energy.
Q3] What is the mathematical expression of potential energy?	Ans] Potential energy of an object of mass m, kept at a height h can be given by $E_p = mgh$
Q4] Find the energy possessed by an object of mass 10 kg when it is at a height of 6 m above the ground?	Ans] $m = 10\,kg$ $h = 6\,m$ $E_p = mgh$ $= 10 \times 9.8 \times 6$ $= 588\,J$ (The potential energy of the given object is 588 J)

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Potential Energy 2] Examples of PE 3] Unit of PE 4] Mathematical Expression of Potential Energy	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the knowledge of students regarding potential energy.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What will be the total energy of a body falling freely towards the earth?	Ans] The total energy of a body freely falling towards earth remains constant.
Q.2] An object of mass 12 kg is at a certain height above the ground. If Ep = 480J, then find the height?	Ans] $m = 12kg$ $E_p = 480J$ $E_p = mgh$ $h = \frac{E_p}{mg} = \frac{480}{12 \times 10} = 4m$ (∴ The object is at the height of 4m)
Q.3] Define potential energy.	Ans] It is the energy possessed by the body due to its position or configuration.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilise the free time *] To create interest in the topic taught. *] To understand the concept properly

फलक सार
Black Board Summary

Day - Tuesday
Date - 31/10/23

Class - IX
Sub - Physics
Topic - Potential Energy

On roll -
Present -
absent -

Potential energy is possessed by a body due to its change in the position or shape is called potential energy

Potential Energy

$E_p = m \times g \times h = mgh$

where,
E_p ... potential energy
m ... mass of object
g ... acceleration due to gravity

Homework - Q] An object of mass 10 kg is at a certain height above the ground. If PE of the object is 100 J, find the height at which the object is placed.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard Homework - Q.1] An object of mass 10kg is at a certain height above the ground. If potential energy of the object is 100 J, find the height at which the object is placed. (Take $g = 10 ms^{-2}$)	students write it down and solve by themselves in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No 14

विषय Subject Physics

शाळा School V.L-Convent

विषयांश Topic Law of conseeva-

पाठ साहित्य Material Aids chalk, duster, blackboard

पूर्व ज्ञान Previous Knowledge Forms of Energy

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop twinking, reasoning and imagination among the students. *] To enable students to know the concept of law conservation of energy *] To enable students to understand the applications of law of conservation of energy

statement of Aim - Today we are going

दिनांक Date 20/11/23

tion of Energy

वर्ग Class IX

force

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher ask some introductory questions	Students give appropriate answers of the asked questions.
Q.1] The electric bulb in your home needs which type of energy?	Ans] The electric bulb needs electricity or electric energy to work.
Q.2] The electric bulb provides which type of energy to us?	Ans] The electric bulb emmits light and gives heat energy.
Q.3] How does the electric energy gets converted to heat and light energy?	Ans] The mechanism of an electric bulb makes the conversion of electric energy to heat and light energy

to learn Law of conservation of Energy.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Law of conservation of Energy- Energy can neither be created nor be destroyed. It can only be converted from one form to another. The total energy before and after the transformation remains the same. Examples- 1] In a loudspeaker, electrical energy is converted into sound energy. 2] In a microphone, sound energy is converted into electrical energy.	1] Knowledge- students are able to know concept of Law of conservation of energy. 2] Understanding students are able to understand that total energy of a system remains constant. 3] Application- students are able to apply the concept to real life energy conversions.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] Can we convert energy from one form to another form?	Ans] Yes, many human activities and gadgets we use involve conversion of energy from one form to another.
Q.2] What is energy?	Ans] Energy is the ability to do work.
Q.3] Which types of energy can be seen when a block slides down a slope?	Ans] When a block slides down a slope, potential energy is converted to kinetic energy
Q.4] What energy is stored in reservoir water?	Ans] Potential energy is stored in reservoir water
Q.5] What happens to the potential energy of a spring that is either compressed or stretched?	Ans] The potential energy of a stretched or compressed spring increases.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Conservation of Mechanical Energy At height H: $E_p = mgH$ $E_k = 0$ $\boxed{Total = mgH}$ At height h: $E_p = mgh$ $E_k = \frac{1}{2}mv^2$ $v = \sqrt{2g(H-h)}$ $E_k = \frac{1}{2}m(2g(H-h))$ $= mgH - mgh$ $\boxed{Total = mgH}$ At height zero: $E_p = 0$ $E_k = \frac{1}{2}mv^2$ $v = \sqrt{2gH}$ $E_k = \frac{1}{2}m \times 2gH = mgH$ $\boxed{Total = mgH}$	1] Knowledge- Students are able to know the concept of conservation of mechanical energy. 2] Understanding students are able to understand that Total mechanical energy is constant in a system. 3] Application- students are able to apply the concept of conservation of mechanical energy to real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q-1] State the principle of conservation of mechanical energy.	Ans] The total mechanical energy of the system is conserved. $ME = KE + PE$ $= \frac{1}{2}mv^2 + mgh$ $= constant$
Q-2] Give an example where heat energy is conserved into mechanical energy.	Ans] In a heat engine, heat energy is converted into mechanical energy.
Q-3] Is kinetic energy conserved in elastic collisions?	Ans] Yes, kinetic energy is conserved in elastic collisions.
Q-4] The process that allows complete conversion of mechanical energy is reversible or irreversible?	Ans] The process that allows complete conversion of mechanical energy is reversible in its nature.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Law of conservation of Energy 2] Examples of Law of conservation of energy 3] Conservation of mechanical energy at various heights $\frac{1}{2}mv^2 + mgh$ = constant.	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the knowledge of students regarding law of conservation of energy.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q 1] State the law of conservation of energy?	Ans] In a closed system, a system that is isolated from its surroundings, the total energy of the system is conserved.
Q 2] Give an example where potential energy is converted into kinetic energy.	Ans] When a bomb explodes, potential energy is converted into kinetic energy.
Q 3] Give an example to prove that energy is conserved.	Ans] A moving car proves that potential energy is converted into kinetic energy.
Q 4] Name a device that converts electrical energy into mechanical energy.	Ans] An electric motor converts electrical energy into mechanical energy.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create interest in the topic taught. *] To understand the concept properly.

फलक सार

Black Board Summary

Date- 20/11/23 Class- IX On roll-
Day- Monday Sub- Physics Present-
Topic- Law of conservation of Energy Absent-

According to the law of conservation of energy total mechanical energy of the system is conserved.

$$E_M = E_K + E_P$$
$$= \frac{1}{2}mv^2 + mgh$$
$$= \text{constant.}$$

Home work- 1] State the law of conservation of energy.
2] Give two examples of conservation of energy

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on blackboard.	students write it down and solve in their respective notebooks.
Homework - State the law of conservation of Energy. Give two examples of conservation of energy.	

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No 15 | विषय Subject Physics

शाळा School V.L. Convent | विषयांश Topic Power

पाठ साहित्य Material Aids Chalk, blackboard, Duster | पूर्व ज्ञान Previous Knowledge Work, Energy

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among the students. *] To enable students to know the concept of Power. *] To enable students to identify the applications of Power.
Statement of Aim - Today, we are going to		

दिनांक Date 22/11/23

वर्ग Class IX

and Time

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions.	students give appropriate answers of the asked questions.
Q-1] Do all of us work at the same rate?	Ans] No, all of us do not work at the same rate.
Q-2] consider two children A and B weighing same. If they start climbing a rope, will they take same time?	Ans] No, both the children will take different time even if their weights are same.
Q-3] In above question, who will do more work and who will take less time?	Ans] The stronger person will do work in less amount of time.
Learn about Power	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Concept of Power - Consider two children A and B. Let us say that they weigh the same. Both start climbing up a rope seperately. Both reach a height of 8m. A takes 15 sec while B takes 20 sec.	1] Knowledge - students are able to know the concept of power along with its units.
	Here, the work done by both is same. A has taken less time to do work than B.	2] Understanding - students are able to know and understand the representation of power.
	A has done more work in given time and B has done lesser ~~time~~ work in given time.	3] Application - students are able to apply the concept of power in real life situations

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher ask some questions related to topic.	students give appropriate answers to the asked questions.
If you want to travel a long distance, you prefer a car or a scooter?	Ans] If we want to cover a long distance, we will prefer a car over scooter.
Is power of car more than scooter?	Ans] Yes, Power of car is more than power of a scooter.
What can you conclude about above example?	Ans] A more powerful vehicle would complete journey in a shorter time than a less powerful one.
What does the Power measure?	Ans] Power measures the speed of the work done.
Does power of an agent remains the same?	Ans] No, the power of an agent varies with time.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Definition of Power- The rate of doing work or the rate of transfer of energy.	1] Knowledge- students are able to know the concept of power along with its units.
	Mathematical Expression for Power- If a person does a work 'W' in given time 't' then power is given by, $Power = \frac{work}{time}$ $P = \frac{W}{t}$	2] Understanding- students are able to understand the representation of Power.
	Average power $= \frac{\text{Total energy consumed}}{\text{Total time taken}}$	3] Application- students are able to apply the concept of Power in real life situations.
	Unit of Power- watt (W)	

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions
Q.1] Define Power?	Ans] Power is the rate of doing work.
Q.2] What is the formula for Power?	Ans] The power can be calculated with the help of expression $\text{Power} = \frac{\text{Work}}{\text{time}} \Rightarrow P = \frac{W}{t}$
Q.3] What is the unit of Power?	Ans] The unit of Power is watt.
Q.4] The unit of Power was named in whose honour?	Ans] The unit of Power Watt is named in the honour of James Watt (1736 - 1819)
Q.5] If a girl having weight 400N climbs up a rope through a height of 8 m in 20 sec. What is the power expended by the girl?	Ans] weight of the girl $mg = 400N$, height $= 8m$, time $= 20$ sec. $P = \frac{W}{t} = \frac{mgh}{t} = \frac{400 \times 8}{20} = 160W$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Concept of Power 2] Definition of Power 3] Mathematical Expression of Power 4] Average Power 5] Unit of Power	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the knowledge of students regarding the concept Power.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] Do an agent does same work at given interval of time?	Ans] No, the agent may be doing work at different rates at different intervals of time.
Q.2] Define 1 watt of power?	Ans] 1 watt is the power of an agent which does work at the rate of 1 joule per second. $1 \text{ watt} = \frac{1 \text{ joule}}{1 \text{ sec.}}$
Q.3] Complete the formula for 1 kW.	Ans] 1 kW = 1000 watts
Q.4] Define average power?	Ans] We obtain average power by dividing the total energy consumed by the total time taken. Average power $= \frac{\text{Total energy consumed}}{\text{Total time taken}}$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create interest in the topic taught. *] To understand the taught concept properly.

फलक सार
Black Board Summary

Day - Wednesday
Date - 22/11/23

Class - IX
Sub - Physics
Topic - Power

On roll -
Present -
Absent -

Power is the rate of doing work or the rate of transfer of energy

$$\text{Power} = \frac{\text{Work}}{\text{time}} = \frac{W}{t}$$

Unit of Power is Watt (W)

Homework - 1] A boy of mass 50 kg runs up to a staircase of 45 steps in 9 sec. If the height of each step is 15 cm. Find his power. (Take $g = 10\ ms^{-2}$)

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework then on blackboard Homework - A boy of mass 50 kg runs up a staircase of 45 steps in 9 s. If the height of each step is 15 cm, find power. (Take $g = 10\ ms^{-2}$)	students write it down and solve in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No 16

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Thrust and Pressure

पाठ साहित्य Material Aids chalk, black board, duster

पूर्व ज्ञान Previous Knowledge Area, mass

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टता Objectives with Specification
INTRODUCTION		*] To develop thinking reasoning and imagination among students *] To enable students to know the concept of Thrust and Pressure *] To enable students to identify the application of Thrust and Pressure
statement of Aim- Today, we are going		

दिनांक Date 24/11/23

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	Students give appropriate answers to the asked questions.
1] What does a doctor use to take blood tests?	Ans] Doctors use a syringe to take blood test.
2] How does vaccum cleaner in your home work?	Ans] A vaccum cleaner has a fan fixed inside it creates low pressure inside it. so, air and dirt particles are captured by force into the device.
To study force, Thrust	and Pressure

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Thrust Thrust is the force acting normally on a surface Thrust = F = m×g Unit of Thrust The unit of Thrust is same as that of force. It is N Newton. Thrust is a vector quantity.	1] Knowledge - students are able to know the concept of Thrust. 2] Understanding students are able to understand the concept of Thrust. 3] Application - students are able to apply the concept of Thrust in real life applications.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] What is Thrust?	Ans] Thrust is the force acting normally on a surface.
Q.2] What is the direction of Thrust?	Ans] The thrust is the force acting in the opposite direction of the force of gravity
Q.3] Give an example of Thrust	Ans] The pressure that is applied on a wooden block in a direction perpendicular to it, is known as Thrust.
Q.4] A wooden block is kept on the table, the mass of the block is 5 kg. Find the Thrust it exerted on the table.	Ans] Mass of the block $= 5kg$ Thrust $F = m \times g$ $= 5 \times 9.8$ $= 49N$ (∴ Thrust exerted by the block on table top is 49 N)

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Pressure Pressure is defined as the force per unit area. If a force is applied on a surface of area A, then pressure P is defined as, $P = \frac{F}{A}$ Unit of Pressure- The unit of pressure is $N m^{-2}$. Also called as Pascal (Pa) Pressure applied by Fluid Pressure = $\frac{\text{Thrust}}{\text{Area}}$	1] Knowledge- Students are able to know the concept of Pressure. 2] Understanding students are able to understand the concept of Pressure with Examples. 3] Application students are able to apply the concept of pressure to the real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions
Q.1] What is pressure?	Ans] The force applied perpendicular to the surface of an object per unit area over which that force is distributed is called as pressure.
Q.2] The unit Pascal is named in whose honour?	Ans] The SI unit Pascal is named in honour of scientist Blaise Pascal.
Q.3] Give an example of pressure?	Ans] When a block of wood is kept on a table, it exerts pressure on table.
Q.4] Define Pascal	Ans] A pascal can be defined as a force of one newton applied over a surface area of a one-metre square.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Thrust 2] Unit of Thrust 3] Pressure 4] Unit of Pressure	*] To revise the topic taught in the class
	5] Pressure applied by the fluid	*] To evaluate the knowledge gained by students
		*] To test the knowledge of students regarding the concept of Thrust and Pressure

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask some questions related to the topic	students give appropriate answers to the asked questions.
Q.1] A block of wood is kept on a tabletop. The mass of the block is 5kg and diamensions are 40cm × 20cm × 10cm. Find the pressure exerted on the table.	Ans] $m = 5kg$ $F = m \times g$ $= 5 \times 9.8 = 49N$ Area $= l \times b$ $= 40 \times 20 = 800 cm^2$ $= 0.08 m^2$ Pressure $= \frac{Thrust}{Area} = \frac{49}{0.08}$ $= 612.5 Nm^{-2}$
Q.2] The energy used in one hour at the rate of 1kW is known as ___	Ans] The energy used in an hour at the rate of 1kW is 1kWh.
Q.3] Why is it difficult to hold a school bag having a strap made of a thin and strong string?	Ans] It is difficult to hold a school bag having a thin strap because the pressure on the shoulders is quite large. The smaller the surface area, the larger will be the pressure on the surface.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
H O M E W O R K		*] To utilize the free time *] To create interest in the topic taught *] To understand the taught concept properly

फलक सार

Black Board Summary

Day - Friday
Date - 24/11/23

Class - IX
Sub - physics
Topic - Thrust and Pressure

On roll -
present -
absent -

Pressure =

$$P = \frac{F}{A}$$

unit of pressure is (Nm^{-2})

Thrust =

$$F = mg$$

unit of thrust is Newton (N)

Homework - 1] How much pressure is exerted by force of 50,000 N acting on 2.5 m^2?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard.	Students write it down and solve in their respective notebooks.
Homework -	
1] What pressure is exerted by force of 50000 N acting on 2.5 m^2?	

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No 17

विषय Subject Physics

शाळा School V.L. convent

विषयांश Topic Production and

पाठ साहित्य Material Aids chalk, duster blackboard

पूर्व ज्ञान Previous Knowledge Sources of sound,

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among students *] To enable students to know the concept of sound *] To enable students to understand the application of sound
Statement of Aim - Today, we are going		

दिनांक Date 25/11/23

Propagation of sound

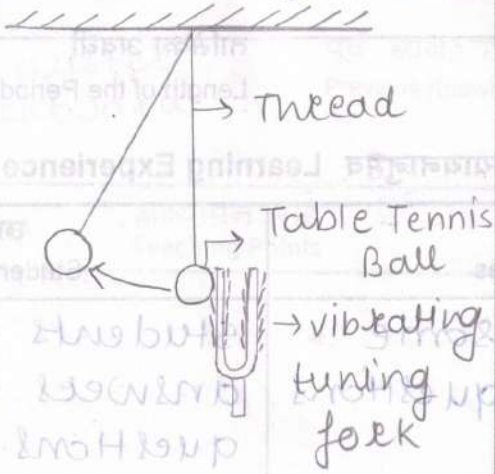
वर्ग Class IX

Basics of waves

तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give appropriate answers to the asked questions.
Q.1] Which sounds do you hear everyday?	Ans] Everyday we hear sounds from various sources like humans, birds, machines, radios televisions.
Q.2] Is sound a form of energy?	Ans] Yes, sound is a form of energy like light, heat and mechanical energy.
Q.3] What kind of sensation does sound creates?	Ans] Sound produces a sensation of hearing in our ears.
To learn about sound production and propagation.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Production of sound  Sound is produced when an object vibrates, creating a pressure wave. When a table tennis ball strikes a tuning fork, it produces sound. We set objects vibrating and produce sounds.	1] Knowledge- Students are able to know the concept of production of sound. 2] Understanding Students are able to know how sound waves are produced. 3] Application Students are able to apply the concept of production of sound in real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] Explain how sound is produced by your school bell?	Ans] When the bell is hit with a hammer, it moves forward and backwards with compressions and rare-factions due to vibration. This is how sound is produced.
Q.2] Sound waves are also called as?	Ans] Sound waves are also called as mechanical waves.
Q.3] How the sound of human voice is produced?	Ans] The sound of human voice is produced due to the vibrations of vocal chords.
Q.4] Can you create or produce sound without using energy?	Ans] No, sound cannot be produced without using energy.
Q.5] What is a vibration?	Ans] A vibration is a rapid to and fro motion of an object.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Propagation of sound  where, C are compressions R are rarefactions When an object vibrates, it sets the particles of medium around it vibrating. Alternate C and R are formed and and the process continues in the medium till it reaches your ear.	1] Knowledge - students are able to know the concept of propagation of sound. 2] Understanding - students are able to know how sound waves are propagated. 3] Application - students are able to apply the concept of propagation of sound in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic	students give appropriate answers of the asked questions.
Q.1] What does sound needs to propagate?	Ans] Sound requires a medium to propagate.
Q.2] Which is the most common medium through which sound travels?	Ans] Air is the most common medium through which sound travells.
Q.3] What is a compression? (C)	Ans] When a vibrating object moves forward, it pushes and compresses the air in front of it creating area of high region. This is called compression (C).
Q.4] What is a rarefaction? (R)	Ans] When the vibrating object moves backwards, it creates a region of low pressure called rarefaction (R).

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Production of sound 2] Propagation of sound → a] compressions → b] Rarefactions.	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by the students. *] To test the knowledge of the students regarding the concept of production and propagation of sound.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
1] What are compressions and rarefactions?	Ans] compression is the region of high pressure and rarefaction is the region of low pressure.
2] How pressure is related to the number of particles of a medium?	Ans] More density of the particles in the medium gives more pressure and vice versa.
3] Suppose you and your friend are on the moon. Will you be able to hear any sound produced by your friend?	Ans] No, sound waves need medium to propagate. Due to absence of an atmosphere on the moon, you will not be able to hear any sound produced by friend.
4] Is the law of conservation of energy applicable to sound waves?	Ans] Yes, the law of conservation of energy is applicable to the sound waves.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
H O M E W O R K		*] To utilize the free time. *] To create the interest in the topic taught. *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Friday
Date - 25/11/23

Class - IX
Sub - Physics
Topic - Sound

On roll -
Present -
Absent -

1] Sound is produced by vibration of object

2] sound needs a medium to propagate

3] Sound cannot travel through vaccume.

Homework - 1] Why are sound waves called mechanical waves?
2] What is carried by the waves from one place to another?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - Q-1] Why are sound waves called mechanical waves? Q-2] Sound travels through which medium? Q-3] What is carried by the waves from one place to another?	students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 18

विषय Subject Physics

शाळा School V.L. convent

विषयांश Topic characteristics

पाठ साहित्य Material Aids chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge Production and

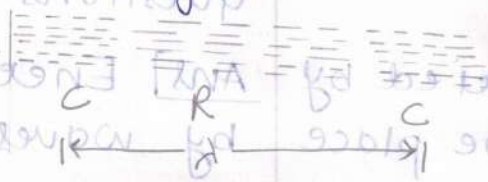
पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among students. *] To enable students to know the concept of sound. *] To enable students to understand the applications of sound.

Statement of Aim - Today we are going

a sound wave	दिनांक Date 21/12/23
	वर्ग Class IX
Propagation of sound	तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions.	students give appropriate answers to the asked questions.
Q1] What is carried by waves from one place to another?	Ans] Energy is carried by waves from one place to another.
Q2] A body produces ~~vibr~~ sound under which condition?	Ans] A body produces sound only if it vibrates.
Q3] In a long spring what types of changes occur when we move it?	Ans] In a long spring, compressions and rarefactions are formed when we move it.
To learn about characteristics of a sound wave.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	characteristics of a sound wave- 1] Wavelength - (λ) The distance between two consecutive C and R is called wavelength.  represented by - λ Unit - metre (m) 2] Time period (T) The time taken by the wave for one complete oscillation of the density or pressure of medium represented by - T Unit - second (s)	1] Knowledge- students are able to know the characteristics of a sound wave. 2] Understanding students are able to understand the characteristics of a sound wave. 3] Application students are able to apply characteristics of a sound wave in real life scenarios

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers of the asked questions.
Q.1] If a wave completes 20 vibration in 2.5 s, then its frequency is?	Ans] frequency of the given wave is $\frac{20}{2.5}$ $\frac{200}{25} = 8\,Hz$
Q.2] If the distance between a crest and its consecutive trough L, then the wavelength of the wave is given by,	Ans] If the distance between a crest and consecutive trough is L, then the wavelength is given by 2L.
Q.3] A boat is set into vertical vibration by waves of speed 5 ms^{-1} whose crests are 5 m apart. Find the time period of the vertical vibration of the boat	Ans] The time period of the vibration of the boat is given by 1 second.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	3] Frequency (ν) The number of complete oscillations per unit time is called frequency. $\nu = \frac{1}{T}$ Represented by - ν Unit - (Hz) 4] Amplitude - (A) The magnitude of the maximum disturbance in the medium on either side of the mean value is called the amplitude of the wave. Represented by - A	1] Knowledge students are able to know the properties of a sound wave 2] Understanding students are able to understand the properties of a sound wave 3] Application students are able to apply properties of sound wave in real life scenarios.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What is determined by the amplitude of the wave?	Ans] The loudness or softness of a sound is determined by its amplitude.
Q.2] Which wave characteristics determine the pitch of a wave?	Ans] The pitch is determined by the frequency. The pitch of the sound and its frequency is directly related to each other.
Q.3] The frequency of the sound waves can be expressed in which unit?	Ans] The frequency of the sound waves can be expressed in cycle per second.
Q.4] Guess which of the following sound has a high pitch- guitar or cat horn?	Ans] The pitch of sound and its frequency are directly related. ~~to~~ So, a guitar has a higher pitch when compared to a cat horn.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Wavelenght 2] Time Period 3] Frequency 4] Amplitude	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by the students. *] To test the knowledge of the students regarding characteristics of a sound wave.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] How are speed, frequency and wavelength related?	Ans] The speed v, frequency ν and wavelength λ are related by the eqn $v = \lambda \nu$
Q.2] What is the SI unit of amplitude of motion?	Ans] The SI unit of amplitude of motion is metre (m).
Q.3] The reciprocal of frequency is?	Ans] The reciprocal of frequency is time period.
Q.4] A fan is marked 900 rpm. What is the frequency of movement of its blades?	Ans] frequency of the blades of the fan can be given by $\frac{900}{60} = 15$ Hz.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time. *] To create the interest in the topic taught *] To understand the taught concept properly

फलक सार

Black Board Summary

Day -- Thursday
Date - 21/2/23

Class - IX
Sub - Physics
Topic - characteristics of sound wave

On roll -
Present -
Absent -

Characteristics

① Wavelength (λ)

② Time period (T)

③ Frequency (ν) = 1/T
Reciprocal of Time

④ Amplitude (A)

Homework - 1] A wave completes 24 cycles in 0.8 sec. The frequency of wave is -
2] Define - a] Pitch b] Loudness

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - 1] A wave completes 24 cycles in 0.8 sec. The frequency of the wave is ? 2] Define - a] pitch b] Loudness	students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No: 19

विषय Subject: Physics

शाळा School: V.L. Convent

विषयांश Topic: Sound - Applica

पाठ साहित्य Material Aids: chalk, blackboard, duster

पूर्व ज्ञान Previous Knowledge: characteristics

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among students. *] To enable students to know various uses of sound. *] To enable students to understand the applications of sound.
statement of Aim - Today we are going to		

दिनांक Date 22/12/23

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

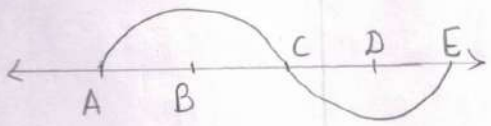
अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
Q.1] Why do we hear the sound of thunder a little later than the flash?	Ans] The sound travels with a speed lesser than speed of light, so, we see flash first and then hear thunder.
Q.2] For hearing a distinct sound, the time interval between the original sound and the reflected sound should be?	Ans] For hearing a distinct sound, the time interval between original sound and the reflected sound must be at least 0.1 sec.
Study applications of sound.	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Uses of multiple Reflection of sound 1] Megaphones or loudhailers, horns, musical instruments - trumpets - shehanais 2] stethoscope - used for listening to sounds produced within the body mainly heart or lungs. 3] ceilings of cinema halls and conference halls, concert halls are curved so that sound after reflection reaches all corners of the hall.	1] Knowledge - students are able to know applications of sound. 2] Understanding students are able to understand applications of sound. 3] Application students are able to apply sound basics in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some introductory questions	students give appropriate answers to the asked questions.
Q-1] The persistence of sound in an auditorium is the result of reflection of sound is given by which phenomenon?	Ans] The persistence of sound in an auditorium is the result of repeated reflections of sound is called reverberation.
Q-2] What is the relation between speed, frequency and wavelength?	Ans] The speed v, frequency u and wavelength λ of sound are related by the equation $v = \lambda u$
Q-3] In which medium, speed of sound is maximum?	Ans] speed of sound is maximum in solids.
Q-4] What is the frequency to which human ears are most sensitive to?	Ans] Human ears are most sensitive to the sound frequencies between 20 Hz to 20 kHz

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Infrasonic sound- - The sounds of frequency less than 20 Hz. - Frequency is lower than limit of human hearing - Ex - sound produced by thunder, earthquake Ultrasonic sounds - The sound of frequency more than 20,000 Hz are called ultrasonics. - Frequency is above upper limit of human hearing - Ex - The audible range of dogs, cats, moths and mice.	1] Knowledge- students are able to know applications of sound. 2] Understanding students are able to understand applications of sound 3] Application students are able to apply sound basics in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some introductory questions	students give appropriate answers to the asked questions.
1] Which waves are produced by bats?	Ans] Ultrasonic waves are produced by bats.
2] What is the maximum tolerable sound to human ears?	Ans] Maximum tolerable sound to human ears is 120 dB.
3] Which waves are used in SONAR?	Ans] In SONAR, ultrasonic waves are used.
4] When does the sound travels in air?	Ans] When the disturbances moves, sound travels in the air.
5] In the curve, half the wavelength is - 	Ans] In the given figure half of the wavelength is AC = CE or BD

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Applications of sound 2] Uses of multiple reflections of sound 3] Infrasonic sound 4] Ultrasonic sound	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by the students. *] To test the knowledge of the students regarding applications of sound.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	Students give appropriate answers to the asked questions.
1] Which kind of sound is produced by earthquake?	Ans] An earthquake produces infrasound kind of sound before mainshock wave begins.
2] Echo can be heard clearly with which minimum distance?	Ans] Echo can be heard clearly if the minimum distance between the source of sound and the obstacle is 17.2 meter.
3] Fill in the following blank. Infrasound can be heard by —	Ans] Infrasound can be heard by rhinoceros.
4] What is an oscillation?	Ans] The change in the density from one maximum value to the minimum value and again to the maximum value makes one complete oscillation.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilise the free time. *] To create the interest in the topic taught. *] To understand the taught concept properly.

फलक सार

Black Board Summary

Day - Friday
Date - 22/12/23

Class - IX
Sub - Physics
Topic - Applications of Sound

On roll -
Present -
Absent -

Infrasonic sound	Ultrasonic sound
frequency is less than 20 Hz	frequency is more than 20,000 Hz

Homework - state true or false

1] Sound is produced due to vibration of different objects.

2] Sound propagates in a vaccum.

अध्ययनानुभव (Learning Experience)

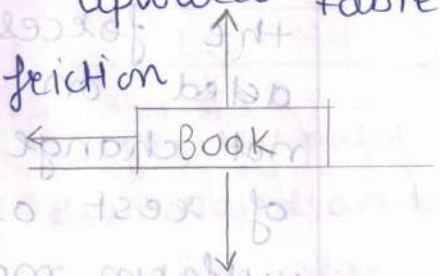
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework - State True or False. a] Sound is produced due to the vibration of different objects. b] sound propagates in a vaccum.	students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Balanced Force The table pushes upward on book ↑ Book ↓ gravity pulls downward on book There are two forces acting on the book 1] Earth's gravitational force exerts a downward force. 2] The push of the table on the book pushesh upward on the book. We can say that forces on the book are balanced	1] Knowledge students are able to know the concept of balanced forces 2] Understanding students are able to understand balanced forces in the nature 3] Application students are able to apply concept in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some introductory questions	students give appropriate answers to the asked questions
1] Define balanced force	Ans] Balanced forces are the forces which when acted on a body do not change their state of rest or state of uniform motion.
2] What are characteristics of balanced forces?	Ans] Balanced forces are equal in size and magnitude. These forces work in opposite directions.
3] Give any three examples of balanced forces.	Ans] Three examples of balanced forces are ① An object floating in water ② A jacket hanging on a hook ③ Planets orbiting around the sun in fixed orbits.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
	Unbalanced Force consider a book sliding from left to right across a tabletop  The forces acting upon the book are 1] Force of gravity pulling downward 2] Force of table pushing upward 3] Force of friction There is an unbalanced force opposite to the motion of book.	1] knowledge students are able to know the concept of unbalanced forces. 2] Understanding Students are able to understand unbalanced forces in the nature 3] Application students are able to apply concept to solve various problems in daily life.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some introductory questions	students give appropriate answers to the asked questions
Q.1] Define unbalanced force.	Ans] When the resultant force acting on a body is not equal to zero and eventually results in the motion of the body, such forces are called unbalanced force.
Q.2] Give any three examples of unbalanced forces.	Ans] Three examples of unbalanced forces are ① An object sinking in water ② A fruit dropping from a tree ③ A group of kids winning a tug of war game.
Q.3] If a force of 40N is applied to body on the left side while a force of 40 N is applied to the body on right side. What will be the behaviour of the body?	Ans] The body will be at rest because the net force on the body is 0N. which means that there is no change in the state of motion of the body

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Balanced force 2] Unbalanced force 3] If N is the number of forces acting on the body, $F_{net} = F_1 + F_2 + F_3 + \ldots + F_n$ $F_{net} = F_a + F_g$ where, F_a -- Applied force F_g -- gravitational force	1] To revise the topic taught in the class. 2] To evaluate the knowledge gained by students. 3] To test the knowledge of students regarding balanced and unbalanced forces.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] What are the quantities that force can change?	Ans] Force can change the speed, shape and direction of an object.
Q.2] When a body is in motion, in which direction does the friction act?	Ans] The friction acts in the opposite direction to the motion of the body.
Q.3] What is the SI unit of force?	Ans] SI unit of force is Newton (N)
Q.4] What is the aggregate of all forces exerted on an object called?	Ans] The net force is the sum of all forces exerted on a body.
Q.5] What is the formula for weight?	Ans] Formula for weight is $F = m \times g$ where m, is mass of body g is acceleration due to gravity

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
HOMEWORK		*] To utilize the free time *] To create interest in the topic taught *] To understand the taught concept properly

फलक सार
Black Board Summary

Day - Friday
Date - 23/12/23

Class - IX
Sub - Physics
Topic - Balanced and Unbalanced forces

On roll -
Present -
Absent -

Balanced Forces

- Equal in size and magnitude
- work in opposite directions.

Unbalanced forces

- Resultant force acting on a body is not zero.

$F_{net} = F_1 + F_2 + \dots + F_n$

$F_{net} = F_a + F_g$

Homework - Q] In the game of rope pulling, a man with force of 100N from one side and other pulls with 90N from other side What is the net force?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard. Homework- 1] In the game of rope pulling, a man with a force of 100N from one side and other pulls with 80N from other side. What is the net force?	Students write it down and solve it in their respective notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

SHEELA MULTIPURPOSE SOCIETY

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WADI, NAGPUR

2023 - 2024

MICRO - TEACHING
LESSON PLANNING BOOK
सूक्ष्म अध्यापन
पाठ नियोजन पुस्तिका

Name Ku. Ranjana P. Sardar.
नांव

Number _____
क्रमांक

Subject 1) Maths
विषय

2) physics.

अनुक्रमणिका
INDEX

पाठांक S.No.	दिनांक Date	कौशल्य क्रमांक Skill No.	हस्ताक्षर Signature
1.	22/11/23	1) Introduction skill i) Mathematics ii) physics	Skelbande
2.	29/11/23	2) Questioning skill i) Mathematics ii) physics	Skelbande
3	4/12/23	3) Explanation skill i) Mathematics ii) physics	Skelbande
4.	9/12/23	4) Stimulus variation skill i) Mathematics ii) physics	Skelbande
5.	15/12/23	5) Blackboard Writing skill i) Mathematics ii) physics	Skelbande
6.		6) Inspection i) Mathematics ii) physics	Skelbande
7	21/12/23	7) Reinforcement skill i) Mathematics ii) physics	Skelbande
8	28/12/23	8) Illustrating with examples i) Mathematics ii) physics	Skelbande
9	3/1/24	9) Closure skill i) Mathematics ii) physics.	Skelbande

INTRODUCTION SKILL
प्रस्तावना कौशल्य

Subject :- Mathematics

Topic :- Quadratic equation

वेळ – ५ मिनिट

Time Duration : 5 Minutes

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
Note :- Teacher ask question about topic	Note :- student answered properly	
Que. 1) What is polynomial ?	Ans :- It is an expression of variable like $x+y$, x^2+2x+2 etc.	previous knowledge
2) Types of polynomials ?	=> Linear, quadratic, cubic etc. are the types of polynomial	students attention
3) What is the equation ?	=> When an expression is equal to zero is called as polynomial equation.	previous knowledge

INTRODUCTION SKILL
प्रस्तावना कौशल्य

Subject :- Mathematics

Topic :- quadratic equation.

वेळ – ५ मिनिट
Time Duration : 5 Minutes

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
4) What is linear equation ?	=> The equation having highest power of variable 1 is called linear equation.	student Attention
5) In which equation having highest power of variable is 2 ?	=> In the quadratic equation having highest power of variable is 2.	Student Attention

Statement of Aim :- so today we have learn about the topic quadratic equation

INTRODUCTION SKILL
प्रस्तावना कौशल्य

subject :- physics
Topic :- Motion

वेळ – ५ मिनिट
Time Duration : 5 Minutes

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
Note :- Teachers ask question about topic	Note :- students answered properly	
1) What is acceleration ?	=> Rate of change of velocity with time is called acceleration.	previous knowledge
2) Types of acceleration ?	=> There are two types of acceleration i.e. uniform acceleration and Non-uniform acceleration.	previous knowledge
3) What is velocity?	=> The speed of an object moving in a definite direction is called velocity.	student attention

INTRODUCTION SKILL
प्रस्तावना कौशल्य

वेळ – ५ मिनिट
Time Duration : 5 Minutes

Subject :- Physics
Topic :- Motion

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
4) What is speed?	=> Distance travelled by the object in unit time is called speed.	student Attention
5) What is movement?	=> change in position of an object with respect to a fixed position is called movement.	previous knowledge
6) What is the other name of movement?	=> The other name of movement is motion	students Attention.

Statement of Aim :- so today we have learn about the topic motion.

INTRODUCTION SKILL
प्रस्तावना कौशल्य
OBSERVATION CHART
निरीक्षण तक्ता

वेळ – ५ मिनिट

Time Duration : 5 Minutes

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) लक्षवेधक प्रेरण मिळाले काय ? अभिप्रेरणा प्राप्त हुई क्या ? Motivated or not				✓	
2) शेवट पर्यंत लक्ष खिळवून ठेवण्यात यश मिळाले काय ? शुरू से अंत तक ध्यान स्थिर रहा की नही ? Attention of the students was from the start till end or not.				✓	
3) अपेक्षित पुर्वज्ञान जागृती केली काय ? अपेक्षित पुर्वज्ञान जागृत हुवा की नही ? Previous knowledge was araised or not.					✓
4) पाठ्यघटकाची सांगड पुर्वानुभवाशी घातली गेली काय ? पाठ्यांश पुर्वानुभव के साथ जोडा गया की नही ? Whether the topic was related to previous knowledge or not.				✓	

FEEDBACK प्रत्याभरण

Introduction skill is good. student was motivated. Attention of the student was from the start till end previous knowledge was craise. topic was related to previous knowledge.

INTRODUCTION SKILL

प्रस्तावना कौशल्य

OBSERVATION CHART

निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) लक्षवेधक प्रेरण मिळाले काय ? अभिप्रेरणा प्राप्त हुई क्या ? Motivated or not					✓
2) शेवट पर्यंत लक्ष खिळवून ठेवण्यात यश मिळाले काय ? शुरू से अंत तक ध्यान स्थिर रहा की नही ? Attention of the students was from the start till end or not.				✓	
3) अपेक्षित पुर्वज्ञान जागृती केली काय ? अपेक्षित पुर्वज्ञान जागृत हुवा की नही ? Previous knowledge was araised or not.				✓	
4) पाठ्यघटकाची सांगड पुर्वानुभवाशी घातली गेली काय ? पाठ्यांश पुर्वानुभव के साथ जोडा गया की नही ? Whether the topic was related to previous knowledge or not.				✓	

FEEDBACK प्रत्याभरण

Introduction skill is good student was motivated. Attention of the student was from the start till end previous knowledge was raise topic was related to previous knowledge

Shelbade

QUESTIONING SKILL
प्रश्न कौशल्य

Sr. No. 1
क्रमांक

Subject - Mathematics
विषय

Teaching
अध्यापन

Sub – Unit - Quadratic equation
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge - About polynomial
पूर्वज्ञान

Class - 10
वर्ग

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
Teacher Activity	Student Activity	Sub-skills
Note :- Teacher ask question about the topic.	Note :- students answered property	
1) What is quadratic equation?	⇒ The equation having highest power of variable 2 is called quadratic equation.	Low level question
2) What is cubic equation?	⇒ The equation having highest power of variable 3 is called cubic equation	how level question
3) What is biquadratic equation?	⇒ An equation in the form of ax^4+bx^2+c is called biquadratic equation.	high level question

QUESTIONING SKILL
प्रश्न कौशल्य

Sr. No. / क्रमांक .....

Subject :- Mathematics / विषय

Teaching / अध्यापन .....

Sub – Unit - Quadratic equation / विषयांश

Re-Teaching / पुनर्ध्यापन .....

Previous Knowledge / पूर्वज्ञान About polynomial

Class / वर्ग 10

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
Teacher Activity	student Activity	sub-skill
4) What are the types of quadratic equation	=> standard form factored form and vector form are the type of quadratic equation	Mid level question
5) Give example of linear quadratic equation	=> The example of linear quadratic equation is x^2+x	Low level question.

QUESTIONING SKILL
प्रश्न कौशल्य

Sr. No. 2
क्रमांक

Subject :- Physics
विषय

Teaching
अध्यापन

Sub – Unit :- Motion
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge :- Distance, speed
पूर्वज्ञान

Class 9th
वर्ग

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
Teacher Activity	student Activity	Sub-skill
Note :- Teachers ask question related to the topic.	Note :- students answered properly	
1) What is motion ?	=> The change in position of an object with respect to fixed position of object is called motion	Low level question.
2) Give some example of motion ?	=> 1) A book falling off a table 2) Water flowing from the tap are the example of motion.	
3) What are the types of motion ?	Lineur motion, Rotary motion, oscillatory motion are the types of motion.	

QUESTIONING SKILL
प्रश्न कौशल्य

Sr. No. ..... क्रमांक

Teaching ..... अध्यापन

Re-Teaching ..... पुनर्ध्यापन

Subject ....Physics..... विषय

Sub – Unit :- Motion..... विषयांश

Previous Knowledge : distance speed..... पूर्वज्ञान

Class ....9..... वर्ग

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
Teacher Activity	students Activity	Sub-skill
4) What is vertical motion and horizontal motion ?	⇒ uniform velocity is measured along y-axis is called vertical motion and uniform velocity is measured along x-axis is called horizontal motion.	high level question
5) What is uniform motion?	If an object travels equal distances in equal intervals of time is called uniform motion.	Mid level question

QUESTIONING SKILL
प्रश्न कौशल्य
OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Type of Question प्रश्नाचे प्रकार/प्रश्न के प्रकार		✓								
2) Level of Question प्रश्नाचे स्तर/प्रश्न का स्थर			✓							
3) Objective of Question उद्दिष्टानुसार प्रश्न उद्दिष्ट के अनुसार प्रश्न				✓						
i) Knowledge ज्ञान										
ii) Understanding आकलन					✓					
iii) Application उपयोजन					✓					
iv) Skill कौशल्य								✓		

FEEDBACK प्रत्याभरण

Teacher asked the different types of question is of understanding level Some question are knowledge based some are on understanding objective and Some are an application.

QUESTIONING SKILL

प्रश्न कौशल्य

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Type of Question प्रश्नाचे प्रकार/प्रश्न के प्रकार	✓									
2) Level of Question प्रश्नाचे स्तर/प्रश्न का स्थर		✓								
3) Objective of Question उद्दिष्टानुसार प्रश्न उद्दिष्ट के अनुसार प्रश्न				✓						
i) Knowledge ज्ञान		✓								
ii) Understanding आकलन										
iii) Application उपयोजन					✓					
iv) Skill कौशल्य					✓					

FEEDBACK प्रत्याभरण

Teacher asked the different types of question is of understanding level. Some question are knowledge based some are on understanding objective and some are an application.

EXPLANATION SKILL
स्पष्टीकरण कौशल्य

Sr. No. 1
क्रमांक

Subject :- [illegible]
विषय

Teaching
अध्यापन

Sub – Unit :- Quadratic equation
विषयांश.

Re-Teaching
पुनर्ध्यापन

Previous Knowledge :- About polynomial
पूर्वज्ञान

Class 10
वर्ग

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
Teacher Activity	Student Activity	Sub-skill
Note :- Teacher ask question related to the topic.	Note :- Student answered properly	
Q. What is quadratic equation => $x^2 + 4x + 2 = 0$ Quadratic equation can be in one variable or two variable One variable :- $x^2+4x+2=0$ Two variable :- $x^2+3xy+2=0$ Now, we have to study quadratic equation in one variable	=> The equation having highest power of variable 2 is called quadratic equation	Initial statemen Explanatio Conjuction.

EXPLANATION SKILL
स्पष्टीकरण कौशल्य

Sr. No. 1
क्रमांक

Teaching
अध्यापन

Re-Teaching
पुनर्ध्यापन

Subject Mathematics
विषय

Sub – Unit :- Quadratic equation
विषयांश.

Previous Knowledge :- About polynomial
पूर्वज्ञान

Class 10
वर्ग

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
Teacher Activity	Student Activity	Sub-skill
Q. What is the solution of quadratic equation ⇒ ex:- $x^2+4x+4=0$ Here by putting $x=-2$, we get, LHS $=(-2)^2+4(-2)+4$ $=4-8+4=0$ LHS = RHS ∴ $x=-2$ is the solution or root of the given equation i.e. After putting $x=-2$ in above equation LHS = RHS.	The value of variable that satisfy the equation is called solution or roots. or zeros.	Initial statement ⇒
Thus by putting various value of variable in given equation we can find the solution / root / zero's of the given equation.		Final statement

EXPLANATION SKILL
स्पष्टीकरण कौशल्य

Sr. No. 2.
क्रमांक

Subject :- Physics
विषय

Teaching
अध्यापन

Sub – Unit :- Motion
विषयांश.

Re-Teaching
पुनर्ध्यापन

Previous Knowledge :- Types of motion
पूर्वज्ञान

Class 9
वर्ग

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	students Activity	sub-skill
Note :- Teachers ask question related to the topic	Note :- student answered properly	
Q.) uniform motion is one of the following category of motion.	students are listening and looking towards blackboard.	Audio-visual
=> Here uniform motion is defined as the motion of the particle or object from one point to another point with constant uniform speed. Let us take an example that car is moving with speed of 40 km/hr. from point A to point B.		
Here speed is constant which means car is covering equal distance in equal time interval.		Final statemen

EXPLANATION SKILL
स्पष्टीकरण कौशल्य

Sr. No. 2
क्रमांक

Teaching
अध्यापन

Re-Teaching
पुनर्ध्यापन

Subject Physics
विषय

Sub – Unit :- motion
विषयांश.

Previous Knowledge :- Type of motion
पूर्वज्ञान

Class 9
वर्ग

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	Students Activity	Sub-skill.
→ Imagine a train is moving with uniform speed of 20m/s it means for every second train is covering a distance of 20m. Hands of clock always moves with uniform speed thus it is an example of uniform motion Thats why we use clock for the purpose of measurement of times. From the above discussion what we can conclude is that whenever an object moves with constant speed it perform uniform motion and the distance covered in unit time is always same throughout the motion.	Student are listening and looking towards blackboard.	purposive Recapitulation. Final statement

EXPLANATION SKILL
स्पष्टीकरण कौशल्य
OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Initial Statement प्रथम विधान		✓								
2) Explanation Conjunction स्पष्टीकरण दुवे				✓						
3) Use of audio - visual दृक्श्राव्य साधनाचा वापर					✓					
4) Purposive Recapitulation योजनापुर्वक पुनरावलोकन योजनापुर्वक पुनरावृत्ती						✓				
5) Final Statement अंतिम विधान							✓			

FEEDBACK प्रत्याभरण

Explanation part has been tough. Initial statement and final statement are attentive for students.

EXPLANATION SKILL
स्पष्टीकरण कौशल्य
OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Initial Statement प्रथम विधान	✓									
2) Explanation Conjunction स्पष्टीकरण दुवे		✓								
3) Use of audio - visual दृक्श्राव्य साधनाचा वापर			✓							
4) Purposive Recapitulation योजनापुर्वक पुनरावलोकन योजनापुर्वक पुनरावृत्ती				✓						
5) Final Statement अंतिम विधान					✓					

FEEDBACK प्रत्याभरण

Explanation part has been taught. initial statement and final statement are attentive for students.

Feedback

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. / क्रमांक: 1

Subject / विषय: Mathematics

Teaching / अध्यापन

Sub – Unit / विषयांश: Quadratic equation

Re-Teaching / पुनर्ध्यापन

Previous Knowledge / पूर्वज्ञान: About quadratic equation

Class / वर्ग: 10

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
Teacher activity	students activity	sub-skill
Note:- Teacher ask question related to the topic.	Note:- student answered properly	
Now we will study method for finding the roots of giving equation.	There are three method:- a) Factorization b) perfect square method, c) formula method.	Gesture of teacher
What is factor?	=> $(x+2)$ is the factor of $x^2+4x+4=0$	
In factorization method we have to find the factor of middle term		

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. 1 क्रमांक

Subject :- Mathematics विषय

Teaching अध्यापन

Sub – Unit :- Quadratic equation विषयांश

Re-Teaching पुनर्ध्यापन

Previous Knowledge : About quadratic equation पूर्वज्ञान

Class 10 वर्ग

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	Student Activity	
ex $x^2+4x+4=0$ $x^2+2x+2x+4=0$ $x(x+2)+2(x+2)=0$ $x+2=0$ | $x+2=0$ $x=-2$ | $x=-2$ Here, $(x+2)$ is a factor and $x=-2$ is a solution Solve:- $x^2-4x+4=0$ $x^2-2x-2x+4=0$ $x(x-2)-2(x-2)=0$ $(x-2)(x-2)=0$ $x=2$.		
What is quadratic equation	A quadratic equation is a second-order polynomial equation in a single variable x $ax^2+bx+c=0$.	

STIMULUS VARIATION SKILL
चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. 2
क्रमांक

Subject :- Physics
विषय

Teaching
अध्यापन

Sub – Unit :- Motion
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge :- About motion
पूर्वज्ञान

Class 9 D
वर्ग

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	Student Activity	Sub-skills
Note:- Teachers ask question related to the topic	Note:- student answered properly	
Q) As we have studied uniform motion is a motion with constant speed, is earth is performing uniform motion?	=> yes, because earth completes its rotation in one year	Gesture of teacher
Q) Theoretically we can say that earth rotate with constant speed, Imagine that speed is changed then what will happend?	=> Time will change for the completion of one rotation around earth and we will not get 365 days in one year.	Active participation of students.

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. ..... Subject – Physics
क्रमांक विषय

Teaching ..... Sub – Unit :- Motion
अध्यापन विषयांश

Re-Teaching ..... Previous Knowledge – About Motion
पुनर्ध्यापन पूर्वज्ञान

Class 19
वर्ग

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	Student Activity	(Sub-Skill)
Explanation about non-uniform motion by taking a practical example.		Movement of teacher
If the speed varies with time then the motion is non-uniform motion.		
What happen when we drive on road having heavy traffic our speed varies every second it means that we are not moving with constant speed thus have to perform non-uniform motion.		change in speech pattern.
give example of uniform motion	1) An aeroplane travelling at a constant height and speed 2) A train is moving steadily along the straight rails.	

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Movement of Teacher शिक्षक हालचाल / विधाऐ			✓							
2) Gesture of Teacher शिक्षक हावभाव				✓						
3) Change in stimulus variation चेतक बदल/उदिपन भिन्नता						✓				
4) Change in Speech Pattern भाषा शैलीत परिवर्तन भाषा शैली में परिवर्तन							✓			
5) Verbal participation of students विद्यार्थ्यांचा शाब्दिक सहभाग छात्र का शाब्दिक सहभाग								✓		
6) Active Participation of Students विद्यार्थ्यांचा सक्रिय सहभाग छात्र का सहभाग									✓	

FEEDBACK प्रत्याभरण

stimulus variation skill is good. there is some movement of teacher in between teaching there is change in speech pattern.

students are participated in that topic.

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Movement of Teacher शिक्षक हालचाल / विधाऐ			✓							
2) Gesture of Teacher शिक्षक हावभाव				✓						
3) Change in stimulus variation चेतक बदल/उदिपन भिन्नता					✓					
4) Change in Speech Pattern भाषा शैलीत परिवर्तन भाषा शैली में परिवर्तन						✓				
5) Verbal participation of students विद्यार्थ्यांचा शाब्दिक सहभाग छात्र का शाब्दिक सहभाग							✓			
6) Active Participation of Students विद्यार्थ्यांचा सक्रिय सहभाग छात्र का सहभाग							✓			

FEEDBACK प्रत्याभरण

Stimulus variation skill is good. there is some movement of teacher In between teaching there is change in speech of pattern students are actively participate in that topic.

Kalbande

BLACKBOARD WRITING SKILL
फलक लेखन कौशल्य

Sr. No. / क्रमांक: 1

Subject / विषय: :- Mathematics

Teaching / अध्यापन

Sub – Unit / विषयांश: :- Quadratic equation

Re-Teaching / पुनर्ध्यापन

Previous Knowledge / पूर्वज्ञान: :- About quadratic equation

Class / वर्ग: 10

Black Board Writing Skill फलक लेखन कौशल्य	Sub Skill उपकौशल्य	
Teachers activity	Students Activity	Sub-skill
Teaching points :- 1) Definition of equation 2) Types of equation 3) Category of equation	=> a) Linear equation b) Quadratic equation c) cubic equation d) polynomial equation	

BLACKBOARD WRITING WORK

फलक लेखन कार्य

Class - 10

Subject - Mathematics

Topic - Quadratic Equation

Date
16/12/2023

Total st. - 50
Present st. - 48
Apsent st. 2

Teaching points :-

1) Definition of equation
2) Types of equation :-
   a) Linear equation
   b) quadratic equation
   c) cubic equation
   d) polynomial equation
3) category of equation
   a) single variable equation
   b) Two variable equation
4) Examples :
   i) single variable :
      $x+y=0$ (degree one)
   or two variable :
      $3x=0$; $9y=0$ (linear)
   ii) Two variable :
      $x^2+xy+y^2=0$ (quadratic)

Digramatic :-

Types of equation

- Linear → single variable or Two variable
- polynomial
  - Quadratic → one / two variable (s)
  - cubic → one / two variable (s)
  - Highest Degree → one / two or more variables.

Homework :-

1) write 9 example of linear equation
2) Write 7 example of quadratic equation

BLACKBOARD WRITING SKILL
फलक लेखन कौशल्य

Sr. No. / क्रमांक: 2

Subject / विषय: Physics

Teaching / अध्यापन

Sub – Unit / विषयांश: Motion

Re-Teaching / पुनर्अध्यापन

Previous Knowledge / पूर्वज्ञान: About types of motion

Class / वर्ग: 9

Black Board Writing Skill फलक लेखन कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	student Activity	Sub-skill.
Teaching points. 1) Definition of motion 2) Types of motion 3) category	⇒ a) Linear motion b) vibrational motion c) Angular motion	

BLACKBOARD WRITING WORK

फलक लेखन कार्य

Class - 9

subject - physics

Topic - Motion

Date:-
19/12/23

Total st. - 50
present st. - 45
Apsent st. - 05

Teaching points:-

1) Definition of motion

2) Types of Motion:
   a) Linear motion
   b) vibrational motion
   c) Angular motion

3) category:-
   a) uniform
   b) Non-uniform

4) example

Diagram / Explanation:-

A ——motion——→ B

Types
↓
Linear → Uniform → speed is constant
Angular
vibration → Non-uniform → speed is not constant.

Homework:-

1) Write 3 example of uniform and non-uniform motion.

2) What is displacement ?

INSPECTION
निरीक्षण तक्ता

BLACK BOARD WRITING / कौशल्य – फलक लेखन

अ) सुवाच्य लेखन

क्रम	उपघटक	पदनिश्चयन श्रेणी चढत्या क्रमाने				
		1	2	3	4	5
1	प्रत्येक अक्षर स्पष्ट				✓	
2	दोन अक्षरांमधील योग्य अंतर				✓	
3	दोन शब्दांमधील योग्य अंतर				✓	
4	अक्षरांचे योग्य वळण					✓
5	अक्षरांचा योग्य आकार					✓

ब) फलक लेखनातील व्यवस्थितपणा

क्रम	उपघटक	1	2	3	4	5
1	सरळ ओळीत लेखन				✓	
2	दोन ओळींमधील योग्य अंतर					✓
3	लेखन शुध्दता				✓	
4	योग्य नियोजन				✓	

क) योग्य लेखी काम

क्रम	उपघटक	1	2	3	4	5
1	योग्य मुद्यांची योग्य गुंफण					✓
2	लेखनातील आटोपशीरपणा				✓	
3	अवधान क्लृप्त्यांचा उपयोग				✓	
4	सर्व मुख्य मुद्यांचा समावेश				✓	

FEEDBACK प्रत्याभरण

Blackboard writing is very good. all words and distance between them are written properly on the board. Handwriting is very good. All the points related to the topic included in the representation.

INSPECTION
निरीक्षण तक्ता
BLACK BOARD WRITING / कौशल्य – फलक लेखन

अ) सुवाच्य लेखन

क्रम	उपघटक	पदनिश्चयन श्रेणी चढत्या क्रमाने				
		1	2	3	4	5
1	प्रत्येक अक्षर स्पष्ट				✓	
2	दोन अक्षरांमधील योग्य अंतर				✓	
3	दोन शब्दांमधील योग्य अंतर					✓
4	अक्षरांचे योग्य वळण				✓	
5	अक्षरांचा योग्य आकार				✓	

ब) फलक लेखनातील व्यवस्थितपणा

क्रम	उपघटक	1	2	3	4	5
1	सरळ ओळीत लेखन					✓
2	दोन ओळींमधील योग्य अंतर				✓	
3	लेखन शुध्दता				✓	
4	योग्य नियोजन				✓	

क) योग्य लेखी काम

क्रम	उपघटक	1	2	3	4	5
1	योग्य मुद्यांची योग्य गुंफण				✓	
2	लेखनातील आटोपशीरपणा				✓	
3	अवधान क्लृप्त्यांचा उपयोग				✓	
4	सर्व मुख्य मुद्यांचा समावेश				✓	

FEEDBACK प्रत्याभरण

Blackboard writing is very good. all words distance between then are written proprly on the blackboard Handwriting is also good All the points related to the topic are included in representation.

Feedback

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. / क्रमांक .....

Subject / विषय : Mathematics

Teaching / अध्यापन .....

Sub – Unit / विषयांश : Quadratic equation

Re-Teaching / पुनर्अध्यापन .....

Previous Knowledge / पूर्वज्ञान : About quadratic equation

Class / वर्ग : 10

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	Student Activity	Sub-skill
Note:- Teachers ask question related to the topic	Note:- Student answer properly	
What is equation ?	=> Two or more quantities can be expressed in terms of mathematical notation i.e. - +, -, ×, or ÷ called as equation. These quantities are equal to zero or some constant.	Acceptance
very good, I'am impressed !		verbal Motivation
What is quadratic equation ?	=> The equation which has power 2 i.e. - degree is 2. eg. (1) $x^2+xy+z^2=10$ (2) $3x^2+xy+yz=0$	Create the thinking power among the students.

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. ..... क्रमांक

Subject : Mathematics ..... विषय

Teaching ..... अध्यापन

Sub – Unit : Quadratic equation ..... विषयांश

Re-Teaching ..... पुनर्ध्यापन

Previous Knowledge : About quadratic equation. पूर्वज्ञान

Class 10 ..... वर्ग

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	Students Activity	Sub-skill
Do you know about cubic equation?	=> The equation which has power 3 i.e. degree is 3. eg. $x^3+xy^2+3z^2=0$ $3xy^2+4x^2y+z^3=5$	Increase & create the curiousity power
very good. Can you tell me about higher degree equation?	=> When an equation has two or more than two power (or degree) it is called as Polynomial equation.	Motivate the student to increase the thinking power.

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. ..... Subject :- Physics
क्रमांक विषय

Teaching ..... Sub – Unit :- Motion
अध्यापन विषयांश

Re-Teaching ..... Previous Knowledge :- About Motion
पुनर्ध्यापन पूर्वज्ञान

Class 9
वर्ग

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	Student Activity	Sub-skill
Note :- Teacher ask question related to the topic	Note :- Student answer-ed property	
Q.) What is momentus ?	=> Momentum is rate of change of displacement with respect to time and multiplication of mass with it.	Acceptance
very good.		verbal motivation
very good, you have given a perfect answer (smiling face)		Motivation through expression
Q) Which body or system have momentum? [some hint given] i.e. - system at rest or in motion.	=> The system that is in motion have momentum.	Motivation to create the thinking power.

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. ..... क्रमांक

Subject : Physics विषय

Teaching ..... अध्यापन

Sub – Unit :- Motion विषयांश

Re-Teaching ..... पुनर्ध्यापन

Previous Knowledge :- About motion पूर्वज्ञान

Class 9 वर्ग

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
Teachers Activity	student activity	Sub-skill
[student Name] can you tell me the difference between the body at rest (system) and system in motion.?	=> The system which is in motion, it has velocity and its mass gives the momentum and the velocity of the system at rest will be zero.	Motivate students annoucing their name
very good. how many types of motion are there ?	=> There are three main types of motion:- a) vitrational motion b) Translation motion c) Rotational motion.	Motivate students for participa

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल
OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Acceptance स्वीकृती		✓								
2) Verbal Motivation शाब्दिक प्रशंसा				✓						
3) Motivate through expression अशाब्दिक प्रशंसा					✓					
4) Motivate students by announcing their name व्यक्तिवाचक उल्लेख							✓			
5) Motivate students for participation सहभागी होण्यास इतर विद्यार्थ्यांना प्रोत्साहन									✓	

FEEDBACK प्रत्याभरण

students are motivated through expression and verbal motivation. teaching skill motivated all students for participation. students are interested to learn more.

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल
OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Acceptance स्वीकृती		✓								
2) Verbal Motivation शाब्दिक प्रशंसा			✓							
3) Motivate through expression अशाब्दिक प्रशंसा					✓					
4) Motivate students by announcing their name व्यक्तिवाचक उल्लेख						✓				
5) Motivate students for participation सहभागी होण्यास इतर विद्यार्थ्यांना प्रोत्साहन							✓			

FEEDBACK प्रत्याभरण

students are motivated through expression and verbal motivation. Teaching skill motivated all students for participation.
students are interested to learn more.

Sfalbade

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. 1
क्रमांक

Subject :- Mathematics
विषय

Teaching
अध्यापन

Sub – Unit :- Quadratic equation
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge :- Cubic equation
पूर्वज्ञान

Class 10
वर्ग

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
Teachers Activity	Student Activity	Sub-skill
Note:- Teachers ask different example related to the topic.	Note :-	
Q). What is quadratic equation?	⇒ The equation has only degree two that equation is called quadratic equation.	
Q) can you tell me some examples?	⇒ There are following examples:- i) $x^2+xy+y^2+5z^2=0$ ii) $p^2+9pq+q^2=9$ Where, x, y, z, p & q, are variables in equation. (Another students) eg:- $t^2+34t+9q^2=0$ Is this equation quadratic?	Example related with content. Example as per age various type of example

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. ..... क्रमांक

Subject :- Mathematics ..... विषय

Teaching ..... अध्यापन

Sub – Unit ..... विषयांश

Re-Teaching ..... पुनर्ध्यापन

Previous Knowledge ..... पूर्वज्ञान

Class ..... वर्ग

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
Teachers Activity	Students Activity	Sub-Skill
If 'q' is variable then this is quadratic equation and if 'q' is constant then it is not a quadratic equation.		Student understand the ex. of various types.
In quadratic equation, these must be a power or addition of power should be equal to two (2) i.e. - $x^1y^1 \Rightarrow 1+1=2$ (OR) $x^2 \Rightarrow$ power 2	x^2y is not quadratic equation then, It is cubic equation term.	Involvement of student
Can you tell me some quadratic equation terms with examples?	$\Rightarrow 5xq$, $3xy$, $13y^2$, $4t^2$, etc. where, $x, q, y, \& t$ are all variables.	Motive Achieved

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. 2
क्रमांक

Teaching
अध्यापन

Re-Teaching
पुनर्ध्यापन

Subject :- Physics
विषय

Sub – Unit :- Motion
विषयांश

Previous Knowledge :- Types of motion
पूर्वज्ञान

Class 9
वर्ग

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
Teachers Activity	Student Activity	Sub-skill
Note :- Teachers ask different example related to the topic.	Note :-	
1) What is motion	=> Motion is change in position of an object with time.	Example related with content.
	[Another student] motion is mathemedically described in terms of displacement, distance velocity, acceleration, time and speed.	Intersting explanation as per age
2) Can you tell me about object motion?	=> An object's motion cannot change unless it is acted upon by a force or described	Gave actual phenomenon.
Tell me some examples of motion?	=> When body is in motion or steady state, then this object remain in its state unless external force act on it.	Good explanation of example.

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. ..... क्रमांक

Subject ..... विषय

Teaching ..... अध्यापन

Sub – Unit ..... विषयांश

Re-Teaching ..... पुनर्ध्यापन

Previous Knowledge ..... पूर्वज्ञान

Class ..... वर्ग

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
i) Can you measure the motion?	· Yes	various type of discussion being done with examples
How will measure the motion?	⇒ Acceleration is a measure of how much the velocity of an object changes in a certain time.	
Can you tell me laws of motion?	⇒ There are three main laws of motion i) Newton's first law of motion (law of inertia) ii) Newton's second law of motion: $\vec{F} = m.\vec{a}$ iii) Newton's third law of motion: An action produces equivalent opposite reaction.	Involvement of students Motive achived.

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर / दृष्टान्तीकरण उदाहरणसहित

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	Rating Scale पदनिश्चयन श्रेणी				
	Lower निम्न	Medium मध्यम	Satisfactory सुयोग्य	Good उत्कृष्ट	Excellent अत्युत्कृष्ट
1) Examples related with content पाठ्यवस्तूस पोषक उदाहरणे		✓			
2) Examples as per age वयानुरूप योग्य उदाहरणे			✓		
3) Interesting examples मनोवेदक उदाहरणे		✓			
4) Various types of examples विविध प्रकारची उदाहरणे			✓		
5) Number of examples उदाहरणांची संख्या				✓	
6) Involvement of students विद्यार्थी सहभाग					
7) Motive achieved उद्दिष्ट पूर्ती					✓

FEEDBACK प्रत्याभरण

students try to understand the topic quadratic equation taken from mathematics by illustrating with examples. students also get perfection in writing examples and understanding the topic.

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर / दृष्टान्तीकरण उदाहरणसहित

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	Rating Scale पदनिश्चयन श्रेणी				
	Lower निम्न	Medium मध्यम	Satisfactory सुयोग्य	Good उत्कृष्ट	Excellent अत्युत्कृष्ट
1) Examples related with content पाठ्यवस्तूस पोषक उदाहरणे		✓			
2) Examples as per age वयानुरूप योग्य उदाहरणे			✓		
3) Interesting examples मनोवेदक उदाहरणे			✓		
4) Various types of examples विविध प्रकारची उदाहरणे				✓	
5) Number of examples उदाहरणांची संख्या			✓		
6) Involvement of students विद्यार्थी सहभाग				✓	
7) Motive achieved उद्दिष्ट पूर्ती			✓		

FEEDBACK प्रत्याभरण

All examples are related with content. Various type of examples are given for understanding students are involved of tenning the topic Due to the examples Dedeated with topic students understand very well

Shalbade

CLOSURE SKILL
समारोप कौशल्य / समाप्ति कौशल

Sr. No. 1 क्रमांक

Subject :- Mathematics विषय

Teaching अध्यापन

Sub – Unit :- Quadratic equation (Division) विषयांश

Re-Teaching पुनर्ध्यापन

Previous Knowledge :- Quadratic equation (examples) पूर्वज्ञान

Class 10 वर्ग

Closure Skill समारोप कौशल्य/समाप्ति कौशल	Sub Skill उपकौशल्य	
Teacher activity	students Activity	sub-skill
We learn about the quadratic equation		Recalling of topic and recollection of content
What is meant by quadratic equation?	The equation in which power or addition of power of variable is equal to two then it is called quadratic equation	Repapitulation
Can you tell me some examples of it?	1) $x^2+xy+y^2=$ constant 2) $t^2+9+q+q^2=0$ 3) $3p^2+7q^2+4pq=5$	

CLOSURE SKILL
समारोप कौशल्य / समाप्ति कौशल

Sr. No. ..... Subject .....
क्रमांक विषय

Teaching ..... Sub – Unit .....
अध्यापन विषयांश

Re-Teaching ..... Previous Knowledge .....
पुनर्ध्यापन पूर्वज्ञान

Class .....
वर्ग

Closure Skill समारोप कौशल्य/समाप्ति कौशल		Sub Skill उपकौशल्य
Teachers Activity	Student Activity	Sub-skill.
Identity the following quadratic terms/ equations :- i) $x^3+1=3$ ii) $x^2+y^2=0$ iii) $t^2=5$ iv) $3y^2+x^2=7$	eqn (i) is not quadratic equation (ii), (iii), (iv) are quadratic equations.	Evaluation of the content
eg. - xy is is quadratic term ?	⇒ xy is quadratic term if x & y both are variables.	
We will further study about other types of quadratic eqn.		Connect gained knowledge with future.

CLOSURE SKILL

समारोप कौशल्य / समाप्ति कौशल

Subject / विषय: Physics

Sub – Unit / विषयांश: :- Motion (Revision)

Previous Knowledge / पूर्वज्ञान: Laws of motion

Class / वर्ग: 9

Closure Skill समारोप कौशल्य/समाप्ति कौशल	Sub Skill उपकौशल्य	
Student activity	Teachers activity	Sub-Skill
1) We learn about motion and its types 2) can anyone tell me what are the types of motion 3) What are these types ?	There are mainly three types of motion => These types are 1) vibrational motion 2) Translational motion 3) Rotational motion.	Recalling of topic and recollection of content Recapitulation

CLOSURE SKILL

समारोप कौशल्य / समाप्ति कौशल

Sr. No. 2 क्रमांक

Subject Physics विषय

Teaching अध्यापन

Sub – Unit :- Motion (Revision) विषयांश

Re-Teaching पुनर्ध्यापन

Previous Knowledge :- Laws of motion पूर्वज्ञान

Class 9 वर्ग

Closure Skill समारोप कौशल्य/समाप्ति कौशल	Sub Skill उपकौशल्य	
Teacher Activity	Student Activity	Sub-Skill
What is vibrational energy ?	=> If we give some external energy particles try to vibrate this vibration is called vibrational energy.	
What is translational energy ?	=> The energy possessed by an object traveling in a straight path is called translational energy.	

CLOSURE SKILL
समारोप कौशल्य / समाप्ति कौशल
OBSERVATION CHART
निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) Recollection of the content मुद्दयांचे एकत्रीकरण मुद्दों का एकत्रीकरण				✓	
2) Recapitulation पुनरावलोकन करणे पुनरावलोकन करना				✓	
3) Evaluation of the content अध्यापन केलेल्या पाठ्यांशाचे मूल्यमापन अध्यापन किए पाठों का मूल्यमापन				✓	
4) Connect gained knowledge with future. प्राप्त ज्ञानाचा भावी अध्ययनाशी संबंध जोडणे. प्राप्त ज्ञान का भावी अध्ययन से संबंध स्थापित करना।				✓	

FEEDBACK प्रत्याभरण

There is a recollection of all content students is understood very well. The knowledge regarding to the topic is help full and advantagious for future. By recapitulation the doubts of students has been removed.

CLOSURE SKILL
समारोप कौशल्य / समाप्ति कौशल

OBSERVATION CHART
निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) Recollection of the content मुद्दयांचे एकत्रीकरण मुद्दों का एकत्रीकरण				✓	
2) Recapitulation पुनरावलोकन करणे पुनरावलोकन करना				✓	
3) Evaluation of the content अध्यापन केलेल्या पाठ्यांशाचे मूल्यमापन अध्यापन किए पाठों का मूल्यमापन				✓	
4) Connect gained knowledge with future. प्राप्त ज्ञानाचा भावी अध्ययनाशी संबंध जोडणे. प्राप्त ज्ञान का भावी अध्ययन से संबंध स्थापित करना।				✓	

FEEDBACK प्रत्याभरण

There is a accollection of all (knowledge, content students understood very well. The Concept associated with the topic. The knowledge regarding to teaching topic is helpfull and advantagious for the future By the recapitalation the doubts of students are cleared.

SKalbande

SHEELA MULTIPURPOSE SOCIETY

SHEELADEVI COLLEGE OF EDUCATION

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WADI, NAGPUR

2023 - 2024

MICRO - TEACHING
LESSON PLANNING BOOK
सूक्ष्म अध्यापन
पाठ नियोजन पुस्तिका

Name Ms. Suman Ketan Sukhdeve
नांव

Number _____
क्रमांक

Subject 1) Physics
विषय
2) Mathematics

अनुक्रमणिका
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INTRODUCTION SKILL

प्रस्तावना कौशल्य

SUBJECT - PHYSICS

TOPIC - MOTION

वेळ – ५ मिनिट

Time Duration : 5 Minutes

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
NOTE: Teacher asked.	NOTE: Student answered properly.	
T Q. What is movement?	S Students answered that going here and there.	To develop the curosity about the topic.
T Q. How you will go home?	S Student answered that by bicycle, auto, van, etc.	To establish the link between studen
T Q. Is movement and exercise are related to each other?	S Student answered may be by walk it is exercise.	To know more about their daily routine.

INTRODUCTION SKILL
प्रस्तावना कौशल्य

वेळ – ५ मिनिट
Time Duration : 5 Minutes

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
T Q. How many of know about the direction?	S Student answered that direction is a particular way.	To check the basic knowledge.
T Q. The movement in a particular exercise is done by you or not?	S The excercise of the movement of the body gives a particular direction.	To check their presence of mind.
T Q. Students, can you tell me the what is the phenomenon?	S Student asked exercisal movement.	To develop the curiosity.

ANNOUNCEMENT OF TOPIC:

Found that students are so sharp and answered well about the topics.

Today, we will study about the topic 'MOTION'.

INTRODUCTION SKILL

प्रस्तावना कौशल्य

SUBJECT - MATHEMATICS

TOPIC - QUADRATIC EQUATION

वेळ – ५ मिनिट

Time Duration : 5 Minutes

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
NOTE: Teacher asked.	NOTE: Students answered properly.	
T Q. What is equation polynomials?	S It is the combination of variable and numbers.	To check the basic knowledge.
T Q. What is polynomial?	S It is the equation wherein the operations are used.	To know that what they know about it.
T Q. How many types of polynomials?	S There are three types of polynomials. a) Linear b) Quadratic c) Cubic	To know the previous class knowledge.

INTRODUCTION SKILL
प्रस्तावना कौशल्य

वेळ – ५ मिनिट
Time Duration : 5 Minutes

Teacher Activity (शिक्षक कृती)	Student Activity (विद्यार्थी कृती)	Sub-Skills (उपकौशल्य)
T Q. What is linear equation?	S The polynomial with highest power 1.	Link to previous knowledge
T Q. What is Quadratic equation?	S The polynomial with highest power 2.	
T Q. What is cubic equation?	S The polynomial with highest power 3.	

ANNOUNCEMENT OF TOPIC:

From the topic polynomial, we will learnt about the 'QUADRATIC EQUATION'.

INTRODUCTION SKILL

प्रस्तावना कौशल्य

OBSERVATION CHART

निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) लक्षवेधक प्रेरण मिळाले काय ? अभिप्रेरणा प्राप्त हुई क्या ? Motivated or not				✓	
2) शेवट पर्यंत लक्ष खिळवून ठेवण्यात यश मिळाले काय ? शुरू से अंत तक ध्यान स्थिर रहा की नही ? Attention of the students was from the start till end or not.				✓	
3) अपेक्षित पुर्वज्ञान जागृती केली काय ? अपेक्षित पुर्वज्ञान जागृत हुवा की नही ? Previous knowledge was araised or not.				✓	
4) पाठ्यघटकाची सांगड पुर्वानुभवाशी घातली गेली काय ? पाठ्यांश पुर्वानुभव के साथ जोडा गया की नही ? Whether the topic was related to previous knowledge or not.				✓	

FEEDBACK प्रत्याभरण

Students have previous knowledge.
Topic related to previous knowledge.
Students listen carefully and try to give answers.

INTRODUCTION SKILL
प्रस्तावना कौशल्य
OBSERVATION CHART
निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) लक्षवेधक प्रेरण मिळाले काय ? अभिप्रेरणा प्राप्त हुई क्या ? Motivated or not				✓	
2) शेवट पर्यंत लक्ष खिळवून ठेवण्यात यश मिळाले काय ? शुरू से अंत तक ध्यान स्थिर रहा की नही ? Attention of the students was from the start till end or not.				✓	
3) अपेक्षित पुर्वज्ञान जागृती केली काय ? अपेक्षित पुर्वज्ञान जागृत हुवा की नही ? Previous knowledge was araised or not.				✓	
4) पाठ्यघटकाची सांगड पुर्वानुभवाशी घातली गेली काय ? पाठ्यांश पुर्वानुभव के साथ जोडा गया की नही ? Whether the topic was related to previous knowledge or not.				✓	

FEEDBACK प्रत्याभरण

Topic was related to the previous knowledge. Students were actively answered.

Kulbade
3/02/2024

QUESTIONING SKILL
प्रश्न कौशल्य

Sr. No. / क्रमांक: 2

Subject / विषय: Physics

Teaching / अध्यापन: Questioning Skills

Sub – Unit / विषयांश: Motion

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Distance, Speed

Class / वर्ग: IX

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
TEACHER ACTIVITY	STUDENTS ACTIVITY	SUB-S
NOTE: Teacher asked questions.	NOTE: Students answered properly.	
[T] Q. What is motion?	[S] Students write the definition from the blackboard.	Low-level questi
[T] Q. Give some examples of motion.	[S] Students think and tell, movement of bicycle, movement of tyre of vehicle, etc.	Mid-level questio
[T] Q. If we drop an object on the surface of earth from certain height is that a motion?	[S] Movement of any object fall on the surface of earth i.e. there is motion.	High-level quest

QUESTIONING SKILL

प्रश्न कौशल्य

Sr. No. क्रमांक: 2

Subject विषय: Physics

Teaching अध्यापन: Questioning Skill

Sub – Unit विषयांश: Motion

Re-Teaching पुनर्ध्यापन:

Previous Knowledge पूर्वज्ञान: Distance, Speed

Class वर्ग: IX

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
[T] Q. What is vertical motion?	[S] The motion along the Y-axis.	High-level question
[T] Q. What is horizontal motion?	[S] The motion along the X-axis.	High-level question
[T] Q. Give the example of vertical and horizontal motion?	[S] The sewing machine.	Mid-level question
[T] Q. What is uniform motion?	[S] The rate of change of constant velocity with respect to constant time is called uniform motion.	Mid-level question

QUESTIONING SKILL

प्रश्न कौशल्य

Sr. No. 1
क्रमांक

Subject Mathematics
विषय

Teaching Questioning skill
अध्यापन

Sub – Unit Quadratic Equation
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About polynomial
पूर्वज्ञान

Class X
वर्ग

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
TEACHER ACTIVITY	STUDENTS ACTIVITY	SUB-SK
NOTE: Teacher asked questions.	NOTE: Students answered properly.	
T Q. What is algebraic expression?	S It is one type of equation in which variables and constants are used.	Low lev question
T Q. What are the types of polynomials?	S Three types of polynomial a) Linear b) Quadratic c) Cubic	Mid-lev question
T Q. What is linear equation?	S The equation in which the degree of the polynomial is 1.	Low-lev question

QUESTIONING SKILL

प्रश्न कौशल्य

Sr. No. 2
क्रमांक

Subject Mathematics
विषय

Teaching Questioning skill
अध्यापन

Sub – Unit Quadratic Equation
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About polynomial
पूर्वज्ञान

Class X
वर्ग

Questioning Skill प्रश्न कौशल्य	Sub Skill उपकौशल्य	
T Q. What is quadratic equation?	S The equation in which the degree of the polynomial is 2.	Mid-level-question
T Q. What is cubic equation?	S The equation in which the degree of the polynomial is 3.	Mid-level question
T Q. Give the examples of quadratic equation.	S Students writing in their notebooks $x^2+2x+2=0$, etc.	High-level-question

QUESTIONING SKILL

प्रश्न कौशल्य

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Type of Question प्रश्नाचे प्रकार/प्रश्न के प्रकार								✓		
2) Level of Question प्रश्नाचे स्तर/प्रश्न का स्थर								✓		
3) Objective of Question उद्दिष्टानुसार प्रश्न उद्दिष्ट के अनुसार प्रश्न								✓		
i) Knowledge ज्ञान										
ii) Understanding आकलन							✓			
iii) Application उपयोजन								✓		
iv) Skill कौशल्य									✓	

FEEDBACK प्रत्याभरण

Students are able to answer the questions and more curious about the topic.

QUESTIONING SKILL

प्रश्न कौशल्य

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Type of Question प्रश्नाचे प्रकार/प्रश्न के प्रकार								✓		
2) Level of Question प्रश्नाचे स्तर/प्रश्न का स्थर								✓		
3) Objective of Question उद्दिष्टानुसार प्रश्न उद्दिष्ट के अनुसार प्रश्न								✓		
i) Knowledge ज्ञान										
ii) Understanding आकलन										
iii) Application उपयोजन										
iv) Skill कौशल्य										

FEEDBACK प्रत्याभरण

Students are able to tell the examples of quadratic equation. Explain the defination which is previous knowledge

Sfalbande
3/02/2024

EXPLANATION SKILL
स्पष्टीकरण कौशल्य

Sr. No. / क्रमांक: 3

Subject / विषय: Physics

Teaching / अध्यापन: Explanation Skill

Sub – Unit / विषयांश: Motion

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Types of motion and physical quantities used in motion

Class / वर्ग: IX

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SK
NOTE: Teacher asked	NOTE: Students answered	I
[T] Uniform motion is one of the category of motion.	[S] Students were listening	Initial stateme
[T] Here, uniform motion is defined as the motion of the particle or object from one point to another point with uniform speed.	[S] Students were writing in their notebooks.	
[T] Let us take an example that car is moving with speed 40km/hr. From A to point B. Here speed is constant which means car is covering equal distance in equal interval of time.	[S] Students think and then give answered.	Explana Conjuct
[T] Students are listening or not and concentrate on board.	[S] Students are well attentive.	Audio Visual

EXPLANATION SKILL

स्पष्टीकरण कौशल्य

Sr. No. / क्रमांक: 3

Subject / विषय: Physics

Teaching / अध्यापन: Explanation Skill

Sub – Unit / विषयांश: Motion

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Types of motion & physical quantities used in motion

Class / वर्ग: IX

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
T Imagine a train is moving with uniform speed of 20m/s it means that for every second train is covering a distance of 20m	S Students calculating the time from given data by their previous knowledge.	Purposive Recapitul-ation
T Hands of clock always moves with uniform speed thus it is an example of uniform motion. Thats why we use clock for the purpose of measurement of time.	S Students are able to know the use of clock.	
T From the above discussion, what we can conclude is that whenever an object moves with constant speed it perform uniform motion and distance covered in unit time is always same through out the motion.	S Students are able to understand the topic content.	Final statemen

EXPLANATION SKILL

स्पष्टीकरण कौशल्य

Sr. No. 3
क्रमांक

Subject Mathematics
विषय

Teaching Explanation Skill
अध्यापन

Sub – Unit Quadratic Equations
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About polynomial
पूर्वज्ञान

Class X
वर्ग

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENT ACTIVITY	SUB-S
T What is quadratic equation? Equation with the degree of polynomial is 2. Ex. $x^2+4x+4=0$	S Students are listening and very attentive as they were copying from blackboard.	Initi state
T Quadratic equation can be in one variable or two variable. One variable: $x^2+4x+2=0$ Two variable: $x^2+3xy+2=0$		Expla conju
T Now, we have to study quadratic equation in one variable	S Students are concentr-ating on blackboard.	Aud visu

EXPLANATION SKILL

स्पष्टीकरण कौशल्य

Sr. No. 3
क्रमांक

Subject Mathematics
विषय

Teaching Explanation Skill
अध्यापन

Sub – Unit Quadratic Equations
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About polynomial
पूर्वज्ञान

Class X
वर्ग

Explanation Skill स्पष्टीकरण कौशल्य	Sub Skill उपकौशल्य	
T What is the solution of quadratic eq^n? The value of variables that satisfy the equation is called solution or roots or zero's.	S Students writing by teachers dictation.	Purposive Recapitulation
T Ex. $x^2+4x+4=0$ verify is $x=-2$ is the solution of given equation Put $x=-2$, $\therefore LHS = x^2+4x+4$ $= (-2)^2+4(-2)+4$ $= 4-8+4$ $= 0$ $\therefore LHS = RHS$ $\therefore x=-2$ is the solution of given equation	S Students looking and concentrating on board.	
Thus, by putting various values of variables in given equation.	S Students are able to find the solution of the given equation	Final statement

EXPLANATION SKILL
स्पष्टीकरण कौशल्य
OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Initial Statement प्रथम विधान							✓			
2) Explanation Conjunction स्पष्टीकरण दुवे							✓			
3) Use of audio - visual दृक्श्राव्य साधनाचा वापर							✓			
4) Purposive Recapitulation योजनापुर्वक पुनरावलोकन योजनापुर्वक पुनरावृत्ती							✓			
5) Final Statement अंतिम विधान							✓			

FEEDBACK प्रत्याभरण

Students are able to understand the concept and noted in their notebooks.

EXPLANATION SKILL
स्पष्टीकरण कौशल्य
OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Initial Statement प्रथम विधान							✓			
2) Explanation Conjunction स्पष्टीकरण दुवे							✓			
3) Use of audio - visual दृक्श्राव्य साधनाचा वापर							✓			
4) Purposive Recapitulation योजनापुर्वक पुनरावलोकन योजनापुर्वक पुनरावृत्ती							✓			
5) Final Statement अंतिम विधान							✓			

FEEDBACK प्रत्याभरण

Students are ready for doing such types of questions and concentrating on the problems.

Kulbande

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. 4
क्रमांक

Subject Physics
विषय

Teaching Stimulus Variation Skill
अध्यापन

Sub – Unit Motion
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About motion
पूर्वज्ञान

Class IX
वर्ग

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
NOTE: Teachers asked questions.	NOTE: Students answered properly.	
T As we have studied uniform motion is a motion with constant speed. Is earth is performing uniform motion?	S Yes, because earth completes its one rotation in one year.	Gesture of teacher, Verbal participation of students
T Theoretically, we can say that earth rotate with constant speed. Imagine that speed is changed then what with will happened?	S Time will change for the completion of one rotation around earth and we will not get 365 days in one year.	Active participation of students

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. / क्रमांक: 4

Subject / विषय: Physics

Teaching / अध्यापन: Stimulus Variation Skill

Sub – Unit / विषयांश: Motion

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: About motion

Class / वर्ग: IX

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
[T] Explanation about non-uniform motion by taking a fractional examples.	[S] Students listening the examples.	Movement of teacher
[T] If speed varies with time then the motion is non-uniform motion.		
[T] What happens when we drive on road having heavy traffics, our speed varies every second it means that we are not moving with constant speed thus they have to perform non-uniform motion.	[S] Student eagerly waiting for the response of teacher.	Change in speech pattern

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. 4 क्रमांक

Subject Mathematics विषय

Teaching Stimulus Variation Skill अध्यापन

Sub – Unit Quadratic Equation विषयांश

Re-Teaching पुनर्ध्यापन

Previous Knowledge About quadratic equation पूर्वज्ञान

Class X वर्ग

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
NOTE: Teacher asked questions.	NOTE: Students answered properly.	
T We will study methods for finding the roots of given equation.	S Students are trying to factorize according to their previous knowledge.	Gesture of teacher
T There are three methods for finding the roots. a) factorization b) Perfect square method c) formula method	S Students are copying from the board	Movement of teacher
T What is the factor of $x^2+4x+4=0$	S Students answered $(x+2)$ is the the factor of $x^2+4x+4=0$	Verbal participat-ion of students
T In factorization method, we have to find the factors of middle term.		

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

Sr. No. 4
क्रमांक

Subject Mathematics
विषय

Teaching Stimulus Variation Skill
अध्यापन

Sub – Unit Quadratic Equation
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About quadratic equation
पूर्वज्ञान

Class X
वर्ग

Stimulus Variation Skill चेतक – बदल कौशल्य	Sub Skill उपकौशल्य	
T Ex. $x^2+4x+4=0$ product $=1\times4=+4$ $\underline{x^2+2x}+\underline{2x+4}=0$ Sum of middle term $=+4$ ($+2$, $+2$) $x(x+2)+2(x+2)=0$ $(x+2)(x+2)=0$ $x+2=0$ or $x+2=0$ $x=-2$ or $x=-2$ Here, $(x+2)$ is a factor and $x=-2$ is the solution.	S Students give response about multiplication and addition.	Change in speech pattern
T Ex. $x^2-4x+4=0$ Product $=1\times4=4$ $\underline{x^2-2x}-\underline{2x+4}=0$ Sum of middle term $=-4$ (-2, -2) $x(x-2)-2(x-2)=0$ $(x-2)(x-2)=0$ $x-2=0$ or $x-2=0$ $x=2$ or $x=2$ Here, $(x-2)$ is the factor and $x=2$ is the solution.	S Students are trying to solve the question.	Change in Stimulus variation

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Movement of Teacher शिक्षक हालचाल / विधाऐ								✓		
2) Gesture of Teacher शिक्षक हावभाव								✓		
3) Change in stimulus variation चेतक बदल/उदिपन भिन्नता							✓			
4) Change in Speech Pattern भाषा शैलीत परिवर्तन भाषा शैली में परिवर्तन							✓			
5) Verbal participation of students विद्यार्थ्यांचा शाब्दिक सहभाग छात्र का शाब्दिक सहभाग								✓		
6) Active Participation of Students विद्यार्थ्यांचा सक्रिय सहभाग छात्र का सहभाग								✓		

FEEDBACK प्रत्याभरण

Students are listening and able to think by theoretic data. Students taking interest.

STIMULUS VARIATION SKILL

चेतक – बदल कौशल्य/उदिपन भिन्नता

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Movement of Teacher शिक्षक हालचाल / विधाऐ								✓		
2) Gesture of Teacher शिक्षक हावभाव								✓		
3) Change in stimulus variation चेतक बदल/उदिपन भिन्नता							✓			
4) Change in Speech Pattern भाषा शैलीत परिवर्तन भाषा शैली में परिवर्तन							✓			
5) Verbal participation of students विद्यार्थ्यांचा शाब्दिक सहभाग छात्र का शाब्दिक सहभाग								✓		
6) Active Participation of Students विद्यार्थ्यांचा सक्रिय सहभाग छात्र का सहभाग									✓	

FEEDBACK प्रत्याभरण

Students are satisfying with the questions and want more questions as a homework.

Kalbande

BLACKBOARD WRITING SKILL

फलक लेखन कौशल्य

Sr. No. 5
क्रमांक

Subject Physics
विषय

Teaching Blackboard writing skill
अध्यापन

Sub – Unit Motion
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About types of motion
पूर्वज्ञान

Class IX
वर्ग

Black Board Writing Skill फलक लेखन कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
1 Teaching Points 1) Definition of motion 2) Types of motion: a) Linear motion b) Angular motion c) Vibrational motion 3) Category: a) Uniform motion b) Non-uniform motion 4) Examples:	S Students are listening and written all the definitions from blackboard.	

BLACKBOARD WRITING WORK
फलक लेखन कार्य

Date: 16.12.23

SKILL: BLACKBOARD WRITING

SUBJECT: PHYSICS

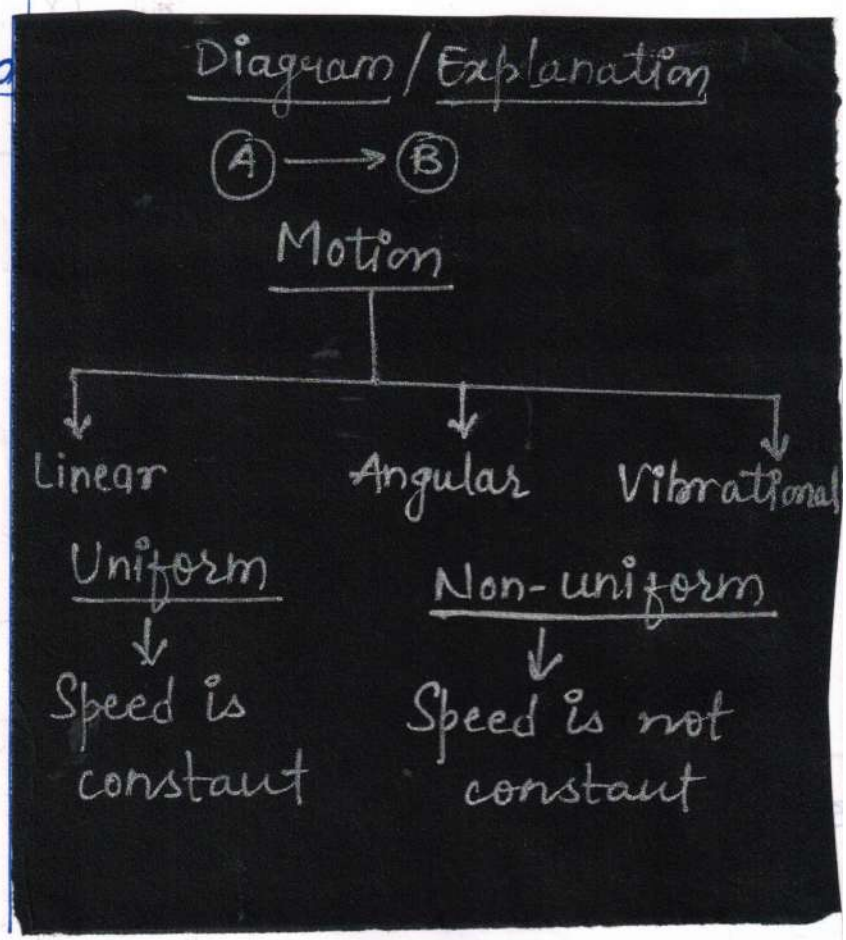
TOPIC: MOTION

Total-58
Present-54
Absent-04

Teaching points:

1) Definition of motion
2) Types of motion:
   a) Linear motion
   b) Angular motion
   c) Vibrational motion
3) Category:
   a) Uniform
   b) Non-uniform
4) Examples

Diagram / Explanation



HOMEWORK:

1) Write 3 examples of uniform and non-uniform motion.
2) What is displacement?

BLACKBOARD WRITING SKILL

फलक लेखन कौशल्य

Sr. No. 5
क्रमांक

Subject Mathematics
विषय

Teaching Blackboard Writing Skill
अध्यापन

Sub – Unit Quadratic equation
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge About quadratic equation
पूर्वज्ञान

Class X
वर्ग

Black Board Writing Skill फलक लेखन कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
Teaching points: 1) Definition of equation 2) Types of equation a) Linear equation b) Quadratic equation c) Cubic equation d) Polynomial equation 3) Category of equation a) Single variable equation b) Two variable equation 4) Examples:	S Students are concentrating towards the board and copying the questions from the board.	

BLACKBOARD WRITING WORK

फलक लेखन कार्य

SKILL: BLACKBOARD WRITING

SUBJECT: MATHEMATICS

TOPIC: QUADRATIC EQUATION

Teaching points:

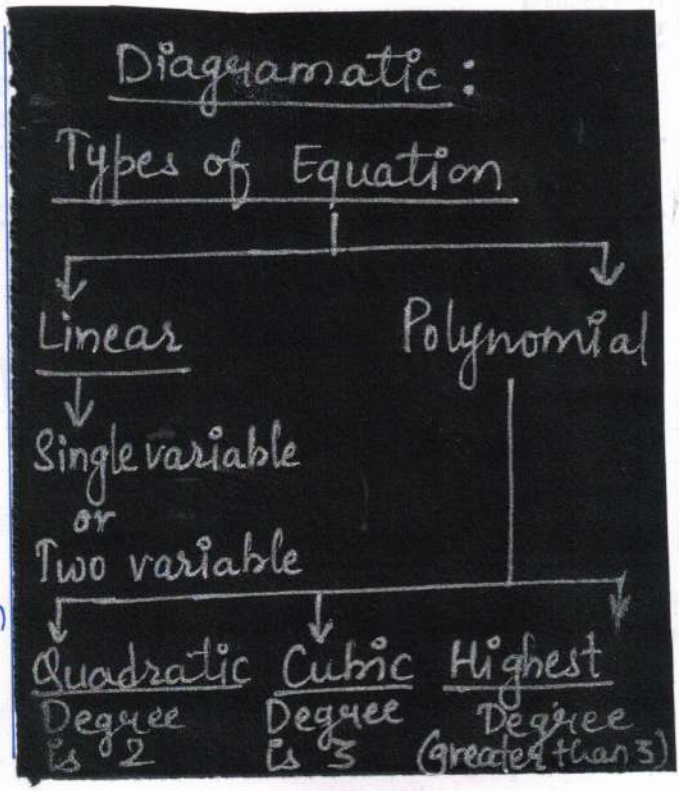
1) Definition of equation

2) Types of equation:

a) Linear equation
b) Quadratic equation
c) Cubic equation
d) Polynomial equation

3) Category of equation

a) Single variable equation
b) Two variable equation



4) Examples:

a) Single variable : $x+y=0$ (Degree one)
OR two variable: $3x=0$, $9y=0$ (Linear)

b) Two variables : $x^2+xy+y^2=0$ (Quadratic)

HOMEWORK:

a) Write 5 examples of linear equation.

b) Write 5 examples of quadratic equation.

INSPECTION
निरीक्षण तक्ता

BLACK BOARD WRITING / कौशल्य – फलक लेखन

अ) सुवाच्य लेखन

क्रम	उपघटक	पदनिश्चयन श्रेणी चढत्या क्रमाने				
		1	2	3	4	5
1	प्रत्येक अक्षर स्पष्ट					✓
2	दोन अक्षरांमधील योग्य अंतर					✓
3	दोन शब्दांमधील योग्य अंतर					✓
4	अक्षरांचे योग्य वळण				✓	
5	अक्षरांचा योग्य आकार					✓

ब) फलक लेखनातील व्यवस्थितपणा

क्रम	उपघटक	1	2	3	4	5
1	सरळ ओळीत लेखन				✓	
2	दोन ओळींमधील योग्य अंतर					✓
3	लेखन शुध्दता					✓
4	योग्य नियोजन					✓

क) योग्य लेखी काम

क्रम	उपघटक	1	2	3	4	5
1	योग्य मुद्यांची योग्य गुंफण				✓	
2	लेखनातील आटोपशीरपणा				✓	
3	अवधान क्लृप्त्यांचा उपयोग					✓
4	सर्व मुख्य मुद्यांचा समावेश					✓

FEEDBACK प्रत्याभरण

Students are trying to understand the blackboard skill of quadratic equations and trying to solve the numericals.

INSPECTION
निरीक्षण तक्ता

BLACK BOARD WRITING / कौशल्य – फलक लेखन

अ) सुवाच्य लेखन

क्रम	उपघटक	पदनिश्चयन श्रेणी चढत्या क्रमाने				
		1	2	3	4	5
1	प्रत्येक अक्षर स्पष्ट					✓
2	दोन अक्षरांमधील योग्य अंतर					✓
3	दोन शब्दांमधील योग्य अंतर				✓	
4	अक्षरांचे योग्य वळण				✓	
5	अक्षरांचा योग्य आकार					✓

ब) फलक लेखनातील व्यवस्थितपणा

क्रम	उपघटक	1	2	3	4	5
1	सरळ ओळीत लेखन				✓	
2	दोन ओळींमधील योग्य अंतर					✓
3	लेखन शुध्दता					✓
4	योग्य नियोजन				✓	

क) योग्य लेखी काम

क्रम	उपघटक	1	2	3	4	5
1	योग्य मुद्यांची योग्य गुंफण				✓	
2	लेखनातील आटोपशीरपणा					✓
3	अवधान क्लृप्त्यांचा उपयोग				✓	
4	सर्व मुख्य मुद्यांचा समावेश					✓

FEEDBACK प्रत्याभरण

Students are trying to understand the blackboard skill on the topic motion and trying to get perfection in writing and understanding.

Kulbode

REINFORCEMENT SKILL

प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. / क्रमांक: 7

Subject / विषय: Physics

Teaching / अध्यापन: Reinforcement Skill

Sub – Unit / विषयांश: Motion

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Types of motion

Class / वर्ग: IX

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
NOTE: TEACHER Asked question.	NOTE: Student answered.	
T What is momentum?	S Momentum is rate of change of displa-cement with respect to time and the multiplication of mass with it.	Acceptance
T Very Good.		Verbal motivation,
T Very good, you have given a perfect answer (Smile on face)		Motivation through expression.
T (Some hint given) i.e. System at rest or in motion.	S The system that is in motion have momentum.	Motivate to create thinking power.

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. 7 क्रमांक
Subject Physics विषय
Teaching Reinforcement Skill अध्यापन
Sub – Unit Motion विषयांश
Re-Teaching पुनर्ध्यापन
Previous Knowledge Types of motion पूर्वज्ञान
Class IX वर्ग

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
T (Student name) Can you tell me the difference between the body at rest (system) and system in motion?	S The system which is in motion, it has velocity and its mass gives the momentum and the velocity of the system at rest will be zero.	Motivate students by announcing their name.
T Very good, how many types of motion are there?	S There are three main types of motion: a) Translational motion b) Angular motion c) Vibrational motion	Motivate students for participation

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. क्रमांक: 7

Subject विषय: Mathematics

Teaching अध्यापन: Reinforcement skill

Sub – Unit विषयांश: Quadratic equation

Re-Teaching पुनर्ध्यापन:

Previous Knowledge पूर्वज्ञान: Types of equation

Class वर्ग: X

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
TE: Teacher asked questions.	NOTE: Students answered	
What is equation?	[S] Two or more quantities can be expressed in terms of mathem-atical notation i.e. +, −, x or ÷ called as equation. These quantities are equal to zero or some constant.	Acceptance
Very good, I'm impressed!		Verbal motivation
What is quadratic equation?	[S] Equation which has power 2 i.e. degree is 2. Ex. (a) $x^2+xy+y^2=0$ (b) $3x^2+xy+2=0$	Motivation through expression Create the thinking power among the students.

REINFORCEMENT SKILL
प्रबलन कौशल्य/पुनर्बलन कौशल्य

Sr. No. 7 क्रमांक

Subject Mathematics विषय

Teaching Reinforcement Skill अध्यापन

Sub – Unit Quadratic equation विषयांश

Re-Teaching पुनर्ध्यापन

Previous Knowledge Types of equation पूर्वज्ञान

Class X वर्ग

Reinforcement Skill प्रबलन कौशल्य/पुनर्बलन कौशल्य	Sub Skill उपकौशल्य	
[T] Do you know about cubic equation?	[S] The equation which has power 3. i.e. degree is 3. Ex. $x^3+xy^2+3y^2=0$ $3xy^2+4x^2y+z^3=5$	Increase and create the curiosity power.
[T] Very good. Can you tell me about higher degree equation?	[S] When an equation has two or more than two power (or degree) it is called as polynomial equation.	Motivate the student to increase the thinking power.

REINFORCEMENT SKILL

प्रबलन कौशल्य/पुनर्बलन कौशल

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Acceptance स्वीकृती									✓	
2) Verbal Motivation शाब्दिक प्रशंसा										✓
3) Motivate through expression अशाब्दिक प्रशंसा										✓
4) Motivate students by announcing their name व्यक्तिवाचक उल्लेख									✓	
5) Motivate students for participation सहभागी होण्यास इतर विद्यार्थ्यांना प्रोत्साहन										✓

FEEDBACK प्रत्याभरण

Students are trying to understand and get motivated through the reinforcement skill. Also trying to get perfection in writing examples and telling orally as well as understanding about motion topic of physics.

REINFORCEMENT SKILL

प्रबलन कौशल्य/पुनर्बलन कौशल

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	1	2	3	4	5	6	7	8	9	10
1) Acceptance स्वीकृती									✓	
2) Verbal Motivation शाब्दिक प्रशंसा										✓
3) Motivate through expression अशाब्दिक प्रशंसा										✓
4) Motivate students by announcing their name व्यक्तिवाचक उल्लेख									✓	
5) Motivate students for participation सहभागी होण्यास इतर विद्यार्थ्यांना प्रोत्साहन										✓

FEEDBACK प्रत्याभरण

Students are trying to understand the reinforcement skill of mathematics on the topic quadratic equation and also trying to get perfection in their skills and writing examples.

✓

Shelbonde

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. (क्रमांक): 8

Subject (विषय): Physics

Teaching (अध्यापन): Illustrating with examples

Sub – Unit (विषयांश): Motion

Re-Teaching (पुनर्ध्यापन):

Previous Knowledge (पूर्वज्ञान): Types of motion

Class (वर्ग): IX

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENT ACTIVITY	SUB-SKILL
NOTE: Teacher asked question. [T] What is motion?	NOTE: Students answered properly. [S] (Another student) motion is mathematically described in terms of displacement, distance velocity, acceleration time and speed.	Interesting explanation as per age.
	[S] Motion is change in position of an object with time.	Example related with content.
[T] Can you tell me about objects motion?	[S] An objects motion cannot change unless it is acted upon by a force, as described.	Gave actual phenomenon

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. / क्रमांक: 8

Subject / विषय: Physics

Teaching / अध्यापन: Illustrating with examples

Sub – Unit / विषयांश: Motion

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Types of motion

Class / वर्ग: IX

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
T Tell me some examples of motion?	S When body is in motion or steady state, then this object remains in its state unless external force act on it.	Good explanation of example.
T How will measure the motion?	S Acceleration is a measure of how much velocity of object changes in a certain time.	Various types of discussion being done with examples.
T Can you tell me laws of motion?	S There are three laws of motion a) Newton's first law of motion b) Newton's second law of motion c) Newton's third law of motion	Involvement of student Motive achieved

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. 8
क्रमांक

Subject Mathematics
विषय

Teaching Illustrating with examples
अध्यापन

Sub – Unit Quadratic equation
विषयांश

Re-Teaching
पुनर्ध्यापन

Previous Knowledge Cubic equation
पूर्वज्ञान

Class X
वर्ग

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
NOTE: Teacher asked question.	NOTE: Students answered properly.	
T What is quadratic equation?	S Equation has only degree two is called quadratic equation	
T Can you tell me some examples?	S There are following examples: (a) $x^2+xy+y^2+5z^2=0$ (b) $p^2+9pq+q^2=9$ where, x, y, z, p and q are variables in equation.	Example related with content Example as per age
	S (Another Student) Ex. $t^2+3qt+9q^2=0$	
	S Is this, equation quadratic?	Various types of examples.

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित

Sr. No. / क्रमांक: 8

Subject / विषय: Mathematics

Teaching / अध्यापन: Illustrating with examples

Sub – Unit / विषयांश: Quadratic equation

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Cubic equation

Class / वर्ग: X

Illustrating with examples उदाहरण व दाखल्यांचा वापर/दृष्टान्तीकरण उदाहरणासहित	Sub Skill उपकौशल्य	
T If 'q' is variable then this is quadratic equation and if 'q' is constant then it is not a quadratic equation.		
T In quadratic equation, there must be a power or addition of power should be equal to two (2). i.e. $x^1y^1 \Rightarrow 1+1=2$ or $x^2 \longrightarrow$ power $= 2$	S x^2y is not quadratic equation term. It is a cubic equation term.	Various types of examples Involvement of students
T Can you tell me some quadratic equation terms with examples?	S $5xq$, $3xy$, $3y^2$, $4t^2$, etc. where, x, q, y, s, t are all variables.	Motive achieved

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर / दृष्टान्तीकरण उदाहरणसहित

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes — वेळ – ५ मिनिट

Sub Skills उपकौशल्य	Rating Scale पदनिश्चयन श्रेणी				
	Lower निम्न	Medium मध्यम	Satisfactory सुयोग्य	Good उत्कृष्ट	Excellent अत्युत्कृष्ट
1) Examples related with content पाठ्यवस्तूस पोषक उदाहरणे					✓
2) Examples as per age वयानुरूप योग्य उदाहरणे				✓	
3) Interesting examples मनोवेदक उदाहरणे					✓
4) Various types of examples विविध प्रकारची उदाहरणे				✓	
5) Number of examples उदाहरणांची संख्या					✓
6) Involvement of students विद्यार्थी सहभाग					✓
7) Motive achieved उद्दिष्ट पूर्ती					✓

FEEDBACK प्रत्याभरण

Students are trying to understand illustrating with examples on the topic motion taken from physics. Students also get perfection in their skills and as well as understanding.

ILLUSTRATING WITH EXAMPLES

उदाहरण व दाखल्यांचा वापर / दृष्टान्तीकरण उदाहरणसहित

OBSERVATION CHART निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

Sub Skills उपकौशल्य	Rating Scale पदनिश्चयन श्रेणी				
	Lower निम्न	Medium मध्यम	Satisfactory सुयोग्य	Good उत्कृष्ट	Excellent अत्युत्कृष्ट
1) Examples related with content पाठ्यवस्तूस पोषक उदाहरणे					✓
2) Examples as per age वयानुरूप योग्य उदाहरणे				✓	
3) Interesting examples मनोवेदक उदाहरणे				✓	
4) Various types of examples विविध प्रकारची उदाहरणे					✓
5) Number of examples उदाहरणांची संख्या				✓	
6) Involvement of students विद्यार्थी सहभाग				✓	
7) Motive achieved उद्दिष्ट पूर्ती					✓

FEEDBACK प्रत्याभरण

Students are trying to understand the topic quadratic equation taken from mathematics by illustrating with examples. Students also get perfection in writing examples and understanding the topic.

Skalbade

CLOSURE SKILL

समारोप कौशल्य / समाप्ति कौशल

Sr. No. / क्रमांक: 9

Subject / विषय: Physics

Teaching / अध्यापन: Closure Skill

Sub – Unit / विषयांश: Motion (Revision)

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Laws of motion

Class / वर्ग: IX

Closure Skill समारोप कौशल्य/समाप्ति कौशल	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
NOTE: Teacher asked questions.	NOTE: Students answered properly.	
[T] We learnt about motion and its types.		Recalling of topic & recollecting of content.
[T] Can anyone tell me, what are the types of motion?	[S] There are mainly three types of motion	
[T] What are these types?	[S] a) Translational motion b) Rotational motion c) Vibrational motion	Recapitulation

CLOSURE SKILL

समारोप कौशल्य / समाप्ति कौशल

Sr. No. / क्रमांक: 9

Subject / विषय: Physics

Teaching / अध्यापन: Closure Skill

Sub – Unit / विषयांश: Motion (Revision)

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Laws of motion

Class / वर्ग: IX

Closure Skill समारोप कौशल्य/समाप्ति कौशल	Sub Skill उपकौशल्य	
[T] What is translational motion?	[S] Motion of body along a linear path is called translational motion.	
[T] What is rotational motion?	[S] Motion of body along a circular path is called rotational motion.	
[T] What is vibrational motion?	[S] Motion of body along a to-fro and up-down is called vibrational motion.	
[T] We will further study about laws of motion.		Connect gained knowledge with future.

CLOSURE SKILL

समारोप कौशल्य / समाप्ति कौशल

Sr. No. / क्रमांक: 9

Subject / विषय: Mathematics

Teaching / अध्यापन: Closure Skill

Sub – Unit / विषयांश: Quadratic Equation (Revision)

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Quadratic equation (example)

Class / वर्ग: X

Closure Skill समारोप कौशल्य/समाप्ति कौशल	Sub Skill उपकौशल्य	
TEACHERS ACTIVITY	STUDENTS ACTIVITY	SUB-SKILL
NOTE: Teacher asked questions.	NOTE: Students answered properly.	
T We learnt about quadratic equation.		Recollection of topic
T What is meant by a quadratic equation?	S Equation in which power or addition of power of variable is equal to two then it is called quadratic equation.	Recapitulation
T Can you tell me some example of it?	S ① $x^2+xy+y^2=$ constant ② $t^2+9tq+q^2=0$ ③ $3p^2+7q^2+4pq=5$	

CLOSURE SKILL

समारोप कौशल्य / समाप्ति कौशल

Sr. No. / क्रमांक: 9

Subject / विषय: Mathematics

Teaching / अध्यापन: Closure Skill

Sub – Unit / विषयांश: Quadratic equation (Revision)

Re-Teaching / पुनर्ध्यापन:

Previous Knowledge / पूर्वज्ञान: Quadratic equation (Examples)

Class / वर्ग: X

Closure Skill समारोप कौशल्य/समाप्ति कौशल	Sub Skill उपकौशल्य	
T Identify the following quadratic terms/ equations: (a) (b) (c) (d)	S Equation (a) is not quadratic and (b), (c), (d) are quadratic equation.	Evaluation of the content.
T Ex. xy, Is it quadratic term?	S xy is quadratic term if x and y are both variable	
T We will further study about other types of quadratic equation.		Connect gained knowledge with future

CLOSURE SKILL
समारोप कौशल्य / समाप्ति कौशल
OBSERVATION CHART
निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) Recollection of the content मुद्द्यांचे एकत्रीकरण मुद्दों का एकत्रीकरण				✓	
2) Recapitulation पुनरावलोकन करणे पुनरावलोकन करना					✓
3) Evaluation of the content अध्यापन केलेल्या पाठ्यांशाचे मूल्यमापन अध्यापन किए पाठों का मूल्यमापन					✓
4) Connect gained knowledge with future. प्राप्त ज्ञानाचा भावी अध्ययनाशी संबंध जोडणे. प्राप्त ज्ञान का भावी अध्ययन से संबंध स्थापित करना।					✓

FEEDBACK प्रत्याभरण

Students learnt about the previous content, try to recapitulate and recollect the previous content and also gained knowledge with future of the topic from physics.

CLOSURE SKILL
समारोप कौशल्य / समाप्ति कौशल
OBSERVATION CHART
निरीक्षण तक्ता

Time Duration : 5 Minutes

वेळ – ५ मिनिट

उपघटक	पदनिश्चयन श्रेणी (चढत्या क्रमांक)				
	1	2	3	4	5
1) Recollection of the content मुद्द्यांचे एकत्रीकरण मुद्दों का एकत्रीकरण				✓	
2) Recapitulation पुनरावलोकन करणे पुनरावलोकन करना					✓
3) Evaluation of the content अध्यापन केलेल्या पाठ्यांशाचे मूल्यमापन अध्यापन किए पाठों का मूल्यमापन					✓
4) Connect gained knowledge with future. प्राप्त ज्ञानाचा भावी अध्ययनाशी संबंध जोडणे. प्राप्त ज्ञान का भावी अध्ययन से संबंध स्थापित करना।					✓

FEEDBACK प्रत्याभरण

Students felt the topic is very easy after recollecting and recapitulating the previous content learnt in the class. Also got future ideas related to the topic by connect gained knowledge with future.

Skulbode

SHRIYA. KALE

B.Ed. SEM II

EPC - 2

BLUEPRINT

SHILADEVI COLLEGE

WADI, NAGPUR

Page No. Date / /20

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Blue print

Blueprint is just a design, plan or draft of something important. Blue-print is also called a measuring unit which includes planning, preparation, selection, executing and evaluation. A test is a measuring device of physical and mental characteristics.

In order to access pupil performance periodically, the test is conducted by the class teacher. A test is to be carefully planned first before executing it.

Blueprint is a map or specification of assessment items based on educational outcomes and its primary function is to support the vicinity of assessment and with regard to its content, validity.

It helps to align assessment items with the intended learning outcomes and students learning experience.

- Preparation of Blueprint

It serves as a frame of reference for preparing the test items. This blueprint shows the distribution of test items content and objective of

of the test. It acts as a guideline for the test construction table of specialization or blueprint is a three-dimensional chart which are,

1) Determining weightage to different instructional objectives.

2) Determining weightage to the different content area.

3) Determining the item type to be included.

It is useful to prepare a blueprint so that the test makers knows which content unit, and

how many marks it would carry.

• Construction of Blueprint

The most important step in planning a test is to identify the instructional objectives.

The most important activity in the construction of an achievement test is to specify in the outline of the content area. It indicates the area in which the students are expected to show the performance. It helps to obtain a representative sample of the whole content area.

1. Ensure questions being asked in.

2. Make assessment fair to the students

3. Design the instructional strategies.

4. Ensure that the selected test items.

5. Planning the test.

6. Manuals and keys.

7. Different types of items

8. Items writing

9. Standardization.

10. Selection of type items

In order to test the

the attainment of knowledge and understanding of students, there is certain test material known as test paper or question paper is one of the most important concerns improving the present-day examination. While preparing a question paper the teacher has to take care of certain important aspects.

The question paper and blueprint are prepared or constructed by the teacher or based on the basis of the lesson and the contents presented to students in the classroom.

• Important Components of Blueprint

Blueprint is an important component of a process called test construction. The test makers first assess the need for the test and the level of competition and then develop a plan for it.

Exams are crucial component in evaluating applicants and identifying the most qualified ones. The blueprint offers a perfect module for test writers to create the best exam questions.

Blueprint serves as a useful strategy for matching

assessment goals with learning objectives and aids in distributing questions and weighting across topics. Assessment should include the blueprint in its entirely;

1) The blueprint presents an illustrated information handout about the questions and weightage to be asked.

2) The test makers follow a certain process to plan to screen the knack of the candidates eightly.

3) The test maker decides which questions can be objective and which is subjective.

4) The questions are laid in a specified format.

5) The main components of a test such as the material to be covered, the weight given to certain topic, areas, and other significant features, are described in a test blueprint.

6) The exam blueprint is laid out along with the entire information pocket.

7) The purpose of blueprint is to help the candidates taking the exam prepare well for it.

8) It describes the specified format of the test & weightage of the topics that are to be studied.

• Advantages of Blueprint

1) Guides lesson planning

Blueprints in education act as roadmaps, directing the design of lessons and ensuring a structured learning process.

2) Ensures balanced content coverage

They guarantee that all topics get equal attention, ensuring no part of the syllabus is neglected

are overly emphasized.

3) Promotes consistent teaching standards

They help maintain uniformity in teaching method across different classrooms fostering a standardized quality of education.

4) Aids in student assessment

They serve as a tool for evaluating students performance, enabling teachers to identify areas of improvement

5) Enhances learning outcomes

By streamlining, the

teaching and assessment process, they ultimately ~~et~~ enhance the quality of learning outcomes.

6) Providing validity evidence

7) Quality assurance

8) Improving the preception of fairness

9) Refining the curriculum

10) Developing Question-Bank

• Significance of Educational Blueprint

Blueprint helps the teachers in designing the instructional strategies as per the guidelines expected in the curriculum.

Most of the faculty (100%) invalved in the validation of blueprint felt that it acts as a guide in construction of test paper.

It is useful to prepare a blueprint so that the test maker knows which question in test which objective, which content unit, and how many marks it would carry.

It ensures that the selected test items give appropriate emphasis on thinking skills and assessment of in-depth knowledge.

In order to access pupil performance periodically, the test is constructed by the class teacher.

It helps to elaborate on the needed skills.
Evaluating time management and strategy to achieve the desired outcome.

Educational administrators for curriculum development.
It provide students for interactive approach for education planning to meet the curriculum

expectations and learning objectives.

***

Subject - Biology
Blueprint

Part (A) Weightage to objectives:

Sr. No.	Objectives	Marks	Percentage
1	Knowledge	10	40
2	Understanding	8	32
3	Application	7	28
	Total	25	100 %

Part (B) Weightage to content:

Sr. No.	Topics	Marks	Percentage
1.	Pollution	4	16
2.	Disaster Management	11	44
3.	Cell and cells organelles.	6	24
4.	Human body and Organ system.	4	16
	Total	25	100 %

Part (C) Weightage of questions:

Sr. No.	Types of Question	Marks	Percentage.
1.	Long	3	20
2.	Short	10	32
3.	Objectives	12	48
	Total →	25	100%

(☆) Level of difficulty:

Sr.No.	Level	Type of Question	Marks (Que.)	Total no. of Q.	Total
1.	Difficult (High)	Long	2	5	10
2.	Average (medium)	Short	1	9	9
3.	Easy (Low)	Objectives	1	6	6
		Total →			25

Class - 8th

Biology

Blueprint

Objectives	Knowledge			Understanding			Application			Total
	L.Q.	S.Q.	Obj	L.Q.	S.Q.	Obj	L.Q.	S.Q.	Obj	
Topics Pollution	1(2)				1(1)				1(1)	4
Disaster Management	2(4)		1(1)		2(2)	1(1)	1(2)		1(1)	11
Cells and cell organelles		2(2)		1(2)		1(1)		1(1)		6
Human Body & Organ System			1(1)		1(1)			2(2)		4
Total→		10			8			7		25

Note: 1) Inside the brackets shows no. of marks, given to each questions.

2) Outside bracket no. shows nos. of questions.

FIRST UNIT TEST 2024-2025

STD - 8th SUB - BIOLOGY MARKS - 25
TIME - 1·30 hrs.

NOTE: ① All questions are compulsory
② Solve all the questions carefully.
③ Draw well labelled diagram wherever necessary.

Q.1. Match the following: 4M

1) Normal body temperature	ⓐ Lycopene.
2) Red tomato	ⓑ 37°C
3) Methane gas	ⓒ Mental retardness
4) Water containing lead.	ⓓ skin cancer.

Q.2. Draw diagram and label it neatly. (Any 2) 6 M

1) Mitochondria 2) Animal cell

3) Structure of alveoli

Q.3. Complete the following: 2M

Reasons of air pollution

- Natural reasons
- Manmade reasons

Q.4. Answer the following questions. (ANY 5) 10 M

1) What is pollution?

2) What is acid rain?

3) Write about lysosome.

4) What is cytoplasm? Explain with a diagram.

5) Explain the effects of landslide.

6) What is the importance and need of blood donation?

Q.5. Give Scientific reasons : (ANY 2) 3M

1) Human blood is red coloured.

2) Don't use lifts at the time of earthquake.

3) Relation between green house effect and global warming.

***

Class 9th

Sub - Chemistry

Blueprint

Objectives	Knowledge			Understanding			Application			Total
	L.Q.	S.Q.	Obj	L.Q.	S.Q.	Obj.	L.Q.	S.Q.	Obj.	
Topics carbon : An important element	1(2)	2(2)			3(2)	2(2)		2(2)	2(1)	11
Substances in common use			2(1)		1(2)	2(3)	1(1)	2(2)		8
Acids, Bases & Salts	1(3)	2(2)						1(1)	1(1)	6
Total →		9			9			7		25

Note: ① Inside the brackets shows no. of marks given to each questions.

② Outside bracket shows no. of questions.

Subject - Chemistry
Blueprint

Part (A): Weightage of Objectives

Sr.No.	Objectives	Marks	Percentage
1	Knowledge	9	36
2	Understanding	9	36
3	Application	7	28
	Total	25	100%

Part (B): Weightage to content:

Sr.No.	Topics	Marks	Percentage
1.	Carbon : An important element	11	44
2.	Substances in common use.	8	32
3.	Acids, Bases & Salts	6	24
	Total	25	100%

Part (C) : Weightage of questions

Sr. No.	Type of Question	Marks	Percentage
1.	Long	10	40
2	Short	6	24
3.	Objectives	9	36
	Total →	25	100 %

(D) Level of Difficulty

Sr. No.	Level	Type of Question	Marks (Que.)	Total no. of Q.	Total
1.	Difficult	Long	2	6	10
2	Average	Short	1 ½	8	6
3.	Easy	Objectives	1 ¼	3	9
		Total →			25

FIRST UNIT TEST 2024-2025

STD - 8th SUB - CHEMISTRY MARKS - 25

TIME - 1.30 hrs.

NOTE: ① All questions are compulsory.
② Draw well labelled diagrams wherever necessary.
③ Solve all questions carefully.

Q.1. Fill in the blanks. 3M

1) The chemical name of Teflon is _____.

2) A carbon atom forms a _____ bond with other atoms.

3) The element hydrogen is present in _____ organic compound.

Q.2. Match the pairs. 2M

1) Fused salt	a) Oxidation of colour
2) $CaOCl_3$	b) Sodium metal freed.

Q.3. Explain the following: 10M
(ANY 5)

1) Methane is called a marsh gas.

2) Uses of various allotropes of C.

3) Biogas is an ecofriendly fuel.

4) Write the difference between acids and bases.

5) What is meant by neutralization? Give two examples.

6) Write the chemical equation for; Dilute HCl was poured on baking soda.

Q.4. Pick the odd one out and justify: 2M

1) Chloride, nitrate, hydride, ammonium.

2) Calcium oxide, magnesium oxide, zinc oxide, sodium oxide.

Q.5. Write symbols of the following: 2M

1) Mercury 2) Copper

3) Sulphur 4) Potassium

Q.6. Draw well labelled diagram of the following: 3M
(ANY 1)

1) Internal structure of fire extinguisher.

2) Biogas plant.

Q.7. Write the uses of the following: 3M

1) Ceramic 2) Powder coating

3) Radioactive substance 4) Anodizing

* * *

Page No. :
Date :

SHEELADEVI COLLEGE OF EDUCATION, WADI

Year - 2023-24

ASSIGNMENT EPC - II

BLUE PRINT

Name - Tejaswini Pradiprao Arode

Sign. of H.O.D

Sign of Teacher

Shree Radhe

Page No. :
Date :

INDEX

Shree Radhe

Introduction -

Blue print is a document which give a complete functional picture of the test.

It shows - Distribution of question.
- Different objectives.
- Various aspect of the content.

The Blue print is 3-D chart having content spread along the vertical axis and objectives to be tested on horizontal axis.

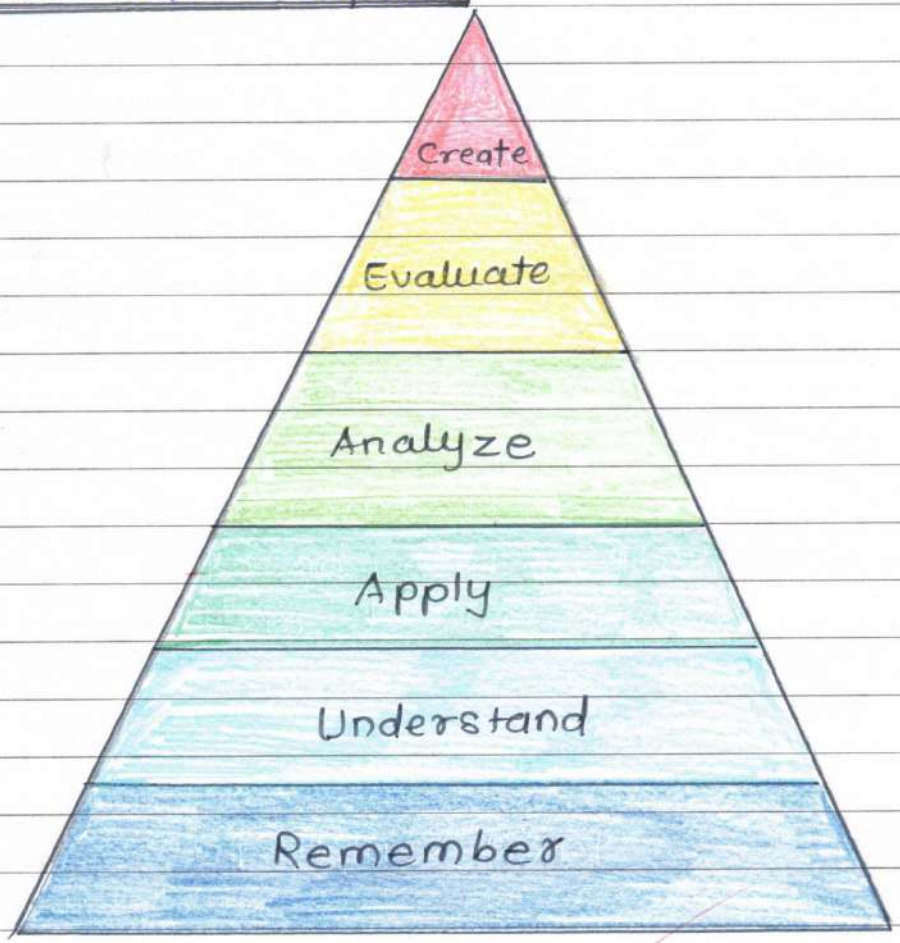
Purpose of Blue Print -

The purpose of constructing examination using a blue print is to provide a conceptual map of examination format and the content area represent in assessment.

Meaning of Blue Print -

Blueprint is the matrix or chart reporting the number and type of test questions represented across the topics in content area.

- **Basis of Blueprint -**



- **Create -**

Produce new or original work.
Design, assemble, construct, conjugate, develop, formulate, author, investigate

- **Evaluate -**

Justify a stand or decision.
Appraise, argue, defend, judge, select, support, value critique, weigh.

- **Analyse -**

Draw connections among ideas.
Differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test.

- **Apply -**

Use information in new situations.
Execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch.

- **Understand -**

Explain ideas and concepts.
Classify, describe, discuss, explain, identify, locate, recognize, report, select and translate.

- **Remember -**

Recall facts and Basic concepts.

Define, Duplicate, List, memorize, repeat, state.

- **Definition -**

According to Dictionary blue print is a detailed plan action.

A test blue-print, also known as test specifications, consist of a matrix, a chart representing the number of questions to be included in the test within each type and level of objectives.

The Blueprint identify the objectives and skills that are to be tested and the relative weight on the test given to each. The blueprint can help to ensure that desired coverage of topics and level of objectives had been obtained. After the preparation of blueprint, the task of writing the test items can be started.

- **Need and Importance of Blue Print.**

1) To standardized the question paper.

2) To incorporate the aim of the test

3) To check the difficulty level of question paper

4) To check the suitability of the textbook and syllabus, in respect of aim and target.

5) To define the scope and emphasis of the test.

6) To relate objective with the content.

- **Functions of Blue Print**

1) Helps to acheive ~~bao~~ balance between instruction and assessment.

2) Provides a structure for communicating with students before and after testing

3) Provides a structure for analysing, summerazing, and reporting result.

4) Helps to ensure that a test will sample all important content and process areas.

- **Dimensions of the Blue Print.**

1) Weightage to the objective for a classroom test, all the relevant instructional should be taken into consideration and given due weightage in test. Teachers take objectives from cognitive domain - like knowledge, understanding, application and skill.

Sr. No.	Objectives	Percentage of Marks	No. of Questions
1	knowledge	15	11
2.	Understanding	30	19
3.	Application	35	17
4.	Skill	20	18
	Total	100	65

- **Weightage of content / Subject**

Here, different areas of content, which are taught to students during instruction need to be given due weightage, according to their relative importance.

Sr. No	Objectives	Percentage of Marks	Number of Questions
1.	Unit - 1	10	08
2.	Unit - 2	10	08
3.	Unit - 3	10	08
4.	Unit - 4	15	08
5.	Unit - 5	20	08
6.	Unit - 6	12	09
7.	Unit - 7	08	08
8.	Unit - 8	15	08
	Total	100	65

03) Weightage to form questions. Generally, for classroom testing purposes, Essay type, short answer type and objectives are used.

Sr. No.	Form of Questions	Marks for Questions	Percentage of Marks	No. of Questions
1.	Essay type	6	18	03
2.	Short answer type	3	30	10
3.	Objective type	01	52	52
	Total.		100	65

- **Weightage to difficulty level of Questions**

Since in a normal classroom, three types students are found such as above average, average and below average.

Sr. No.	Type of Test Items	Percentage of Expected Difficulty levels
1	Easy	15
2.	Average	70
3.	Difficulty	15
	Total	100

- Weightage of Expected time for each questions.

Sr. No.	Form of Question	Expected time for each other
1.	Long-Answer type	45 min on average
2.	short-Answer type	55 min 2 min
3.	Objective type	80 min per min
	Total	180 minutes

- Scheme of option- three will be no option or internal choice

- Weightage to Numerical - According to subject or topic

- Perfect / standard blue print

A blue print will be said to be perfect if it gives proper weightage to learning outcomes.

- Objectives - Knowledge, Understanding application and skill.

- Weightage - Changes with the subject to subject of curriculum topic.

- Earlier Trend was,

Objective	Percentage
Knowledge	30
Understanding	50
Application	20

Latest trend from 2008 onwards is

Knowledge - 30%, Understanding - 40%
Application - 20%, Reasoning - 10%

- Advantages of Blue Print

To ensure content validity of test.

To provide guidelines for constructing questions.

To make comparison with other tests.

To relate objectives to the content / Topic

To be able to reproduce a test with similar content, cognitive and difficult level in future.

To ensure balance among the topics and skills which are to be tested.

- **Why Blueprint is important?**

Blueprint links assessment to learning objectives.

It indicates the marks carried by each question.

It helps teacher to know which question will test, which objective and which content unit and how many marks it would carry.

- Format of Blueprint -

Objectives	Remembering			Understanding			Applying			Analyzing			Evaluation			Creating			Total
Content	O	S	E	O	S	E	O	S	E	O	S	E	O	S	E	O	S	E	
A																			
B																			
C																			
Total																			

- **Unit - Test in Blueprint**

1) The unit test is a short test to be given at the end of teaching a unit.

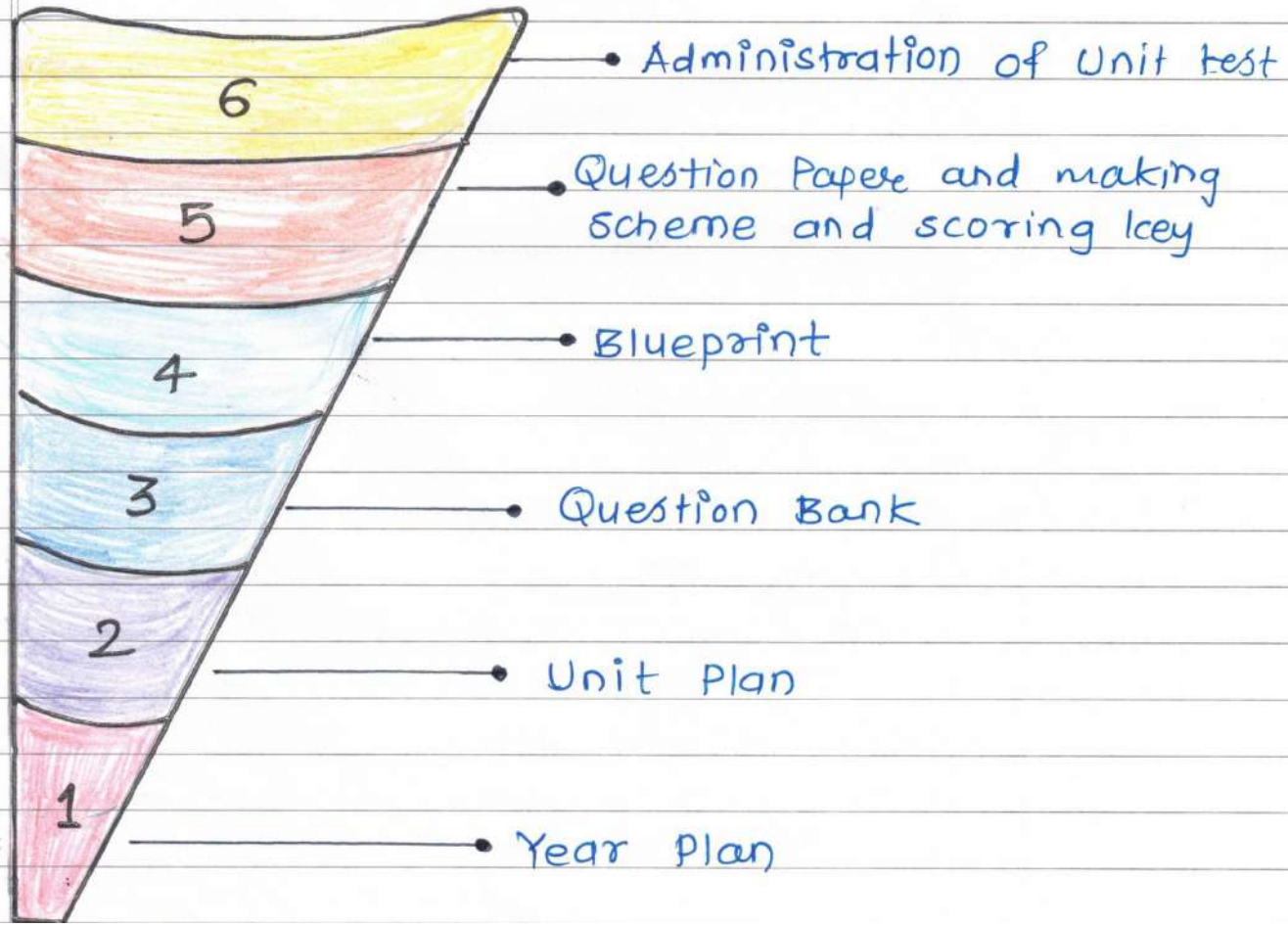
2) Unit test is not ;

3) Random assorment of question.

4) A test of 15/20 marks instead of 100 marks.

5) Unit test arranged by secondary school.

- **Process of Unit test**



- **Benefits of Blue Print -**

Give feedback on student's progress and teachers

From student's point, how well they attain the objectives.

Provides a guide to both to students and teachers.

Determines the reliability and validity of the examination.

Bloom's taxonomy helps in developing the entire written and some aspects of practical questions

- **Purpose of Preparing the Blueprint**

Clearly defines the scope of the test

Relates the objectives to the content

Improves the content validity of teacher to made the test.

Assure that the test will properly measure the learning outcomes.

Method - I - PHYSICS

Std - VIII

Q.1 Write the proper word in the blank space. (5M

a] The S.I unit of force is _____.

(Dyne , Newton, Joule)

b] The S.I unit of pressure is _____.

(N/m^3 ; N/m^2 , kg/m^2, Pa/m^2)

c] Water in the waterfall flows from a higher level to the lower level because of _____.
(gravitational attraction, potential difference)

d] An electric current flowing in a wire creates _____ around the wire
(4.5 V, 3.0 V)

e] The perpendicular to the mirror at the point of incidence is called _____.
(Normal, refractive index)

Q.2 Make a Match. (5M

1. Fluid [ ] a) Higher pressure
2. Blunt knife [ ] b) Atmospheric pressure
3. Sharp needle [ ] c) Specific gravity
4. Relative density [ ] d) Lower pressure
5. Hecto Pascal [ ] e) Same pressure in all directions

Q.3. Draw a figure showing the following (3M)

a) Incident Ray

b) Angle of Incidence

c) Angle of reflection

- Short answer Questions (6M)

Q.4.a) A battery is to be formed by joining 3 dry cells them with connecting wires. showing how will you connect the wire by drawing a diagram.

b) A plastic cube is realeased in water. Will it sink or come to the surface of water?

c) If the angle between the plane mirror and the incident ray is 40°, what are the angle of incidence and reflection!

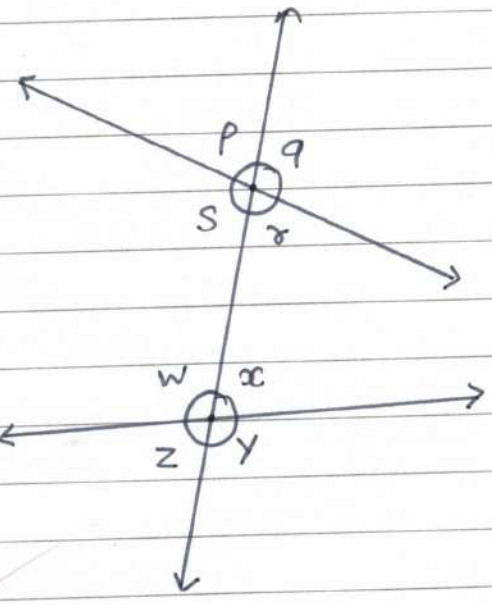
Q.5. Answer the questions in brief. (6M)

a) Explain the difference between regular and irregular reflection of light?

b) How much pressure do we carry on our heads? Why don't we feel it?

Method-II - Mathematics Std - VIII

Q. 1 In the adjoining figure, each angle is shown by a letter. Fill the boxes with the help of figure (5M



- Corresponding angles.

1) ∠ p and ☐

2) ∠ q and ☐

3) ∠ r and ☐

4) ∠ s and ☐

- Interior alternate angles

5) ∠ s and ☐

Q.2. Write the following rational number in (5 decimal form.

1) $\frac{9}{37}$

2) $\frac{18}{42}$

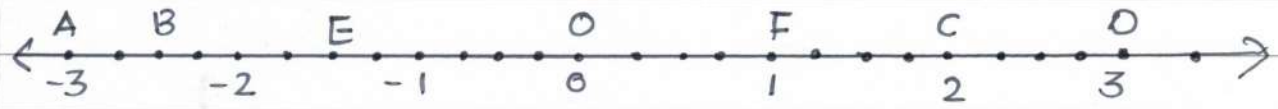
3) $\frac{9}{14}$

4) $\frac{-103}{5}$

5) $\frac{-11}{13}$

Shree Radhe

Q.3. Observe the number is indicated the number line and answer the questions (3M)



1) Which number is indicated by point B?

2) Which point indicates the number $1\frac{3}{4}$?

3) State whether the statement, "the point D denotes the number $\frac{5}{2}$, is true or false.

Q.4. Answere the following questions. (6M)

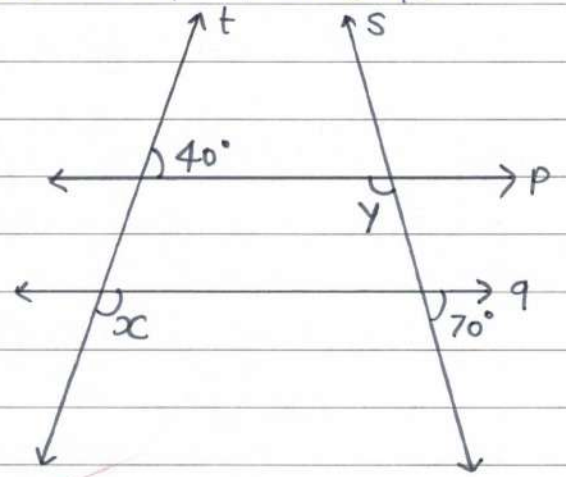
1) Draw a line l. Take a point A outside the line. Through point A draw a line parallel to line l.

2) Draw a line l. Take a point T outside the line, Through point T draw a line parallel to line l.

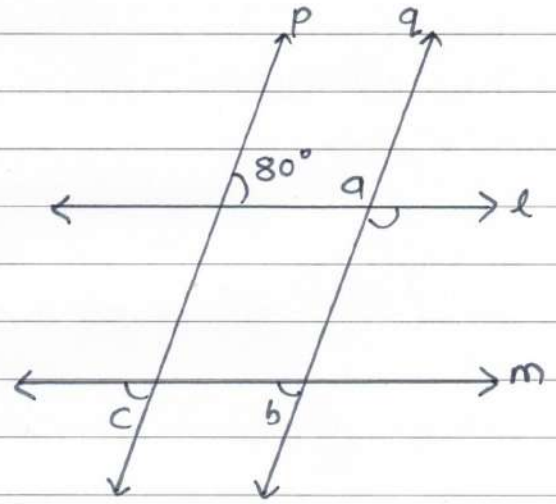
3) Draw a line m. Draw a line n which is parallel to line m at a distance of 4 cm from it.

Q. 5. Answer the following question in Brief. (6M)

1) In the adjoining figure line p ∥ line q. Line t and line s are transversals. Find the measure of ∠X and ∠Y. Using the measures of angles given in the figures



2) In the adjoining figure, line p ∥ line q. line l ∥ line m. Find measures of ∠a, ∠b & ∠c, Using the measures of given angles. Justify your answers.



Shree Radhe

Sedbonde
05/06/2024

SHRIYA KALE

B.Ed. SEM II

EPC - 3

SHILADEVI COLLEGE, WADI

EPC 3

Method- 1 BIOLOGY

Semester- II

Topic- Cells and cell organelles

(Class- 8th)

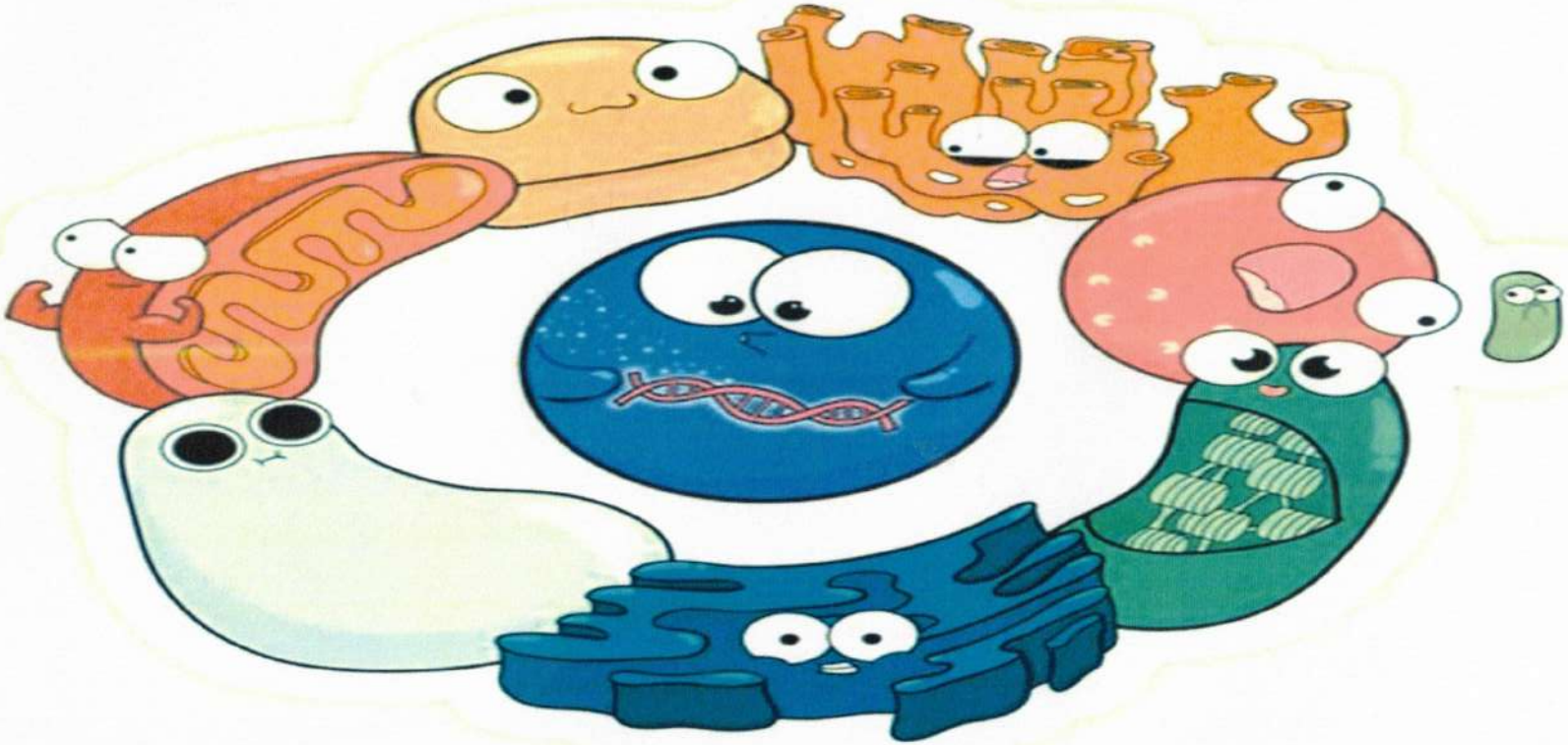
Presented by

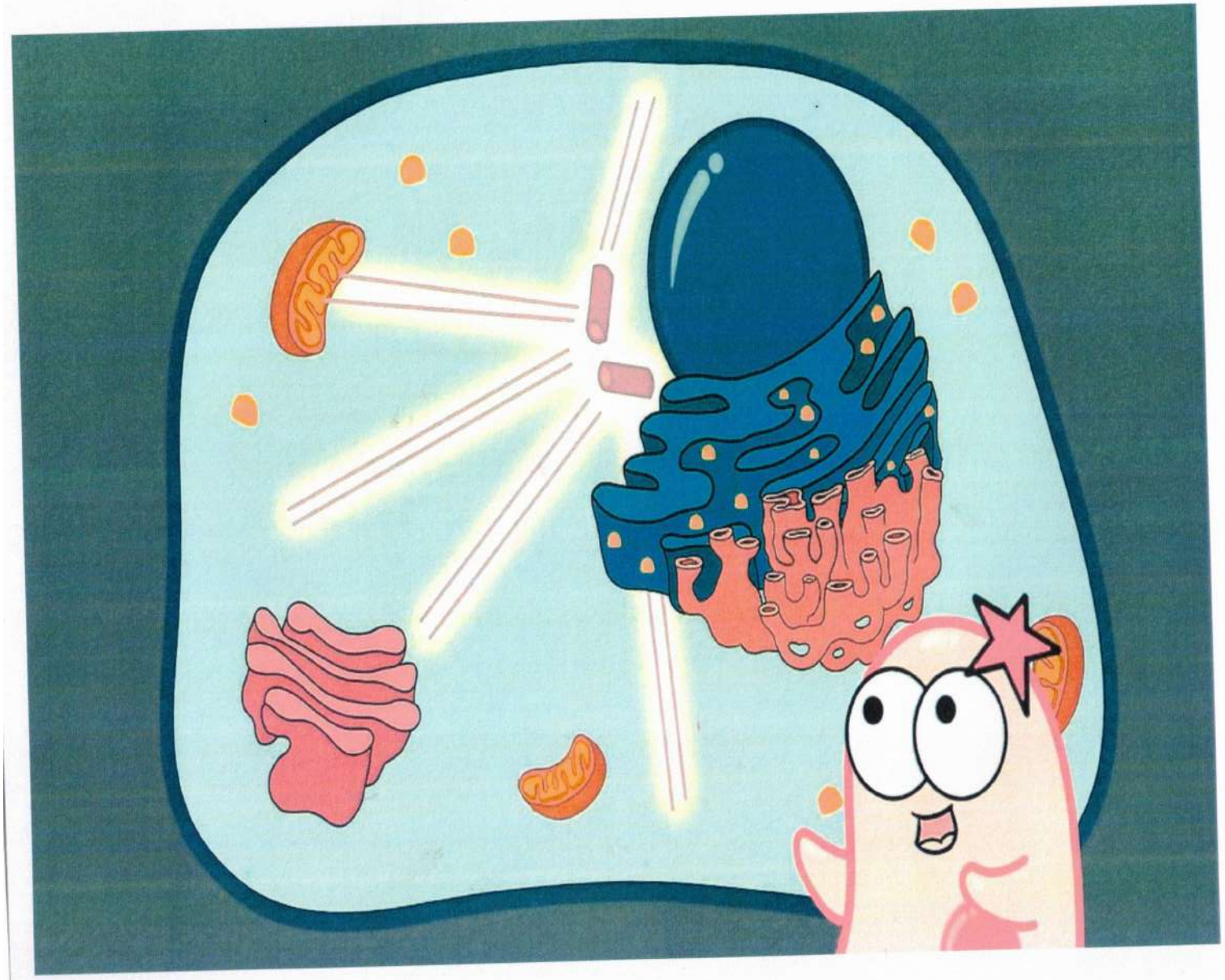
Shriya A. Kale

Shiladevi College of Education, Wadi

Nagpur- 440012

CELLS AND CELL ORGANELLES





❑ Contents

Introduction

- A cell is the basic unit of life, functioning as the smalles structural and functional unit of all living organisms.
- The term "cell" was coined by the English scientist Robe Hooke in the 17th century when he observed cork cells under a simple microscope.
- Today we use more advanced tools like compound microscopes to observe cells in detail.

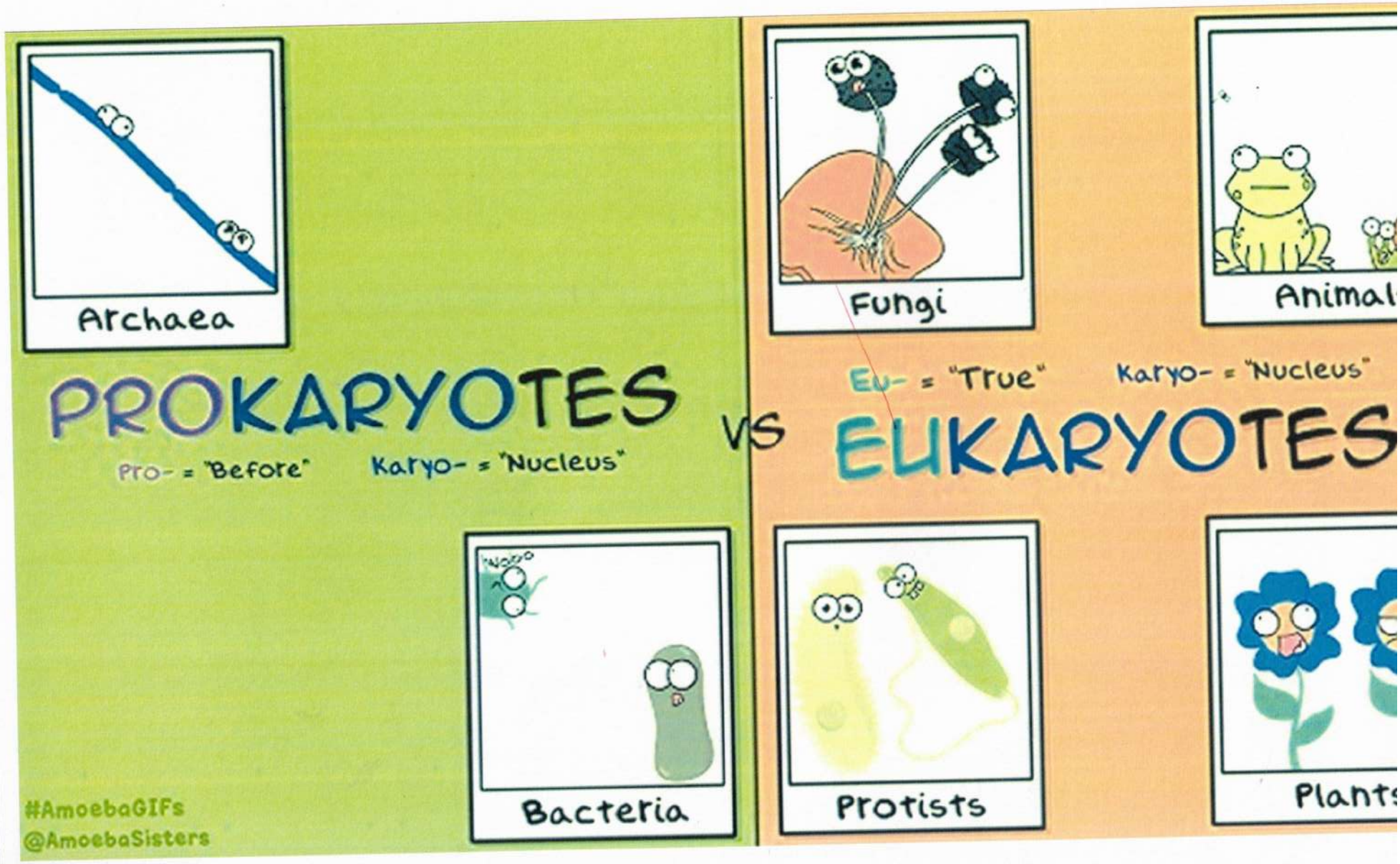
Difference between prokaryotic and eukaryotic cell

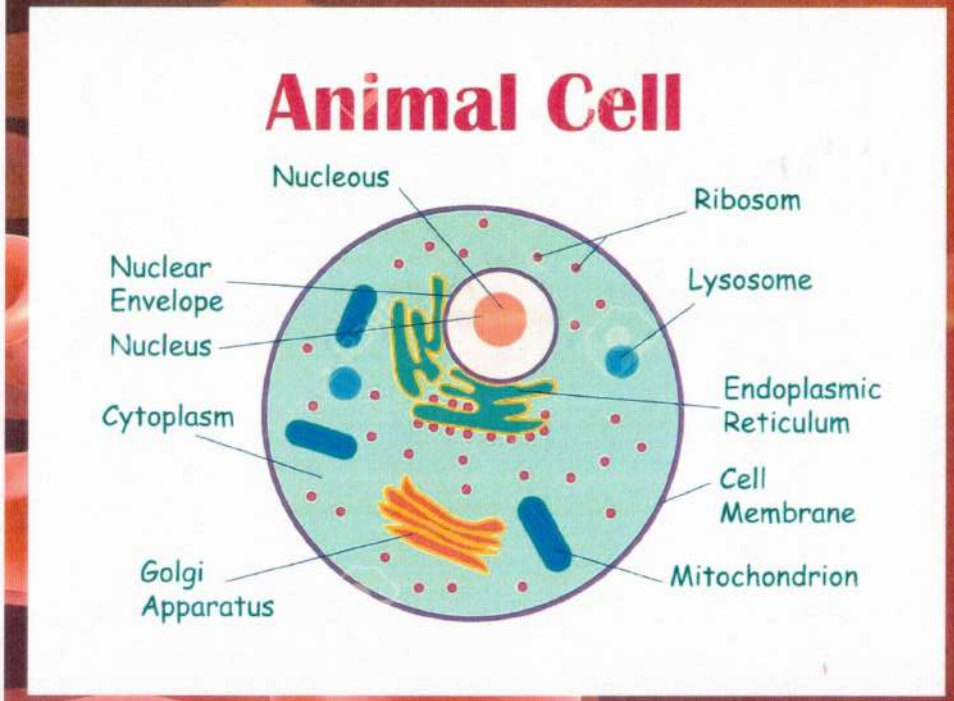
Prokaryotic cell

- *Size*- 1-10 mm
- *Number of chromosomes*- Only one
- *Nucleus*- nucleoid resembling nucleus
- *Mitochondria*- They don't have membrane bound cell organelles
- *E.g.* bacteria

Eukaryotic cell

- *Size*- 5- 100 mm
- *Number of chromosomes*- more than one
- *Nucleus*- with nuclear membrane, nucleolus and nucleoplasm
- *Mitochondria*- present
- *E.g.*- multicellular and unicellular plants and animals

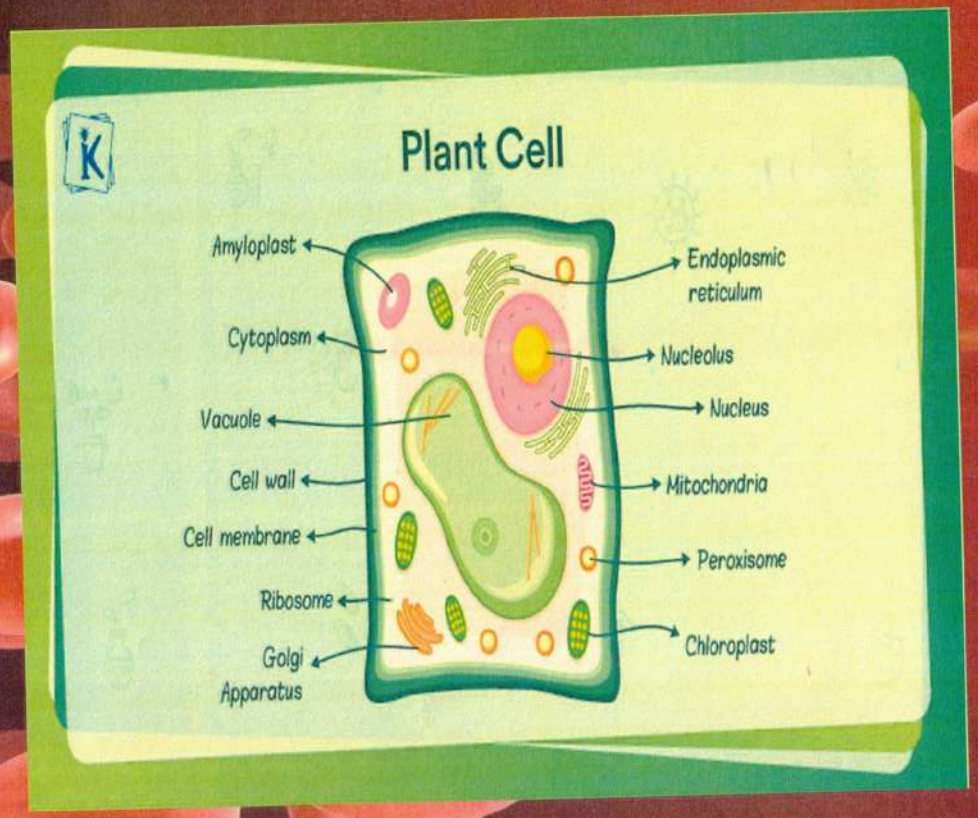

Archaea
Fungi
Animal
PROKARYOTES
Pro- = "Before"
Karyo- = "Nucleus"
VS
Eu- = "True"
Karyo- = "Nucleus"
EUKARYOTES
Bacteria
Protists
Plants
#AmoebaGIFs
@AmoebaSisters



Animal cell

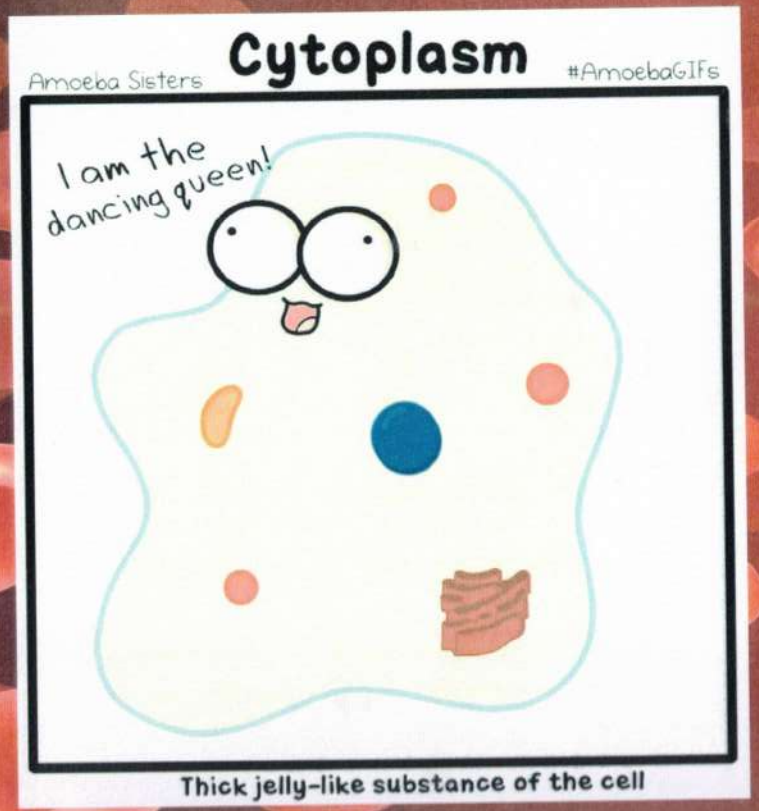
- Cell wall is **absent**.
- They **lack** chloroplasts.
- **Smaller** vacuoles or none.
- The **shape** are typically rounded or irregul
- Have **centrioles**, which are involved in cell division (mitoaia and meiosis).
- Plastids are **absent**.
- Contains **lysosomes**, which are involved in digestion and waste removal.

Plant cell



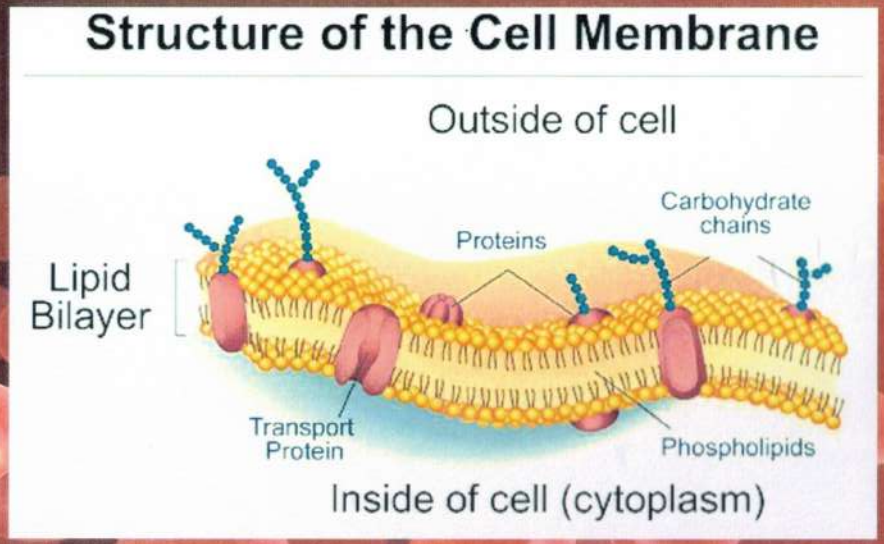
- They have **rigid cell wall** composed of cellulose outside the cell membrane.
- Contains chloroplasts, responsible for **photosynthesis**.
- Have a **large vacuole** that stores water, nutrients and waste products.
- Centrioles are **absent**.
- May contain many types of plastids- **amyloplasts** and **chromoplasts**.
- Lysosomes- **fewer** or less prominent ones.

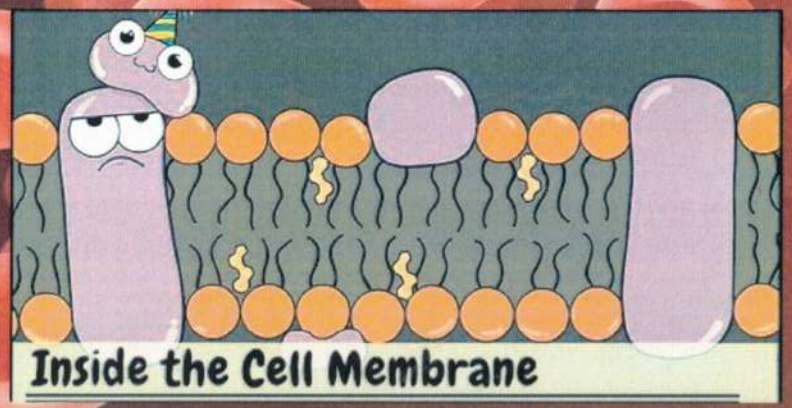
Components of a cell



- **Cell wall-** found around the cells. Only present in plant cell. Composed of carbohydrates like cellulose and pectin. The function of the cell is to give support to the cell and protect the cell by preventing entry of excess water in the cell.

- **Cytoplasm-** it is a jelly-like substance found inside cells, filling the space between the cell membrane and the nucleus. It is a bustling environment where many cellular processes take place, such as protein synthesis and metabolism.



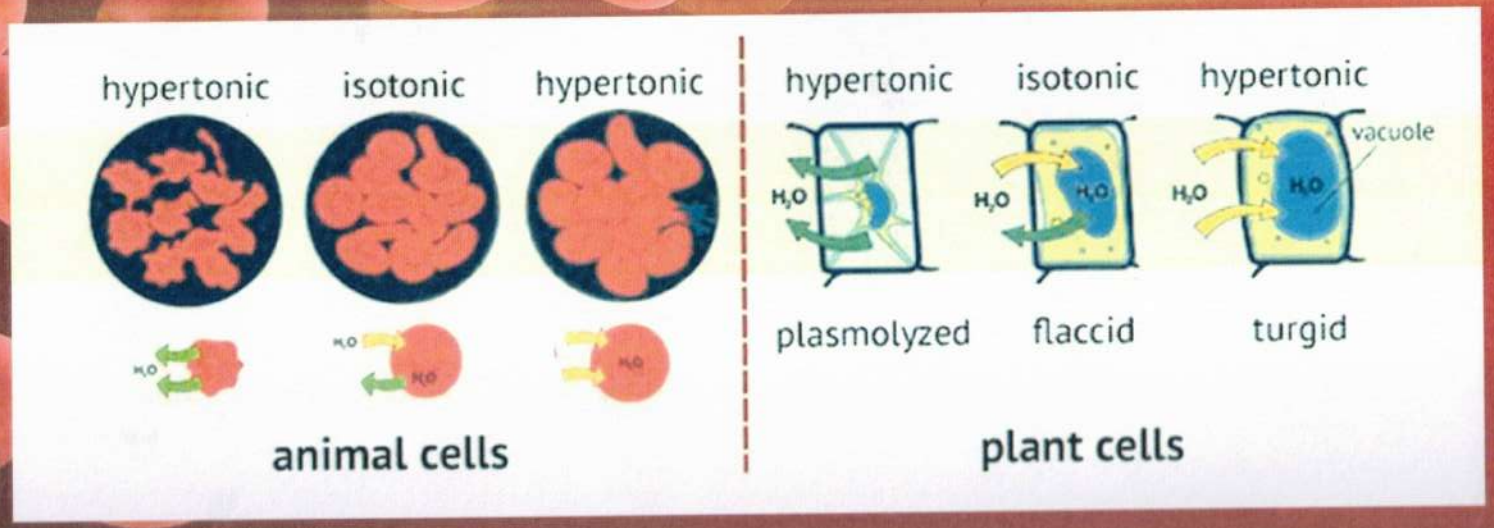


- **Plasma membrane-** thin, fragile and elastic covering that separates cell components from outer environments.
- Protein molecules are embedded in two layers of phospholipids.
- It is selectively permeable.
- Useful molecules- salt, water and oxygen enter the cell and CO_2 exists the cell.
- The cellular environment does not change due to plasma membrane.
- This is called homeostasis.

Processes that don't consume cellular energy

osmosis

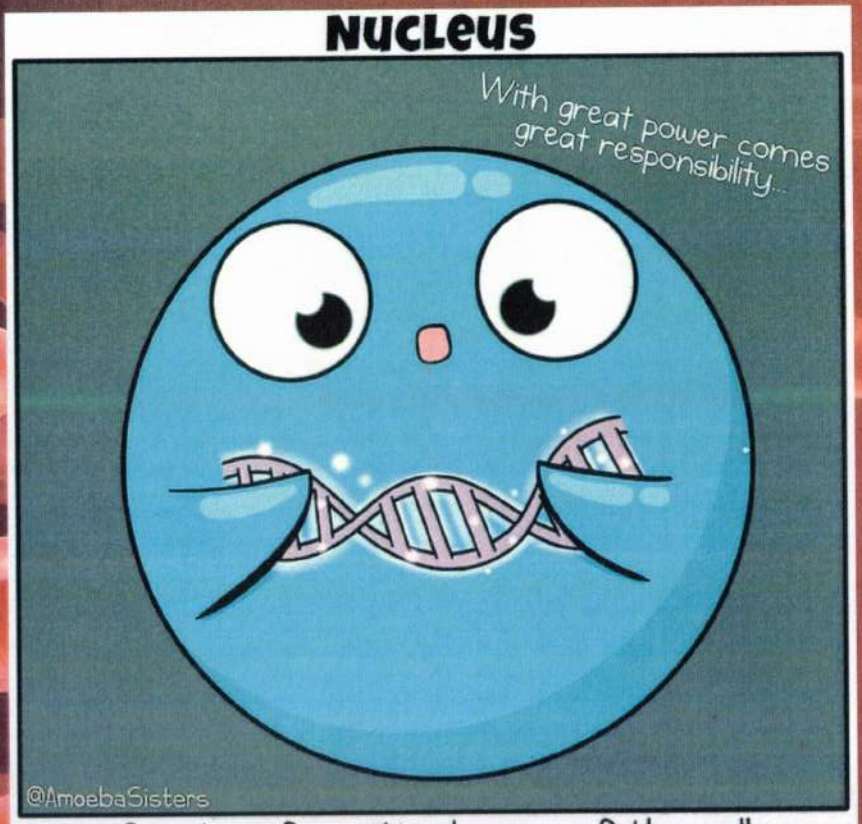
diffusion



Cell organelles

- An organelle is a specialized subunit having a specialized function within the cell.
- They are the **'organs of the cell.'**
- Each organ has its own lipoprotein membrane.
- Each organelle plays a unique role in maintaining the cell's homeostasis and carrying out essential processes.
- The cell organelles are- nucleus, mitochondria, endoplasmic reticulum, Golgi apparatus, lysosomes and chloroplasts in plant cells.
- Together, they work in harmony to ensure the cell's survival and proper functioning.

Nucleus



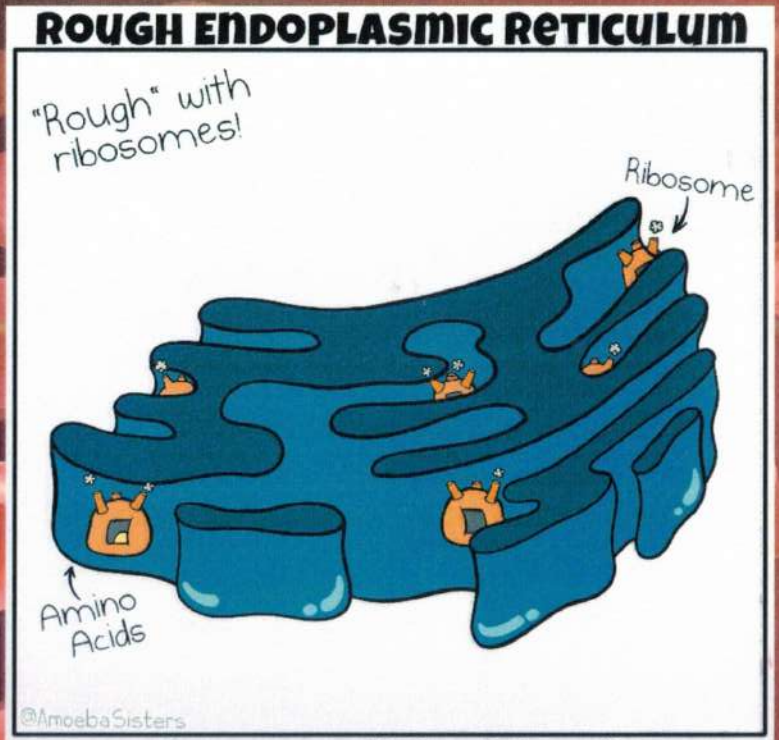
Genetic information bearer of the cell

- The command center of the cell, housing the cells' genetic material, **DNA**.
- Nucleus has one round **nucleolus** and a network of **chromatin fibres.**
- Functional segments on chromosomes are called genes.
- ***Functions:***

✓ Controls all metabolic activities of the cell and also the cell division.

✓ Involved in the transmission of hereditary characters from parents to offspring.

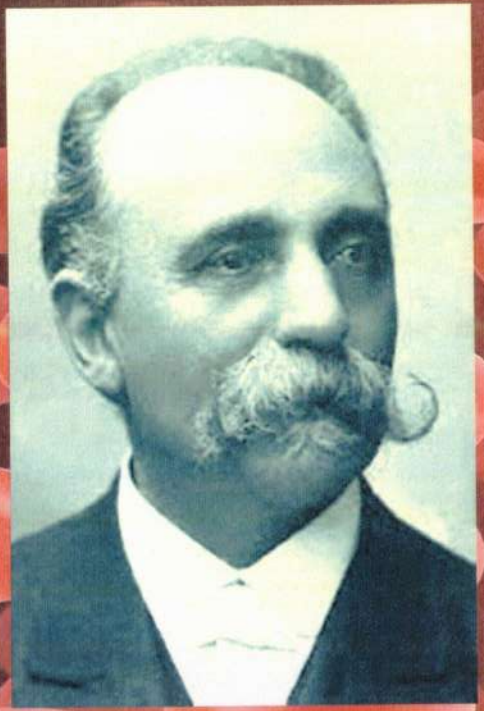
Endoplasmic reticulum (ER)



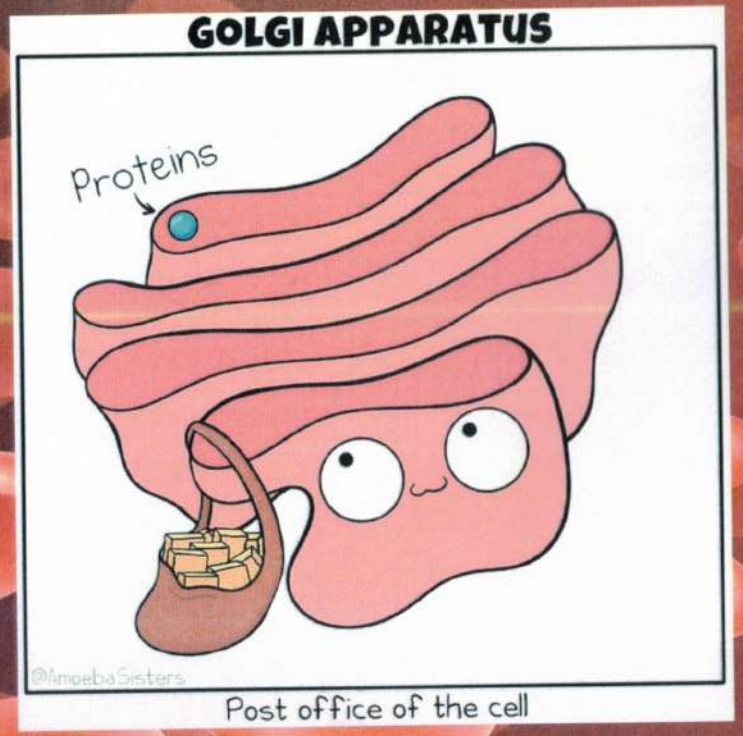
Protein assembly line of the cell

- Conducts various substances inside the cell.
- ER has a net like structure consisting of interconnected miniature tubes and sheets filled with fluid.
- It is connected to the nucleus from inner side to plasma membrane on the outer side.
- There are **two types**:
  - ✓ Rough ER (ribosomes present)
  - ✓ Smooth ER (no ribosomes)
- ***Functions:***
  - ✓ Framework that supports the cell.
  - ✓ Flushes out toxins that entered the body.

Golgi complex



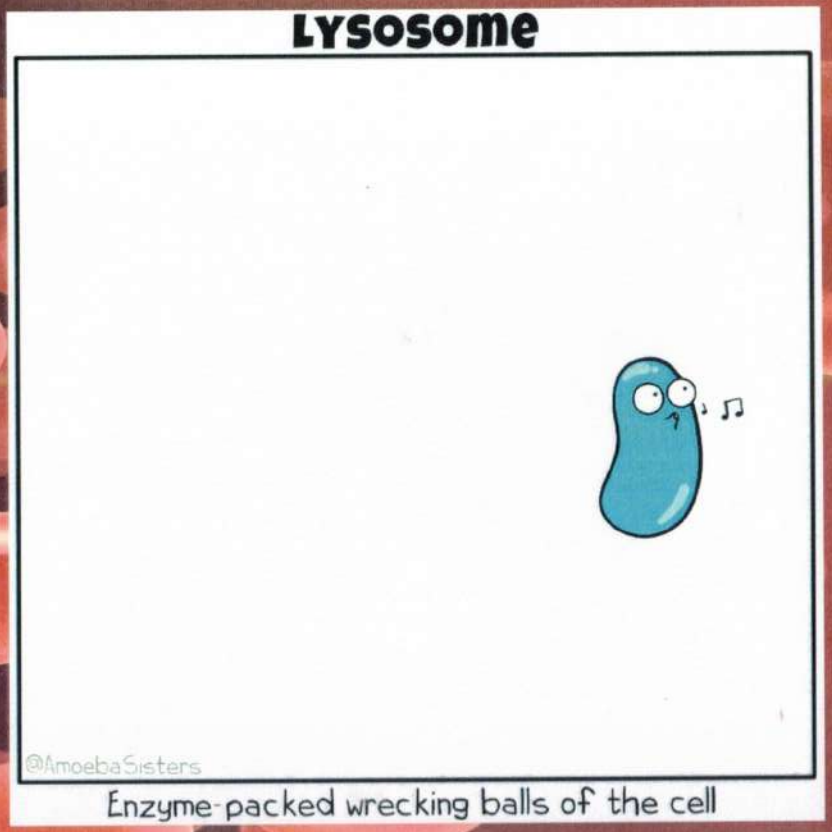
- **Camilio Golgi** described it for the first time.
- The Golgi complex is made up of 5-8 hollow and flat sacs placed **parallel** to each other.
- These sacs are called **'cisternae'** and are filled with different enzymes.
- Proteins coming from ER are enclosed in vesicles, which come towards Golgi complex via cytoplasm.
- They fuse with the formation face of the Golgi membranes and empty their contents in the cisternae.
- It works like a packing department that packs and distributes substances.



- ***Functions:***

- ✓ Secretory organ of the cell.
- ✓ Modifies, sorts and packs materials synthesized in the cell and dispatches them to various targets like plasma membrane, lysosome, etc.
- ✓ Produces vacuoles and secretory vesicles.
- ✓ Helps in the formation of the cell wall, plasma membrane and lysosomes.

Lysosomes



- Lysosomes digest the waste.
- They are simple, single membrane bound sacs filled eith digestive enzymes.
- ***Functions:***

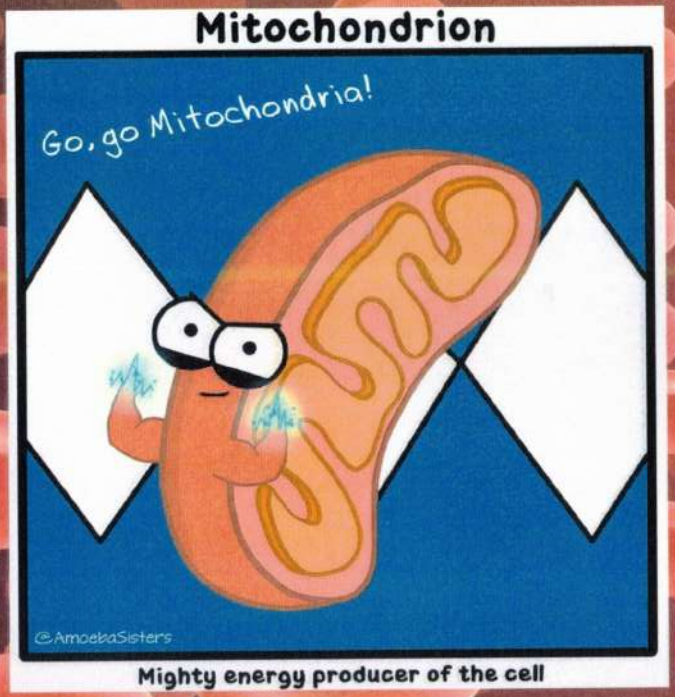
✓ Destroys viruses and bacteria that attack the cell.

✓ Destroys worn out cellular organelles and organic debris (Autolysis).

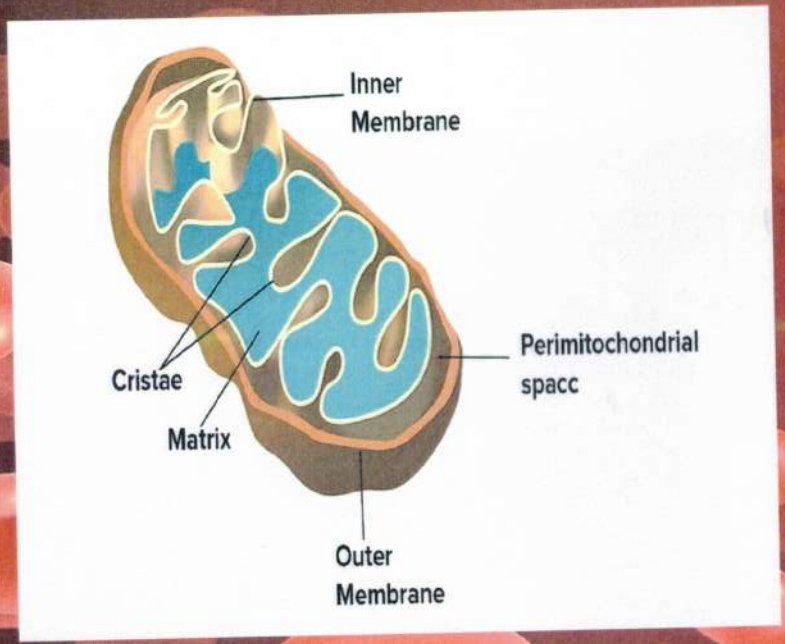
✓ Called suicidal bags.

✓ During starvation, lysosomes digest store proteins, fats.

Mitochondria



- Produces energy.
- Double membrane structure.
- Outer membrane is porous, inner membrane deeply folded. Folds are called **'cristae'**.
- inner cavity filled with proteinaceous gel like matrix (ribosomes, phosphate granules, DNA). Therefore it can produce proteins.
- With the help of enzymes, mitochondria oxidise carbohydrates and fats in the cell.
- Energy is stored in the form of ATP (Adenosine Tri Phosphate).

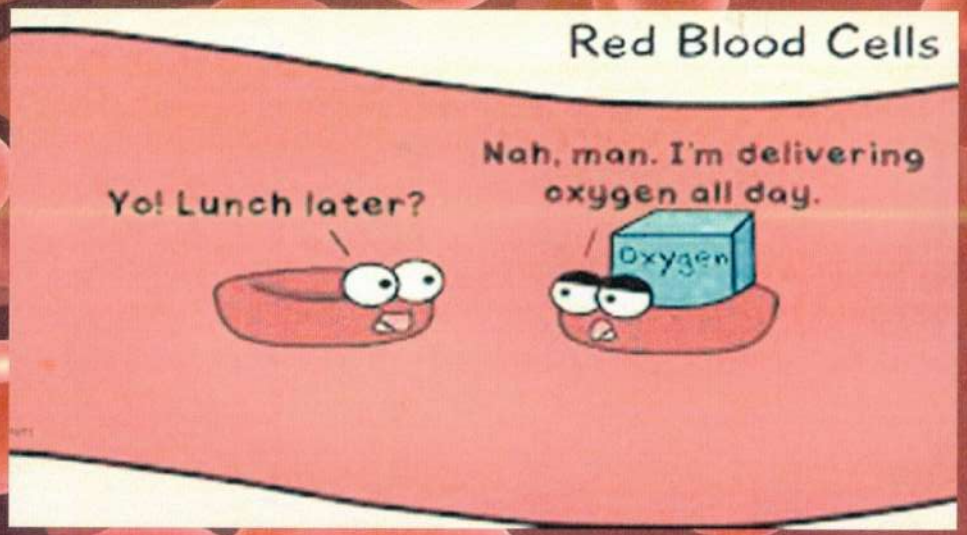


- It can be seen under the electron microscope.
- Plant cells have less mitochondria than animal cells.
- ***Functions:***

✓ To produce energy- rich compound- ATP.

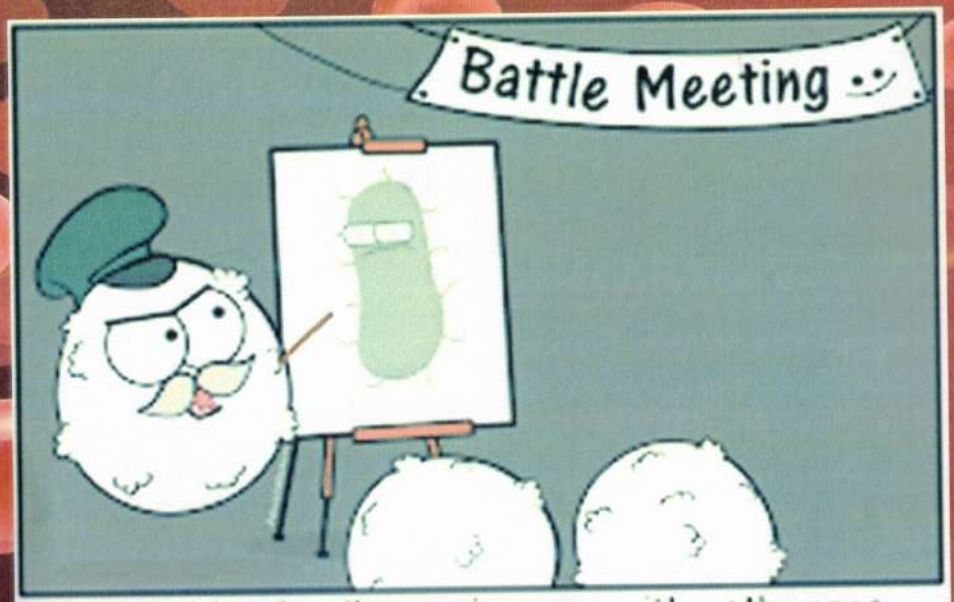
✓ Synthesis of proteins, carbohydrates, lipids etc. by using the energy in ATP.

Red blood cells (RBC's)



- Found in the bloodstream and are produced in the bone marrow.
- Also called as **erythrocytes**.
- **Main function**- to transport oxygen fro lungs to all tissues of the body and to carry CO_2, back to lungs to be exhaled.
- Disc-shaped, packed with haemoglobin.
- **Haemoglobin**- a protein that binds oxygen, giving blood its red colour.
- Maintains the body's **oxygen supply**.

White blood cells (WBC's)

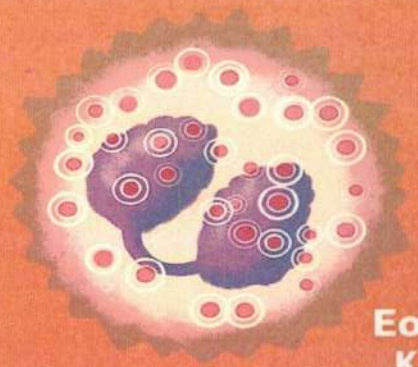


White blood cells: waging war with pathogens while you're watching cat videos.

- Also called **leukocytes**. Found in the bloodstream of the **lymphatic system**, and various tissues throughout the body
- **Defends the body** against infections an foreign invaders- bacteria, viruses and parasites.
- **Produces antibodies** and coordinate immune responses.
- Essential for maintaining body's overall **health and immunity**.

Different Types of White Blood Cells

Neutrophils
First to respond
to bacteria
or a virus



Eosinophils
Known for
their role in
allergy symptoms

Basophi
Known f
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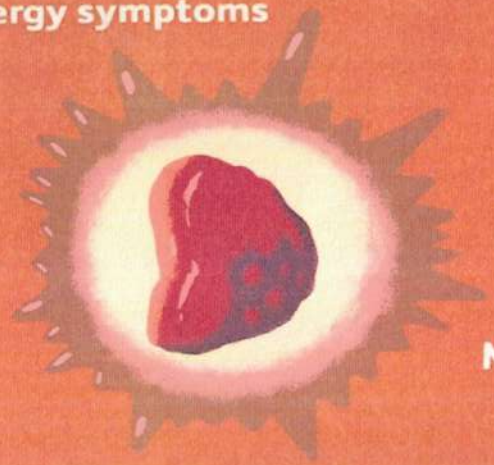
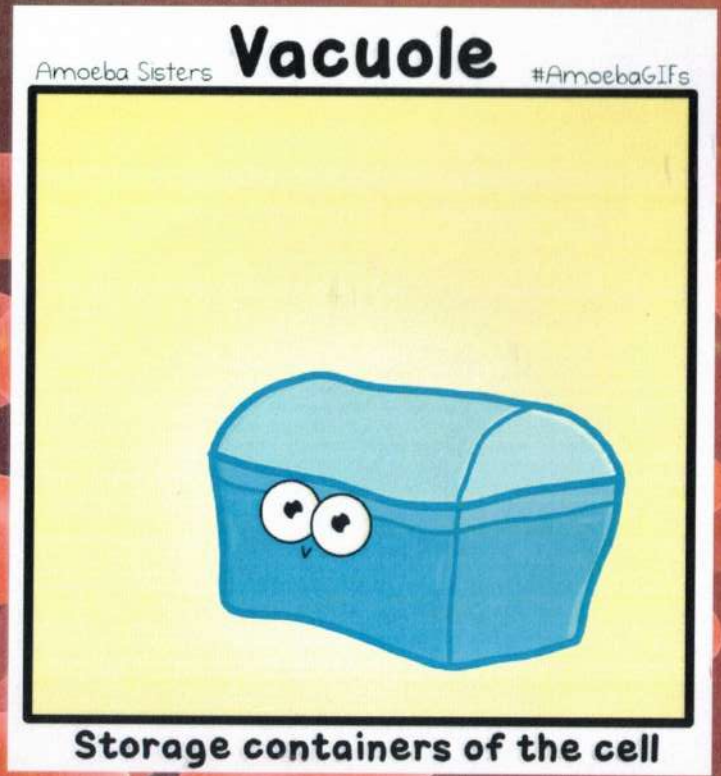
Lymphocytes
Fight infections
by producing
antibodies



Monocytes
Clean up
dead cells

verywell

Vacuoles



- Storage sacs for solid and liquid contents.
- No typical shape or size. Changes accordingly to the need of the cell.
- Bound by single membrane.
- ***Functions:***

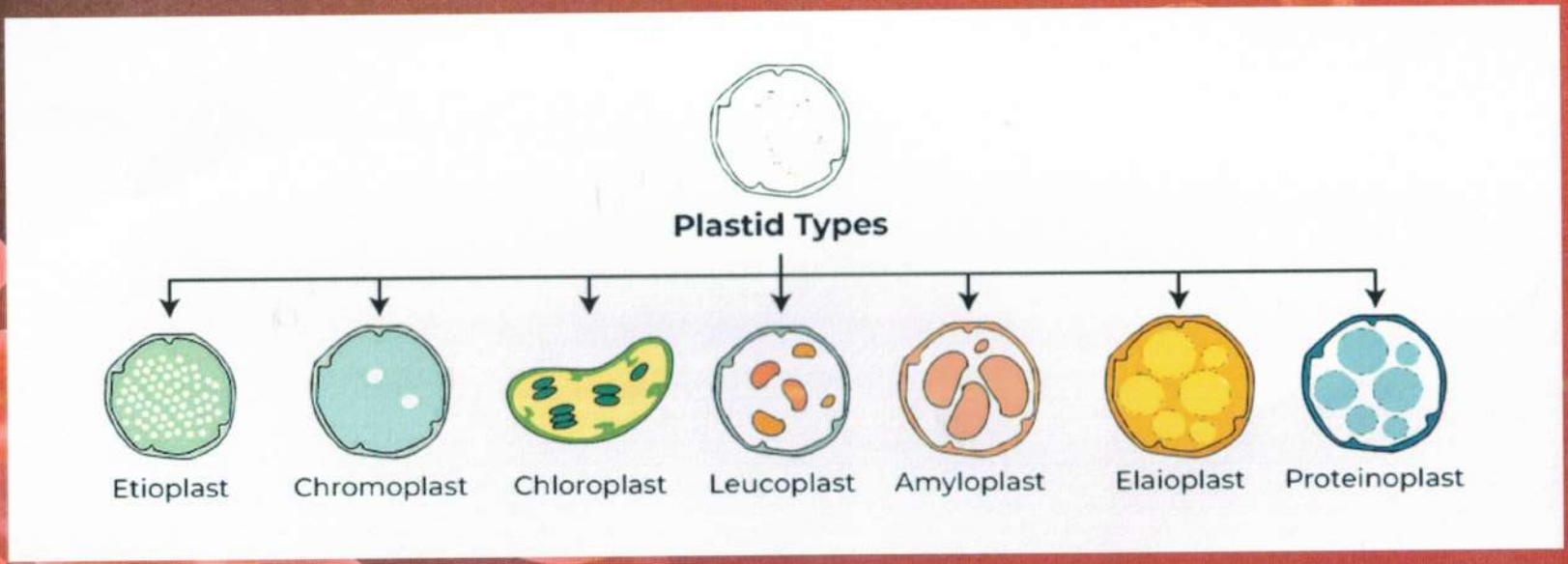
✓ Maintains osmostic pressure of the cell.

✓ Store metabolic byproducts and end products. (Glycogen, protein and water)

✓ In animal cell- they store waste products and fo

✓ In plant cell- full of sap, provides turgidity and rigidity to them.

Plastids



- Type of organelle found in plant cells.
- Responsible for photosynthesis, storage and pigment synthesis.
- Most well-known plastid is chloroplast.

Chloroplast

Glucose synthesizers of the cell

- Important for the photosynthesis process taking place in leaves.
- **Chlorophyll** in chloroplast traps solar energy and coverts it to chemical energy.
- Stroma contains DNA, enzymes, ribosomes and carbohydrates that are necessary for photosynthesis.
- ***Functions:***

✓ Converts solar energy to chemical energy (food).

✓ Chromoplasts gives different colours to flowers and fruits.

✓ Leucoplasts are involved in the synthesis and storage of food like starch, oils and proteins.

Colour of the plant part	Pigment
Green (leaves)	Chlorophyll
Orange (carrot)	Carotene
Yellow	Xanthophyll
Blue, purple	Anthocyanin
Dark pink (beet)	Betalains

Summary

- Cell is the structural and functional unit of living organisms.
- There are eukaryotic cells and prokaryotic cells.
- Plant cell and animal cell have many differences and similarities.
- The components of a cell are- cell wall, plasma membrane, cytoplasm.
- The cytoplasm has various cell organelles which are the organs of the cell.
- The cell organelles are- nucleus, endoplasmic reticulum, Golgi complex, lysosomes, mitochondria, vacuoles, chloroplast.
- There are many types of plastids. The most well known is chloroplast.
- These plastids are responsible for photosynthesis, storage and pigment synthesis.

Reference

Balbharti textbook, Science, class 8th- Cells and Cell Organelles.

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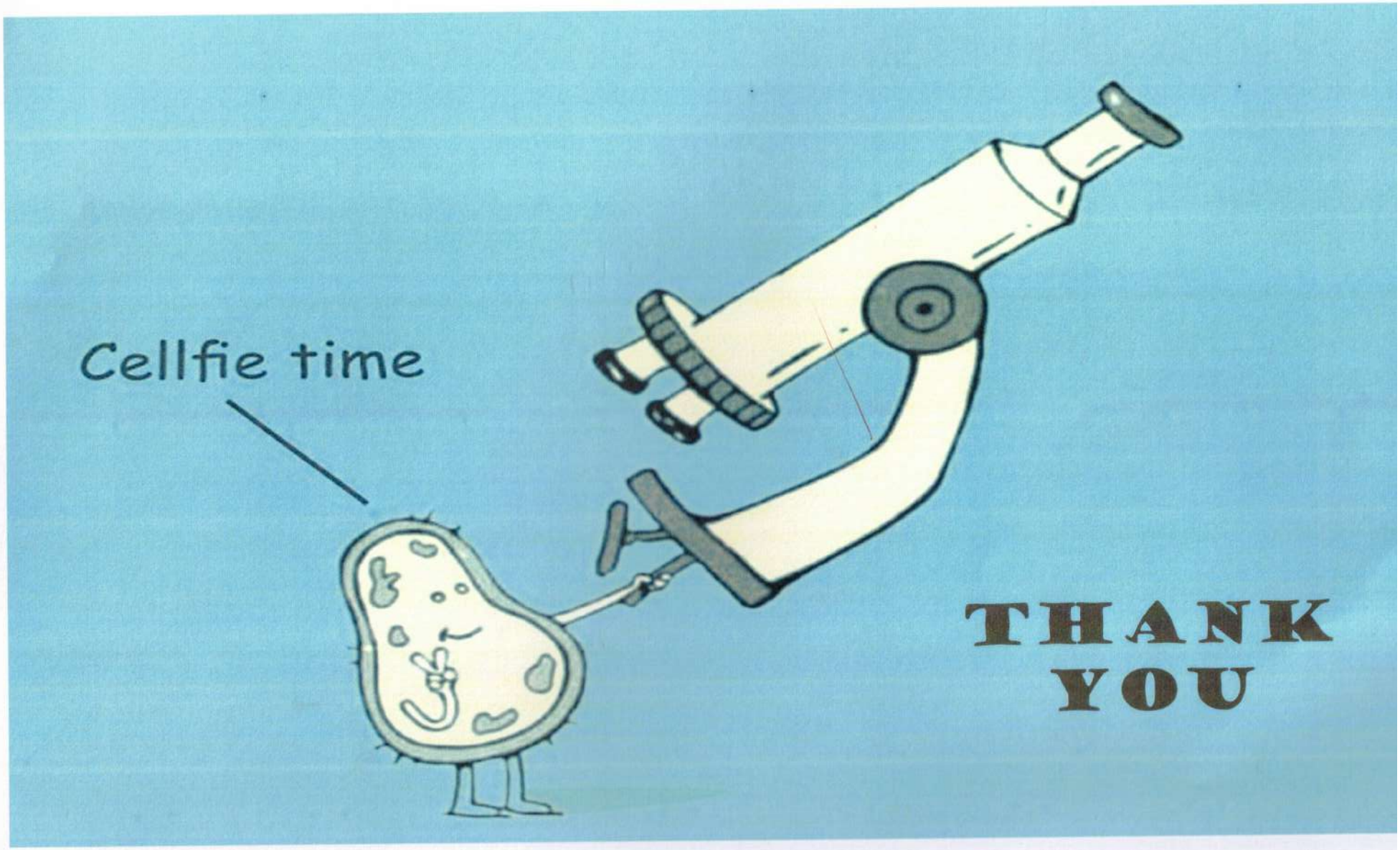
Cellfie time
THANK YOU

EPC 3

Method- 2 CHEMISTRY

Semester- II

Topic- Carbon- An important element

(Class – 9th)

Presented by

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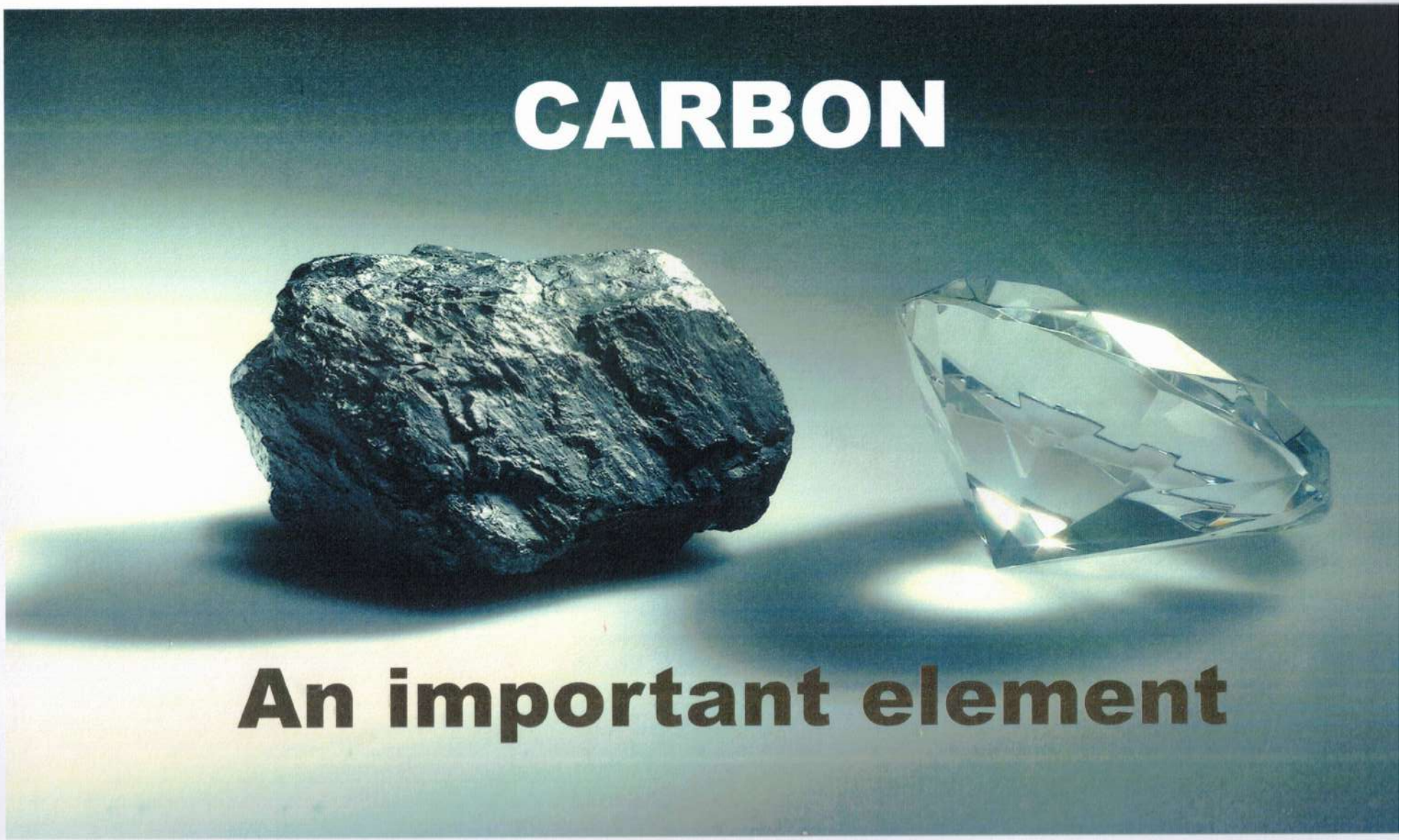
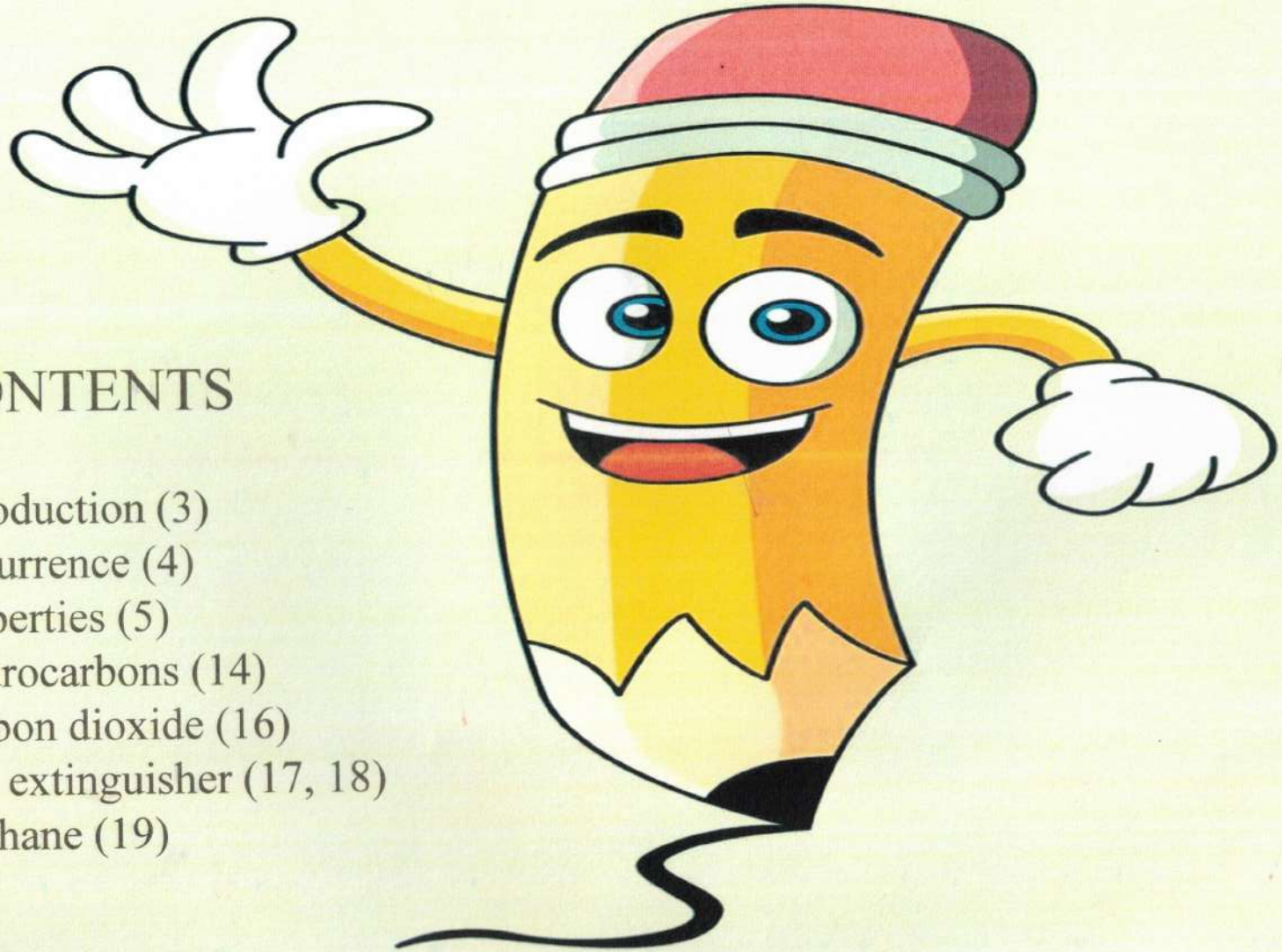
CARBON



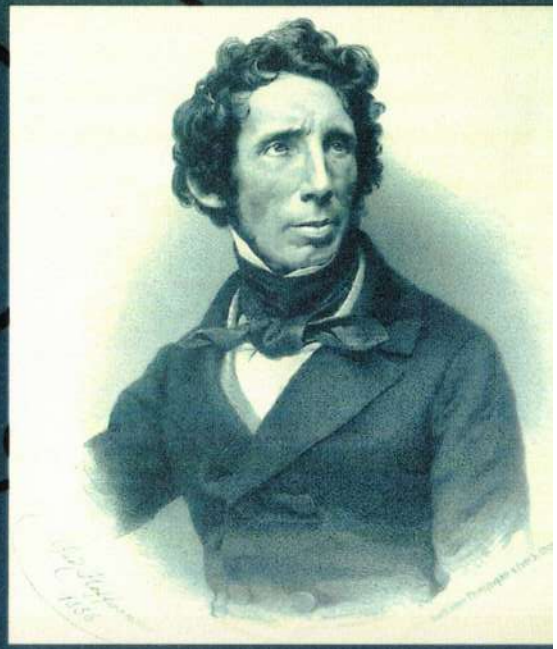
An important element



❑ CONTENTS

Introduction

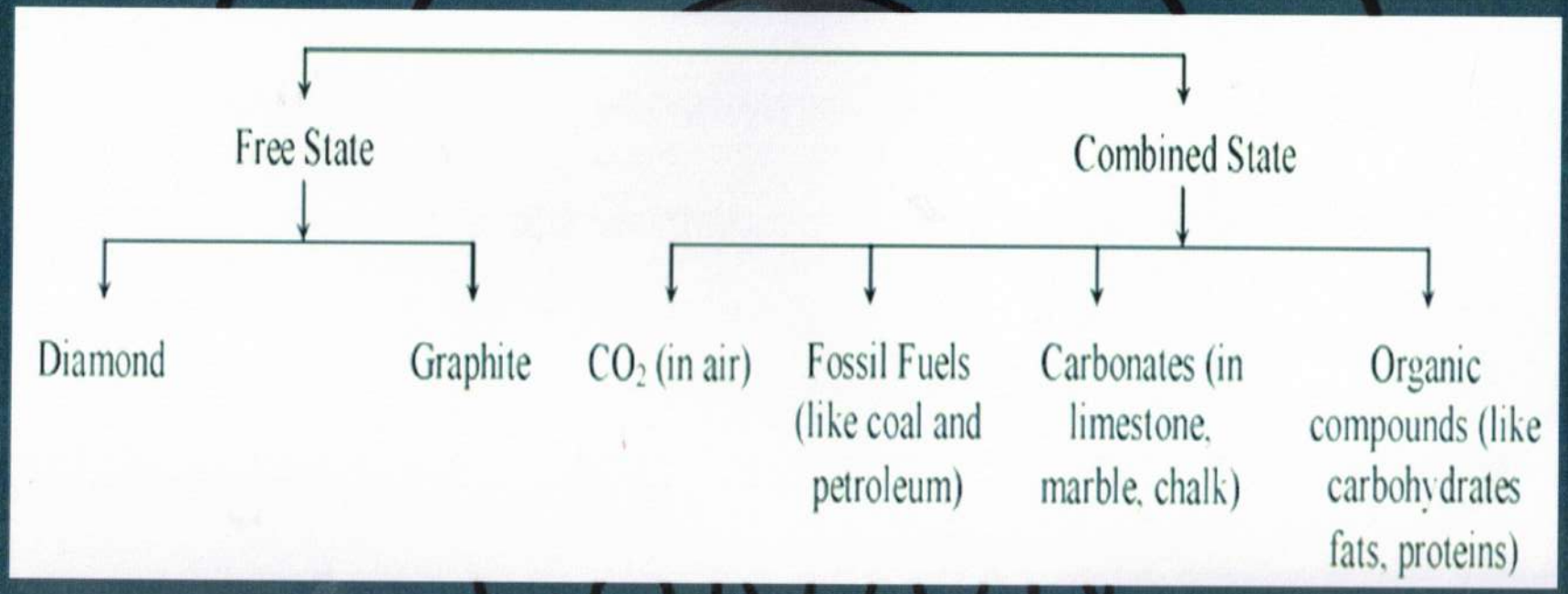
- Carbon is abundantly available in nature and occurs free as well as in combined state, after hydrogen, helium and oxygen.
- It is the element with the symbol C and atomic number 6.
- Carbon forms strong bonds with many other elements, allowing a wide variety of compounds to be created.
- Compounds obtained directly or indirectly from plants and animals are called organic compounds and those obtained from minerals are called inorganic compounds.
- All organic compounds contains carbon.
- Also the main element even in cellular DNA and RNA.
- The German chemist Wohler synthesized an organic compound, urea from an inorganic compound ammonium cyanate.
- Ever since then, many organic compounds are made from inorganic compounds.
- Carbon was found to be the main element in all these compounds.
- Hence organic chemistry is referred to as chemistry of carbon compounds.



CARBON

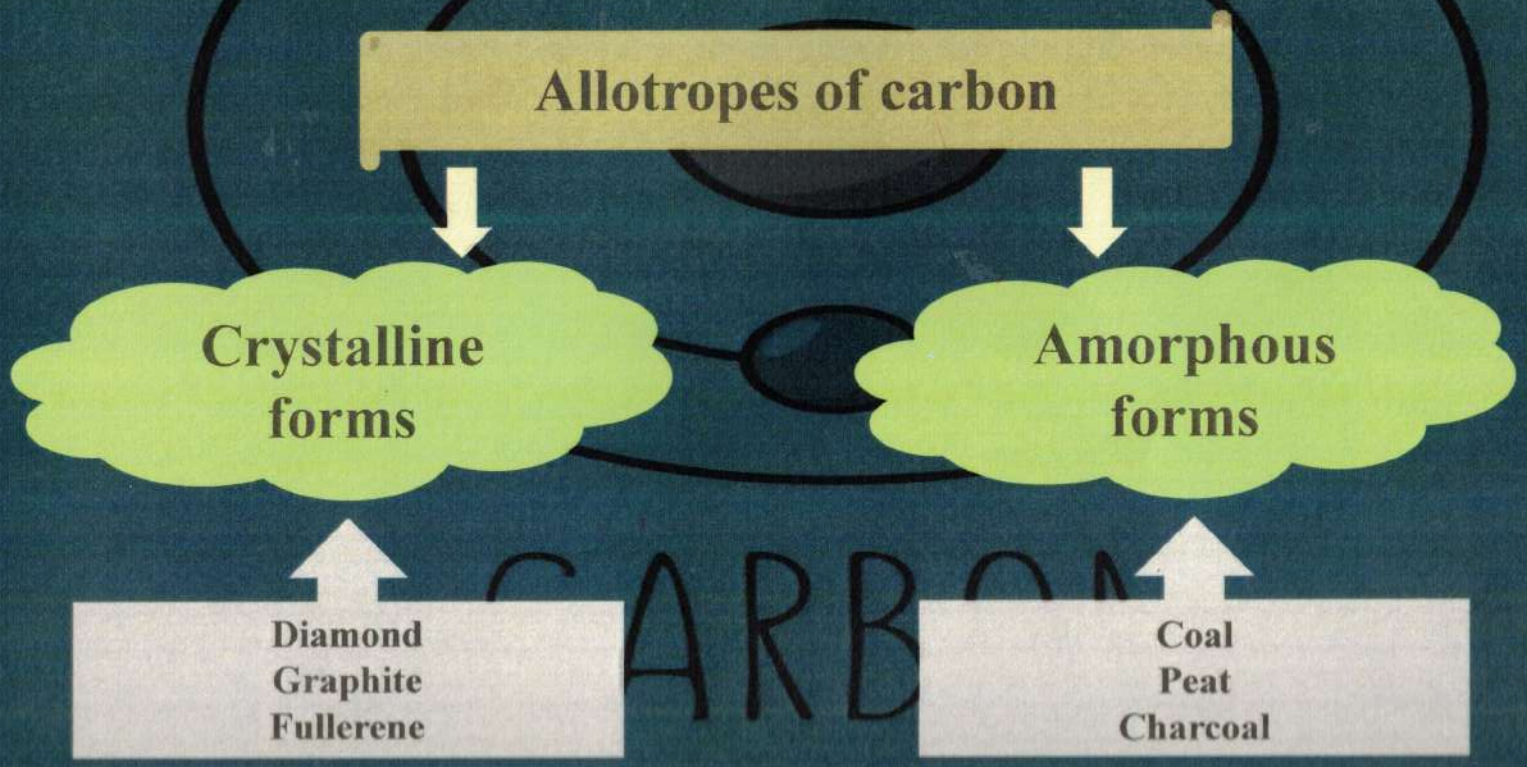
Occurrence of carbon

- Name carbon is derived from the Latin word 'carbo' meaning coal.



Properties

Allotropy- some elements occur in nature in more than one form. Their chemical properties are the same but physical properties are different. **E.g.** carbon, sulphur and phosphorus.

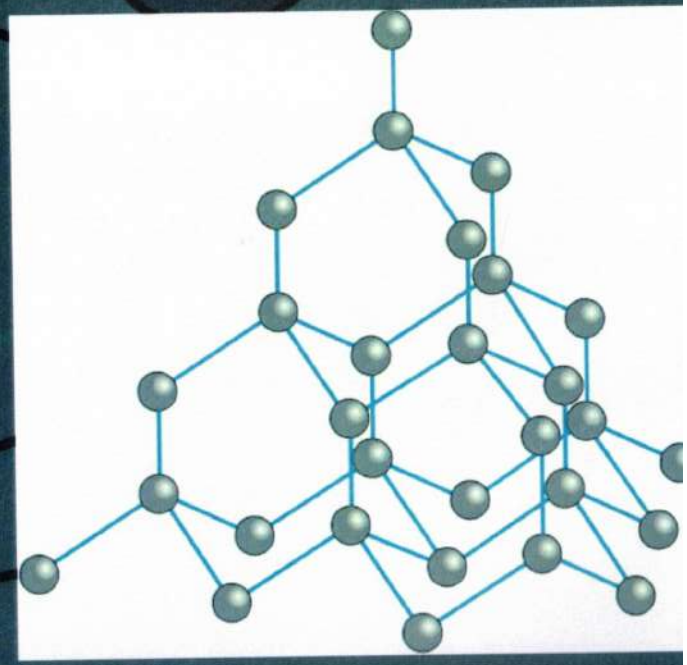


Crystalline forms

- Has a regular and definite arrangement of atoms.
- High melting points and boiling points.
- Definite geometrical shape, sharp edges and plane surfaces.

I. Diamond

- **Occurrence-** Found mainly in India in Golconda (Telangana) and Panna (Madhya Pradesh). Also in brazil, Belgium, Russia and America.
- **Structure-** Every carbon atom is bonded to four neighboring atoms by covalent bonds. Due to this three dimensional structure, diamond become very hard.



CARBON

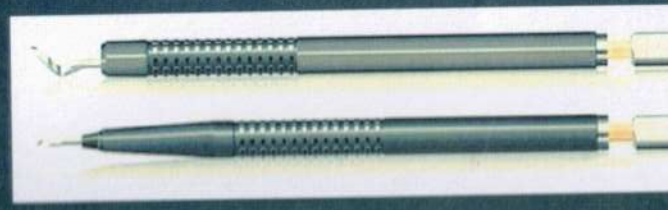
➢ Properties

i. Pure diamond is the hardest natural substance.
ii. Density is 3.5 g/cm³.
iii. Melting point of diamond is 3500° C.
iv. Does not dissolve in any solvent.
v. Acids/bases have no effect on it.
vi. Bad conductor of electricity as it does not have free electrons.

➢ Uses

i. In glass cutting and rock drilling machines.
ii. Ornaments
iii. Knives used in eye surgery.
iv. polishing other diamonds.
v. Make windows giving protection from radiation in space and in artificial satellites.

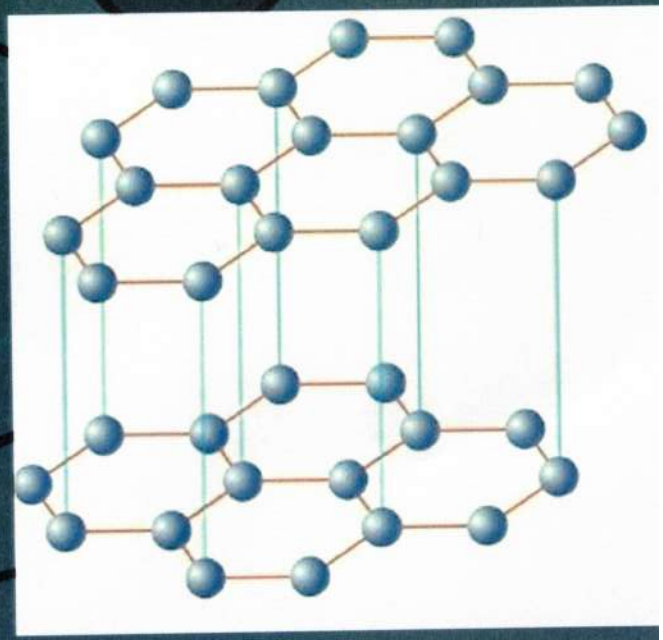
CARBO



II. Graphite

- **Occurrence**- found in the natural state in India, Russia, New Zealand and America. Used in pencil is made by mixing graphite with clay. This process was discovered by Nicholas Jacques Conte in 1795.

- **Structure**- every carbon atom in graphite is bonded to three other carbon atoms in such a way that a hexagonal layered structure is formed. Made of many sheets or layers of carbon atoms. One layer of graphite is called graphene.



CARBON

CARBON

- **Properties**

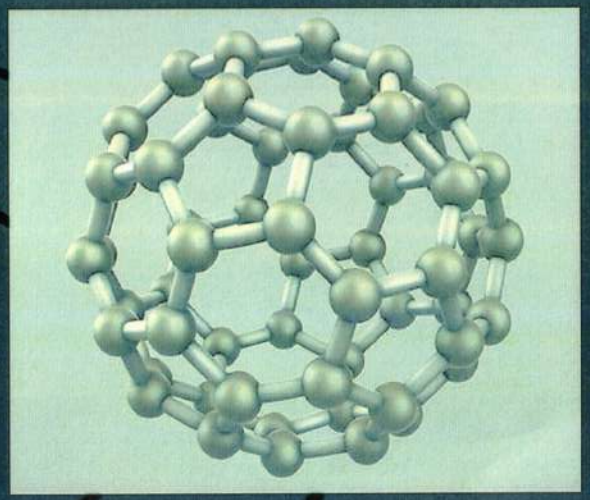
i. Black, soft, brittle and slippery.
ii. Free electrons move continuously within the entire layer. Hence good conductor of electricity.
iii. Due to layered structure, graphite can be used for writing on paper.
iv. Density, 1.9 to 2.3 g/cm³.
v. Does not dissolve in most solvents.

- **Uses**

i. Making lubricants.
ii. Making carbon electrodes.
iii. Pencils for writing.
iv. In paints and polish.
v. Arc lamps which gives a very bright light.

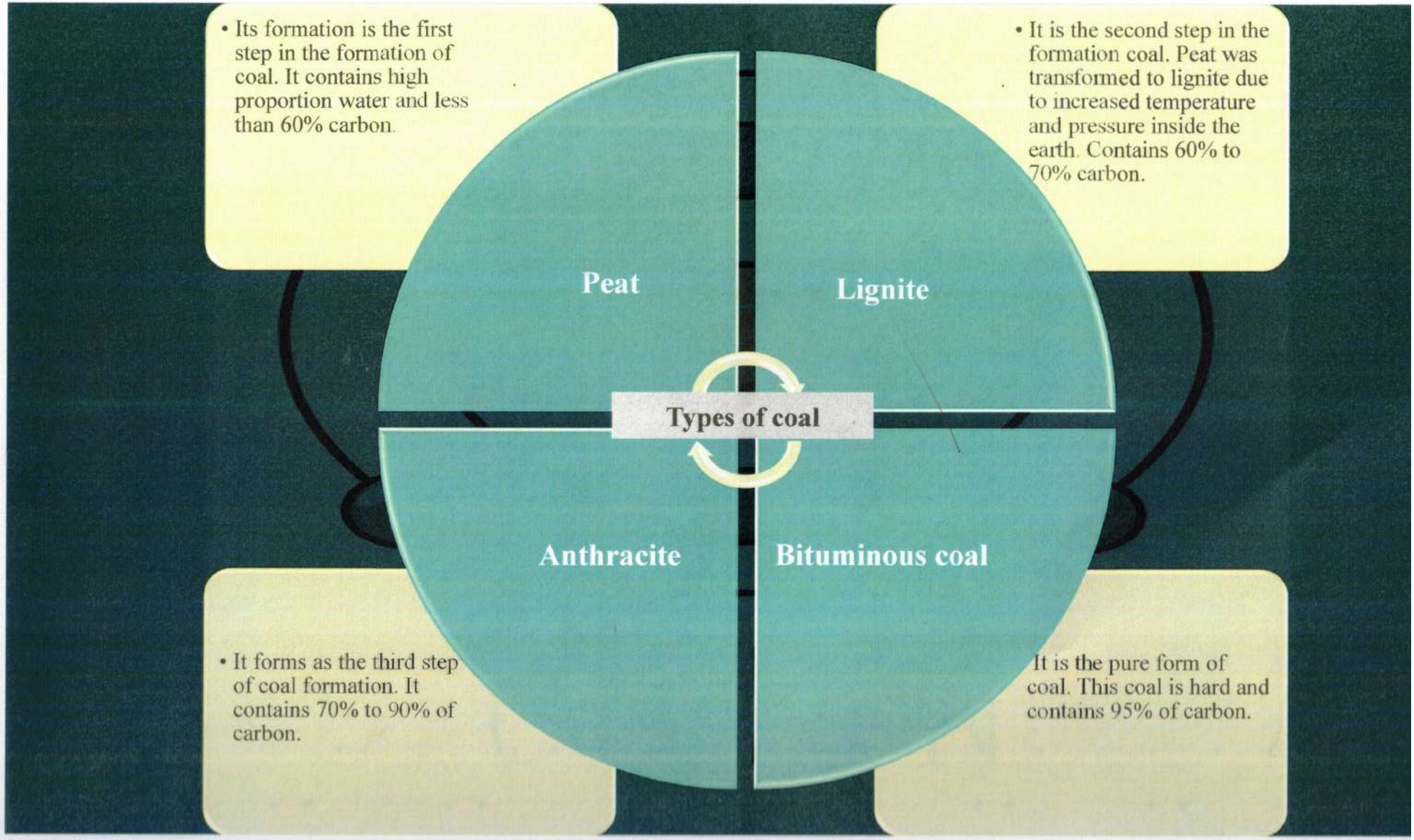
III. Fullerene

- Rarely found in nature.
- Found in soot and in interstellar space.
- E.g. Buckminsterfullerene (C60). Named after the architect Richard Buckminster Fuller because its structure resembles the geodesic dome he designed.
- C60, C70, C82 and C86 are other examples of fullerene.
- Their molecules occur in small numbers in soot.



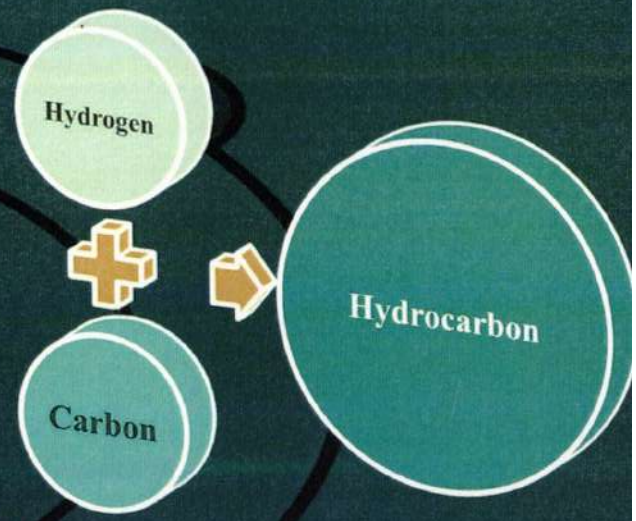
Amorphous forms/ non-crystalline forms

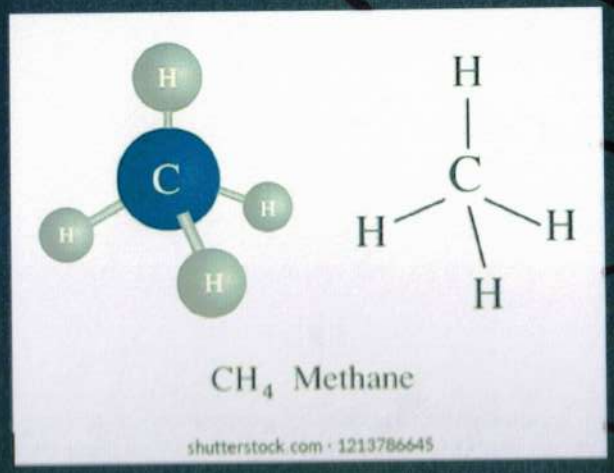
Coal	Charcoal	Coke
It is a fossil fuel. Contains carbon, hydrogen & oxygen. Also contains nitrogen, phosphorous & sulphur. It occurs in solid state. And it is of 4 types.	Made from animals- bones, horns, etc. on the other hand it is also made up of plants- formed by combustion of wood in an insufficient supply of air.	Used as a domestic fuel. It is used as a reducing agent. Used in the production of aeriform fuel such as water gas ($CO+H_2$) & producer gas ($CO+H_2+CO_2+N_2$).


• Its formation is the first step in the formation of coal. It contains high proportion water and less than 60% carbon.
• It is the second step in the formation coal. Peat was transformed to lignite due to increased temperature and pressure inside the earth. Contains 60% to 70% carbon.
Peat
Lignite
Types of coal
Anthracite
Bituminous coal
• It forms as the third step of coal formation. It contains 70% to 90% of carbon.
It is the pure form of coal. This coal is hard and contains 95% of carbon.

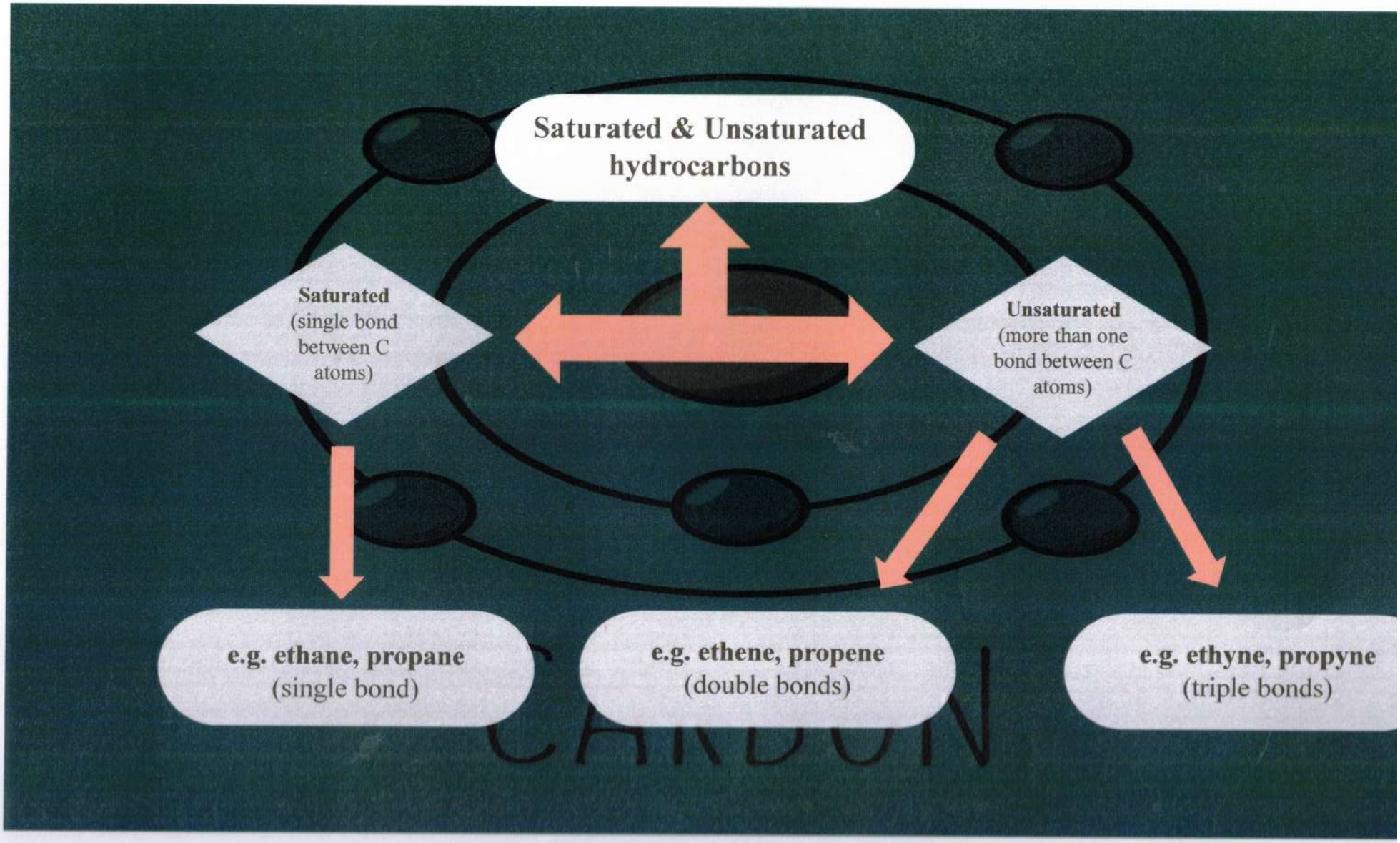
Hydrocarbons

- Along with element hydrogen is also included in most organic compounds.
- Compounds formed from carbon and hydrogen are called basic organic compounds of hydrocarbons.





- Electronic configuration of carbon is 2, 4. if four electrons are added to the orbit of carbon, its octet becomes complete and its electronic configuration becomes stable. Therefore, the valency o carbon is 4.
- Carbon atom can form four covalent bonds with other carbon atoms or atoms of different elements.
- When a carbon atom shares one electron each with four hydroger atoms and forms four C-H bonds, a methane CH_4 molecule is formed.


Saturated & Unsaturated hydrocarbons
Saturated (single bond between C atoms)
Unsaturated (more than one bond between C atoms)
e.g. ethane, propane (single bond)
e.g. ethene, propene (double bonds)
e.g. ethyne, propyne (triple bonds)

Carbon dioxide

- Molecular formula: CO_2 , molecular mass: 44, melting point: -56.6°C.
- Occurs in the air in free state to the extent of about 0.03%. Exhaled air contains about 4% of CO_2 .
- Also present as a salt in chalk and marble/limestone.
- Given out in the combustion of wood and the fossil fuel coal.

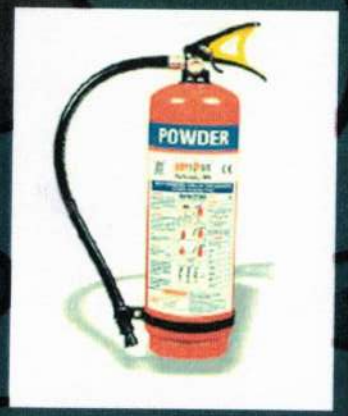
- **<u>Chemical properties</u>**

i. Sodium carbonate (washing soda) is formed when CO_2 is passed through an aqueous solution of sodium hydroxide.
ii. <u>Chemical equation</u> of the reaction: $2NaOH + CO_2 \rightarrow Na_2CO_3 + H_2O$
iii. Sodium bicarbonate (baking soda) is formed on passing CO_2 through an aqueous solution of sodium carbonate.
iv. <u>Chemical equation</u> of the reaction: $Na_2CO_3 + H_2O + CO_2 \rightarrow 2NaHCO_3$

CARBON

➢ Uses

i. CO_2 is used to make aerated drinks.
ii. Solid CO_2 is used in cold storage & to also keep milk and milk products.
iii. Used for getting special effects of a mist in dramas & movies.
iv. CO_2 obtained by chemical reaction or kept under pressure is used in fire extinguishers.
v. Plants use CO_2 in air for photosynthesis.

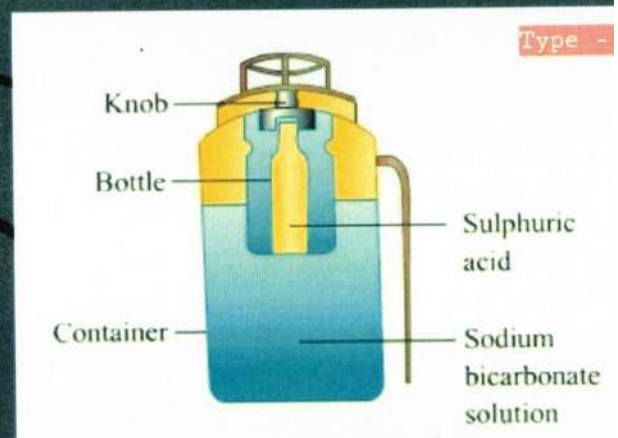


➢ Regular fire extinguisher

✓ Contains sodium bicarbonate powder. There is also dilute sulphuric acid placed in the glass capsule.
✓ The capsule breaks on pressing the knob, the sulphuric acid comes in contact with the sodium bicarbonate & the two react chemically to release CO_2 which comes out.

CARBON

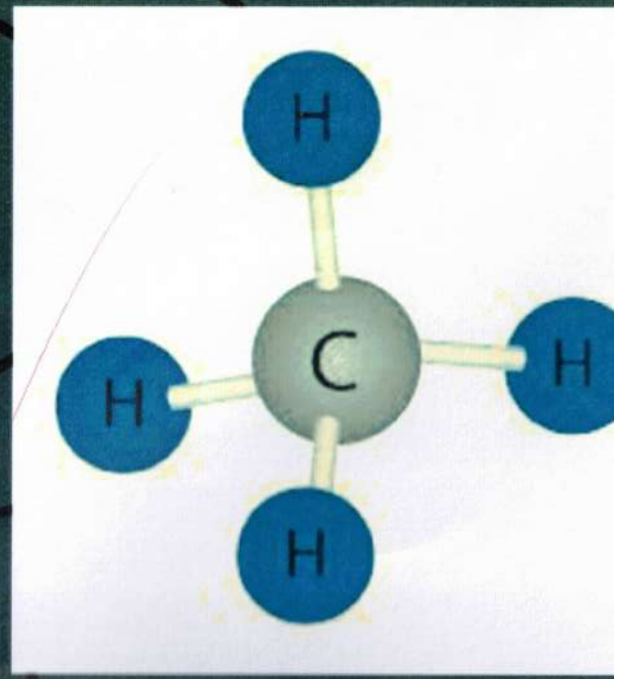
- ✓ CO_2 based fire extinguishers do not cause corrosion and are non conductors of electricity. Therefore used when electronic equipment catches fire.
- ✓ CO_2 are used to extinguish small scale fire.
- ✓ In modern fire extinguishers liquid and solid CO_2 is filled under pressure.
- ✓ On reducing the pressure it becomes gaseous and comes out of the hose.
- ✓ Chemical reaction: $2NaHCO_3 + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O + 2CO_2 \uparrow$
- ✓ Nowadays, many types of fire extinguishers are used.



A soda-acid type fire extinguisher

Methane

- Molecular formula: CH_4, molecular mass: 16
- Discoverede by Italian scientist Alessandro Volta (1776).
- Occurs as a natural gas to the extent of 87%.
- Decomposition of organic matter in the absence of air (anerobic) produces methane.
- Present in biogas.
- Found in coal mines.
- Found at the surface of marshy places therefore called marsh gas.
- On heating mixture of H and CO gases at 300 °C in the presence of nickel, CH_4 gas is formed.



- **<u>Physical properties</u>**

i. Melting point: -182 °C.
ii. Boiling point: -161 °C.
iii. Colorless gas.

CARBON

i. Density is less than water.

ii. Is in gaseous state at room temperature.

iii. Sparingly soluble in water.

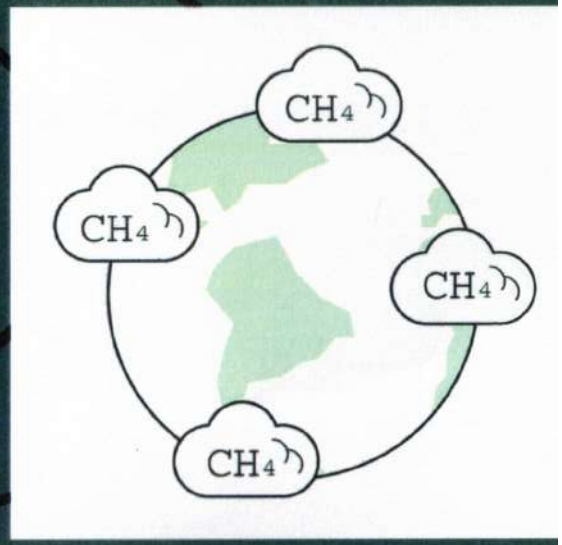
➢ **Chemical properties**

i. Highly inflammable. It burns by reacting with oxygen to give a bluish flame. In this reaction, 213 kcal/mol of heat is given out. CH_4 burns completely.

ii. Chemical reaction: $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$ + heat.

iii. Chlorination: CH_4 and chlorine gas react with each other at the temperature of 250 °C to 400° Cin the presence of UV light and form mainly methyl chloride and hydrogen chloride. This reaction is called chlorination of CH_4.

iv. Chemical reaction: $CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$

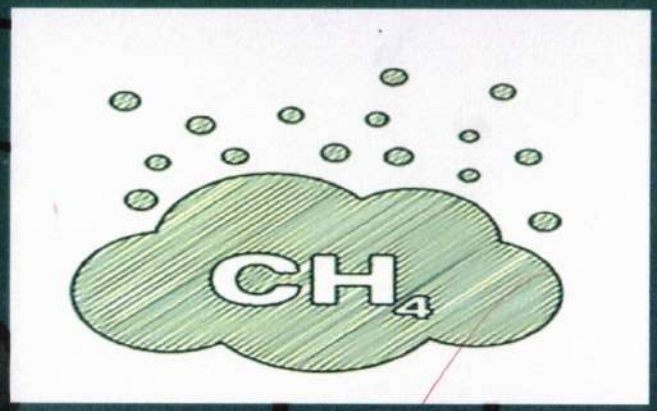


- **Uses**

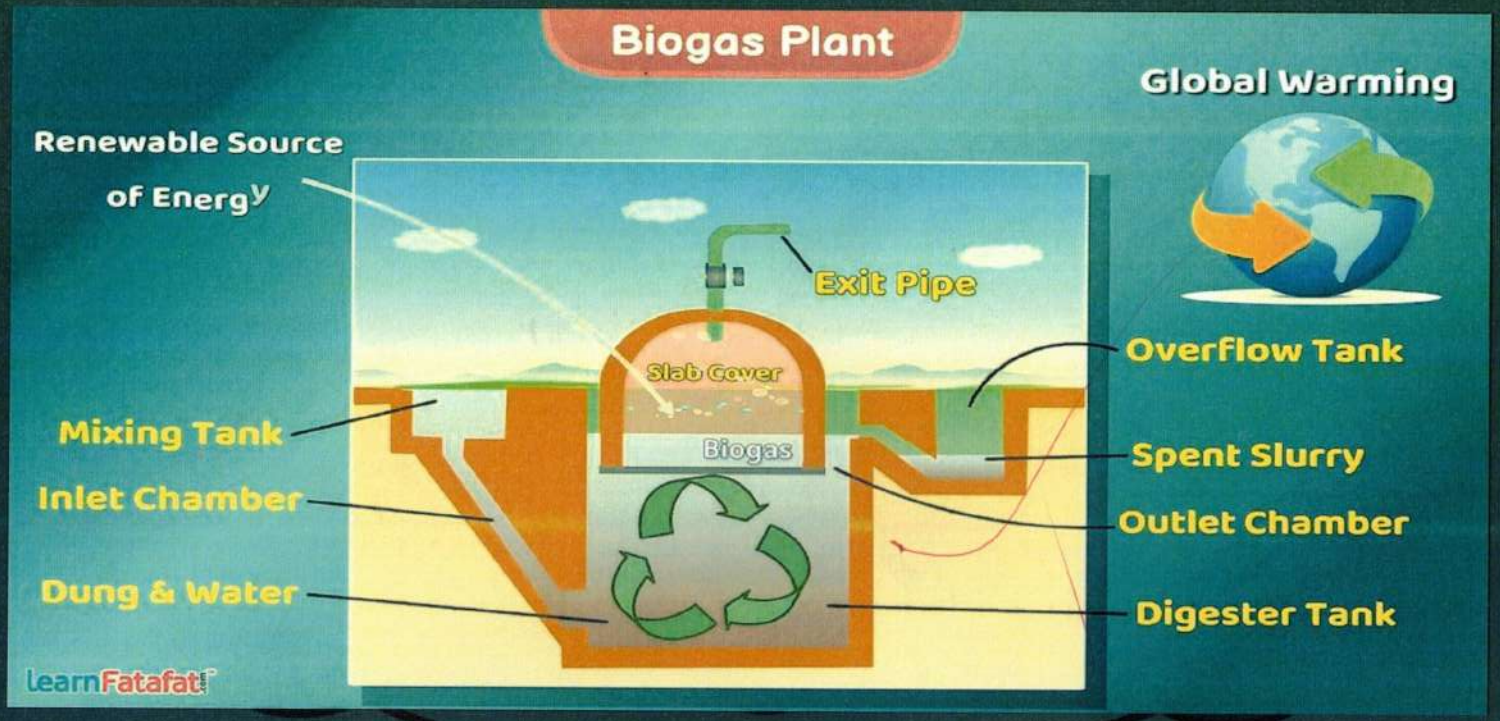
i. CH_4 is the form of natural gas is used on industries such as fabric mills, paper mills, food processing industry, petrol purification.

ii. Being the smallest hydrocarbon, the proportion of CO_2 released. In the combustion of CH_4 is the small and therefore, it is used as a domestic fuel.

iii. CH_4 is used for production of organic compounds such as ethanol, methyl chloride, methylene chloride and acetylene.



CARB



Animal dung, dry leaves, wet garbage get decomposed by anaerobic microbes in a biogas plant. This produces CH_4 gas also called **biogas**. It is a very cheap fuel option which meets the demand for cooking gas. It is also used for the production of an electricity. Biogas contains about 55% to 60% CH_4 and the rest is CO_2. It is a fuel which is convenient to use and in addition to this, a very good manure is also produced as a side product of the process.

Biogas production process

(it is an anaerobic process. Takes place in two stages)

Production of acids

(the microbes act on the biodegradable complex organic compound and produce organic acids)

Methane gas production

(the methanogenic bacteria act on the organic acids to produce CH_4 gas)

CARBON

Summary

- ✓ Carbon is found in nature in free as well as compound state. Carbon in free state is found as diamond and graphite, and in combined state is found as: CO_2 and in the forms of carbonates, fossil fuels, carbonaceous nutrients, natural fibers.
- ✓ The allotropes of carbon are: a) crystalline forms- diamond, graphite and fullerene and b) amorphous forms- coal, charcoal, coke.
- ✓ Hydrocarbons are compounds formed from carbon and hydrogen and are also called basic organic compounds.
- ✓ CO_2 occurs in free state and used in fire extinguishers and aerated drinks.
- ✓ CH_4 occurs as a natural gas, found in coal mines.
- ✓ Biogas plant is a cheap fuel option, which meets the demands for cooking gas.

CARBON

Reference

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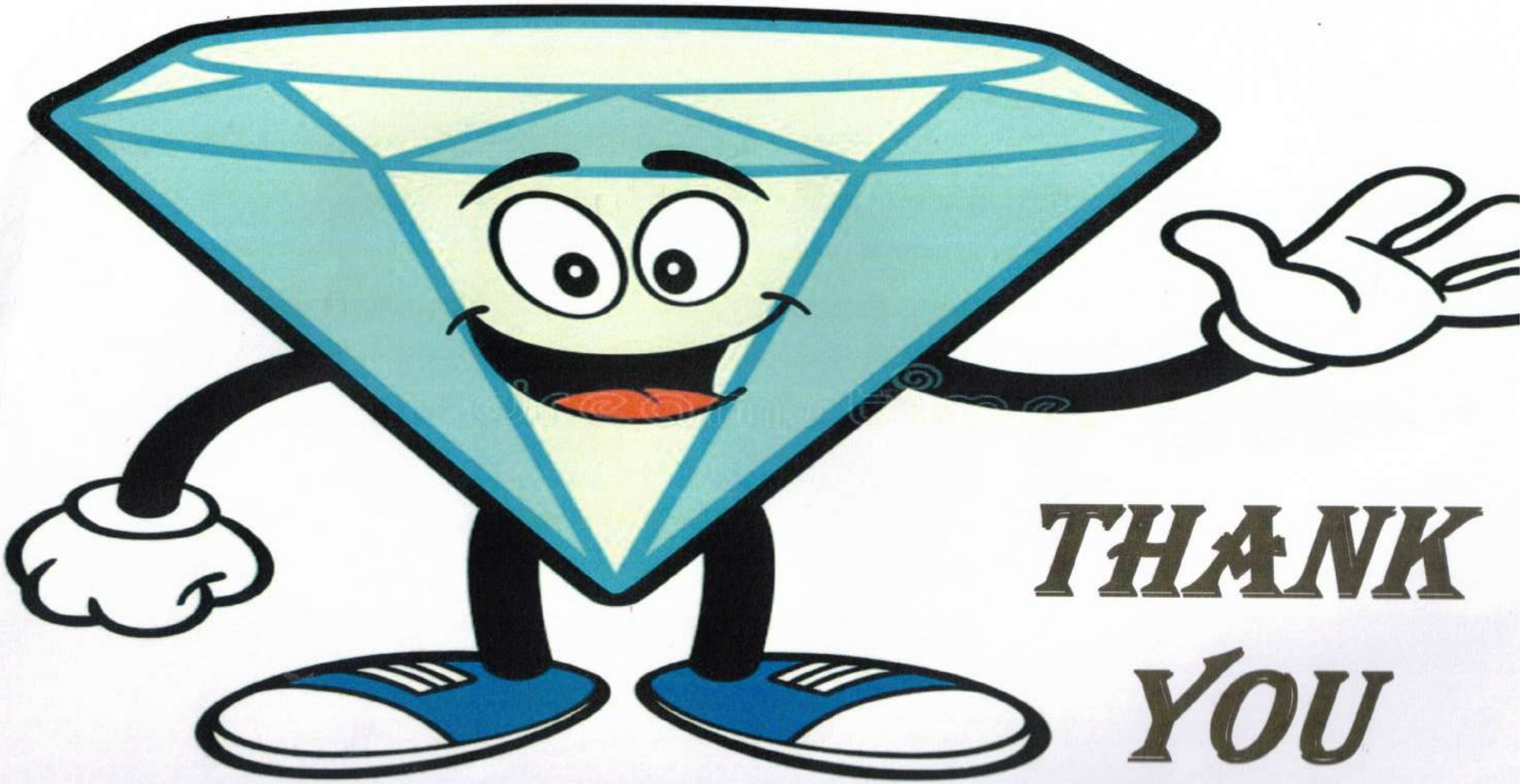


THANK YOU

NUTRITION IN PLANTS

Presented by
Shweta S. Neware

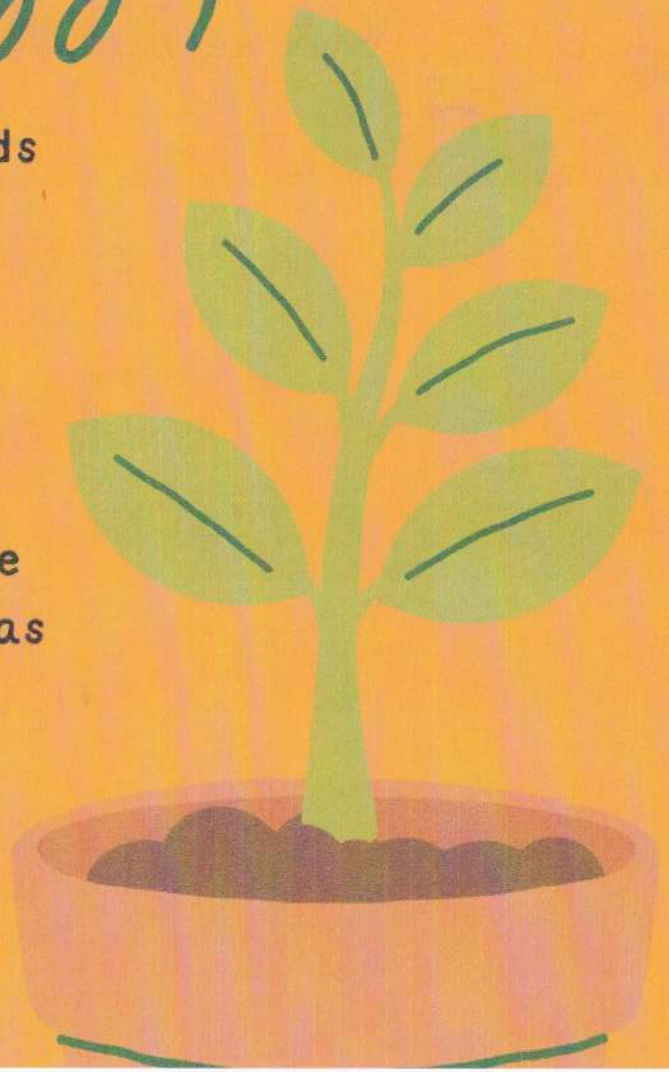
INTRODUCTION

- Living organisms such as plants and animals survive on food.
- The food gives them the energy to perform several activities in their life and helps in the growth.

NUTRIENTS

- Certain substances are present in the foods that help in the survival of the organisms. These special substances are called nutrients for example, proteins, vitamins, carbohydrates, minerals and fats.

- Some living organisms like plants synthesize their food by themselves while others such as animals depend upon the plants and other animals for their food.



CELLS IN LIVING ORGANISMS

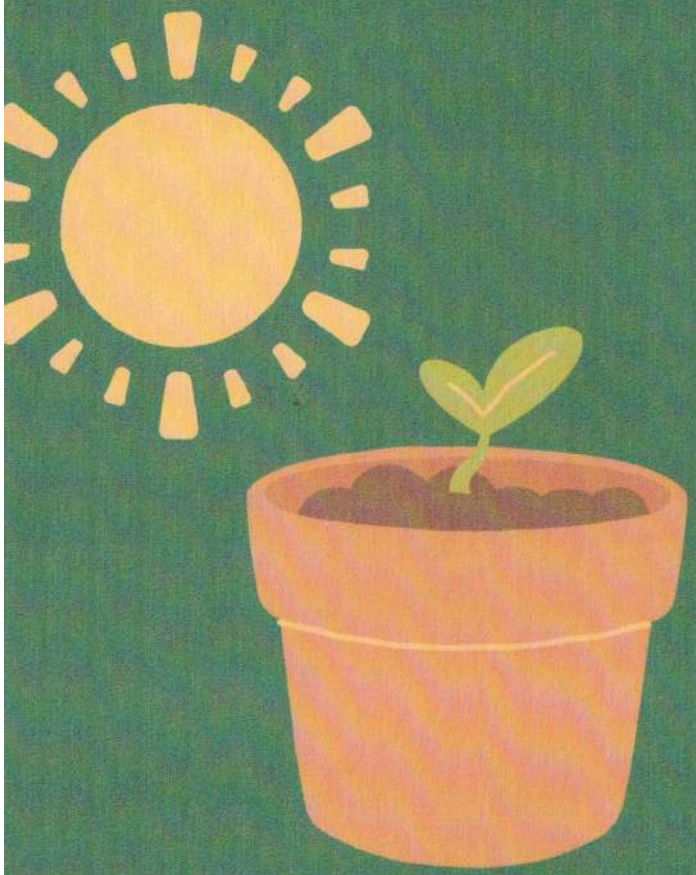
Cells are tiny units that help make up a living organism. Hence they are also called building blocks of an organism.

A cell is constituted of three major parts :

- A thin outer layer called the cell membrane.
- A spherical structure located at the centre of thecell called a nucleus.
- A jelly-like substance that surrounds a nucleus called the cytoplasm.

SOIL

Soil holds the plants up. Roots grow down into the soil. Soil provides nutrients and water.



SUNLIGHT

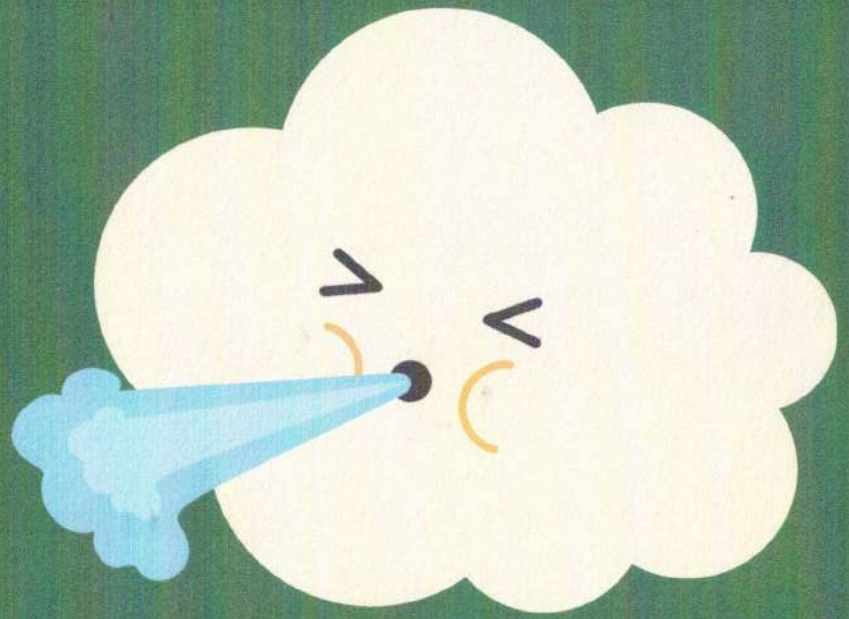
Plants require sunlight as their energy source for photosynthesis, a process which converts carbon dioxide and water into glucose.

WATER

Water helps move nutrients from the soil into the plant. Too much water can cause a plant's roots to rot. Too little water can cause a plant to wilt or droop.

AIR

Plants need oxygen to make food and to have energy. Plants cells release their own energy by breaking down sugars and using up oxygen.



NUTRIENTS

Plants need nutrients in order to germinate, grow, fight off pests and reproduce.

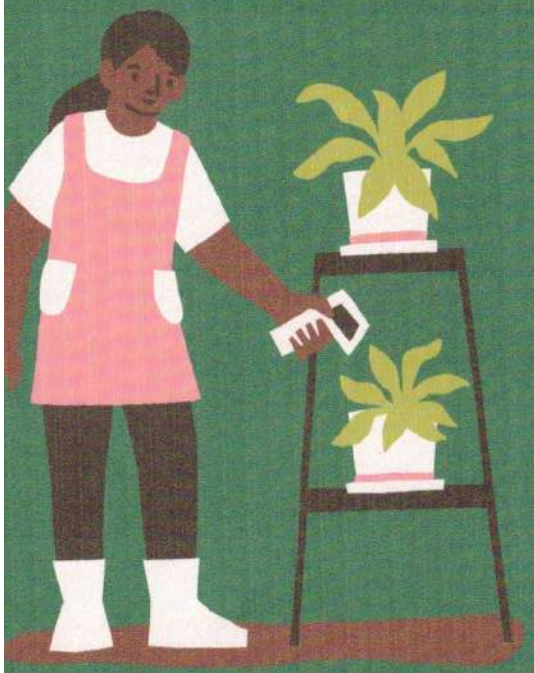
Each part has a specific job
in order to keep the plant healthy:

Leaves Perform photosynthesis

Stem Supports the plant

Roots Absorb water and minerals

OW DO PLANTS PREPARE THEIR FOOD?

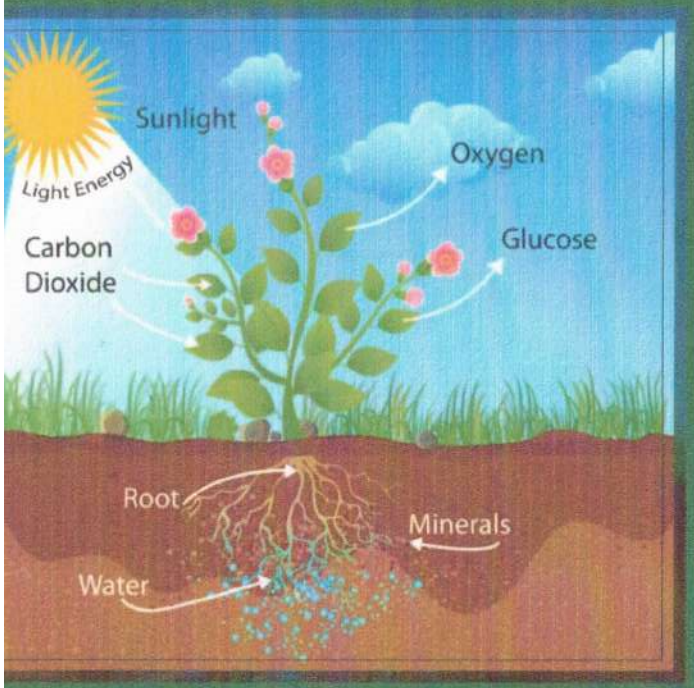


Plants prepare their food with the help of certain raw materials that they gather from their surroundings:

- Water
- Carbon Dioxide
- Sunlight
- Minerals
- Chlorophyll

The process by which plants prepare their food by using these raw materials is called Photosynthesis.

PROCESS OF PHOTOSYNTHESIS



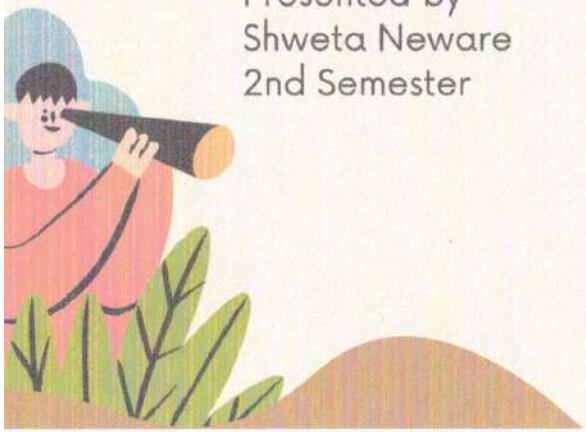
- Carbon dioxide is taken in through tiny pores on the leaves called stomata.
- Water and minerals that are required for the process are transported to the leaves from the roots through the stem.
- Chlorophyll helps the leaves use the energy from the sunlight to prepare food using the carbon dioxide, water and minerals.
- Oxygen is released as a by-product from this process.

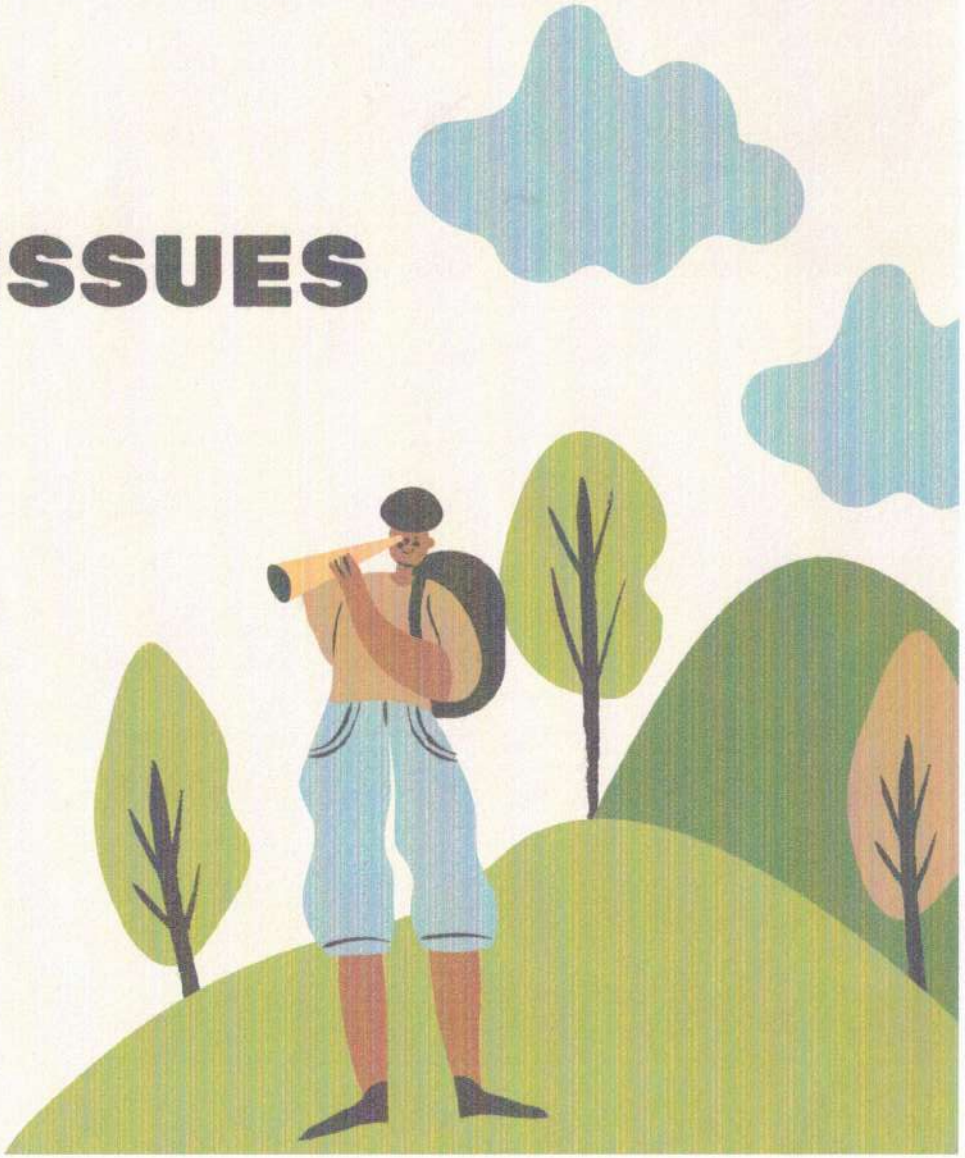

THANK
YOU

UNDERSTANDING ENVIRONMENTAL ISSUES

Environmental issues encompass a wide range of challenges facing our planet, from climate change and pollution to deforestation and loss of biodiversity.

Presented by
Shweta Neware
2nd Semester





MAJOR ENVIRONMENTAL ISSUES

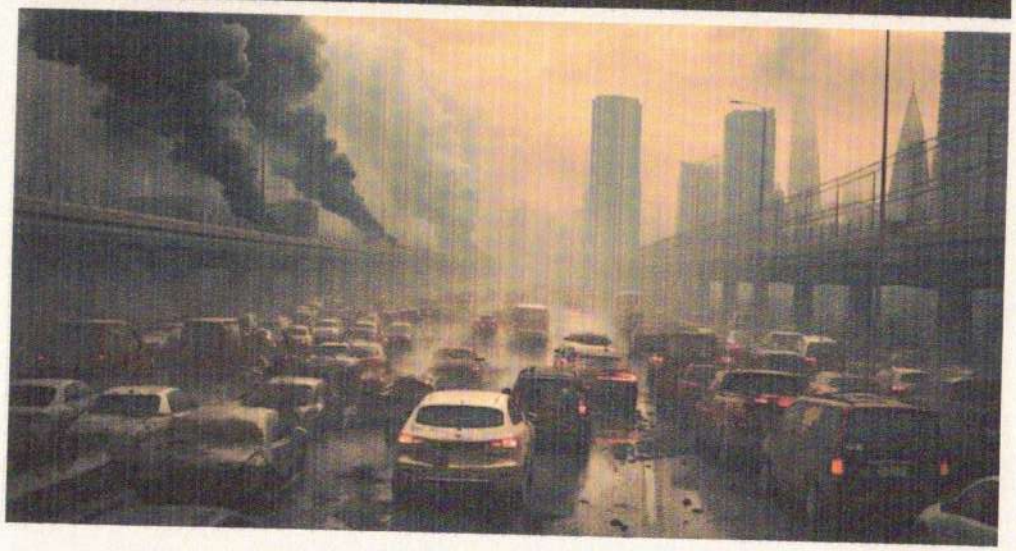
- Global Warming and Climate Change
- Air Pollution
- Water Pollution
- Deforestation
- Biodiversity Loss
- Waste Management

CLIMATE CHANGE

This refers to long-term shifts in temperature, precipitation patterns, and other aspects of Earth's climate. Human activities, such as burning fossil fuels and deforestation, are major contributors to climate change, leading to rising global temperatures, sea level rise, extreme weather events, and disruption of ecosystems.

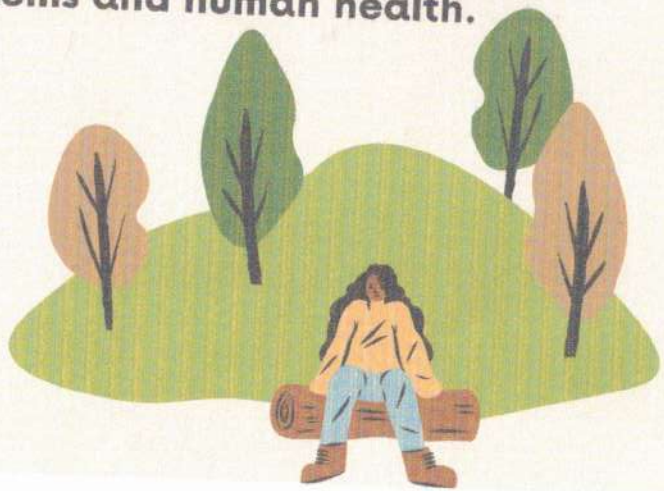
AIR POLLUTION

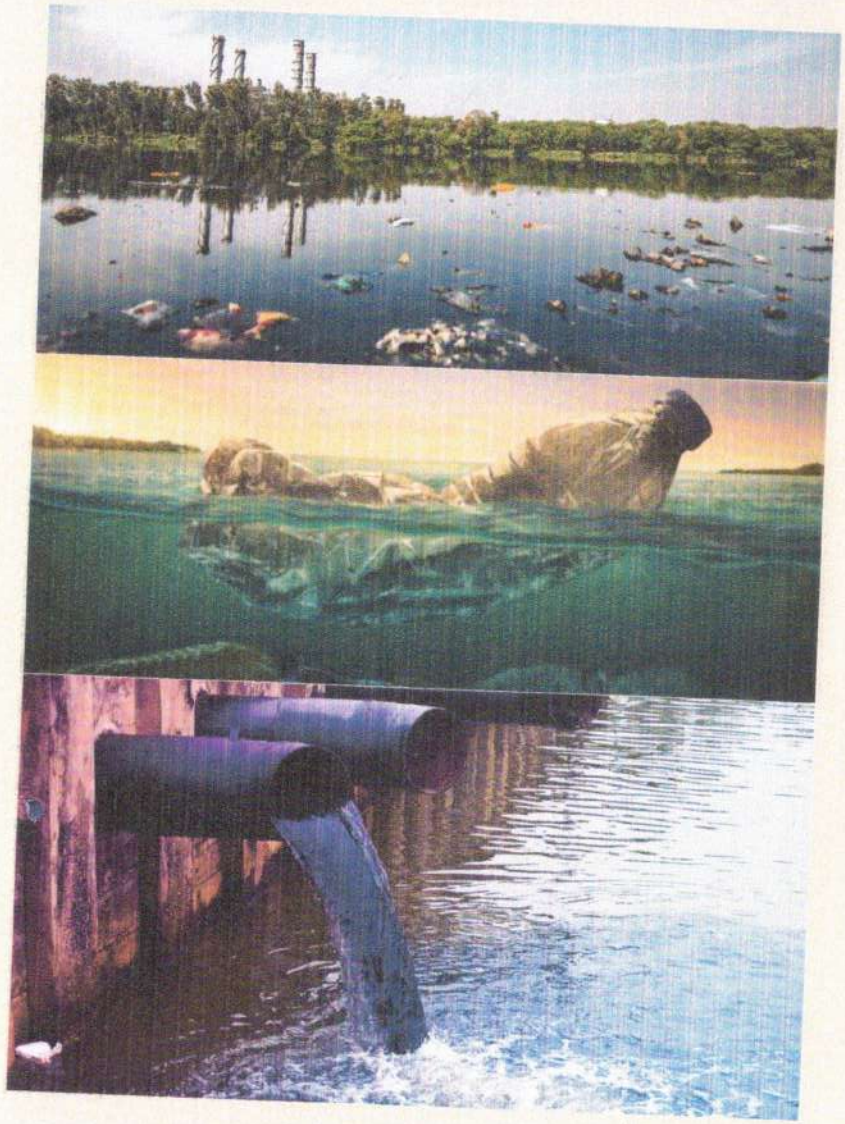
:missions from vehicles, industrial
›rocesses, and burning fossil fuels
:ontribute to air pollution, which can
ave serious health effects on humans
nd animals. Common air pollutants
nclude particulate matter, nitrogen
xides, sulfur dioxide, and volatile
rganic compounds.



WATER POLLUTION

/ater pollution is the contamination of ater bodies (such as rivers, lakes, eans, groundwater, and aquifers) by rmful substances, making it unfit for intended use and harmful to osystems and human health.





DEFORESTATION

'he clearing of forests for agriculture, ogging, and urban development is a ignificant driver of habitat loss, biodiversity lecline, and climate change. Deforestation isrupts ecosystems, contributes to reenhouse gas emissions, and reduces the lanet's capacity to absorb carbon dioxide.

LOSS OF BIODIVERSITY

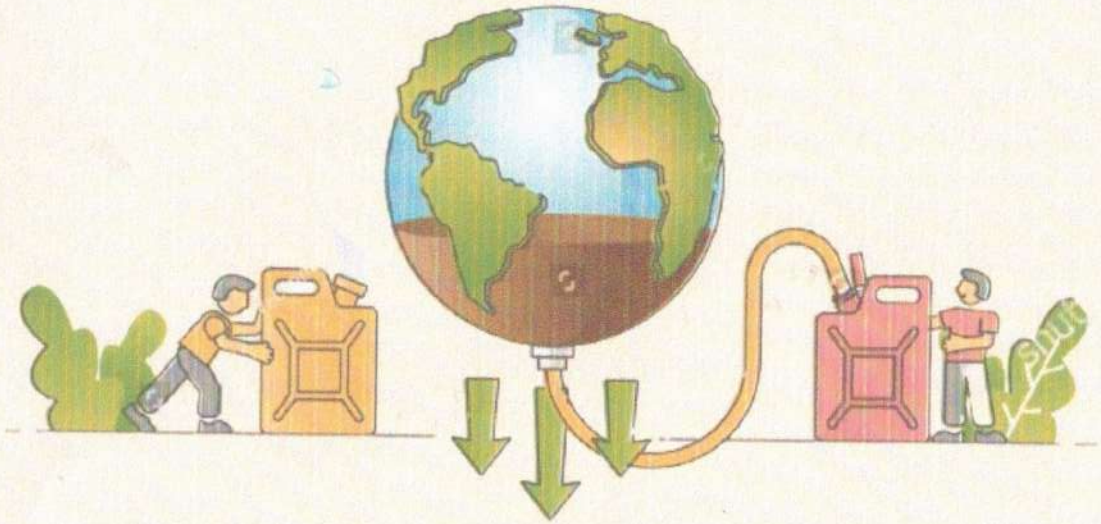
.oss of Biodiversity: Human activities, uch as habitat destruction, verexploitation of natural resources, ollution, and climate change, are ausing a rapid decline in biodiversity. his loss of species diversity threatens cosystems, disrupts food chains, and educes the resilience of ecosystems to nvironmental changes.

WASTE MANAGEMENT

nproper disposal of waste, including lastic pollution, electronic waste, and azardous materials, poses nvironmental and health risks. Landfills, cineration, and littering contribute to il and water pollution, harm wildlife, d degrade landscapes.

RESOURCE DEPLETION

The unsustainable extraction and consumption of natural resources, such as fossil fuels, minerals, and freshwater, are depleting finite resources and causing environmental degradation. Transitioning to renewable energy sources and adopting sustainable resource management practices are crucial for mitigating this issue.




SAVE OUR
EARTH
THANK YOU

Name - Ketaki · Shreikant Ohale

College - Sheeladevi college of Education
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Class - B.Ed IInd year [Sem-III]

Year - 2023-24

EPC 1 - Nai Talim and Community
Engagement Project-1

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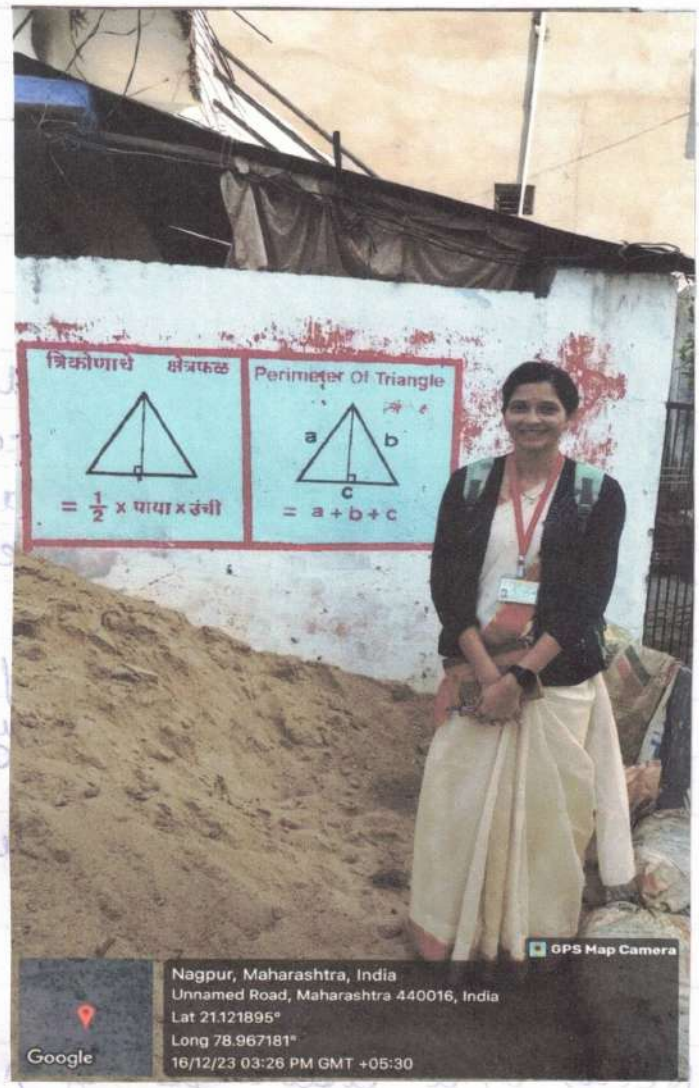
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Introduction

Adult literacy is the ability of adults to use a language ie. to read, write, listen and speak. Adu literacy includes basic literacy, desirable knowledge pertaining to civic needs, personal hygine and adopting political and occupational skills. According to the United states, Basic literacy is the ability to read 40 words per minute, write 20 words per minute and do 2-digit arithmatic.

India has over 35% of the world's total illiterate population. India also has the largest number of illiterate people in the world. India faces major challenges, in terms of both the high number of illiterates and widespread disparities that exists between urban and rur areas. These pose as hindrance to the nationa efforts to achieve education for all and to eradicate poverty. About 80 percent of the population lives in villages that have the largest concentration of illiterate people. These areas also have maximum gender differentials. Some area have specific differentiall in attaining literacy rates, girls by and large suffered in their educational pursuits mainly due to ignorance on the parts of parents, poverty geographical hazardous like North Eastern South states of

India and other hilly areas. Special efforts need to be provided for adults who have be deprived of early education facilities. Provisio of funds will have to be made differentia as contrasted from other areas.

Status of Adult Literacy

The reason why India's Adult Literacy h suffered is the fact that its efforts towards this cause came very late. A lot of effort was put into expanding primary education as a result adult literacy was neglected iv the first three decades of its independance. It was during 1977, with the change in the government in India, that a nationwide adu education programme was launched for socio economic development. This created a demand for adult literacy at the national level.
At that time all the adult education progra were voluntary in basis and most of the adult education programmes were limited t scope and reach. Adult education had been planned as a community engagement progra through the development of the individual was not directly associated with the developm of basic literacy rather it was designed for societal development. It was only in th

last three decades that adult literacy was associated with socio-economic development and for self-reliance of the individual.

During 1980, a nationwide centre-based programme was launched. But it lacked in people's participation. The overall literacy rat in India was low. A lot of resources were needed in terms of instructors and trainer in adult education. The funds worked for basic literacy but were not successful to a large extent. This programme brought the adult literacy to national agenda. The government in power showed the political will to do so. Though India's literacy rate has improved significantly from 44% in 1981 to 65% in 2001, a lot still remains to be don

Adult literacy programs haven't had a consistent support and these have fallen off the government's priority list. Government funded ~~adult~~ adult education has remained neglected most of the time. The states contin to ignore its own role and responsibilities. There is an tendency for dependence on private participation on this front.


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Aims

Aims of adult Education

1] To help the learner (individual / organization / society) achieve a degree of success, fulfillment meaning

2] To help the learner understand their capabilities, limitations and relationships.

3] To help the learner recognize and understand the need for lifelong learning

4] To provide conditions and opportunities for advancement in the maturation process: spiritually, culturally, physically, politically and vocationally.

5] To provide education for survival in literacy, vocational skills and health measures.

Kalbande

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Objectives

Objectives of Adult Education -

The important objectives of adult education are -

1] To make adults aware of the civic responsibilities to one another and to the community, the nation.

2] To make them economically more efficient.

3] To develop a sense of responsibility and a knowledge of how to proceed in making the personal adjustments to home life and family relationships.

4] To promote health and physical fitness.

5] To supplement and broaden educational background.

6] To provide the means for encouraging cultural development and appreciation of arts.

7] To provide for the development of educational interests through opportunity of self expression


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Factors

Factors contributing to Adult literacy -

1] Poverty -

A major contributor to widespread adult literacy is lack of money

2] Gender Issues -

In a country where the sex ratio favours females, it automatically translates into more number of illiterates.

3] Cultural Issues -

Culture and tradition do not favour education as much as they do to traditional forms of occupational skills.

4] Population -

To be counted among the top most populated countries is indeed a contributing factor in literacy.

5] Lack of Educational Resources -

Rural areas and areas with difficult terrain do not have schools or education sources.

6] Bureaucratic Role-

Through various literacy campaigns are democratic in nature yet they are bureaucratic in implementation that lead to their failure. Some of these dependant upon the district's collector's goodwill in taking the campaign forward.

7] Lack of Mass Participation -

Literacy campaigns are most successful where there is a mass public involvement. Kerala is an example of people's mass movement or participation.

8] Mobilization of Adult Illiterates and of society.

It is a big challenges for a literacy success. Motivation and enrolling the illiterat in the adult education class is a serious task and regularity in attending the classes has been a major problem. It is an educat versus earning scenario where meeting th daily needs wins.

9] Lack of Proper Implementation -

Though formulating policies is not a problem but is it the proper implementation of policy and planning that is worrisome.


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Importance

Importance of Adult Literacy

1] It offers adults a second chance, in case th missed the opportunity or were denied access mainstream formal education.

2] Literacy is the key to the development of a country's economy.

3] It increases the awareness of healthcare w which child mortality rate can be decreased in India.

4] Literacy is the road to employment and self sufficiency

5] It is also a key to population control.

6] Awareness of fundamental rights and dut makes one a responsible citizen.

7] Literacy brings progress in the mindsets of those who have a strong belief in superst

8] It paves way for effective communication.

Steps to increase Adult Literacy -

1] Learning needs of all adults need to be met through equitable access to appropriate learning and life skill programmes.

2] Eliminating gender disparities will by default result in increased literacy.

3] Improving all aspects of quality of educat

4] The government needs to take remedial step to prevent illiteracy.

5] The bulk of financial commitment should provided by the central government.

6] Easy accessibility to schools especially to schools in rural areas.

7] Better renumeration for literacy workers w help the literacy movement to be sustainabl system of income generation as well as a system of literacy generation.

8] Implementation needs to be more efficient and effective through campaign based approac

9] Stress on proper environment building and active participation of the people.

10] Encouragement of joint efforts by governmen and Non-governmental organizations

11] The instructor needs to play even a major role in the teaching and learning of adults.

12] Media always plays an important role in motivating people and turning issues into a mass movement.

13] Integrating adult education with the education system.

14] Rural and urban divide needs to be bridged.

15] Better understanding and assimilation of knowledge can be met when the instructional material is developed in regional language along with the international language.

16] Including the components of vocational educatio right from the initial stage of adult literacy needs to be treated as a core for adult learning.

17] Government's commitment and community

participation need to be ensured before initiativ any programme related to adults.

18] Research work needs to be re-enforced in areas where deficits have been identified like gender differencials, dropouts, consolidation and lapsing into illiteracy of the ways of emponering women and village panchayats to activate the progress of adult literacy.

19] Vocational skill training is a motivating factor for illiterates.

Kalbande

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Types

Types of adult education

Types of adult education can be classified as follows-

1] Education for vocational, technical and professional competence. Such education may aim at preparing an adult for a first job or for a new job or it may aim at keeping him up to date on new developments in his occupation or profession

2] Education for health, welfare and family living. Such education includes all kind of education in health, family relations, consumer buying, planned parenthood, hygine, child care.

3] Education for civic, political and community competance. Such education includes all kind of education ~~in health~~, relating to the government, community development, public and international affairs, voting and political participation and so forth.

4] Education for self-fulfilment. Such educatio embraces all kinds of liberal education programs. education in music, the arts,

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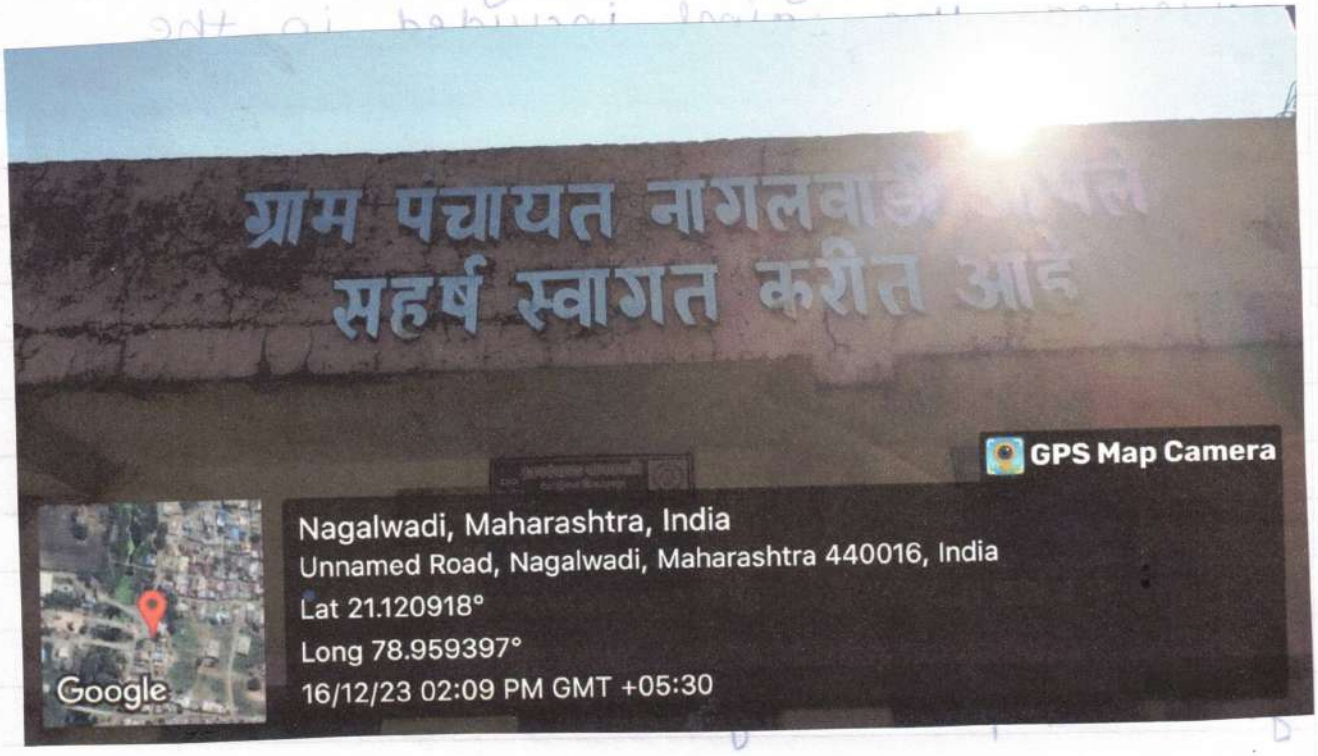
dance, theatre, literature, arts and crafts whether brief or long term. These programs aims primarily at learning for the sake of learning rather than achieving the aims included in the other categories.

5] Remedial education fundamental and literary education. Such education is obviously a prerequisite for all other kinds of adult education and thus, as a category, stands somewhat apart from the other types of adult education.

In reference to the fifth category, adults frequently need to compensate for inadequacies of earlier education.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Programs

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Programs of Adult Literacy -

The adult education programs have three basic components. These include basic literacy functioning and civic awareness. The programmes of adult literacy within the country are as follows-

1] Social Education Program-

The major thrust of social education program was to make the citizens of the country, particularly the ones who are illiterate and aware of their rights and responsibilities for building a democratic India.

2] Mass program of Functional Literacy (MPFL) -

MPFL was introduced in 1983 with the student and other volunteers. The main objective of this program was to eradict the literacy and encourage parents to send their children to school.

3] Farmer's Functional Literacy Program (FFLP) -

FFLP is also known as the Kisaan

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Sakshaeta Yojana. It was launched in 1969. The FFLP aimed at upgrading the human resources to improve agricultural productivity among farmers. The major emphasis of FFLP was to improve the occupational skills among farmers.

4] Functional Literacy for Adult Women (FLAW) -

FLAW was initiated in 1975 to 1976 in the experimental ICDS project areas. The major objective of the scheme was to enable the adult women, who do not possess the basic literacy skill of reading writing and numerals to acquire functional skills.

5] Rural Functional Literacy Project (RFLP) -

RFLP is the flagship program of NAEP. It was initiated by centrally sponsored scheme for rural areas.

6] The total literacy campaign (TLC) -

The major characteristics of this campaign are they are area specific

Name of Practical

time bound, volunteer based, cost effectiv and outcome oriented. The learners and others are engaged in educational activities on a continuous basis.

7] Sarva Shiksha Abhiyan (SSA) -

The SSA is a historic program towards the goal of universalisation of elementary education (UEE). This program bridges the gender and social category gaps in elementary education.


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Advantages

Advantages of Adult Literacy

Adult literacy offers several advantages that positively impact both individuals and society as a whole.

1] Individual Advantages -

→ i] Empowerment -

Literacy equips adults with the ability to understand and engage with written information, empowering them to make informed decisions in various aspects of life.

→ ii] Employment opportunities -

Improved literacy opens doors to better job prospects, enabling adults to higher paying jobs in their careers.

→ iii] Personal development -

Literate adults often experience increased self-confidence, expanded knowledg and improved cognitive abilities, fostering personal growth and development.

→ iv] Health Literacy -

Understanding health information leads to better health outcomes, as literate

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adults can comprehend medical instructions, access healthcare services and make informed health related decisions for themselves and their families.

→ v] Participation in society-

Literate adults can actively engage in community activities, vote knowledgebly, advocate for their rights and contribute positively to society

2] Social Advantages-

→ i] Economic growth-

Increased adult literacy correlates with economic development by fostering a skilled workforce, boosting productivity and driving innovation.

→ ii] Reduced Poverty-

Literacy empowers individuals to break the cycle of poverty by providing access to better job opportunities and improving financial literacy

→ iii] Improved quality of life-

Enhanced literacy levels contribute to overall societal well being by promoting education, reducing social disparities, and

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enhancing communication and understanding among individuals.

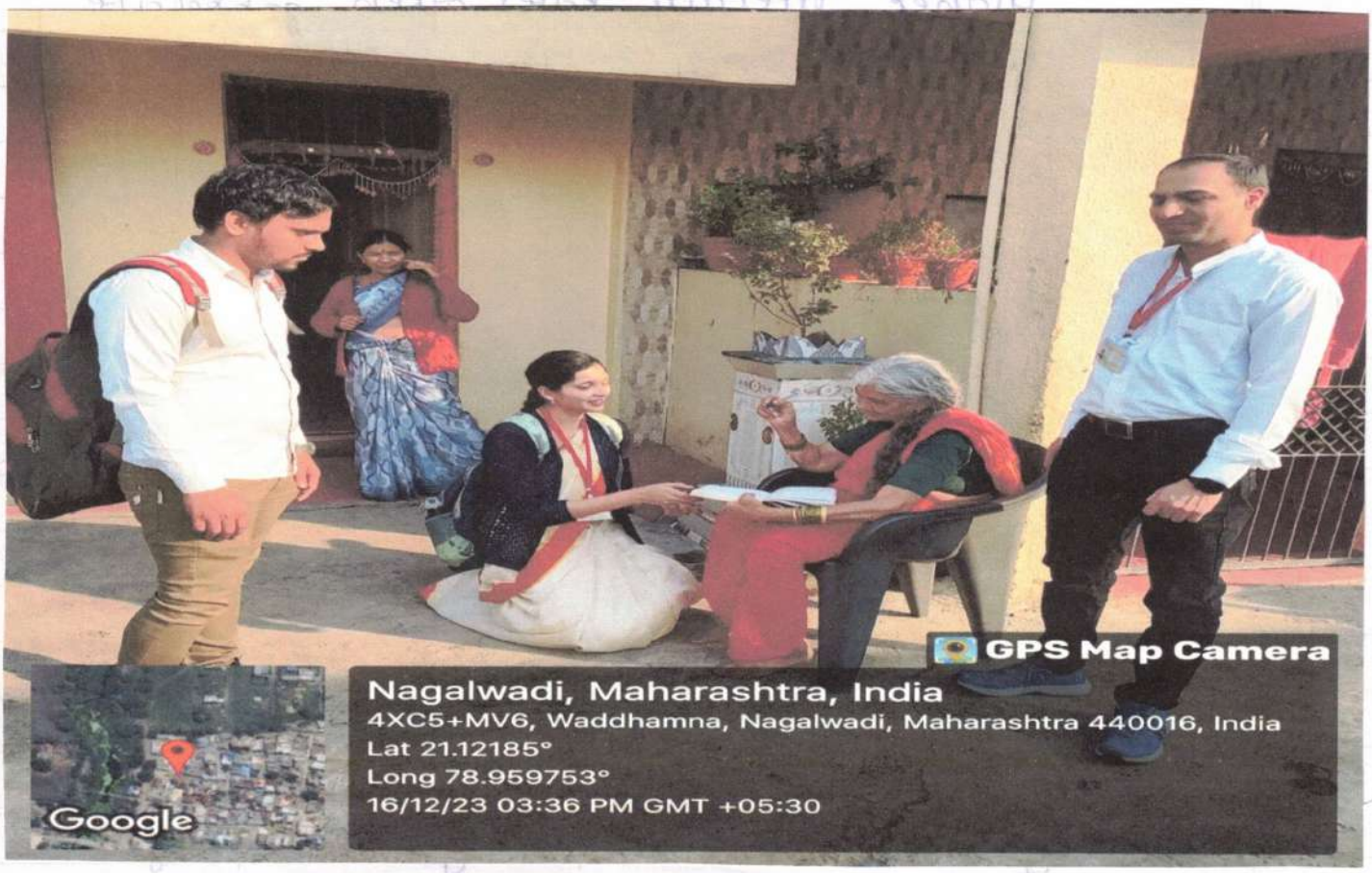
→ iv] Social stability-

Higher literacy rates often correlate with decreased crime rates, improved community cohesion, and greater political stability

→ v] Continual learning-

Cultivating a culture of lifelong learning through adult literacy programs fosters ongoing personal and professional growth leading to a more knowledgable and adaptable society

Investing in adult literacy programs not only transform individual lives but also positively influences the fabric of societies, fostering development, equality and progress.



क सखुबाई कनेरे

शांता बेनीराम शर्मा

नागलवाडी

Report

Report -

"The purpose of education is to create a person with the ability to look at the world for himself to make his own decisions"

— James A. Boldwin

The topic selected by our group is "
"Promote adult literacy awareness on various government programmes".

The group consists of four members (pupil teachers).

1] Ketaki ohale
2] Mayank Wilson
3] Dinesh Dahiya
4] Saurabh Humne

We all started our visit on 16 Dec 2023. The work was distributed among all the group members. We split into various areas of the town and started collecting information We came across "Primary school" and "Anganwadi" in the town Nagalwadi.

The village has a population of around 220 people with around 300 - 350 houses. All the houses in the village are pakka and permanen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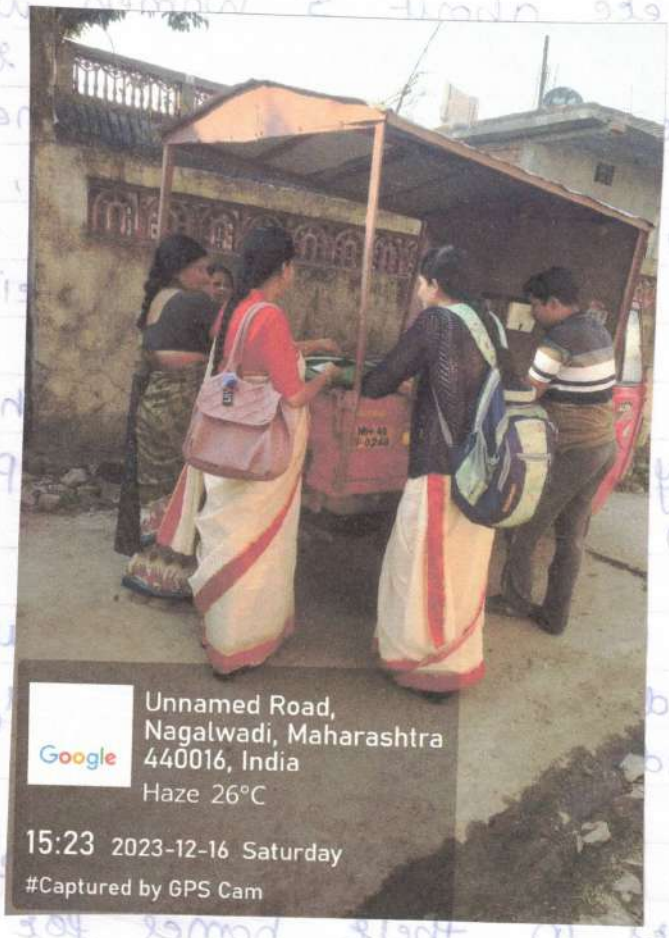
built houses. In our visit we came to know that there about 5 women who appeared the exam of 10th standard recently and they are provided with all the study material ~~with~~ like books, slates, crayons. Grampanchayat distributes this materials to women and adults on various occassions

Also, Mrs. Vandana Raut - The principle of Primary school in village supports the program of adult literacy.

'Nai Kiran' program for adult literacy is conducted by the Grampanchayat of Nagalwadi.

Also, about 50% houses in the village has newspapers in their homes for reading. Adults including women take great interes in reading newspapers and keep themselves connected to the outer world by reading news.

There are about 10-12 women saving groups including 10 women each. They work and earn by rolling papads. Also, women work in insence stick factory for their livelihood.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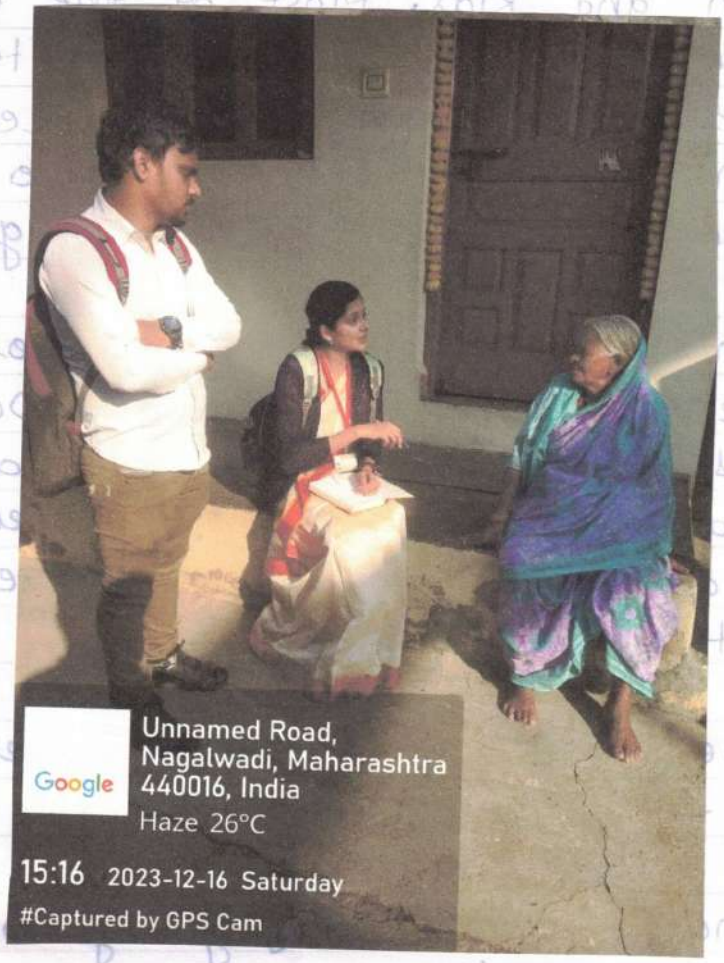
We roamed in the village talking to men, women and kids. Most of the men and women of the village are literate. Also, the ones who are having reading and writing qualities are trying to self educate themselves with the help of grampanchayat.

There are mathematical formulas and expressions written on the walls of shops, houses which teaches basic mathematics. We came across some women who are now old, but they are able to do all the two digit arithmatic.

These adults and children were so interested that they answered all our questions. They wrote their names on our diary just to show us their joy of being able to read and write.

Men in the village gave us information about their interest in the bank transaction politics and other topics they are interested. I personally felt this connection to the literacy.

Also, we observed that many people had full-time obligations at home as well. They found it difficult to manage all their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obligations and still managed to learn and keep in touch of reading regularly. Some adults even had confidence to put their thoughts in a strong and firm manne They just need a small push to motivate themselves for re-starting their education.

While studying for the adult literacy aspect of the village, I concluded that if literacy rates in the society and country are improved, it will allow these adults to reach their full potential in their personal lives as well.

This will help the adults to gain more confidence to step out of their comfort zones and explore more of the world.


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Criteria

Criteria for eligibility for an adult education program-

Eligibility for adult education services includes a person who fits in any one of the following criteria-

1] They are 16 years of age and older and not enrolled in school.

2] do not have basic education skills.

3] do not have a high school diploma or its equivalent.

4] need to improve their ability to speak read or write the English language

The typical low literate adult is likely to have an income close to the poverty level, be older than 25 with less than a high school diploma, and live in a rental housing. Their children are likely to attend low performing schools in town. While a literate adult expects proper educational facilities for their children.

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The changing Definitions of Literacy

A literate adult has-

1865 - 1] The ability to sign or mark one's name

1900 - 2] The ability to do basic reading, writing and calculations.

1950 - 3] The ability to read and write with understanding a short simple statement about one's life.

2000 - 4] The ability to use printed and written information to function in society, achieve one's goals and develop one's knowledge and potential.

2006 - 5] Adequate information literacy, health literacy, computer or digital literacy, quantitative and workplace literacy to manage one's life, health and family.


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Need and Challenges -

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Need and challenges of Adult Literacy in India -

1] A large number of people in India are devoid of education, the country cannot progress.

2] There are a lot of reasons due to which many people could not continue for higher studies or opt for the course which they had an interest in.

3] Adult education will enable people to complete their studies if they were not able to complete the same when they were a student.

4] This will help them to get a job opportuni in their own feild of interest.

5] It is also useful for people who require a promotion in their jobs.

6] Adult education aims to help in attaining literacy.

7] Adult education makes society more strong by educating its adults and making them self reliant.


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Conclusion

Conclusion

Adult literacy is the ability to write, listen and speak. Adult literacy includes both basic literacy and knowledge pertaining to the civic needs, personal hygine and adopting political and occupational skills. India has over 35% of the population of the world's total share.

Adult learning can be formal, non-formal and internal, motivational. We know that education is not a time-bound activity or pursuit. Both education and knowledge are ongoing processes that occures for the entire lifetime of an individual. As the saying goes, we learn something new everyday Even formal education is not solely the privilege of children or young adults. Adult education gives mature adults a chance to learn more and hone any specific skills they wish to.

Adult education consists of offering mature adults various educational options to learn new skills or develop the skills they already possess. It is the means of providing education to adults beyond the traditional school or college education

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we offer to them as children. Adult education can either be formal, vocational recreational and social.

Adult or continuing education takes a different approach than traditional college and school education. We have to take into effect, that these adults are already experienced and most likely a part of the workforce. So, the curriculum and teaching methods must be adopted to take this into consideration. The importance of adult education lies in the fact that it builds on the knowledge they will already possess.

The main aim and importance of adult education are to the level playing feild for certain adults in the professional world. So, with access to the education they have a second chance at a better career or an advancement in their current career. They can even develop new skills that will help them with their professional lives. While expanding their knowledge and skillset, they can also expand their career prospects. And such adult education also teaches the students how to put their skill and knowledge into practical use.

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Another advantage of adult education is that it improves the literacy rates of the society and the country as a whole. Improving their basic literacy will allow adults to reach their full potential in their personal lives as well. So, they will gain more confidence to step out of their comfort zones and explore more of the world.

While we saw advantages and the importance of adult education, we cannot ignore that there are some notable challenges that we face with the concept of adult education. The most noteworthy is that the adults have to usually balance a full time job and career with such educational activities. They find it difficult to find the time and the energy to balance both.

At other times, the person may have full time obligations at home as well. They find it difficult to manage all their obligations and still manage to attend classes regularly. Some adults even lack the confidence and the motivation to return to the classroom after many years.

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The concept seems vague and foreign to them and they may often require a nudge to re-start their education.

Over the last few decades, government of India has started and promoted various programs for adult education and skill development. The main aim of these programs is to boost literacy rates among the backward areas of country. Their aim has also been to boost the literacy rates of the scheduled caste, scheduled tribes, rural women and other often ignored minorities of our country. Two of the main schemes that have seen some success are the "Saakshar Bharat" scheme and the "scheme to support Voluntary Agencies for Adult Education and Skill Development".

The government also provides aid and help to other NGO's that are working towards promoting adult education in our country.

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5] www.slideserve.com - PPT Adult Education

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Teacher's Signature.....

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Name Of Practical

NAME :- NAMRATA RAMESH NANDEKAR

CLASS :- B.ED (IIIrd sem)

SUBJECT :- PROJECT REPORT ON STUDY TOUR

PRACTICAL :- E.P.C. - I

COLLEGE :- SHEELADEVI COLLEGE OF EDUCATION, WADI, NAGPUR.

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Teachers Signature.....

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Introduction

A study tour offer students a unique opportunity to enhance their academic experience to enhance by combining classroom learning with Real-worked exposure. These tells typically involve visit to educational qualificans Industries and cultural sites involving student with practical insights, hand-on-experiences and a border perspective on their subjects of study. It fosters experiencial learning culture exchange and personal growth, enriching students education beyond traditional classroom setting.

Nagalwadi is a gaint village located near Nagpur known for the rich cultural heritage and close-knit community. our study tour aims to explore the socio-economic aspects, traditional practices and daily life of the villiger from agriculture practices to local craft this immersive experience provides. a unique opportunity to understand the challenges & per residence of rural communities.

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Aims & Objectives of Study Tour

The primary aim of a study tour in a village is to provide students with a first-hand understanding of rural life, culture, and socio-economic dynamics. It aims to bridge the gap between theoretical knowledge gained in classrooms and the practical realities of rural communities

1. Cultural Immersion :-

- Understand and appreciate the cultural nuances, traditions and lifestyle of the rural community.
- Experience the customs, rituals and daily life of villagers to promote cultural sensitivity.

2. Socio-Economic Awareness :-

- Gain insights into the economic activities and livelihood prevalent in rural areas.
- Understand the challenges and opportunities associated with rural economics.

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3. Community Interaction :-

• Interact with villagers to grasp their perspectives on local issues community dynamics and aspirations.

• Foster community engagement and established community connection between students and villagers.

4. Environmental Understanding :-

• Explore the local environment and ecosystem, understanding the relationship between villagers and their surroundings.

• Raise awareness about sustainable surroundings.

5. Educational outreach :-

• collaborate with local educational instruction to understood the educational landscape in rural areas.

• Explore opportunities for knowledge exchange and potential support for educational initiatives.

6. Health and social services :-

• Assess the availibility and accessibility of healthcare and social services in rural setting.

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Importance of Study Tour

Enhances Knowledge And Understanding:

Educational trips involves group provided student with a chance of to learn about a particular place or subject in a more interactive and immersive way for instance, visiting a historical site or a museum helps student better understand the history and culture of a place

Promotes teamwork and social skills :-

Educational trips involve group activities and require student to work together, which help team develope teamwork skills and social skills this is crucial for younger pupills because it fosters their confidence and self-worth

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Encoureages Independent learning :-

Educational trips required students to be more self-directed and take ownership of their learning this help students develope problem-solving skills and become a more independent learners.

Promotes Creativity and critical Thinking :-

Educational trips provide students with a chance to think creativity and critically thinking skill They see and esperiences. In this way students develope their critical and Thinking and become more motivated learners.

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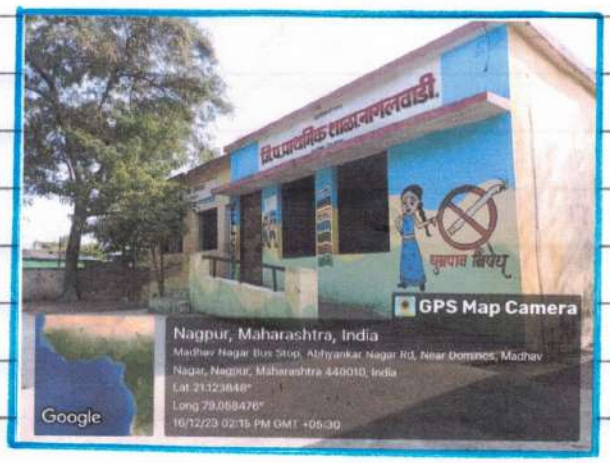

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Name Of Practical

Purpose of study Tour :-

The purpose of study tour is multifaceted it aims to compliment academic learning by providing student with practical experiences and exposure to real worked experiment related to their field of study key purpose include :-

1. Experiential Learning :-

students again hand-on-learning appearing theoretical knowledge in real world settings this practical exposure enhances understanding and ~~ot~~ retention of academic concepts.

2. Cultural Exposure :-

study tour often include visits to diverse cultural and historical sites, fostering a broder understanding of different communities and perspectives.

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3. Industry Insights :-

Tours to Relevant industries or businesses often students insight into professional practices, allowing them to ~~comment~~ connected theoretical knowledge with industrial application in their future ~~carrees~~ careers.

4. Networking Opportunities :-

student can interact with professionals and experts in their field ~~ce~~ establishing valuable connections that may benefits their academic and professional pursuits.

5. Motivation :-

Experiencing Real-world application of their studies can inspire students, motivating them to excel in their academic pursuits and future careers

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Name Of Practical

About Nagalwadi :-

Nagalwadi is a village located ~~mean~~ near Nagpur in the state of Maharastra India.

1. Location :-

Situated in Nagpur district of Maharastra Pin code - 440023

2. Geography :-

Typically surrounded by agricultural lands it may have diveres flora and fauna depending on its own exact location

3. Cummunity :-

often inhibited by a mix of various social and cullural groups.

4. Traditions Customs :-

May have unique customs festivals and tradition specific to the local cummunity

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5. Agriculture :-

Primarely an agrecian cumminity with faeming bing a significant occupation.

6. Livelihood :-

Small scale buisness like- dairy, crafts and other rureal livelihood.

7. Healthcare :-

Availiability of wealth and health care services and cummunity health motivates is basic.

The Village code of Nagalwadi village is 536127. This village is located in hingna tahsil Nagpur dist in Maharastra, India. Hingana is nearest town to nagalwadi village for all major activityes of economic.

The population of nagalwadi is ay opportunity 2500 out of the total population around 1500 women 700 men Rest one children.

*

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Report Writing

Venue :- Village study tour (Nagalwadi)

Address :- Nagalwadi wardhamna Road, Nagpur, Maharastra - 440023

Date :- 16/12/2023 (saturday)

Around 50 B.Ed second year student and our lecturar averange a study tour to Nagalwadi. A day shedule is 16/12/2023 in afternoon all of colleagues met at Nagalwadi village.

We started a survey in the village for the study. The student interacted with the local administrative functionaries in the Nagalwadi Grampanchayat. The village is around 18.7 Km from Nagpur.

The study tour was conducted to familyarised the student with the practical aspect of rural society.

Name Of Practical

Mrs. Rekha dhagreswar Lapkale is the sharpanch of Nagalwadi, grampanchayat. we all students ~~discaved~~ discussed about situation of village with sarpanch. Then the students interaction with the people of village at introductory level. Then the students there given the topic of there interact in the village to conduct the fieldwork and field findings along with the policy suggestion the student studyed the issue of public distrubution system, proverty elivation health, education community essest, sanitation any hygine, land developement rural electricity, women and child developement, family welfare, impact of the liquor on the family system, transportation and communication system of the village

*

Name Of Practical

Conclusion

The Village study enables me in studing the various aspects of the Village life. We come to know various thing knowing which perhaps when not possible without staying in the Village among the rural population

My visit helps me to understand the lives of the Village ~~tour~~ their need and various dynamics relating to it. The first hand experience is how they sustain their livihood and which kind of difficulties they face for livihood and other expenses of household And we also saw the Various developement plan running in the village and impact of it helped me to my understanding of these plans and ground realities associated with them

The facts like equality between differen caste female position in the house unity among villagers etc are among some of the positive aspects of the village related to the providing of livelihood opportunity to the Villagers.

*

Name Of Practical

Reference

1. www. Villagestudytour .com

2. www. herald . eohyd . in

3. HHps:// www. Bhaskar. com

4. HHps:// www. sspad . Edu - in

5. HHps:// www. Barwani Nagalwadi . NIC .in.

*

THANK YOU

*

Akalpreet

SHEELADEVI COLLEGE OF EDUCATION

Session :- 2023-24

B.ed 3rd Semester

Internship - II

Community Interaction report -
Visit to Orphanage

Name of the student - Mayank W. Wilson
B. Ed. 3rd Semester

Page No.
Date :

Index

Shree Radhe

Introduction

An orphanage is a residential institution dedicated to the care of orphans.

The aim focusses on providing education and shelter to the orphans.

To empower them to become citizens of India in a well-mannered way.

The empowered and well-informed orphan population of our country, thus enabling them to lead a life of dignity and productivity.


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Shraddhanandpeth, Laxminagar, Nagpur, Maharashtra 440010, India
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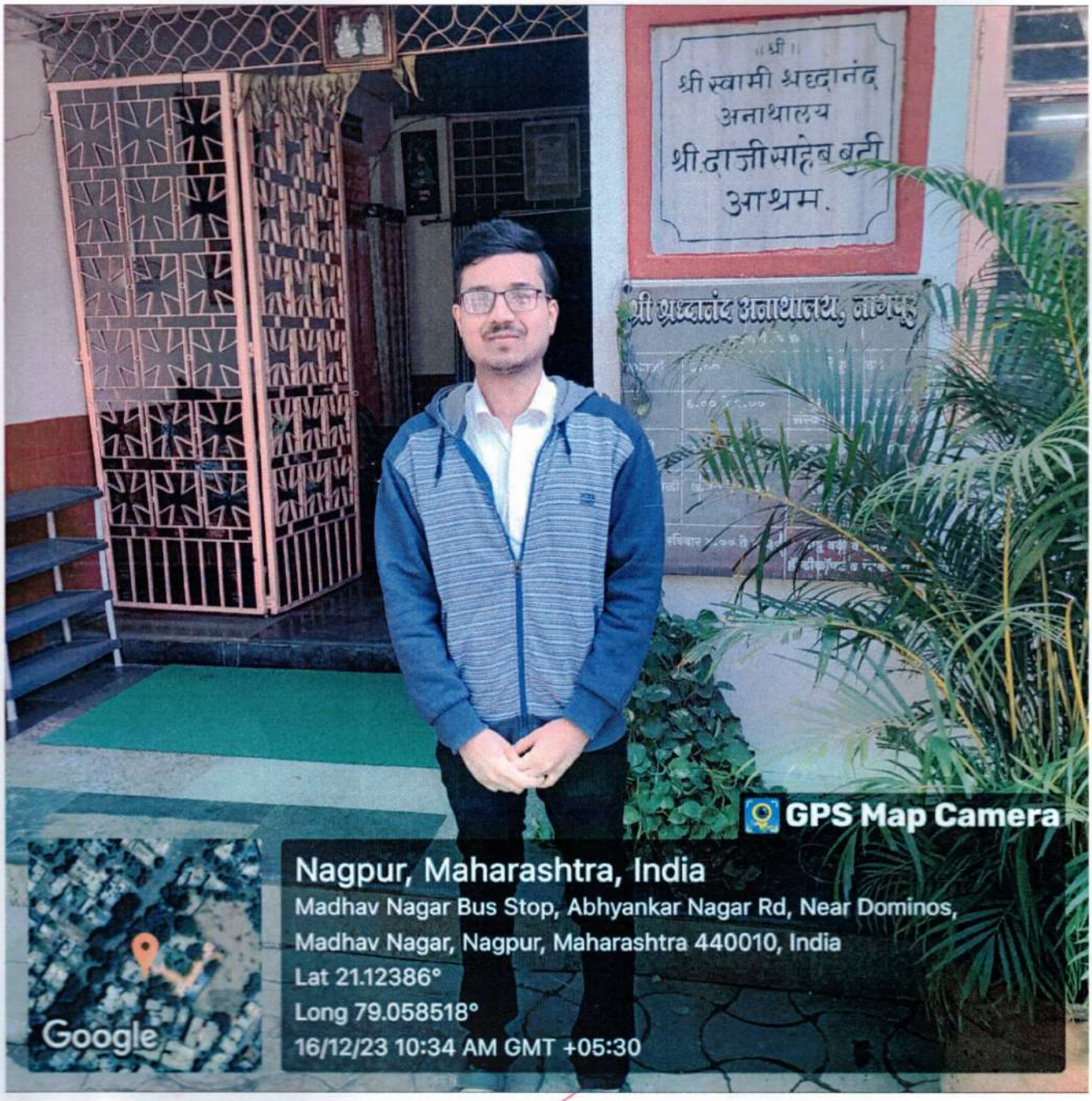
OBJECTIVE

Equal access to quality education and lifelong learning enable disabled people to participate fully.

To promote affordable, accessible and quality, social services.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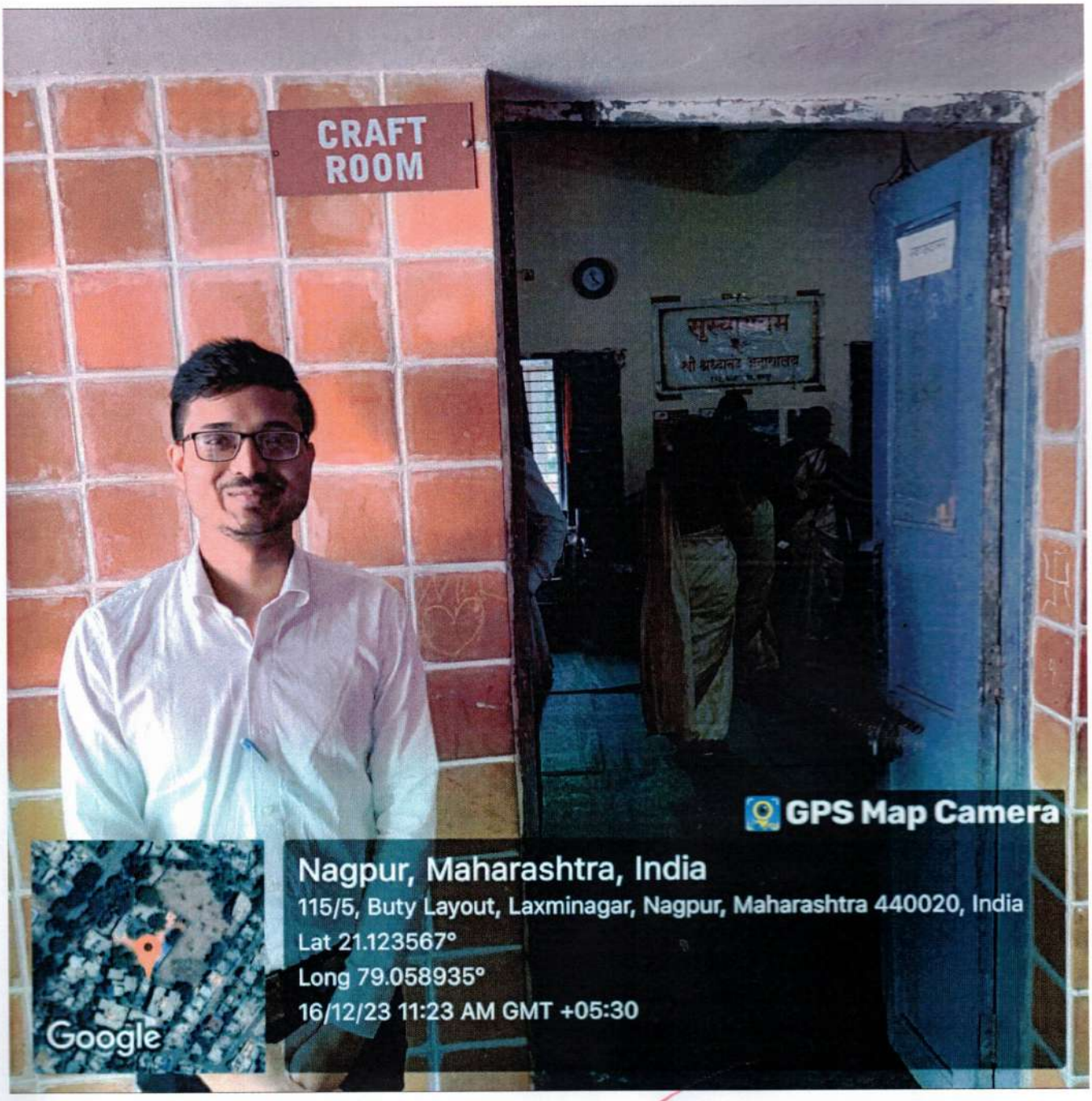
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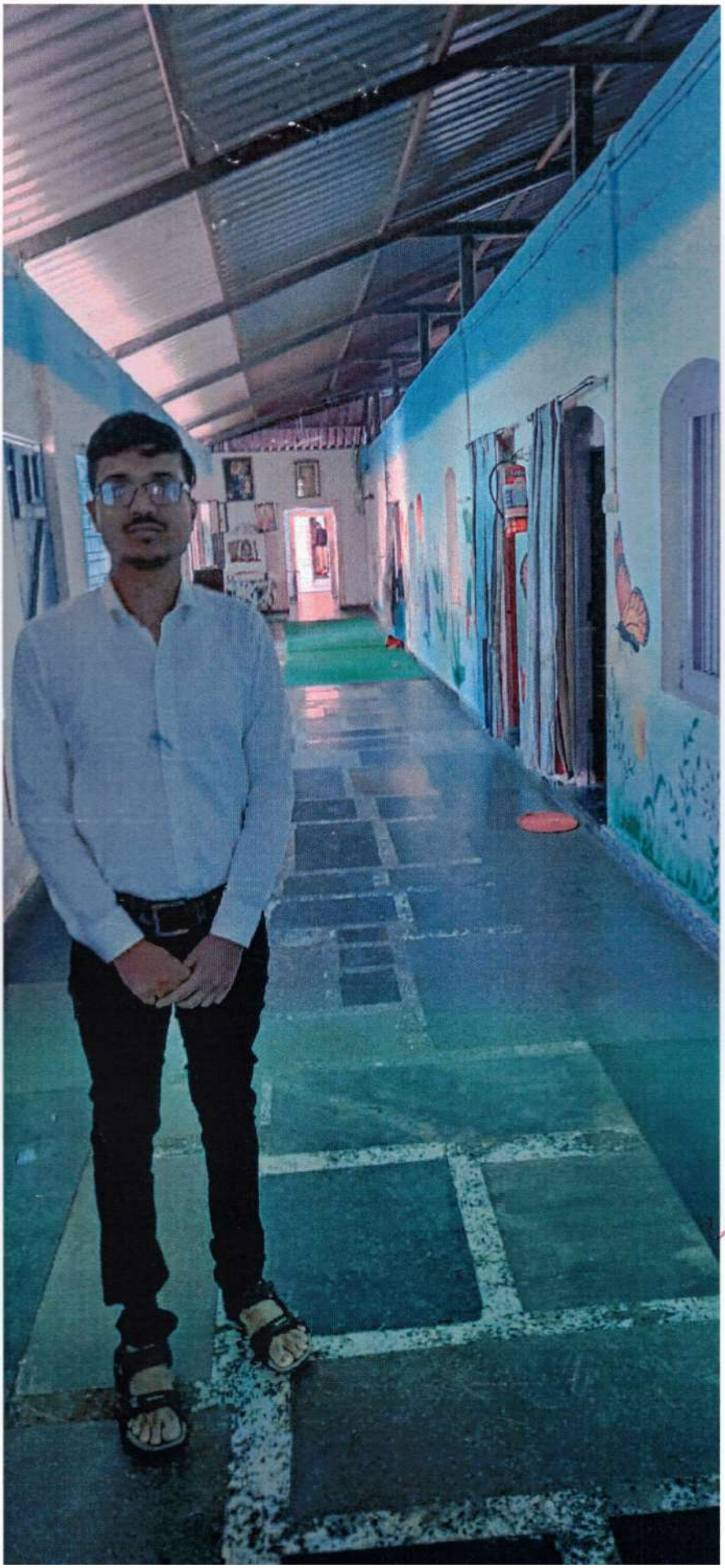

Report

I, Mayank W. Wilson, visited Shraddhanand Anathalay on 16th Dec. 2023 at 10 a.m.

Address – 123, Shradhanand Peth, Nagpur
Pin code – 440022

phone – 0712 - 2222 959

After reaching there at 10:15 a.m. we waited for 25 min. then office staff came and director madam came.

Mrs. Geetanjali, director madam, briefed us about the history and working system of this Anathalaya.

Nursery Baby wing - 1

kindergarten and 0 to 6 years — 19 Boys + 14 girls

6 to 18 years → Boys - nil
girls — 43

18+ years → Boys — 16
girls — 4

Name - Ketaki · Shreikant Ohale

College - Sheeladevi college of Education
Wadi, Nagpur

Class - B.Ed IInd year [Sem-III]

Year - 2023-24

EPC 1 - Nai Talim and Community
Engagement Project-1

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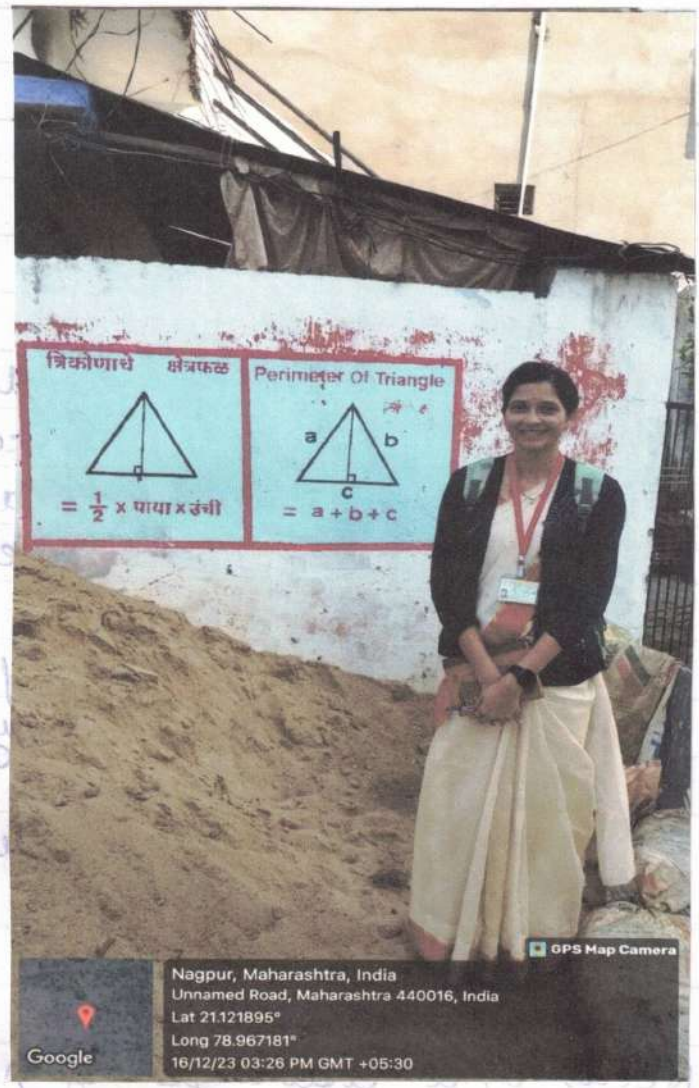
Teacher's Signature.....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Introduction

Adult literacy is the ability of adults to use a language ie. to read, write, listen and speak. Adu literacy includes basic literacy, desirable knowledge pertaining to civic needs, personal hygine and adopting political and occupational skills. According to the United states, Basic literacy is the ability to read 40 words per minute, write 20 words per minute and do 2-digit arithmatic.

India has over 35% of the world's total illiterate population. India also has the largest number of illiterate people in the world. India faces major challenges, in terms of both the high number of illiterates and widespread disparities that exists between urban and rur areas. These pose as hindrance to the nationa efforts to achieve education for all and to eradicate poverty. About 80 percent of the population lives in villages that have the largest concentration of illiterate people. These areas also have maximum gender differentials. Some area have specific differentiall in attaining literacy rates, girls by and large suffered in their educational pursuits mainly due to ignorance on the parts of parents, poverty geographical hazardous like North Eastern South states of

India and other hilly areas. Special efforts need to be provided for adults who have be deprived of early education facilities. Provisio of funds will have to be made differentia as contrasted from other areas.

Status of Adult Literacy

The reason why India's Adult Literacy h suffered is the fact that its efforts towards this cause came very late. A lot of effort was put into expanding primary education as a result adult literacy was neglected iv the first three decades of its independance. It was during 1977, with the change in the government in India, that a nationwide adu education programme was launched for socio economic development. This created a demand for adult literacy at the national level.
At that time all the adult education progra were voluntary in basis and most of the adult education programmes were limited t scope and reach. Adult education had been planned as a community engagement progra through the development of the individual was not directly associated with the developm of basic literacy rather it was designed for societal development. It was only in th

last three decades that adult literacy was associated with socio-economic development and for self-reliance of the individual.

During 1980, a nationwide centre-based programme was launched. But it lacked in people's participation. The overall literacy rat in India was low. A lot of resources were needed in terms of instructors and trainer in adult education. The funds worked for basic literacy but were not successful to a large extent. This programme brought the adult literacy to national agenda. The government in power showed the political will to do so. Though India's literacy rate has improved significantly from 44% in 1981 to 65% in 2001, a lot still remains to be don

Adult literacy programs haven't had a consistent support and these have fallen off the government's priority list. Government funded ~~adult~~ adult education has remained neglected most of the time. The states contin to ignore its own role and responsibilities. There is an tendency for dependence on private participation on this front.


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Aims

Aims of adult Education

1] To help the learner (individual / organization / society) achieve a degree of success, fulfillment meaning

2] To help the learner understand their capabilities, limitations and relationships.

3] To help the learner recognize and understand the need for lifelong learning

4] To provide conditions and opportunities for advancement in the maturation process: spiritually, culturally, physically, politically and vocationally.

5] To provide education for survival in literacy, vocational skills and health measures.

Kalbande

Name of Practical

Objectives

Objectives of Adult Education -

The important objectives of adult education are -

1] To make adults aware of the civic responsibilities to one another and to the community, the nation.

2] To make them economically more efficient.

3] To develop a sense of responsibility and a knowledge of how to proceed in making the personal adjustments to home life and family relationships.

4] To promote health and physical fitness.

5] To supplement and broaden educational background.

6] To provide the means for encouraging cultural development and appreciation of arts.

7] To provide for the development of educational interests through opportunity of self expression


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Factors

Factors contributing to Adult literacy -

1] Poverty -

A major contributor to widespread adult literacy is lack of money

2] Gender Issues -

In a country where the sex ratio favours females, it automatically translates into more number of illiterates.

3] Cultural Issues -

Culture and tradition do not favour education as much as they do to traditional forms of occupational skills.

4] Population -

To be counted among the top most populated countries is indeed a contributing factor in literacy.

5] Lack of Educational Resources -

Rural areas and areas with difficult terrain do not have schools or education sources.

6] Bureaucratic Role-

Through various literacy campaigns are democratic in nature yet they are bureaucratic in implementation that lead to their failure. Some of these dependant upon the district's collector's goodwill in taking the campaign forward.

7] Lack of Mass Participation -

Literacy campaigns are most successful where there is a mass public involvement. Kerala is an example of people's mass movement or participation.

8] Mobilization of Adult Illiterates and of society.

It is a big challenges for a literacy success. Motivation and enrolling the illiterat in the adult education class is a serious task and regularity in attending the classes has been a major problem. It is an educat versus earning scenario where meeting th daily needs wins.

9] Lack of Proper Implementation -

Though formulating policies is not a problem but is it the proper implementation of policy and planning that is worrisome.


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Importance

Importance of Adult Literacy

1] It offers adults a second chance, in case th missed the opportunity or were denied access mainstream formal education.

2] Literacy is the key to the development of a country's economy.

3] It increases the awareness of healthcare w which child mortality rate can be decreased in India.

4] Literacy is the road to employment and self sufficiency

5] It is also a key to population control.

6] Awareness of fundamental rights and dut makes one a responsible citizen.

7] Literacy brings progress in the mindsets of those who have a strong belief in superst

8] It paves way for effective communication.

Steps to increase Adult Literacy -

1] Learning needs of all adults need to be met through equitable access to appropriate learning and life skill programmes.

2] Eliminating gender disparities will by default result in increased literacy.

3] Improving all aspects of quality of educat

4] The government needs to take remedial step to prevent illiteracy.

5] The bulk of financial commitment should provided by the central government.

6] Easy accessibility to schools especially to schools in rural areas.

7] Better renumeration for literacy workers w help the literacy movement to be sustainabl system of income generation as well as a system of literacy generation.

8] Implementation needs to be more efficient and effective through campaign based approac

9] Stress on proper environment building and active participation of the people.

10] Encouragement of joint efforts by governmen and Non-governmental organizations

11] The instructor needs to play even a major role in the teaching and learning of adults.

12] Media always plays an important role in motivating people and turning issues into a mass movement.

13] Integrating adult education with the education system.

14] Rural and urban divide needs to be bridged.

15] Better understanding and assimilation of knowledge can be met when the instructional material is developed in regional language along with the international language.

16] Including the components of vocational educatio right from the initial stage of adult literacy needs to be treated as a core for adult learning.

17] Government's commitment and community

participation need to be ensured before initiativ any programme related to adults.

18] Research work needs to be re-enforced in areas where deficits have been identified like gender differencials, dropouts, consolidation and lapsing into illiteracy of the ways of emponering women and village panchayats to activate the progress of adult literacy.

19] Vocational skill training is a motivating factor for illiterates.

Kalbande

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Types

Types of adult education

Types of adult education can be classified as follows-

1] Education for vocational, technical and professional competence. Such education may aim at preparing an adult for a first job or for a new job or it may aim at keeping him up to date on new developments in his occupation or profession

2] Education for health, welfare and family living. Such education includes all kind of education in health, family relations, consumer buying, planned parenthood, hygine, child care.

3] Education for civic, political and community competance. Such education includes all kind of education ~~in health~~, relating to the government, community development, public and international affairs, voting and political participation and so forth.

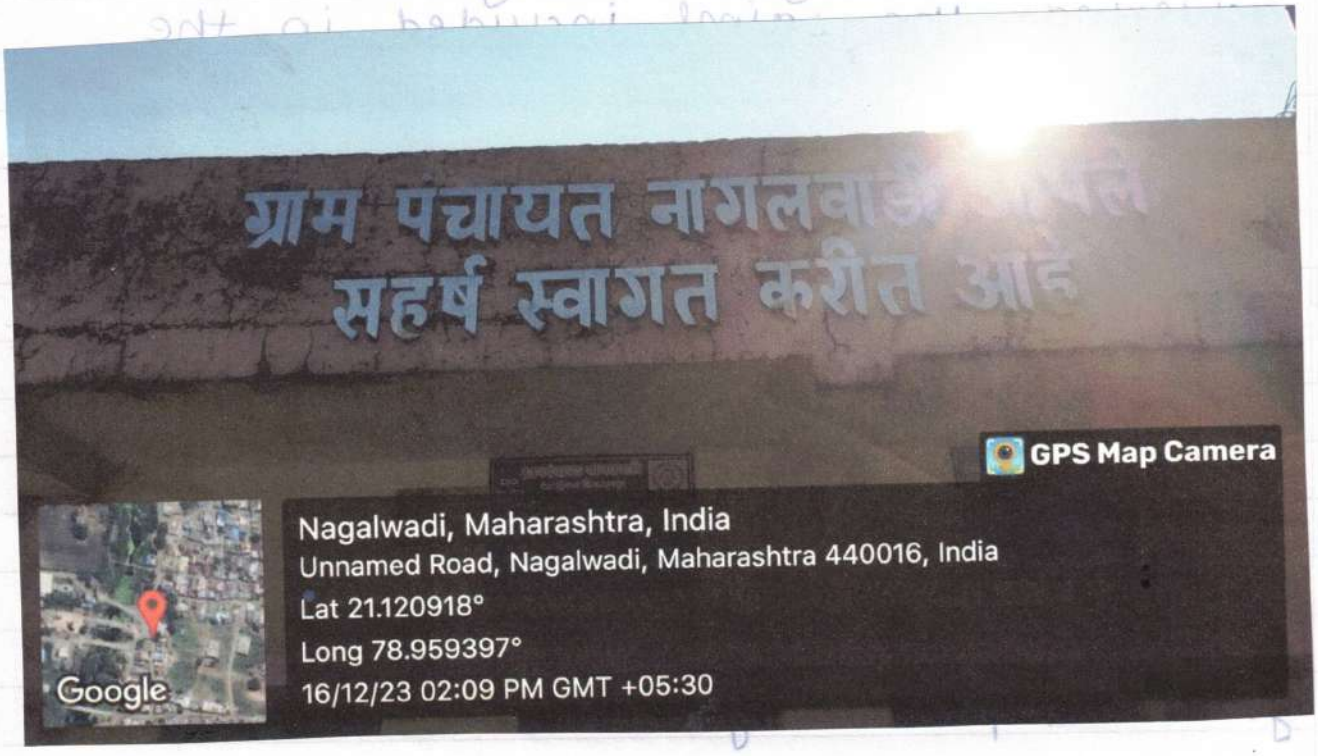
4] Education for self-fulfilment. Such educatio embraces all kinds of liberal education programs. education in music, the arts,

Name of Practical

dance, theatre, literature, arts and crafts whether brief or long term. These programs aims primarily at learning for the sake of learning rather than achieving the aims included in the other categories.

5] Remedial education fundamental and literary education. Such education is obviously a prerequisite for all other kinds of adult education and thus, as a category, stands somewhat apart from the other types of adult education.

In reference to the fifth category, adults frequently need to compensate for inadequacies of earlier education.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Programs

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Programs of Adult Literacy -

The adult education programs have three basic components. These include basic literacy functioning and civic awareness. The programmes of adult literacy within the country are as follows-

1] Social Education Program-

The major thrust of social education program was to make the citizens of the country, particularly the ones who are illiterate and aware of their rights and responsibilities for building a democratic India.

2] Mass program of Functional Literacy (MPFL) -

MPFL was introduced in 1983 with the student and other volunteers. The main objective of this program was to eradict the literacy and encourage parents to send their children to school.

3] Farmer's Functional Literacy Program (FFLP) -

FFLP is also known as the Kisaan

Name of Practical

Sakshaeta Yojana. It was launched in 1969. The FFLP aimed at upgrading the human resources to improve agricultural productivity among farmers. The major emphasis of FFLP was to improve the occupational skills among farmers.

4] Functional Literacy for Adult Women (FLAW) -

FLAW was initiated in 1975 to 1976 in the experimental ICDS project areas. The major objective of the scheme was to enable the adult women, who do not possess the basic literacy skill of reading writing and numerals to acquire functional skills.

5] Rural Functional Literacy Project (RFLP) -

RFLP is the flagship program of NAEP. It was initiated by centrally sponsored scheme for rural areas.

6] The total literacy campaign (TLC) -

The major characteristics of this campaign are they are area specific

Name of Practical

time bound, volunteer based, cost effectiv and outcome oriented. The learners and others are engaged in educational activities on a continuous basis.

7] Sarva Shiksha Abhiyan (SSA) -

The SSA is a historic program towards the goal of universalisation of elementary education (UEE). This program bridges the gender and social category gaps in elementary education.


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Advantages

Advantages of Adult Literacy

Adult literacy offers several advantages that positively impact both individuals and society as a whole.

1] Individual Advantages -

→ i] Empowerment -

Literacy equips adults with the ability to understand and engage with written information, empowering them to make informed decisions in various aspects of life.

→ ii] Employment opportunities -

Improved literacy opens doors to better job prospects, enabling adults to higher paying jobs in their careers.

→ iii] Personal development -

Literate adults often experience increased self-confidence, expanded knowledg and improved cognitive abilities, fostering personal growth and development.

→ iv] Health Literacy -

Understanding health information leads to better health outcomes, as literate

Name of Practical

adults can comprehend medical instructions, access healthcare services and make informed health related decisions for themselves and their families.

→ v] Participation in society-

Literate adults can actively engage in community activities, vote knowledgebly, advocate for their rights and contribute positively to society

2] Social Advantages-

→ i] Economic growth-

Increased adult literacy correlates with economic development by fostering a skilled workforce, boosting productivity and driving innovation.

→ ii] Reduced Poverty-

Literacy empowers individuals to break the cycle of poverty by providing access to better job opportunities and improving financial literacy

→ iii] Improved quality of life-

Enhanced literacy levels contribute to overall societal well being by promoting education, reducing social disparities, and

Name of Practical

enhancing communication and understanding among individuals.

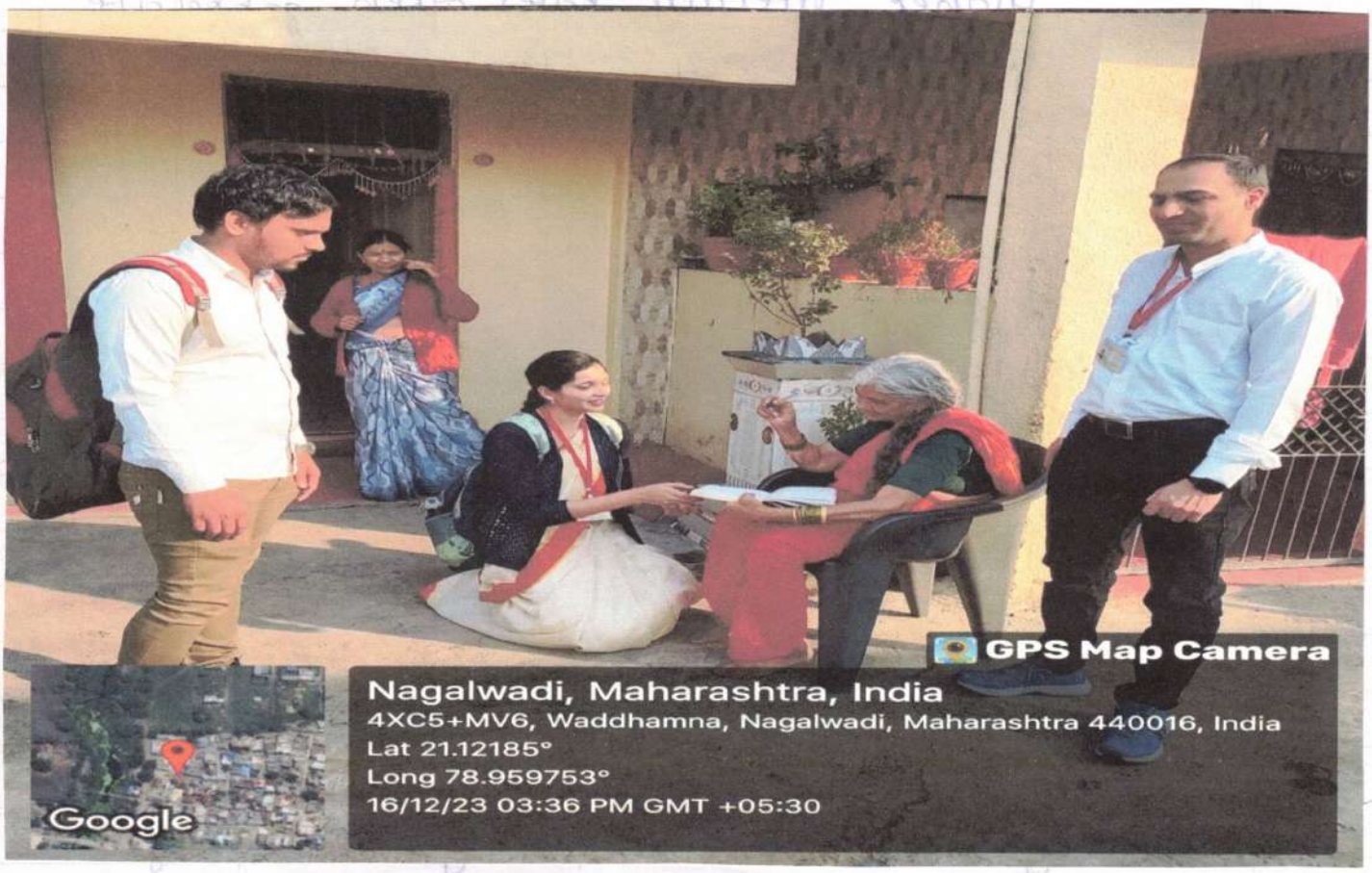
→ iv] Social stability-

Higher literacy rates often correlate with decreased crime rates, improved community cohesion, and greater political stability

→ v] Continual learning-

Cultivating a culture of lifelong learning through adult literacy programs fosters ongoing personal and professional growth leading to a more knowledgable and adaptable society

Investing in adult literacy programs not only transform individual lives but also positively influences the fabric of societies, fostering development, equality and progress.



क सखुबाई कनेरे

शांता बेनीराम शर्मा

नागलवाडी

Report

Report -

"The purpose of education is to create a person with the ability to look at the world for himself to make his own decisions"

— James A. Boldwin

The topic selected by our group is "
"Promote adult literacy awareness on various government programmes".

The group consists of four members (pupil teachers).

1] Ketaki ohale
2] Mayank Wilson
3] Dinesh Dahiya
4] Saurabh Humne

We all started our visit on 16 Dec 2023. The work was distributed among all the group members. We split into various areas of the town and started collecting information We came across "Primary school" and "Anganwadi" in the town Nagalwadi.

The village has a population of around 220 people with around 300 - 350 houses. All the houses in the village are pakka and permanen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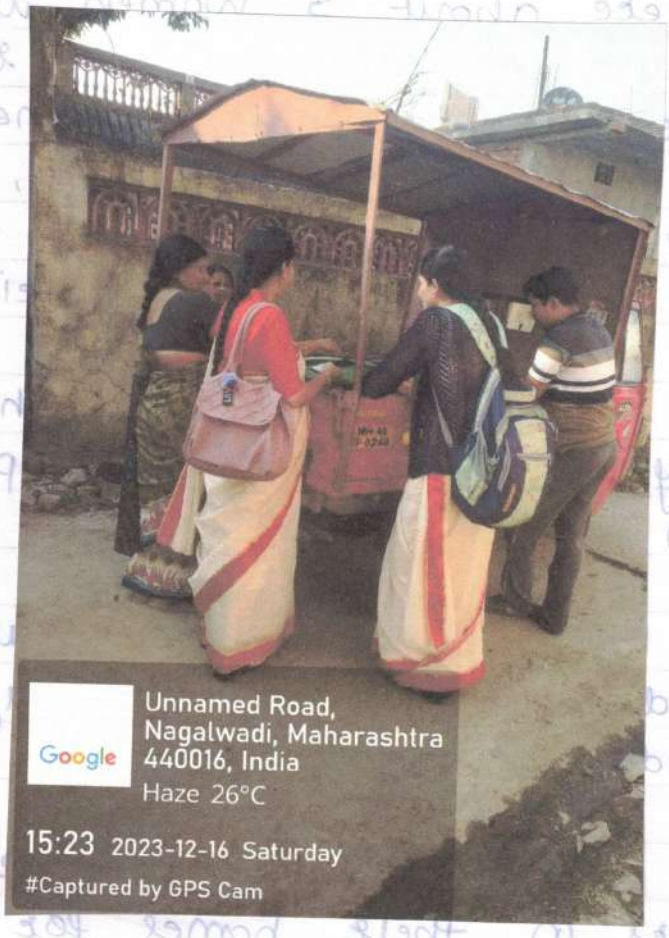
built houses. In our visit we came to know that there about 5 women who appeared the exam of 10th standard recently and they are provided with all the study material ~~with~~ like books, slates, crayons. Grampanchayat distributes this materials to women and adults on various occassions

Also, Mrs. Vandana Raut - The principle of Primary school in village supports the program of adult literacy.

'Nai Kiran' program for adult literacy is conducted by the Grampanchayat of Nagalwadi.

Also, about 50% houses in the village has newspapers in their homes for reading. Adults including women take great interes in reading newspapers and keep themselves connected to the outer world by reading news.

There are about 10-12 women saving groups including 10 women each. They work and earn by rolling papads. Also, women work in insence stick factory for their livelihood.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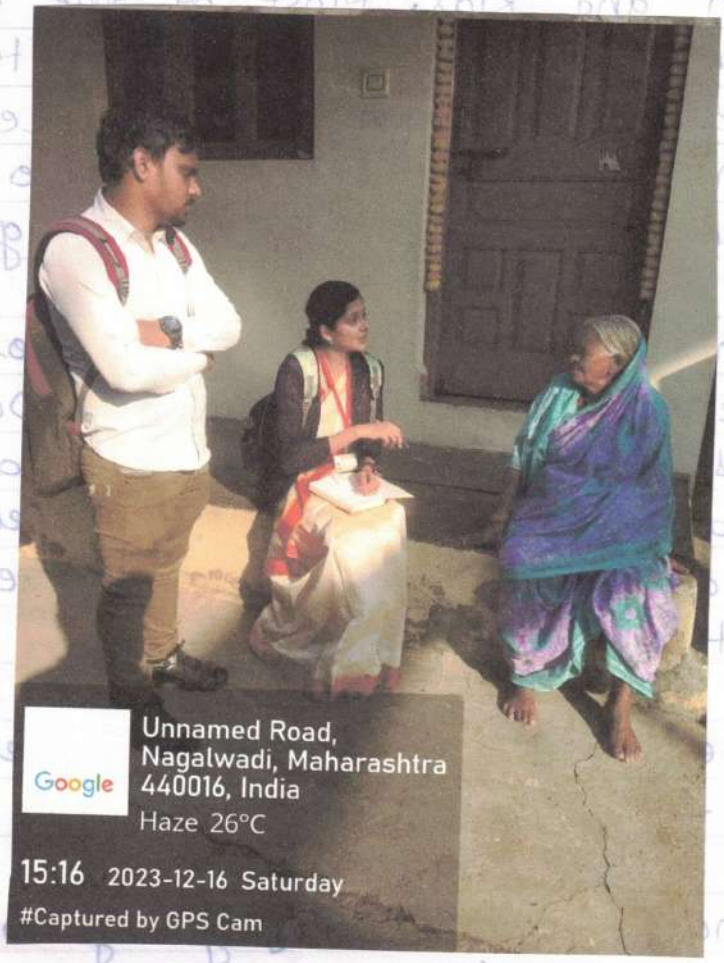
We roamed in the village talking to men, women and kids. Most of the men and women of the village are literate. Also, the ones who are having reading and writing qualities are trying to self educate themselves with the help of grampanchayat.

There are mathematical formulas and expressions written on the walls of shops, houses which teaches basic mathematics. We came across some women who are now old, but they are able to do all the two digit arithmatic.

These adults and children were so interested that they answered all our questions. They wrote their names on our diary just to show us their joy of being able to read and write.

Men in the village gave us information about their interest in the bank transaction politics and other topics they are interested. I personally felt this connection to the literacy.

Also, we observed that many people had full-time obligations at home as well. They found it difficult to manage all their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obligations and still managed to learn and keep in touch of reading regularly. Some adults even had confidence to put their thoughts in a strong and firm manne They just need a small push to motivate themselves for re-starting their education.

While studying for the adult literacy aspect of the village, I concluded that if literacy rates in the society and country are improved, it will allow these adults to reach their full potential in their personal lives as well.

This will help the adults to gain more confidence to step out of their comfort zones and explore more of the world.


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Criteria

Criteria for eligibility for an adult education program-

Eligibility for adult education services includes a person who fits in any one of the following criteria-

1] They are 16 years of age and older and not enrolled in school.

2] do not have basic education skills.

3] do not have a high school diploma or its equivalent.

4] need to improve their ability to speak read or write the English language

The typical low literate adult is likely to have an income close to the poverty level, be older than 25 with less than a high school diploma, and live in a rental housing. Their children are likely to attend low performing schools in town. While a literate adult expects proper educational facilities for their children.

Name of Practical

The changing Definitions of Literacy

A literate adult has-

1865 - 1] The ability to sign or mark one's name

1900 - 2] The ability to do basic reading, writing and calculations.

1950 - 3] The ability to read and write with understanding a short simple statement about one's life.

2000 - 4] The ability to use printed and written information to function in society, achieve one's goals and develop one's knowledge and potential.

2006 - 5] Adequate information literacy, health literacy, computer or digital literacy, quantitative and workplace literacy to manage one's life, health and family.


स्थापना)
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Need and Challenges -

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Need and challenges of Adult Literacy in India -

1] A large number of people in India are devoid of education, the country cannot progress.

2] There are a lot of reasons due to which many people could not continue for higher studies or opt for the course which they had an interest in.

3] Adult education will enable people to complete their studies if they were not able to complete the same when they were a student.

4] This will help them to get a job opportuni in their own feild of interest.

5] It is also useful for people who require a promotion in their jobs.

6] Adult education aims to help in attaining literacy.

7] Adult education makes society more strong by educating its adults and making them self reliant.


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Conclusion

Conclusion

Adult literacy is the ability to write, listen and speak. Adult literacy includes both basic literacy and knowledge pertaining to the civic needs, personal hygine and adopting political and occupational skills. India has over 35% of the population of the world's total share.

Adult learning can be formal, non-formal and internal, motivational. We know that education is not a time-bound activity or pursuit. Both education and knowledge are ongoing processes that occures for the entire lifetime of an individual. As the saying goes, we learn something new everyday Even formal education is not solely the privilege of children or young adults. Adult education gives mature adults a chance to learn more and hone any specific skills they wish to.

Adult education consists of offering mature adults various educational options to learn new skills or develop the skills they already possess. It is the means of providing education to adults beyond the traditional school or college education

Name of Practical

we offer to them as children. Adult education can either be formal, vocational recreational and social.

Adult or continuing education takes a different approach than traditional college and school education. We have to take into effect, that these adults are already experienced and most likely a part of the workforce. So, the curriculum and teaching methods must be adopted to take this into consideration. The importance of adult education lies in the fact that it builds on the knowledge they will already possess.

The main aim and importance of adult education are to the level playing feild for certain adults in the professional world. So, with access to the education they have a second chance at a better career or an advancement in their current career. They can even develop new skills that will help them with their professional lives. While expanding their knowledge and skillset, they can also expand their career prospects. And such adult education also teaches the students how to put their skill and knowledge into practical use.

Name of Practical

Another advantage of adult education is that it improves the literacy rates of the society and the country as a whole. Improving their basic literacy will allow adults to reach their full potential in their personal lives as well. So, they will gain more confidence to step out of their comfort zones and explore more of the world.

While we saw advantages and the importance of adult education, we cannot ignore that there are some notable challenges that we face with the concept of adult education. The most noteworthy is that the adults have to usually balance a full time job and career with such educational activities. They find it difficult to find the time and the energy to balance both.

At other times, the person may have full time obligations at home as well. They find it difficult to manage all their obligations and still manage to attend classes regularly. Some adults even lack the confidence and the motivation to return to the classroom after many years.

Name of Practical

The concept seems vague and foreign to them and they may often require a nudge to re-start their education.

Over the last few decades, government of India has started and promoted various programs for adult education and skill development. The main aim of these programs is to boost literacy rates among the backward areas of country. Their aim has also been to boost the literacy rates of the scheduled caste, scheduled tribes, rural women and other often ignored minorities of our country. Two of the main schemes that have seen some success are the "Saakshar Bharat" scheme and the "scheme to support Voluntary Agencies for Adult Education and Skill Development".

The government also provides aid and help to other NGO's that are working towards promoting adult education in our country.

Name of Practical

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Teacher's Signature.....

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SHEELADVI COLLGE OF EDUCATON WADI, NAGPUR

2023-2024

B.ED 2nd year III ed Sem

TOPIC - LIBRARY & LAB MANAGEMENT

NAME - UMITA B. MESHRAM

Shree Radhe

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INTRODUCTION

"The child shall have the right to freedom of expression this right shall include freedom to seek receive & improv information & ideas of all kinds regard less of formthere either clearly, in writing or in print. in the form of art or in print in the art through any other media of the chil choice literacy provides information & ideas what are fundamental to function successfully in today's into functioning sucessfuly in todays formation & knowledge based society.

Literacy plays a vital role in encourag & promoting the process of learning & gaining the knowledge people who love reading can have access a wide range of books & resources. It provides educational resources to everyon

Reading improves social knowledge mental health. academic performance & effeer numerous other benefits.

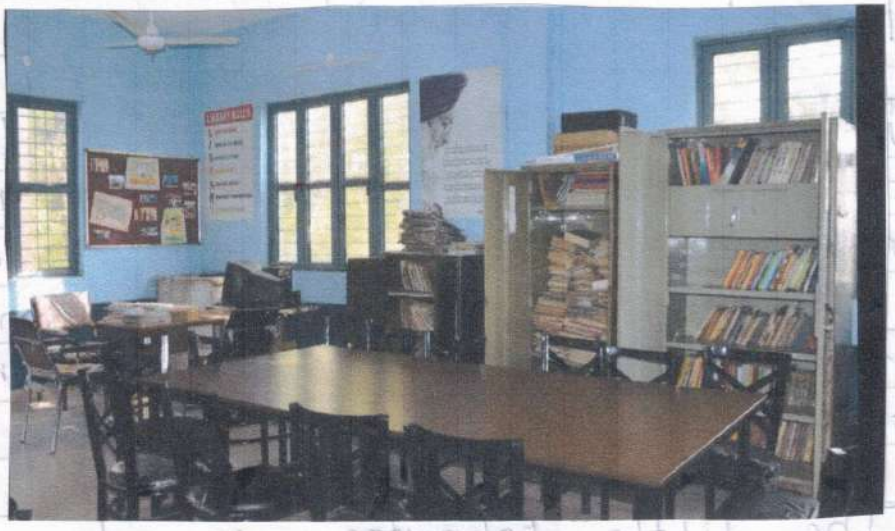
Same as the laboratory is a facility

that provides controlled condition in wh
scientific or technological resedrch, experimen
& measurement may be performed.

Laboratory services are provided in a variety of settings physicians, offices clinics, hospitals & regional & national referral centres.

The organization & contents of laboratories are determined by the differing requirements of the specialist working within. A physics laboratory might be a particle accelerator or vaccum chambe it contains.

The little laboratory is also used for contain other facilities where the process or equipments used are similar to those in scientific laboratories.



HISTORY

The ancient literarcy in Alexandra, founded in the fourth century. B.C.E was a treasure written manuscripts. Medieval literarices. comprised collections of hand copied illuminated manuscripts that were typically created & maintained by monks & used by privilaged closers manuscripts were often as valuable. as forms of houses.

An early print format put into the hands of children & used for reading instructions from the fifteenth to the erghteenth century was the hornbook, typically a small wooden paddle with printed paper posted on top & covered with translucent horn by the seventeenth century the concept of books created specically for young people was established with such works as the first picture books sensualium pictus by Johann Amos Comeneus in 1667.

The invention of printing press in 1455 promised young people, greater acces the printed material & phillasophers like

John locke (1632 - 1704) & publishers like John Nearlery (1713 - 1767) promoted mater that were both promoted material that were both pleasurable & informative to young people, yet well into the twentrenth century looks & other learning material remained expensive & rare for most young people in the United states.

Whereas, the early laboratory according to the present evidence is a home laboratory of pythagoras of sa the well-known aneek phillosopher & scientist. This laboratory was created when pythagoras conducted an experiment about tones of sound & variation of string

In the painting of loul's pasteur by Albert edeltelt in 1885, law's pasteur is shoper comparing a note in his left hand with a bottle filled with of. solid in his right hand & not wearing any personal protective equipment.

Researching in teams started in the 19th century & many new kinds of equipment were developed in the 20th century.

A 16th century underground chemica laboratory was accidentally discovered in the year 2002. Holy Raman emperor was belived to the owner. The laboratory is called spectum ~~aehi~~ chemicals & is preserved as a musum in prague.

Early instance of laboratories recorded in english involved alchemy & preparation of medicines.

The emergence of big science during world war II increased the size of of laboratories & scientific equipment introducing particle accelerators & similar devices.

Laboratory services are provided in a variety of setting physcians offices, clinics, hospitals & national regional referral centres.

MEANING OF LIBRARY

A room or building containing collection of books for reading coll- or reference. A literarcy is an organized collection of sources of information & similar resources made accsible to a defined community for reference or borrowing it includes books, prdical, newspaper, menscripts, films, maps, print, documen micro form CDs, cassetles, videotaper, DVD Blue ray disc, e-books, audio books data bases & other formats

Library is considered as the heart centre of school. learners come to gain knowledge, solve their problem, accumulat wisdoms etc. It can be forms as intellectual laboratory of school.

According to oxford dictionary, library is defined as " a building or room containing collection of book, periodicals & recorded audio to use or borrowing by the public or the members of an institution

Shiyali Ramamita Ranganathan. Indic

librarian & educater was considered the father of library science of India.

The word library comes from the latin word 'libraria" or "a place where books & other writing are kept.

Library is associated or connected with a school & used by the student teachers & staff of that school is called school library. Library is a place where school are social mental & cutural development of children take place. It i place where luck of whole community is being written.

Library is an investment for econom growth as a mean to improve hukan valuer & to create integrated modern ized society.

According to compact oxford retrono dictionary, 'library is a building or room containing a collection of books & periodicals for all the public or the members of an institution.

In the words of J.H. shera 'library is product of our cultural maturation.

Library is a place set apart in contain books for reading studying for reference in various application

According to John Dewery "School library is the heart of the school. It is not only deals with children who are eager to read, but also with backword children who read wi difficulty & so required verbal aids & all kinds of incenteres to study

MEANING OF LABORATORY

A laboratory is defines as a pl aquipped for experimental study in science or for testing & analysis. It is a place providing apportunity f experimentation, obeservation or practis in a field of study.

A laboratory is a building or a ro where scientific experiments analysis & research are carried out. A laborator in a school. Collage or university is room containing scientific equipment where students are taught science subjects such as chemistry, physic, biology, computer science.

The word laboratory derive fro the medieval lattin word laboratoric which in form dervies from the latin laborate, meaning a labour or tranviller in french.

QUALITIES OF LIBRARY & LAB

Qualities of library

- Fill of natural light
- Shelves are easy to reach
- Technology is accessilde to patrons & visible to staff.
- Seating for collaboration & for independant work.
- Distinct zone for different uses.

- Good spacious space along with natural light
- Lab equipment allows student to interac with the data gathered.
- Sufficient supply of fresh air to laboratory should be maintained at all tim
- A lab requires a no. of apparatus & equipments.
- A well - planned storage system needed to kept equipment & store properly.

OBJECTIVES OF LIBRARY

- Library is an important cornerstone of healthy community
- Library gives people opportunity to find explore medical research experience new idea get last in wonderful stories. while at some time providing to sense of place for gathering.
- Library is place of where you not only gain knowledge on various topic but it also preserve history & real truth that is barried deep into time
- Library include habit of reading & it is advisable for school to have library so students can impact positively & shape their mind.
- To develop vocabulary & literacy skills
- To help them generates new ideas to various activiter.
- Effective teaching & learning of science involves a prepetual state of show & tell.

- It is also belived that laboratory teachi & experiment that are being conducted help encourage deep understanding in children.

- Children are able to retain knowledge for longer when they are see experimen being performed infront of their eyes

- To develop scientific attitude & interest development of manipulative skill

- In doing laboratory work the pupil get a change for activity both physical & intelectual & they are learning by doing.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FUNCTION OF LIBRARY & LAB

Functions of school library -

- It provides suitable documents.
- It makes available text books & other additional reading material
- It procures handy documents illustrated picture books with bold & large font to create interest of children in reading
- It procures latest teaching learning material CD, audio-visual etc to improve teaching skills of teacher.
- It keeps reference books dictionaries year books, directories, travel books.
- It provides books of simple & meaningful stories of classes, Panchtantra, animals & birds to give moral value & ethics to children.
- It procures magazines like India today readers digest etc. different newspaper & other light reading material like

friction books genral knowledge book, poetry book.

Function of Laboratory -

- It facilrates that provides controlled cond in which scientific or technological research, experiment & measurment may be performed.
- It enhance students learning by understanding theoretical concepts of science which are taught in classrooms.
- Laboratory provides various practical experiences starting from theory of physics, chemistry to biology.

It is important because pupil exprience the new thing with the available resources.

SCHOOL LIBRARY

A special library is library that provides specialized information resources on a particular subject. A school library is a library within a school where students, staff & often, parents of a public or private school have acces to a variety of resources.

Reaserches have demonstrated that school libraries have a positive impact on students achievement through more than 60 studies that have been conducted in 19 U.S states & one canadian province.

In addition, a study conducted in Ohio revealed that 99.4% of students surweyed belived that their school library media program helped them succeed in school. A reporte that reported similar conclusion was complied by michele tonsdale in Austril in 2003.

The major finding of there stud was that students with access to a well supported school library media program

with a qualified school library.

ACADEMIC LIBRARY

An academic library is a library the is attached to a higher education institution & serves two complemetary purpose to support the curciurlum & to support research c university facility & students.

Acedemic library must determine a focus for collection development since comprensive collection not feasible, librarians do this by rdentifying needs of faculty & student bod as well as mission & academic program of colleage or university. When there ar particular areas of specilization in academ librarier, there are often refered to a niche collection. There are often refered t as barts of a special collection departm & may include original department & may include original paper, artwork & attracts written or reated by a single author or abo a specific subject.

The university of califonia operates larger academic library system in world mangi. more than 34 millions items in 100 librari items in 100 libraries.

RESEARCH LIBRARY

A research library is a library whic contains an indepth collection of material on one or several subject A research library wi generally include primary resources as well as secondary source, large university libraries are considered research & attain contai many specialized branch research libraries.

Reasearch libraries provides acess to a wide range of the care academic research institution supports a community of students & faculty scholars in-depth informatn about a wide variety of topics.

A research library is often connected to services of university relate to scholarly communication such as support for open acess journals run by institutn & operatn of an institution respository as well as support for the usage of other institution respositorures & open archives.

SPECIAL LIBRARY

A special library is a library that provides specialized information resources on a particular subject server a specialized & limited clientele & delivers specialized servi to that clientele special libraries include corporate libraries, government libraries, law libraries, medical libraries government libraries museum libraries, news libraries.

Special libraries may or may not be open to genral public. Those that are open to genral public may offer services simila to research, reference public academic or children libraries often with ~~re~~ restrict such as only lending books to patients at a hospital or restricting public from part of a military collection.

Many special libraries are not open to genral public though access may be requested special libraries are also sometimes know differentiate special libraries from information centres by defining the latter as having a very narrow scope.

NATIONAL LIBRARY

The national library is a library specifically established by the government of a country to serve is pemanant repository of information for that coun unlike public libraries, there rarely follow c allows citizens to borrow books oftens they include numerous rare, valuable o significant works.

The 1st true national library was founded in 1753 as part of British museu Anthony Panizzi become principal librarrage at British Museum in 1856 where as he Oversaw it's modernization.

One of the main goal of national library is fultils nations part of common international goal of universal literation.

The national library is a result of merging of public library with imperial libra several government libraries. National library (19 then imperial library housed several foreign & Indian titles & was open to the public. It collects books, periodics & titles in vertically all the Indial language while special

collection in national library.

REFRENCE LIBRARY

A reference library is a library that contains book which you can look at in library itself but which you cannot burr A reference library does not text books & other items instead they must to read at library itself.

Typically such litbr libraries are use for a research part for example at may historical & even unique. Many lending librar contain a reference book & are therefore not lent out such reference sections may referred to as reading rooms which may also include newspaper & periodicals

An example of a reading room at the Harry Bonsom reading room at the Harry Ranson entre of the university of texar & ourten which maintain the paper.

LIBRARY & LAB MANAGEMEN

Library management is a rule discipli of institutional management that focuces specific issues faced by libraries & library management encompases normal mangeral tasks as well as intellectual freedom & fundraising responsibility Issues face in librering management frequently overlap with those faced in managing non-profit organization

A school library management system is used to automate school liberraires & manage all the inhouse operation of schools. Library management software is a powerful & easy to use tool that liberarians can used to manage library data efficiently studies can borrow books through a methodical organized system from the aquisition of materials books & periodicals in the library to its catologing & maintanance. It is developed maragged & supported to acheive the schooles vision & target.

RULES & REGULATION OF LIBRARY & LAB

Rules & Regulation of Library

1) The student should compulsory bring their membership card/library card in the library

2) The students should maintain silence & not disturbe the other users of library

3) The usage of mobile phones is not allowed in the library

4) A person ~~of mobile phones is not~~ can issue only 2 books at a time

5) A person can issue only shall return a book with 10 days of issuing the books

6) If the person loses book issued from the library then he/she has to provide a new copy of same book as fine.

Rules & Regulation of lab -

1) Wear a lab coat

2) Do not run in lab

3) Do not play in laboratory & be alert to surrounding

4) Laboratory is place to work on chemical which involves acidic basic & some oxidizing chemicals that may be hazardous your reckles action may cause damages

5) Follow instructions

6) Remain silent

7) Don't eat or drink in the laboratory

EDUCATIONAL IMPLICATION

- Students learn how library is important in education
- It becomes clear how library is managed & used.
- Reading habit is developed.
- Acess to many books help to gather knowledge variety of subjects areas help to users to build awarness & creativity.

- Name of Library - Sheeladevi
- Establishment : 2005
- Director -
- No. of workers in library -
- Timings - Opening Time - am
  Closing Time - pm

WHO CAN VISIT ?

The library is open for only school students & provides services for reading books, book issue & a self study corner for all aspirants of competitive.

Total numbers of books -

The collections includes language books about 600 books in different language that include Hindi, English Marathi, sanskrit.

. Manscripts maps & lithographs are also available in the library.

Genrals Aavailable

There is a wide selection of books available on history, literature science, travel, cultures etc. They have a special section dedicated to book on history & culture library science as well as ~~lib~~ daily newspaper & current affairs magazin

Membership -

A school library provides a membership to all students with a minimum fee charge which is added in school fee. A member can issue a book for 7 days. The library has no digital cataloging & one has to go through stocks of alphabetically & genre wise arranged name code cards to find books. We recomend that you go here with extra time on hand.

Location -

Other Information -

Sheeladevi school library indisponsible part of wadi, Nagpur. professionals have been hired to handle the rare manuscripts & books with perfection.

Infrastructure

- A wide range of latest fiction, Poetry, prose, magazines, comics, newspaper, text books, CDS, DVD's etc
- Book week is organised every year.
- There is facility of computer
- Seprate seating arrangement for public staff.
- Facilities of study tables, chairs, furniture & basic such as water, electricity etc
- Magazines display stand newsletter stand reference corner! wall shelves etc.

Environment of Library -

The library is a place for learning & reflection & their staff supports there activities by provide helpful responsive & Knowledgable service mutual country & respect among users are mission of library. The environment of library was very good & they instantly provide access to library Informatn

resource through enhanced catalogue. There is also greater availability of library material

Biography & Autobiography -

The sixth extinction in cold blood, silent spring. Into thin, air etc.

Journals -

Abernathy's surgical secrets. Academic & professional publishing acoustic signals & hearing, acheving tranformational change in academic libraries etc.

Literature -

The hand maid's Tale. American the Mhabharat., The Geeta, The Ramayana, The Quran where the Garuads sing etc

There were a no. of books including action & adventure, comics, novels, detective & mystry, historical books, however horror library fiction, science fiction, shout stories, suspense & thrillar, brographic & autobiographics.

LIBRARY CARD

In this library, library card is termed as membership card. A defined amount is paid to get this membership card. A person who hold this library card has borrowing or other privillage associated with the library books.

Other Arrangements -

In the library building arrangement of light & air was provided. Proper light & air is important because light can help us see the books & read properly. Air gives a claming effect & helps concentrate better.

Organisation of Books

The library use library of congress classification system. But materials in the library are also grouped. Initially it was a huge library having grouped of newspaper periodicals.

Magazines -

Dainik Jagaran, Hindustan, Amar ÷ ujala, The times of, India, the Hindu, the Indian express, the hitavad, hindustan times.

Fiction & Non- fiction Books

The diary of young girl, long walk of freedom, main kampf, wings of fire, etc.

REPORT WRITING

One of my interesting list to school library & laboratory during the free period. The librarians greeted me with a very pleasant smile on her face as always. My favorite section is the clabent with novel & plays. I love reading short stories novels & dreams. There is well venlitated library along with proper light. I sat on the chair at the end of the table in the row. My experience was so wonderful & was so happy with all the facilities are present in library.

After that I visit to lab of school The liboratory is full equpped with apparatus & chemicals. Also there is a proper safety measures. A fire extinguisher is their in the lab also specimens available are always fresh & latest. Both the there library of physics, chemistry, computer are well equiped. It has helped in developing a scientific approch among young scholars.

CONCLUSION

The library facilitites everyone with access to essential resources & learning material for a smooth learning process. It plays a vital role in everyone's life. The design . modern tools & strategis of the liborarries change with the changing times.

The library is these a leap in the advancement of the library. Education & library cannot exist alone & one inseperable. The library is can essential part of educational system

Once I visited library & lab I smiles to myself & was greatfully for such a wonderfully experience. I was so happy that I thanked the labrarian & lab attendend several times for recommunication such a great books I closly observe the working system & management of library with my friends & teachers

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Practical

SHEELADEVI COLLEGE OF EDUCATION

WADI NAGPUR - 440023

B.ED I - SEM

Session - 2023 - 2024

Practical - EPC2 - Reading & Reflection Of Indian Educator

Name of Indian Educator - Swami Vivekanand

Submitted By - Jaya D. Pawade

Teacher's Signature .....

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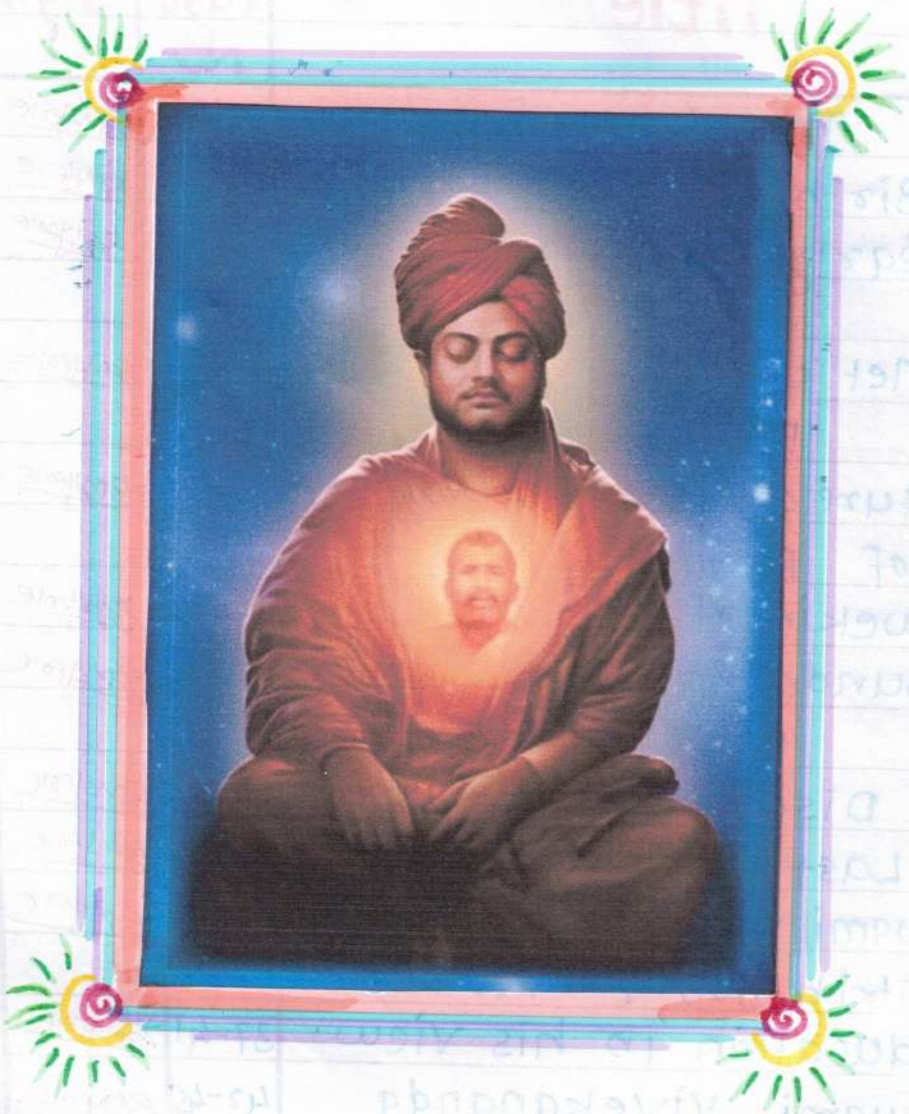

me of Practical

Date of Birth	January 12, 1863.
place of Birth	Culcutta, Bengal presidency (New Kolkata in West Bengal)
Parents	Vishwanath Dutta (Father) Bhuvaneswari Devi (Mother)
Education	Culcutta Metropalition School, presidency college, Culcutta.
Institutions	Ramkrishna Math Ramkrishna Mission Vedanta society of NewYork.
Religious view	Hinduism
Philosophy	Advaita Vedanta.
Publications	Karma yoga (1896) Raja Yoga (1896) Lectures from Columbo to(Almora (1897) My master (1901)
Death	July 4, 1902
Death place	Belur Math, Belur, Bengal.

Introduction :-

Swami Vivekananda is a name that does not require any sort of introduction. He is an influential personality who is credited with enlightening the western world about Hinduism. He represented Hinduism in the Parliament of Religions in 1893 in Chicago & due to this an unknown monk of India suddenly leaped into frame. National Youth Day is observed on 12 January to commemorate the birth anniversary of Swami Vivekananda.

Swami Vivekananda founded Ramakrishna mission on 1 May 1897 for one's own salvation and for the welfare of the world. Do you know his lectures, writings, letters & poems are published as The complete works of Swami Vivekananda & He always focuses on teaching universal principles rather than personalities. He had tremendous intellect. His unique contributions always enlighten & awaken us. He was a spritual leader and social reformer.

Swami Vivekananda was a great thinker, great orator and passionate patriot. It is not wrong to say that he was more than just a spiritual mind.

Swami Vivekananda was born on 12 January 1863, in (Calcutta earlier) kolkata. He was a spiritual leader and social reformer. His lectures, writings, letters, poems and ideas motivated not only the youth of India but also the whole world. He is the founder of Ramkrishna Mission and Belur Math in Calcutta, which are still working towards helping the needy. He was a man of wisdom and a very simple human being.

"Arise, awake and stop not until the goal is achieved"

- Swami Vivekananda

me of Practical

Birth and Childhood :

Whosoever knows the longing of a mother that a son shall be born to her, enters into the world where lived Bhuvneshwari Devi Datta, the wife of Vishwanath Dutta. In common with mothers the world over she longed for a son to carry on the family tradition, to be the link, forged out the materials of love and suffering, between the future and the past. As she went about her daily tasks she prayed silently that her desire might be fullfilled. Now, it was customary in those days - and still is - for one living a long distance from Varanasi who was in dire need, or desirous that some special event should come to pass, to make offerings and sacrifices to shiva through any relatives ~~residents~~ and friends who might be residents of Varanasi. So Bhuvneshwari Devi wrote to an old aunt of the Datta family in Varanasi to ask her to make the necessary offerings and praters to Vireshwar shiva that a son might be born to her. When word came that this was

being done she was content to wait be answered. she spend her whole days in fasting and meditations, her whole soul given over to constant recollectedness. Her entire heart fixed in love on the Lord shiva. Often did her mind go to varanasi, uniting in thought with the venerable aunt as she poured the sacred water of the Ganga on the symbol of the most High or as she worshipped, Him with flowers and mantras. one night she had a vivid dream. she had spent the day in the shrine, and as evening deepened into night she fell asleep. Hushed in silence was the house-hold, hushed in silence and rest. then in the highest heaven the hour struck- the time was come for the saintly Woman to touch the feet of the Lord. And in her dream she saw the Lord shiva. arouse himself out of his transcendent meditation and take the form of a male child who was to be her own son. she awoke. could this ocean of light in which she found herself bathed but a dream? shiva! shiva! Thou fulfillest in various ways the


"Believe
in yourself & the
world will be at
your feet"

prayers of the devotees! From the inmost soul of Bhuvaneshwari Devi a joyous prayer welled up, for she was confident that her long months of expectancy were over and that the vision was but an announcement. that her prayers were to be answered. Her faith was justified. and in due time her son was born.

The light of the world dawned for the first time upon the future Swami vivekananda on Monday, January 12, 1863. It was the holy hour of dawn just six minutes before the sunrise. At the time of his birth the constellation sagittarius was rising in the east, the moon was in the constellation Vigro, the planet Jupiter was in the eleventh house, and Saturn was in the tenth that of his birth. It was the seventh day of the moon in the month of Poush which is the ninth month of the Bengali year and as chance would have it. It was the day of Makar Sankranti, a great Hindu festival. The million of men and women who were observing the festival unconsciously greeted the new

born babe with prayers and worship, little thinking that he who was to usher in new age of glory and splendour for his country, who was to reorganise the spiritual and national consciousness of Hindustan and become a great Apostle - another St. paul - preaching unto the world the Gospel of another redemption - the message of another ~~redemption~~ vedanta - had, on that day, first seen the light! And only a few miles north of Calcutta in the Garden of Dakshineshwar there waited one for the coming of this babe who was to grow up and carry on his great work! of which more later.

Narendra Nath was a naughty child, subject to fits of restlessness during which he was beyond control. At such time he would wear the family out. Brides, threats - nothing was of any avail. Everything was tried, but in vain. Finally Bhuvaneshwari found that if she poured cold water on the head of the screaming child, at the same time chanting the name of shiva in his ear, or threatened him with " shiva will not let you come to

Kailash if you do not behave"; he would quite down and become his eager, joyous self again. It was after such scenes that the mother used to say, "I prayed to Shiva for a son and He has send me one of His demons"! Aside from these outbursts he was a sunny-tempered, sweet, loving child, but of such an exordinary restlessness that it took two nurses to take care of him.

The boy had a great fancy for wandering monks. Whenever a sadhu came to the door, Naren was delighted. One day a monk came and asked for alms. All that the boy had was a piece of new cloth wrapped round his waist. Straighway he gave it to the sadhu who plaed it on his thead and went away. when asked what had become of the cloth, the boy replied, "The monk begged me for alms and I gave it to him." Thereafter whenever a monk appeared the boy was locked up. But that did not disconsert him.; he would throw out of the window to the monk anything the room contained as an offering; and then enjoy the excitment.

The first education is always at

of Practical

the knee of the mother. Naren used to tell later how his mother had taught him his first English words and he mastered the Bengali alphabet under his tutorship. It was at her knee that he first heard the tales of the Ramagana and the Mahabharata, and it was no doubt that he thus caught some of the dramatic fire and force that he exhibited later.

The first seed of spiritual life was sown at this period. His boyish imagination was captivated by the life of Rama, and he purchased a clay image of Sita-Rama and worshipped it with flowers. One day, when no one was about, he and a little Brahmin boy climbed the stairs that led to a room on the roof above the women's quarters. They installed the image, closed and locked the door and sat down to meditate. After some time Naren was missed and an anxious search for him was begun. The hunt led at last to the little locked room on the roof. The searchers knocked and shouted, but there was no response. In great fight fearing that something had happened to

Practical

to Naren they forced the door and found the two boys seated in deep meditation before the flower-decked image. One day Naren heard someone vehemently denouncing marriage. The difficulties and absurdities of married life were painted in such dark colours, that he was terror-stricken and he thought of his little image of Sita-Rama which he had been worshipping. "If marriage is so bad what has a God to do with it?" said the surprised boy to himself.

So he threw away his cherished image of Sita-Rama and bought one of Shiva instead on which to lavish his devotion. ~~But~~ At the age of six Naren went to Pathshala the school where the boys are initiated into the three R's. But schools are strange places where one is apt to meet with strange compades, and after a few days he had acquired a vocabulary which quite upset the family's sense of propriety. Never again, determined all the household, should he go to school. Instead, a private tutor was engaged, who conducted classes in the ancient worship-hall for Naren and some of other

boys of the neighborhood. Soon Naren was remarked for his exceptional intelligence. He learned to read and write while the other boys were wrestling with the alphabets. Naren's memory was prodigious. He had only to listen to the tutor's reading to get the lessons. At the age of seven he knew by heart almost the whole of Mugdhabodha, a sanskrit grammar, as well as passages of great length from the Ramayana and the Mahabharat. On certain occassion, a party of wandering minsterls who earned their livelihood by chanting the Ramayana, came to Naren's house. They made a number of mistakes in the text, whereupon Naren stopped them and pointed out their errors, greatly surprising and pleasing them.

There is a lasting quality in the friendships formed in childhood which makes them endure through later ~~later~~ years, sometimes even to death. The boys whom we see playing with Naren will be recognised later on as the friends of his manhood, over whom he still maintained the leadership acquired as a boy when none could approach him without first

acknowledging his supremacy. His favourate game was "King and the Court". The throne was the highest step of the stairs leading from the courtyard to the Puja-hall. There he would install himself. No one was allowed to sit on the same level. From there he created his prime Minister, commonader-in chief, Tributary princes and other state officials and seated them on the steps according to their rank. He enacted a Durbar and administered justice with royal dignity. The slightest insubordination was put down by a disapproving glare.

The Sage who was his teacher in later life said of this: "Had Naren's power not been checked by this accident, he would have shattered the World!" As it was, he raised the world!

Those who are to change the thought of the world as did Plato and Aristotle, to alter its destinies as did Alexander and Caesar - are from their childhood conscious of their power - they are instictively aware of the greatness which is to come. Narendra Nath, too, felt the spirit of greatness within him; he saw things to which others of his age

Shanu Bhuvanendra
Class 10th

were blind, and the felt already; in the feeble and yet certain way of a child, the struggle which was to be his for expression.

In his childhood, Naren used to tell his friends, I must become a sannyasin (a monk), a palmist predicted it, and he would show them a particular straight line on the palm of his hand. Later a famous palmist Cheiro also predicted the same about his becoming a monk.

About Narendra, his college Principal William Hastie said, "Narendranath is a genium. I have travelled far and wide, but I have never yet come across a lad of his talents and possibilities, even in German universities amongst philosophical students. He is bound to make his mark in life!"

শ্রীমতী ভুবনেশ্বরী দাসী

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Bhuvaneswari Devi : Mother of Swami Vivekananda

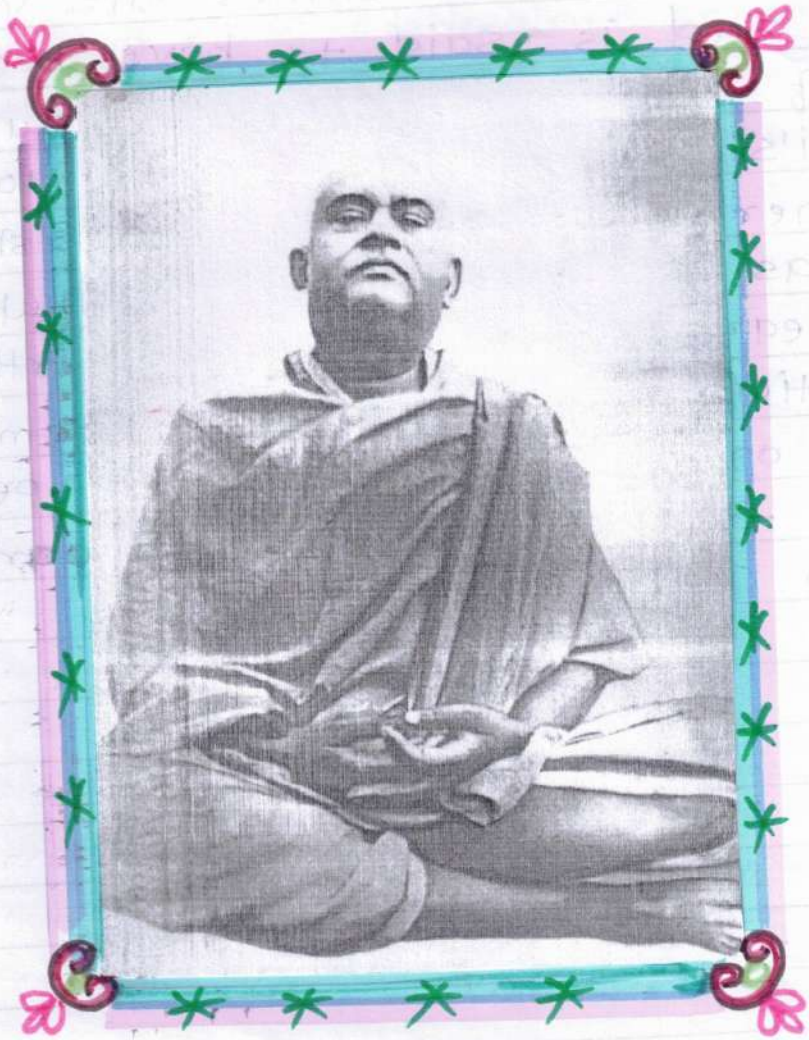
Mother of Swamiji, goodlooking lady with strong physique, possessed keen intelligence, a prodigious memory, taste for music and all-round versatility. Pious and well-versed in Ramayana and Mahabharata could recite well. Only daughter of Nandalal Bose of 7, Ramtanu Bose Lane, Simulia. Of her four sons and six daughters, Only Mahendranath and Bhupedranath and Swarnamayee, her third daughter, lived up to a ripe old age. Her children, Swamiji in particular, inherited her physical and mental characteristics to a fair extent. According to Swamiji her power of recall was stronger than his. Handicapped in rearing her children by premature widowhood, animosity of relative and poverty, was compelled to seek shelter in parental home, living with her mother till 1903.

A spirited woman, she handled her mischievous little son "Biley (Narendranath) very ably in his

childhood and taught him English herself at home when he stubbornly refused to learn "a foreign language" at school. Saw the Master several times at Ramchandra Datta's house who presented her with a sari for use during worship. Even visited the Master at cossipore but though her son was deeply devoted to her, failed to persuade Narendranath to return home leaving the bedside of the ailing master.

As mother of Swamiji, received a letter of feliciations from his American lady- devotee with a picture of virgin Mary with the child Jesus. She was proud of her youngest son Bhupendranath's fiery patriotism and consequent incarceration, being felicitated at an assembly in Dr. Nilratan Sircar's house at 61, Harrison Road on 9.8.1907 wher she was presented with a scroll of honour. In her reply she declared she had dedicated her son to the cause of the country. In swamiji's last years she visited Chandranath and other pilgrimage sites in East Bengal with him. Later too went on pilgrimages accompanied by some

monk or brahmachari and puri once with swami Brahmananda. When swamiji was at Belur Math sometimes she visited him there and is said to have been by the side of her dead son on 4 Jully, 1902. Swamiji's brother-monks had close ties with her and respected her. She regarded them as her sons and contributed Rs. 10 each year towards Swamiji's birthday celebrations, which either swami Brahmananda or Swami Premananda personally collected from her. Bhuvaneshwari Devi died in Jully 1911.



Vishwanath Datta: Father of Swami Vivekananda

Vishwanath was born to an aristocratic Hindu family of North Calcutta. His father Durgaprasad had preferred the life of sannyas and home when Vishwanath was only six years old. His mother Shymasundari Devi was an educated woman. she wrote a Bengali poetical work "Gangabhakti Tarangaini". Durgaprasad and shymasundari had two children - a daughter, who died at a young age, and then a son Vishwanath. Shyamsundari died of cholera in 1847. At the time of his mother's death, Vishwanath was only 12 years old. The now orphaned Vishwanath was brought up by his uncle Kaliprasad Datta and his wife Vishweshwari Devi.

After completion of graduation, in 1859, Datta worked as clerk under an attorney, charles peter. He was an enlightened person of the 19th century, free from religious superstition, known for his charity and liberal outlook. He was well versed in sanskrit, Hindi, persian, arabic and urdu languages.

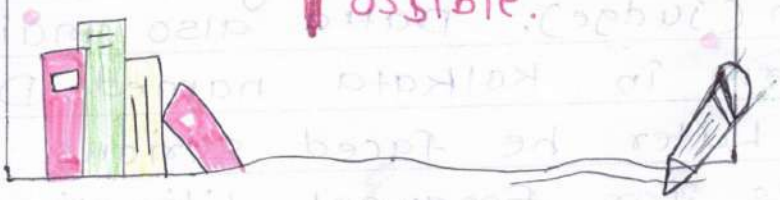
He married Bhuvaneshwari Devi in 1851, and had nine children. Among them, 4 daughter and 3 sons survived - Haramoni, Swarnamoyee, Kiranbala, Jogindrabala, Narendranath, Mahendranath, Bhupendranath. Narendranath Dutta, his sixth child and second son, who later became famous as Swami Vivekananda, was born in 1863.

In 1866 he applied for the post of proctor to Barnes Peacock, the first chief Justice of Calcutta High Court. His prayer was approved by Justice Walter Morgan (judge). Datta also maintained a law firm in Kolkata named Dhar and Datta. Later he faced serious economic troubles for frequent litigation and laws-suits Datta family.

Datta wrote a Bengali autobiographical novel named Swlochana based on joind family dispute. In 1882 the novel was first published in Kolkata (then Calcutta.).

Vishwanath Datta was working as a successful lawyer when he died in 1884 at the age of 49. He was suffering from diesease diabetes and heart ailments.

"Educate and raise the masses, and thus alone a nation is possible."



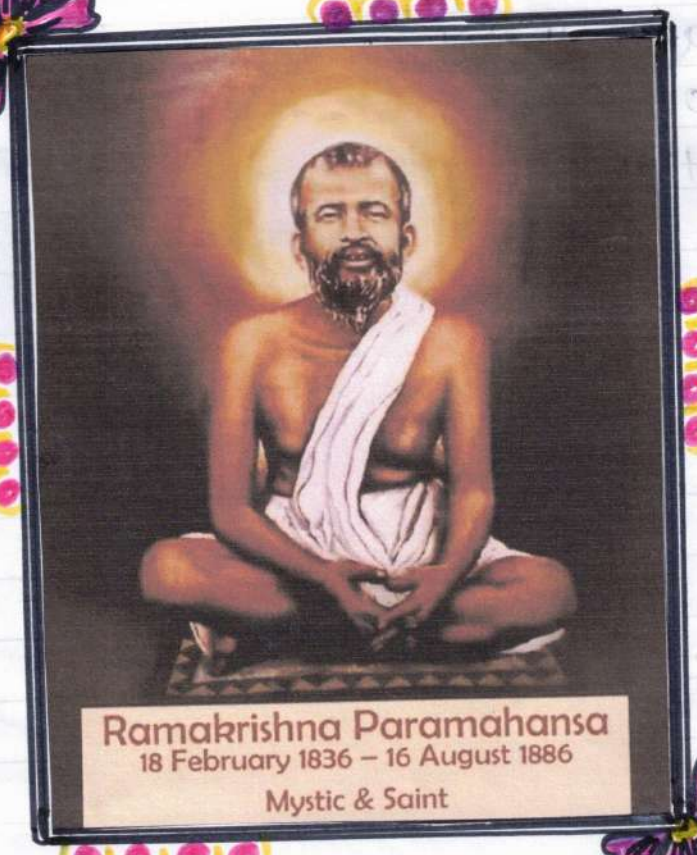
Life History of Education

Vivekananda's childhood name was Narendranath Dutta, belonged to an affluent Bengali family in Calcutta. He was one of the eight children of Vishwanath Dutta and Bhuvneshwari Devi. On the occassion of Makar Sankranti, he was born on 12, January 1863. His father was an attorney and an influential personality in society. Vivekananda's mother was a woman who has faith in God and has a great impact on his son.

At the age of eight in 1871, Vivekananda was enrolled at Ishwar chandra Vidyasagar's Institution and later at the presidency college in Calcutta. He was exposed to Western philosophy, Christianity, and science. He had an interest in music both instrumental as well as vocal. He was active in sports, gymnastics, wrestling and bodybuilding. He was also fond of reading and by the time he had completed his graduation from college, he had acquired a vast knowledge of various subjects. Do you know on the one hand he read Hindu

Scriptures like Bhagavad Gita and the Upanishads and on the other hand Western philosophies and spiritudlity by David Hume, Herbert Spencer, etc?

"Be an atheist if you want, but do not believe in anything unquestioningly."
- Swami Vivekananda.



Ramakrishna Paramahansa
18 February 1836 – 16 August 1886
Mystic & Saint

Spiritual Crisis and met with Ramkrishna Paramhansa :-

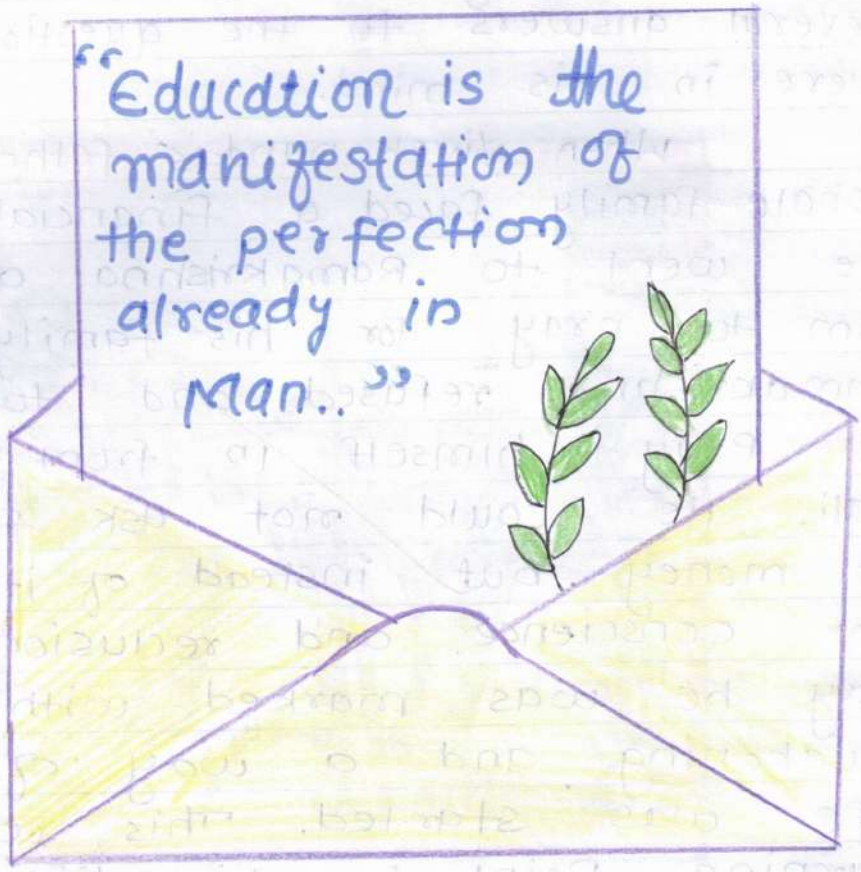
Swami Vivekananda had grown up in a religious family but studied several religious books and his knowledge of God and sometimes he believed in Agnosticism. But he could not completely deny the fact about the supremacy of God. In 1880, he joined Keshab Chandra Sen's Nava Vidhan and also become member of Sadharan Bramho samaj led by Keshab Chandra sen and Debendranath Togore.

Bramho samaj recognized one God, unlike idol workship. Several questions were running through the mind of Vivekananda and during his spiritual crisis, he first heard about Shri Ramkrishna from William Hastie, the Principal of Scottish church college. He finally met Shri Ramkrishna Paramhansa at Dakshineshwar Kali Temple and Vivekananda asked him a question, "Have you seen God?" which he had asked so many spiritual leaders but was not satisfied. But when he asked Ramkrishna, he gave such a simple answer that "Yes, I have. I see God as

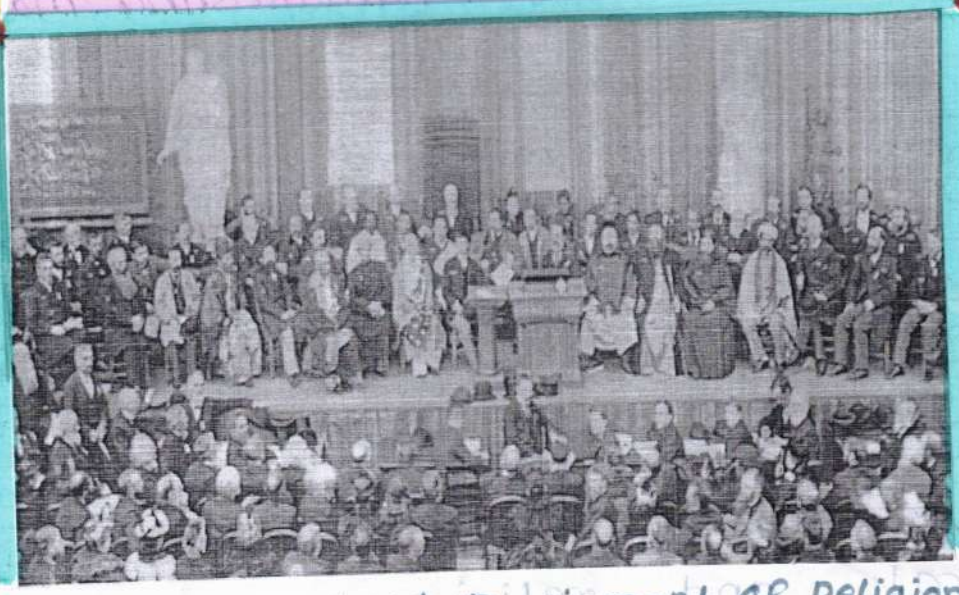
Clearly as I see you, Only in a much deeper sense." After this Vivekananda started visiting Dakshineshwar and got several answers to the questions that were in his mind.

When Vivekananda's father died, the whole family faced a financial crisis. He went to Ramakrishna and asked him to pray for his family but Ramakrishna refused and told Vivekananda to pray himself in front of Goddess Kali. He could not ask for wealth, or money but instead of it, he asked for conscience and reclusion. That day he was marked with a spiritual awakening and a way of ascetic life was started. This was the turning Point in his life and accepted Ramakrishna as his Guru.

In 1885, Ramakrishna developed throat cancer and was transferred to Calcutta and then later to garden house in Cossipore. Vivekananda and other disciples of Ramakrishna took care of him. On 16 August 1886, Shri Ramakrishna gave up his mortal body. Narendra was taught that the


"Education is the manifestation of the perfection already in Man.."

service to men was the most effective worship of God. After the demise of Ramakrishna, fifteen of his disciples including Narendranath began to live together at Baranagar in North Calcutta, which was named Ramakrishna Math. In 1887, all the disciples ~~work~~ took vows of monkhood and Narendranath emerged as Vivekananda which is "the bliss of discerning wisdom." All of them performed yoga and meditation. Further, Vivekananda left the math and decided to tour the whole of India on foot which came to be known as 'parivrajak'. He saw several social, cultural, and religious aspects of the people and also saw what common people faced in their daily life, their sufferings, etc.



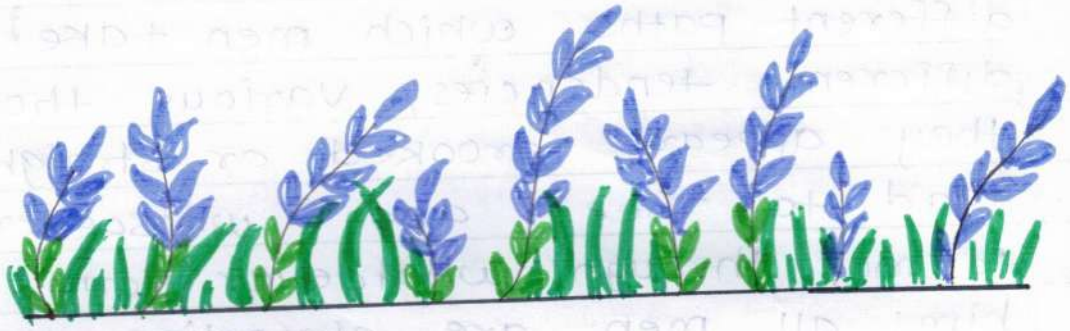
Lecture at World Parliament of Religion
1893

Lecture at the World Parliament of Religions :

The parliament of the World's Religions opened on 11 september 1893 at the Art Institute of Chicago, as part of the World's Columbian Exposition. On this day, Vivekananda gave a brief speech representing India and Hinduism. He was initially nervous, bowed to Saraswati (the hindu goddess of learning) and begin his speech with " sister's and brother's of America!" At these words, Vivekananda received a two-minute standing ovation from the crowd of seven thousand. According to Sailendranath Dhar, when silence was restored he began his address, greeting the youngest of nations on behalf of " the most ancient order of monks in the world, the vedic order of sannyasins, a religion which has taught the world both tolerance and universal acceptance. Vivekananda quoted two illustrative passages from the " shiva Mahima stotram." "As the different streams having their

sources in different places all mingle their water in the sea, so, O Lord, the different paths which men take through different tendencies, various though they appear, crooked or straight, all lead to thee!" and "whosoever comes to me, through whatoever form, I reach him; all men are struggling through paths that in the end lead to me." According to Sailendra Nath Dhar, "It was only a short speech, but it voiced the spirit of the Parliament."

Parliament President John Henry Barrow said, "India, the mother of religions was represented by Swami Vivekananda, the Orange-monk who exercised the most wonderful influencer over his auditors." Vivekananda attracted widerspread attention in the press, which called him the "cyclonic monk of India." The new York Critique wrote, "He is an orator by divine right, and his strong, intelligent face in its picturesque setting of yellow & those earnest words, and the rich rhythmical utterance he gave them."

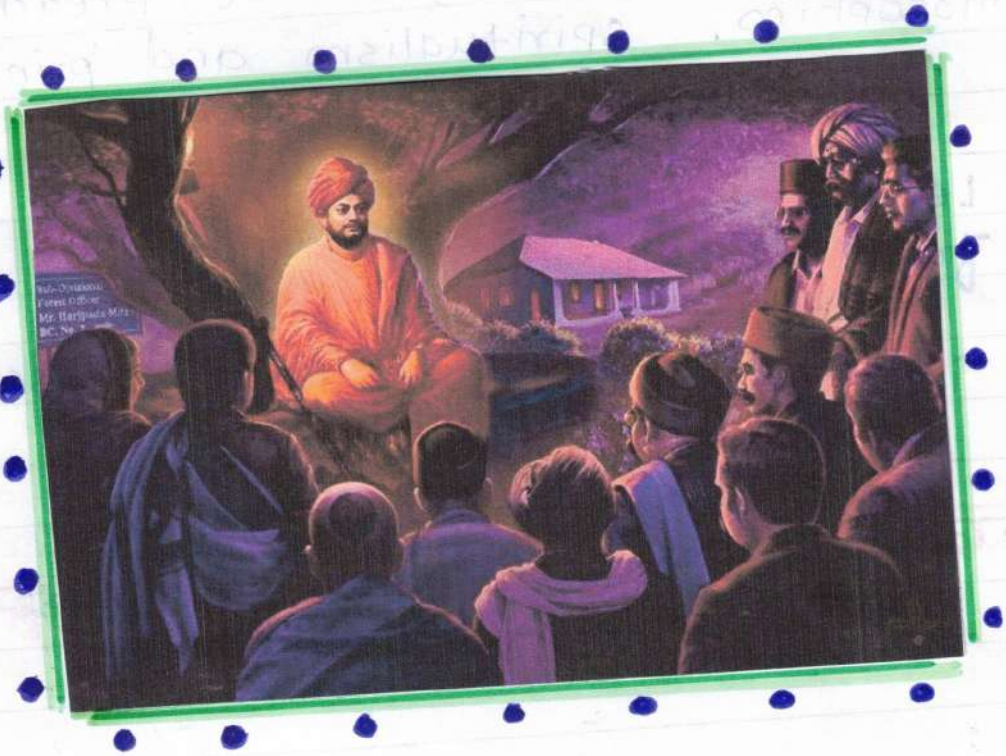


"The power of concentration is the only key to the treasure house of knowledge"

He NewYork noted, "Vivekananda is undoubtedly the greatest figure in the parliament of Religions. After hearing him we feel how foolish it is to send missionaries to this learned nation. American newspapers reported Vivekananda as "the greatest figure in the parliament of Religions" and "most popular and influential man in the parliament." The Boston Evening Transcript reported that Vivekananda was "a great favourite at the parliament... if he merely crosses the platform, he is applauded. He spoke several more times" at receptions, the scientific section, and private homes on topic related to Hinduism, Buddhism and harmony among religions until the parliament ended on 27 september 1893. Vivekananda's speeches at the Parliament had the common theme of universality, emphasising religious tolerance. He soon became known as a "handsome oriental" and made a huge impression as an orator.

He described the principles of Vedanta, their spiritual significance, etc. He stayed around two and half years in America itself and founded the Vedanta Society of New York. He also travelled to the United Kingdom to preach the philosophies, spiritualism and principles of Vedanta.

"Learn everything that is good from others but bring it in, and in your own way absorb it; do not become others."
- Swami Vivekananda.



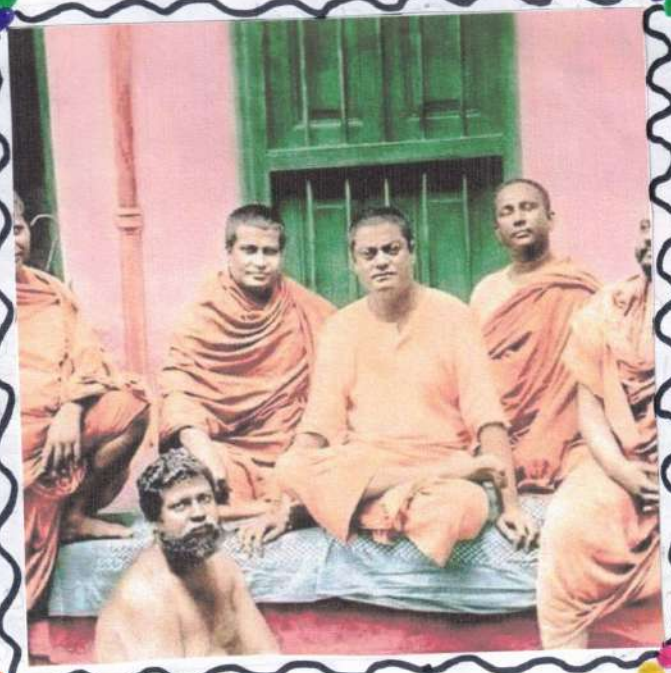
Awakening His Countrymen:

He returned to India in January 1897. In response to the enthusiastic welcome that he received everywhere, he delivered a series of lectures in different parts of India, which created a great stir all over the country. Through these inspiring and profoundly significant lectures Swamiji attempted to do the following:

- to rouse the religious consciousness of the people and create in them pride in their cultural heritage.

- to bring about unification of Hinduism by pointing out the common bases of its sects;

- to focus the attention of education or educated people on the plight of the downtrodden masses, and to expound his plan for their uplift by the application of the principles of Practical vedanta.

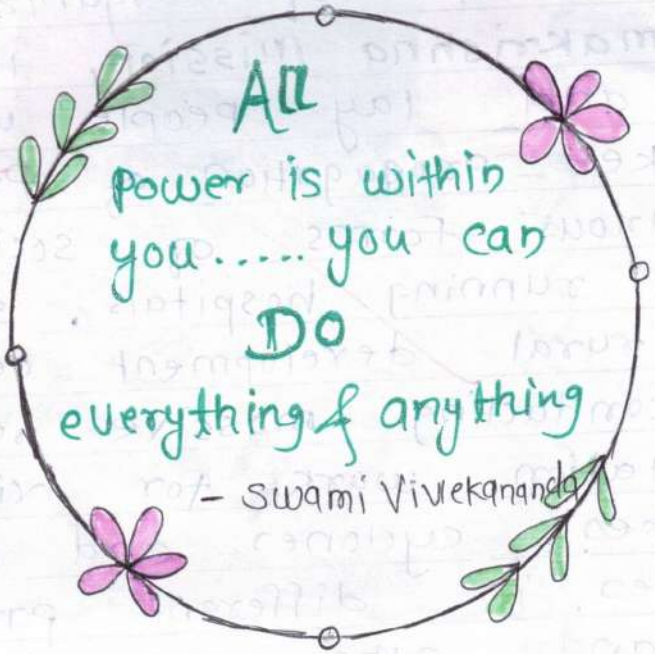


Foundation of Ramakrishna Mission :

Soon after his return to Kolkata, swami Vivekananda accomplished another important task of his mission on earth. He founded on 1 may 1897 a unique type of organization known as **Ramakrishna Mission**, in which monks and lay people would jointly undertake propagation of Practical Vedanta, and various forms of social service, such as running hospitals, schools, colleges, hostels, rural development centres, etc. and conducting massive relief and rehabilitation work for victims of earthquakes, cyclones and other calamities, in different parts of India and other countries.

Belur Math :

In early 1898 Swami Vivekananda acquired a big plot of land on the western bank of the Ganga at a place called Belur to have a permanent abode for the monastery and monastic order originally


All
power is within
you..... you can
DO
everything & anything
- Swami Vivekananda

started at Baranagar, and got it registered as Ramakrishna math after a couple of years. Here swamiji established a new, universal pattern of monastic life which adapts ancient monastic ideals to the conditions of modern life, which gives equal importance to personal illumination and social service, and which is open to all men without any distinction of religion, rare or caste.

The goal of the mission were based on karma Yoga and its main objective was to disturbed population of the country. several social services are also performed under this mission like establishing schools, colleges and provided through conferences, seminars, and workshops, rehabilitation work across the country.

Disciples:

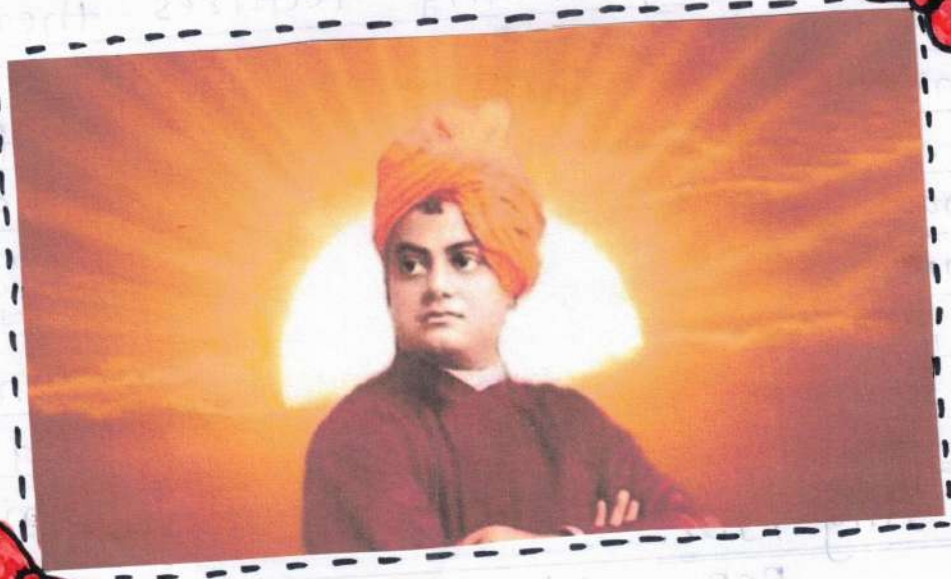
It may be mentioned here that in the West many people were influenced by swami vivekananda's life and message. Some of them became his disciples or devoted friends. Among them the names of Margaret Nobel (later known as Sister Nivedita), Captain and Mrs. Sevier, Josephine McLeod and Sara Chapman Bull, deserved special mention. Nivedita dedicated her life to educating girls in Kolkata. Swamiji had many Indian disciples also, some of whom joined Ramakrishna Math & became Sannyasins.

Last Days:

In June 1899 he went to West on a second visit. This time he spend most of his time in the West coast of USA. After delivering many lectures there, he returned to Belur Math in December 1900. The rest of his life was spent in India, inspiring and guiding people, both monastic and lay. Incessant work, esspecially giving lectures and inspiring people, told upon Swamiji's health. His health deteriorated and the end came quietly on the night of 4 July 1902.

Before his 'Mahasamadhi' he had written to Western followers,
"It may be that I shall find it good to get outside my body, to cast it off like a worn out garment. But I shall not cease to work. I shall inspire men everywhere until the whole world shall know that it is one with God."

At the age of 40, he died while doing meditation. He is said to have attained Mahasamadhi & was cremated on the Banks of the River Ganga.



Swami Vivekananda's Contribution to World Culture:

Making an objective assessment of Swami Vivekananda's contributions to world Culture, the eminent British historian A.L. Basham started that "in centuries to come, he will be remembered as one of the main moulders of the modern world..." Some of the main contributions that Swamiji made to the modern world are mentioned below:

1) New Understanding of Religion:

One of the most significant contributions of Swami Vivekananda to the modern world is his interpretation of religion as a universal experience of transcendent Reality, common to all humanity. Swamiji met the challenge of modern science by showing that religion is as scientific as science itself. Religion is the 'science of consciousness.' As such, religion and science are not contradictory to each other but are complementary.

This universal conception frees religion from the hold of superstitions,

dogmatism, priest craft and intolerance, and makes religion the highest and noblest pursuit - the pursuit of supreme freedom, supreme knowledge, supreme Happiness.

2) New View of Man:

Vivekananda's concept of 'Potential divinity of the soul' gives a new, ennobling concept of man. The present age is the age of humanism which holds that man should be the chief concern & centre of all activities and thinking. Through science and technology man has attained great prosperity and power, and modern methods of communication and travel have converted human society into a 'global village.' But the degradation of man has also been going on apace, as witnessed by the enormous increase in broken homes, immorality, violence, crime, etc. in modern society. Vivekananda's concept of potential divinity of the soul prevents his degradation, divinizes human relationships, and makes life meangful and worth living. Swamiji has laid the foundation for 'spiritual

humanism', which is manifesting itself through several neo-humanistic movements and the current interest in meditation, zen, etc. all over the world.

3) New Principle of Morality & Ethics:

The prevalent morality, in both individual life and social life, is mostly based on fear - fear of the police, fear of public ridicule, fear of God's punishment, fear of karma, and so on. The current theories of ethics also do not explain why a person should be moral and be good to others. Vivekananda has given a new theory of ethics and new principle of morality based on the instrinsic purity and oneness of the Atman. We should be pure because purity is our real nature, our true divine self or Atman. Similarly, we should love and serve our neighbours because we are all one in the supreme spirit known as Paramatman or Bramhan.

4) Bridge between the East and the West:

Another great contribution of swami vivekananda was to build a bridge between Indian culture & western culture. He did it by interpreting Hindu scriptures and philosophy and the Hindu way of life and institutions ~~which~~ to the western people in an idiom which they could realize or understand. He made the western people realize that they had to learn much from Indian spirituality for their own well-being. He showed that, in spite of her poverty and backwardness, India has a great contribution to make to world culture. He was India's first great cultural ambassador to the West.

On the other hand, swamiji interpretation of ancient Hindu scriptures, philosophy, institutions, etc prepared the mind of Indians to accept and apply in practical life two best elements of Western culture, namely science and technology and humanism. Swamiji taught Indians how to master Wester science and technology and at the same time develop spirituality.

"We are what out thoughts have made us; so take care about what you think. Words are secondary Thoughts live; they travel far."

Education in his View:

Let us tell you that Vivekananda's teachings were mostly based on Ramakrishna's Spiritual teachings of Divine manifestations and his personal internalization of the Advaita Vedanta philosophy. According to him, the ultimate goal of life is to achieve the freedom of the soul and that encompasses the entirety of one's religion. My ideal, indeed, can be put into a few words, and that is; to preach unto mankind their divinity, and how to make it manifest in every movement of life.

Education is the manifestation of the perfection already in man.

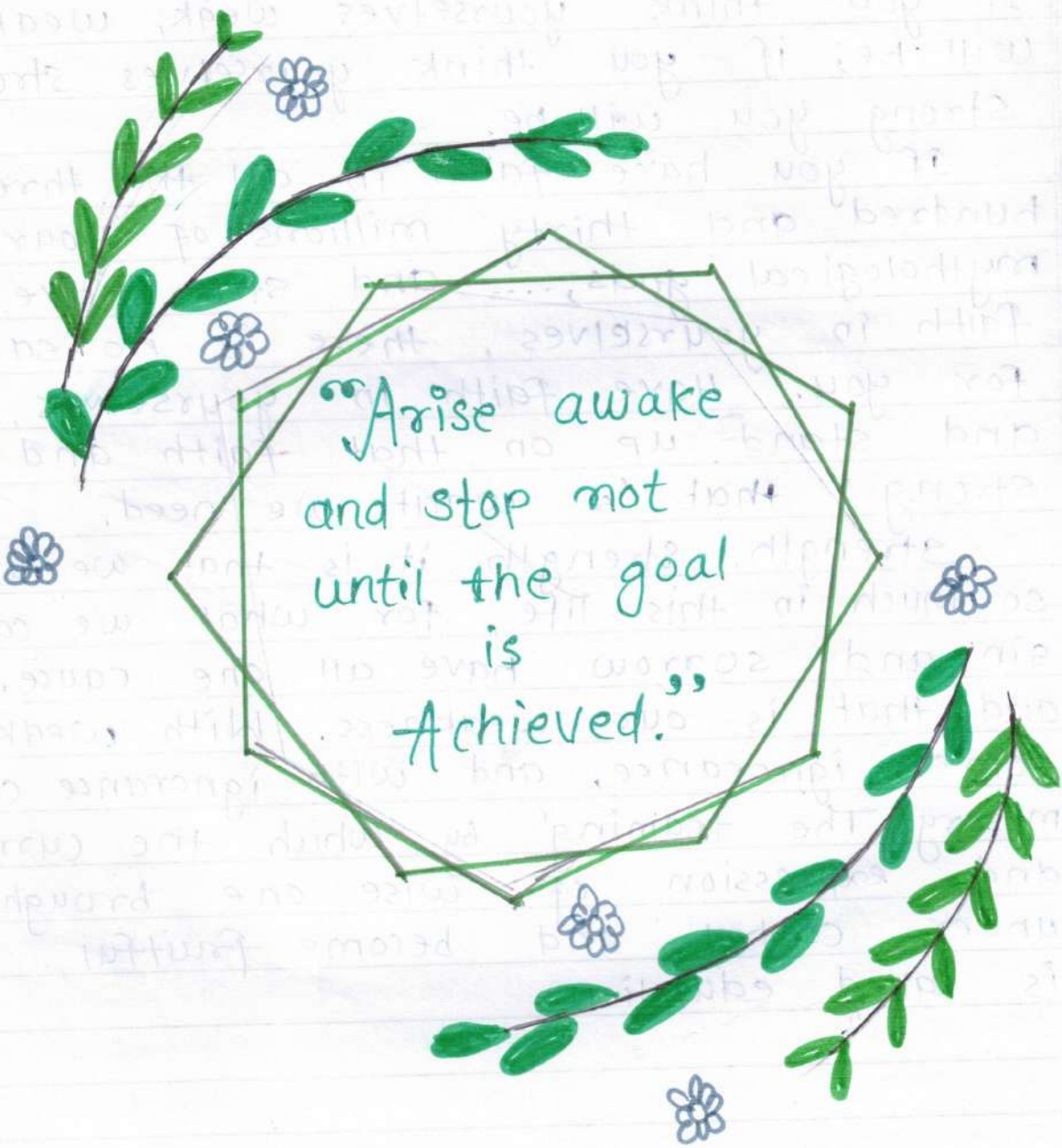
We want that education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one's own feet.

So, long as the millions live in hunger and ignorance, I hold every man a traitor who, having been educated at their expense pays not the least heed to them.

Whatever you think, that you will be. If you think yourselves weak, weak you will be; if you think yourselves strong; strong you will be.

If you have faith in all the three hundred and thirty millions of your mythological gods,.... and still have no faith in yourselves, there is no salvation for you. Have faith in yourselves, and stand up on that faith and be strong; that is what we need.

Strength, strength it is that we want so much in this life, for what we call sin and sorrow have all one cause, and that is our weakness. With weakness comes ignorance, and with ignorance comes misery. The training by which the current and expression of wise one brought under control and become fruitful, is called education.


"Arise awake
and stop not
until the goal
is
Achieved."

Function of Education :

According to Swami Vivekananda, the function of education is the undoving of the knowledge written in the mix ours. Educational thoughts of Swami Vivekananda can be understood as follows:

i) Self-confidence, service for mankind, courage, Realisation of truth, all round development of human personality, unity in diversity, etc. were the aims of education.

ii) In contrast to contemporary system of education, Vivekananda advocated education for self-development. He suggested Brahmacharya for self-development.

iii) He advocated character formation which is one of the important aspect of education. He suggested hard work, cultivating moral and spiritual values to follow the Gurukul system of education, formation of good habits, learning through one's mistake's etc. are the cause of education for character formation.

Curriculum & Methods of Teaching :

Swami Vivekananda confined religion and science. His concern for science education arose from the helplessness and lack of self-confidence among the masses, which he observed during his Bharat Parikrama Science would centre faces of unknown forces of natures, but it would not help them in understanding the ultimate sources of fear that is residing in them and to know the inner nature of man are must rely on religion. Vivekananda's Curriculum spiritual understanding includes yoga, vedantic sculptures, science and technology, vocational & technical education, History and English.

"Every work has got to pass through hundreds of difficulties before succeding.
Those that persevere will see the light, sooner or later."

Concept of Discipline, student & Teacher :

Swami vivekananda emphasise child-centred education in which the child is provided full freedom for activity and self learning. He advocated human discipline through Brahmacharya and meditation. He believed that realisation of the self was the real path. According to him, a child is the repository of all types of knowledge. Like the plant, the child grows on his/her own. He advocated helping the child to grow naturally and spontaneously.

The role of teacher is to help the child for his/her natural way of development and living. To him, a teacher is one who practices Yoga, meditation and Brahmacharya. Unless a teacher know the way of achieving spiritualism. Swami Vivekananda defined teacher as a philosopher, friend and guide helping the child to go towards to his own way.

Swami Vivekananda and Politics:

Swami Vivekananda was an all-renouncing monk. Like other worldly things, politics was also a thing from which he kept himself aloof. So, he was never found to participate in any political activity of his time, let alone give voice to any political view. Not only that, he made it mandatory for members of his monastic organization to avoid politics in all forms.

Violations made one liable to be dismissed from the organization. That the norm was quite stringent was evident from Nivedita's dissociation from Ramakrishna Mission, consequent upon her links with politics. It is important to remember in this context that swamiji did not grant her Sannyasa in spite of his earnest entreaty. But then, swamiji was an Acharya which meant he was a pathfinder - teacher of mankind.

Accordingly, by virtue of his deep sympathy for man, he shared his thoughts with us, making no exception to his ideas on politics. He had however, little faith in politics since it often

reduced men to brutes who "in the name of politics rob others and fatten themselves by sucking the very life blood of the masses."

None could deny this, looking at what is presently happening at various levels. Indeed, it is imaginable what, therefore, would have been his reaction had he seen politics suffused with lies and lust for power as it is today in this country.

Swamiji concern for India was born of his spiritual realisation that every speck of dust of India was holy. Sages walked its soil and had freely contributed for human progress with no sense of racial prejudice and discrimination. Their descendants pursued the same policy through the vicissitudes of history.

Humanity at large was benefited as a result and respect India for centuries. He gave an inkling of India's exceptional character and contribution in his maiden speech at the parliament of Religions in Chicago. He believed India's survival with its orginality was essential as an example for rest of the world to emulate. Hence,

any nation overpowering and obliterating it politically was intolerable to him. so, he said British should be ousted from India at any cost. Youths of the land drew lessons and inspiration from his works containing his patriotic ideas to fight for political freedom as well as for nation-building. This is why Swamiji became posthumously, a political suspect to the British.

Real prosperity will not come out of moral degradation, for which, Swamiji saw, politics was responsible to a great extent. He said, "law, government, politics are phases, not final in any way", because "the goal is beyound them". He thought politics had missed that goal as it did not care for man's inner growth and perfection.

Swamiji noticed that, creed and community based politics was plaguing India fast. It was giving primacy to "temple and mosque", which he had set aside as "secondary details". Humanism was getting short shift, diabolism gaining the social space perpetrating divisions between man and man. He was angry with politics because it was playing a foul game.

In a speech before an audience of European intellectuals he said: "In India we have social communism, with the light of Advaita playing in and around; in Europe you are socially individualist, but your thought is dualistic, which is ~~th~~ spiritual communism. thus, one consists of socialistic institutions, hedged in by individualistic thought, while the other is made up of individualist institutions, within the hedge of communistic thought.

Socialism as a political philosophy was then gathering momentum and earning popularity rapidly. It waves had reached India. Swamiji was well posted regarding its movements in the West. He found it to resemble some of his ideas on the "uplift of the masses", and thereby chose to declare himself as "a socialist".

Swamiji was an unattached observer of politics. Dirt of politics could not touch him. But his analysis ~~could~~ of politics was ~~pithy~~ pithy, precise, adroit and innocuous for which he is remembered with high respect and devotion by various scholars.

Role of Swami Vivekananda as a Social Reformer:

Swami Vivekanda, a renowned scholar and philosopher of that time worked in different fields as he was very much inclined to Sri Ramakrishna Paramhansa of selfless work for mankind and humanity.

a) Social Reforms for Women upliftment:

Swami Vivekanda held high for the rights of women and gloried them. He promoted women's upliftment and was deeply concerned about the right of women and the oppression against them. According to Swami Vivekananda, women had the power to build a nation and shape the future thus should be given proper education. He had many literary works and documentaries speaking about women's upliftment and such as Swami Vivekananda on India and Her Problems. He considered women as "Shakti" the ultimate power.

b) Social reform on Poverty:

Although Swami Vivekananda was a meditational man. He has taken some pioneer steps in productivity and the eradication of poverty. Inspire by his Guru Ramkrishna Paramhansa, has inspired people to come into action and do the welfare of society. swamiji stimulated the culture of modern life in India by motivating the Rajasic virtues in the Indian citizens. According to swamiji, religion can be the steering force in executing all the social changes in the country.

c) Social reform on Cultural History:

Swamiji took great pride in India's cultural history in the past. But he was totally opposed to the fact, that almost everything that came from the past was worth appreciation or consideration. For him, Ideal India would be one that is for the masses. It means an India free of poverty, removal of illiteracy, dignity for all, human liberty, free from all monopolies with socially strong and culturally sound.

These were all inspired by his Vedantic ideas. He stood against feudal and colonial oppression.

The social reforms esspecially through Ramakrishna Mission impacted the society and elated Swami Vivekananda's essence in History. Swami Vivekananda's teachings of vedantism and philanthropic ideas not only inculcated the Indian youth to work for the welfare of society but also instill in them feelings of sacrifice, and love for the country. Swami Vivekananda's representative figure in chicago gave him immense popularity as a monk and open the gates of India to the Western World and made India find its presence in the world.

Swami Vivekananda was not only a social reformer, and philosopher but also a Monk of par excellence and this made ~~this~~ him leave an epoch mark in History. With a short life of fewer than forty years he inspired the youth to fight against social women's upliftment, untouchability, and tyranny of the society. In his life journey as a monk travelling from the Himalayasa to

kanyakumari, mixed with all classes of people and treated them with humanity and love thus, making a great place in their hearts and leaving a great mark and Footprint in History.

Legacy :

Swami Vivekananda revealed to the world the true foundations of India's unity as a nation. He taught how a nation with such a vast diversity can be bound together by a feeling of humanity and brother-hood. Vivekananda emphasized the points of drawbacks of western culture and the contribution of India to overcome those. Netaji Subhash Chandra Bose once said :

" Swamiji Harmonized the East and the West, religion and science, past and present. And that is why he is great. Our countrymen have gained unprecedented self-respect, self-reliance and self-assertion from his teachings."

Vivekananda was successful in constructing a virtual bridge between culture of East and the west. He interpreted the Hindu scriptures, philosophy and the way of life to the western people. He made them realize that in spite of poverty and backwardness, India had a great contribution to make to world culture. He played a key role in

ending India's cultural isolation from the rest of the world.

PAGE NO. :
DATE :

Summary

Swami vivekananda's original name was Narendra Nath Datta. He was a charismatic figure whose talks, writings, stories and poems inspired not only Indian youth but also people from different castes and religion across the world. He was a brilliant thinker, philosopher, and philanthropist. His extraordinary efforts continue to enligheten and awaken the unprivileged section of India.

He established the Ramkrishna Mission, which is still operational till date. By the words of Netaji Subhas chandra Bose, Swami vivekananda is the " maker of modern India ". He was the prodigy from Vishwanath Datta and Bhuvaneshwari Devi.

The early life of swami vivekananda was very much about developing his interest in learning about philosophy, religion, history, ayurveda and spiritudlity under his Guru Ramkrishna paramhansa. he was a big devotee of him till

Teacher's Signature .....

his last breath.

He initiated the Ramkrishna Mission after the good name of his Guru Ramkrishna paramhamsa in May 1897. He is credited with popularising inter-~~faith~~ faith dialogue by exploring Hinduism on the world stage in the late 1800s. He was the representative India sent at the first Parliament of Religions conference held in Chicago U.S.in 1893.

Swami Vivekananda was the greatest spiritual leader, inspiring India's youth to become better people by living a pure life and setting an example for the rest of the world.

BHAGWATI
PAGE NO. :
DATE :

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swami vivekananda in India : A Corrective Biography : Chattopadhyaya, Rajagopal (1999)

Swaraj Thoughts of Gandhi, Tilak, Aurobindo, Raja Rammohun Roy, Tagore and vivekananda - Mohapatra Amulya Ranjan (2009).

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* very good.

Sonyfeile 1-12/2024

Teacher's Signature

Internal's copy

SHEELA MULTIPURPOSE SOCIETY

SHEELADEVI COLLEGE OF EDUCATION

SHEELADEVI COLLEGE OF EDUCATION (B.Ed.) WADI NAGPUR-23

DATTAWADI (WADI), NAGPUR

2023 - 2024

FINAL LESSON PLANNING NOTE BOOK
अंतिम प्रात्यक्षिक पाठ पुस्तिका

Name Ketaki shrikant Ohale
नाव

Number _____
क्रमांक

Subject 1) Physics
विषय

2) _____

पाठांक S.No. 01

विषय Subject Physics

शाळा School V.L. Convent

विषयांश Topic Work done and

पाठ साहित्य Material Aids Chalk, Blackboard, duster, chart showing formula of work

पूर्व ज्ञान Previous Knowledge Force, Displacement

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION		*] To develop thinking, reasoning and imagination among the students. *] To enable students to know about the concept of work. *] To enable students to understand practical applications of work.
Statement of Aim- Today		we are going to

its Unit and their directions

दिनांक Date: 03/01/24

वर्ग Class: IX th

तासिका अवधी Length of the Period: 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	students give satisfactory answers to the asked questions.
Q.1] If I am reading a book, is work done here?	Ans] No, the work is not done while reading a book.
Q.2] If a boy is pulling a toy car with a string, is work done here?	Ans] Yes, the work is done by the boy on the toy car by pulling the string.
Q.3] Is there a difference in meaning of work done in our day to day life and in physics?	Ans] Yes, there is a difference in these two terms of work, because in day to day life efforts are applied physically we say that work is done.

to learn about work done and its Unit

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Work Done - Work is said to be done when a force displaces a body through certain distance in the direction of force.	1] Knowledge - students are able to know about the concept of work done
	Conditions - 1] force 2] displacement	2] Understanding - students are able to understand the meaning of work done.
	Example - A bullock is pulling a cart, the cart moves. Here, bullock applies a force and the cart displaces. Hence, work is said to be done.	3] Application - students are able to apply the concept of work done in real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	Students give appropriate answers to the asked questions
Q.1] What is work done?	Ans] When a force causes displacement in the same or opposite direction of applied force, we say that work is done.
Q.2] Say, if the work is done or not in the following cases.	Ans]
a] Suma is swimming in a pond.	→ Yes, the work is done
b] An engine is	→ Yes, the work is done
	→ work is not done
	work is not done.

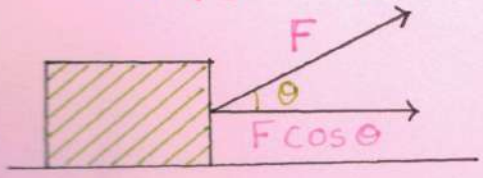
Formula for Work

$$W = (F\cos\theta)d$$

Work — Nm/J

Force — N

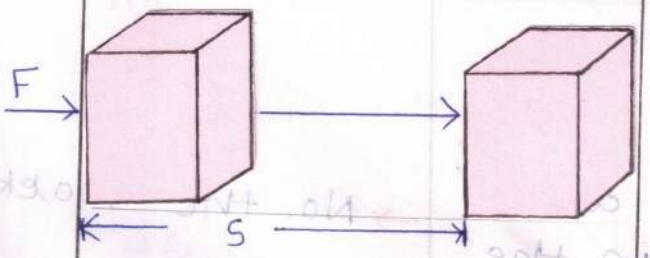
Displacement — d



$\cos 0^\circ = 1$

$\cos 90^\circ = 0$

$\cos 180^\circ = -1$

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	**Formula for Work Done-** Let a constant force 'F' is acting on an object displaces the object through distance 'd', in the direction of applied force. Then, Work done = Force × displacement $W = F \times d$ **Unit of Work Done-**  If F = 1 N and d = 1 m then W = 1 Nm or 1 Joule	1] Knowledge- students are able to know about the formula and units of work done. 2] Understanding students are able to understand the calculation of work done. 3] Application- students are able to apply the concept of work done in real life situations.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic	students give appropriate answers to the asked questions
Q.1] If a force of 5N is acting on an object displaces it through 2m in the direction of force. What is the work done?	Ans] Work done can be calculated by the formula $W = F \times d$ Here, $W = 5 \times 2 = 10$ Nm / J Work done is 10 J
Q.2] What is work done if direction of force is perpendicular to the direction of displacement?	Ans] If the direction of force is perpendicular to the direction of displacement, then the work done will be zero.
Q.3] What are the units of work done?	Ans] The units of work done are Nm or Joule.
Q.4] Define 1 Joule of work.	Ans] When a force of 1 N displaces the object through 1 m, then the work done is 1 Joule.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Work - Two conditions are required for work to be done a] Force b] Displacement 2] Expression of Work done $W = F \times d$ 3] Unit of work done Nm or Joule	*] To revise the topic taught in the class *] To evaluate the knowledge gained by students. *] To test the knowledge of students regarding work and its examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] What is the expression for work done?	Ans] Work done is given by the expression $W = F \times d$ where, W is work done, F is force, d is displacement.
Q.2] What is the work done in following cases?	Ans]
a] Direction of force and displacement are same.	→ If force and displacement are in same direction, the work done is positive.
b] Direction of force and displacement are opposite.	→ If force and displacement are in opposite direction, the work done is negative.
c] Direction of force and displacement are perpendicular.	→ If force and displacement are perpendicular the work done is zero.

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		*] To understand the taught concept thoroughly *] To utilize the free time *] To create interest in the topic taught.

फलक सार

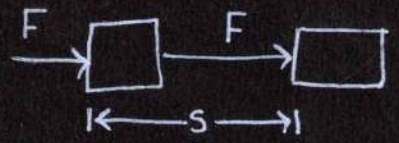
Black Board Summary

Day - Wednesday
Date - 03/01/24

Class - IX
Sub - Physics
Topic - Work done

On Roll -
Present -
Absent -

Work done = F x d
= Force x displacement



Unit of work done
- Nm or Joule (J)

W = F x d
= 1 N * 1 m
= 1 Nm or 1 Joule

Homework - Q] A force of 7 N acts as an object. The displacement is 8 m in the direction of force. What is the work done?

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard Homework- 1] A force of 7 N acts on an object. The displacement is 8 m in the direction of force. What is the work done?	Students write it down and solve by themselves in their notebooks.

अभिप्राय (Remarks)

Class control good.
Teaching was good.

पर्यवेक्षकाची सही
(Sign. of Supervisor)

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SHEELADEVI COLLEGE OF EDUCATION (B.Ed.) WADI NAGPUR-23

DATTAWADI (WADI), NAGPUR

2023 - 2024

FINAL LESSON PLANNING NOTE BOOK
अंतिम प्रात्यक्षिक पाठ पुस्तिका

Name Ketaki Shrikant Ohale
नाव

Number _____
क्रमांक

Subject 1) Mathematics
विषय

2) _____

पाठांक S.No. 01

विषय Subject Mathematics

शाळा School V.L. Convent, Dattawadi

विषयांश Topic Volume of Solids -

पाठ साहित्य Material Aids Chalk, Blackboard, duster, Models of 3D solids

पूर्व ज्ञान Previous Knowledge Basic 3D shapes,

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
INTRODUCTION	volumes of 1] cube 2] cuboid 3] cone 4] sphere	*] To develop thinking, reasoning and imagination among students. *] To enable students to understand the concept of volume *] To enable students to calculate volume of solids
Statement of Aim- Today, we are going to		

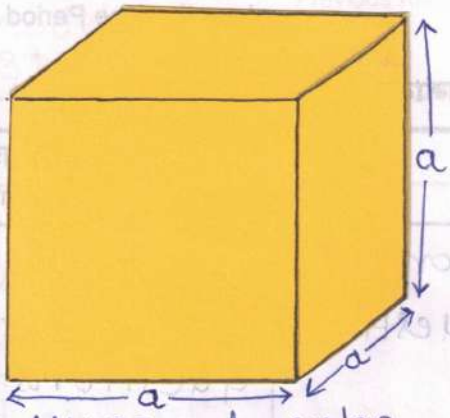
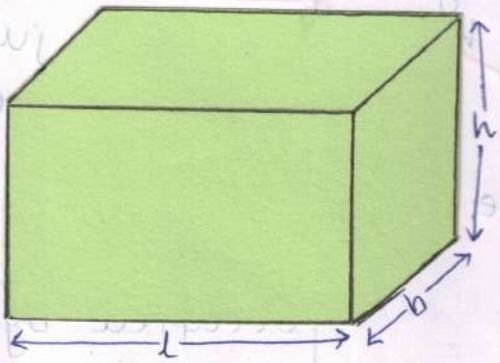
दिनांक Date 02/01/24

वर्ग Class IX th

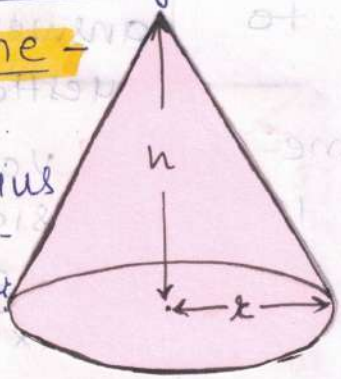
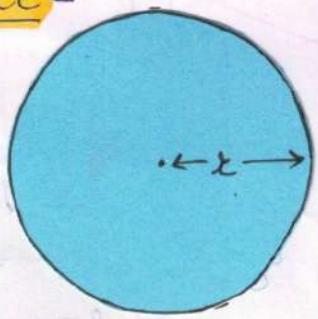
तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions	students give appropriate answers to the asked questions.
Q.1] If you want to buy a juice bottle, which bottle will you buy, bigger or smaller?	Ans] We will buy a bigger bottle of juice because it contains more juice.
Q.2] How can you say that bigger bottle has more juice?	Ans] We will prefer bigger bottle of juice because it has more volume.
Q.3] What is volume in your words?	Ans] Volume is the amount of space occupied by any three dimensional solid.
to learn about volumes of solids	

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Volumes of 1] Cube -  Volume of cube = side x side x side = side^3 = a^3 cu. units / unit^3 2] Cuboid -  Volume of cuboid = length x breadth x height = $l \times b \times h$ = lbh cu. units/unit^3	1] Knowledge - students are able to know about volumes of cube and cuboid. 2] Understanding - Students are able to understand how formulas of cube and cuboid are calculated. 3] Application - students are able to apply formulas of volume to solve real life examples.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	**विद्यार्थी कृती (Student Activity)**
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] Find the volume of cube whose side is 10 cm.	Ans] Volume of a cube is side^3. So, volume of the given cube is $= 10 \times 10 \times 10 = 1000\ cm^3$.
Q.2] Find the volume of a cuboid whose length is 5 cm, height is 3 cm and breadth is 2 cm.	Ans] Volume of a cuboid is length × breadth × height. So, the volume of cuboid is $= 5 \times 2 \times 3 = 30$ cu-cm or cm^3
Q.3] How do you define volume of cuboid?	Ans] Volume of a cuboid is the amount of space occupied by the walls of cuboid in a 3D space.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
PRESENTATION	Volumes of 3] Cone - For r -- radius h -- perpendicular height  volume of cone $= \frac{1}{3}\pi r^2 h$ cu units/ unit^3 4] Sphere - For r -- radius  volume of sphere $= \frac{4}{3}\pi r^3$ cu units/ unit^3	1] Knowledge - students are able to know about volumes of cone and sphere. 2] Understanding - students are able to understand how formulas of volumes are used for calculation. 3] Application - students are able to apply formulas of volumes in real life.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher asks some questions related to the topic.	students give appropriate answers to the asked questions.
Q.1] Find the volume of a sphere of radius 7 cm.	Ans] volume of sphere is $\frac{4}{3}\pi r^3$. so, volume of given sphere is $\frac{4}{3} \times \frac{22}{7} \times 7 \times 7 \times 7$ $= 1437.33\ cm^3$ or cu·cm
Q.2] What is the volume of a hemisphere?	Ans] A volume of hemisphere is half of the volume of a sphere. which is equal to $\frac{2}{3}\pi r^3$.
Q.3] Find the volume of a cone whose radius is 6 cm and height is 7 cm.	Ans] volume of the given cone is $\frac{1}{3}\pi r^2 h$. so, by calculating, $\frac{1}{3} \times \frac{22}{7} \times 7 \times 6 \times 6 = 264\ cm^3$ or cu·cm. so, the volume of given cone is $264\ cm^3$ or cu·cm.

पाठाच्या पायऱ्या (Steps of Lesson)	अध्यापन मुद्दे (Teaching Points)	उद्दिष्टे व स्पष्टीकरणे (Objectives with Specification)
RECAPITULATION	1] Volume of cube = side × side × side 2] Volume of cuboid = length × breadth × height 3] Volume of cone = $\frac{1}{3}\pi r^2 h$ 4] Volume of sphere = $\frac{4}{3}\pi r^3$	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students *] To test the concept understood by students regarding volumes of 3D shapes.

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teachers ask some questions related to the topic.	Students give appropriate answers to the asked questions.
Q.1] If two cubes of side 6 cm are joined face to face, then find the volume of the resulting cuboid.	Ans] If we join two cubes the length becomes $6+6=12$ and height and breadth remains same. So, volume of the resulting cuboid is $12 \times 6 \times 6 = 432\ cm^3$ or cu.cm.
Q.2] Find the ratio of volumes of a sphere and a hemisphere.	Ans] Volume of sphere $= \frac{4}{3}\pi r^3$ Volume of hemisphere $= \frac{2}{3}\pi r^3$ $\therefore$ Ratio $= \frac{\frac{4}{3}\pi r^3}{\frac{2}{3}\pi r^3} = \frac{4}{2} = \frac{2}{1}$ Required ratio is 2:1
Q.3] Find the volume of a cone whose radius is 3.5 cm and height is 12 cm.	Ans] Volume of cone is $\frac{1}{3}\pi r^2 h$. So, volume of the given cone is $\frac{1}{3} \times \frac{22}{7} \times 3.5 \times 3.5 \times 12$ $= 154\ cm^3$ or cu.cm

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टें व विशिष्टके Objectives with Specification
HOMEWORK		* To create the interest in the topic taught. * To utilize the free time. * To understand the taught concept properly

फलक सार

Black Board Summary

Date - Tuesday
Day - 2/1/24

Class - IX
Sub - Mathematics
Topic - Volume of solids

On Roll -
Present -
Absent -

1] Volume of cube
= side × side × side

2] Volume of cuboid
= $l \times b \times h$

3] Volume of cone
= $\frac{1}{3}\pi r^2 h$

4] Volume of sphere
= $\frac{4}{3}\pi r^3$

Homework - 1] Find volume of a cone whose $h = 7cm$ and $r = 3cm$.
2] Find volume of a sphere whose $r = 7cm$.

अध्ययनानुभव (Learning Experience)

शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
The teacher gives homework written on blackboard. Homework- 1] Find volume of a cone whose h = 7 cm and r = 3 cm. 2] Find volume of a sphere whose r = 7 cm.	students write it down and solve in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)