Metric 2.4.5- Adequate skills are developed in students for effective use of ICT for teaching learning process in respect of

1. Preparation of lesson plans
2. Developing assessment tools for both online and offline learning
3. Effective use of social media/learning apps/adaptive devices for learning
4. Identifying and selecting/ developing online learning resources
5. Evolving learning sequences (learning activities) for online as well as face to face situations

Clarification Asked

HEI has not provided any supporting documents as per SOP. HEI needs to provide the Documentary evidence in support of each response selected and Sample evidence showing the tasks carried out for each of the selected response

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 Ohall
नाव:

Number: _____
कमांक:

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	Shalbande
2	19/09	—11—	IX	Maths	operations on Real numbers	Shalbande
3	23/09	—11—	IX	Maths	Heron's Formula	Shalbande
4	26/09	—11—	IX	Maths	Polynomials	Shalbande
5	05/10	—11—	IX	Maths	Zeros of a polynomial	Shalbande
6	09/10	—11—	IX	Maths	co-ordinate geometry	Shalbande
7	11/10	—11—	IX	Maths	Euclid's Geometry	Shalbande
8	13/10	—11—	IX	Maths	Lines and Angles	Shalbande
9	17/10	—11—	IX	Maths	Triangles - congruence criterions	Shalbande

अनुक्रमणिका
INDEX

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

अनुक्रमणिका
INDEX

क्रमांक S.No.	दिनांक Date	शाळा School	वर्ग Class	विषय Subject	विषयांक Topic	स्वाक्षरी Signature
3	22/12	— 11 —	IX	Maths	Linear equation in two variables	Kalpana
20	23/12	— 11 —	IX	Maths	statistics	Kalpana

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
INTRODUCTION	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

Natural Numbers

तासिका अवधी Length of the Period 35 min

Natural numbers, Integers

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 are natural numbers?	Ans] The counting numbers from 1, 2, 3, 4 - - are called natural numbers.
Q2] What are whole numbers?	Ans] Whole numbers are the collection of positive numbers with zero. 0, 1, 2, 3, 4 - - - -
Q3] 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 $n \neq 0$. **Examples -** -25 is a rational number, because it can be written in the form of $\frac{m}{n}$ as $\frac{-25}{1}$. **Decimal Expansion -** The decimal expansion of rational numbers is either terminating or non-terminating, recurring. 0.687, $1.272727\ldots = 1.\overline{27}$	1] **Knowledge -** Students are able to know the concept of Rational numbers. 2] **Understanding -** Students are able to understand various rational numbers. 3] **Application -** Student 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] $3+1=4$ $6 \times \frac{4}{4} = \frac{24}{4}$ $\quad 7 \times \frac{4}{4} = \frac{28}{4}$ 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 $n \neq 0$ **Examples -** $\sqrt{2}, \sqrt{3}, \sqrt{15}, \pi$ are some of the examples of irrational numbers. **Decimal Expansion -** The decimal expansion of irrational numbers is non-terminating and non-recurring $\sqrt{2} = 1.4142135\ldots$ $\pi = 3.14159265\ldots$	1] **Knowledge -** Students are able to know the concept of Irrational numbers 2] **Understanding** students are able to understand various Irrational Numbers. 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 0.150115001 1 - - -

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 Q 1] What are real numbers.	students give appropriate answers to the asked questions. 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	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-Saturday Class-IX On Roll-
Date-16/09/23 Sub-Mathematics Present-
Topic-Rational and Irrational Absent-
Numbers

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 & 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 example
Statement of Aim - Today, we		are going to

दिनांक Date 19/09/23

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 of the introductory questions. Q1] What is $(\sqrt{6})+(-\sqrt{6})$? Q2] What is $(\sqrt{3})\cdot(\sqrt{3})$? Q3] What is $\frac{\sqrt{17}}{\sqrt{17}}$?	Students give satisfactory answers to the asked questions. Ans] The answer of $(\sqrt{6})+(-\sqrt{6})$ is zero $\sqrt{6}+(-\sqrt{6})=0$ Ans] The answer of $(\sqrt{3})\cdot(\sqrt{3})$ is 3 $(\sqrt{3})\cdot(\sqrt{3})=3$ 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.
1] Rationalise the denominator of $\frac{1}{\sqrt{2}}$	Ans] $\frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$
2] Rationalise the denominator of $\frac{1}{2+\sqrt{3}}$	Ans] $\frac{1}{2+\sqrt{3}} \times \frac{2-\sqrt{3}}{2-\sqrt{3}} = \frac{2-\sqrt{3}}{(2)^2-(\sqrt{3})^2}$ $= \frac{2-\sqrt{3}}{1}$ $= 2-\sqrt{3}$
3] 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 $(\sqrt{a})^2 - b^2 = a - b^2$
4] What is rationalising the denominator?	Ans] when the the denominato contains a term with squar root, the process of converting it to an expr- ession 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] $a^p \cdot a^q = a^{p+q}$ 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.
1) 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.
2) 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 $r \neq 0$
3) 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.
4) 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
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 - 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 1] $(3+\sqrt{3})(3-\sqrt{3})$ 2] $(3+\sqrt{3})(2+\sqrt{2})$ 3] $32^{\frac{2}{5}}$ 4] $= 2^{\frac{1}{2}} \cdot 8^{\frac{1}{2}}$	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 Q1] What are types of triangles with respect to sides? Q2] What are types of triangles with respect to angles Q3] What is the formula to calculate area of triangle? Learn about Heron's Formula	Students give appropriate answers of the asked questions Ans] The types of triangles based on sides are i] Equilateral triangle ii] Isosceles triangle iii] Scalene triangle Ans] The types of triangles based on angles are i] Acute angled triangle ii] Obtuse angled triangle iii] Right angled triangle Ans] The area of triangle can be calculated by $A = \frac{1}{2} \times base \times height$

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 $P = a+b+c$ $= 3+4+5$ $= 12\text{ cm}$ $\therefore$ Perimeter $= 12\text{ cm}$
Q.4] Find the semiperimeter of the triangle in the above question.	Ans] Semiperimeter of a triangle $s = \frac{a+b+c}{2}$ $s = \frac{3+4+5}{2} = \frac{12}{2} = 6\text{cm}$ $\therefore$ Semiperimeter $= 6\text{cm}$

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, 17 m 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)**
Teachers 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	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 - 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

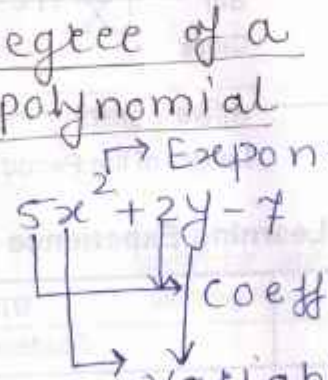
वर्ग Class IX th

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 Q1] What are polynomials? Q2] In the given polynomial, $5x^2 + 2y - 7$, what is the constant? Q3]	Students give appropriate answers to the asked questions. Ans] An expression of more than two algebraic terms, contain sum and various powers of the variables is called a polynomial. Ans] In the given polynomial, constant term is 7. 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**  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 Q.1] What is the coefficient of x^2 in the following - i] $2+x^2+x$ ii] $\pi/2\,x^2+x$ Q.2] Write the degree of each of the following i] $5x^3+4x^2+7x$ ii] $4-y^2$ iii] $5t-\sqrt{7}$ Q.3] Give one example each of a binomial of degree 35 and a monomial of degree 100. Q.4] Write the following cube in the expanded form $(3a+4b)^3$	Students give appropriate answers to the asked questions. Ans] The coefficient of x^2 in i] $2+x^2+x$ is 1 ii] $\pi/2\,x^2+x$ is $\pi/2$ 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 Ans] A binomial of degree 35 is $3x^{35}+25$ Monomial of degree 100 is y^{100}, $3x^{100}$ 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	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 - 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] t^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)

पर्यवेक्षकांची 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

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 1] what is the variable in the equation/ polynomial $5x^3-2x^2+3x-2$? 2] which value will you get when you replace x by 1 in the equation? 3] what can we say from above value?	Students give appropriate answers to the asked questions. Ans] In the polynomial $5x^3-2x^2+3x-2$, x is the variable. Its value varies from a lower range to higher. Ans] $p(x)=5x^3-2x^2+3x-2$ $p(1)=5(1)^3-2(1)^2+3(1)-2$ $=5-2+3-2$ $p(1)=4$ 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:- 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 $p(x)$ **Ex** - Examine whether $x+2$ is a factor of $2x+4$. The zero of $2x+4$ is $p(x) = 2x+4$ $0 = 2x+4$ $2x = -4$ $x = -2$ $p(-2) = 2(-2)+4$ $= -4+4$ $= 0$ $\therefore (x+2)$ is a factor of $2x+4$	1] **Knowledge**- Students are able to know factor theorem of polynomials. 2] **Understanding**- Students are able to understand how factors of a polynomial are predicted 3] **Application**- Students are able to apply factor theorem 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 asked questions
6] Factorise y^2-5y+6 by factor theorem	Ans] $p(y)=(y-a)(y-b)$ $p(2)=2^2-(5\times2)+6=0$ $\therefore y-2$ is a factor of $p(y)$ $p(3)=3^2-(5\times3)+6=0$ $\therefore y-3$ is a factor of $p(y)$ $\therefore (y-2)(y-3)$ are factors
6] 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.
3] If $p(a)=0$ of $p(x)$ then what can you say about its factor?	Ans] If $p(a)=0$ then $(x-a)$ is a factor of given $(p(x))$.
4] 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.
Q1] 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.
Q2] 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.
Q3] Is it necessary that zero of a polynomial is zero?	Ans] No, a zero of a polynomial need not to be zero.
Q4] 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] $p(x) = 2x + 5$

विशिष्टके
th Specification

lize the
ime

ate
in the
aught

lerstand
gut
roperly.

n Roll-
resent-
bsent-

tem
a
) then

) in

अध्ययनानुभव (Learning Experience)	
शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
Teacher gives homework written on the blackboard Homework - Q1] Find zero of the polynomial p(x) in each case 1] $p(x) = 3x - 2$ 2] $p(x) = 2x + 5$ Q2] Factorise 1] $12x^2 + 7x + 1$ 2] $6x^2 + 5x - 6$	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 Geo

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

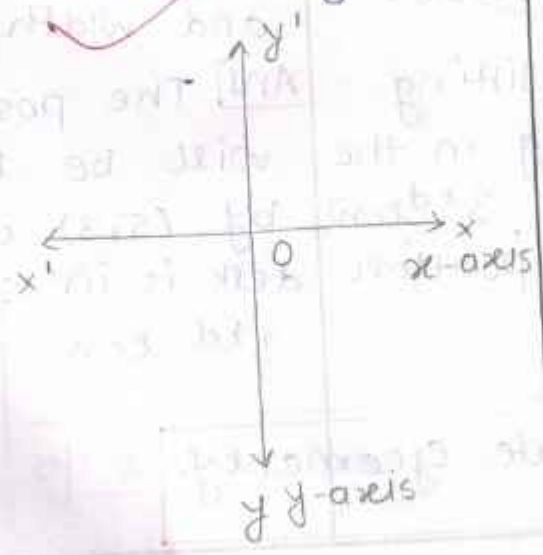
वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

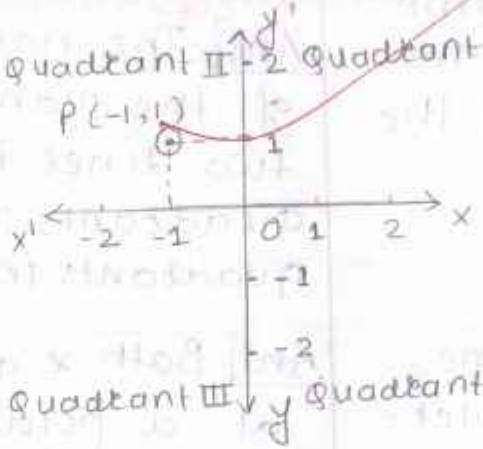
अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions	Students give appropriate answers to the asked questions
1] How many informations do you need to represent a dot?	Ans] We need two independant informations to represent the position of a dot
2] 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.
3] 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

स्पष्टीकरणे with Specification)	अध्ययनानुभव (Learning Experience)	
	शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
ledge ut are o know cartesia	Teachers ask questions related to the topic	students give apptopria 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.
standing are under- ositions ut on ph	Q2] What is the name of horizontal and vertical lines drawn to determine the position of any point on the cartesian plane?	Ans] In the cartesian plane, horizontal line called x-axis and vertical line is called y-axis.
ion are pply ledge oints raph	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 b two lines is called quadrants. There are fou quadrants in cartesian pl
	Q4] What is the name of the point of inter-section 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

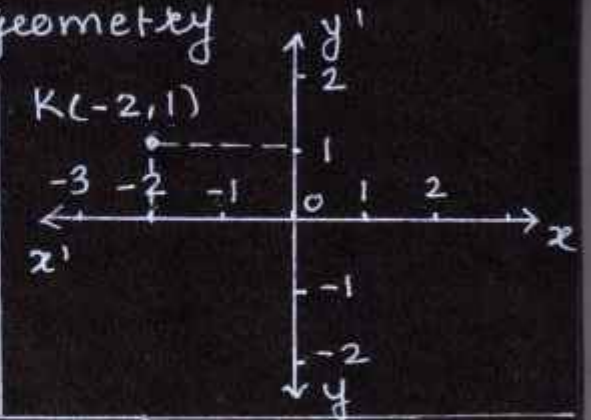
Black Board Summary

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-co-ordinate = 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)

INTRODUCTION

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
2] What are Axioms?	Ans] Common notations in Mathematics which are specifically used throughout the whole Mathematics are called Axioms.
3] What is a plane/ what is a surface?	Ans] A surface is that which has length and breadth only.
4] What are ends of a line segment?	Ans] Ends of a line segment are points.
5] 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] A straight line may be drawn from any one point to any other point. 2] A terminated line can be produced indefinately 3] A circle can be drawn with any centre and any radius. 4] All right angles are equal to one another 5] Two distinct intersecting lines cannot be parallel to the same line.	1] Knowledge - Students are able to know Euclid's Postulates and their importance 2] Understanding Students are able to understand Euclid's Postulates. 3] Application - Students are able to apply Euclid's Postulates to solve various examples.

ष्टीकरणे (Specification)	अध्ययनानुभव (Learning Experience) — शिक्षक कृती (Teacher Activity)	विद्यार्थी कृती (Student Activity)
dge- are know	Teacher asks some questions related to the topic	Students give appropriat answers to the asked questions.
es and ance.	1] What are postulates?	Ans] Common notations in mathematics which are specifically used in geometry are ca postulates.
tanding are and el.	2] 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.
on- are apply	3] What are perpendicular lines?	Ans] Lines which interse each other at right angles are called perpendicular lines.
s to ious	4] 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

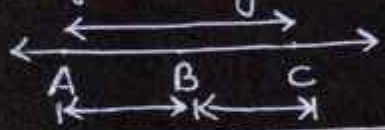
On Roll -
Present -
Absent -

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 - If 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] Lineal pair of angles 3] Parallel lines and intersecting lines 4] Parallel lines and transversal	*] To enable students to know various types of lines and angles *] To enable students to know concept of parallel lines *] To enable students to know the concept of transversal

Statement of Aim - Today, we are going

दिनांक Date 13/10/23

वर्ग Class IX

Types of angles

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 1] What is a line and what is a line segment? 2] What are collinear points? 3] What is an angle?	students give appropriate answers to the asked questions. Ans] A breadthless length is called a line. If a line has two end points then it is called a line segment. Ans] If three or more points lie on a straight line are called collinear points. 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

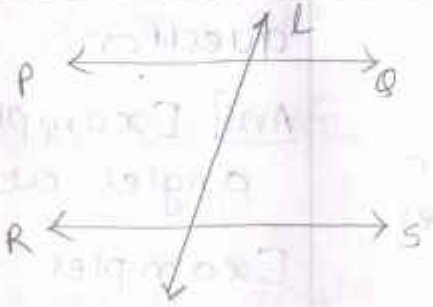
es, types of angles

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teacher asks some introductory questions 1] What is a line and what is a line segment? 2] What are collinear points? 3] What is an angle?	Students give appropriate answers to the asked questions. Ans] A breadthless length is called a line. If a line has two end points then it is called a line segment. Ans] If three or more points lie on a straight line are called collinear points. Ans] When two rays originate from same endpoint, angle is formed
We 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 $180° < x < 360°$ **Lineat pair of Angles** If sum of two adjacent angles is equal to 180°, then the angles make a lineat pair $\angle a + \angle b = 180°$ $\therefore \angle a$ and $\angle b$ make a lineat pair	1] Knowledge - Students are able to know types and details of angles. 2] Understanding Students are able to understand lineat pair of angles. 3] Application - Students are able to apply types of angles to solve varions 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] 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.	1] Knowledge - students are able to know about parallel lines and transversal. 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 2] Linear pair of angles 3] Parallel lines and intersecting lines. 4] Parallel lines and a transversal	*] To revise the topic taught by the teacher *] To evaluate the topic understood by the students. *] 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.
1] What is a transversal?	Ans] Any line which intersects two or more parallel lines is called a transversal.
2] Three angles at a point are 135°, 75° and x. Find the value of x.	Ans] Sum of angles at a point is 360° $135° + 75° + x = 360°$ $210° + x = 360°$ $x = 360° - 210°$ $x = 150°$
3] 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.
4] 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

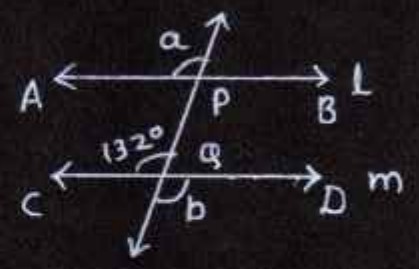
Day - Wednesday
Date - 11/10/23

Class - IX
Sub - Mathematics
Topic - Lines and Angles

On Roll -
Present -
Absent -

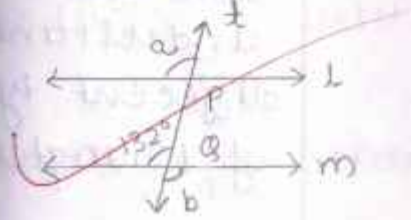
Parallel lines and a transversal

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 triangle

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.
1] 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
2] 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.
3] Identify the shape of triangle if in $\triangle PQR$, $\angle P = \angle Q + \angle R$	Ans] By using angle sum property, $\angle P + \angle Q + \angle R = 180^\circ$ $\angle P + \angle P = 180^\circ$ $2\angle P = 180^\circ$ $\angle P = 180^\circ/2 = 90^\circ$ $\therefore \triangle PQR$ is right angled $\triangle$
4] In $\triangle PQR$, $PQ = PR$ and $\angle Q = 70^\circ$, Find P.	Ans] In $\triangle PQR$, $PQ = PR$ $\therefore \angle R = \angle Q$ $\angle P + \angle Q + \angle R = 180^\circ$ $\angle P + 70^\circ + 70^\circ = 180^\circ$ $\angle P + 140^\circ = 180^\circ$ $\angle P = 180^\circ - 140^\circ$ $\angle P = 40^\circ$

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

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.
1] 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.
2] 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.
3] 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°
4] 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	उद्दिष्टे 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

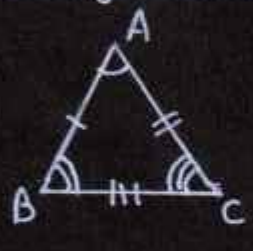
Black Board Summary

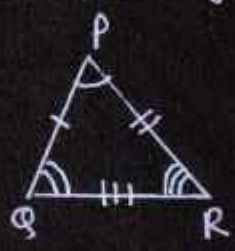
Day - Friday
Date - 13/10/23

Class - IX
Sub - Mathematics
Topic - Triangles

On roll -
Present -
Absent -

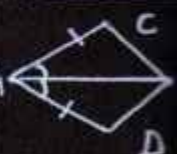
Congruence in Triangles



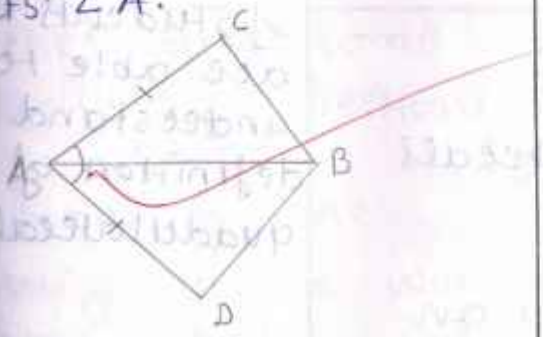


1] SSS - side-side-side
2] SAS - side-angle-side
3] ASA - angle-side-angle
4] AAS - angle-angle-side
5] RHS - Right angle - Hypotenuse - side

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 Specificatio
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

(Theorems)

वर्ग Class IX

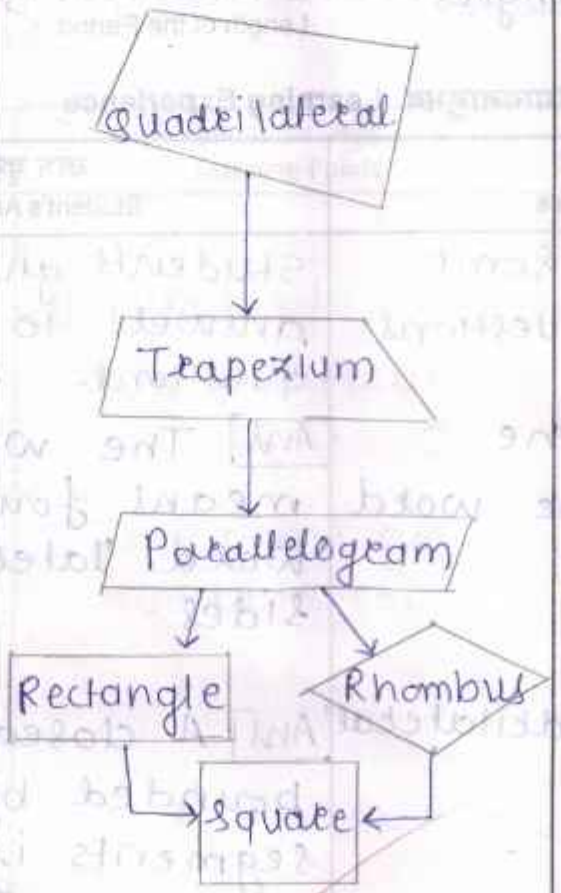
diagonals, angles

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 quadri-laterals. 2] Understanding Students are able to under-stand 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 $\|\|^m$ divides it into two congruent triangles. 2] In a $\|\|^m$, opposite sides are equal. 3] If each pair of opposite sides of a quadrilateral is equal, then it is a $\|\|^m$ 4] In a $\|\|^m$, 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 $\|\|^m$ 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, $\angle 1 + \angle 2 + \angle 3 + \angle 4 = 360°$ $60° + 30° + 110° + \angle 4 = 360°$ $\angle 4 = 360° - (60° + 30° + 110°)$ $= 100°$ ∴ 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 11^m, if one angle is 80°	Ans] In a 11^m, opposite angles are equal ∴ $\angle 1 = \angle 3 = 80°$ $\angle 2 = \angle 4 = 100°$
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.
Q.1] 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 $\angle B = \angle D = x$ $30 + x + 30 + x = 360°$ $2x + 60 = 360°$ $x = 300/2 = 150°$
Q.2] 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.
Q.3] A quadrilateral with one pair of opposite parallel sides is called?	Ans] A quadrilateral with one pair of opposite parallel sides is called Trapezium.
Q.4] 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 quadrilateral

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

Keelbarde

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 twinking, 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

वर्ग Class IX

तासिका अवधी Length of the Period 35 min

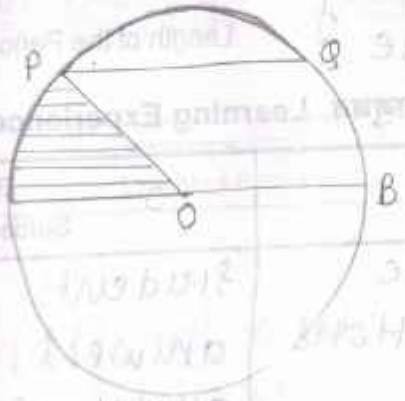
Theorems

Circumference, Area of circle

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 a circle?	Ans] Collection of all points in a plane which are at a fixed distance from centre is called circle.
Q 2] What are concentric circles?	Ans] Two or more circles having same centre but different radii are called concentric circles.
Q 3] 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] centre - 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 Q.1] If the radius of a circle is 2cm, what is its diameter?	students give appropriate answers to the asked question. 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 $2\pi r$ $C = 2 \times \frac{22}{7} \times 7$ $= 44\,cm$ ∴ 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 x] 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 separate circles drawn apart from each other, how many common points do they have?	Ans] If there are two separate 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

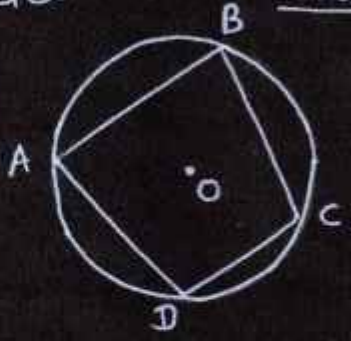
Day - Friday
Date - 20/10/23

Class - IX
Sub - Mathematics
Topic - circles

On Roll -
Present -
Absent -

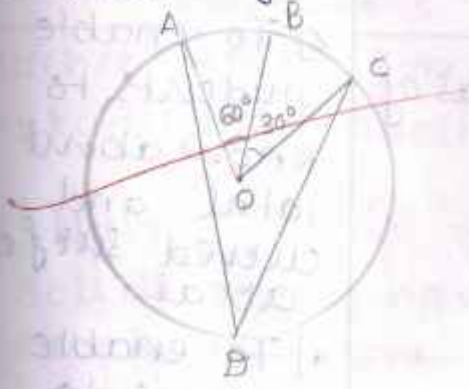
cyclic quadrilateral

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

वर्ग Class IX

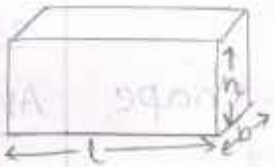
तासिका अवधी Length of the Period 35 min

cube, cuboid, cone, sphere

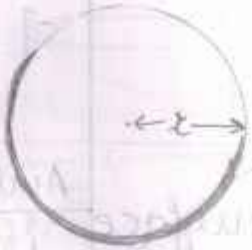
ude and circle

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 × (a × 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 × lb + 2 × bh + 2 × 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 ared 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 x 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 whole 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 $= 4\pi r^2$ $= 4 \times \frac{22}{7} \times 7 \times 7$ $= 4 \times 22 \times 7 = 88 \times 7 = 616$ 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	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 - 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 7cm. 2] Find the surface area of a hemisphere of radius 7 cm.	Students write it down and solve in their notebooks.

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

cuboid, cone and sphere वर्ग Class IX th

containers तासिका अवधी Length of the Period 35 min

अध्यायनानुभव Learning Experience

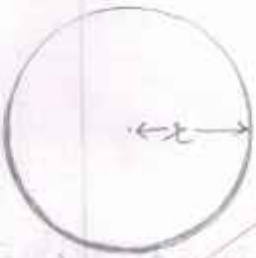
अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
The teacher asks some introductory questions.	Students give appropriate answers to the asked questions.
Q.1] If you go to buy a juice bottle, which bottle do you prefer big or small?	Ans] We do prefer big bottle of juice, because it contains 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-dimensional 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 x side x side = a x a x a = a^3 cu. units of unit^3 2] cuboid  Volume of cuboid = length x breadth x height = l x b x h cu units of 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 cubaid?	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 4] Sphere  For a sphere with radius r; volume of sphere $= \frac{4}{3} \pi r^3$ cu-unit or unit^3	1] Knowledge- students are able to know about volume of cone and sphere. 2] Undeerstanding 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 $= \frac{4}{3}\pi r^3$ $= \frac{4}{3} \times \frac{22}{7} \times 11.2 \times 11.2 \times 11.2$ $= 5887.32\ cm^3$ ∴ 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. ∴ 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 $\quad h = 21$ cm $r = \sqrt{l^2 - h^2} = \sqrt{28^2 - 21^2}$ $= 7\sqrt{7}$ cm ∴ 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] cubaid $l \times b \times h$ 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 ∴ Volume of resulting cuboid $= l \times b \times h = 12 \times 6 \times 6 = 432 cm^3$
Q2] Find the ratio of the total surface area and lateral surface area of a cube.	Ans] TSA of cube $= 6 side^2$ LSA of cube $= 4 side^2$ Ratio $= \frac{6\ side^2}{4 side^2} = \frac{3}{2}$ 3:2
Q3] Find the volume of a cone whose radius is 3.5 cm and height is 12cm.	Ans] Volume of cone $= \frac{1}{3}\pi r^2 h$ $= \frac{1}{3} \times \frac{22}{7} \times 3.5 \times 3.5 \times 12$ $= 154\ cm^3$
Q4] A hemispherical bowl has a radius of 3.5 cm. How much volume of water it would contain?	Ans] Volume of hemispherical bowl $= \frac{2}{3}\pi r^3$ $= \frac{2}{3} \times \frac{22}{7} \times 3.5 \times 3.5 \times 3.5$ $= 89.8\ cm^3$ ∴ volume of the given bowl is $89.8\ cm^3$

पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे 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 ... If its volume is ... find the diameter ... ... the volume ... whose ... 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 root	*] 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 Class VIII th

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] How do you calculate area of a square?	Ans] Area of square is side x side where side means the length of a side
Q2] What is the square of 10?	Ans] The square of 10 is 10 x 10 = 100.
Q3] What is the square root of 100?	Ans] 100 can be expressed as product of 10 x 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 number, then m is a square number.	1] Knowledge - students are able to know about square numbers. 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.

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

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 $23 = 20 + 3$ $23^2 = (20+3)^2$ $= 20^2 + 2 \times 20 \times 3 + 3^2$ $= 400 + 120 + 9$ $= 529$ ∴ 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.
[2] What are practical applications of squares?	Ans] The practical applications of squares are measuring area and calculating distances.
[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.
[3] Square numbers end with which digits?	Ans] All square numbers can only have 0, 1, 4, 5, 6, 9 at its unit places.
[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	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 - Tuesday
Date - 31/10/23

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

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 plot 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, reasoning 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 VIII th

Roots

Tables

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 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.

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

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

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

1] Knowledge
Students are able to know about cube roots of the numbers.

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] $5 \mid 125$ $5 \mid 25$ $5 \mid 5$ 1 $125 = 5 \times 5 \times 5$ $\sqrt[3]{125} = 5$ 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	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 - Wednesday
Date - 22/11/23

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

an 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)

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. 2] Inverse Proportions	*] To develop thinking, reasoning and imagination among students. *] To enable students to understand direct and inverse propor *] 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

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
Q.1] Explain direct proportion in terms of x and y.	Ans] In direct proportion, y increases as x increases and y decreases as x decreases.
Q.2] 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 × 16 = ₹ 1840
Q.3] 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
Q.4] 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 exam

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] Explain inverse proportion in terms of x and y.	Ans] In inverse proportion y decreases as x increases and y increases as x decreases.
Q.2] 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 $8 = \frac{48}{y} \Rightarrow y = 48/8$ $y = 6$.
Q.3] 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.
Q.4] 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 Proportion

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 blackboard. Home work- An electric pole, 14 m high casts a shadow 10 m. Find the height of a tree that casts a shadow of 15 m under similar situations.	Students write it down and solve in their notebooks.

अभिप्राय (Remarks)

पर्यवेक्षकाची सही
(Sign. of Supervisor)

पाठांक S.No. 17

विषय Subject Mathematics

शाळा School V.L. Convent

विषयांश Topic Comparing Qua

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, reasoning 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

-ary method

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 Q1] What is the use of ratios? Q2] If in a picnic, 60% of the total number of students are girls. Find the number of girls if total students are 18. Q3] If in a class, there are 18 girls and 12 boys, find the ratio of girls to boys	Students give appropriate answers to the asked questions. Ans] Ratios are very commonly used for comparing two or more quantities. Ans] let x be 60% of girls $\frac{60}{100} \times x = 18$ $x = \frac{18 \times 100}{60} = 30$ students. 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.

→ 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 5:20 or 1:4 There are 5 oranges out of 25 fruits % of oranges $= \frac{5}{25} \times 100 = 20\%$ % of oranges = 20% Similarly, % of apples = 80%	1] Knowledge students are able to know about ratio and percentage 2] Understanding students are able to understand how ratios and percentage 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.
[2] 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
[3] 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
[3] 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
[4] 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. **Discount = MP − SP** **Profit** SP − CP = Profit **% Profit = $\frac{\text{Profit}}{CP} \times 100$** **Loss** Loss = CP − SP **% 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 ∴ % 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 ∴ 580 − 87 = ₹ 493 ∴ ₹ 493 is the bill to be paid
Q3] By selling 100 books, a shopkeeper gains the SP of 20 books. What is the 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.
[2] 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
[3] 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%
[3] 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
[4] 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	उद्दिष्टे 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- present- absent-

Day- Friday Sub- Mathematics

Topic- Comparing quantities

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)
gives homework on the blackboard Convert the ratio 2:3 to percentage. A shopkeeper bought TV sets at ₹ 10000 each. He sold one at a profit 10% and other 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

शाला School V.L.convent

विषयांश Topic Linear Equation

पाठ साहित्य Material Aids Chalk, Dustek, 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 vari
Statement of Aim - Today, we		are going to

दिनांक Date 21/12/23

वर्ग Class VIII th

तासिका अवधी Length of the Period 35 mins

Variable

Variables

अध्यायनानुभव Learning Experience

अध्यापक कृती Teacher's Activities	छात्र कृती Student's Activities
Teachers ask some introductory questions Q1] Let the cost of a pen be ₹x. Cost of a book is equal to two pens. How will you form equation? Q2] Age of mother is two times her child. How will you form equation? Q3] I have some candies. I gave you two candies. Represent this in the equation.	Students give appropriate answers to the asked questions. Ans] cost of one pen = ₹x Cost of a book = 2 x cost of pen = 2 x x = 2x Ans] Let age of the child = y years Age of mother = 2 x age of child = 2y 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)
P R E S E N T A T I O N	**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-** $ax+b=0$	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 equations 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, $x + x + 1 + x + 2 = 51$ $3x + 3 = 51$ $3x = 51 - 3$ $3x = 48$ $x = 16$ 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
Solve : $2x - 4 = 0$	Ans] $2x - 4 = 0$ $2x = 4$ $x = 4/2$ $\boxed{x = 2}$
Solve : $\frac{x}{5} = 10$	Ans] $\frac{x}{5} = 10$ $x = 10 \times 5$ $\boxed{x = 50}$
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 $25x + 6 = 15$ $25x = 15 - 6$ $25x = 9$ $\boxed{x = \frac{9}{25}}$
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.
[1] 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 $ax+b=0$
[2] 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. $ex - 3x + 5 = 0$
[3] solve $12m - 10 = 6$	[Ans] $12m - 10 = 6$ $12m = 6 + 10$ $12m = 16$ $m = \frac{16}{12}$ $\boxed{m = 4/3}$
[4] 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	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 - 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 - 1] 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		

दिनांक Date 22/12/23

...o Variables

वर्ग Class IX th

...s, 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 [1] 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. [2] Age of mother is two times of her child. How will you form equation 2 [3] I am thirty years old. You are x years younger than me. Denote the relationship of variables.	Students give appropriate answers to the asked questions Ans] cost of one pen = ₹x cost of a book = ₹y ∴ Equation $y = 2x \Rightarrow \underline{2x - y = 0}$ Ans] Let age of child = x years Age of mother = y years Equation = $y = 2x \Rightarrow \underline{2x - y = 0}$ Ans] Age of our teacher = 30 years we are x years younger Relationship in equation is $\underline{30 - x}$

...o 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** $ax+by+c=0$	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 3] Application students are able to apply knowledge to solve linear equations in practical que

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 coefficient 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.
E-1] Write the following equation in the form of $ax+by+c=0$	Ans] $2x+3y=4.37$ where $a=2;\ b=3;\ c=4.37$ $2x+3y-4.37=0$
E-2] write the following equation as an equation in two variables. $x=-5$	Ans] $x=-5$ can be written as $1\times x+0\times y=-5$ $x+0y=-5$
E-3] 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 $x=2y;\ x-2y=0$.
E-4] 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	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

Date - 22/12/23 Class - IX On roll -
Day - Friday Sub - Mathematics Present -
Topic - Linear Equations absent -
in two variables

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 Then 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 poly
Statement of Aim - Today we are going to		

दिनांक Date 23/12/23

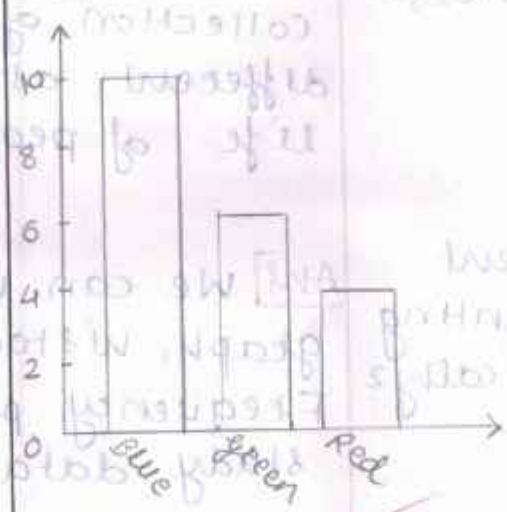
वर्ग Class IX th

तासिका अवधी Length of the Period 35 min

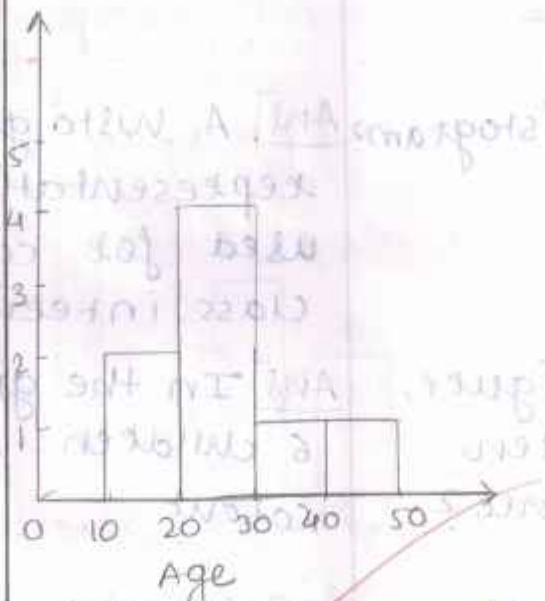
requency, Bar graph

अध्यायनानुभव Learning Experience

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

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 statics 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
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.
2] What is a Histogram?	Ans] A histogram is a representation of data used for continuous class intervals.
3] In the given figure, how many children like green colour?	Ans] In the given bar graph 6 children like green colour.
4] What is statistics?	Ans] Statistics 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 statics 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.
1] What is mode of data?	Ans] The value which appears very frequently in a data is called a mode.
2] 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
3] What is mean ?	Ans] The ratio of sum of observations and the total number of observations is called as Mean.
4] What is the mean of $x+2, x+3, x+4$ and $x-2$?	Ans] Mean $= \frac{x+2+x+3+x+4+x-2}{4}$ 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 ② Median Median = $\left(\frac{n+1}{2}\right)^{th}$ observation ③ Mode Mode = 3 × Median − 2 × Mean	*] To revise the topic taught in the class. *] To evaluate the knowledge gained by students. *] To test the concept understood by students regarding statistics.

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	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

Date - 23/12/23 Class - IX On roll -
Day - Friday Sub - Mathematics present -
Topic - Statistics 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 - 1) 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)

Kadbade

पर्यवेक्षकाची सही
(Sign. of Supervisor)

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
विषय

1) Physics

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

दिनांक Date 03/01/24

वर्ग Class IX th

its Unit

and their directions

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. **Conditions -** 1] force 2] displacement **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.	**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)**
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

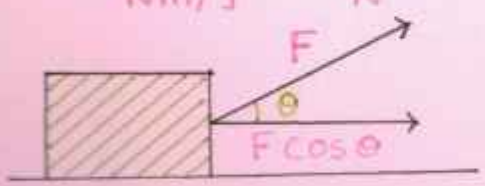
Formula for Work

$$W = (F\cos\theta)d$$

Work — Nm/J

Force — N

Displacement — d



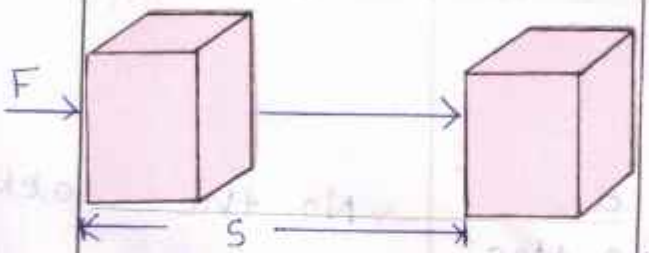
$\cos 0^\circ = 1$

$\cos 90^\circ = 0$

$\cos 180^\circ = -1$

work is not done

work is not done.

पाठाचा घटक (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 x 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 condition 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.

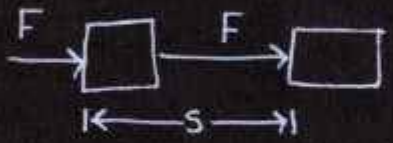
पाठाच्या पायऱ्या Steps of the Lesson	अध्यापन मुद्दे Teaching Points	उद्दिष्टे व विशिष्टके Objectives with Specification
HOMEWORK		*] To understand the taught concept thoroughly *] To utilize the free time *] To create interest in the topic taught

फलक सार

Black Board Summary

Day - Wednesday Class - IX On Roll -
Date - 03/01/24 Sub - Physics Present -
Topic - Work done 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.

पर्यवेक्षकांची सही
(Sign. of Supervisor)

SHRIYA. KALE

B.Ed. SEM II

EPC - 2

BLUEPRINT

SHILADEVI COLLEGE
WADI, NAGPUR

Page No. Date / /20

INDEX

Shree Radhe

Blueprint

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 impeding 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 eighty.

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 enhance the quality of learning outcomes.

6) Providing validity evidence

7) Quality assurance

8) Improving the perception 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%) involved 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 makers 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 %

Shree Radhe

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

Shree Radhe

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	$1^{(2)}$				$1^{(4)}$				$1^{(1)}$	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: 4-M

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

Shree Radhe

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?

Shree Radhe

Q.5. Give Scientific reasons : (AN42) 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%

Shree Radhe

Part ©: 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 %

⊛ 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	8	6
			¾		
3.	Easy	Objectives	1	3	9
			¼		
		Total →			25

Shree Radhe

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.

Q2. Match the pairs. 2M

1) Fused salt	a) Oxidation of colour
2) $CaOCl_3$	b) Sodium metal freed.

Shree Radhe

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
CANY 1)

1) Internal structure of fire extinguisher.

2) Biogas plant.

Q.7. Write the uses of the following: 3M

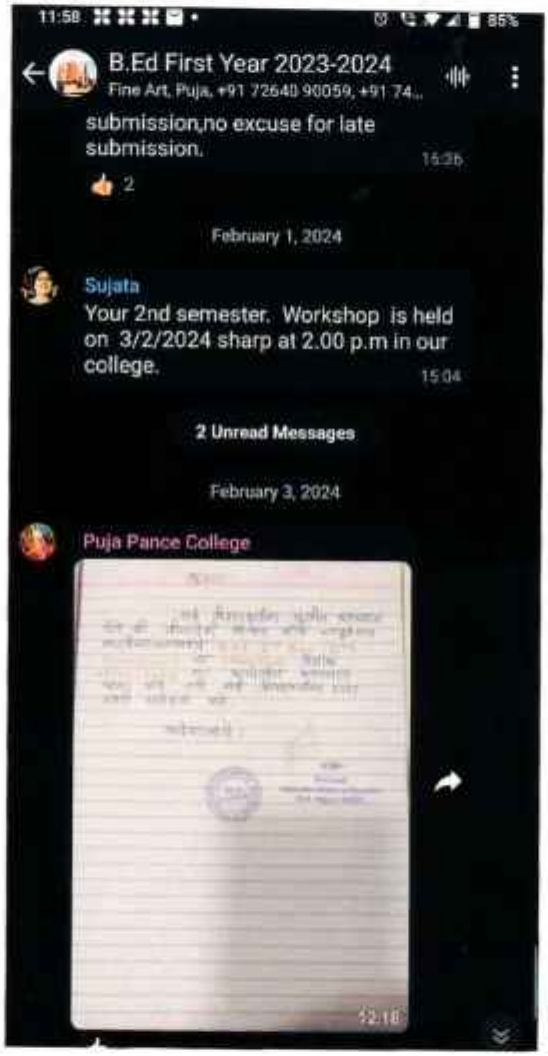
1) Ceramic 2) Powder coating

3) Radioactive substance 4) Anodizing

* * *

Signature

SHEELADEVI COLLEGE OF EDUCATION
WADI, NAGPUR

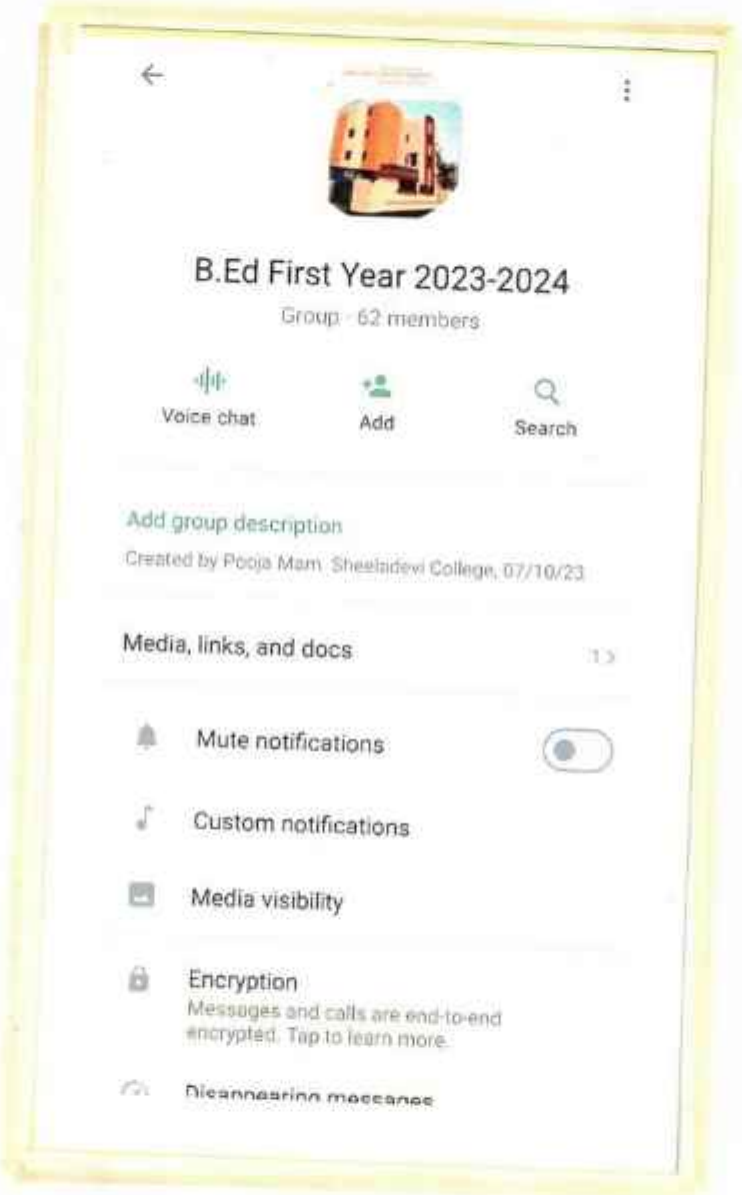


WHATS APP GROUP 2023-2024

SHEELADEVI COLLEGE OF EDUCATION WADI, NAGPUR

Principal
Sheeladevi College of Education
Wadi, Nagpur-440023.

SHEELADEVI COLLEGE OF EDUCATION WADI NAGPUR



WHATSAPP GROUP 2023-2024

SHEELADEVI COLLEGE OF EDUCATION WADI, NAGPUR

Principal
Sheeladevi College of Education
Wadi, Nagpur-440023.

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)

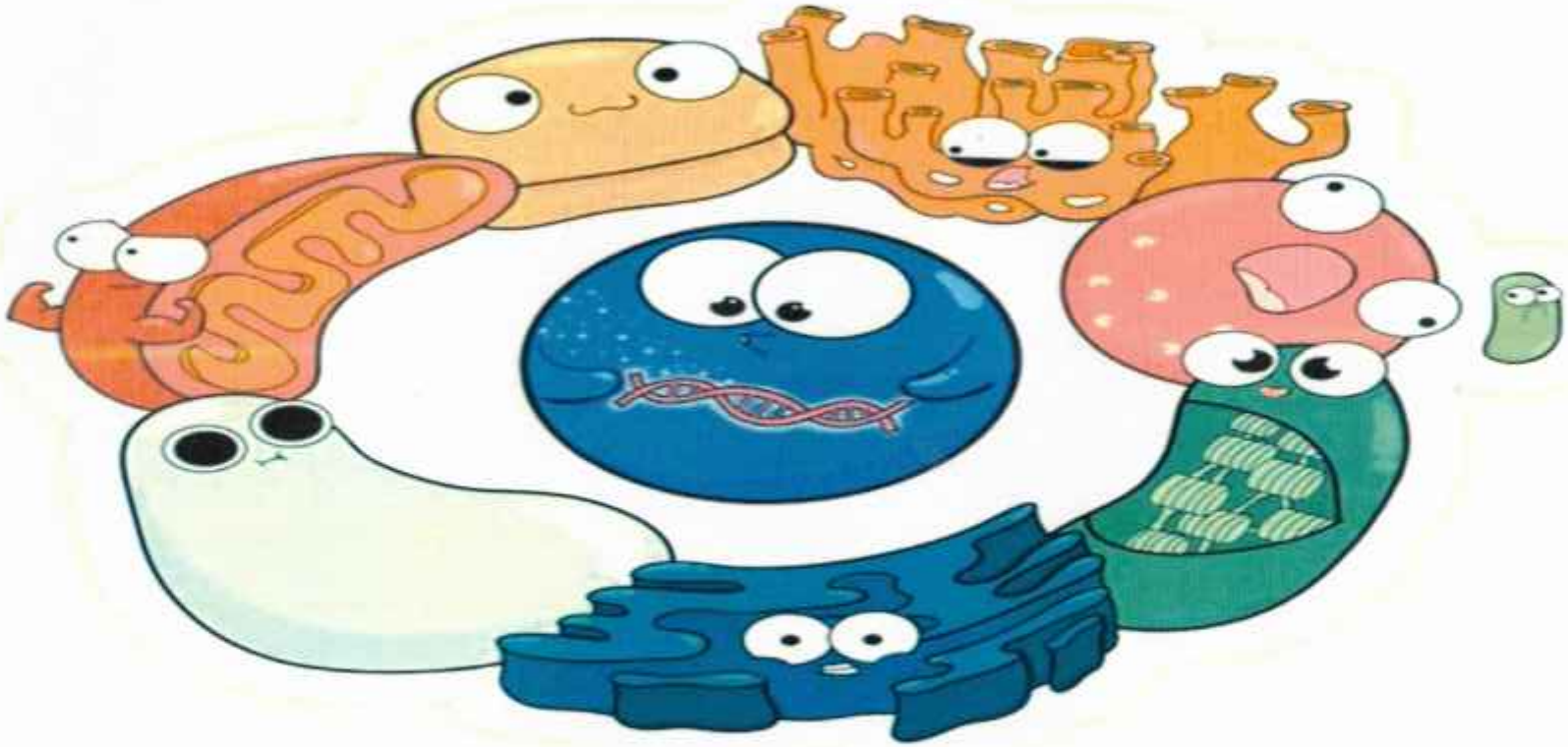
Presented by

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.

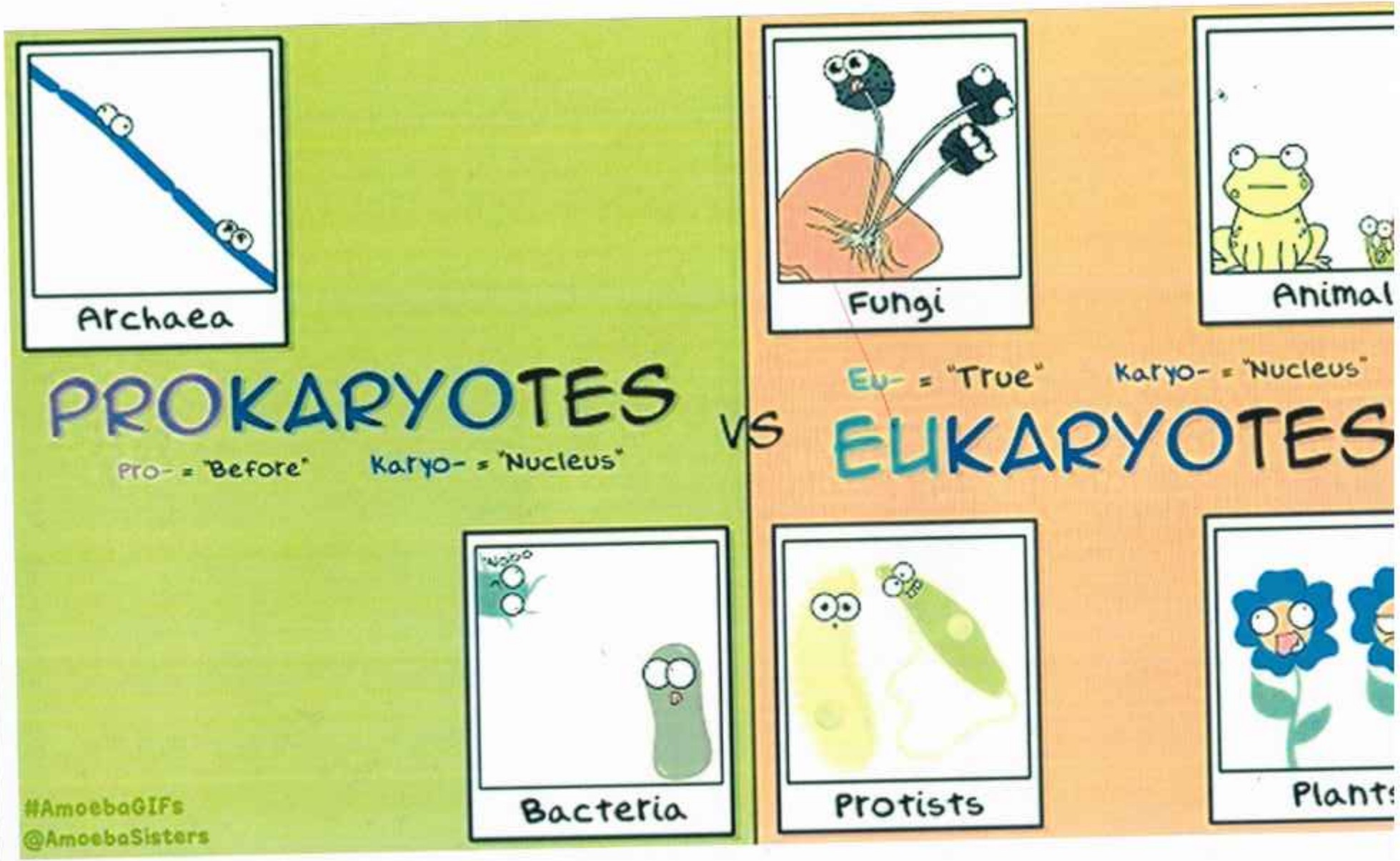
Difference between prokaryotic and eukaryotic cell

Prokaryotic cell

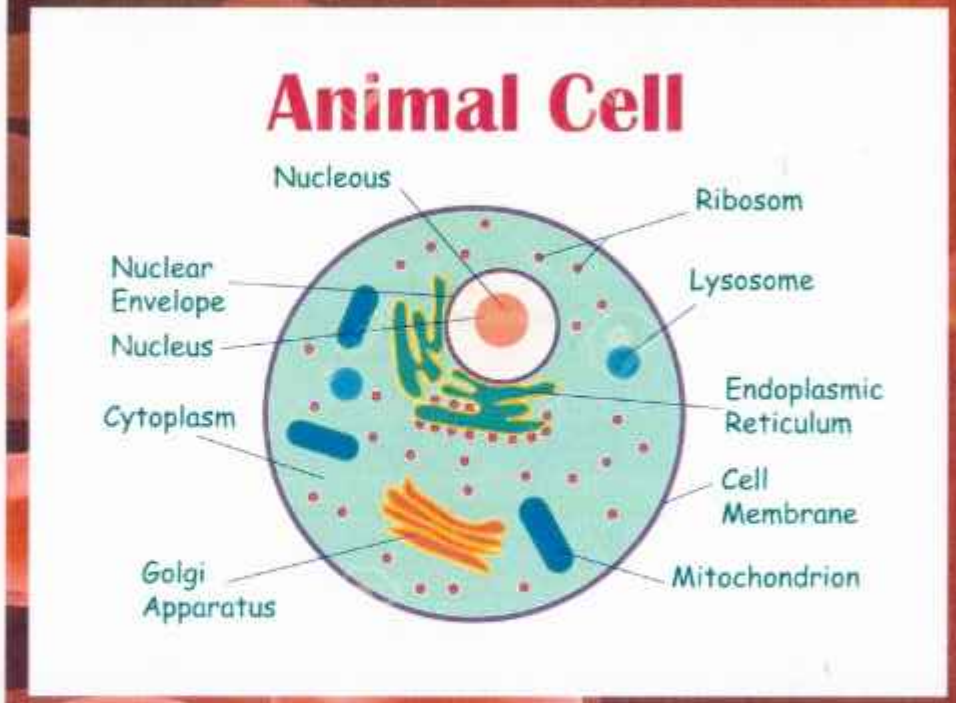
- *Size*- 1-10 mm
- *Number of chromosomes*- Only one
- *Nucleus*- nucleoid resembling nucleus
- *Mitochondria*- They don't have membrane bound cell organelles
- *E.g.* bacteria

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

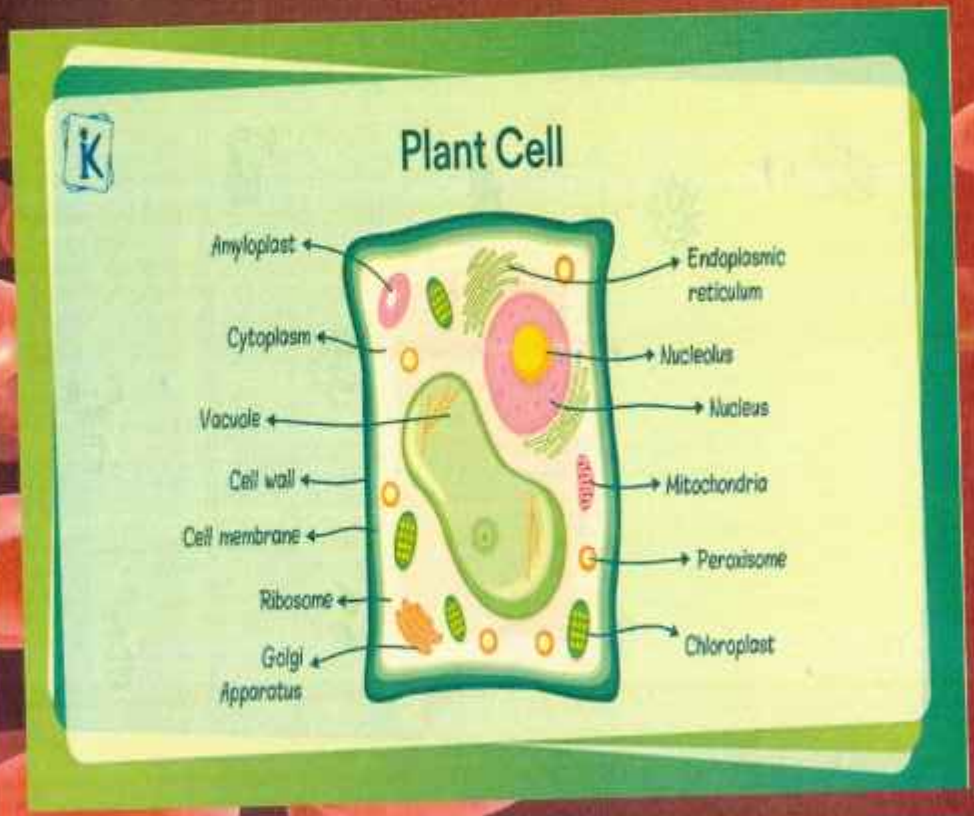

Archaea
Fungi
Animal
PROKARYOTES
Pro- = "Before"
Karyo- = "Nucleus"
VS
Eu- = "True"
Karyo- = "Nucleus"
EUKARYOTES
Bacteria
Protists
Plants
#AmoebaGIFs
@AmoebaSisters

Animal cell



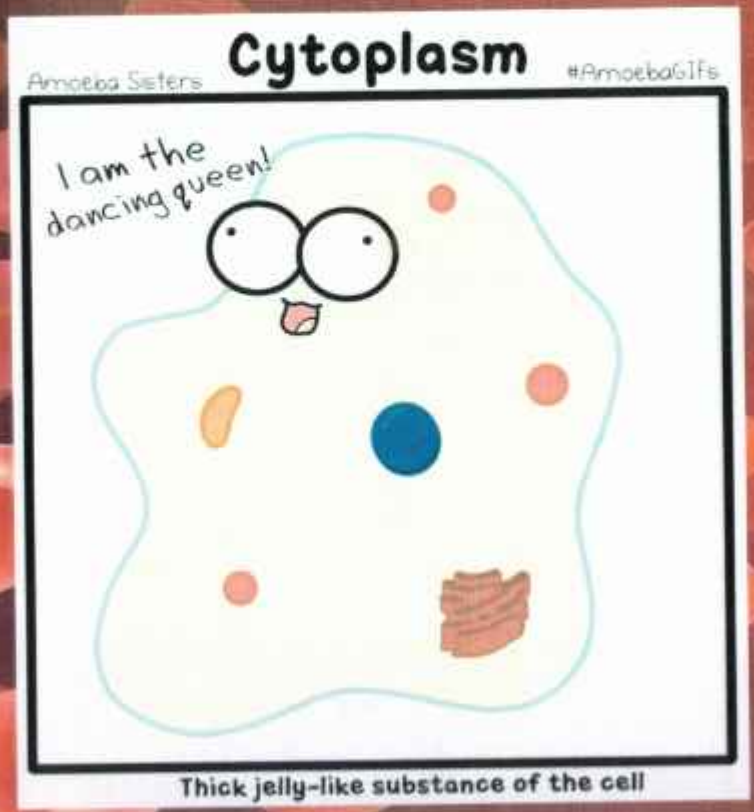
- Cell wall is **absent**.
- They **lack** chloroplasts.
- **Smaller** vacuoles or none.
- The **shape** are typically rounded or irregul
- Have **centrioles**, which are involved in cell division (mitoaia and meiosis).
- Plastids are **absent**.
- Contains **lysosomes**, which are involved in digestion and waste removal.

Plant cell

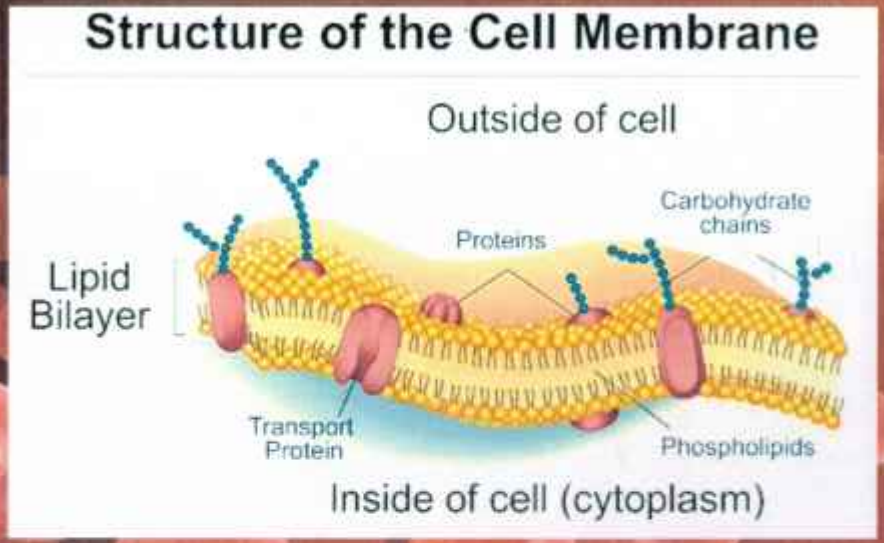


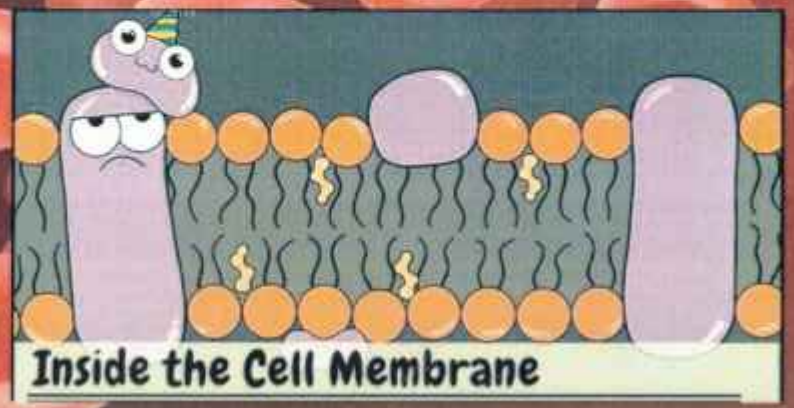
- They have **rigid cell wall** composed of cellulose outside the cell membrane.
- Contains chloroplasts, responsible for **photosynthesis**.
- Have a **large vacuole** that stores water, nutrients and waste products.
- Centrioles are **absent**.
- May contain many types of plastids- **amyloplasts** 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.



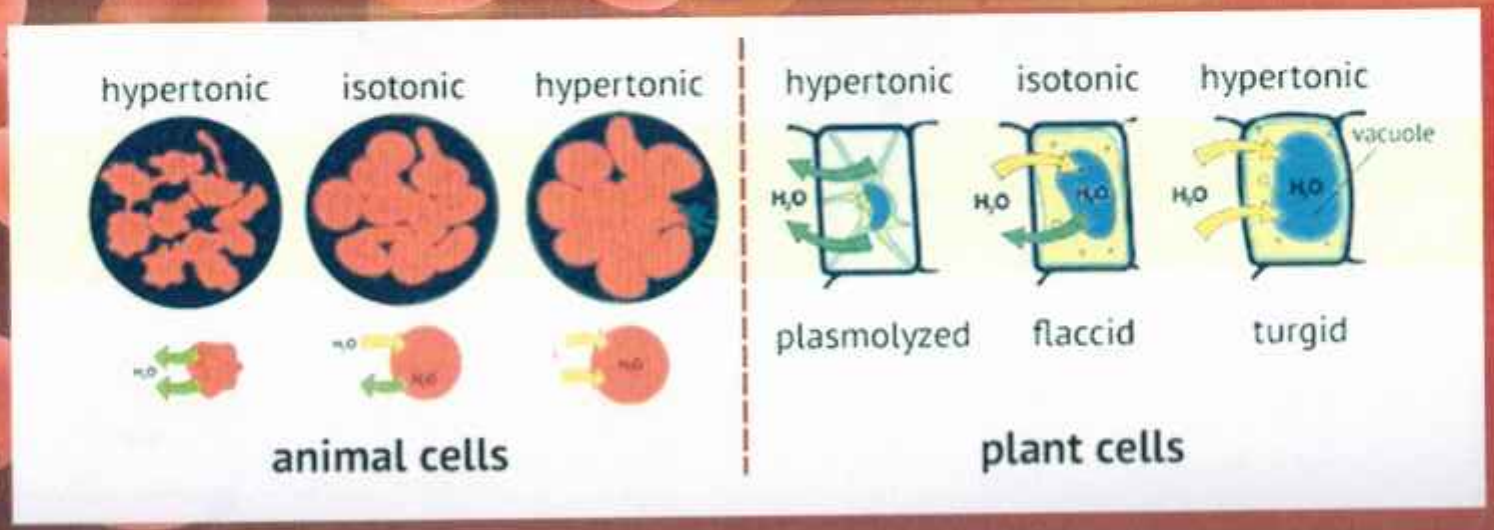


- **Plasma membrane-** thin, fragile and elastic covering that separates cell components from outer environments.
- Protein molecules are embedded in two layers of phospholipids.
- It is selectively permeable.
- Useful molecules- salt, water and oxygen enter the cell and CO_2 exists the cell.
- The cellular environment does not change due to plasma membrane.
- This is called homeostasis.

Processes that don't consume cellular energy

osmosis

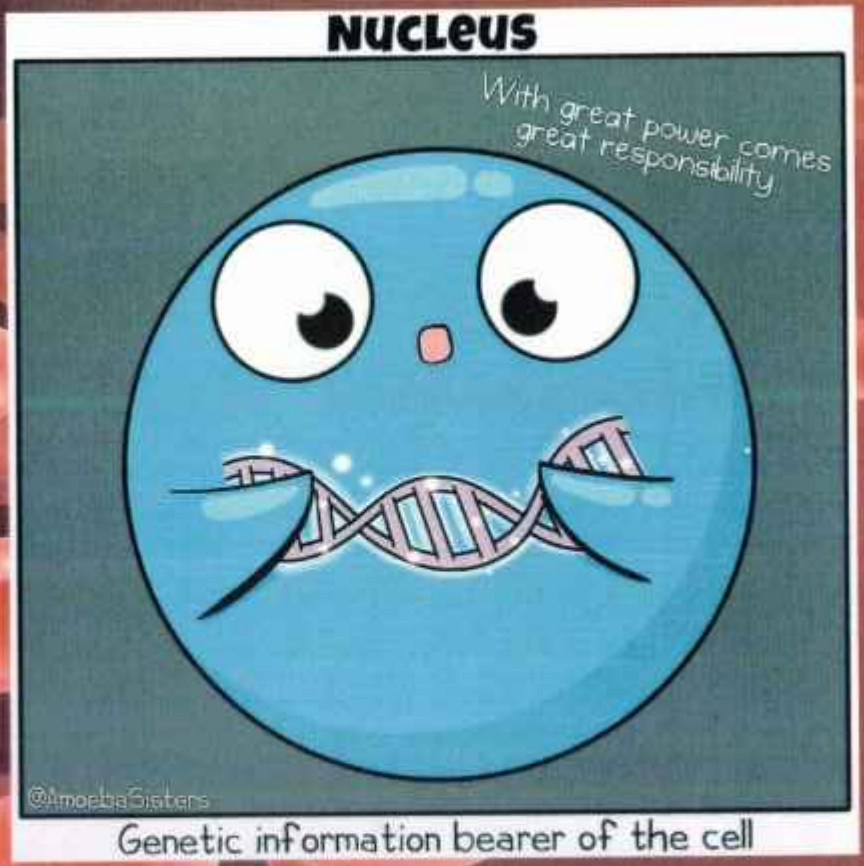
diffusion



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



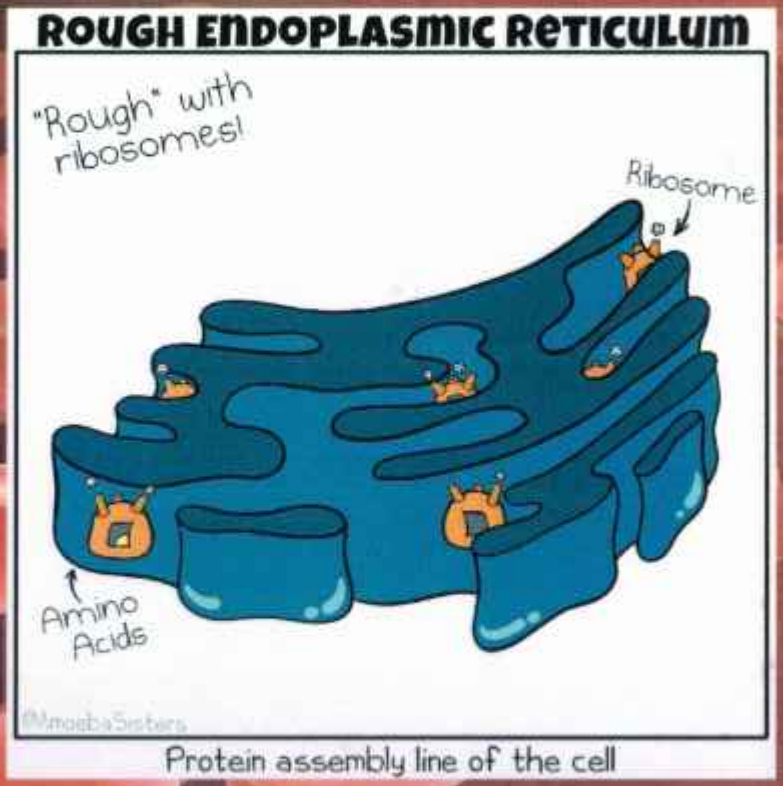
Genetic information bearer of the cell

- 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)

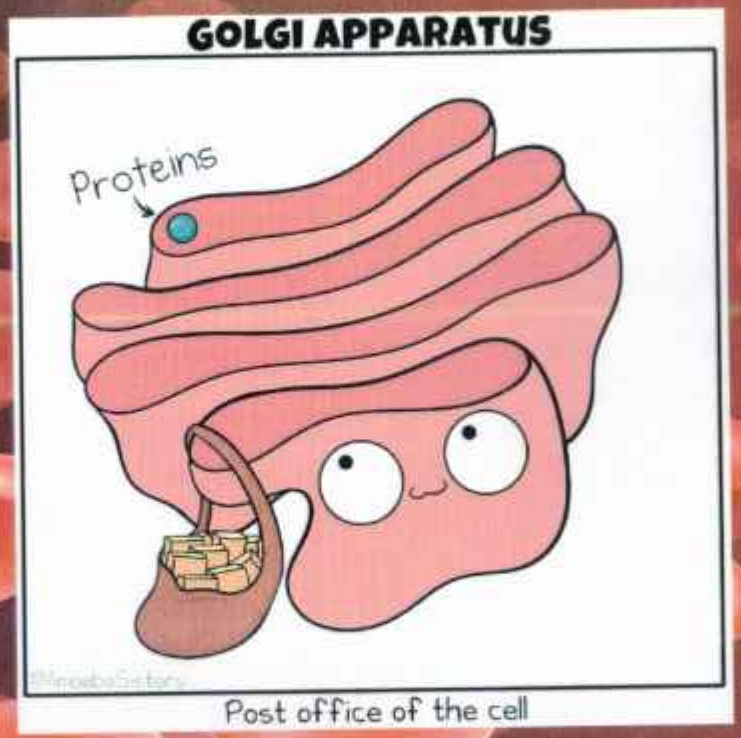


Protein assembly line of the cell

- 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

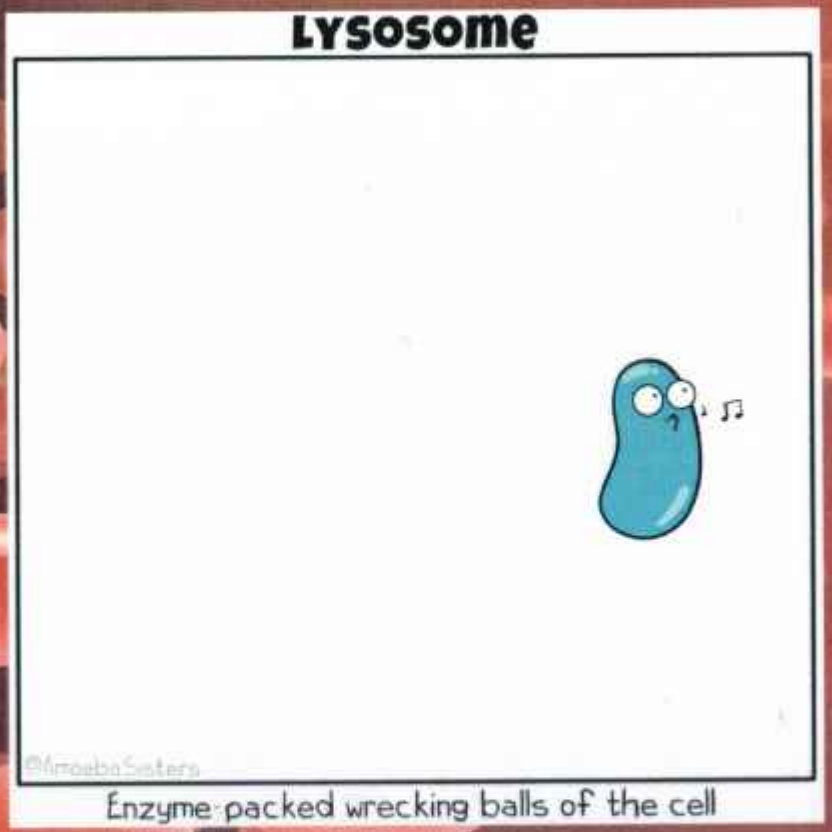
- **Camilio Golgi** described it for the first time.
- The Golgi complex is made up of 5-8 hollow and flat sacs placed **parallel** to each other.
- These sacs are called **'cisternae'** and are filled with different enzymes.
- Proteins coming from ER are enclosed in vesicles, which come towards Golgi 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:***

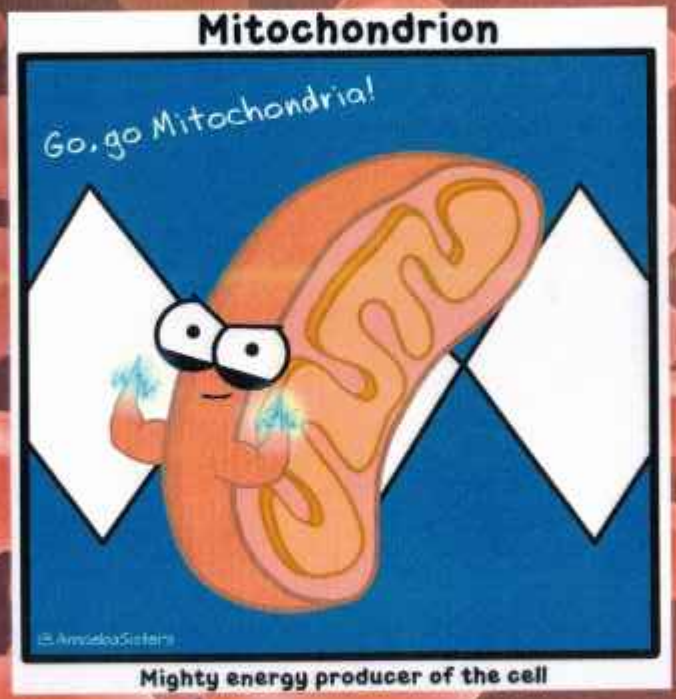
- ✓ Secretory organ of the cell.
- ✓ Modifies, sorts and packs materials synthesized in the cell and dispatches them to various targets like plasma membrane, lysosome, etc.
- ✓ Produces vacuoles and secretory vesicles.
- ✓ Helps in the formation of the cell wall, plasma membrane and lysosomes.

Lysosomes

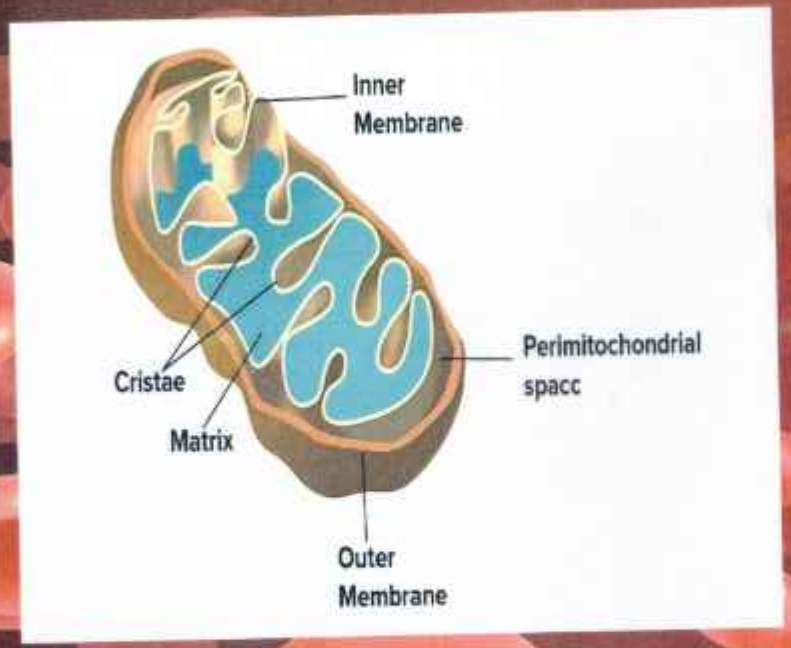


- Lysosomes digest the waste.
- They are simple, single membrane bound sacs filled eith digestive enzymes.
- ***Functions:***
  - ✓ Destroys viruses and bacteria that attack the cell.
  - ✓ Destroys worn out cellular organelles and organic debris (Autolysis).
  - ✓ Called suicidal bags.
  - ✓ During 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).

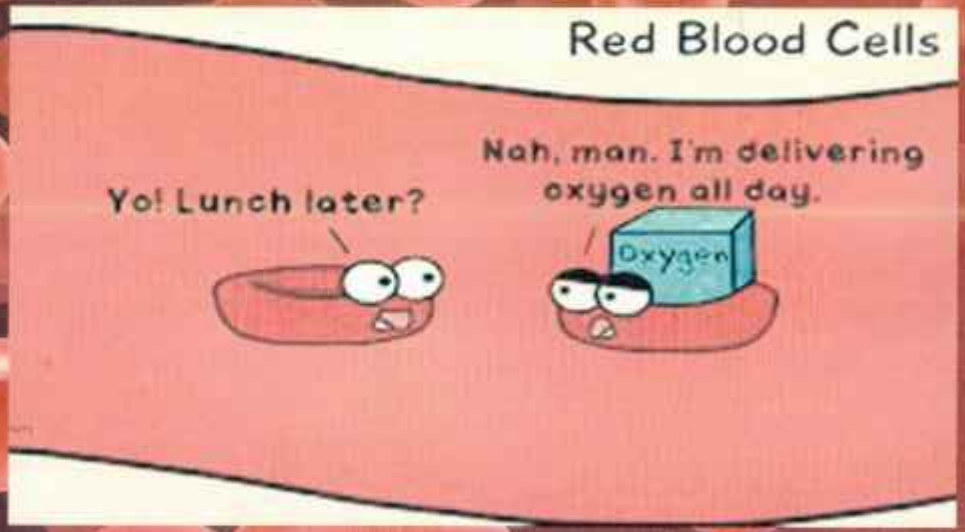


- It can be seen under the electron microscope.
- Plant cells have less mitochondria than animal cells.
- ***Functions:***

✓ To produce energy- rich compound- ATP.

✓ Synthesis of proteins, carbohydrates, lipids etc. by using the energy in ATP.

Red blood cells (RBC's)

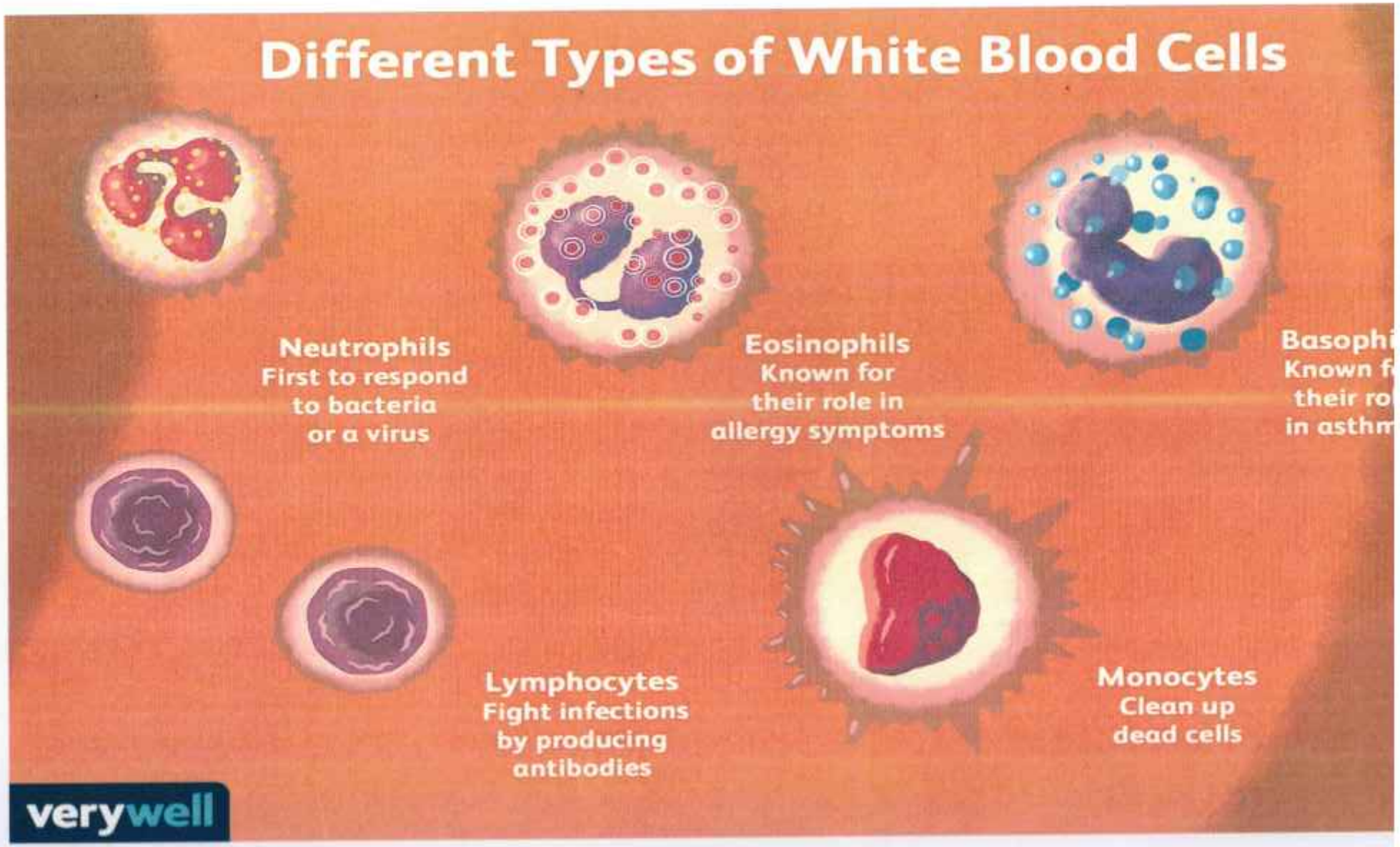


- Found in the bloodstream and are produced in the bone marrow.
- Also called as **erythrocytes**.
- **Main function**- to transport oxygen fro lungs to all tissues of the body and to carry CO_2, back to lungs to be exhaled.
- Disc-shaped, packed with haemoglobin.
- **Haemoglobin**- a protein that binds oxygen, giving blood its red colour.
- Maintains the body's **oxygen supply**.

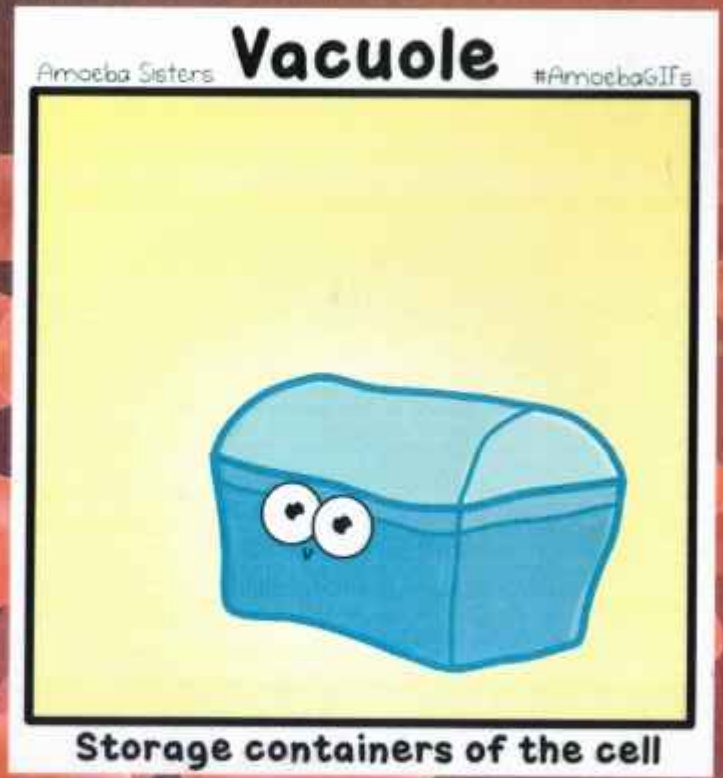
White blood cells (WBC's)

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
their ro
in asthm
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:***

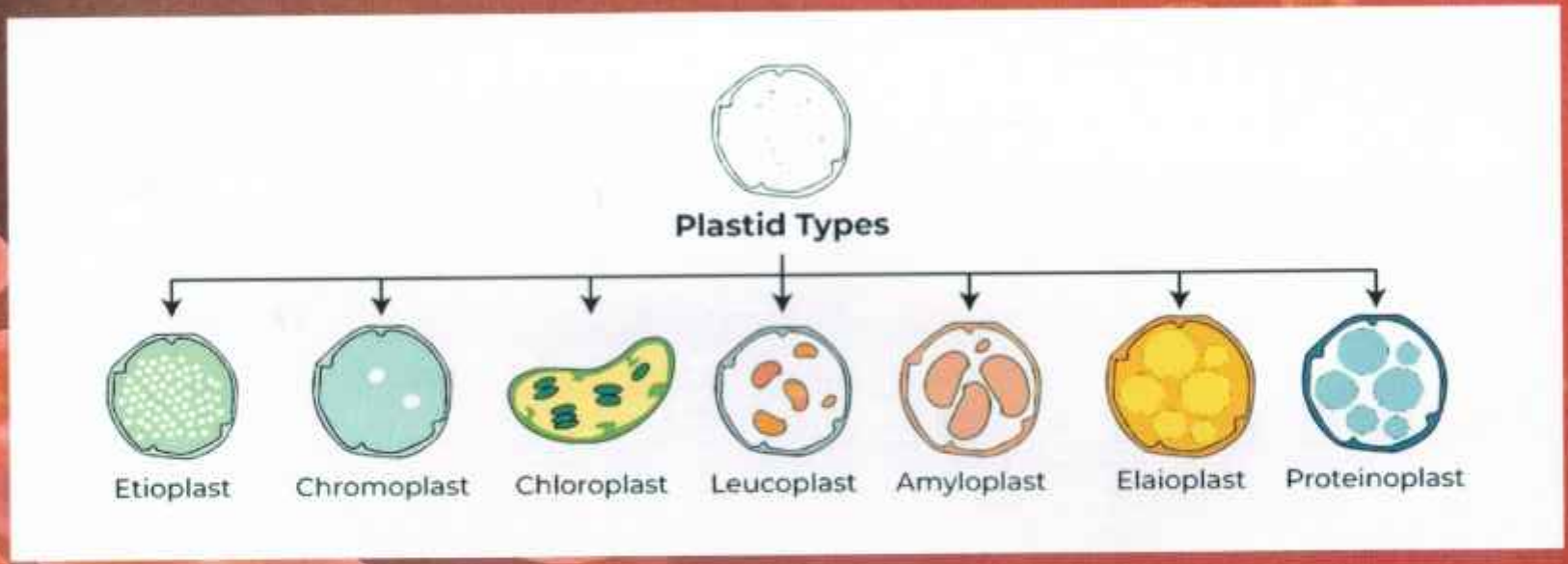
✓ Maintains osmostic pressure of the cell.

✓ Store metabolic byproducts and end products. (Glycogen, protein and water)

✓ In animal cell- they store waste products and fo

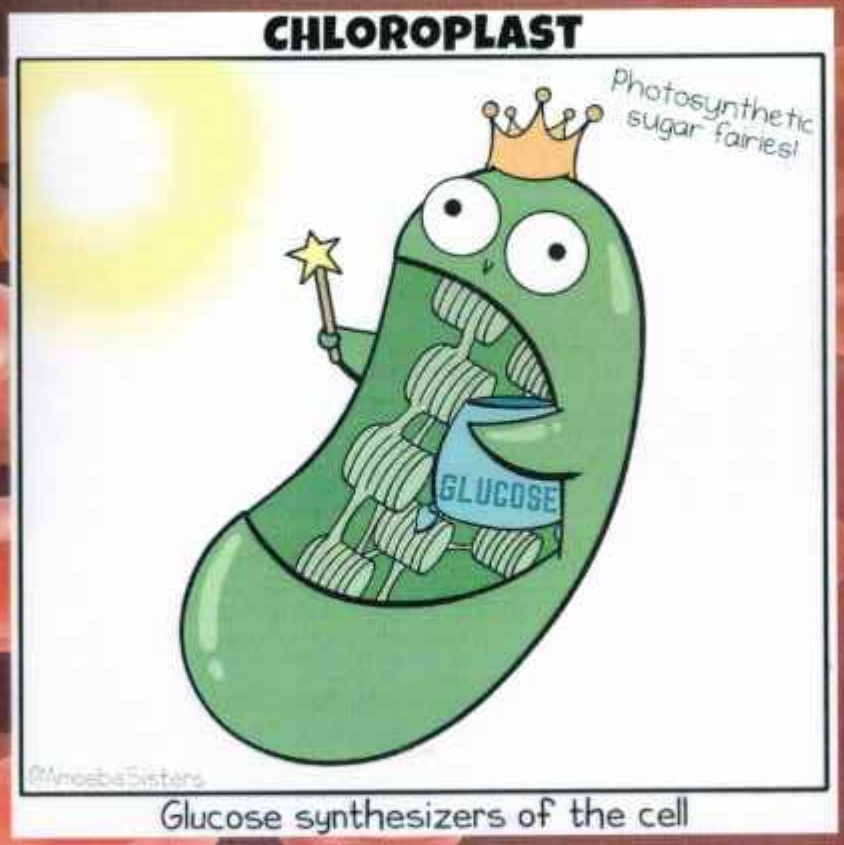
✓ In plant cell- full of sap, provides turgidity and rigidity to them.

Plastids



- Type of organelle found in plant cells.
- Responsible for photosynthesis, storage and pigment synthesis.
- Most well-known plastid is chloroplast.

Chloroplast



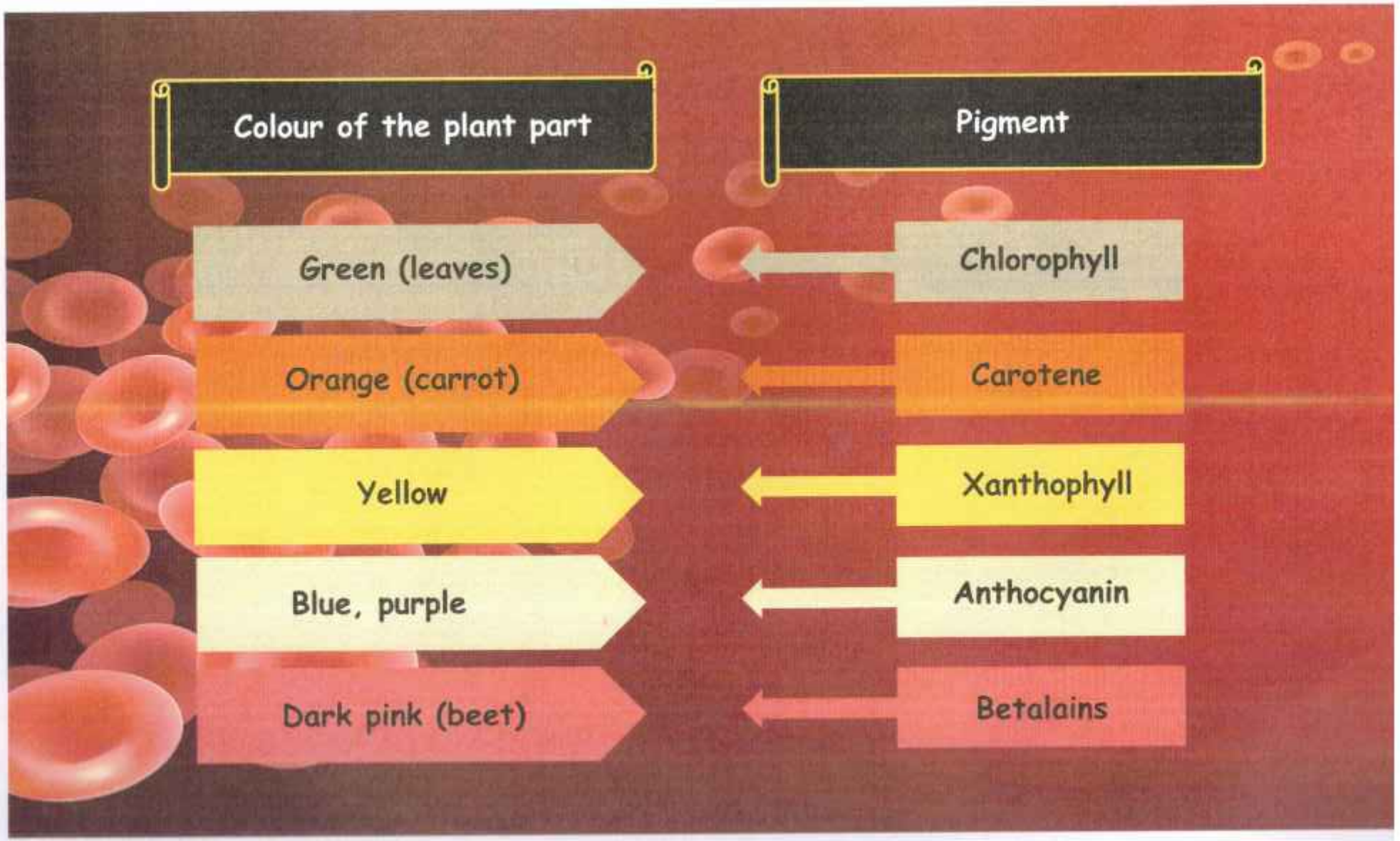
Glucose synthesizers of the cell

- 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.

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.redbubble.com%2Fi%2Fnotebook%2FCell-Organelle-Friendship-Circle-by-amoebasisters%2F55570966.WX3NH&psig=AOvVaw2leDrFaDeW8xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTCOjI7ca5goUDFQAAAAAdAAAAABAD

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.amoebasisters.com%2Fgifs.html&psig=AOvVaw2leDrFaDeW8xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTCOjI7ca5goUDFQAAAAAdAAAAABAI

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.amoebasisters.com%2Fgifs.html&psig=AOvVaw2leDrFaDeW8xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTCOjI7ca5goUDFQAAAAAdAAAAABAQ

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.dailymotion.com%2Fvideo%2Fx64p96w&psig=AOvVaw2leDrFaDeW8xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTCOjI7ca5goUDFQAAAAAdAAAAABBg

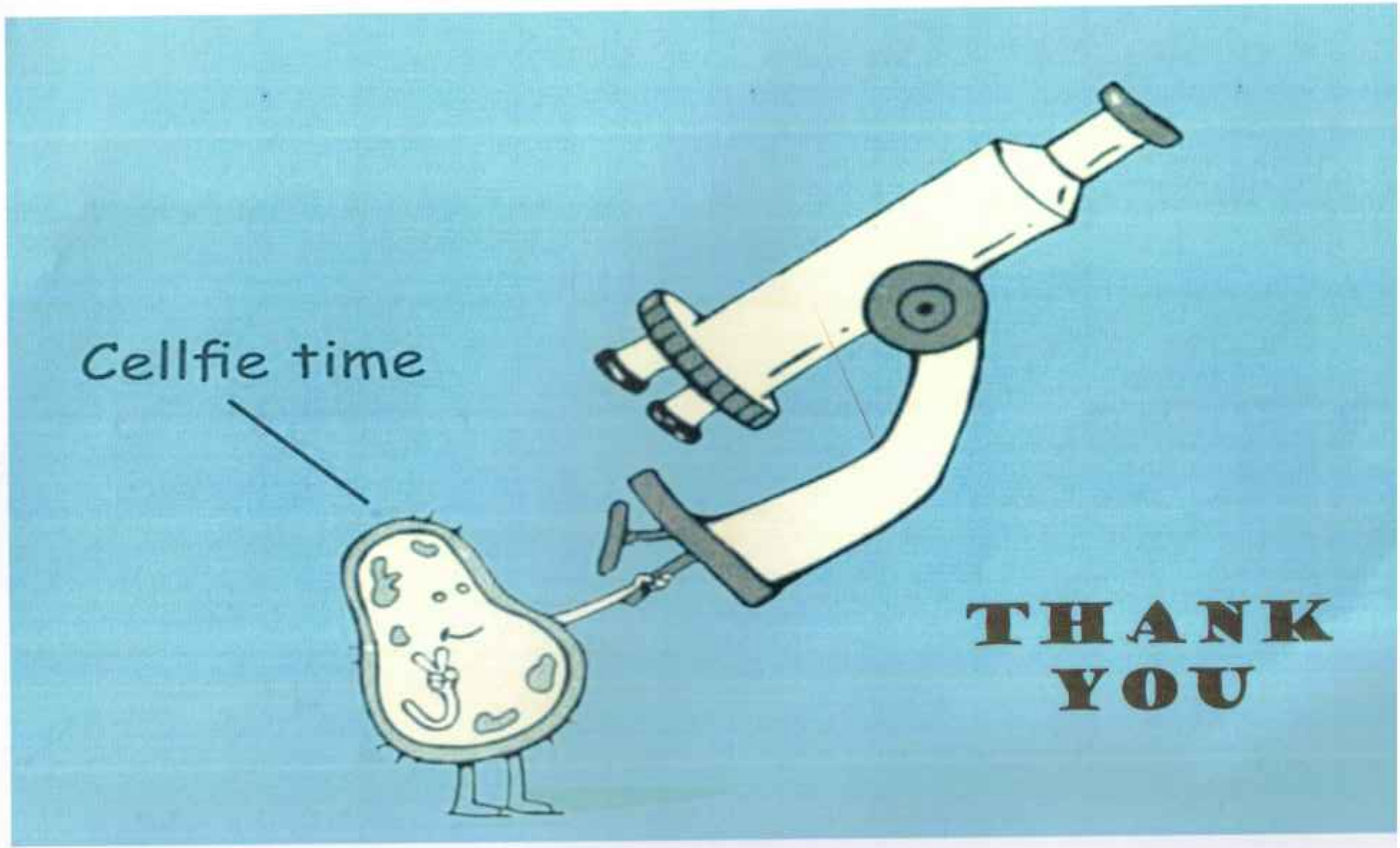
https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.amoebasisters.com%2Fuploads%2F2%2F1%
9%2F0%2F21902384%2Famoeba_sisters_bio_discussion_topics_with_gifs.pdf&psig=AOvVaw2leDrFaD
xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTC
7ca5goUDFQAAAAAdAAAAABAg

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.amoebasisters.com%2Fuploads%2F2%2F1%
9%2F0%2F21902384%2Famoeba_sisters_bio_discussion_topics_with_gifs.pdf&psig=AOvVaw2leDrFaD
xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTC
7ca5goUDFQAAAAAdAAAAABAo

https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.pinterest.com%2Fjawojta%2Fcell-
parts%2F&psig=AOvVaw2leDrFaDeW8xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe&
89978449&ved=0CBAQjRxqFwoTCOjI7ca5goUDFQAAAAAdAAAAABAw

https://www.google.com/url?sa=i&url=https%3A%2F%2Famoebasisters.tumblr.com%2Fimage%2F617290
387008512&psig=AOvVaw2leDrFaDeW8xFzwDlkeHm_&ust=1711010652934000&source=images&cd=vfe
=89978449&ved=0CA8QjRxqFwoTCOjI7ca5goUDFQAAAAAdAAAAABA4


https://www.google.com/url?sa=i&url=https%3A%2F%2Ftwitter.com%2FAmoebaSisters%2Fstatus%2F7
43633824474398 73&psig=AOvVaw2lCn5uwJRof3mhA7nWx9zI&ust=1711011055949000&source=image
cd=vfe&opi=89978449&ved=0CBAQjRxqFwoTCKiI8oe7goUDFQAAAAAdAAAAABAH
https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.quora.com%2FWhat-is-the-difference-
between-red-blood-cells-RBCs-and-white-blood-cells-WBCs-Why-do-we-need-RBCs-only-and-not-WBCs-
only-or-both-together-Does-our-body-have-any-mechanism-to-differentiate-between-them-
before&psig=AOvVaw2lCn5uwJRof3mhA7nWx9zI&ust=1711011055949000&source=images&cd=vfe&opi=
9978449&ved=0CA8QjRxqFwoTCKiI8oe7goUDFQAAAAAdAAAAABAX
https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.amoebasisters.com%2Fparameciumparlorc
ics%2Ffighting-
infections&psig=AOvVaw19xTDJROF3a9fUnxwL0QnL&ust=1711011132429000&source=images&cd=vfe&
i=89978449&ved=0CBAQjRxqFwoTCJDQyqm7goUDFQAAAAAdAAAAABAD


Cellfie time
THANK
YOU

EPC 3

Method- 2 CHEMISTRY

Semester- II

Topic- Carbon- An important element

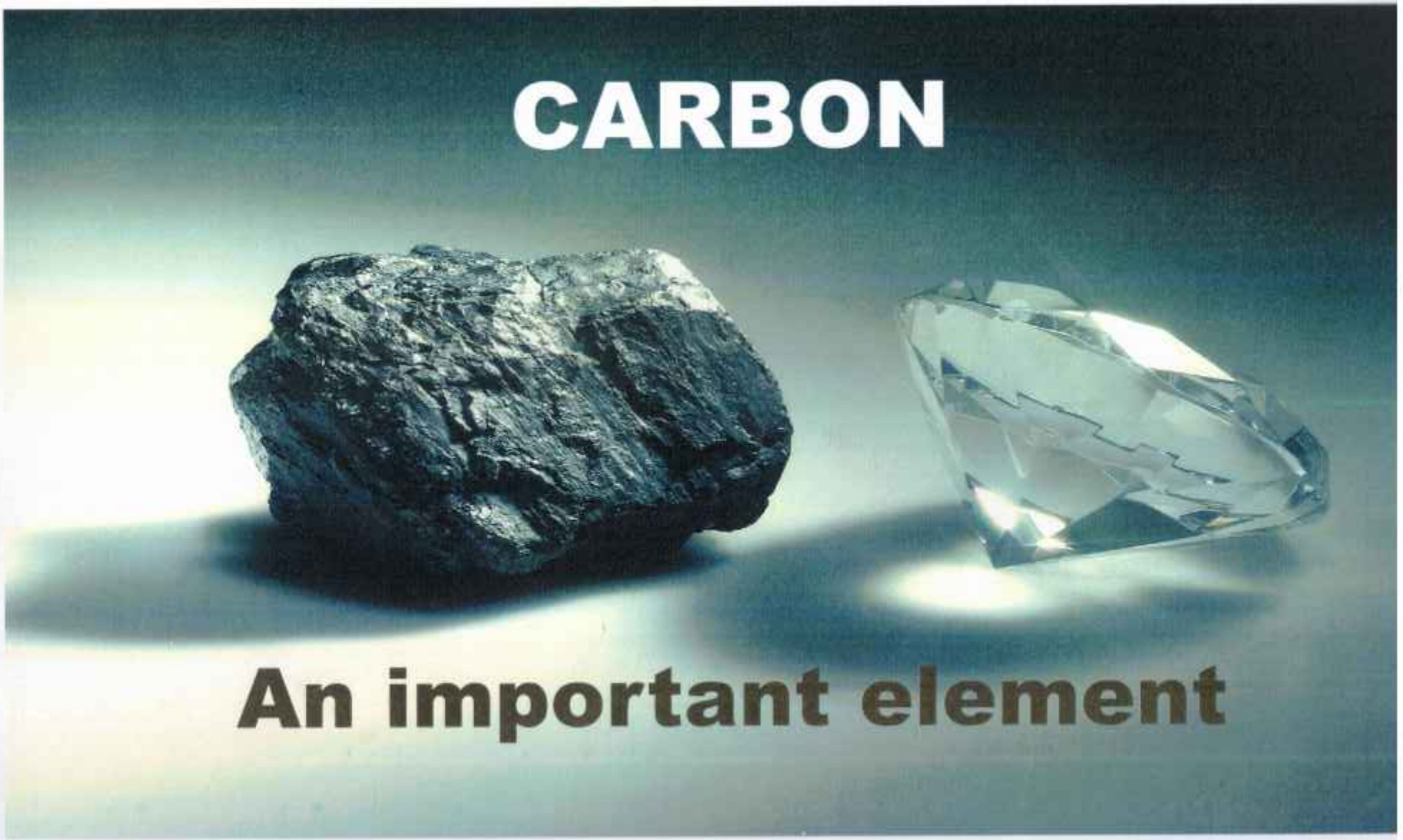
(Class – 9th)

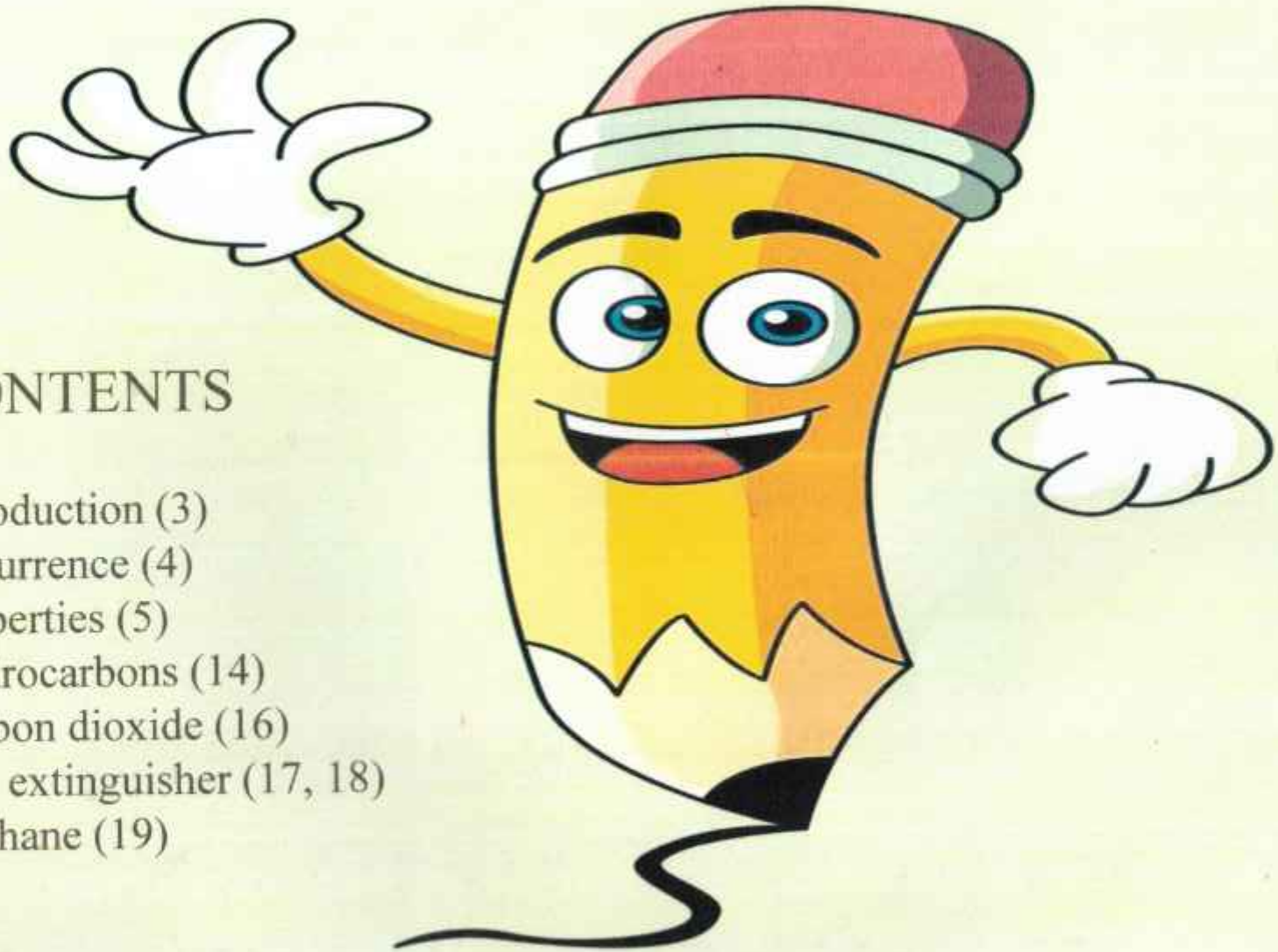
Presented by

Shriya A. Kale

Shiladevi College of Education, Wadi

Nagpur- 440012


CARBON
An important element



❑ CONTENTS

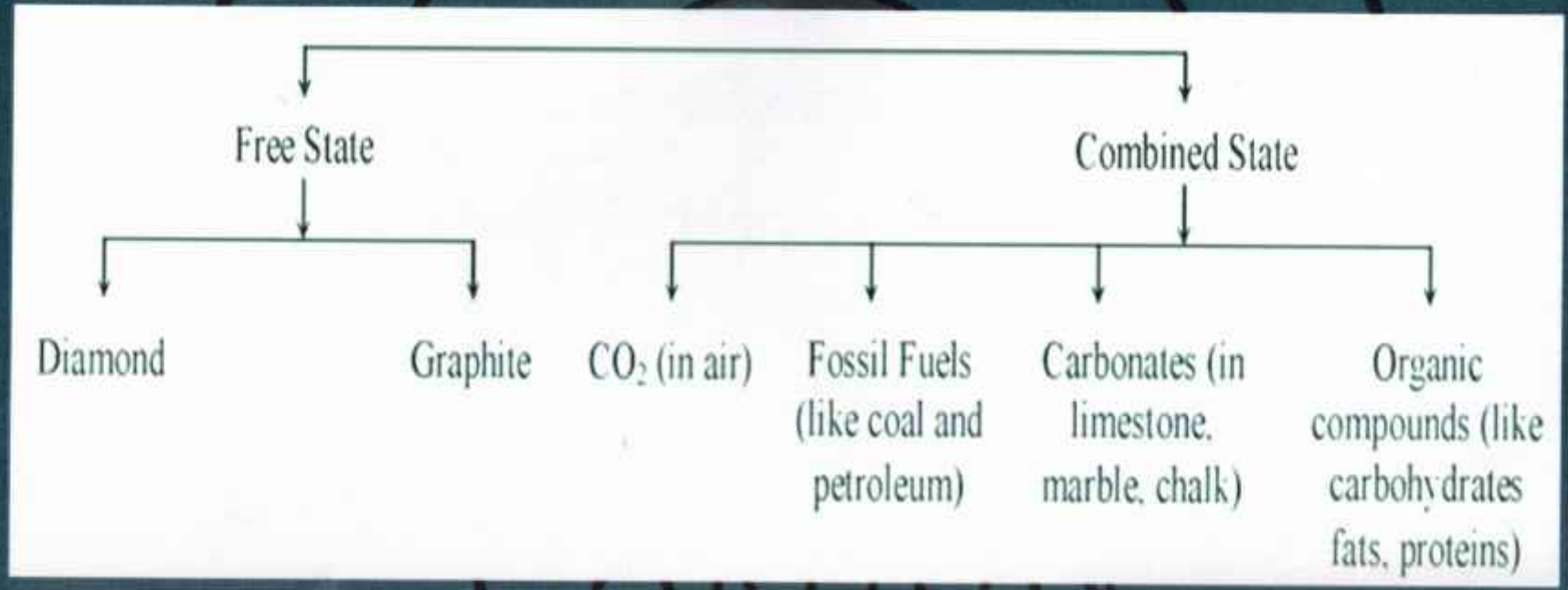
Introduction

- 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

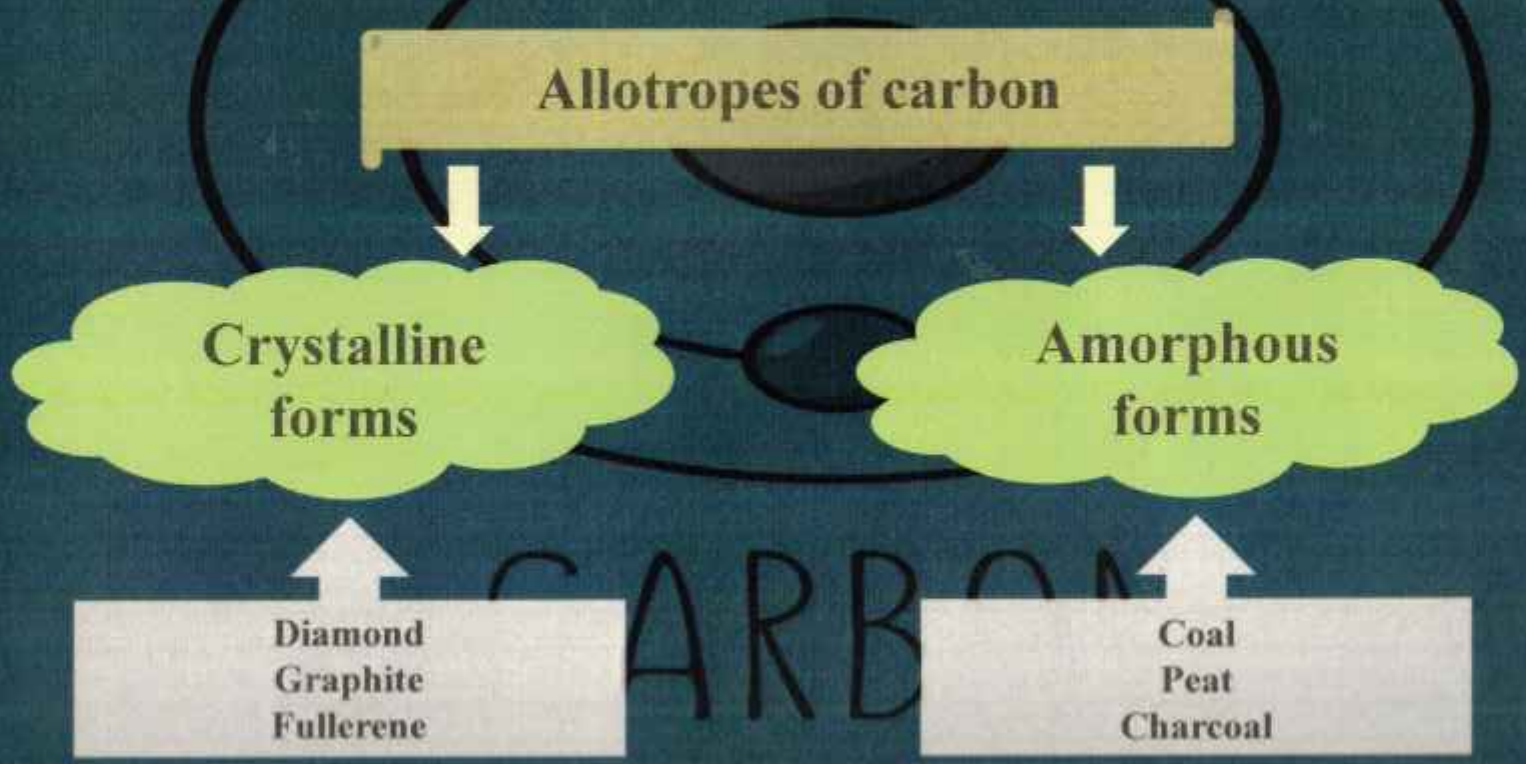
Occurrence of carbon

- Name carbon is derived from the Latin word 'carbo' meaning coal.



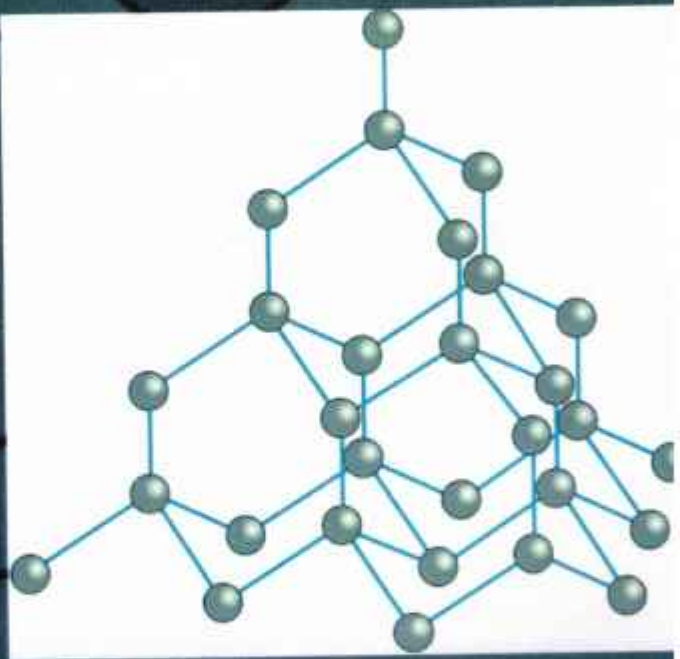
Properties

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.

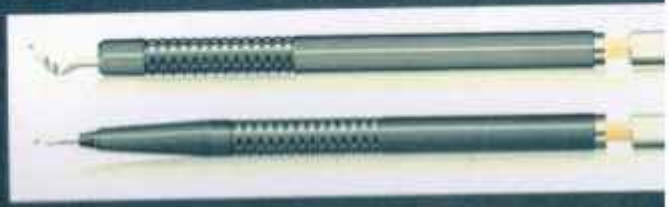
CARBON

➢ 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.

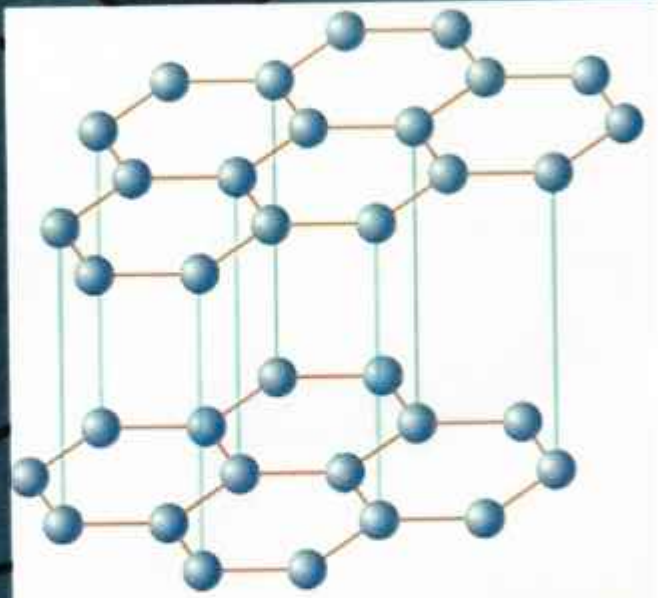


CARBO

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

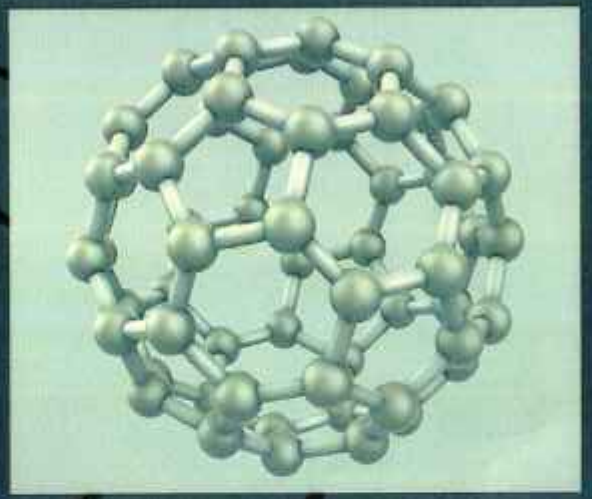
i. Black, soft, brittle and slippery.
ii. Free electrons move continuously within the entire layer. Hence good conductor of electricity.
iii. Due to layered structure, graphite can be used for writing on paper.
iv. Density, 1.9 to 2.3 g/cm^3.
v. Does not dissolve in most solvents.

➢ 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.

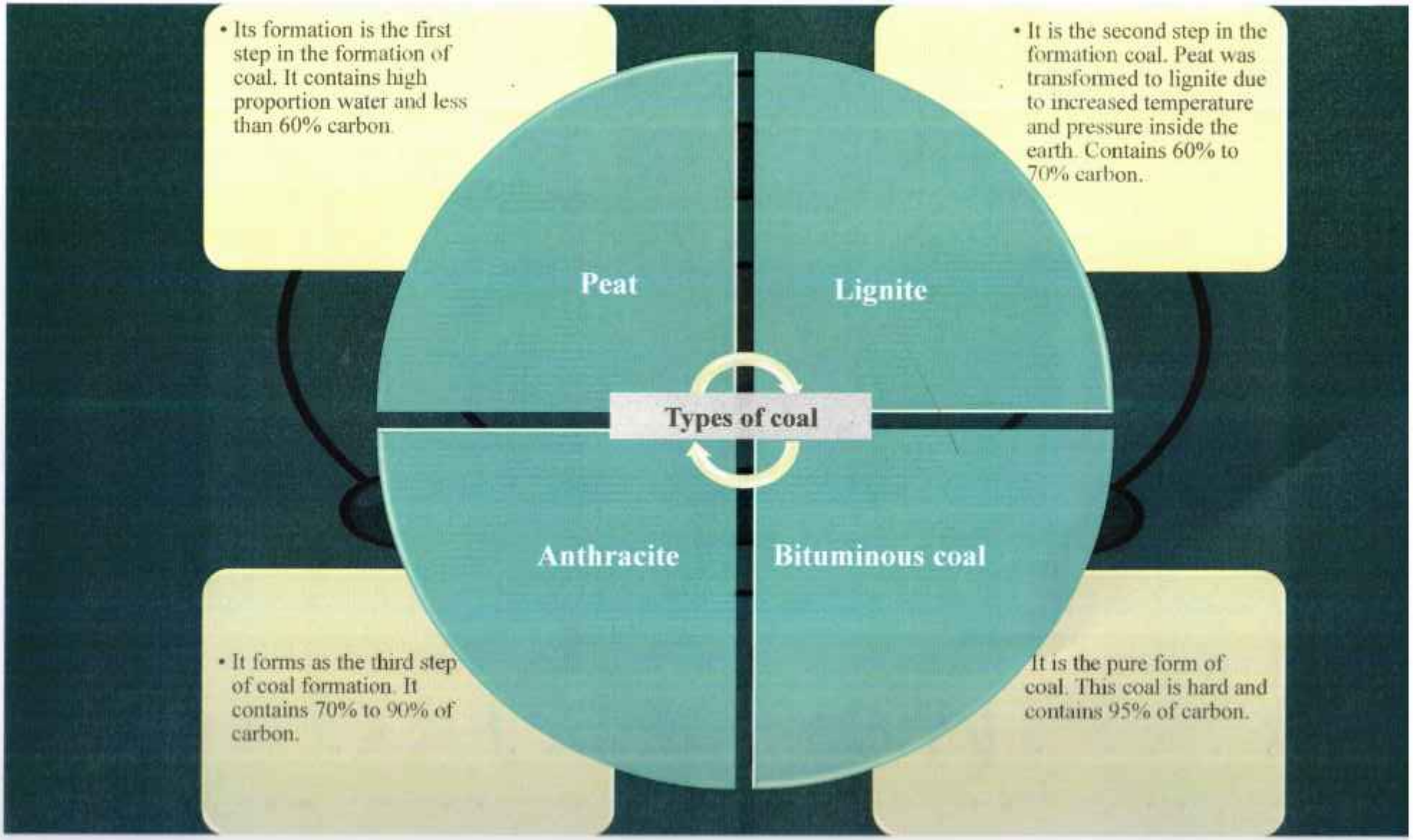
III. Fullerene

- 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.



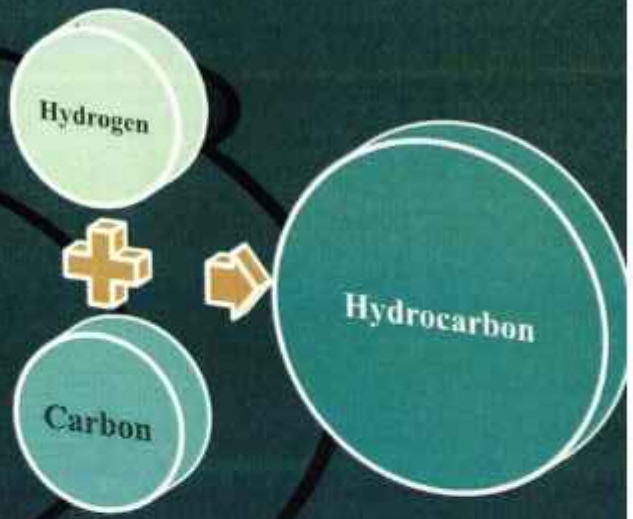
Amorphous forms/ non-crystalline forms

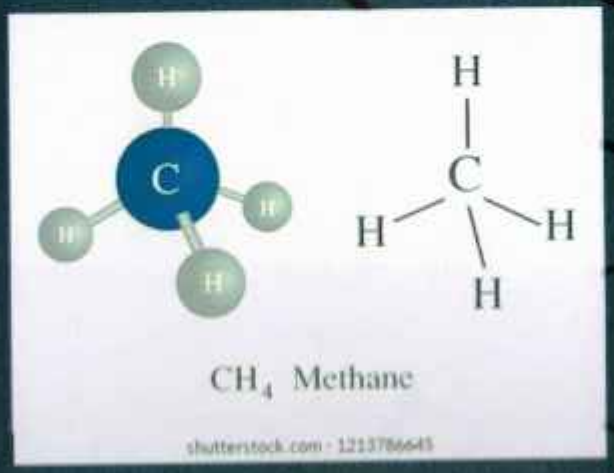
Coal	Charcoal	Coke
It is a fossil fuel. Contains carbon, hydrogen & oxygen. Also contains nitrogen, phosphorous & sulphur. It occurs in solid state. And it is of 4 types.	Made from animals- bones, horns, etc. on the other hand it is also made up of plants- formed by combustion of wood in an insufficient 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.

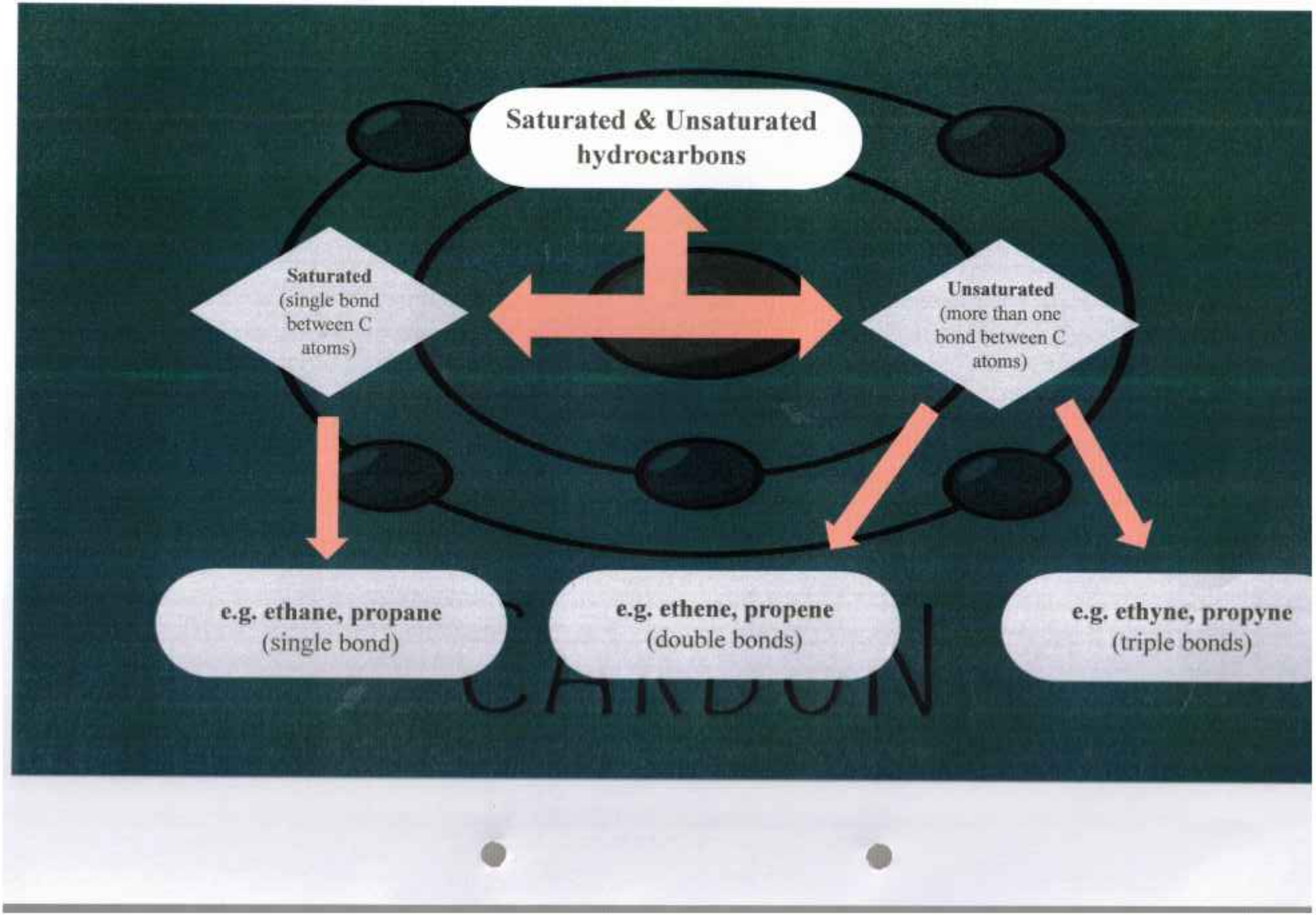
Hydrocarbons

- 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 hydroge 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.

- **Chemical properties**

i. Sodium carbonate (washing soda) is formed when CO_2 is passed through an aqueous solution of sodium hydroxide.
ii. Chemical equation 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. Chemical equation of the reaction: $Na_2CO_3 + H_2O + CO_2 \rightarrow 2NaHCO_3$

CARBON

➢ Uses

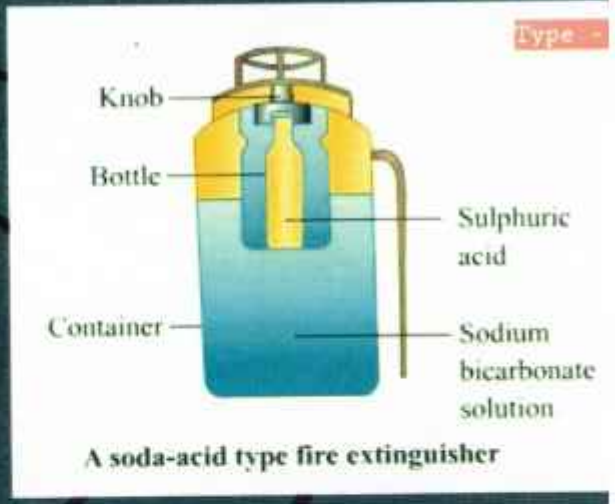
i. CO_2 is used to make aerated drinks.
ii. Solid CO_2 is used in cold storage & to also keep milk and milk products.
iii. Used for getting special effects of a mist in dramas & movies.
iv. CO_2 obtained by chemical reaction or kept under pressure is used in fire extinguishers.
v. Plants use CO_2 in 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

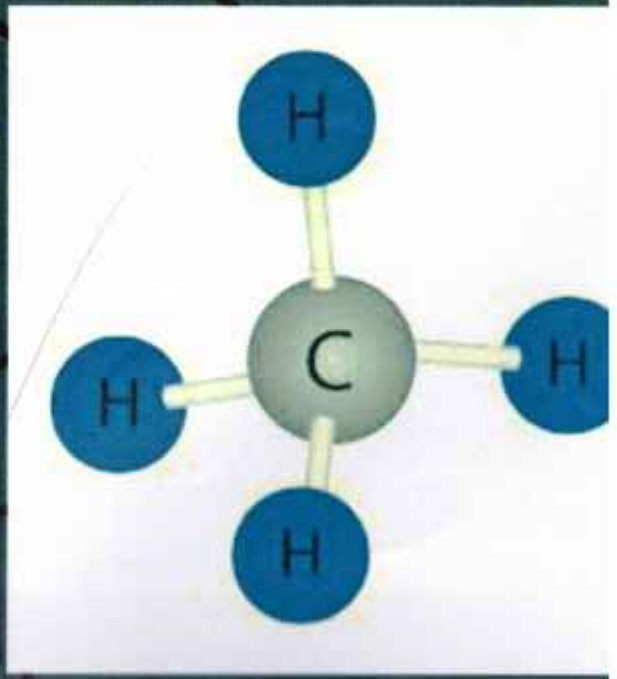
- ✓ CO_2 based fire extinguishers do not cause corrosion and are non conductors of electricity. Therefore used when electronic equipment catches fire.
- ✓ CO_2 are used to extinguish small scale fire.
- ✓ In modern fire extinguishers liquid and solid CO_2 is filled under pressure.
- ✓ On reducing the 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>**

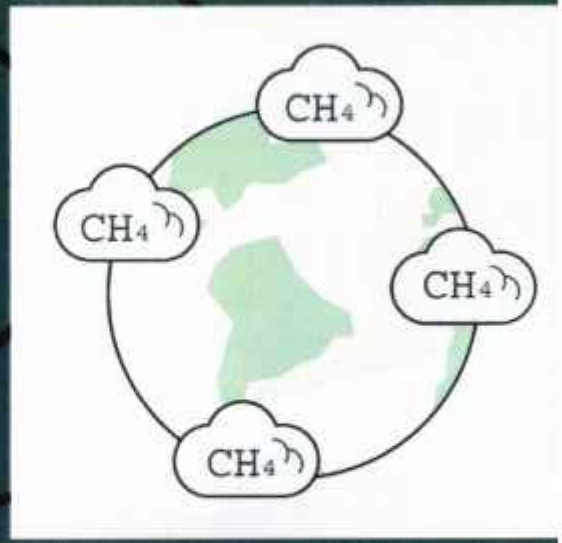
i. Melting point: -182 °C.
ii. Boiling point: -161 °C.
iii. Colorless gas.

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.

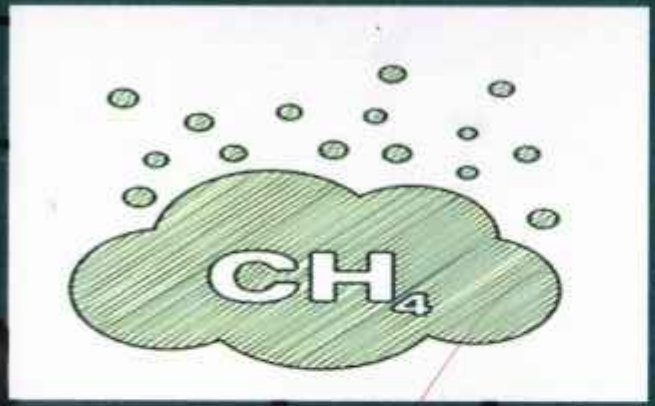
iv. Chemical reaction: $CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$

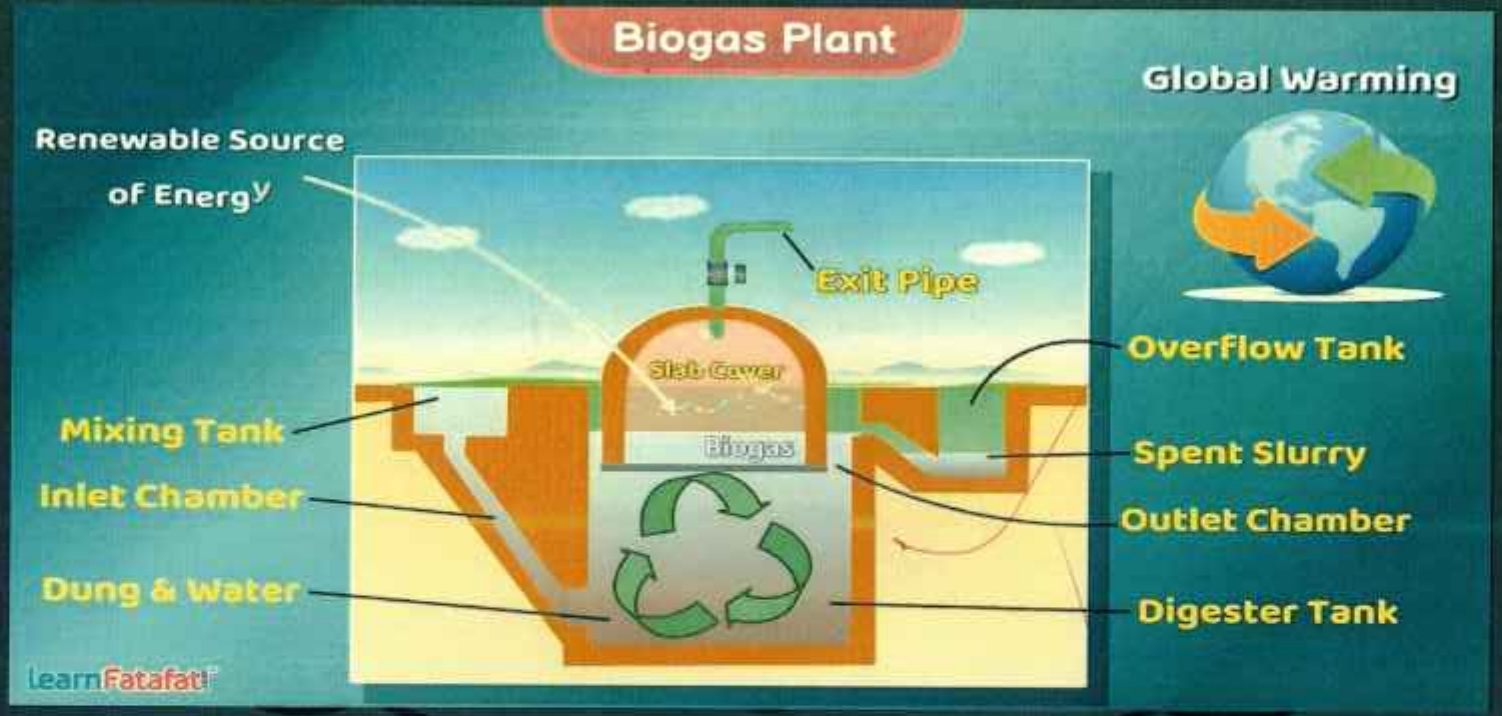
➢ Uses

i. CH_4 is the form of natural gas is used on industries such as fabric mills, paper mills, food processing industry, petrol purification.

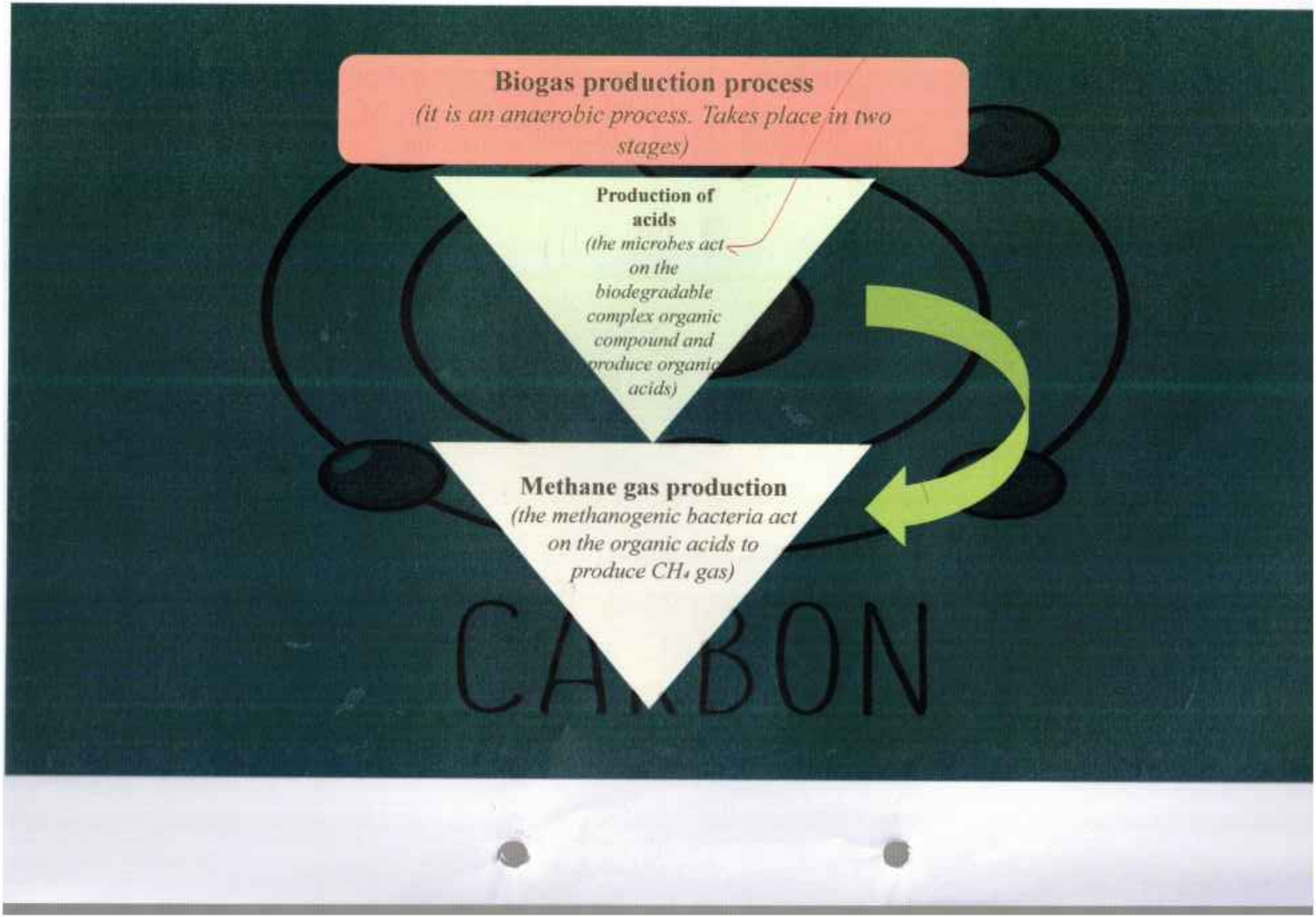
ii. Being the smallest hydrocarbon, the proportion of CO_2 released. In the combustion of CH_4 is the small and therefore, it is used as a domestic fuel.

iii. CH_4 is used for production of organic compounds such as ethanol, methyl chloride, methylene chloride and acetylene.





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

ttps://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.toppr.com%2Fask%2Fquestion%2Fcompare-the-
ructures-of-diamond-and-
aphite%2F&psig=AOvVaw0QiZCn2ICOsApWnpNoJ2yd&ust=1712593604325000&source=images&cd=vfe&opi=8997
149&ved=0CBIQjRxqFwoTCMiT2MXCsIUDFQAAAAAdAAAAABAE

tps://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.msfiresafetyservices.com%2Fabc-bc-type-fire-
tinguisher%2F&psig=AOvVaw3kXHxTPYZ0sgz35ZpEBtXM&ust=1712593730339000&source=images&cd=vfe&opi=8
78449&ved=0CBIQjRxqFwoTCJChrJXDsIUDFQAAAAAdAAAAABAE

ps://www.google.com/url?sa=i&url=https%3A%2F%2Fmedium.com%2F%40nanografi%2Fgeneral-information-
out-fullerene-c60-also-known-as-buckyballs-1654c74c6b30&psig=AOvVaw0FnEMEf3_LuZpQw-
4kD&ust=1712593850506000&source=images&cd=vfe&opi=89978449&ved=0CBIQjRxqFwoTCOCp9bXDsIUDFQA
AAdAAAAABAE

ps://www.google.com/url?sa=i&url=https%3A%2F%2Fmedium.com%2F%40nanografi%2Fgeneral-information-
ut-fullerene-c60-also-known-as-buckyballs-1654c74c6b30&psig=AOvVaw0FnEMEf3_LuZpQw-
4kD&ust=1712593850506000&source=images&cd=vfe&opi=89978449&ved=0CBIQjRxqFwoTCOCp9bXDsIUDFQA
AAdAAAAABAE

THANK
YOU

Name - Ketaki · Shrikant 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

BHAGWATI
PAGE NO. :
DATE :

Name of Practical

INDEX

Teacher's Signature.....

INDEX

Perimeter Of Triangle
a
b
c
= a+b+c
GPS Map Camera
Nagpur, Maharashtra, India
Unnamed Road, Maharashtra 440016, India
Lat 21.121895°
Long 78.967181°
16/12/23 03:26 PM GMT +05:30
Google

Introduction

Adult literacy is the ability of adults to use a language ie to read, write, listen and speak. Adult 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 rural areas. These pose as hindrance to the national efforts to achieve education for all and to eradicate poverty. About 80 percent of the population livel in villages that have the largest concentration of illiterate people. These areas also have maximum gender differentials. Some area have specific differentials in attaining literacy rates, girls by and large suffered in their educational pursuits mainly due to ignorance on the parts of parents, poverty geographical hazards like North Eastern South states of

Teacher's Signature

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 differently 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.


मदर टेरेसा अंगणवाडी के
GPS Map Camera
Nagalwadi, Maharashtra, India
4XC5+MVR, Waddhamna, Nagalwadi, Maharashtra 440016, India
Lat 21.121698°
Long 78.959443°
16/12/23 12:53 PM GMT +05:30
Google

Name of Practical

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

Teacher's Signature .....

BHAGWATI
PAGE NO.: 5
DATE:

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

Teacher's Signature.....


GPS Map Camera
Nagalwadi, Maharashtra, India
4XC6+J3M, Nagalwadi, Maharashtra 440016, India
Lat 21.120884°
Long 78.960911°
16/12/23 03:03 PM GMT +05:30
Google

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-

Though 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 of 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.


Google
Unnamed Road,
Nagalwadi, Maharashtra
440016, India
Haze 26°C
15:17 2023-12-16 Saturday
#Captured by GPS Cam

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 b provided by the central government.

6] Easy accessibility to schools especially to schools in rural areas.

7] Better remuneration 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 governme 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 educati 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 empowering women and village panchayats to activate the progress of adult literacy.

19] Vocational skill training is a motivating factor for illiterates.

Kalbandk

Name of Practical: 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 progeams education in music, the arts,

Teacher's Signature

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 literacy 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.

Teacher's Signature


ग्राम पंचायत नागल
सहर्ष स्वागत करीत आ
GPS Map Camera
Nagalwadi, Maharashtra, India
Unnamed Road, Nagalwadi, Maharashtra 440016, India
Lat 21.120918°
Long 78.959397°
16/12/23 02:09 PM GMT +05:30
Google

Programs

Name of Practical

Progeams of Adult Literacy -

The adult education progeams have theee basic components. These include basic literacy functioning and civic awareness. The progeammes of adult literacy within the country are as follows-

1] Social Education Progeam-

The majoe theust of social education progeam 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 progeam of Functional Literacy (MPFL) -

MPFL was introduced in 1983 with the student and other volunteers. The main objective of this progeam was to eradict the literacy and encourage patents to send their children to school.

3] Farmer's Functional Literacy Progeam (FFLP) -

FFLP is also known as the kisaan

Teacher's Signature

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

Teacher's Signature.....

Name of Practical

time bound, volunteer based, cost effective and outcome oriented. The learners and others are engaged in educational activities on a continuous basis.

7] Sarva Siksha 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.

Teacher's Signature.....


GPS Map Camera
Nagalwadi, Maharashtra, India
Unnamed Road, Nagalwadi, Maharashtra 440016, India
Lat 21.120784°
Long 78.959408°
16/12/23 01:55 PM GMT +05:30
Google

Name of Practical

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

Teacher's Signature.....

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 knowledgeably, 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

Teacher's Signature.....

Name of Practical

enhancing communication and understanding among individuals.

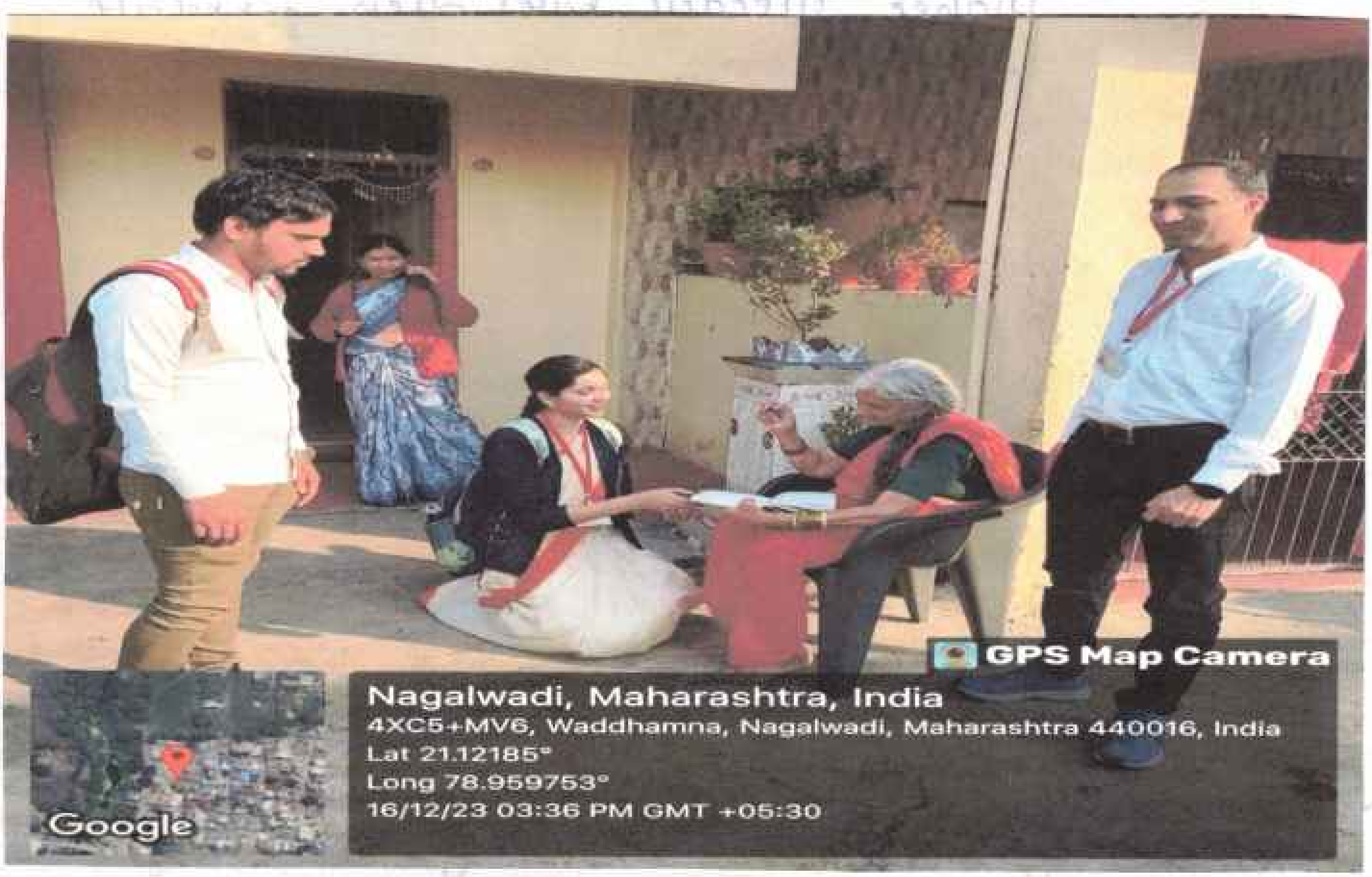
→ iv] Social stability.

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 कनेई

शांता नेनीराम

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. Baldwin

The topic selected by our group is "
"Promote adult literacy awareness on various goverenment programmes".

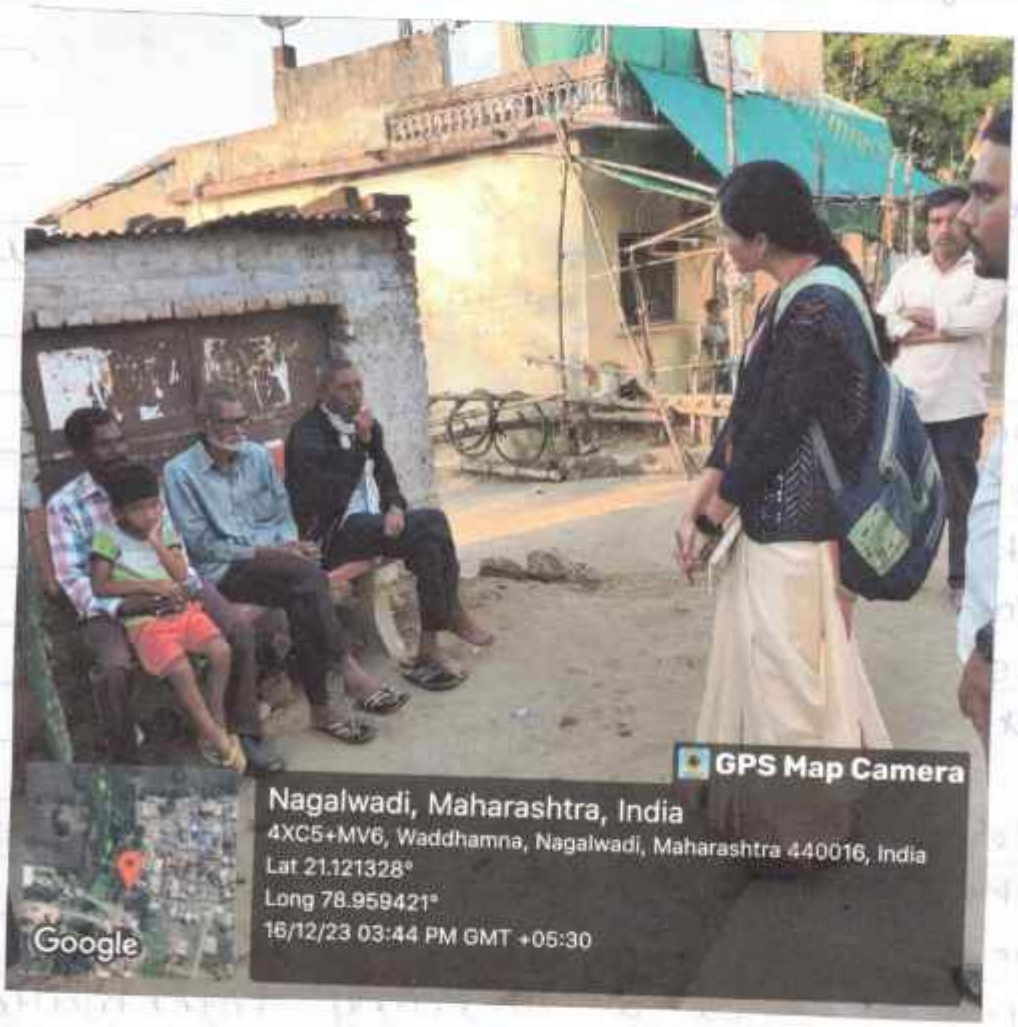
The group consists of four members (pupil teachers).

1] Ketaki Ghale
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 come across "Primary school" and "Anganwadi" in the town Nagalwadi

The village has a population of around 2[illegible]0 people with around 300-350 houses. All the houses in the village are pakka and permanen

Teacher's Signature


GPS Map Camera
Nagalwadi, Maharashtra, India
4XC5+MV6, Waddhamna, Nagalwadi, Maharashtra 440016, India
Lat 21.121328°
Long 78.959421°
16/12/23 03:44 PM GMT +05:30
Google

Name of Practical

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 like books, slates, crayons. Grampanchayat distributes this materials to women and adults on various occassions

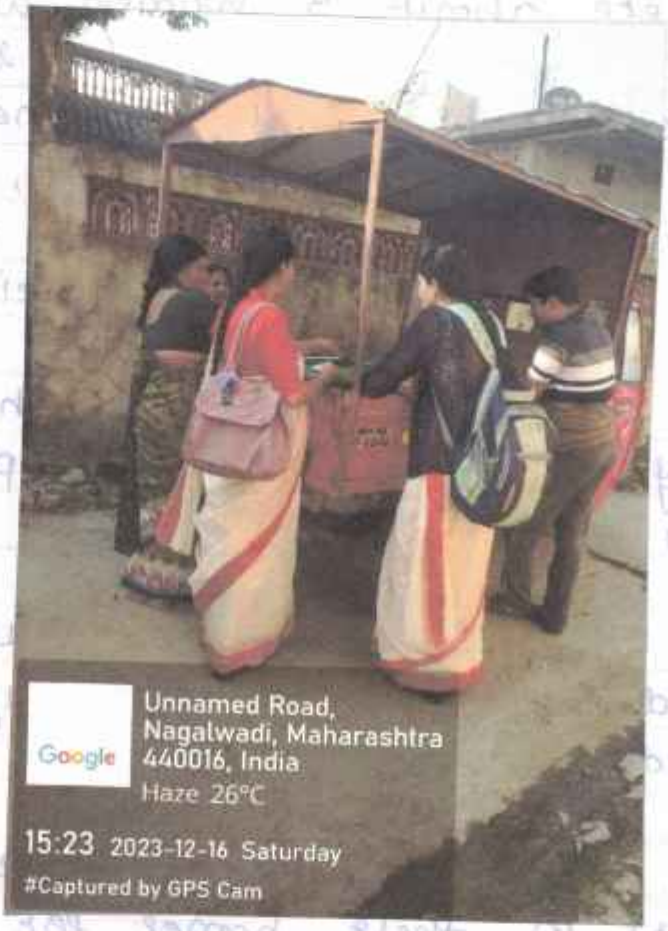
Also, Mrs. Vandana Raut - The principle of Primary school in village supports the program of adult literacy.

'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.

Teacher's Signature.....


Google
Unnamed Road,
Nagalwadi, Maharashtra
440016, India
Haze 26°C
15:23 2023-12-16 Saturday
#Captured by GPS Cam

Name of Practical

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.

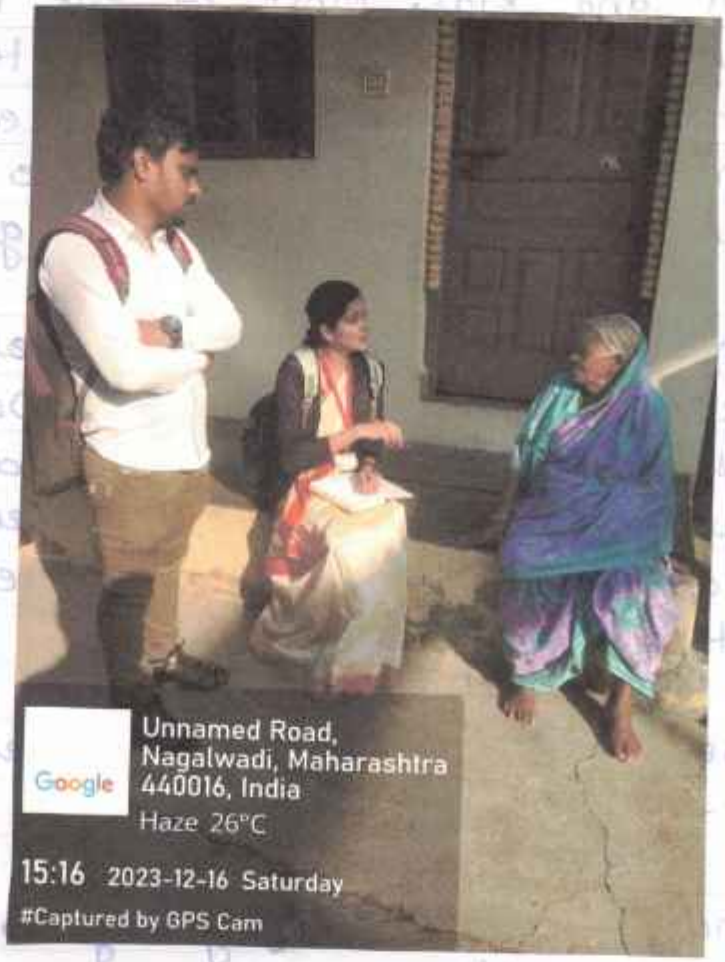
There are mathematical formulas and expressions written on the walls of shops, houses which teaches basic mathematics. We came across some women who are now old, but they are able to do all the two digit arithmatic

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

Teacher's Signature.....


Google
Unnamed Road,
Nagalwadi, Maharashtra
440016, India
Haze 26°C
15:16 2023-12-16 Saturday
#Captured by GPS Cam

Name of Practical

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 manner. 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.

Teacher's Signature


GPS Map Camera
Nagalwadi, Maharashtra, India
4XC6+J3M, Nagalwadi, Maharashtra 440016, India
Lat 21.120788°
Long 78.960989°
16/12/23 03:07 PM GMT +05:30
Google

Name of Practical

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.

Teacher's Signature

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.

Teacher's Signature


जि.प. प्राथमिक शाळा-नागलवाडा
प.स. हिंगणा, जि.प. नागपूर.
GPS Map Camera
Nagalwadi, Maharashtra, India
Unnamed Road, Nagalwadi, Maharashtra 440016, India
Lat 21.120815°
Long 78.959291°
16/12/23 02:27 PM GMT +05:30
Google

BHAGWATI
PAGE NO.: 26
DATE:

Need and Challenges -

Name of Practical

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 stronge by educating its adults and making them self reliant.

Teacher's Signature.....


GPS Map Camera
Nagalwadi, Maharashtra, India
4XC6+J3M, Nagalwadi, Maharashtra 440016, India
Lat 21.120788°
Long 78.960989°
16/12/23 03:07 PM GMT +05:30
Google

Name of Practical

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 posses. It is the means of providing education to adults beyond the traditional school or college education

Teacher's Signature.....

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 field 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.

Teacher's Signature.....

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.

Teacher's Signature

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.

Teacher's Signature

Name of Practical

References

1] www.britanica.com - Adult education

2] www.cram.com - Essay on adult literacy

3] www.ispringsolutions.com

4] www.toppr.com - Essay on importance of adult education

5] www.slideserve.com - PPT Adult Education

6] www.google.com - components of Adult Education

Kalbande

Teacher's Signature.....

PAGE : 01
DATE : / /

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.

Teacher Signature

Name Of Practical

Index

Teachers Signature.....

Name Of Practical

Introduction

A study tour offer students a unique opportunity to enhance their academic esepereience to enhance by combining classroom learning with Real-wored esposuree. These tells typically involve visit to educational qualificans Industries and cultural sites involing student with practical insights, hand-on- esepereiences and a bordee perspective on their subjects of study It fosters esepereiencial learning cultur esechange and personal growth, enriching students education beyound bediticnal classroom setting

Nagalwadi is a gaint village located neare Nagpur known for the reich cultural heritage and close-knit community. our study tour aims to esplore the socio-economic aspects, baditicnal practices and daily life of the villiger. fom agriculture practices to local craft this immcesive esepereience provides a unique opportunity to understand the challenges & per-residence of rural communities

PAGE : 04
DATE : / /

Name Of Practical

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.

Name Of Practical

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 surraundings.
- 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.

Name Of Practical

Importance of Study Tour

Enhances Knowledge And Understanding :

Educational trips involves group provided student with a chance of to learn about a particulare place or subject in a more interactive and immersive way for instance, visiting a historical site or a meseum 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

Name Of Practical

Encourages Independent learning) :-

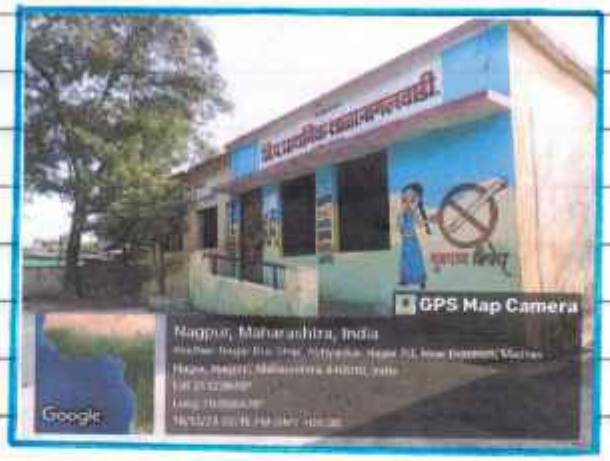
Educational trips required students to be more self-directed and take ownership of their learning this help students develope problem-solving skills and become a more independent learners.

Promotes creativity and critical Thinking) :-

Educational trips provide students with a chance to think creativity and critically thinking skill They see and esopereiences. In this way students develope their critical and Thinking and become more motivated learners.

*

Name Of Practical



Teachers Signature

PAGE: 10
DATE: / /

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 retention of academic concepts.

2. Cultural Exposure :-

study tour often include visits to diverse cultural and historical sites, fostering a border understanding of different communities and perspectives.

Teacher Signature

Name Of Practical

3. Industry Insights :-

Tours to Relevant industries or businesses often students insight into professional practices, allowing them to connected theoretical knowledge with industrial application in their future careers.

4. Networking Opportunities :-

student can interact with professionals and experts in their field ~~or~~ 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.

*

Name Of Practical

About Nagalwadi :-

Nagalwadi is a village located 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 mixe of various social and cultural groups.

4. Traditions Customs :-

May have unique customs festivals and tradition specific to the local cummunity

Teachers Signature.....

Name Of Practical

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 Cave seevices and cummeunity 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 ey opportunity 2500 out of the total population around 1500 women 700 men Rest one children.

*

Name Of Practical

Name Of Practical

Report Writing

Venue :- Village study tour (Nagalwadi)

Address :- Nagalwadi wardhamna Road, Nagpur, Maharastra - 440023

Date :- 16/12/2023 (saturday)

Around 50 B.Ed second yeare student and our lecturear arerange a study tour to Nagalwadi. A day shedule is 16/12/2023 in afternoon all of colleagues med 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.

Teachers Signature.....

Name Of Practical

Mrs Rekha dhagreswar Lapkale is the sharpanch of Nagalwadi, gramparchayat we all students discussed 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 and 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

*

Teachers Signature

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 ~~four~~ their need and various dynamics relating to it. The first hand esperience is how they sustain their livlihood and which kind of difficulties they face for livlihood and other esepenses 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 differes 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.

*

Teachers Signature .....

Reference

1. WWW. villagestudytour .com

2. WWW. herated . eohyd . in

3. Https:// WWW. Bhaskar. com

4. Https:// WWW. sspad . Edu - in

5. Https:// WWW. BarwaniNagalwadi . NIC .in

*

THANK YOU

*