

**CLASS- VIII (Mathematics)
TERM 1**

CHAPTER 1

TOPIC RATIONAL NUMBERS.

No of days required to complete the topic : 4 days

P.K Testing :- (i) what are natural numbers.

(ii) Define whole numbers.

(iii) what are integers.

Course Learning Outcomes:

After this Chapter the students will have proper understanding about

(i) Rational numbers.

(ii) Properties of rational numbers.

(iii) Representation of rational numbers on number line etc.

Pedagogical Strategies: Experiential Learning/Innovative art integration

Experiential learning:

The students were asked to make colorful charts on properties of rational numbers.

Innovative methods:

Properties of rational number explained with smart class and crossword puzzle

CROSSWORD PUZZLE

Across

(i) Property that states $a \times (b+c) = a \times b + a \times c$ for rational no. a,b,c .

(ii) Property of rational no. which states that for two r.n. a and b $a+b$, $a.b$ or $a-b$ is a rational number is

(iii) Zero is the additive _____ of rational numbers.

Down:-



(iv) Product of two rational numbers with same sign is always _____.

(v) The r.n $-3/5$ and $1/3$ lie on _____ side of zero on number line.

Interdisciplinary Linkage and Infusion of life skills: To develop the important mathematical skills required for various competitive exams and higher studies.

Resources including ICT: To solve a worksheet on rational numbers. Students will be asked to make a colorful chart on the properties of rational numbers.

Assessment Items: Quiz and tests

Remedial Teaching: Assignments will be given in groups. Students will discuss problem with each other and they will learn using pair and share method.



CHAPTER 2

TOPIC LINEAR EQUATIONS IN ONE VARIABLE

No of days required to complete the topic : 4 days

P.K Testing :-Teacher will ask the following questions (i) Define an equation.

(ii) what do you know about solution of an equation.

Any Value of the unknown which makes the L.H.S. and RHS equal is called the solution of the equation.

(iii) What type of changes occur when we transpose +, -, \times , Signs to other side of the equation.

+ will become -

-will become +

\times will become \div

\div will become \times

Learning Outcomes:

The main objective of this chapter is that the students will understand the methods to solve

various types linear equations and their applications in daily life.

Students will be able to find unknown age, calculation of speed, time and distance.

They can find the unknown angles in geometry.

Pedagogical Strategies: Experiential Learning/Innovative art integration

The teacher will explain the methods to solve various types linear equations and their applications in daily life.with the help of smart class.

After this he/she will use some colorful crosswords to make the concept clearer.

Interdisciplinary Linkage and Infusion of life skill: To develop the important mathematical skills required for various competitive exams and higher



studies.

Resources including ICT: To solve a worksheet on linear equations in one variable. Students will be asked to make a colorful chart on the properties of linear equations in one variable.

Assessment Items: Quiz and tests

Remedial Teaching: Assignments will be given in groups. Students will discuss problem with each other and they will learn using pair and share method.

CHAPTER 3 **Topic Understanding Quadrilateral**

No of days required to complete the topic : 6 days

Previous knowledge:-Teacher will ask about Triangles Quadrilaterals, Pentagon, Hexagon, Heptagon, octagon, nonagon, Decagon, polygon, convex polygon and concave polygon.

LEARNIG OUTCOMES

The students will understand

- ☒ Classification of polygons
- ☒ Interior/ exterior angle sum property of polygons
- ☒ Various quadrilaterals and their properties
- ☒ Problem solving

Pedagogical Strategies: Experiential Learning/Innovative art integration

The teacher will explain the methods to solve problems related to Quadrilaterals with the help of smart class. After this he/she will use some colorful crosswords to make the concept clearer.

Experiential learning:

Demonstrated angle sum property of a triangle and a quadrilateral by using cut and paste activity.

Three dimensional figures were used in the smart class to explain the concept of polygon(regular, irregular),parallelogram, rhombus ,quadrilateral, etc

Interdisciplinary Linkage and Infusion of life skills : Students will determine the similarities and differences between quadrilaterals by



looking at their side, angle and diagonal measures.

Resources including ICT: To solve a worksheet on Quadrilaterals. Students will be asked to make a colorful chart on the properties of Quadrilaterals.

Assessment Items: Quiz and tests

Remedial Teaching:

Hot questions will be given to meritorious students and some easy questions will be given to average students and their queries will be discussed.

CHAPTER 4

Topic – Data Handling

Number of days required to complete the topic – 6 to 7 days

PK TESTING :- The teacher will ask following questions

1. What do you mean by data ?
2. Do you know about raw data and original data ?
3. What do you mean by tally marks ?
4. What is frequency ?

LEARNING OUTCOMES

Art Integration:

Colorful chart on identities.

Pedagogical strategies

Innovative methods:

Smart class modules.

Art Integration:

Make a colorful pie chart

Experiential learning:

Collect data from real life and make a graph

Interdisciplinary linkages and infusion of life skills

Data handling is a set of skills which include collecting data, keeping record of data, analysis of data and sharing data.

Resources including ICT

Collection of data and making pie chart and histogram.

Assessment items

Quiz, test and draw graphs on given data

Remedial teaching

Hot question are given to meritorious students and some easy questions are given to average students and discussed their problems.

CHAPTER 5

Topic :- Square and Square Roots

No of days required to complete the topic : 6 days

Previous knowledge

Students will be asked: 1) What is square of 10?

2) What is square of 12?

3) What is the meaning of triplet?

Learning Outcomes:

The students will understand the following topics

1.Skill of knowing square number by observing unit digit.

2.Finding square of a number by different methods.

3.Finding square root of a number by estimation method.

4.Applying Knowledge of square roots

Pedagogical Strategies: Experiential Learning/Innovative art integration

The teacher will explain the methods to solve problems related to square and square roots with the help of smart class. Students will make the bookmark of square numbers. They will find square root by distribution of slips and discuss the outcomes.

Interdisciplinary Linkage and Infusion in life skills: To develop the important mathematical skills required for various competitive exams and higher studies.



Resources including ICT: To solve a worksheet on square and square roots. Students will be asked to make a colorful chart on the properties of square and square roots.

Assessment Items: Quiz and tests

Remedial Teaching: Assignments will be given in groups. Students will discuss problem with each other and they will learn using pair and share method.

CHAPTER 6

Topic - Cube and Cube Roots

Number of days required to complete the topic – 4 to 5 days

PK TESTING :- The teacher will ask following questions

- 1) What is the meaning of square?
- 2) What is the meaning of 2^4 ?
- 3) Complete these $1^3 = _$, $2^3 = _$, $3^3 = _$.

LEARNING OUTCOMES

Students would be able to:

To understand the meaning of cube and identify the perfect cubes.

To know how to verify a given number is a perfect cube or not.

To find the cube root of a number by the method of prime factorization.

Pedagogical strategies

To make book mark

Experiential Learning

To find the cube root by distribution of slips and discuss the answers

Interdisciplinary linkages and infusion of life skills

To develop the important mathematical skills required for various competitive exams and higher studies.

Resources including ICT



To solve a work sheet on cube and cube roots

Assessment items

Quiz and Test

Remedial teaching

Assignment is given in groups, children will discuss the problem with each other and they will learn from peer group.

CHAPTER 7

Comparing Quantities

No of days required to complete the topic : 5 days

PK Testing

Teacher will ask about
Cost price, selling price
Profit and loss

Examples

- ☒ What is the percentage of 5 oranges out of 25 fruits?
- ☒ A shirt is marked at Rs.850 and sold for Rs.765. Find the profit or loss percent.

Learning Outcome:

- 1.Understand the concept of ratio, percentage and money transactions.
- 2.Remember and form the formulae.
- 3.Compare and analyze the cases.
- 4.Apply the concepts to day to day bases life activities.

Pedagogical Strategies: Experiential Learning/Innovative art integration

The teacher will explain the methods to solve problems related to comparing quantities with the help of smart class. Understanding of various axioms using daily life

Examples. Few group activities, dummy market



analysis and money transaction games were carried out for better understanding.

Interdisciplinary Linkage and Infusion of life skills: To develop the important mathematical skills required for various competitive exams and higher studies.

Resources including ICT: To solve a worksheet on square and comparing quantities. Students will be asked to make a colorful chart on the properties of square and comparing quantities.

Assessment Items: Quiz and tests

Remedial Teaching: Assignments will be given in groups. Students will discuss problem with each other and they will learn using pair and share method.

CHAPTER 8

Topic – Algebraic expressions and identities.

Number of days required to complete the topic – 7 to 8 days

PK TESTING :- The teacher will ask following questions

1. Write 70 in the product of prime Nos
2. Write the common factor of the terms $5xy + 3x$
3. Factorise $14pq + 35 pqr$

LEARNING OUTCOMES

Students would be able to:

1. Identify the algebraic expressions
2. Solve degree of Polynomials, monomials, Binomials and Polynomials
3. Solve Addition, Subtraction and Multiplication of Algebraic Expressions
4. Learn Standard Identities

Pedagogical strategies

Innovative methods:

Students were asked to make PPT's in the smart class. Smart class is used by teacher to explain the methods to solve Addition, Subtraction and Multiplication of Algebraic Expressions etc.

Art Integration:

Activity1 $(a+b)^2 = a^2 + 2ab + b^2$

Activity2 $(a-b)^2 = a^2 - 2ab + b^2$

Activity3 $(x+a)(x+b) = x^2 + x(a+b) + ab$.



Experiential learning:

Student will use the property of triangles to solve geometrical problems thus, develop critical thinking and collaboration in the process.

Interdisciplinary linkages and infusion of life skills

Algebraic identities are used in our day-to-day life and in the workplace, too, how the millions of chips in a phone work are derived with the help of algebraic identities. The area of a box, land, etc., can be easily found by Algebraic identities. Answer: $(a+b)^2 = a^2 + 2ab + b^2$

Assessment items

MCQ Test and Quiz

Remedial teaching

Class group activities.

Inclusive practices and full participation without discrimination

Assignment given and discussed their problems in groups.

CHAPTER 9

Topic – Mensuration

Number of days required to complete the topic – 7 to 8 days

PK TESTING :- The teacher will ask following questions

- 1 What is rectangle and tell the area of rectangle
- 2 What is the area of square if side is x
- 3 What is the area of triangle
- 4 How we can find area of parallelogram

LEARNING OUTCOMES

Students would be able to:

The students should be able to know the formula for the area and perimeter of various figures and how to apply in different situations.

To identify the shape of a trapezium and how to find the area using the formula.

To know the formula and its application

To know how to split the given polygon into different plane figures whose area can be calculated.

To understand the formula for finding the surface area of a cuboid = $2(lb+lh+bh)$ and surface area of a cube = $6a^2$

Volume = a^3

To understand the formula for finding the total surface area $2\pi r(r+h)$

Volume = $\pi r^2 h$ Volume of cylinder =



base area x height – $\pi r^2 h$

Pedagogical strategies

Innovative methods:

To drive area of triangle, parallelogram and rhombus from rectangle (Lab Activity)

Art Integration:

To make colorful chart on area, parameter, surface area and volume.

Interdisciplinary linkages and infusion of life skills

It helps for purchasing and selling , measurement of volumes required for packaging , measurement of surface area required for planting, building etc.

Assessment items

Test , quiz and oral test on formulas

Remedial teaching

Assignment given in groups and children will give the presentation in class.

CHAPTER 10

Topic – Exponents and Powers

Number of days required to complete the topic –5 to 6 days

PK TESTING :- The teacher will ask following questions

What is exponent?

How will you solve 2^{-10} .?

LEARNING OUTCOMES

Students would be able to:

- 1.Understand power notation as exponential form
- 2.Express the numbers in exponential form and using scientific notation (standard form)
- 3.Understand and applying laws of exponent.
- 4.Express and Comparing.

Pedagogical strategies

Innovative methods:

Quiz and class group activity (Share and pair) activity was performed. Students are asked to compute exponential numbers in their own way and verify the answer using proper method.

Art Integration:

Figures and smart class.

Interdisciplinary linkages and infusion of life skills



Exponents are superscript numerals that let you know how many times you should multiply a number by itself. Some real world applications include understanding scientific scales like the pH scale or the Richter scale, using scientific notation to write very large or very small numbers and taking measurements

Assessment items

MCQ Test and Quiz

Remedial teaching

Class group activities.

Inclusive practices and full participation without discrimination

Assignment given and discussed their problems in groups.

CHAPTER 11

Topic – Direct and inverse proportion

Number of days required to complete the topic – 5 to 6 days

PK TESTING :- The teacher will ask following questions

1. If two students take 20 Min to arrange chairs for an assembly, then how much time would five students take to do the same job?
2. What are equivalent proportion?
3. Are $1: 2 :: 12 : 24$ equivalent proportion?

LEARNING OUTCOMES

Students will be able to:

The children should be able to verify whether the given quantities are in direct proportion

They should be able distinguish between the direct and indirect proportion.

Pedagogical strategies

Art Integration:

To make a colorful chart on formula of direct and inverse proportion

Experiential Learning

Give real life examples on direct and inverse proportion.

Interdisciplinary linkages and infusion of life skills

It develop the skill to find the relation between quantities and their amount.

Resources including ICT

Search any five situations on real life and classify as direct or inverse proportion.

Assessment items



Class Test and assignment.

Remedial teaching

Hot question are given to meritorious students and some easy questions are given to average students and discussed their problems.

CHAPTER 12

Topic – Factorization

Number of days required to complete the topic – 7 to 8 days

PK TESTING :- The teacher will ask following questions

1. Write 70 in the product of prime Nos
2. Write the common factor of the terms $5xy + 3x$
3. Factorise $14pq + 35 pqr$

LEARNING OUTCOMES

Students will be able to:

Understand the concept of factorization (Understanding)

Factorize the expression (application)

Understand the different method of factorization (Understanding)

Factorize the expression by taking the common and rearranging the expression (Understanding)

Factorize the expression by using the identities (Applying)

Pedagogical strategies

Art Integration:

Colorful chart on identities.

Experiential learning:

Dividing a square sheet of side $(a+b)$ in four parts to prove $(a+b)^2 = a^2 + b^2 + 2ab$

Interdisciplinary linkages and infusion of life skills

Its common application are dividing something into equal pieces exchanging money, comparing prices, understanding time and making calculations during travel.

Resources including ICT



Worksheet in MCQ form.

Assessment items

Quiz, test and oral test on identities

Remedial teaching

Hot question are given to meritorious students and some easy questions are given to average students and discussed their problems.

CHAPTER 13

Topic – Introduction to graphs

Number of days required to complete the topic – 4 to 5 days

PK TESTING :- The teacher will ask following questions

- (a) What do you mean by x-axis?
- (b) What is Cartesian plane?
- (c) What is origin?
- (d) What is bar graph?

LEARNING OUTCOMES

Students would be able to:

Draw and interpret scale diagrams.

Extract information from tables.

Draw, interpret and compare pie charts, bar charts and frequency diagrams.

Use and interpret coordinates.

plot points and draw graphs, using suitable axes and scales

Pedagogical strategies

Innovative methods

To understand linear graph

Experiential learning:

To understand time-distance, time-speed and time-temperature graph

Interdisciplinary linkages and infusion of life skills

Graph gives the information in a visual way which helps to practice what student have learned.



Resources including ICT

Collect data and draw line graph

Assessment items

Test and draw graphs on given data

Remedial teaching

A data is given on current affairs and students have to make graph on graph paper.

