Mathematics is the Queen of All Sciences

TEACHING PLANS
(Year and Unit Plans)

Subject: MATHEMATICS

7th CLASS

Teaching Plan for

- What to teach
- Why to teach
- How to teach

Name of the Teacher .....

Designation .....

School..... .....

Mandal.....

District.....

PREFACE

In the ever-evolving landscape of school education, particularly in the teaching of Mathematics, the role of a well-structured teaching plan cannot be overstated. Teaching, learning, and assessment are intricately interlinked processes that require thoughtful planning, timely execution, and continuous reflection. In this context, this booklet, titled "Teaching Plans for Classes 6th to 10th – Year Plan & Unit Plan in Mathematics", is a valuable and timely contribution to the professional toolkit of every mathematics teacher.

Effective classroom transaction hinges on meticulous and purposeful planning. Planning acts as the compass that guides teachers through the academic year, ensuring that curricular goals and learning outcomes are achieved within the stipulated timeframe. This booklet offers a comprehensive and structured approach to teaching mathematics, integrating pedagogical expertise with innovative practices in education.

The booklet includes two core planning formats that are essential for successful mathematics instruction:

1. Year Plan – This section provides a macro-level view of the academic year for each class from 6th to 10th. It includes clearly articulated class-wise learning outcomes, monthly allocation of syllabus and units, a detailed period distribution for each unit, essential teaching-learning resources (TLMs, ICT tools, and AI-integrated tools), and a calendar of monthly mathematics activities. Additionally, space for teacher reflections has been included to encourage introspection and self-improvement.
2. Unit Plan – Focusing on the meso level of planning, the unit plans present unit-wise learning outcomes, structured concept maps, clearly demarcated subtopics with associated textbook exercises, and an array of resources such as digital tools, manipulatives, and learning management systems. Each unit includes teacher notes, facilitating a deeper understanding of pedagogical approaches, and provision for teacher reflections and Headmaster's observations for professional dialogue and review.

These plans are more than just templates—they are crafted by a team of eminent and experienced mathematics educators who are well-versed in content, pedagogy, and the practical realities of classroom teaching. As senior resource persons and subject experts, their experience in training teachers, developing curriculum materials, and leading innovative practices in mathematics education adds immense value to this work.

Furthermore, this booklet also includes a Model Teacher Diary, which aims to support reflective teaching. The diary format encourages teachers to document their day-to-day teaching experiences, track student progress, and refine their strategies based on ongoing assessment and classroom feedback.

In the spirit of the National Education Policy (NEP) 2020, which emphasizes competency-based learning, integration of ICT, and continuous professional development of teachers, this booklet aligns with national priorities and classroom

realities. It encourages the use of digital tools, AI, and experiential learning in the teaching of mathematics to improve student engagement and learning outcomes.

It is hoped that this resource will serve as a practical guide and a source of inspiration for all mathematics teachers working in schools. Whether a new teacher seeking guidance or an experienced teacher aiming to refine practice, these plans provide clarity, structure, and motivation. More importantly, they help transform classroom teaching into a meaningful, engaging, and outcome-oriented experience for students.

Let this booklet be a light post guiding every teacher toward creating a vibrant, interactive, and learning-centered mathematics classroom. Through meticulous planning and reflective practice, let us all work toward improving the mathematical abilities of every child.

With sincere appreciation for the teacher community's dedication and commitment to excellence.

Note: *These teaching plans are meant to serve as models only. Teachers may modify or design their own plans based on their convenience and specific classroom needs*.

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YEAR PLAN

CLASS: 7^{th}

SUBJECT: Mathematics

Number of Allotted Periods: 189 Periods

Learning Outcomes that Students should achieve by the end of the Academic Year:

The learner

- Solves problems involving four fundamental operations on integers.
- Solves problems related to daily life situations involving fractions, rational numbers and decimals.
- Uses exponential form of the numbers to simplify problems involving multiplication and division of large numbers.
- Solves problems in daily life related to profit-loss, interest by using percentage and ratio.
- Solves problems in daily life involving linear equations in one variable.
- Demonstrates the types of angles formed by intersections of any two lines.
- Explains the properties of a ogles formed In and outside of a triangle.
- Explains congruency of triangles on the basis of the information given about them (like SSS, SAS, ASA, RHS).
- Using ruler and a pair of compasses constructs triangles with given measurements.
- Finds the areas of parallelogram, triangle, and rhombus. Estimates the value of π.
- Calculates mean, median and mode of the ungrouped data of daily life.
- Identifies 3D shapes like sphere, cube, cuboid, cylinder and cone in real life situations and prepare net shapes to them.
- Explains line symmetry, point symmetry and rotational symmetry.

Number of Unit	Name of the Unit	Month	Number of periods required Teaching	TLM required	Activities to be conducted	Sign of Subject Teacher	Sign of the Headmaster	Remarks
1	Integers	June, July	19	Number line chart/flexi, charts				
2	Fractions, Decimals and Rational Numbers	July	17	Graph papers and different 2D shapes divided into parts	Preparation of Project and review			
3	Simple Equations	July, August	14	Balance, chart of simple equations				
4	Lines and Angles	August	14	Straws, charts, sticks and chart of angles in our surroundings				
5	Triangle and its properties	August	11	Chart of types of triangles based on both sides and angles, graph paer	Quiz			
6	Ratio – Applications	September	14	Photos of different sizes, graph papers	Preparation of Project and review			
7	Data Handling	September	13	Charts, graphs and different types of data	Preparation for SA-1 Exams			
8	Congruency of Triangles	October	7	Photos and objects of equal shapes and charts				
9	Construction of Triangles	November	12	Geometry box, charts	Preparation of Project and review			

10	Algebraic Expressions	November	12	Match sticks, charts of algebraic terms and numeric terms.				
11	Powers and Exponents	December	11	Charts of exponential laws	National Mathematics Day Celebrations			
12	Quadrilaterals	December	12	Shapes of different types of quadrilaterals, charts				
13	Area and Perimeter	January	15	Graphs, charts, shapes of polygons	Quiz			
14	Understanding 3D and 2D shapes	February	7	3D, 2D shapes in our surroundings, dot sheets	Preparation of Project and review			
15	Symmetry	February	11	Different pictures and alphabets.				
15	Revision	March			Preparation for SA-2 Exams			

Academic Standards:

1. Problem Solving

2. Reasoning – Proof

3. Communication

4. Connection

5. Visualization and Representation

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TEACHING DIARY

Date:

Teacher Name : ..... Subject: .....

S.No	Period	Class	Name of the Unit/ Chapter	Name of the Sub-topic/Concept	Learning Outcomes to be achieved	Remarks
1						
2						
3						
4						
5						
6						
7						
8						

Signature of the Teacher **Signature of the Headmaster**

SOME USEFUL ICT RESOURCES FOR TEACHING LEARNING AND ASSESSMENT PROCESS IN MATHEMATICS

https://www.nctm.org/pows/

https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/cubes/

https://ncert.nic.in/science-laboratory-manual.php?ln=en

https://ncert.nic.in/exemplar-problems.php?ln=en

https://arvindguptatoys.com/math-magic.php/toys-from-trash.php

https://mathforlove.com/

https://activities.graspablemath.com/

https://mathequalslove.net/

https://apps.mathlearningcenter.org/geoboard/

https://www.geogebra.org/u/community+team

https://www.robocompass.com/

1. INTEGERs

Class: VII

Name of the Unit: Integers

Learning Outcomes: The learner

- Understands about integers and represent integers on number line.
- Compares between integers and natural numbers.
- Gives counter examples and explains properties of integers with appropriate reasons.
- Express the generalized form of properties of integers.
- Solves the problems on integers.

Prerequisites: Students must know the following:

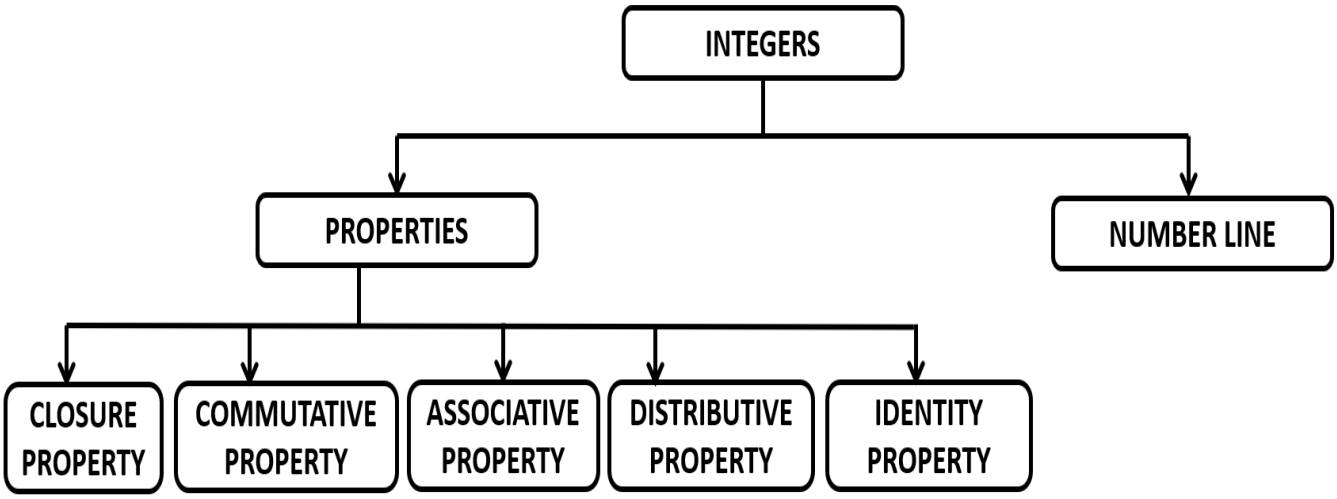
Natural numbers, whole numbers, zero concept, representation of natural numbers and whole numbers on number line, comparison of numbers by using appropriate symbols, properties of natural numbers, properties of whole numbers.

Number of allotted periods: 19 Periods

Unit/Lesson Name	Sub-topics	Teaching Periods
1.Integers	1. Prerequisites and key concepts	1
	2. Introduction of integers, representation of integers on number line and ordering of integers (big, small, ascending order, descending order)	2
	3. Addition of integers and subtraction of integers.	2
	4. Multiplication of integers and division of integers.	2
	5. Properties of integers under addition (closure and commutative property)	2
	6. Properties of integers under addition (associative and additive identity)	2
	7. Properties of integers under multiplication (closure, commutative and associative property)	2
	8. Properties of integers under multiplication (distributive property, multiplicative identity and multiplication by zero)	2

	9. Properties of integers under subtraction (closure, commutative and associative property)	2
	10. Properties of integers division (closure, commutative and associative property) and Some problems using negative numbers.	2
	TOTAL	19

CONCEPT MAP:



Teaching Resources: Chart of Properties of Integers, Chart of Number line, Graph paper

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

2. FRACTIONS, DECIMALS AND RATIONAL NUMBERS

Class: VIII

Name of the Unit: 2. FRACTIONS, DECIMALS AND RATIONAL NUMBERS

Learning Outcomes: The learner

- Multiply/divide two or more fractions.
- Multiply any given fraction with any whole number or fraction.
- Divides any given fraction with any whole number or fraction.
- Solves real life situational problems involving fractions, decimal and Rational numbers.
- Solves the problems of all operations of decimal fractions.
- Find the rational numbers between two given rational numbers.
- Converts the number in decimal form into rational form.

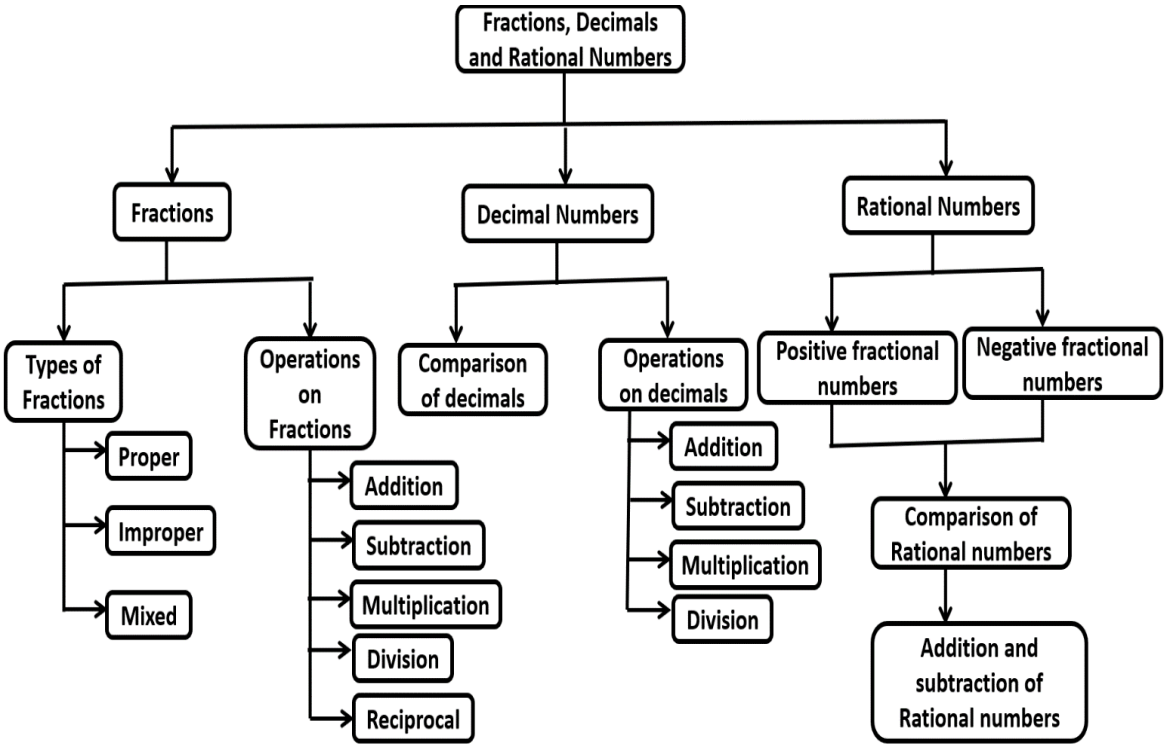
Prerequisites: Students must know the following:

Natural numbers, whole numbers, integers, fractions, Types of fractions, Pictorial representation of fractions, Basic Operations on Fractions, Reciprocal of a Fraction, Decimal Number.

Number of allotted periods: 14 Periods

Unit/Lesson Name	Sub-topics	No. of Periods	Remarks
2. FRACTIONS, DECIMALS AND RATIONAL NUMBERS	1.Introduction of Fractions, Decimals and Rational Numbers.	1	--
	2. Multiplication of fractions and related word problems.	2	
	3. Reciprocal, Division of fractions and related word problems.	2	
	4. Decimal Numbers or fractional decimals and operations on decimalnumbers	3	
	5. Introduction to Rational Numbers	2	
	6. Comparing rational numbers, Addition and subtraction ofrational numbers. Equivalent RationalNumbers.	2	
	7. Representation of Rational numbers on number line.	2	
	TOTAL	9	

CONCEPT MAP:



Teaching Resources: Chart of various types of fractions, Graph paper

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

3. SIMPLE EQUATIONS

Class: VII

Name of the Unit: 3. Simple Equations.

Learning Outcomes: The learner

- Explains equations in their own words.
- Reads and writes simple equations.
- Writes equations with the information in pictures.
- Solves simple equations.
- Simplifies equations by transposing the terms.
- Substitutes values of the unknown variables.
- Solves the equations.
- Using simple equations for solving problems in daily life.
- Solves problems using trial and error methods.

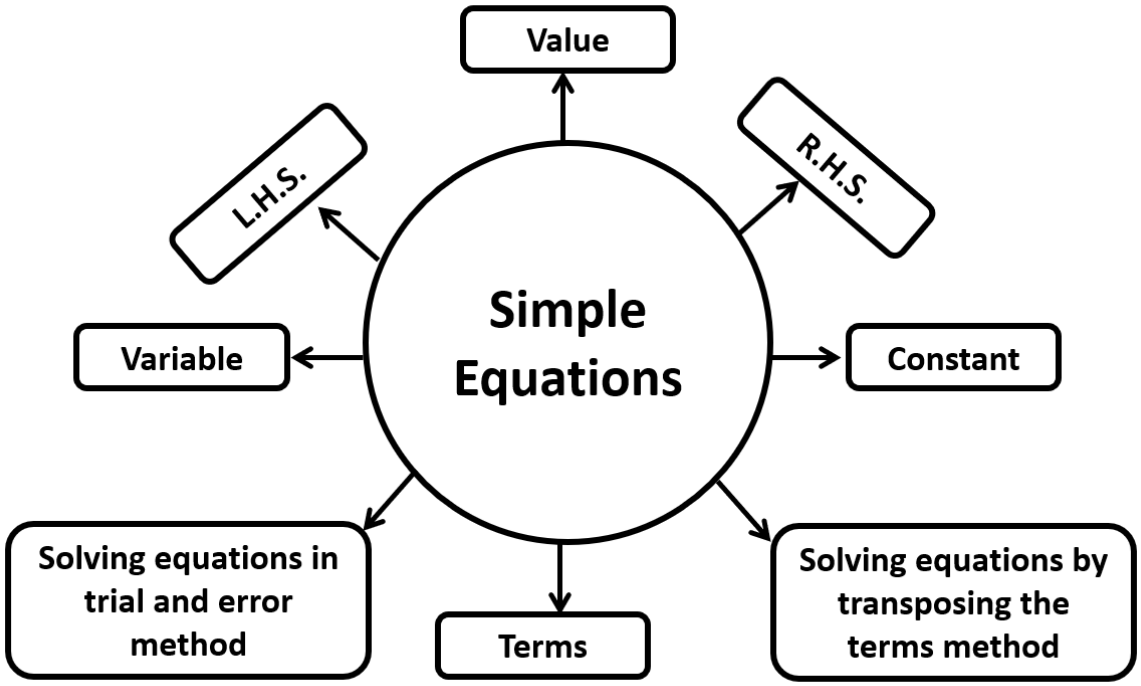
Prerequisites: Students must know the following:

LHS, RHS, variable, constant, addition, subtraction, multiplication, division, terms, numerical equations, algebraic equations.

Number of allotted periods: 14 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
3. Simple Equations.	1. Introduction to Simple Equations.	1	
	2. Solving equations in trial-and-error method.	1	
	3. Transposing terms from LHS to RHS.	3	
	4. Using simple equations for solving day to day problems – verbal problems.	3	
	5. Solving equations by transposing the terms and verifying the result.	3	
	6. Writing equations with the information in pictures and finding the value of unknown value.	3	
	TOTAL	14	

CONCEPT MAP:



Teaching Resources: Chart of various types of simple equations.

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

4. LINES AND ANGLES

Class: VII

Subject: Mathematics

Name of the Unit: Lines and Angles

Learning Outcomes: The learner

- Identifies line, line segment and ray.
- Identifies different angles like acute, obtuse, right and straight angles.
- Identifies parallel lines and intersecting lines.
- Gives examples for complementary and supplementary angles.
- Express linear pair and adjacent angles in their own words
- Knows about vertically opposite angles.
- Finds corresponding angle, interior alternate angles and angles on same side of transversal.

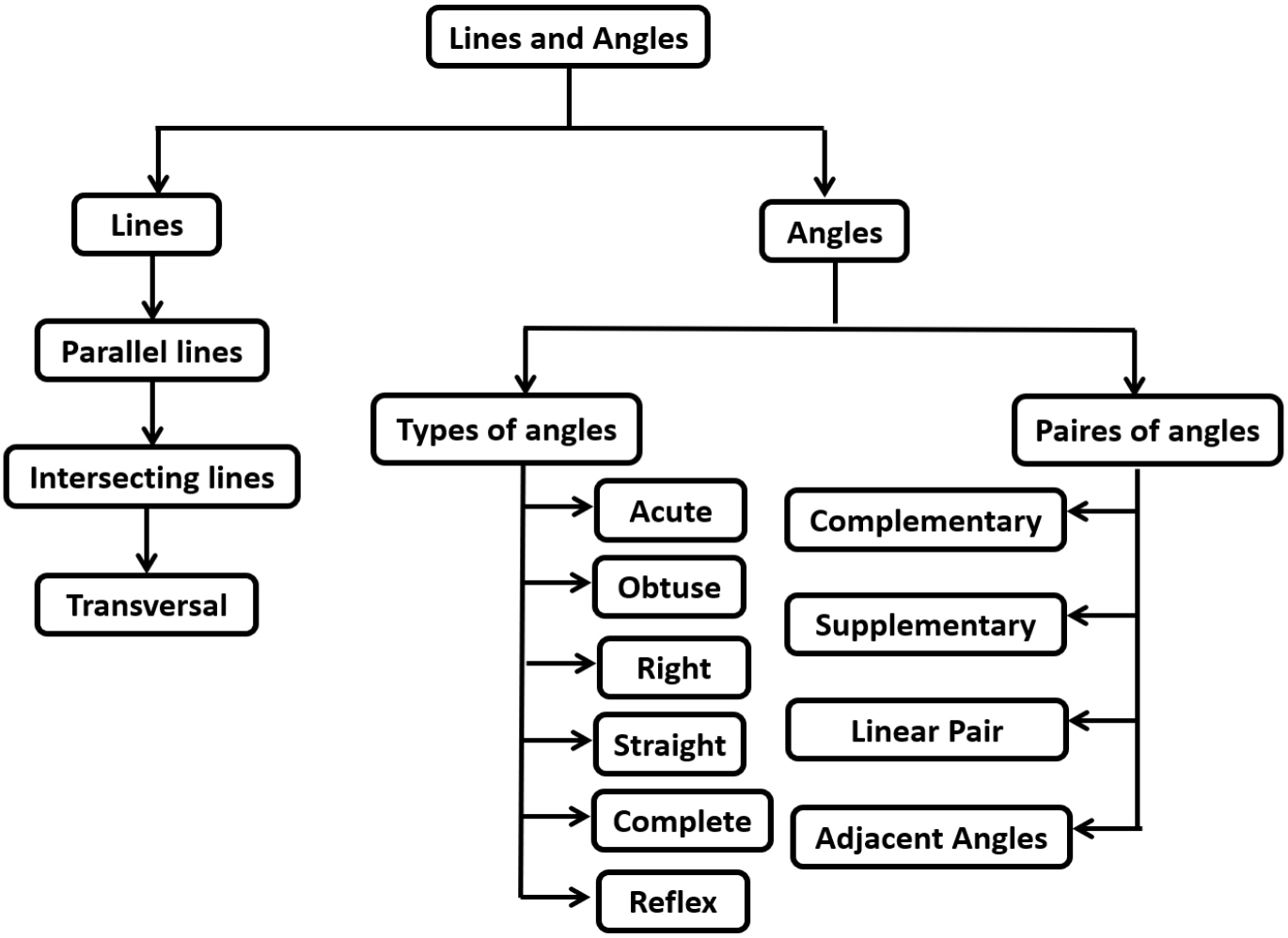
Prerequisites: Students must know the following:

Point, line, line segment, ray, angle representation, Different angles like acute, obtuse, right, straight and complete angles**.**

Number of allotted periods: 14 Periods.

Unit/Lesson Name	Sub-topics	No.of Teaching Periods	Remarks
Lines and Angles	1. Introduction to lines and angles.	1	
	2. Pairs of angles, complementary and supplementary angles.	2	
	3. Knowing about adjacent angles and linear pair.	2	
	4. Vertically opposite angles	1	
	5. Transversal, exterior and interior angles.	2	
	6. Corresponding angles, Interior alternate angles, angles on same side of transversal.	2	
	7. Transversal on parallel lines	2	
	8. Properties of parallel lines intersected by transversal.	2	
	TOTAL	14	

CONCEPT MAP



Teaching Resources: Chart of various types of lines, Chart of various types of angles

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

5. TRIANGLE AND ITS PROPERTIES

Class: VII

Name of the Unit: 5. Triangle and its properties.

Learning Outcomes: The learner

- Explains the definition of triangle in their own words.
- Understands the parts of triangle.
- Understands the relationship between sides of triangles.
- Understands the angle sum property of triangles.
- Learns the definitions of median and exterior angle of the triangle.
- Classifies the triangles based on sides and based on angles.
- Verifies whether the given three sides form a triangle or not.
- Recognizes the significance of triangles and appreciates the importance of triangles and applies its properties in real life situations.

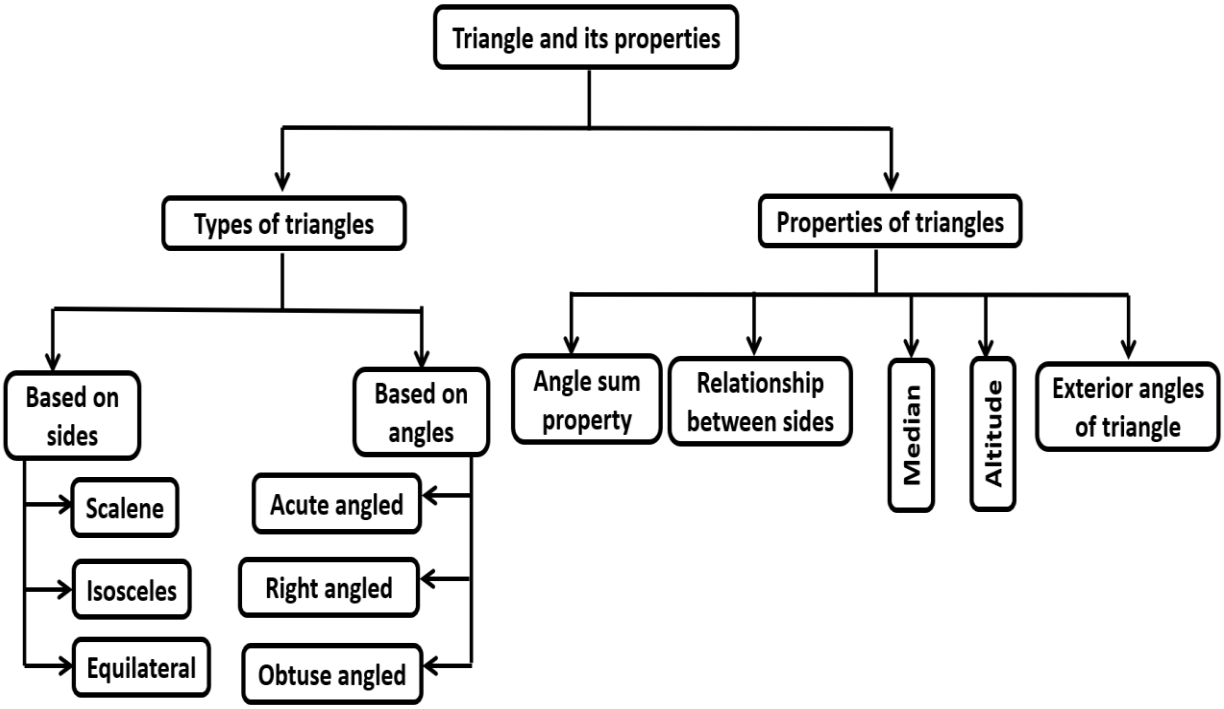
Prerequisites: Students must know the following:

Point, Lines, line segments, ray, angles, types of angles, closed figure, open figure, length of line segment, vertices of triangle.

Number of allotted periods: 11 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
Triangle and its properties.	1. Introduction of triangles.	1	
	2. Classification of triangles.	2	
	3. Relationship between the sides of triangle.	2	
	4. Median and Altitude of triangle.	2	
	5. Properties of triangles.	2	
	6. Exterior angle of a triangle.	2	
	TOTAL	11	

CONCEPT MAP:



Teaching Resources: Charts of various types of triangles based on sides and based on angles, Chart of properties of triangles

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

6. RATIO – APPLICATIONS

Class: VII

Name of the Unit: 6. Ratio – Applications.

Learning Outcomes: The learner

- Express ratios in simplest form.
- Identifies symbols of ratio as well as proportion.
- Express the concepts of verbal problems in ratios.
- Compares two ratios in proportion.
- Solves problems in daily life related to profit and loss, interest by using percentage and ratio.
- Express product of means and product of extremes.
- Solves problems using unitary method.
- Knows about percentages.
- Connects ratio problems in various situations like profit and loss, discount and simple interest.

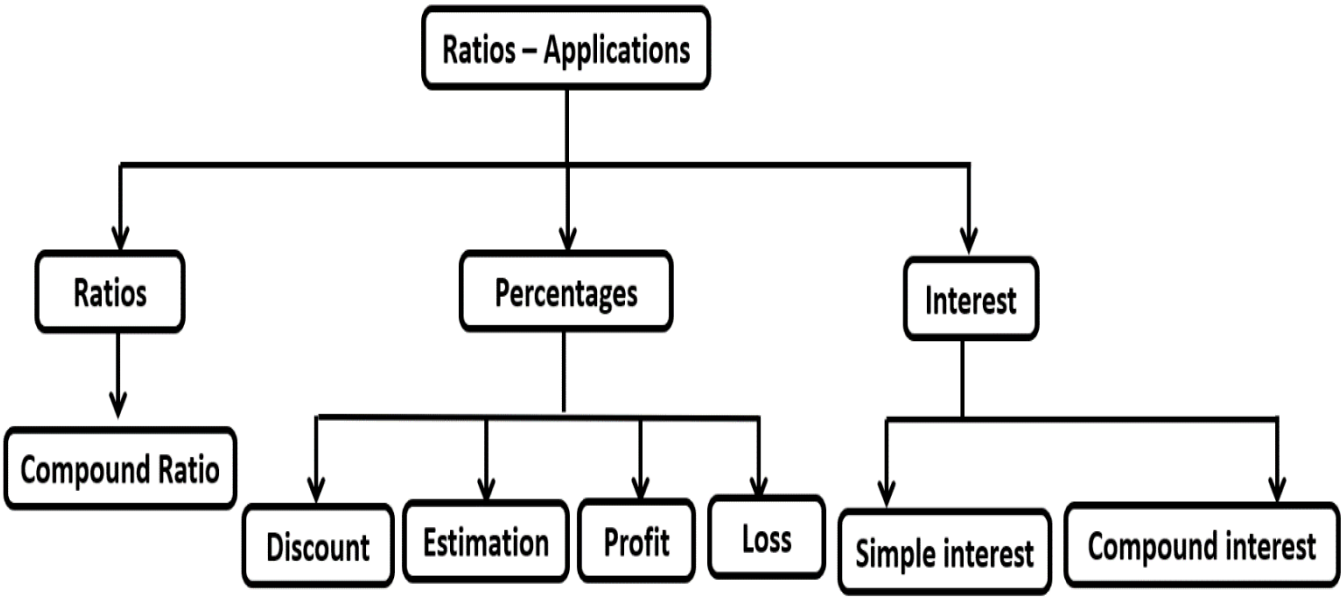
Prerequisites: Students must know the following:

Ratio, antecedent, consequent, numerator, denominator, quantities, profit or gain, loss, cost, proportion, compound ratio.

Number of allotted periods: 14 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
6. Ratio – Applications.	1. Introduction to Ratios and proportions.	1	
	2. Applications of ratios in daily life situations.	2	
	3. Proportions, product of means, product of extremes.	2	
	4. Unitary method, direct and indirect proportions.	2	
	5. Percentages and its applications.	2	
	6. Profit and loss.	2	
	7. Discount and simple interest.	2	
	TOTAL	13	

CONCEPT MAP:



Teaching Resources: Chart of percentages equivalent to fractions

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

7. DATA HANDLING

Class: VII

Name of the Unit: 7. Data Handling

Learning Outcomes: The learner

- Understands entries in data as observations.
- Organises the data.
- Finds arithmetic mean of raw data.
- Finds average for data set.
- Knows about mode as frequently observed value.
- Arranges data in ascending order and finds median.
- Represents data in bar graphs and double bar graphs.
- Represents data in pie charts.

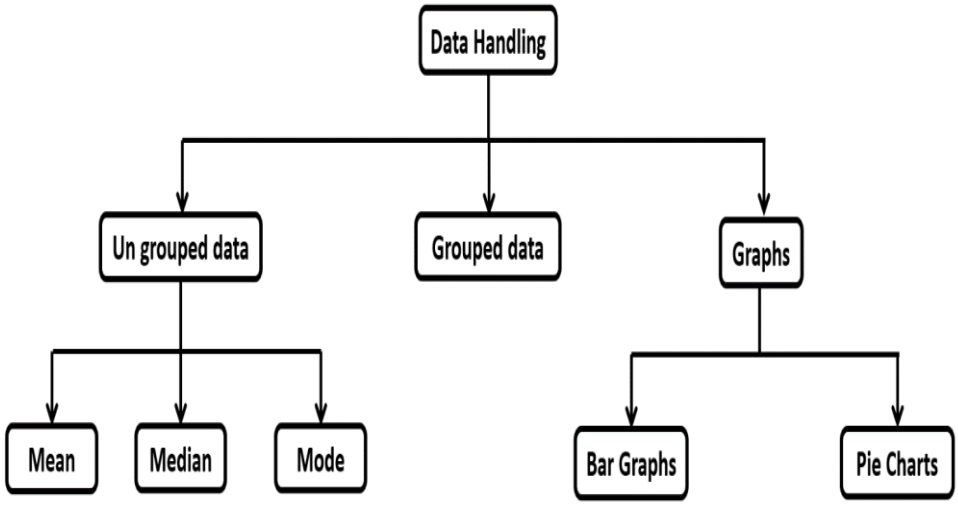
Prerequisites: Students must know the following:

Raw data, Maximum and minimum values, Average, Tabulation of data, tally marks, frequency.

Number of allotted periods: 13 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
7. Data Handling	1. Introduction to Data Handling.	1	
	2. Arithmetic mean (or) average.	3	
	3. Mode	2	
	4. Median	2	
	5. Presentation of Data – Bar graphs, double bar graphs.	2	
	6. pie charts.	2	
	7. Drawing of Pie charts – Steps of Construction.	2	
	TOTAL	14	

CONCEPT MAP:



Teaching Resources: Chart of Bar graph, Chart of Pie diagram

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

8. CONGRUENCY OF TRIANGLES

Class: VII

Name of the Unit: 8. Congruency of triangles.

Learning Outcomes: The learner

- Explains whether the given line segments are congruent or not.
- Explains congruency of figures in their own words.
- Explains types of triangles based on angles and based on sides.
- Express congruent figures using symbols.
- Proves the rules for congruency of triangles.
- Explains and express criterions for congruency of triangles.

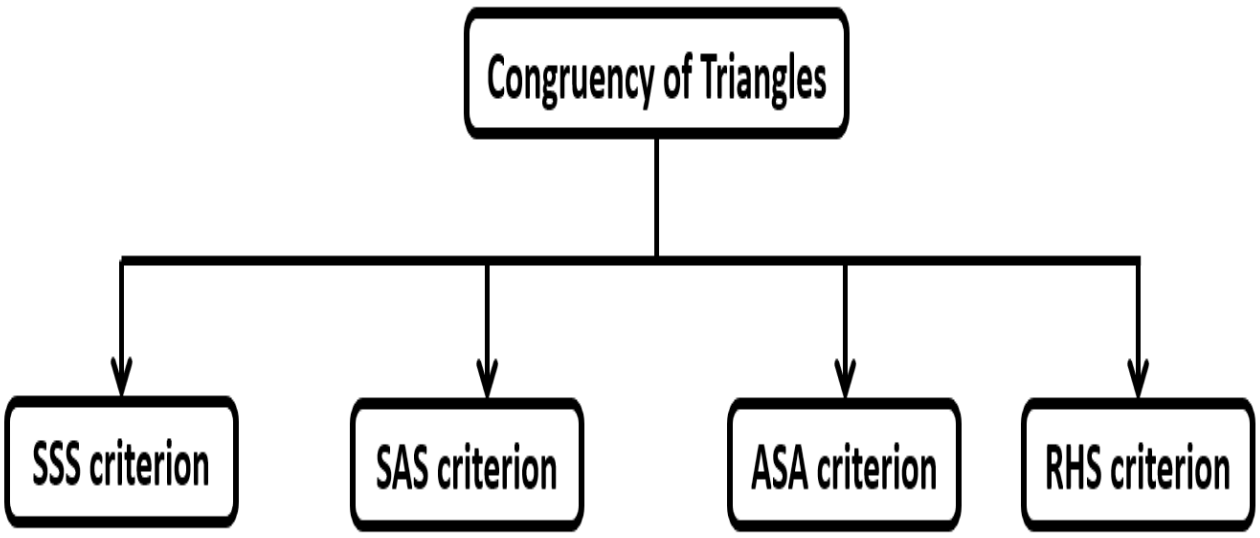
Prerequisites: Students must know the following:

Lines, line segments, ray, parallel lines, angles, triangles, types of triangles based on sides, types of triangles based on angles, hypotenuse.

Number of allotted periods: 7 Periods

Unit/Lesson Name	Sub-topics	No.of. Periods	Remarks
8. Congruency of triangles.	1. Introduction to Congruency.	1	
	2. Congruency of line segments, congruency of triangles.	2	
	3. Criterion for congruency of triangles, SSS criterion, SAS criterion.	2	
	4. ASA criterion, RHS criterion.	2	
	TOTAL	7	

CONCEPT MAP:



Teaching Resources: Chart of Criterion of Triangles.

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

9. CONSTRUCTION OF TRIANGLES

Class: VII

Name of the Unit: 9. Construction of Triangles.

Learning Outcomes: The learner

- Constructs triangles when three sides are given.
- Constructs triangles with two given sides and the included angle.
- Constructs triangles with two given angles and the side between the angle is given.
- Constructs the right-angle triangles when hypotenuse and one side are given.
- Constructs the triangles when two sides and the non-included angle are given.

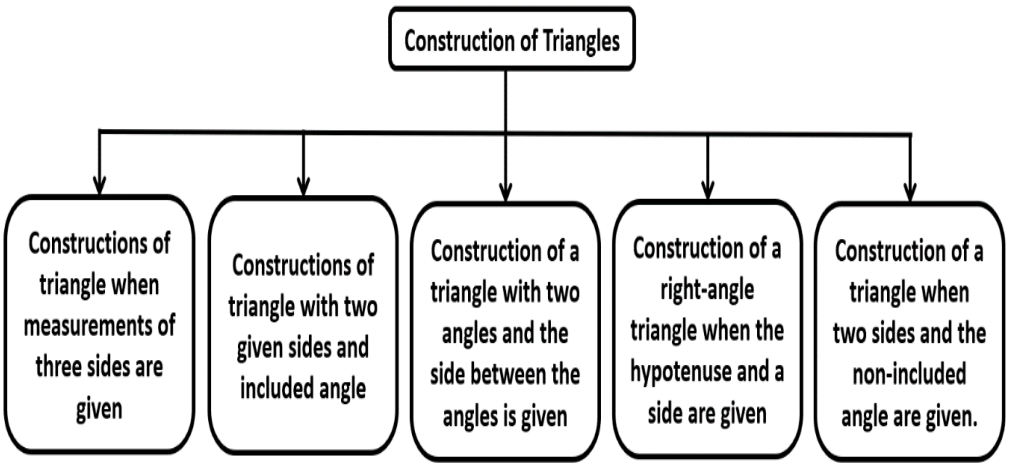
Prerequisites: Students must know the following:

Point, line, line segment, ray, angle representation, Different angles like acute, obtuse, right, straight and complete angles.

Number of allotted periods: 12 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
9. Construction of Triangles.	1. Introduction to Construction of triangles.	1	--
	2. Construction of triangle when measurements of the three sides are given.	3	
	3. Construction of a triangle with two given sides and the included angle.	2	
	4. Construction of a triangle with two angles and the side between the angles is given.	2	
	5. Construction of a right-angle triangle when the hypotenuse and a side are given.	2	
	6. Construction of a triangle when two sides and the non-included angle are given.	2	
	TOTAL	12	

CONCEPT MAP:



Teaching Resources: Chart of various types of triangles.

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

10. ALGEBRAIC EXPRESSIONS

Class: VII

Name of the Unit: 10. Algebraic Expressions.

Learning Outcomes: The learner

- Find the degree of given algebraic expression.
- Doing additions and subtractions of algebraic expressions. (Coefficients should be integers).
- Solves the verbal problems involving two operations (which can be expresses as single equation and single variable)
- Generates algebraic expressions involving one or two variables by using the patterns.
- Writes the standard forms of 1^{st}, 2^{nd} and 3^{rd} order expressions in one or two variables.
- Converts the daily life problems into simple equations (contains one variable only).
- Uses closure, commutative...etc. properties in addition and subtraction of algebraic expressions.
- Uses algebraic expressions for solving simple equations in daily life.
- Represents algebraic expressions in standard forms.

Prerequisites: Students must know the following:

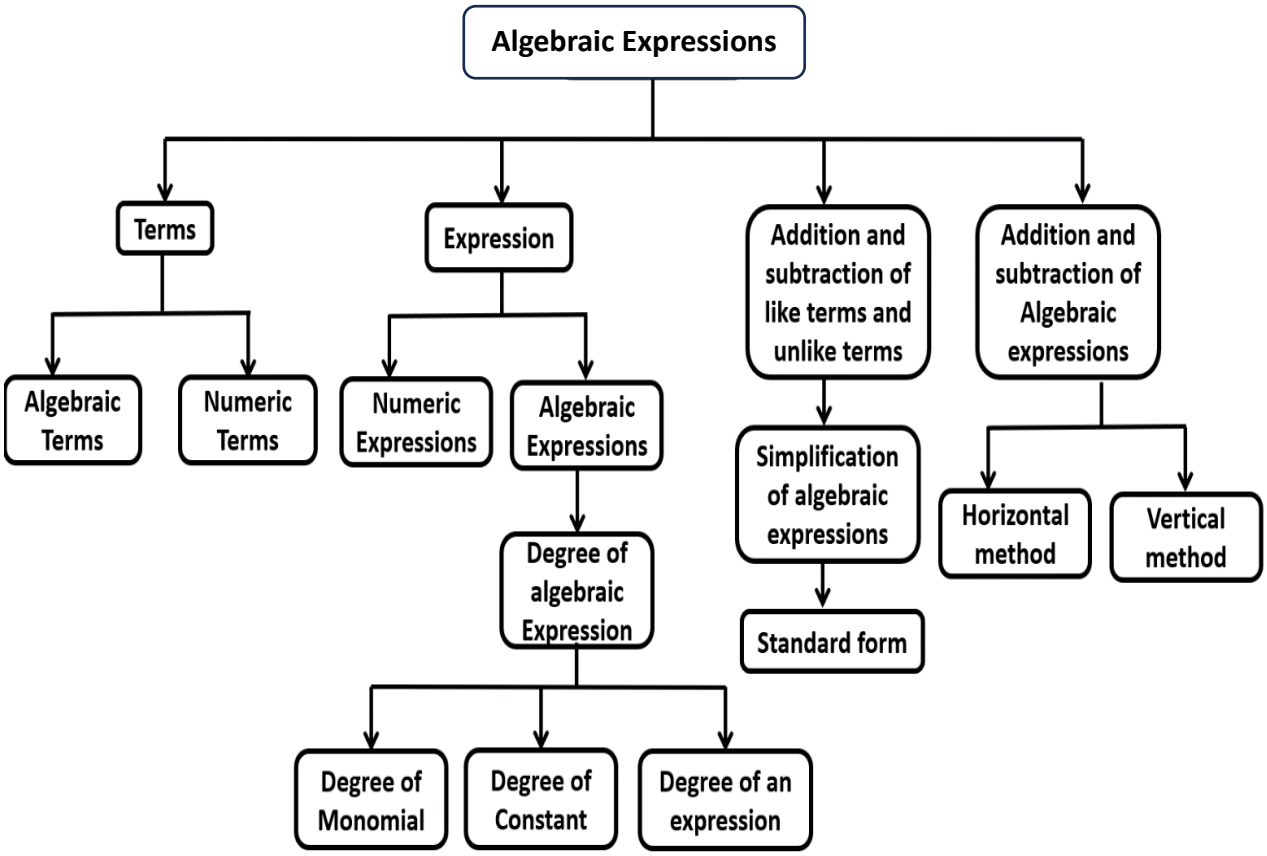
Basic Mathematical operations, patterns-rules, variable, constant, coefficient, expression, expression with numbers, expression with variables, rules from geometry/mensuration, rules from arithmetic, simple equations, LHS, RHS of equation, solution of equation, trial and error method.

Number of allotted periods: 12 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
10. Algebraic Expressions.	1. Introduction, like terms, unlike terms, co-efficient, uses in daily life.	1	
	2. Expressions, numerical expressions, algebraic expressions, degree of monomial, degree of constant term.	3	
	3. Addition and subtraction of like terms, simplification of algebraic expressions.	2	
	4. Standard form of an expression, finding the value of expression.	2	

	5. Addition of algebraic expressions in horizontal method and vertical method.	2	
	6. Subtraction of algebraic expressions in horizontal method and vertical method.	2	
	TOTAL	12	

CONCEPT MAP:



Teaching Resources: Chart of various types of algebraic expressions. Chart of terms, expressions.

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

11. POWERS AND EXPONENTS

Class: VII

Name of the Unit: 11. Powers and Exponents

Learning Outcomes: The learner

- Writes large numbers in exponential form by using prime factorization.
- Generalizes the exponential laws through the observation of patterns.
- Understand the meaning of x in a^x where $a \in Z$.
- Uses Prime factorization in expression of large numbers in exponential form.
- Express the large numbers in standard form.

Prerequisites: Students must know the following:

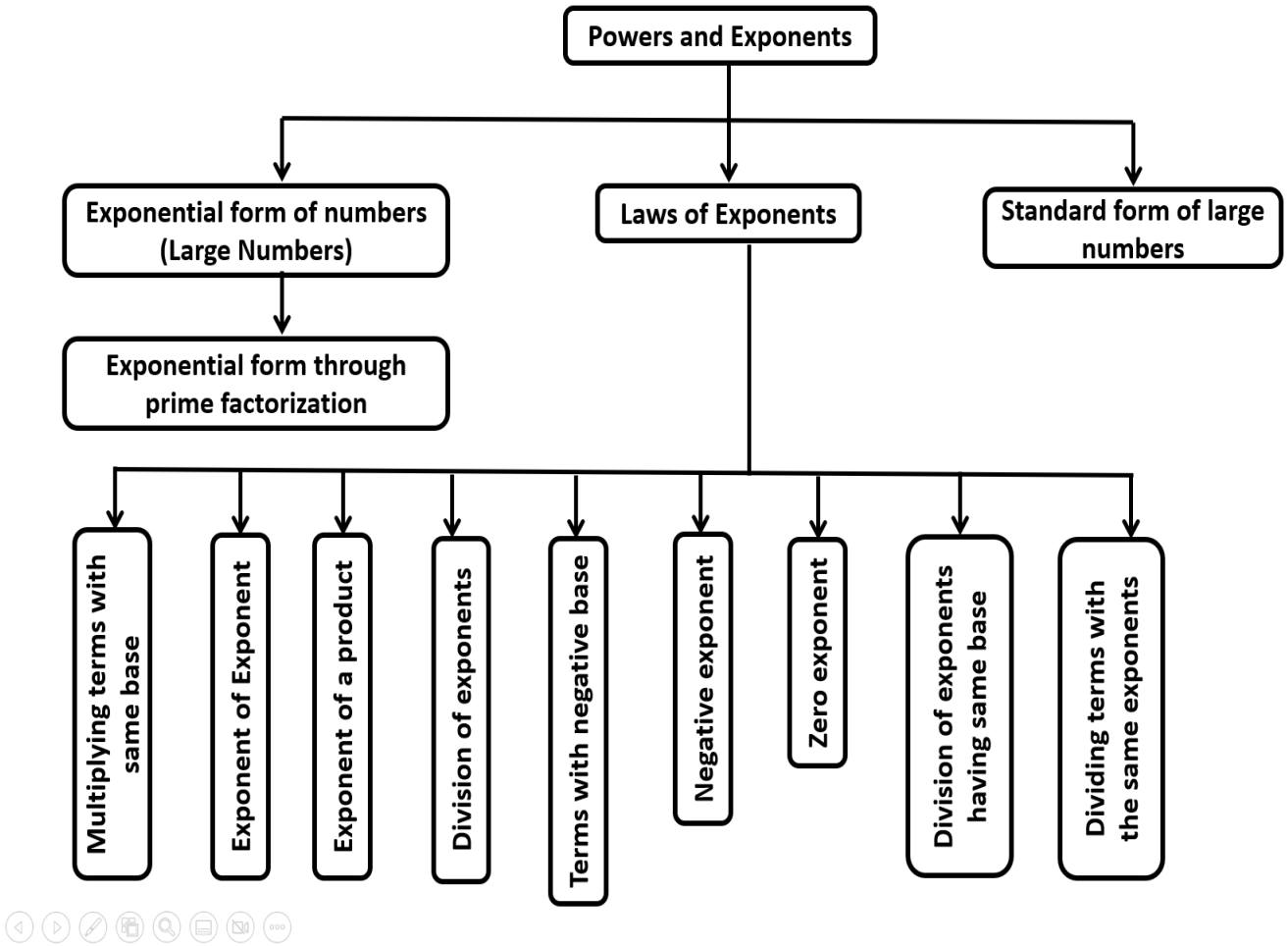
Numbers, large numbers, place values, natural numbers, whole numbers, integers, rational numbers, even numbers, odd numbers, rounding off the numbers, addition, subtraction, multiplication, division, expanded form numbers, prime numbers, composite numbers, factors, prime factors, prime factorization.

Number of allotted periods: 11 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
11. Powers and Exponents	1. Introduction, Exponential form, Exponents with other bases.	1	
	2. Squares and cubes of numbers, Expanded form of exponential no.s, writing numbers in exponential form through prime factorization.	2	
	3. Laws of exponents, multiplying terms with same base, exponent of exponent, exponent of a product.	2	
	4. Division of exponents, negative exponents, zero exponents, division of exponents having the same base, dividing terms with the same exponents,	2	

	5. Terms with negative base, expressing large numbers in standard form.	3	
	TOTAL	10	

CONCEPT MAP:



Teaching Resources: Chart of Properties of exponents.

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

12. QUADRILATERALS

Class: VII

Name of the Unit: 12. Quadrilaterals

Learning Outcomes: The learner

- Explains quadrilateral in his own words.
- Identifies differences between concave and convex quadrilaterals.
- Classifies and identifies the interior and exterior points of a quadrilateral.
- Proves the angle sum property of quadrilaterals in different ways.
- Finds the unknown angle of quadrilateral using angle sum property.
- Explains the properties of various types of quadrilaterals i.e., trapezium, kite, parallelogram, rectangle, square, rhombus etc.
- Solves problems based on properties of different types of quadrilaterals.
- Makes figures of quadrilaterals with tangrams.

Prerequisites: Students must know the following:

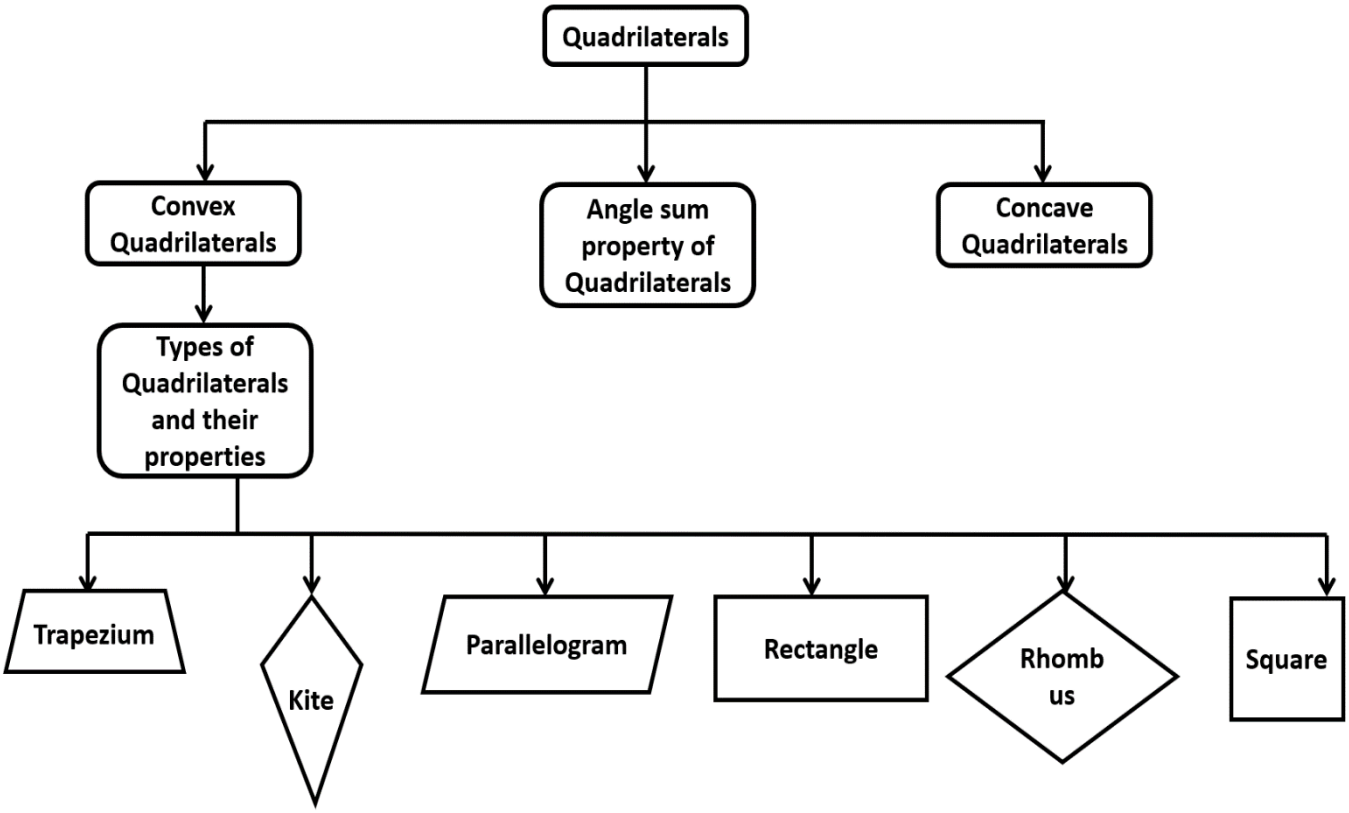
Closed figures, open figures, sides, angles, vertices, adjacent sides, opposite sides, angle sum property of triangles, parallel lines, transversal line, corresponding angles, opposite angles, alternate interior angles, linear pair, complementary angles, supplementary angles, properties of congruent triangles, solving simple linear equations.

Number of allotted periods: 11 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
12. Quadrilaterals	1. Introduction of Quadrilaterals, interior and exterior points of quadrilaterals.	1	
	2. Concave and convex quadrilaterals and angle sum property of quadrilaterals.	2	
	3. Solving problems on angle sum property.	2	
	4. Types of quadrilaterals and their properties.	4	

	5. Solving problems based on properties of different types of quadrilaterals	2	
	TOTAL	11	

CONCEPT MAP:



Teaching Resources: Chart of various types of quadrilaterals

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

13. AREA AND PERIMETER

Class: VII

Name of the Unit: 13. Area and Perimeter.

Learning Outcomes: The learner

- Solves the problems related to area and perimeter for shapes of square, rectangle, parallelogram, triangle and rhombus.
- Understands the relationship between square, rectangle, parallelogram with triangle shapes for finding the area of triangle.
- Understands the area of rhombus by using area of triangles.
- Explains the concept of measurement by using a basic unit.
- Applies the concepts of area and perimeter to solve the problems related to daily life situations.
- Finds the areas of rectangular and circular paths.
- Represents verbal problems in figures.

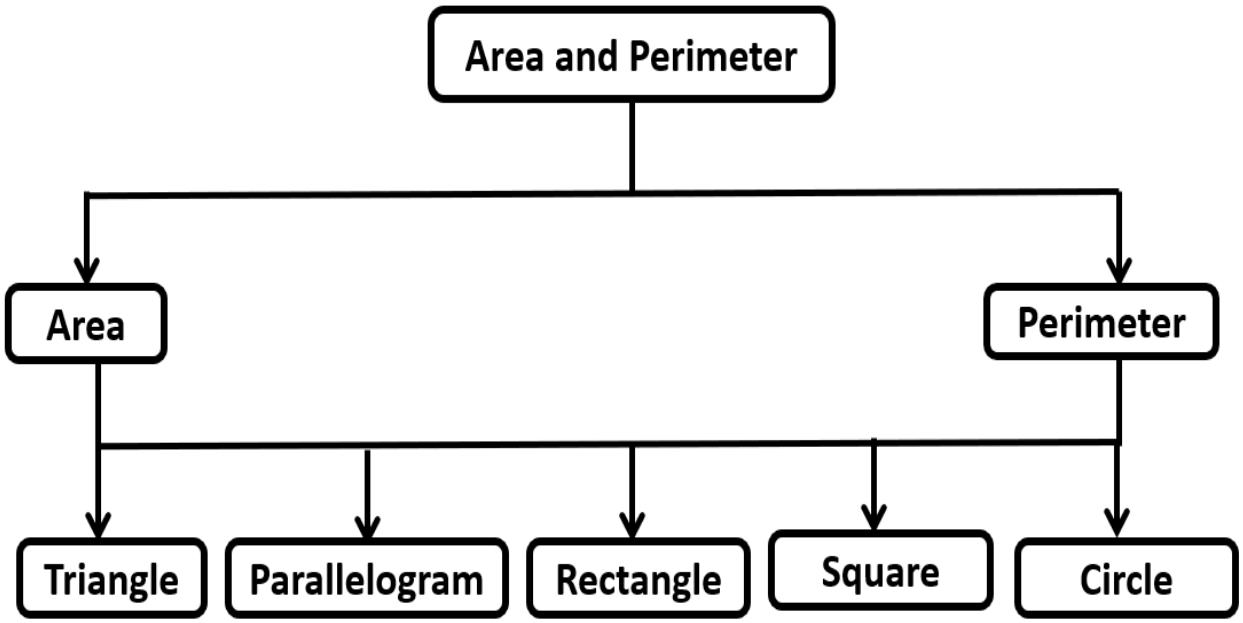
Prerequisites: Students must know the following:

Triangle, Rectangle, Square, Rhombus, Parallelogram, circle, units of measurements, Basic mathematical operations, properties of different types of quadrilaterals.

Number of allotted periods: 13 Periods.

Unit/Lesson Name	**Sub-topics**	**Teaching Periods**	**Remarks**
Area and Perimeter.	1. Introduction, regular shapes, irregular shapes, triangles, different types of quadrilaterals.	1	
	2. Area of a parallelogram.	2	
	3. Area of a triangle, triangles are part of rectangles.	2	
	4. Triangles are parts of parallelograms.	2	
	5. Area of a rhombs.	2	
	6. Circumference of a circle.	2	
	7. Rectangular paths.	2	
	TOTAL	13	

CONCEPT MAP:



Teaching Resources: Chart of formulae of areas and perimeter of various figures.

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

14. UNDERSTANDING 3D AND 2D SHAPES

Class: VII

Name of the Unit: 14. Understanding 3D and 2D Shapes.

Learning Outcomes: The learner

- Identifies vertices, faces and edges of solid figures.
- Reads and writes the names of 2-D and 3-D figures.
- Explains the differences between actual 3-D objects and the 3-D objects drawn on isometric sheet.
- Matches the 3-D shapes with their net shapes.
- Represents 3-D shapes by using net diagrams.
- Represents 3-D shapes on isometric dot sheets.
- Visualizes 3-D shapes as 2-D shapes.

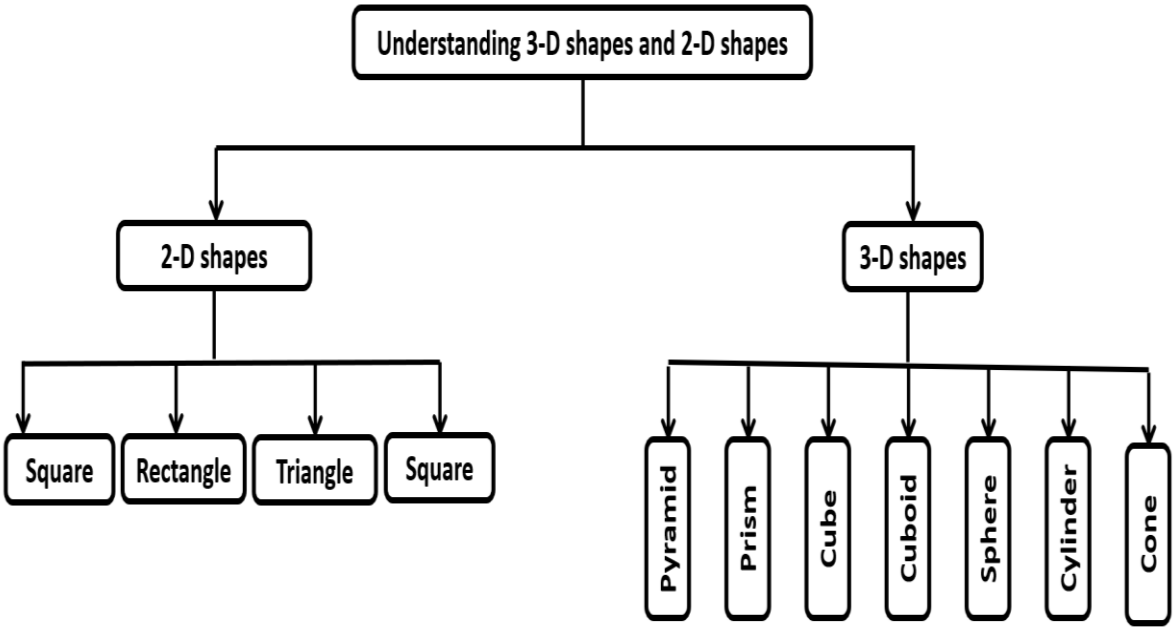
Prerequisites: Students must know the following:

Faces, vertices, edges, triangle, square, rectangle, triangle, circle, 2-D shapes, cube, cuboid, prism, sphere, cone, cylinder, 3-D shapes.

Number of allotted periods: 7 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
14.Understanding 3D and 2D Shapes.	1. Introduction to 3-D and 2-D shapes.	1	
	2. Net diagrams of 3-D shapes.	2	
	3. Isometric sketches on dot sheets.	2	
	4. Visualizing solid objects.	2	
	TOTAL	7	

CONCEPT MAP:



Teaching Resources: Charts of various types of 2-D shapes and 3-D shapes. Models of 3-D shapes

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS:

15. SYMMETRY

Class: VII

Name of the Unit: 15. Symmetry

Learning Outcomes: The learner

- Demonstrates symmetry in objects by using symmetric line.
- Draws multiple symmetrical lines to the figures wherever possible.
- Rotates the figure and finds its angular symmetry.
- Can differentiate linear symmetry and rotational symmetry using objectives or figures.
- Gives examples of linear symmetry and rotational symmetry.

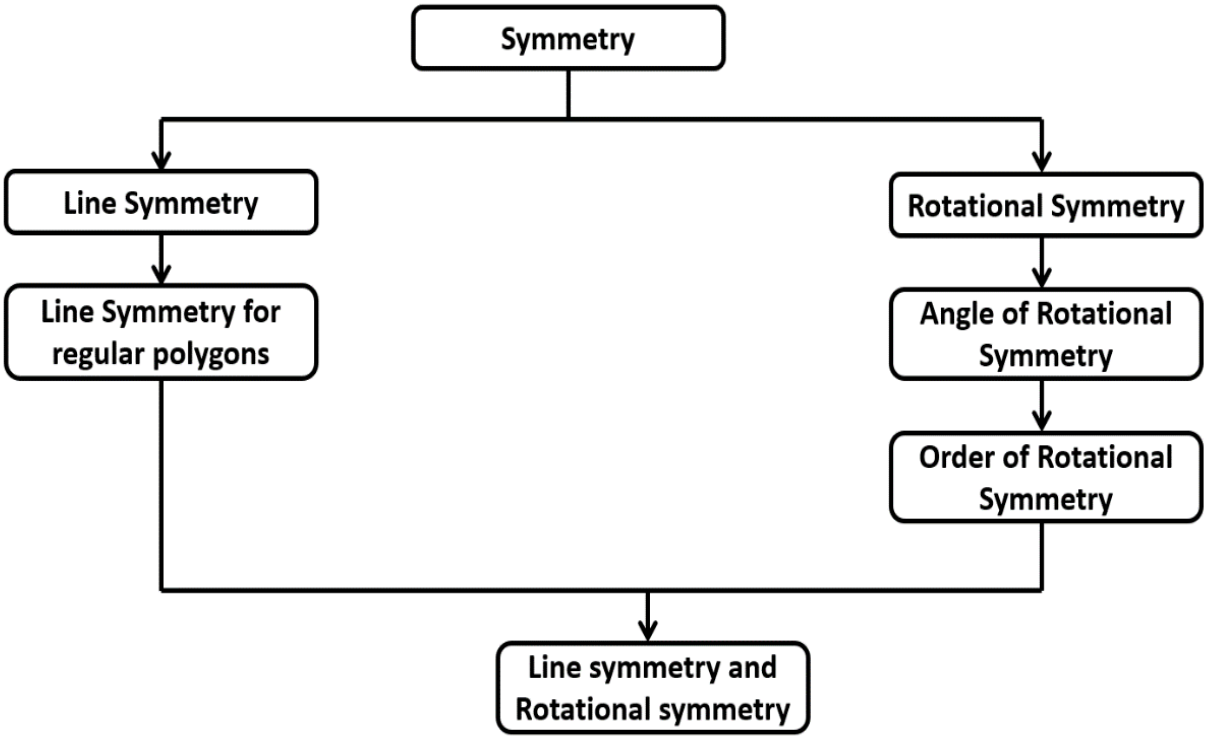
Prerequisites: Students must know the following:

Symmetry, line symmetry, angle, rotation, polygons, alphabets, Rangoli patterns

Number of allotted periods: 11 Periods.

Unit/Lesson Name	Sub-topics	Teaching Periods	Remarks
15. Symmetry	1. Introduction to symmetry.	1	
	2. Line symmetry.	2	
	3. Line symmetry for regular polygon.	2	
	4. Rotational symmetry.	2	
	5. Order of rotational symmetry.	2	
	6. Line symmetry and rotational symmetry.	2	
	TOTAL	11	

CONCEPT MAP:



Teaching Resources: Chart of symmetric figures.

TEACHER'S REFERENCES:

TEACHER'S REFLECTIONS: