

Maths curriculam class x

S.No	Content	Objectives (Class X)	Skills	Learning Objectives	Activity	Subject Integration	Outcome	Assessment
1	REAL NUMBER	<p>TO enable the students: * Euclid's division lemma * Fundamental Theorem of Arithmetic</p> <p>* Proof of irrational number.</p> <p>* Decimal expression of rational numbers in terms of terminating .</p> <p>* H.C.F and L.C.M of number.</p> <p>* Relation b/w H.C.F & L.C.M with product of numbers.</p>	<p>OBSERVATION SKILL: *TO observe given rational number is terminating or non-terminating</p> <p>* ANALAYTIC skill: *To analyse the nature if given number. It is rational or irrational.</p> <p>CALCULATIVE SKILL:*To calculate the HCF and LCM of given numbers.</p>	<p>Verbal</p> <p>Interpersonal</p> <p>Logical Smart</p> <p>intrapersonal</p> <p>NATURALISTIC</p>	<p>By explaining the concept of rational &irrational number and Euclid;s division lemma.</p> <p>Discussion on word problem based on Euclid lemma and HCF-LCM.related to daily life.</p> <p>Apply logics to find , word problem solved with HCF or LCM</p> <p>Solving the problems themselves by different methods.</p> <p>Problems based on time,distribution of things.</p>	<p>English: TO FRAME STATEMENT OF WORD PROBLEMS.</p> <p>G.SC: To solve numerica ` problems with the help of HCF and LCM.</p>	<p>Students will learn about Euclid;s lemmma and fundamental theorem of Arithmetic.</p> <p>Solutions of word problems with the hellp of HCF and LCM will learn and understand the doy to day problem.</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p> <p>Riddles based on concept</p>
2	POLYNOMIAL	<p>To enables the students</p> <p>* Geometrical meaning of zeroes of polynomial.</p> <p>* relationship b/w zeroes and coefficent of a polynomial.</p> <p>* Division Algorithm for polynomial</p>	<p>OBERSAVATION SKILL:By observing cartesian plane through graph, helps to tell degree of polynomial.</p> <p>ANALATIC SKILL:To analyse the nature and relation of roots with coefficent.</p> <p>CALCULATIVE SKILL: To find/ calculate the divisor, quotient and remainder.</p>	<p>VERBAL</p> <p>INTERPERSONAL</p> <p>LOGICAL</p> <p>VISUAL</p> <p>INTRA PERSONAL</p>	<p>By explaining define of polynomial,degree,coefficent,variabl e,constant, factor and remainder.</p> <p>By discussing types, degree,sum of roots,products.</p> <p>By explaining long division , check divisio algorithm.</p> <p>Factorisation ofpolynomial, represent graphical representation.</p> <p>By solving problems related to factorisation of polynomias, relation b/w coefficent and roots of polynomial.</p>	<p>G.SC : To solve numericals</p>	<p>Students will be able to find zeroes, factors, and multiples of polynomial. Able to solve polynomial throug long division.</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p> <p>* practical activity</p> <p>worksheet based on concept of polynomial</p> <p>Mid Term , PreMid Term , PostMid Term , Finals</p>

3	Pair of linear equation in 2 variables	<p>To enables the students:</p> <ul style="list-style-type: none"> * pair of linea equation in 2 variables. * geometrical representation of given linear equation * Types of linear equation through graphical representation. * solution of given equations by different method i.e by elimination method by substitution by cross multiplication method. *word problems related to given situation based on day to day life * conditions for unique , no solution or many solution. * consistent and inconsistent system 	<p>OBSERVATION SKILL:</p> <p>By observing the given equation , tell it is linear in 2 variable or not</p> <p>ANALYTIC SKILL</p> <p>To analyse the type of solution of given equations --- unique / no solution / many solution</p> <p>CONTENT ORGANISATION SKILL:</p> <p>Arrange the given terms and conditions to make equation and find solution by any method.</p>	<p>VERBAL</p> <p>INTRA PERSONAL:</p> <p>VISUAL</p> <p>INTRA PERSONAL</p> <p>NATURLISTIC</p>	<p>By explaining the concept of linear equation and types of solutio n oflinear equation</p> <p>Discussion onword problems based on different types of solutions.</p> <p>Representation of given linear equation through graph and discussson on their solutions.</p> <p>Solving the problems themselves by different method</p> <p>Problem based on age, time , and money (day to day problems)</p>	<p>English : To framing statement of word problem.</p> <p>G.SC: To solve numerical problems</p>	<p>Students will learn about linear equation and solution of linear equation through different methods.</p> <p>Given system of equatoin is consistent or inconsistent</p>	<p>practical activity based on graph</p> <p>Activity in S.E.A based on given topic(jute)</p>

4	QUADRATIC EQUATION To enables the students:	To enables the students: * quadratic equation * solution of quadratic equation (a) by method of factorization (b) by method of completing the square method (c) by quadratic formula * nature of roots * relation between roots of quadratic equation and their coefficients * D:discriminant	OBSERVATION SKILL: To observe the given polynomial is quadratic or not ANALYTICAL SKILL to analyse the nature of given equation and solution for given quadratic equation CALCULATIVE SKILL to calculate the missing term in given word problems and to increase level of calculation LOGICAL SKILL For solution of different type of word problem Apply different logics.	Verbal Kinesthetic /Bodily Interpersonal logical smart Intrapersonal	by explaining the concept of quadratic equation To solve quadratic equation through the lab activity with paper cutting folding to daily life situation problems Apply logics to convert given word problems in to Solving the problems themselves by different methods	English: To frame statement of word problems Gsc: To solve numerical problems	Students will learn about quadratic equation Solutions of equations by different methods .How to solve the word problem based on different situations which method is applicable for given equation	Mid Term , PreMid Term , PostMid Term , Finals Practical based on factorisation of quadratic equation
5	ARITHMETIC PROGRESSION To enables the students	To enables the students	OBSERVATION SKILL	Verbal	Explanation of different terms related to AP through	Gsc:	* Students will able to represent any sequence in order .	Mid Term , PreMid Term , PostMid Term , Finals

		<p>* To motivate the students for studying A.P.</p> <p>*sequence</p> <p>* Progression</p> <p>*General term or nth term of AP</p> <p>* Finding the terms of an AP</p> <p>* Sum of n terms of AP</p> <p>*Useful properties of AP</p> <p>* Application of AP in daily life</p>	<p>to observe the sequence from AP or not</p> <p>ORDERING DETAILS</p> <p>To arrange the given terms of AP in proper manner</p> <p>ANALYTICAL SKILL</p> <p>To analyse what is given in given sequence and what we want to find</p> <p>CONCEPTUAL SKILL</p> <p>Apply concept to solve given problems</p> <p>CALCULATIVE SKILL</p> <p>To find different term and their sums. speed should be increased</p>	<p>Bodily</p> <p>Intrapersonal</p> <p>Visual</p> <p>Interpersonal</p>	<p>discussion</p> <p>Activity :Math lab activity with graph folding on AP and its sum</p> <p>"Sum of first n natural n numbers "</p> <p>Discussion on word problems based on our daily life eg. Length of stairs tape distance covered in given rounds etc.</p> <p>Through maths lab activity (performed on graph paper or coloured paper), understand the sum of given terms</p> <p>Solving the problems at their own level</p>	<p>numerical problem</p> <p>SSc:correlate the</p> <p>Different part of any situation with each other like terms of AP</p> <p>Hindi / english : Many topics are related to each other like noun, pronoun, like terms of AP</p> <p>I term = a II term</p>	<p>* Able to solve the problems related to daily life .</p> <p>*Students will be able to understand representation.</p>	<p>Maths lab activity through maths MCQs</p>
6 SIMILAR TRIANGLES	<p>To enable the students</p> <p>* Concept of similar triangles</p> <p>* Different between similar and congruent triangles</p> <p>* Properties of similarity</p> <p>* Basic proportionality theorem</p> <p>* Ratios of sides/Ancas of similar triangles</p> <p>* Pythagoras theorem</p>	<p>DRAWING SKILL</p> <p>Able to draw different types of triangles</p> <p>OBSERVATION SKILL</p> <p>By observing the figure(triangle able to use identify criteria of similar triangles</p> <p>ANALYTICAL SKILL</p> <p>Able to analyse the given</p>	<p>verbal/ linguistic</p> <p>(word smart)</p> <p>Intrapersonal (people smart)</p> <p>logic smart</p>	<p>By explaining the definition ,types and properties of triangles .By explaining the proves of theorems used in similar triangles</p> <p>By discussing criteria of similarity AA,SAS, SSS, and area of similar triangles</p> <p>by proving theorems of similar triangles and solving problems for finding angles ,sides and areas</p>	<p>Drawing: In drawing geometric shapes and patterns</p> <p>Science:</p> <p>in observing the shape of scientific instruments</p> <p>* In finding the length of shadow of object by pythagoras theorem</p>	<p>Students will be able to identify the type of triangles and use special properties of similar triangles in solving the problems</p> <p>* Students will be able to appreciate and verify the facts about the similarity of triangles stated in the form of properties theorems and axioms of triangles</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p> <p>* MCQs</p> <p>* practical activity</p>	

		<p>* Angles bisector * problems based on given theorems</p>	<p>problem and identify the property which is to be used</p> <p>CALCULATION SKILL</p> <p>Able to find the angle and area of given triangles by using different properties of triangles and with use of</p>	<p>visual smart</p> <p>Interpersonal</p>	<p>*By observing and drawing figures * By proving properties and pythagoras theorem by paper cutting and folding</p> <p>By solving problems related to topic</p>	<p>Computer:</p> <p>In flow chart</p> <p>SUPW:</p> <p>For making shapes and different objects with moulding</p> <p>English: word problems</p>		
7	COORDINATE GEOMETRY	<p>To enable the students</p> <p>* Cartesian coordinate rectangular system</p> <p>* Representation of co-ordinates in plane (cartesian system)</p> <p>* Quadrants</p> <p>* Distance formula</p> <p>* Section Formula</p> <p>* Mid point Formula ,centroid and area of triangle</p>	<p>* OBSERVATION SKILL</p> <p>Able to observe the position on the given quadrant</p> <p>*ORDERING DETAILS:</p> <p>Arrange the points according to their position</p> <p>*ANALYTICAL SKILL:To analyse the position of given points on the plane</p> <p>* CONCEPTUAL SKILL</p> <p>Different formula (midpoint ,section distance) to solve different problems</p> <p>* LOGICAL SKILL For understanding of given problem apply different logics</p>	<p>Verbal</p> <p>Bodily</p> <p>Intrapersonal</p> <p>visual smart</p> <p>Logical</p> <p>Interpersonal</p>	<p>Explanation through discussion of different new terms related to co-ordinate geometry</p> <p>Plotting of different given points on graph sheet through activity with scale and pencil</p> <p>Discuss the given problems related to distance and section formula etc.</p> <p>Discussion on any problem which is given in the form presentation on graph paper.To find relation between given points and find area of triangles</p> <p>Use of logics related to cartesian system where point has positive or negative coordinates etc.</p> <p>Problems solved by themselves</p>	<p>Gsc:</p> <p>Graphical</p> <p>representation and numerical problems</p> <p>English: word problems as statement formation</p> <p>SSc:Help in plotting on maps and to tell about directions on paper</p>	<p>* Students will understand the different formulas and their use</p> <p>* Students will be able to use the formulae and concept in real life situations</p> <p>* Students will use the knowledge of plotting the points on graph</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p> <p>MCQ's</p>
8	TRIGONOMETRY	<p>To enable the students</p> <p>* Introduction of trigonometry</p> <p>* Trigonometric ratios</p>	<p>CONCEPTUAL SKILL</p> <p>Apply conceptual knowledge to find trigonometric ratios</p>	<p>Verbal</p> <p>Intrapersonal</p>	<p>Explanation of T-ratios through discussion</p> <p>Discussion on different situations /relation at different</p>	<p>GSc: Numerical problems</p> <p>SSc: Discussion on height</p>	<p>Students will be able to learn different terms and angles related to trigonometry</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p>

		<ul style="list-style-type: none"> * Trigonometric ratios of some specific angle * Trigonometric identities * Application based on identities and T-ratios * To understand pythagoras theorem 	<p>and value at different angles</p> <p>CALCULATIVE SKILL Problems related to identities</p>	<p>Interpersonal</p> <p>Nature</p>	<p>terms of T-ratios related to identities</p> <p>Solving the problems themselves</p> <p>To find height and distance and distance of any flying object, bird etc.</p>	<p>of any building and distance between two things</p> <p>Hindi/English: Story telling on importance of height etc</p>	<p>Students will apply conceptual knowledge to solve given problems</p>	
9	APPLICATION OF TRIGONOMETRY	<ul style="list-style-type: none"> * Introduction of trigonometry * Terms and identities of trigonometry * Line of sight * Angle of elevation * Angle of depression * Use of angles of 30°, 45° and 60° for solving problems of height and distance * Simple and believable problems of height and distance 	<p>DRAWING SKILL: able to draw the figure with information to solve the problems based on different angles</p> <p>OBSERVING SKILL: Through figure observation, try to understand the given problems</p> <p>CONCEPTUAL SKILL For given figure apply knowledge of trigonometry to find</p> <p>CALCULATIVE SKILL Problems solution gives speed of calculation because calculations are lengthy</p>	<p>Verbal</p> <p>Bodily</p> <p>Intrapersonal</p> <p>Visual</p> <p>Interpersonal</p> <p>Nature</p>	<p>Explanation of angle of elevation and depression on blackboard through discussion</p> <p>To understand the concept of different angles .Also draw different figures on blackboard</p> <p>Discussion on different situations to find solutions related to daily life(find height of tower, distance from foot , length of wheel etc.</p> <p>Many vertical and horizontal based things are shown to clear the concept</p> <p>Solving the problems themselves</p> <p>Discussion on different situations to find solutions related</p>	<p>GSc: numerical problems</p> <p>SSc: Discussion on height of any building and distance between two things .Maps are based on trigonometry</p> <p>HINDI/ENGLISH : Story telling on importance of height etc.</p>	<ul style="list-style-type: none"> * Students will learn different terms and angles related to trigonometry * Students will apply conceptual knowledge to solve daily life problems * Students will be able to find height of tower,width of river, distance between shadow and light house etc. 	<p>Mid Term , PreMid Term , PostMid Term , Finals</p>

10	CIRCLES	<p>Students enables to</p> <p>* Introduction to circles * Different terms related to circle (radius,diameter, chord, semicircle etc) * Tangents to circle</p> <p>* Circles andd common tangets * Secant to a circle * Difference between tangents and secant * properties of tangents ,secant and intersecting lines * Different theorems based on tangents of circle</p>	<p>* DRAWING SKILL</p> <p>To construct the circles with given radius and diameter</p> <p>* OBSERVING SKILL</p> <p>Able to observe given figures to apply right theorem to solve it</p> <p>* LOGICAL SKILL</p> <p>Logics behind different theorems are used to solve given geometrical problems</p> <p>* THINKING SKILL</p> <p>By recalling the relations between given conditions to solve given situations</p>	<p>verbal</p> <p>Kinesthetic/ bodily</p> <p>Interpersonal</p> <p>Visual</p> <p>Intrapersonal</p>	<p>Different terms related to circles are explained through</p> <p>discussion and theorems also based on tangents of circles. Maths lab Activity :</p> <p>1. Area of circle</p> <p>2. Tangents drawn from external points Discussion on the result of different theorems and discuss the given problems based on theorems</p> <p>During performing activities with paper folding they realize about the concept of different theorems</p> <p>solving the problems by themselves</p>	<p>GSc:</p> <p>Concept of shaped earth can be corelate with circle</p> <p>Physical Educations</p> <p>Circular tracks for racing etc Hindi/English</p> <p>Story telling *earth is round computer:</p> <p>Flow chart</p>	<p>* Students will be able understand the difference terms related to circles * Able to understand different theorems based on tangents of a circle *Students will try to solve the problems with corelation of theorems</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p> <p>* Practical Activity</p>
11	CONSTRUCTION	<p>* To construct tangent to a circle from a point outside it</p> <p>* To construct a triangle similar to a given triangle</p> <p>* Divide a given line segment in a given ratio</p>	<p>DRAWING SKILL:</p> <p>To construct different angles ,angle bisectorand perpendicular bisector and tangents to a given circle.</p>	<p>Verbal</p> <p>Bodily</p> <p>Interpersonal</p>	<p>By expaining the concept of construction of tangents and different types of triangles</p> <p>By constructing types of line segment division and tangents to the circle and triangle by using ruler ,compass nad protactor</p> <p>By discussing the properties and types od triangles and</p>	<p>Physics:</p> <p>Construction of different diagrams and ray diagrams Drawing: Drawing different diagrams with accuracy</p>	<p>Students will practice the use of geometrical indtrument like scale , compass and protactor etc.</p> <p>They will value and appreciate the neatness required in construction</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p>

		<p>* construct quadrilateral similar to the given quadrilateral</p>	<p>OBSERVATION SKILL: Able to observe the given condition for the construction of different type of triangles and tangents to a circle with protactor, compass and ruler.</p> <p>ANALYTICAL SKILL By recalling the properties of triangle (similar) and tangents students will corelate in construction .</p> <p>MEASURING SKILL: To measure line segment for division by ruler and compass</p> <p>ACCURACY: With measure of different pairs of angles and lines</p>	<p>Logical</p> <p>Visual</p> <p>Intrapersonal</p>	<p>tangent to the circle Justification will be given for construction through steps of condtruction By constructing and observing(rough sketch)for given construction By constructing problems themselves</p>			
12	AREA RELATED TO CIRCLE	<p>Students enables to:</p> <p>* Different terms related to circle</p> <p>*Area of circle</p> <p>* Area of sector</p> <p>* Area of segment</p> <p>* Area of major/minor sector and segment</p>	<p>UNDERSTANDING AND OBSERVING SKILL : With obseervation of given figure,try to understand what is given and what to find</p> <p>CONCEPTUAL SKILL:</p>	<p>Verbal</p> <p>Bodily</p> <p>Interpersonal</p>	<p>Explanation will be given to students about different terms related to circle through black board etc.</p> <p>Draw figure with given in formation to solve problems <u>Activity</u> Area of sectors formed at the vertices of triangle with paper folding and cutting for Maths lab Discuss the problems through figure and find the solution</p>	<p>Drawing : to draw different shapes</p> <p>GSc: Numerical problems</p>	<p>* Students will learn difference between perimeter and area of different segments and sectors of a circle</p> <p>* Students will learn to find out the perimeter and area of circular</p> <p>* Students will learn to find perimeter and area of sectors and segment and their combination</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p>

		<p>*length of arc,perimeter of sector</p> <p>* Circumference of circle</p> <p>* Applications of perimeter and area of sectors , segment and circles with different central angles(30° , 60° ,90°and 120 °</p>	<p>Apply knowledge of different formulae to solve different problems</p> <p>ORDERING DETAILS: With order they know which steps should be taken as I and which will be rest</p> <p>CALCULATIVE SKILL: To find area and perimeter</p> <p>of different parts of circle</p> <p>,formulaes are having many terms in num and deno which increases the speed of calculation</p> <p>DRAWING SKILL: Able to draw figures of given problems</p>	<p>Visual</p> <p>Intrapersonal</p>	<p>from many different ways Try to understand the concept from different objects of shape of sector ,segment and circle from daily life</p> <p>Solving the problems by themselves</p>			
13	SURFACE AREA AND VOLUME	<p>To enable students:</p> <p>* Identify the given solid figure</p> <p>* Curved surface area, total surface area and volume</p> <p>of various solid figures</p> <p>* Surface Area and volume of combined figures</p> <p>* Conversion of solid from one shape to other</p> <p>* Surface Area and volume of frustum of a cone</p>	<p>DRAWING SKILL: They will learn how to draw different figures with measurement</p> <p>OBSERVING SKILL: To find area and volume of combined figures</p> <p>CONCEPTUAL SKILL: Different formulaes and</p>	<p>Verbal</p> <p>Bodily</p> <p>Interpersonal</p> <p>Intrapersonal</p>	<p>By explaining the concept of surface area and volume of</p> <p>* ACTIVITY:Area of ice cream cone or joker cap</p> <p>* Discussion on problems through experiences from daily life</p> <p>* Solving the problems at their own level</p>	<p>GSc: Different formulaes used to solve physics numericals</p> <p>English: word problems , statements and vocab</p> <p>Hindi: To understand the relation between given terms and diameter</p>	<p>* students will learn difference between surface area and volume of solids</p> <p>* They will learn how to convert one solid into other</p> <p>* Surface Area and volume of combined figure</p> <p>* They will learn different formulas to calculate Surface Area and volume of different solid figures</p>	<p>Mid Term , PreMid Term , PostMid Term , Finals</p>

		measurement units are used to solve given problems CALCULATIVE SKILL: To increase the calculation speed	Visual Smart	* Different figures / combined figures are shown to students to clear concept of surface area and volume				
14	PROBABILITY	To enables the students *Experiment and theoretical approach to probability * Events ,outcomes ,favourable outcomes, sample space and method of finding probability * Sure events ,impossible events , and application of probability * Use of sample space etc	CONCEPTUAL SKILL: To understand about concept of probability LOGICAL SKILL: Apply logics to solve the given problems CALCULATIVE SKILL : To increase the sped of calculation in the given problem ANALYTICAL SKILL To analyse the given situations	Verbal Kinetic/ Bodily Interpersonal Logical Visual Intrapersonal	Explanation of given concept of probability * Activity 1: Use of colours in tossing process to give idea of favourable outcomes and total outcomes * Activity 2: By throwing a dice - prediction of any number can be favourable outcome Discussion on happening and non happening of an event Use conceptual knowledge to solve problems Concept of cards explain through pack of cards Solving the problems by themselves	SSc: Weather forecasting GSc: Result/ outcomes of an experiment Computer: For conditional statement	* students will appreciate that the possibility oh happening of an event be calculated as vaalue between zero and one * How to find/determine the probability of an event	Mid Term , PreMid Term , PostMid
15	STATISTICS	To enable the students * group data and different terms related to data * class interval, class mark , class size and range of data * To calculate the mean, mode, median of ungrouped	DRAWING SKILL: By drawing different types of ogives (relation between more than or less than type frequency	verbal kinestic/ Bodily	By explaining the conceptand requirement of grouped data Representation of more than type/ less than type of frequency og given data or graph(Activity based on height of different students of class	Social Science: Graphs related to different areas Economics : Growth of a country etc.	Students will learn to draw and read the information given in the form of ogives	Mid Term , PreMid Term , PostMid Term , Finals graphical activity

data
* To calculate the mean, mode,
median of grouped

with class interval

Logical

By giving formula to find mean ,
mode and median of given

Science: Representation

data
* To understand the conversion
of frequency into
cumulative frequency
* graphical representation of
given data with c.f.
through different ogives
* More than type ogives

By observing differernt

Visual

data
By observing given graph, collect the
information about

of different cycles

numerical problems

* Less than type ogives

ogives , find median

ANALYTICAL SKILL

different types of ogives

English/ Hindi: word
problems

Able to analyse the graph
of ogives

CALCULATIVE SKILL

To find mean, mode and
median of given data by
converting into
continuous
series/ data