

Class IX  
Subject Mathematics  
Term Wise Syllabus  
Academic Session 2009-2010

**First Terminal**

Chapter 1: Number Systems

Chapter 2: Polynomials

Chapter 3: Co-Ordinate Geometry

Chapter 4: Linear Equations in Two Variables

Chapter 5: Introduction to Euclid's Geometry

Chapter 6: Lines and Angles

Chapter 7: Triangles

Chapter 8: Quadrilaterals

**Second Terminal**

Chapter 9: Area of Parallelograms and Triangles

Chapter 10: Circles

Chapter 11: Constructions

Chapter 14: Statistics

Chapter 15: Probability

**Third Terminal**

Chapter 12: Heron's Formula

Chapter 13: Surface Area and Volumes

**Weekly Syllabus Break-up For the Academic Session 2009-2010  
FIRST TERM**

MONTH /WEEK	DATES	DAYS	CHAPTER/ TOPICS	DETAILS
<b>APRIL 2009</b>				
I WEEK	1-4	3	Chapter 1 :Number Systems Ex:1.1-1.2	<b>REAL NUMBERS</b> Review of representation of natural numbers, integers, rational numbers on the number line. Representation of terminating/ non-terminating recurring decimals, on the number line through successive magnification.
II WEEK	6-11	3	Ex:1.3-1.5	Rational numbers as recurring/terminating decimals. Examples of non-recurring / non-terminating decimals such as square roots of 5, 3, 2, etc.5 Existence of non-rational numbers (irrational numbers) such as square root of 3, 2 and their representation on the number line. Explaining that every real number is represented by a unique point on the number line, and conversely, every point on the number line represents a unique real number. Existence of square root of $x$ for a given positive real number $x$ (visual proof to be emphasized). Definition of $n$ th root of a real number.
III WEEK	13--18	6	Ex:-1.6 Chapter 2: Polynomials Ex:2.1-2.3	Recall of laws of exponents with integral powers. Rational exponents with positive real bases (to be done by particular cases, allowing learner to arrive at the general laws). Rationalization (with precise meaning) of real numbers of the type (& their combinations) $1/(a+b \text{ sq. root of } x)$ , $1/(ab \text{ sq. root of } x)$ & $1/(\text{sq. root of } x + \text{sq. root of } y)$ , $1/(\text{sq. root of } x - \text{sq. root of } y)$ , where $x$ and $y$ are natural numbers and $a, b$ are integers. <b>POLYNOMIALS</b> Definition of a polynomial in one variable, its coefficients, with 3 examples and counter examples, its terms, zero polynomial. Degree of a polynomial. Constant, linear, quadratic, cubic polynomials; monomials, binomials, trinomials. Factors and multiples. Zeros/roots of a

				polynomial/ equation. State and motivate the Remainder Theorem with examples and analogy to integers. Statement and proof of the Factor Theorem.
IV WEEK	20-25	6	Ex:2.4-2.5	Factorization of Polynomials $ax^2 + bx + c$ , where $a, b, c$ are real numbers, and $a$ not equal to Zero and of cubic polynomials using the Factor Theorem. Recall of algebraic expressions and identities. Further identities of the type $(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2yz + 2zx$ , $(x \pm y)^3 = x^3 \pm y^3 \pm 3xy(x \pm y)$ , $x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x^2 + y^2 + z^2 - xy - yz - zx)$ and their use in factorization of polynomials. Simple expressions reducible to these polynomials.
V WEEK	27-30	3	<b>MATHS ACT.</b>	
MAY AND JUNE	1.5.2009— 30.6.2009	SUMMER VACATION		
<b>JULY</b>				
1 <sup>ST</sup> WEEK	1-4	4	Chapter 3:Co-Ordinate Geometry Ex:3.1-3.3	<b>COORDINATE GEOMETRY</b> The Cartesian plane, coordinates of a point, names and terms associated with the coordinate plane, notations, plotting points in the plane, graph of linear equations as examples; focus on linear equations of the type $ax + by + c = 0$ by writing it as $y = mx + c$ and linking with the chapter on linear equations in two variables.
II WEEK	6-11	5	Equations In Two Variables Ex:4.1-4.4	<b>TWO VARIABLES</b> Recall of linear equations in one variable. Introduction to the equation in two variables. Prove that a linear equation in two variables has infinitely many solutions, and justify their being written as ordered pairs of real numbers, plotting them and showing that they seem to lie on a line. Examples, problems from real life, including problems on ratio and proportion. And with algebraic and graphical solutions being done simultaneously.
III WEEK	13-18	6	Chapter 5:Introduction To Euclid's Geometry Ex:5.1-5.2 Chapter	<b>INTRODUCTION TO EUCLID'S GEOMETRY</b> History – Euclid and geometry in India. Euclid's method of formalizing observed phenomenon into rigorous mathematics with definitions, common/obvious notions,

			6:Lines And Angles Ex:6.1	<p>axioms /postulates, and theorems. The five postulates of Euclid. Equivalent versions of the fifth postulate. Showing the relationship between axiom and theorem.</p> <ol style="list-style-type: none"> <li>1. Given two distinct points, there exists one and only one line through them.</li> <li>2. (Prove) Two distinct lines cannot have more than one point in common.</li> </ol> <p><b>LINES AND ANGLES</b></p> <ol style="list-style-type: none"> <li>1. (Motivate) If a ray stands on a line, then the sum of the two adjacent angles so formed is <math>180^\circ</math> and the converse.</li> <li>2. (Prove) If two lines intersect, the vertically opposite angles are equal.</li> <li>3. (Motivate) Results on corresponding angles, alternate angles, interior angles when a transversal intersects two parallel lines.</li> </ol>
IV WEEK	20-25	6	Ex:6.2-6.3 Mental Maths	<ol style="list-style-type: none"> <li>4. (Motivate) Lines, which are parallel to a given line, are parallel. 5</li> <li>5. (Prove) The sum of the angles of a triangle is <math>180^\circ</math>.</li> <li>6. (Motivate) If a side of a triangle is produced, the exterior angle so formed is equal to the sum of the two interiors opposite angles.</li> </ol>
V WEEK	27 July to 1August	5	5 Chapter 7:Triangles Ex:7.1-7.2	<p><b>3. TRIANGLES</b></p> <ol style="list-style-type: none"> <li>1. (Motivate) Two triangles are congruent if any two sides and the included angle of one triangle is equal to any two sides and the included angle of the other triangle (SAS Congruence).</li> <li>2. (Prove) Two triangles are congruent if any two angles and the included side of one triangle is equal to any two angles and the included side of the other triangle (ASA Congruence).</li> <li>3. (Motivate) Two triangles are congruent if the three sides of one triangle are equal to three sides of the other triangle (SSS Congruence).</li> <li>4. (Motivate) Two right triangles are congruent if the hypotenuse and a side of one triangle are equal (respectively) to the hypotenuse and a side of the other triangle.</li> </ol>

<b>AUGUST</b>				
II WEEK	3-8	5	5 Ex:7.3-7.4	5. (Prove) The angles opposite to equal sides of a triangle are equal. 6. (Motivate) The sides opposite to equal angles of a triangle are equal. 7. (Motivate) Triangle inequalities and relation between 'angle and facing side' inequalities in triangles.
III WEEK	10-15	4	Chapter 8: Quadrilaterals Ex:8.1	<b>QUADRILATERALS</b> 1. (Prove) The diagonal divides a parallelogram into two congruent triangles. 2. (Motivate) In a parallelogram opposite sides are equal, and conversely. 3. (Motivate) In a parallelogram opposite angles are equal and conversely. 4. (Motivate) A quadrilateral is a parallelogram if a pair of its opposite sides is parallel and equal. 5. (Motivate) In a parallelogram, the diagonals bisect each other and conversely.
IV WEEK	17-22	6	Ex 8.2 Mental Maths	6. (Motivate) In a triangle, the line segment joining the mid points of any two sides is parallel to the third side and (motivate) its converse.
V WEEK	24-29 & 31 August	6	Maths Activities and Mental Maths	
<b>SEPTEMBER</b>				
I WEEK	1-5	4	Project work and Revision	<b>1<sup>st</sup> CCEP Exam 04.09.2009</b>
II WEEK	7-9	3	<b>Revision</b>	
III WEEK	10-18	1 <sup>st</sup> Terminal Examination		
<b>19 Sep to 28 Sep 2009. Autumn Break</b>				
<b>OCTOBER</b>				
I WEEK	29 SEP to 3 OCT. 2009	3		Paper Discussion and Mental Maths
II WEEK	5-10	5	Chapter 9: Area Of Parallelograms And Triangles	<b>AREA</b> Review concept of area, recall area of a rectangle. 1. (Prove) Parallelograms on the

			Ex:9.1-9.2	same base and between the same parallels have the same area.
III WEEK	12-17	5	Ex:9.3 Chapter 10 Circles Ex 10.1	1. (Motivate) Triangles on the same base and between the same parallels are equal in area and its converse. <b>CIRCLES</b> Through examples, arrive at definitions of circle related concepts, radius, circumference, diameter , chord, arc , subtended angle.
IV WEEK	19-24	6	Chapter 10 Circles Ex 10.2 to 10.4 Mental Maths	1. (Prove) Equal chords of a circle subtend equal angles at the centre and (motivate) its converse. 2. (Motivate) The perpendicular from the centre of a circle to a chord bisects the chord and conversely, the line drawn through the centre of a circle to bisect a chord is perpendicular to the chord. 7 3. (Motivate) There is one and only one circle passing through three given non-collinear points. 4. (Motivate) Equal chords of a circle (or of congruent circles) are equidistant from the centre (s) and conversely.
V WEEK	26-31	5	Ex.10.5	5. (Prove) 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. 6. (Motivate) Angles in the same segment of a circle are equal. 7. (Motivate) If a line segment joining two points subtends equal angle at two other points lying on the same side of the line containing the segment, the four points lie on a circle. 8. (Motivate) The sum of the either pair of the opposite angles of a cyclic quadrilateral is $180^\circ$ and its converse.
<b>NOVEMBER</b>				
I WEEK	2-7	5	Chapter11: Constructions Ex:11.1-11.2	<b>CONSTRUCTIONS</b> 1. Construction of bisectors of line segments & angles, $60^\circ$ , $90^\circ$ , $45^\circ$ angles etc, equilateral triangles. 2. Construction of a triangle given its base, sum/difference of the other two sides and one base angle. 3. Construction of a triangle of given perimeter and base angles.

II WEEK	9-14	5	4 Chapter 14:Statistics Ex:14.1-14.2	<b>STATISTICS</b> Introduction to Statistics: Collection of data, presentation of data –tabular form, ungrouped/grouped, bar graphs, histograms (with varying base lengths), frequency polygons, qualitative analysis of data to choose the correct form of presentation for the collected data.
III WEEK	16-21	6	Ex:14.3-14.4	Graphical representation of data. Measures of central tendency— Mean, Median, and Mode of ungrouped data.
IV WEEK	23-30	6	Chapter 15:Probability Ex:15.1	<b>PROBABILITY</b> History, Repeated experiments and observed frequency approach to 8 probability. Focus is on empirical probability. (A large amount of time to be devoted to group and to individual activities to motivate the concept; the experiments to be drawn from real - life situations, and from examples used in the chapter on statistics).
<b>DECEMBER</b>				
I WEEK	1-5	5	Maths Activities and Mental Maths	
II WEEK	7-12,14	5	2 <sup>ND</sup> CCEP EXAM 11.12.2009 Revision	
III WEEK	15-22	<b>Second Terminal Exam.</b>		
IV WEEK	23-24	1	Question Paper Discussion	
<b>25-31 DECEMBER WINTER BREAK</b>				
<b>THIRD TERM</b>				
JANUARY 2010 I WEEK	1-2	2	Chapter 12:Heron's Formula Ex:12.1 Ex:12.2	<b>AREAS</b> Area of a triangle using Heron's formula (without proof). Application of Heron's Formula in finding the area of a quadrilateral.
II WEEK	4-9	5	Ex:12.2 (Cont.) Chapter13: Surface Area And Volumes Ex:13.1-13.2	<b>SURFACE AREAS</b> Surface Area of Cuboids, Cube s, Right Circular Cylinder
III WEEK	11-16	6	Ex:13.3-13.4	Surface Area of Right Circular Cone, Sphere
IV WEEK	18-23	6	Ex:13.5-13.6	<b>VOLUMES</b> Volume of Cuboids, Right Circular Cylinder
V WEEK	25-30	4	Ex:13.7-13.8	Volume of Right Circular Cone, Sphere

FEBRUARY				
I WEEK	1-6	6	Maths Activities	
II WEEK	8-13	5	Revision	
III WEEK	15-20	6	Revision	
IV WEEK	22-27	5	Revision	
MARCH 2010 ANNUAL EXAM				

Note: - For Maths activities please see “Guidelines for Mathematics Laboratory in School” (Class-IX) issued by CBSE

**ANNOUNCEMENT OF RESULT: - 31/03/2010**

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