

# CONTINUOUS LEARNING PROCESS (CLP)

## CLASS X

## MATHEMATICS

S.No.	Month	Chapter	Learning Outcomes
1	April	Chapter – 3 Pair of Linear Equations in Two Variables	<p>The Learner:</p> <ul style="list-style-type: none"><li>Recalls and defines general form of linear equations of two variables and expresses different pair of linear equations in two variables in general form.</li><li>Draws graph of linear equations of two variables to solve word problems.</li><li>Determines whether ordered pair (x, y) is a solution of pair of equations.</li><li>Understands to solve pair of equations by the methods of Substitution and Elimination.</li><li>Verifies the type of solution of equations by using three conditions.</li><li>Solves word problems of daily life situations.</li></ul> <p><b>Skills : Accuracy, Critical thinking, Verification</b></p>
		Chapter – 2 Polynomials	<p>The Learner:</p> <ul style="list-style-type: none"><li>Recalls general form of linear and quadratic polynomials and finds zeros of polynomial by graph, where it intersects the x-axis.</li><li>Creates relationship between the zeros of the quadratic polynomial and its coefficients.</li><li>Calculates zeros of the polynomial of degree more than 2.</li></ul> <p><b>Skills: Analytical thinking, Observational skill</b></p>
2	May	Chapter-1 Real Numbers	<p>The Learner:</p> <ul style="list-style-type: none"><li>Generalises properties of numbers and relations among them.</li><li>Evolves results - Euclid's Division Algorithm and Fundamental Theorem of Arithmetic and applies them to solve problems related to real life context.</li><li>Proves <math>\sqrt{2}</math>, <math>\sqrt{3}</math> etc. as irrational numbers.</li><li>Justifies the condition on rational numbers to be terminating decimals or non-terminating repeating decimals.</li></ul> <p><b>Skills: Logical deductions, Critical thinking</b></p>
		Chapter-7 Coordinate Geometry	<p>The Learner:</p> <ul style="list-style-type: none"><li>Recalls the Cartesian plane and locates points in it.</li><li>Derives distance and section formulas and applies them to calculate</li></ul>

			<p>a) Distance between two points in a plane. b) The coordinates of a point which divides the line segment joining of two points internally in the given ratio.</p> <ul style="list-style-type: none"> <li>Finds the coordinates of the mid-point and checks the collinearity of the points by section formula.</li> </ul> <p><b>Skills: Verification, Problem solving</b></p>
3	July	<p>Chapter- 4 Quadratic Equations</p> <p>Chapter- 6 Triangles Ex. 6.1, 6.2, 6.3</p>	<p>The Learner:</p> <ul style="list-style-type: none"> <li>Recalls the concept of quadratic polynomial and correlates with quadratic equation.</li> <li>Represents the equation in general form as <math>ax^2 + bx + c = 0</math> where <math>a, b, c \in \mathbb{R}</math> and <math>a \neq 0</math></li> <li>Finds roots of quadratic equations by different methods - Factorisation and Completing the Square.</li> <li>Calculates discriminant to find nature of the roots.</li> <li>Solves quadratic equations by quadratic formula.</li> </ul> <p><b>Skills: Recognition, Problem solving, Analytical thinking</b></p> <p>The Learner:</p> <ul style="list-style-type: none"> <li>Identifies plane figures which are same in the shape but different in size.</li> <li>Defines similarity of two triangles and understands similarity rules AAA, SAS, SSS.</li> <li>Proves Basic Proportionality Theorem and its converse, then applies in problems.</li> </ul> <p><b>Skills: Observational skill, Problem solving aptitude</b></p>
4	August	<p>Chapter-6 Triangles Ex. 6.4, 6.5</p> <p>Chapter-8 Introduction to Trigonometry</p>	<p>The Lerner:</p> <ul style="list-style-type: none"> <li>Understands the statement of area theorem and solves problems.</li> <li>Proves Pythagoras theorem by using similarity of triangles and applies the same.</li> <li>Proves Pythagoras theorem practically</li> </ul> <p><b>Skills: Conceptual understanding, Recognition, Interpretation</b></p> <p>The Learner:</p> <ul style="list-style-type: none"> <li>Determines all 6 trigonometric ratios w.r.t acute angle of a right triangle.</li> <li>Correlates 6 trigonometric ratios with ratio of two sides at a time of a right triangle and knows their names as - sine, cosine, tangent, cosecant, secant, cotangent.</li> <li>Computes the trigonometric ratios of standard angles.</li> <li>Proves trigonometric identities by using three fundamental identities.</li> </ul>

			<b>Skills: Conceptual understanding</b>
5	September	<p>Chapter- 9 Some Applications of Trigonometry</p> <p>Chapter- 10 Circles</p>	<p>The Learner:</p> <ul style="list-style-type: none"> <li>Recalls 6 trigonometric ratios.</li> <li>Visualises eye movement while observing an object.</li> <li>Acquires knowledge of line of sight, horizontal line which make angle of elevation and angle of depression.</li> <li>Draws figures of the problems by making use of angles of elevation and depression and applies trigonometric ratios to reach the solutions.</li> <li>Applies the concept of trigonometry in solving problems of daily life context like finding heights of different structures and distances between them.</li> </ul> <p><b>Skills: Observational skill, Logical thinking, Problem solving</b></p> <p>The Learner:</p> <ul style="list-style-type: none"> <li>Demonstrates three possibilities for intersection of a line and a circle in a plane and then defines tangent and secant to circle</li> <li>Understands the results of circle and proves the theorem - 2 tangents drawn from external point are equal in length, geometrically and practically.</li> <li>Applies the theorems in various problems.</li> </ul> <p><b>skills: Drawing skill, Analytical thinking, Justification</b></p>
6	October	<p>Chapter- 11 Constructions</p> <p>Chapter – 5 Arithmetic Progression</p>	<p>The Learner:</p> <ul style="list-style-type: none"> <li>Recalls the results of tangent to a circle and constructs tangent at a point on the circle.</li> <li>Constructs pair of tangents to a circle from external point.</li> <li>Justifies the validity of the constructions.</li> </ul> <p><b>Skills: Drawing skill, Analytical thinking, Motor skill</b></p> <p>The Learner:</p> <ul style="list-style-type: none"> <li>Recognises the pattern in a given series.</li> <li>Understands the term common difference and its importance in AP.</li> <li>Identifies the first term and common difference to form an AP.</li> <li>Applies the formulas and calculates <math>n^{\text{th}}</math> term of an AP and the sum up to <math>n^{\text{th}}</math> term of an AP.</li> <li>Develops strategies to apply the concepts of AP to daily life situations.</li> </ul> <p><b>Skills: Deductive reasoning, Logical reasoning</b></p>
		Chapter 12 Areas Related to Circles	<p>The Learner:</p> <ul style="list-style-type: none"> <li>Recalls the concept of circumference of circle and solves problems of daily life situations.</li> </ul>

7	November	Chapter 14 Statistics	<ul style="list-style-type: none"> <li>Identifies and applies the terms major/minor sector, major/minor segment, angle subtended by the arc at the centre.</li> <li>Applies the formulas of area of sector, segment and length of an arc in the problems.</li> <li>Calculates area of combined plane figures.</li> </ul> <b>Skills: Observational skill, Problem solving skill, Critical thinking</b>  The Learner: <ul style="list-style-type: none"> <li>Recalls the basic terms of Statistics.</li> <li>Calculates mean of grouped data by different methods - direct, assumed mean method.</li> <li>Determines the modal class and median class to find mode and median of grouped data respectively.</li> <li>Applies formulas of median and mode and solves problems of daily life situations.</li> </ul> <b>Skills: Conceptual thinking, Presentation, Investigation</b>
8	December	Chapter 13 Surface Areas and Volumes	The Learner: <ul style="list-style-type: none"> <li>Recalls solid figures and formulas of their C.S.A, T.S.A and volumes.</li> <li>Identifies combined solid figures.</li> <li>Calculates surface area and volume of combined solid figures by using formulas and general understanding.</li> <li>Transforms a solid shape to another solid and compares and analyses their surface area and volume.</li> <li>Uses the concepts of S.A. and volume for variety of 3-D objects to apply in real life situations.</li> </ul> <b>Skills: Recognition of 3-D structure, Correlation, Computational skill</b>
9	January	Chapter 15 Probability	The Learner: <ul style="list-style-type: none"> <li>Defines the different terms - outcome, event, elementary event, sure event, impossible event, complementary events etc.</li> <li>Associates probability as a chance and uses formula to find probability of an event.</li> <li>Verifies the sum of all probabilities of all the elementary events is 1.</li> <li>Justifies that for any E, E' stands for not E and shows <math>P(E) + P(E') = 1</math>.</li> <li>Validate the maximum and minimum values of probability i.e. <math>0 \leq P(E) \leq 1</math></li> <li>Applies the concepts to solve problems of daily life situations.</li> </ul> <b>Skills: Decision making, Extract, Analytical thinking</b>