It is expected that students will develop the following competencies after studying Mathematics- Part I syllabus in standard X

| Area | Topic | Competency Statements |
|---|---|---|
| 1. Knowledge of numbers | 1.1 Arithmetic Progression | The students will be ABLE to-<br>• solve EXAMPLES using Arithmetic Progression.<br>• PLAN steps to ACHIEVE A GOAL in future. |
| 2. Algebra | 2.1 QUADRATIC EQUATIONS<br>2.2 LINEAR EQUATIONS in two VARIABLES | • solve DAY to DAY problems which CAN be expressed in the form of QUADRATIC EQUATIONS.<br>• decide the number of VARIABLES required to find solutions of word problems.<br>• convert A word problem into AN EQUATION in two VARIABLES AND find its solution. |
| 3. Commercial Mathematics | 3.1 FINANCIAL PLANNING | • UNDERSTAND the concepts of SAVINGS AND investments.<br>• get FAMILIAR with FINANCIAL TRANSACTIONS in business, profession etc. |
| 4. Statistics and Probability | 4.1 PROBABILITY<br>4.2 GRAPH AND MEASURES of CENTRAL tendencies | • use the concept of PROBAILITY in GAMES, voting etc.<br>• present the collected DATA in the form of GRAPHS or pictures deciding the SUITABLE form of PRESENTATION.<br>• find the MEAN, MEDIAN AND mode of A provided CLASSIFIED DATA. |

## Instructions for TEACHERS

READ the book in DETAIL AND UNDERSTAND the content THOROUGHLY.TAKE the help of ACTIVITIES to EXPLAIN different topics, to verify the FORMULAE etc.

PRACTICALS is ALSO A MEANS of EVALUATION. Activities given CAN ALSO be used for this purpose. ENCOURAGE the students to think independently.Compliment A student if he solves AN EXAMPLE by A different AND LOGICALLY correct method.

Contact : +91-9699101028

## List of some practicals (Specimen)

1. On a graph paper, draw a line parallel to the X- axis or Y- axis. Write coordinates of any four points on the line. Write how the equation of the line can be obtained from the coordinates.

   [INSTEAD of parallel lines, lines passing through the origin or intersecting the X or Y- axis can also be considered]

2. Bear a two- digit number in mind. Without disclosing it, cunstruct a puzzle. Create two algebraic relations between the two digits of the number and solve the puzzle.

   [The ABOVE practical can be extended to a three-digit number also.]

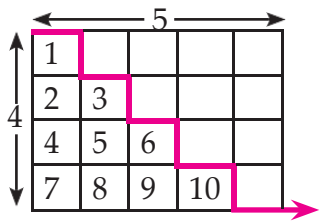
3. Read the information about contents on a food packet. Show the information by a pie diagram. For example, see the chart of contents like carbohydrates, proteins, vitamines etc. per given weight on a buiscuit packet. Show the pro- portion of the contents by a pie diagram. The contents can be divided into four classes as carbohydrates, proteins, fats and others.

4. Prepare a frequncy distribution table given by the teacher in Excel sheet on a computer. From the table draw a frequency polygon and a histogram in Excel.

5. Roll a die ten times and record the outcomes in the form of a table.

6. Observe the tax invoice given by your teacher. Record all of its contents. Re-calculate the taxes and verify their correctness.

7. Calculate the sum of first n natural numbers given by your teacher through the following activity. For example, to find the sum of first four natural numbers, take a square-grid piece of paper of 4 □ 5 squares. Then cut it as shown in the figure. Hence verify the FORMULA $S_n = \frac{n(n+1)}{2}$ (Here $n = 4$)




$$S_n = \frac{n(n+1)}{2} \quad \therefore S_4 = \frac{4(4+1)}{2} = \frac{4\times5}{2} = \frac{20}{2} = 10$$

[Note: Here $a = 1$ AND $d = 1$. The ACTIVity CAN be done TAKING different VALUES of $a$ AND $d$. SIMILARLY, you CAN find the sum of even or odd numbers, cubes of NATURAL numbers etc.]

8. Write $\alpha = 6$ on one side of A CARD sheet AND $\alpha = -6$ on its BACKSIDE. SIMILARLY, write $\beta = -3$ on one side of ANOTHER CARD sheet AND $\beta = 7$ on its BACKSIDE. From these VALUES, form different VALUES of $(\alpha + \beta)$ AND $(\alpha\beta)$; using these values form quadratic equations.

# INDEX