**Espalier Heritage School**

**Annual Planner 2022-23**

**Grad** | **Subject: Maths**

| Sr No | Lesson Name | Points To Cover | Lesson Flow | Learning objectives | Methodology | Pedagogical process | Learning outcomes | Teaching Aid | Teaching Place | Reff.books with pg.no. | No.of lectures required | Class Activities /Diagrams / Map work |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Knowing Our Numbers | 1. Introduction of Number | 1. Set induction to check the previous knowledge of student about numbers | 1. Students will understand the use of commas helps in reading and writing large numbers | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | The learner solves problems involving large numbers by applying appropriate operations (addition, subtraction, multiplication and division) | Chart of Indian style and International style of number system | Classroom | Textbook | 10 | Place value Kit |
| | | 2. Reading and writing large numbers | 2. Explain the concept of numeral and number and how to use commas in number system | 2. Students will understand that large numbers are needed in many places in daily life | Explanation | encounter situations having numbers up to 8 digits, e.g., cost of property, total population of different towns, etc. | | | | | | 0 to 9 numerals set to conduct activity of shifting digit and arrangement of digits |
| | | 3. Use of commas | 3. Solving exercise based on above concept given in the textbook | 3. Students will understand that how to find the estimate value by rounding off nearest to tens and hundreds | Discussion | | | | | | | Matchstick for Roman numerals |
| | | 4. Large numbers in practice | 4. Solving application based questions in the given text book | 4. Students will understand that how we use the Hindu Arabic system of numerals. | | | | | | | | |
| | | 5. Estimating to the nearest by rounding off | 5. To teach concept of estimation | 5. Students will understand that another system of writing numerals is the Roman system. | | | | | | | | |
| | | 6. To estimate sum or difference or products | 6. Introducing the application of estimation | | | | | | | | | |
| | | 7. Using and expanding brackets | 7. To teach how to use an expand brackets and concept of Roman numerals | | | | | | | | | |

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| | | 8. Roman Numerals | 8. Solving exercise based on above concept given in the textbook | | | | | | | | | |
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| 2 | Whole Numbers | 1. Introduction | 1. Set induction to check the previous knowledge of student about numbers | 1. Students will understand about natural numbers and whole numbers. | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | 1. The learner solves problems involving large numbers by applying appropriate operations | Chart of Natural numbers and whole numbers represented on number line. | Classroom | Textbook | 6 | |
| | | 2. Whole numbers and the number line | 2. Explain the concept of whole number and how to represent whole numbers on number line | 2. Students will understand that how to write the successor and predecessor of any whole numbers and natural numbers | | compare numbers through situations like cost of two houses, number of spectators, money transactions, etc. | (addition, subtraction, multiplication and division) | | | | | |
| | | 3. Properties of Whole numbers | 3. Solving exercise based on above concept | 3. Students will understand that all natural numbers are whole number but all whole numbers are not natural numbers. | | | | | | | | |
| | | 4. Patterns in Whole Numbers | 4. Explain the various properties of whole number | 4. Students will understand the properties of whole numbers for example any whole number divided by zero is not defined. | | | | | | | | |
| | | | 5. Solving exercise based on above concept | 5. Students will understand that cartoons with number are not only intersecting, but are useful specially | | | | | | | | |
| | | | 6. Explain the concept of Patterns in whole numbers | for verbal calculations and help us to understand properties of number better. | | | | | | | | |
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| 3 | Playing With Numbers | 1. Introduction | 1. Set induction to check the previous knowledge of student about numbers | 1. Students will understand that how to identify factors and multiples | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to — | The learner recognises and appreciates (through patterns) the broad classification of | | Classroom | Textbook | 14 | |
| | | 2. Factors and Multiples | 2. To explain the concept of factors and multiples | 2. Students will understand diet how to identify prime numbers and composite numbers | | • classify numbers on the basis of their properties like even, odd, etc | The learner applies HCF or LCM in a particular situation | | | | | |
| | | 3. Prime and Composite Numbers | 3. To explain the concept of prime number and composite number | 3. Students will able to find prime factorization by division method | | • observe patterns that lead to divisibility by 2,3,4,5,6,8,10 and 11. | | | | | | |
| | | 4. Tests for Divisibility of Numbers | 4. To explain the concept of divisibility test of 2, 3, 4, 5, 6, 8, 9, 10 and 11 | 4. Students will understand how to use divisibility test from 2 to 11 | | • create number patterns through which HCF and LCM can be discussed | | | | | | |
| | | 5. Common Factors and Common Multiples | 5. To to explain the concept of common factors and common multiples | 5. Students will able to find LCM and HCF | | • explore daily life situations to involve the use of HCF and LCM | | | | | | |
| | | 6. Prime Factorisation | 6. To explain the concept of finding factors by using prime factorization method | 6. Students will understand that how LCM and HCF used in our daily life | | | | | | | | |
| | | 7. Highest Common Factor | 7. To explain the concept of finding highest common factor | | | | | | | | | |
| | | 8. Lowest Common Multiple | 8. To explain the concept of finding lowest common multiple | | | | | | | | | |
| | | | 9. Solving exercise based on above concept | | | | | | | | | |
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| 4 | Basic Geometrical Ideas | 1. Introduction | 1. Set induction to check the basic knowledge about basic geometry. | 1. Students will understand the meaning of geometry and application of geometry in our life | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | The learner describes geometrical ideas like line, line segment, open and closed figures, angle, | Geometrical shape- curved shape, quadrilateral, circle and angles | Classroom | Textbook | 8 | |
| | | 2. Points, A line segment, A line, Intersecting lines, Parallel lines and Ray | 2. To explain the concept of point, lines, types of lines and plane. | 2. Students will understand basic concept of geometry i.e. point, line and plane | | explore various shapes through concrete models and pictures of different geometrical | triangle, quadrilateral, circle, etc., with the help of examples in surroundings | | | | | |
| | | 3.Curves and Polygons | 3. To explain the concept of curves and polygon | 3. Students will learn differences between curves and polygons | | shapes like triangles and quadrilaterals, etc. | | | | | | |
| | | 4. Angles | 4. To explain the concept of angles and its types | 4. Students will understand all basic concept about angles, quadrilateral and circles | | | | | | | | |
| | | 5. Quadrilaterals | 5. To explain the concept of quadrilateral and circles | 5. Students will understand and able to explain about the difference between Sector and segment | | | | | | | | |
| | | 6. Circles | 6. Solving textbook excercises based on above concepts | | | | | | | | | |
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| 5 | Understanding Elementary Shapes | 1. Introduction | | 1. Students will learn how to use ruler and divider for constructing lines and to compare lengths of line | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | 1. The learner demonstrates an understanding of angles by – identifying examples | Geometrical tools and different shapes | Classroom | Textbook | 14 | |
| | | 2. Measuring Line Segments | | 2. Students will understand when a hand of a clock moves from one position to another position we | | • identify various geometrical figures and observe their characteristics in and outside the classroom | – classifying angles according to their measure – estimating the measure of angles | | | | | |
| | | 3. Angles - Right and Straight | | 3. Students will learn how to use a protractor to measure the size of an angles | | • classify angles based on the amount of rotation | 2. The learner classifies quadrilaterals into different groups/types on the basis of their | | | | | |

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| | | 4. Angle- Acute, Obtuse and Reflex | | 4. Students will understand the concept of perpendicular line. The angle between Intersecting lines is 90° | | • observe various models and nets of 3-Dimensional (3-D) shapes like cuboid, cylinder, etc. and discuss | 3. The learner identifies various (3-D) objects like sphere, cube, cuboid, cylinder, cone from the surroundings | | | | | |
| | | 5. Measuring Angles | | 5. Students will learn about triangle and they will understand various types of triangle based on angle and side | | about the elements of 3-D figures such as faces, edges and vertices | | | | | | |
| | | 6. Perpendicular Lines | | 6. Students will understand concept of polygons able to identify different types of polygon based on their sides | | | | | | | | |
| | | 7. Classification of Triangle | | 7. Students will understand various types of quadrilaterals | | | | | | | | |
| | | 8. Quadrilaterals | | | | | | | | | | |
| | | 9. Polygons | | | | | | | | | | |
| | | 10. Three Dimensional Shapes | | | | | | | | | | |
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| 6 | Integers | 1. Introduction | 1. Set induction to check the previous knowledge of student about numbers | 1. Students will understand concepts of number system. | Inductive and deductive | "The learner may be provided opportunities in pairs/groups/ individually and encouraged to" | The learner solves problem involving addition and subtraction of integers. | Integers-Number line | Classroom | Textbook | 6 | |
| | | 2. Representing integers on number line | 2. To explain the concept of integers and how to represent integers on number line | 2. Students will understand that all natural numbers and whole numbers are also integers | | create and discuss daily life situations involving the use of negative numbers | | | | | | |

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| | | 3. Ordering of Integers | 3. To explain the concept of comparing negative and positive integers | 3. Students will learn that how more than given number gives a successor and one less than given number gives predecessor | | | | | | | | |
| | | 4. Addition of Integers | 4. To explain the concept of addition of integers by using number line | 4. Students will learn how addition and subtraction of integers can also be shown on a number line | | | | | | | | |
| | | 5. Subtraction of Integers | 5. To explain the concept of subtraction of integers by using number line | | | | | | | | | |
| | | | 6. Solving all excercises of textbook based on above concepts | | | | | | | | | |
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| 7 | Fractions | 1. Introduction | 1. Set induction to know about basic concept of numerator and denominator | 1. Students will understand that a fraction is a number representing a part of a whole. | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | 1. The learner uses fractions in different situations which involve money, length, | Fraction kit | Classroom | Textbook | 10 | |
| | | 2. Faction | 2. To explain the concept of fraction and also how to represent fraction on number line. | 2. Students will learn that fractions can be shown on number line. every fraction has a point associated with it on the number line. | | observe situations that require the representation by fractions | temperature etc. For example, 7½ metres of cloth. distance between two places is 112.5 km etc. | | | | | |
| | | 3. Fraction on the Number Line | 3. To explain the concept of each type of fractions that is proper fraction, improper fraction and mixed fraction | 3. Students will learn how to identify various types of fraction i.e. proper fraction, improper fraction and mixed fraction | | | 2. The learner solves problems on daily life situations involving addition and subtraction of fractions | | | | | |
| | | 4. Types of Fractions | 4. To explain the concept of finding the equivalent fractions | 4. Students will understand that each proper or improper fraction has many equivalent fractions. | | | | | | | | |
| | | 5. Equivalent Fractions | 5. To explain the concept how to write any fraction into a simplest form. | 5. Students will understand that fraction is said to be in the simplest form if its numerator and the denominator have no | | | | | | | | |

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| | | 6. Simplest form of a Fraction | 6. To explain the concept of addition and subtraction of like fraction and unlike fraction. | | | | | | | | | |
| | | 7. Comparing Like and Unlike Fractions | 7. Solving all exercise of text book based on above concept. | | | | | | | | | |
| | | 8. Addition and Subtraction of fractions | | | | | | | | | | |
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| 8 | Decimals | 1. Introduction | 1. Set induction to check the previous knowledge about place value system and decimal. | 1. Students will understand that every fraction with denominator 10 and 100 can be written in | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | 1. The learner uses decimals in different situations which involve money, length, | Place value kit | Classroom | Textbook | 12 | |
| | | 2. Tenths | 2. To introduced the concept of decimals. | 2. Students will learn place value system after decimal point. They will also understand how to | | observe situations that require the representation by decimals. | temperature etc. For example, 7½ metres of cloth. distance between two places is 112.5 | | | | | |
| | | 3. Hundredths | 3. To explain the concept of Tenths and Hundredths. | 3. Students will understand that all decimals can also be represented on the number line. | | | 2. The learner solves problems on daily life situations involving addition and subtraction of | | | | | |
| | | 4. Comparing Decimals | 4. To explain how decimal number we can represent on number line. | 4. Students will learn how to compare decimal numbers. | | | | | | | | |
| | | 5. Using Decimals | 5. To explain the concept of comparing decimals and how to use decimals. | 5. Students will learn decimals are used in many ways in our lives. For example, in representing units of | | | | | | | | |
| | | 6. Addition of Numbers with Decimals | 6. To explain the concept of addition of decimal numbers and how to solve application based | | | | | | | | | |

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| | | 7. Subtraction of Numbers with Decimals | 7. To explain the concept of subtraction of decimal numbers and how to solve application based question | | | | | | | | | |
| | | | 8. Solving all exercise of text book based on above concept. | | | | | | | | | |
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| 9 | Data Handling | 1. Introduction | 1. Set induction to check the previous knowledge about data handling | 1. Students will understand that data is a collection of numbers gathered to give some information. | Presentation | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | The learner arranges given/collected information such as expenditure on different items in a | Graph book | Classroom | Textbook | 10 | |
| | | 2. Interpretation of a Pictograph | 2. To explain the concept how to interpret a pictograph and answer the following questions | 2. Students will learn that to get a particular information from the given data quickly, the data can be arranged in a tabular form in an | | • collect information and display it in a pictorial form. For example, heights of students from their class and represent it pictorially | family in the last six months, in the form of table, pictograph and bar graph and interprets the | | | | | |
| | | 3. Drawing a Pictograph | 3. To explain the concept how to represent data by using pictograph | 3. Students will learn how a pictograph represents data in the form of pictures, objects or parts of objects | | • collect and discuss various diagrams/ bar charts from the newspapers/ magazines may be in the class. | | | | | | |
| | | 4. Interpretation of a bar graph | 4. To explain the concept how to interpret a bar graph and answer the following questions | 4. Students will learn how to interpret a pictograph and answer the related question | | | | | | | | |
| | | 5. Drawing a bar graph | 5. To explain the concept how to represent data by using bar graph | 5. Students will learn how to represent data by using pictograph and bar graph. | | | | | | | | |
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| 10 | Mensuration | 1. Introduction | 1. Set induction to check the previous knowledge about perimeter and area | 1. Students will understand that perimeter is the distance covered along the boundary forming a closed figure. | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | The learner finds out the perimeter and area of rectangular objects in the surroundings like | Chart of Perimeter and Area | Classroom | Textbook | 7 | |

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| | | 2. Perimeter | 2. To explain the concept of finding perimeter of regular shape, square and rectangle | 2. Students will learn how to find the perimeter of rectangle, square, equilateral triangle and regular shape | | through discussion motivate them to arrive at the formula for area and perimeter of a rectangle/square | floor of the class room, surfaces of a chalk box etc. | | | | | |
| | | 3. Area | 3. To explain the concept of finding area of square and rectangle. | 3. Students will understand that figure in which all sides and angles are equal are called regular closed figures | | | | | | | | |
| | | | 4. Solving all exercise of text book based on above concept. | 4. Students will understand that the amount of surface enclosed by a closed figure is called its area. | | | | | | | | |
| | | | | 5. Students will able to find the area of rectangle and Square. | | | | | | | | |
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| 11 | Algebra | 1. Introduction | | | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | The learner uses variable with different operations to generalise a given situation. | | Classroom | Textbook | 12 | |
| | | 2. The ideas of Variables | | | | • use different contexts in mathematics to appreciate the necessity of representing unknowns by variables (alphabet) | e.g., Perimeter of a rectangle with sides x units and 3 units is 2(x+3) units | | | | | |
| | | 3. Use of Variables in Common Rules | | | | | | | | | | |
| | | 4. Expressions with Variables | | | | | | | | | | |
| | | 5. Using Expressions Practically | | | | | | | | | | |

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| | | 6. Solution of an equation | | | | | | | | | | |
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| 12 | Ratio and Proportion | 1. Introduction | 1. Introduction the concept of ratio and Proportion. Also explain the application of ratio and Proportion | 1. Students will understand that comparison by ratio, the two quantities must be in the same unit. If | Inductive and deductive | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | 1. The learner compares quantities using ratios in different situations. e.g., the | | Classroom | Textbook | 6 | |
| | | 2. Ratio | 2. To explain the concept of unitary method and when we are using this method in our practical life. | 2. Students will understand that same ratio may occur in different situations. | | • describe situations involving the need for comparing quantities by taking ratio | 2. The learner uses unitary method in solving various word problems. For example, if the cost of | | | | | |
| | | 2. Proportion | 3. Solving all excercises of textbook based on above concepts | 3. Students will learn that four quantities are said to be in proportion, if the ratio of first and the second quantity is | | • discuss and solves word problems that use ratios and unitary method | is given she finds the cost of 7 notebooks by first finding the cost of 1 notebook | | | | | |
| | | 3. Unitary Method | | 4. Students will understand that the method in which we first find the value of when you need and | | | | | | | | |
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| 13 | Practical Geometry | 1. Introduction | 1. Set induction to know about the basic construction | 1. Students will learn all the steps for constructing circle, line segment, perpendicular line, angle and angle | Construction | The learner may be provided opportunities in pairs/groups/ individually and encouraged to | The learner using ruler and a pair of compasses constructs, circle, line segment, | Geometry box | Classroom | Textbook | 10 | |
| | | 2. Construction of Circle | 2. To explain step of constructing circle | 2. Students will understand application of practical geometry in daily life | | construct various geometrical shape by using geometrical tool box. | | | | | | |
| | | 3. Construction of line segment | 3. To expalin step of constructing line segment and perpendicular line | | | | | | | | | |

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| | | 4. Construction of Perpendicular lines | 4. To explain step of constructing angle and angle bisector. | | | | | | | | | |
| | | 5. Construction of angles | 5. Solving all exercise based on above concept. | | | | | | | | | |
| | | Construction of angle bisector | | | | | | | | | | |