Espalier Heritage School
Annual Planner 2022-23

Grade		Subject: Maths (Algebra)								

Sr No	Lesson Name	Points To Cover	Learning objectives	Methodology	Pedagogical process	Learning outcomes	Teaching	Reff.boo	Activity	No.of
1	Chapter 1 - Number Systems	Introduction to number system Irrational Numbers Real Numbers and their Decimal Expansions Representing Real Numbers on the Number Line Operations on Real Numbers Laws of Exponents for Real Numbers	Learning Objectives: 1. Recall natural numbers, whole numbers, integers and Rational numbers in order to classify a given number as either of them 2. Represent a given number in the form p/q in order to show whether the given number is rational or not 3. Calculate and find rational numbers between any 2 rational numbers in order to prove that there are infinite rational numbers between any 2 given rational numbers 4. Modify a given non-terminating decimal number in the form of p/q in order to comment whether this number is irrational 5. Use Pythagoras' theorem and create a Pythagorean triplet in order to construct the length of root of a given number. Reduce the value of a given fraction in its decimal form in order to infer if the decimal number is terminating or non-terminating 6. Compute the commutative, associative and distributive laws for addition and multiplication for irrational numbers in order to determine whether the sum, difference, quotients and products of irrational numbers are irrational or not. Rationalize the denominator of a given expression with a square root term in the denominator in order to convert it to an equivalent expression whose denominator is a rational number. 7. Extend the law of exponents in order to simplify a given expression	Demonstration & Lecture Method	Observation, Identification, logical reasoning	Applies logical reasoning in classifying real numbers, and proving their properties in order to use them in different situation	Google classroom	NCERT	The teacher will prepare a worksheet and share it with the students. A sample has been given below: ALWAYS SOMETIMES NEVER Statements that people make can generally be grouped into three different categories: Statements that are ALWAYS true; Statements that are SOMETIMES true; and Statements that are NEVER true.	14
2	Chapter 2 - Polynomial	Introduction to Polynomials Polynomials in one variable Zeroes of a Polynomia Remainder Theorem Factor Theorem Factorisation of Polynomials Algebraic Identities	Learning Objectives: 1. Recognise variables and their degree in a given algebraic expression in order to differentiate whether given expression is a polynomial in one variable or not 2. Identifies/Classifies polynomials among algebraic expressions in order to apply appropriate algebraic identities to factorise themIdentify the degree of a given polynomial in order to classify an expression as zero, linear, quadratic and cubic polynomials 3. Substitute the value of 'a' in a given expression p(x) in order to find the value of polynomial at 'a' i.e. p(a) 4. Use given values for the variable 'x' in a polynomial p(x) in order to identify if the given value is a zero of the polynomial 5.Using Remainder Theorem, calculate division of p(x) by a linear polynomial 'x − a' in order to find that the remainder is p(a) and verify using long division method 6. Apply factor theorem in order to determine if a linear polynomial 'x-a' is a factor of the given polynomial P(x). Apply factor theorem in order to determine the value of an unknown constant 'k' in Polynomial P(x) when a linear polynomial 'x-a' is a known factor of P(x). Apply factor theorem in order to factorise a given polynomia 7.Factorise a given polynomial using splitting middle-term method and factor theorem in order to compare the results of the two. 8. Point out to an algebraic identity that can be used in order to factorize a given expression. Select appropriate algebraic identities in order to evaluate the values of given expression	Inductive and deductive, Problem solving,	Observation, Identification, logical reasoning	Identifies/Classifies polynomials among algebraic expressions in order to apply appropriate algebraic identities to factorise them	Google classroom	NCERT	Share the problem given below either by writing it on the blackboard or by distributing printed sheets	15
3	Chapter 3 - Coordinate Geometry	Introduction to Coordinate Geometry Cartesian System Plotting a Point in the Plane if its Coordinates are give Application of Coordinate Geometry	Learning Objectives: 1. Determine the x & y co-ordinate of a point from a graph in order to write the co-ordinates of the point as an ordered pai 2. Plot a point on the Cartesian plane in order to determine QUADRANT of the point 3. Observe a given ordered pair in order to comment on its location 4. Apply concepts of coordinate geometry in order to simplify given word problems	Inductive and deductive	Observation, Identification, logical reasoning	Develops strategies from understanding of coordinate geometry in order to locate points in a Cartesian plan	Google classroom	NCERT	Students will able to locate points on a plane	10
4	Chapter 4 - Linear Equations in Two Variables	Introduction Linear Equations Solutions of Linear Equations Graph of Linear Equations Applications of Linear Equations	Learning Objectives: 1. Recall concepts of coefficients and variables in order to construct a linear equation from a given statemen 2. Compare a given linear equation to the standard form ax+ by + c + 0 in order to deduce the values of a, b and 3. Use substitution method in order to deduce whether the ordered pair is solution to a given linear equation 4. Plot the points on a graph in order to represent a linear equation in two variables. Solve an equation in order to represent it on a number line and a Cartesian plane 5. Apply principles of linear equations in order to formulate and solve for a variety of problems in real life situation	Inductive and deductive, Problem solving,	Observation, Identification, logical reasoning	Relates the algebraic and graphical representations of a linear equation in one/two variables in order to apply the concepts to daily life situations	Google classroom	NCERT	Student will able to find solution of equation	15
5	Chapter 12 - Heron's Formula	Introduction Area of a Triangle by Heron's formula Application of Heron's Formula in finding Areas of Quadrilateral	Learning Objectives: 1. Calculate area of a given triangle to state the limitation of the Standard formula (Area of Triangle = 1/2 x b x h 2. Apply Heron's formula in order to calculate the area of a Triangle 3. Breakdown a given polygon into triangles in order to find the area of a given polygon as a sum of areas of those triangle	Inductive and deductive	Observation, Identification, logical reasoning	Applies appropriate formulae in order to find areas of all types of triangles	Google classroom	NCERT	Students will be able to calculate the area of triangles using Heron's formula	6
6	Chapter 14 - Statistic	Frequency Table Bar Graph Histogram Frequency Polygon Mean, Median and Mode	Learning Objectives: 1. Record and label a given data set in order to create a frequency table 2. Identify an appropriate scale and labels in order to represent given data through a bar graph 3. Read a given bar graph in order to infer a variety of information from it. Compare the values in order to corelate two data points from the grap 4. Read the given data in order to create a histogram for continuous and discontinuous data sets. Read a given histogram in order to infer a variety of information from it. 5. Read the given data in order to create a frequency polygon for given data sets. Read a given frequency polygon in order to infer a variety of information from it. 6. Differentiate between mean, median and mode with examples in order to understand most effective measure of central tendency in various case. 7. Apply appropriate formula in order to calculate the mean and median of even and odd number of data points 8. Recall and use the formula for mean in order find the value of a missing observation	Inductive and deductive, Problem solving,	Observation, Identification, logical reasoning	Represents given data in different forms like, tabular form (grouped or ungrouped), bar graph, histogram (with equal and varying width and length), and frequency polygon in order to analyse given data Identifies daily life situations in order to classify them as situations where mean, median and mode can be used	Google classroom	NCERT	Students would be able to represent data in a double bar grap	15
7	Chapter 15 - Probability	Introduction Calculation of Empirical Probability in various experiments	Learning Objectives: 1. Recall the formula for Empirical probability to calculate the probability for a simple event 2. Create a flow chart of all the terms related to random experiments (coins, dice, cards) in order to calculate the total number of trials of a given experiment and calculate the Empirical Probability 3. Compute the total number of trials and trials for a given event E represent in various forms (table, histogram, pie-charts, etc) to solve for the value of Empirical Probability P(E) 4. Calculate empirical probability of a situation in order to predict the likelihood of an even 5. Arrange events from least likely to most likely in order to predict outcomes in a given experiment 6. Calculate the sum of probabilities of all events in orderto Prove that the sum of the probability of all events in a single experiment is 1	Inductive and deductive, Problem solving,	Observation, Identification, logical reasoning	Conducts experiments and analyses data in order to calculate empirical probability	Google classroom	NCERT	Students will be able to define most likely, equally likely events.	10