Testbourne Community School

Mathematics Department Curriculum Overview Level 2 Document Key Stage 3 Year 7

Maths	Autumn 1 (Half term 1)	Autumn 2 (Half term 2)	Spring 1 (Half term 3)	Spring 2 (Half term 4)	Summer 1 (Half term 5)	Summer 2 (Half term 6)
Year 7S	**Curriculum (S)** **1 Number Properties 1** • Consolidate use of written and mental methods of calculation including times tables, number bonds, addition, subtraction, multiplication and division of integers and decimals. • Understand place value including both integers and decimals and the size of simple fractions and decimals. • Order decimals and integers • Understand how to x and ÷ by 10, 100, 1000, by a single-digit and multiply two digit numbers using written methods. **2 Geometry & Measures** • Understand how to measure angles using the protractor and construct angles. • Understand how to describe the different types of angles; right angle, acute, obtuse and reflex. • Understand and apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles and the angles and other properties of special triangles. • Use a range of units of measurements and write standards units of measurements, money and time. **3 Number Properties 2** • Understand what is meant by factors and simple common multiples. Identify factors of two-digit numbers. • Find the first ten multiples of numbers 1-10. Understand how to identify the first 20 prime numbers. • Understand how to use knowledge of multiplication facts to derive squares of numbers to 12 × 12 and the squares of multiples of 10. **4 Algebra 1** • Understand the concept of a 'missing number' in calculations and use letter symbols to represent unknown numbers or variables. • Understand how to substitute positive integers into simple formula replacing letters with simple numerical values.	**Curriculum (S)** **4 Algebra 1 (continued)** • Understand how to construct and simplify simple expressions converting simple expressions and formulae in words to algebraic symbols and expressions. • Understand and know the meanings of the words term, expression and equation. **5 Fractions, decimals, %** • Understand how to identify and give equivalent fractions including those represented by diagrams. • Understand that fractions, decimals and percentages can be interchanged. • Understand that this can be used to compare proportions converting between fractions, decimals and percentages when required. • Understand how to calculate simple percentages of an amount. • Understand how to express one quantity as a percentage of another in simple instances. **6 Approximation** • Understand that rounding may be necessary when working with numbers. • Understand how to round to a given number of decimal places (up to 2 decimal places) and nearest whole numbers (10, 100, and 1000). • Use these as appropriate to estimate very simple calculations in order to check the reasonableness of answers. **7 Algebra 2** • Understand and use the vocabulary of expression, equation and term and collect like terms when simplifying algebraic expressing including those with numbers, letters and including some negatives.	**Curriculum (S)** **7 Algebra 2 (continued)** • Understand how to solve simple linear equations with unknown represented by a symbol, then the unknown represented by a single letter in simple one step equations. • Start to understand how to expand simple single brackets. **8 Collecting & Interpreting Data** • Understand how to construct and interpret different graphs and charts including interpreting Pie charts. • Understand and explain different types of data. • Understand and be able to find the averages of mean, mode and median from a list of numbers. **9 Sequences and Graphs** • Understand how to continue a sequence by spotting patterns in numbers or diagrams. • Understand how to generate a sequence from a description given in words. • Understand how to describe a sequence in a number pattern or by spotting a pattern series of simple diagrams. • Start to recognise and name simple special sequences. • Understand how to work out the value of a particular term in a sequence. • Be able to use the words ascending and descending to describe sequences.	**Curriculum (S)** **10 Proportion 1** • Understand ratio and be able to share a set of objects in a simple given ratio. • Understand how to simplify simple ratio. • Understand how to write a ratio of a set of shared objects/money using ratio notation and reduce this to its simplest form. • Understand how to share in simple instances a given amount in a ratio understanding that the sum of the parts of the ratio represent the number of 'shares'. **11 Ratio and Scale** • Understand how to measure and draw accurately line segments and angles. • Understand how to work out actual distances from simple scales on drawings and maps. **12 Shape Properties** • Understand the properties of and name 2D and 3D shapes including special triangles. • Understand how to recognise and name the special quadrilaterals. • Understand how to identify and draw lines of symmetry of 2D shapes. • Know how to recognise and use standard conventions for labelling of geometric shapes. • Know how to use the terms such as edge, face, vertex, right angle, perpendicular, parallel, obtuse, reflex and acute to describe properties of angles and of 2D and 3D shapes. **13 Algebra 3** • Understand how to change the subject of (re-arrange) simple one step formula and some two- step. • Understand how to represent algebraic expressions using input and output function machines up to two-step. • Understand how to substitute simple positive integer values into expressions and standard formulae including areas, volumes and other simple scientific formula.	**Curriculum (S)** **14 Transformations** • Understand the language and notation associated with simple reflections, simple translations (Eg.4 right 2 down) and simple rotations. • Understand how to carry out, on a cm square grid, and how to describe, simple reflections using mirrors and tracing paper, rotations using tracing paper and translations using left/right/up/down terminology. **15 Probability** • Understand how to place events on a probability scale and use appropriate words to describe the probabilities such as certain, impossible and likely. • Understand that probabilities can be given as fractions, decimals or percentages but normally they are written as fractions. • Understand how to calculate simple probabilities for simple situations giving answers in the simplest fraction form. • Understand how to create some simple sample space (outcome diagrams) for outcome of simple combined events and calculate the probability of an event from these outcomes. • Start to appreciate that the probabilities of all possible outcomes add up to 1. **16 Triangles & Construction** • Recall how to and be able to, measure lines to within 1mm and angles to the nearest 1°. • Understand how to construct and construct accurately, simple nets for 3D shapes such as cubes and cuboids, triangular and square based pyramids. • Understand that the diagonal distance across a rectangle is the shortest distance between the two vertices. • Understand that a perpendicular from a point to a line is the shortest distance between a point and that line. **17 Interpreting Data** • Understand how to interpret, analyse and compare the distributions of data sets (simple graphs, charts and tables). • Understand how to compare two sets of data given statistics such as mean average and range of both sets and make simple statements and draw simple conclusions. **18 Circles** • Understand how to draw circles accurately given the radius or diameter. • Understand and recall the names of parts of a circle recalling all relevant terminology (*centre, radius, chord, diameter, circumference, tangent, arc, sector and segment).*	**Curriculum (S)** **Time and Measurement** • Telling the time 24h / 12h. • Understand how to read Timetables. • Understand TV Programme Guides. • Understand and convert between metric measurements. • Measure items in grams and Kg and volume of liquids in ml and litres **19 Proportion 2** • Understand how to solve problems involving direct proportion using the unitary method. • Understand how to use the idea of compound units ('A' per 'B') and solve related problems. • Understand how to solve simple proportion problems involving simple recipes. **20 Solving equations and inequalities** • Understand how to solve linear equations with unknown represented by a symbol, then the unknown represented by a single letter in simple one step equations using the balance method. • Understand how to expand a single bracket with a number outside the bracket. • Solve simple two step equations using the balance method. • Understand how to convert simple worded situations into algebraic expressions & equations/formula. **21 Plotting and sketching graphs** • Understand how to plot (x,y) coordinates in all four quadrants on a grid. • Understand how to generate coordinate pairs from a simple linear rule where y is given explicitly in terms of x. • Understand how to use these coordinates to plot simple linear (straight line) graphs.