SVC Mathematics Learning Pathway – Year 7

LP	Key Skills Students will:	Essential Knowledge Students will:
8-9	• Use positive integer powers and associated real roots • Apply the four operations with decimal numbers • Write a quantity as a fraction or percentage of another • Use multiplicative reasoning to interpret percentage change • Add, subtract, multiply and divide with fractions and mixed numbers • Check calculations using approximation, estimation or inverse operations • Simplify and manipulate expressions by collecting like terms • Simplify and manipulate expressions by multiplying a single term over a bracket • Substitute numbers into formulae • Solve linear equations in one unknown • Understand and use lines parallel to the axes, y = x and y = -x • Calculate surface area of cubes and cuboids • Understand and use geometric notation for labelling angles, lengths, equal lengths and parallel lines	• Know the first 6 cube numbers • Know the first 12 triangular numbers • Know the symbols =, ≠, <, >, ≤, ≥ • Know the order of operations including brackets • Know basic algebraic notation • Know that area of a rectangle = l × w • Know that area of a triangle = b × h ÷ 2 • Know that area of a parallelogram = b × h • Know that area of a trapezium = ((a + b) ÷ 2) × h • Know that volume of a cuboid = l × w × h • Know the meaning of faces, edges and vertices • Know the names of special triangles and quadrilaterals • Know how to work out measures of central tendency • Know how to calculate the range
6-7	• Multiply and divide numbers with up to three decimal places by 10, 100, and 1000 • Use long division to divide numbers up to four digits by a two-digit number • Use simple formulae expressed in words • Generate and describe linear number sequences • Use simple ratio to compare quantities • Write a fraction in its lowest terms by cancelling common factors • Add and subtract fractions and mixed numbers with different denominators • Multiply pairs of fractions in simple cases • Find percentages of quantities • Solve missing angle problems involving triangles, quadrilaterals, angles at a point and angles on a straight line • Calculate the volume of cubes and cuboids • Use coordinates in all four quadrants • Calculate and interpret the mean as an average of a set of discrete data	• Know percentage and decimal equivalents for fractions with a denominator of 2, 3, 4, 5, 8 and 10 • Know the rough equivalence between miles and kilometres • Know that vertically opposite angles are equal • Know that the area of a triangle = base × height ÷ 2 • Know that the area of a parallelogram = base × height • Know that volume is measured in cubes • Know the names of parts of a circle • Know that the diameter of a circle is twice the radius • Know the conventions for a 2D coordinate grid • Know that mean = sum of data ÷ number of pieces of data
4-5	• Identify multiples and factors of a number • Count forwards and backwards through zero • Round to one decimal place • Use columnar addition and subtraction with numbers of any size • Multiply a three- or four-digit number by a two-digit number using long multiplication • Divide numbers up to four-digits by a single-digit number using short division and interpret the remainder • Add and subtract fractions with denominators that are multiples of the same number • Write decimals as fractions • Understand that per cent relates to number of parts per hundred • Convert between adjacent metric units of measure for length, capacity and mass • Measure and draw angles • Calculate the area of rectangles • Distinguish between regular and irregular polygons	• Know the place value headings up to millions • Recall primes to 19 • Know the first 12 square numbers • Know the Roman numerals I, V, X, L, C, D, M • Know percentage and decimal equivalents for 1/2, 1/4, 1/5, 2/5, 4/5 • Know rough conversions between metric and Imperial units • Know that angles are measured in degrees • Know angles in one whole turn total 360° • Know angles in half a turn total 180° • Know that area of a rectangle = length × width

LP	Key Skills Students will:	Essential Knowledge Students will:
2-3	• Round any number to the nearest 10, 100, 1000 and round a number with one decimal place to the nearest whole number • Count backwards through zero • Use columnar addition and subtraction with numbers up to four digits • Multiply two- and three-digit numbers by a one-digit number • Use known and derived facts to multiply and divide mentally • Write any number of tenths or hundredths as a decimal • Find families of common equivalent fractions • Add and subtract fractions with the same denominator • Find areas of rectilinear shapes by counting squares • Use a line of symmetry to complete a symmetric shape or pattern • Identify lines of symmetry in 2D shapes • Use coordinates in the first quadrant • Interpret and construct bar charts and time graphs	• Know the place value headings of ones, tens, hundreds and thousands • Know the % symbol • Know multiplication facts up to 12 × 12 • Know division facts related to tables up to 12 × 12 • Know decimals equivalents of 1/2, 1/4, 3/4 • Know adjacent time facts involving years, months, weeks, days, hours, minutes and seconds • Know 12- and 24-hour clock conversions • Know the names and connected properties of triangles and quadrilaterals • Know the definitions of acute and obtuse angles • Know that area is measured in squares • Know that perimeter is a measure of length
0-1	• Read and write numbers up to 1000 in numerals and in words • Compare and order whole numbers up to 1000 • Count from zero in multiples of 4, 8, 50 and 100 • Add and subtract numbers mentally including a three-digit number and ones, tens and hundreds • Use columnar addition and subtraction with numbers up to three digits • Use known facts to multiply and divide mentally within the 2, 3, 4, 8 and 10 multiplication tables • Multiply a two-digit number by a one-digit number • Understand fractions as proportions and numbers • Tell the time using analogue and digital 12-hour clocks • Measure length (mm, cm, m), mass (g, kg) and capacity (ml, l), measure perimeters of shapes • Count from zero in multiples of 2, 3 and 5 • Count in tens from any number, forwards and backwards • Add and subtract numbers including a two-digit number and ones, a two-digit number and tens, two two-digit numbers, and three one-digit numbers • Write multiplication and division statements using correct symbols • Understand that addition and multiplication of two numbers can be done in any order (commutative) and subtraction and division cannot • Recognise and name the fractions 1/3, 1/4, 2/4, 3/4 • Tell the time to the nearest five minutes using an analogue clock, including 'quarter past' and 'quarter to'. • Use a ruler to measure lengths in millimetres and centimetres • Identify and describe 2D and 3D shapes • Use mathematical vocabulary to describe position, direction and movement	• Know the place value headings of tenths, ones, tens and hundreds • Know multiplication facts for the 3, 4 and 8 multiplication tables • Know division facts related to the 3, 4 and 8 multiplication tables • Know that a right angle is ¼ of a turn • Know the number of days in each month, know the number days in a year and a leap year • Know that 60 seconds = 1 minute, 60 minutes = 1 hour, 24 hours = 1 day • Know the vocabulary of time including o'clock, a.m., p.m., morning afternoon, noon and midnight • Know the meaning of 'perimeter' • Know the symbols =, <, >, ×, ÷ • Know the meaning of odd and even numbers • Know doubles and halves up to 20 • Know addition and subtraction facts to 20 • Know multiplication facts for the 2, 5 and 10 multiplication tables • Know division facts related to the 2, 5 and 10 multiplication tables • Know the symbols for pounds (£) and pence (p) • Know the standard units for length (m, cm), mass (kg, g), temperature (°C) and capacity (litres/ml) • Know the names and number of sides of 2D shapes • Known the meaning of 'edges', 'faces' and 'vertices' • Know the names and number of faces of 3D shapes • Know the symbols =, +, − • Know doubles and halves up to 10 • Know number bonds to 10 • Know the value of different denominations of coins and notes • Know the meaning of 'weeks', 'months' and 'years'