Biscovey Academy Progression of Knowledge and Skills

Year 3	Year 4	Year 5	Year 6
Place Value - Counting			
• Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number Autumn 1 Autumn 3	• Count in multiples of 6, 7, 9, 25 and 1000 • Count backwards through zero to include negative numbers Autumn 1 Autumn 4	• Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • Count forwards and backwards with positive and negative whole numbers, including through zero Autumn 1 Summer 4	
Place Value - Representing			
• Identify, represent and estimate numbers using different representations • Read and write numbers up to 1000 in numerals and in words Autumn 1	• Identify, represent and estimate numbers using different representations • Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value Autumn 1	• Read, write, (order and compare) numbers to at least 1 000 000 and determine the value of each digit • Read Roman numerals to 1000 (M) and recognise years written in Roman numerals Autumn 1	• Read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit Autumn 1
Place Value – Use and Compare			
• Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) • Compare and order numbers up to 1000 Autumn 1	• Find 1000 more or less than a given number • Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) • Order and compare numbers beyond 1000 Autumn 1	• Read, write order and compare numbers to at least 1 000 000 and determine the value of each digit Autumn 1	• Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit Autumn 1
Place Value – Rounding and Solving Problems			
• Solve number problems and practical problems involving these ideas Autumn 1	•Round any number to the nearest 10, 100 or 1000 • Solve number and practical problems that involve all of the above and with increasingly large positive numbers Autumn 1	• Interpret negative numbers in context • Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 • Solve number problems and practical problems that involve all of the above Autumn 1	• Round any whole number to a required degree of accuracy • Use negative numbers in context, and calculate intervals across zero • Solve number and practical problems that involve all of the above Autumn 1

Year 3	Year 4	Year 5	Year 6
Addition and Subtraction – Calculation			
• Add and subtract numbers mentally, including: Ø a three-digit number and ones Ø a three-digit number and tens Ø a three-digit number and hundreds • Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Autumn 2	• Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate Autumn 2	• Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • Add and subtract numbers mentally with increasingly large numbers Autumn 2	• Perform mental calculations, including with mixed operations and large numbers • Use their knowledge of the order of operations to carry out calculations involving the four operations Autumn 2
Addition and Subtraction - Problems			
• Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction Autumn 2	• Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why Autumn 2	• Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why • Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Autumn 2	• Solve addition and subtraction multi step problems in contexts, deciding which operations and methods to use and why Autumn 2
Multiplication and Division – Recall and Use			
• Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Autumn 3 Spring 1	• Recall multiplication and division facts for multiplication tables up to 12 × 12 • Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • Recognise and use factor pairs and commutativity in mental calculations Autumn 4 Spring 1	• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • Establish whether a number up to 100 is prime and recall prime numbers up to 19 • Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) Autumn 3	• Identify common factors, common multiples and prime numbers • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy Autumn 2
Multiplication and Division – Calculations			
• Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two digit numbers times one-digit numbers, using	• Multiply two-digit and three-digit numbers by a one digit number using formal written layout Spring 1	• Multiply numbers up to 4 digits by a one- or two digit number using a formal written method, including long multiplication for two-digit numbers	• Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication

mental and progressing to formal written methods Autumn 3 Spring 1		• Multiply and divide numbers mentally drawing upon known facts • Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Autumn 3 Spring 1	• Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • Perform mental calculations, including with mixed operations and large numbers Autumn 2
Multiplication and Division – Problems			
• Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects Spring 1	• Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects Spring 1	• Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates Autumn 3 Spring 1	• Solve problems involving addition, subtraction, multiplication and division Autumn 2
Multiplication and Division - Combined			
		• Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Spring 1	• Use their knowledge of the order of operations to carry out calculations involving the four operations Autumn 2

Year 3	Year 4	Year 5	Year 6
Fractions – Recognise and Write			
• Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Spring 3	• Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. Spring 4 Summer 1	• Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example: $\frac{2}{5}+\frac{4}{5}=\frac{6}{5}=$ Autumn 4	
Fractions – Compare			
• Recognise and show, using diagrams, equivalent fractions with small denominators • Compare and order unit fractions, and fractions with the same denominators Spring 3	• Recognise and show, using diagrams, families of common equivalent fractions Spring 3	• Compare and order fractions whose denominators are all multiples of the same number Autumn 4	• Use common factors to simplify fractions; use common multiples to express fractions in the same denomination • Compare and order fractions, including fractions > 1 Autumn 3
Fractions – Calculate			
• Add and subtract fractions with the same denominator within one whole [for example $\frac{5}{7}+\frac{1}{7}=\frac{6}{7}$] Summer 1	• Add and subtract fractions with the same denominator Spring 1	• Add and subtract fractions with the same denominator and denominators that are multiples of the same number • Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Autumn 4 Spring 2	• Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example $\frac{1}{4}\times\frac{1}{2}=\frac{1}{8}$] • Divide proper fractions by whole numbers [for example $\frac{1}{3}\div 2=\frac{1}{6}$] Autumn 3 Autumn 4
Fractions – Solve Problems			
• Solve problems that involve all of the above Spring 3 Summer 1	• Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number Spring 3		

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Decimals – Recognise, Write and Compare			
	• Recognise and write decimal equivalents of any number of tenths or hundredths • Recognise and write decimal equivalents to $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}$ • Round decimals with one decimal place to the nearest whole number • Compare numbers with the same number of decimal places up to two decimal places Spring 4 Summer 1	• Read and write decimal numbers as fractions [for example, 0.71 = '! !))] • Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • Round decimals with two decimal places to the nearest whole number and to one decimal place • Read, write, order and compare numbers with up to three decimal places Spring 3 Summer 3	• Identify the value of each digit in numbers given to three decimal places Spring 3
Fractions Decimals and Percentages			
	• Solve simple measure and money problems involving fractions and decimals to two decimal places Spring 3 Spring 4 Summer 1	• Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal • Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 Spring 3	• Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, " ( ] • Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts Spring 3 Spring 4
Ratio and Proportion			
			• Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • Solve problems involving the calculation/use of percentages for comparison • Solve problems involving similar shapes where the scale factor is known or can be found

			• Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples Spring 1
Algebra			
• Solve problems, including missing number problems			• Use simple formulae • Generate and describe linear number sequences • Express missing number problems algebraically • Find pairs of numbers that satisfy an equation with two unknowns • Enumerate possibilities of combinations of two variables Spring 2

Year 3	Year 4	Year 5	Year 6
Measurement – Using Measures			
• Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Spring 2 Spring 4	• Convert between different units of measure [for example, kilometre to metre; hour to minute] • estimate, compare and calculate different measures Spring 2 Summer 3	• Convert between different units of metric measure • Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling Spring 4 Summer 5 Summer 6	• Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. where appropriate • Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 d.p. • Convert between miles and kilometres Autumn 5
Measurement – Money			
• Add and subtract amounts of money to give change, using both £ and p in practical contexts Summer 2	• Estimate, compare and calculate different measures, including money in pounds and pence Summer 2	• Use all four operations to solve problems involving measure [for example, money] Summer 3	
Measurement – Time			
• Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight • Know the number of seconds in a minute and the number of days in each month, year and leap year • compare durations of events [for example to calculate the time taken by particular events or tasks Summer 3	• Read, write and convert time between analogue and digital 12- and 24-hour clocks • Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days Summer 3	• Solve problems involving converting between units of time Summer 5	• Use, read, write and convert between standard units, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa Autumn 5

Measurement – Perimeter, Area and Volume			
Year 3	Year 4	Year 5	Year 6
• Measure the perimeter of simple 2-D shapes Spring 2	• Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • Find the area of rectilinear shapes by counting squares Autumn 3 Spring 2	• Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • Calculate and compare the area of rectangles (including squares) and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes • Estimate volume [for example, using blocks to build cuboids] and capacity [for example, using water Spring 4 Summer 6	• Recognise that shapes with the same areas can have different perimeters and vice versa • Recognise when it is possible to use formulae for area and volume of shapes • Calculate the area of parallelograms and triangles • Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units Spring 5

Geometry – 2D Shapes

Year 3	Year 4	Year 5	Year 6
• Draw 2-D shapes Summer 4	• Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • Identify lines of symmetry in 2-D shapes presented in different orientations Summer 4	• Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. • Use the properties of rectangles to deduce related facts and find missing lengths and angles Summer 1	• Draw 2-D shapes using given dimensions and angles • Compare and classify geometric shapes based on their properties and sizes • Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius Summer 1

Geometry – 3D Shapes

• Make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them Summer 4		• Identify 3-D shapes, including cubes and other cuboids, from 2-D representations Summer 1	• Recognise, describe and build simple 3-D shapes, including making nets Summer 1

Geometry – Lines and Angles

• Recognise angles as a property of shape or a description of a turn • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle • Identify horizontal and vertical lines and pairs of perpendicular and parallel lines Summer 4	• Identify acute and obtuse angles and compare and order angles up to two right angles by size • Identify lines of symmetry in 2-D shapes presented in different orientations • Complete a simple symmetric figure with respect to a specific line of symmetry Summer 4	• Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • Draw given angles, and measure them in degrees • Identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and half a turn (total 180°) other multiples of 90° Summer 1	• Find unknown angles in any triangles, quadrilaterals, and regular polygons • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles Summer 1

Geometry – Position and Direction

	• Describe positions on a 2-D grid as coordinates in the first quadrant • Describe movements between positions as translations of a given unit to the left/right and up/down • Plot specified points and draw sides to complete a given polygon Summer 6	• Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed Summer 2	• Describe positions on the full coordinate grid (all four quadrants) • Draw and translate simple shapes on the coordinate plane, and reflect them in the axes Summer 2

Statistics – Present and Interpret Data			
Year 3	Year 4	Year 5	Year 6
• Interpret and present data using bar charts, pictograms and tables Summer 5	• Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Summer 5	• Complete, read and interpret information in tables, including timetables Spring 5	• Interpret and construct pie charts and line graphs and use these to solve problems Spring 6
Statistics – Solve Statistical Problems			
• Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables Summer 5	• Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs Summer 5	• Solve comparison, sum and difference problems using information presented in a line graph Spring 5	• Calculate and interpret the mean as an average Spring 6