Subject - Maths

	Aut 1	Aut 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	**Topic:** Number	**Topic:** Statistics Number Measurement	**Topic:** Number	**Topic:** Number	**Topic:** Number Geometry	**Topic:** Geometry Measurement
	Concept: Place Value Addition and Subtraction	**Concept:** Statistics Multiplication and Division Perimeter and Area	**Concept:** Multiplication and Division Fractions	**Concept:** Fractions Decimals and Percentages	**Concept:** Decimals Properties of Shape	**Concept:** Position and Direction Converting units Volume
	Skills: Read, understand, write, order and compare numbers up to 1 000 000. Rounding to the nearest 10, 100, 1000, 10,000 and 100,000. Add and subtract mentally using increasingly larger numbers. Using a formal written method to add and subtract numbers with more than four digits. Solving multi-step	**Skills:** Read, interpret and draw bar charts and line graphs Solve comparison, sum and difference problems using bar charts and line graphs. Complete, read and interpret information in tables, including timetables. Multiply and divide mentally using known facts. Identify multiples and	**Skills:** Use a formal written method for multiplication and division up to four digits and with remainders. (Multiply 4-digit by 2-digit and divide 4-digit by 1-digit) Understand the relationship between multiplication and division and use the inverse to check answers. Identify, name and write equivalent fractions.	**Skills:** Multiply proper fractions and mixed numbers by whole numbers supported by concrete/pictorial resources. Read and write decimal numbers as fractions. Recognise and use thousandths and relate them to tenths, hundredths and other decimal equivalences Solve problems involving multiplication and	**Skills:** Read, write, order and compare decimal up to three places. Adding and subtracting decimals Multiplying and dividing decimals by 10, 100 and 1000. Solve problems involving numbers up to three decimal places. Solve problems which require knowing percentage and decimal equivalence e.g. ½, ¼, 1/5	**Skills:** Read, write and plot co-ordinates in the first quadrant Identify, describe and represent the position of a shape following a reflection or translation. Convert between different unit of metric measure e.g. km and m, l and ml etc. Estimate the volume of cubes/cuboids and capacity (using water) and learn how to calculate volume.

problems using rounding, inversion and estimation to check reliability and accuracy of answers.	factors and use these terms with understanding. Find common factors of two whole numbers Identify prime numbers and explain how they are different from composite numbers Understand the meaning of square and cube numbers and be able to use their notations. Multiply and divide whole numbers by 10, 100 and 1000. Use knowledge of multiples of 10, 100 and 1000 to answer related questions. Measure and calculate perimeter of rectilinear shapes and apply this knowledge to calculate unknown side lengths. Find the area of rectangles, compound	Compare and order fractions greater and less than 1 Add and subtract fractions with the same denominator Add 3 or more fractions by finding a common denominator	division by simple fractions and problems involving simple rates (scaling up and scaling down). Read, write, order and compare decimal up to three places. Round decimals up to two places to the nearest whole number and one decimal place. Recognise the per cent symbol and understand that percent relates to number or parts per hundred. Write percentages as a fraction (out of 100).	Know and identify the features of triangle, rectangle and regular polygons. Draw given angles and measure them in degrees. Identify angles at a point, around a point, on a straight line and in a triangle. Use the properties of rectangles to find missing lengths and angles. Know the difference between regular and irregular polygons. Identify 3D shapes, including cubes and cuboids using their knowledge of 2D shapes.	Understand how to use equivalences between metric units and common imperial units such as inches, pounds and pints. Solve problems involving converting between units of time.

		shapes and irregular shapes.				
	Outcome:	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**

	Topic:	Topic:	Topic:	Topic:	Topic:	Topic:
	Number	**Number** **Geometry**	**Number** **Measures**	**Geometry** **Ratio**	**Statistics** **Geometry**	SATS
	Concept:	**Concept:**	**Concept:**	**Concept:**	**Concept:**	**Concept:**
	Place Value Addition Subtraction Multiplication Division	**Fractions** **Position and Direction**	**Decimals** **Percentage** **Algebra** **Converting Units**	**Area, Perimeter &** **Volume** **Ratio**	**Line graphs and pie** **charts** **Properties of shapes**	**Consolidation** **Prep for SATS**
Year 6	**Skills:** Read, write, order and compare numbers up to 10,000,000. Determine the value of each digit. Rounding whole numbers to a required degree of accuracy. Use negative numbers in context and calculate intervals across zero. Perform mental calculations, including with mixed operations and large numbers.	**Skills:** Use common factors to simplify fractions and common multiples to find equivalences. To use a number line to count forward and backwards in fractions Compare and order fractions, including fractions > 1 Add and subtract fractions with different denominators and mixed fractions.	**Skills:** Understand place value up to 3 decimal places Multiply and Divide whole numbers and decimals by 10,100 and 1000 Multiply and Divide decimals by integers Apply understanding of division to solve problems using division up to 2 decimal places. Convert a decimal to a fraction and simplify Convert fraction to decimal finding the	**Skills:** Find and draw rectilinear shapes that have the same area. Calculate area and perimeter of rectilinear shapes Explore that shapes with the same area can have the same or different perimeters. Work out the area of different triangles by counting. Use the formula, base × perpendicular height ÷	**Skills:** Read and interpret line graphs Draw Line graphs Solve problems using line graphs Label parts of a circle Read and Interpret pie charts Interpret pie charts. Draw Pie charts using knowledge of angles	**Skills:** **Investigations and** **Problem solving** **Across a range of** **topics**

. Multiply multi-digit numbers using the formal written method up to 4 by 2 digit Use short division Use long division Find common factors Find common multiples Identify prime numbers	Multiply integers with fractions Multiply simple pairs of proper fractions, writing the answer in its simplest form. Divide fractions by integers Find fraction of amounts Associate a fraction with division and calculate decimal fraction equivalents. Describe positions on the full coordinate grid. Describe positions on a four-quadrant grid. Draw and translate simple shapes on the coordinate plane and reflect them in the axes.	equivalent fraction where the denominator is 10, 100 1000, so you are able to divide. Understand the fraction line is same a division. Convert fraction to percentage using equivalent fraction to ensure denominator is 100 Find common equivalent fraction, percentage and decimals Convert between fractions, percentages and decimals to compare and order Find percentage of an amount starting with 50%, 25%, 10% and 1% only and then building onto multiples of 10% and 5% Use inverse to find missing values when solving a percentage problem	2 to calculate the area of a variety of triangles Find the area of a parallelogram. Find volume of cuboids by counting cubes and using formula ($l \times w \times h$) Use ratio language – 'For every' Use objects and diagrams to compare ratios and fractions. Use the colon notation as the ratio symbol, and link the language 'for every Begin to calculate ratios to find both a part and a whole. Enlarge shapes using scale factors Find scale factors when given similar shapes Solve ratio and proportion problems	Find the mean using formula Mean = Total ÷ number of items. Measure with a protractor Introduce angles and make connections To know the total angles on a straight line To know angles around a point equal to 360 ˚ To find missing angles Recognise that vertically opposite angles share a vertex Explore interior angles of a triangle which add up to 180 degrees. Find missing angles in right angle triangles and isosceles triangles Explore angles in quadrilateral that add up to 180 Explore angles in polygons Draw shapes accurately	

					Identify nets of 3D shapes	
	Outcome:	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**

	Topic: **Algebraic Thinking**	Topic: **Number** **Place Value and Proportion**	Topic: **Applications of Number**	Topic: **Directed Numbers** **Fractional Thinking**	Topic: **Lines and Angles**	Topic: Reasoning with number
Year 7	**Concept:** **Sequences** **Understanding algebraic notation** **Equality and Equivalence**	**Concept:** **Place Value with integers and decimals** **Fraction Decimal equivalence**	**Concept:** **Solving problems using four operations** **Fractions and percentages of amounts**	**Concept:** **Operations and equations with directed number** **Addition and subtraction of fractions**	**Concept:** **Constructing, measuring and using algebraic notation** **Developing geometric reasoning**	**Concept:** **Develop number sense** **Sets and Probability** **Prime numbers and proof**
	Skills: Describe and continue sequences in graphs, tables and diagrams as well as in numbers. Identify linear and non-linear sequences and be able to continue them	**Skills:** Recognise place value, write integers in words and figures up to 1 billion Work out intervals on a numberline and position integers Compare and order integers using signs	**Skills:** Understand mental strategies for addition and subtraction Use formal methods for addition and subtractions Solve problems in different contexts	**Skills:** Understand and use representations of directed numbers Order directed number using a number line and appropriate symbols Perform calculations that cross zero	**Skills:** Understand and use letter and labelling conventions Draw and measure line segments including geometric figures Describe angles as a measure of a turn Classify a range of angles	**Skills:** Know and use mental addition and subtraction strategies for integers Known and use mental multiplication and division strategies for integers Know and use mental arithmetic strategies

Explain the term to term rule and find missing terms Find input and output using a single function machine Using algebraic expressions to generalise diagrams and letters Begin to understand simple expression and use them with a function machine Substitute values into single expressions Find functions, substitute values and generate sequences using two step expressions Begin to represent one and two step functions graphically Understand the meaning of	up to 1 billion =, ≠, <, >, ≤, ≥ Understand place value of decimals and position on a number line Round numbers to 1 significant number Begin to use standard form (H) Represent fractions on diagrams and on a number line Convert fractions and decimals including tenths, hundredths, fifths, quarters, eighths and thousandths Convert fluently between fractions, percentages and decimals Use fractions to interpret pie charts	linked to measure and statistics Add and subtract numbers giving in standard form Understand multiples and factors Use formal methods to multiply and divide integers Understand the order of operation Solve problems linked to measures and statistics Explore multiplication and division in algebraic expressions Find fraction and percentage of an amount and apply to solve problems greater then 1 and 100%	Add and subtract directed numbers Multiply and divide directed numbers Use a calculator to solve directed number calculations Evaluate algebraic expressions with directed numbers Solve two step equations Use order of operations Find roots of positive numbers (H) Explore higher powers and roots (H) Represent fractions in various ways Convert mixed numbers into improper fractions Add and subtract unit and non-unit fractions	Measure and draw angles up to 180 degrees using a protractor Measure and draw angles between 180 and 360 degrees using a protractor Identify parallel and perpendicular lines Recognise and describe properties of different triangles Recognise and describe properties of different quadrilaterals Recognise and identify polygons up to a decagon Construct triangles using side-side-side (SSS) Side-angle-side (SAS) Angle-side-angle (ASA) Construct complex polygons	for decimals and fractions Use estimation as a method for checking mental calculations Use known number and algebraic facts to derive other facts Know when to use mental, formal written or calculator methods Identify and represent sets Interpret and create Venn diagrams Understand and use the intersection and union of sets Understand and use the complement of a set (H) Know and use the vocabulary of probability Generate sample spaces for single events

equivalence and the use of the = sign Solve one step linear equations using inverse operations Understand the meaning of like and unlike terms and being to simplify algebraic expressions	Explore fractions above one and convert to decimals and percentages		with the same denominator Add and subtract fractions with integers Find equivalent fractions Add and subtract unit and non-unit fractions with the different denominator – using multiples Add and subtract mixed numbers and improper fractions Add and subtract fractions and decimals Solving fractions in algebraic contexts Add and subtract algebraic fractions (H)	Interpret pie charts using proportion Interpret and draw pie charts using a protractor Understand and use angles on a straight line and on a point Understand and use equality of vertically opposite angles Know and apply sums of angles in a triangle and a quadrilateral Solve angles problems Find and use the angles sum of a polygon (H) Investigate angles in parallel lines Use parallel line angle rules Use known facts to obtain simple proof	Calculate the probability of a single event Understand and use the probability scale Know that the sum of probabilities for all possible outcomes is 1 Find and use factors and multiples Recognise and identify prime numbers Recognise and identify square numbers and triangular numbers Find lowest common multiples and highest common factors Use factor trees to write a number as a product of its prime factors Use a Venn diagram to calculate HCF and LCM (H) Make and test conjectures and

						Use counter examples to disprove a conjecture
	Outcome:	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**

	Topic: **Proportional Reasoning**	Topic: **Representations**	Topic: **Algebraic Techniques**	Topic: **Developing Number**	Topic: **Developing Geometry**	Topic: **Reasoning with Data**
	Concept: Ratio and Scale Multiplicative Change Multiplying and Dividing fractions	**Concept:** Equations of a straight line Interpreting and representing data Finding probability	**Concept:** Brackets, Equations & Inequalities Sequences Indices	**Concept:** Fractions and Percentages Standard Index Form Number sense	**Concept:** Angles Area of Trapeziums and circles Line of symmetry and reflection	**Concept:** Data Handling Measures of location
Year 8	**Skills:** Understand the meaning of ratio and use the notation Simplify ratios in its simplest form Solve ratio problems by dividing in a given ratio Link ratios to other contexts such as fractions, pie and gradient. Explore conversion graphs and convert between money and units of measures Explore direct proportion	**Skills:** Draw, plot and find co-ordinates on a four-quadrant grid Recognise lines that form $y = x$, $y = kx$, $y = x + a$ Explore positive and negative gradients and know how to form lines $y = mx + c$ Link graphs to sequences and explore linear and non-linear graphs To draw and interpret scatter diagrams and drawing and using the line of best fit Identify different types of data and be able to read	Skills: Identify variables and express relations between variables algebraically and graphically Begin to model situations mathematically and express the results using a range of formal mathematical representations Substitute numerical values into formulae and expressions, including scientific formulae Understand and use the concepts and vocabulary of expressions, equations,	Skills: Convert fluently between key fractions decimals and percentages Calculate key fractions, decimals and percentages of an amount with and without a calculator Convert between decimals and percentages greater than 100% Calculate percentage increase and decrease using a multiplier	Skills: Understand and use basic angle rules and notation Investigate angles between parallel lines and the transversal Identify and calculate with co-interior, alternate and corresponding angles Solve complex problems with parallel line angles Construct triangles and special quadrilaterals	Skills: Set up a statistical enquiry and design and criticise questionnaires Draw and interpret pictograms, bar charts, multiple bar charts and vertical line charts Draw and interpret line charts and pie charts Choose the most appropriate diagram for given set of data Represent and interpret grouped quantitative data

	Understand scale factor and use to interpret scale diagrams and maps Multiply and divide fractions by unit fractions and integers Multiply and divide improver fractions and mixed numbers Multiply and divide algebraic fractions	an interpret ungrouped and grouped frequency tables, discrete dat and two-way tables Construct sample space for one or more events Find the probability from a sample space diagram, two-way tables, Venn Diagram Use product rule for total possible outcomes	inequalities, terms and factors Simplify and manipulate algebraic expressions to maintain equivalence by: - collecting like terms - multiplying a single term over a bracket - taking out common factors - expanding products of two or more binomials Understand and use standard mathematical formulae; rearrange formulae to change the subject Use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) Generate terms of a sequence from either a term-to-term or a position-to-term rule Recognise arithmetic sequences and find the nth term	Express one number as a fraction or a percentage of another with and without a calculator Work with percentage change Choose appropriate methods to solve percentage problems and complex percentage problems Find the original amount given the percentage less than OR greater than 100% (H) Investigate positive and negative powers of 10 Work with numbers greater than 1 in standard form Work with numbers between 0 and 1 in standard form Compare, order and mentally calculate numbers in standard form	Identify and calculate with sides and angles in special quadrilaterals Understand and use the properties of diagonals of quadrilaterals Understand and use the sum of exterior angles of any polygon Calculate and use the sum of the interior angles in any polygon Prove simple geometric facts (H) Construct an angle bisector (H) Construct a perpendicular bisector of a line segment (H) Calculate the area of triangles, rectangles and parallelograms Calculate the area of a trapezium	Find and interpret the range Compare distributions using charts Identify misleading graphs Understand and use the mean, median and mode Find the mean from an grouped and ungrouped frequency table (H) Identify outliers on graphs and tables Compare distributions using averages and the range

| | | | | Recognise geometric sequences and appreciate other sequences that arise.

Adding and subtracting expressions with indices

Simplify algebraic expressions by multiplying and dividing

Use the law of indices
Finding powers of powers (H) | Add, subtract, multiply and divide numbers in standard form

Use calculator to work with numbers in standard form

Use negative and fractional indices (H)

Round numbers to powers of 10 and 1 significant figure

Round numbers to a given number of decimal places

Estimate the answer to a calculation

Understand and use error interval notation (H)

Calculate using the order of operations, money

Convert metric measures of lengths, weights and capacity

Convert metric units of area and volume (H) | Calculate the perimeter and area of compound shapes (1)

Calculate the area of a circle and parts of a circle with AND without a calculator

Recognise line symmetry

Reflect a shape in a horizontal or vertical line (shapes touching the line and not touching the line)

Reflect a shape in a diagonal line 1 (shapes touching the line and not touching the line) | |

			Solve problems involving time and the calendar		
Outcome:	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**	**Outcome:**