

Department: Maths Year Group: 7 (Core)							
Term	Topic/ subject	Assessment Objectives	Knowledge acquisition	Skill building <i>Intent</i>	Wider reading opportunities to include numeracy and SMSC	Final assessment task and title	SEND & PP Identify where access and learning is supported
Autumn 1	Unit 1: Collecting and Interpreting Data	<p>Calculate statistics for small sets of discrete data: Find the mode, median and range, and the modal class for grouped data. Calculate the mean, including from a simple frequency table, using a calculator for a larger number of items</p> <ul style="list-style-type: none"> Construct, on paper and using ICT, graphs and diagrams to represent data, including: <ol style="list-style-type: none"> bar-line graphs frequency diagrams for grouped discrete data (simple) pie charts Scatter graphs Interpret diagrams and graphs (including pie charts), and draw simple conclusions based on the shape of graphs and simple statistics for a single distribution 	<p>Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.</p>	<p>Know how to calculate the mean. Median, mode and range for small sets of data. Collect data to answer a question. Draw a tally chart to collect information. Draw graphs from tally charts. Draw simple pie charts. Read information from different graphs and charts. Draw pie charts using angle knowledge and read information from more difficult graphs. Construct and interpret Scatter graphs.</p>	<p>Give definitions for the key words mean, median, mode and range.</p> <p>These statistics based topics provide opportunities for students to work together and allows for discussion and debate on the use and abuse of statistics in the media and how data is best presented to eliminate bias.</p>	<p>Baseline Assessment within the first 2 week to determine sets.</p>	<p>Use of manipulatives to represent data and understand averages from a data set.</p> <p>Manipulatives can also be used to represent tally charts and to support grouped frequency tables.</p>
	Unit 2: Calculations and Number Skills	<p>Order positive and negative integers and decimals in order of size; use the number line as a model for ordering of the real numbers</p>	<p>Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular</p>	<p>Order different types of numbers. Use standard column addition/subtraction. Use the grid method for long multiplication.</p>	<p>Formal written methods of the four operations need to be set out clearly.</p>	<p>Ks3 Assessment on units 1 and 2.</p>	<p>Use of manipulatives to represent negative numbers and the understanding of subtracting (or removing) a negative.</p>

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		<p>Use the four operations, including formal written methods, applied to integers, negative numbers and decimals.</p> <p>Understand the order of operations.</p> <p>Understand and use place value for decimals, measures and integers of any size.</p> <p>Use the four operations, including formal written methods for proper and improper fractions.</p>	<p>quick fire assessments throughout the term.</p>	<p>Add /subtract simple fractions.</p> <p>Multiply and divide by 10/100/1000 including decimals.</p> <p>Read and write large numbers.</p> <p>Solve problems mentally.</p> <p>Show fractions by shading.</p> <p>Simplify fractions.</p> <p>Use written methods for 4 rules of integers, decimals to 3 or 4 decimal places, directed numbers and fractions.</p> <p>Be able to order fractions with different denominators.</p>	<p>Communications to explain which integer/decimal or fractions are bigger.</p> <p>Problem solving skills and teamwork are fundamental to Mathematics, through creative thinking, discussion, explaining and presenting ideas. Students are always encouraged to develop their Mathematical reasoning skills, communicating with others and explaining concepts to each other</p>	<p>Place value charts used to show how digits can move up and down place values when multiplying and dividing by 10, 100 or 1000.</p>
A u t u m 2	Unit 3: Expressions, Functions and Formulae	<p>Use letter symbols to represent unknown numbers or variables; know the meanings of the words <i>term</i>, <i>expression</i> and <i>equation</i>.</p> <p>Understand that algebraic operations follow the rules of arithmetic.</p> <p>Simplify linear algebraic expressions by collecting like terms; multiply a single term over a bracket (integer coefficients).</p> <p>Substitute positive integers into linear expressions.</p>	<p>Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.</p>	<p>Know that letters stand for numbers.</p> <p>Simplify an expression.</p> <p>Expand a bracket.</p> <p>Substitute integers and decimals into simple expressions.</p> <p>Substitute integers into more complex expressions using BIDMAS.</p>	<p>Create expressions from worded problems and vice versa.</p> <p>Examples of where algebra is useful in the real world.</p>	<p>Use of algebra tiles to represent values and get students to understand how algebra is used. The tiles also support the skill of forming expressions and solving linear equations.</p>
	Unit 4: Decimals and Measures	<p>Convert between different measures and understand the difference between metric and imperial units.</p> <p>Read scales and round numbers.</p> <p>Multiplying numbers and decimals by 10, 100 and 1000.</p> <p>Add/subtract/multiply decimals.</p>	<p>Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.</p>	<p>Know the rules for rounding.</p> <p>Be able to use standard measuring equipment. Be able to tell the time.</p> <p>Able to calculate the area or perimeter of shapes when measurements are decimals.</p>	<p>Formal written methods of the four operations need to be set out clearly. Communications to explain which integer/decimal or fractions are bigger.</p> <p>Pupils to know why it is important to be able tell the time.</p> <p>Use of estimates in the day to day life.</p>	<p>Ks3 Assessment on units 1-4.</p> <p>Attribute blocks can be used to visually see shapes and understand the difference between perimeter and area.</p>

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		Calculate the perimeter and area of squares, rectangles, and other basic shapes.				
S p r i n g 1	Unit 5: Fractions and percentages	Use fractions notation to describe parts of shapes and compare fractions. Convert improper fractions to mixed numbers and identify equivalent fractions. Add/subtract fractions and find fractions of amounts. Convert fractions, decimals and percentages. Calculate percentages of amounts.	Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.	Calculate percentages of whole without a calculator and use chunking to find other percentages e.g. 15%, 20%. Increase and Decrease by a percentage. Find one number as a percentage of another.	Creating opportunities to explain and explore the relationship and proportionality of the numerator and denominator. Looking at fractions and percentages students start to gain and understanding of real life applications such as marketing offers and discounts.	Use of fraction circles as manipulatives to help support students understanding of the relationship between numerator and denominator.
	Unit 6: Probability	Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale. Understand that the probabilities of all possible outcomes sum to 1. Create sample spaces and be able to calculate the probability of an event from this list.	Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.	Place events on a probability scale using the appropriate language. Calculate probability of an event as a fraction. Know that all probabilities add up to one. Calculate the probability of an event NOT occurring. Know the difference between theoretical and experimental probability and carry out an experiment.	Creating events to place a probability scale. Students will need to be able to reason why they have placed different events. The teaching of probability introduces the idea of gambling and will address issues related with this.	Ks3 Assessment on units 5 and 6. Use of games to help students understand the difference between experimental and theoretical probability. Manipulatives such as dice and dominoes to help relate probability to values.
S p r i n g 2	Unit 7: Ratio and Proportion	Understand what a ratio actually means. Reduce a ratio to its lowest form. Understand equivalent ratios. Divide quantities in a given ratio with and without a calculator. Understand how to compare proportions when given a ratio of two quantities. Calculate using proportional	Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.	Write ratios and simplify. Divide an amount into a ratio. Show ratios by shading on a diagram. Use the unitary method to solve problems. Calculate ingredients needed for different quantities of a recipe. Solve problems involving ratio in different units.	Pupils learn to cope with new concepts through perseverance. Give definitions for the key words ratio, proportion, and share and simplify. Being able to reason proportionally provide useful life skills.	Ks3 Assessment on units 5-7. Use of Cuisenaire rods and algebra tiles to represent ratios and proportion. Also the use of coloured counters to show how proportion is scalable.

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		amounts - the unitary method.		Calculate the best value for money.			
S u m m e r 1	Unit 8: Lines and angles	Find the area and perimeter of rectangles/triangles/parallelograms/trapeziums. Find the volume of cuboids and shapes made from cuboids. Find the surface area of cuboids.	Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.	Pupils to know the difference between area/perimeter/volume/surface areas and use the correct units in their answers. Pupils to understand that different shapes have different formulas to find area/volumes.	Problem solving skills and teamwork are fundamental to Mathematics, through creative thinking, discussion, explaining and presenting ideas. Students are always encouraged to develop their Mathematical reasoning skills, communicating with others and explaining concepts to each other.		Use of attribute blocks and geoboards to give visual aids to help support understanding on angles in shapes. GeoModel folding shapes to give a visual aid on the difference between volume and surface area.
	Unit 9: Sequences and Graphs	Describe integer sequences; generate terms of a simple sequence, given a rule (e.g. finding a term from the previous term, finding a term given its position in the sequence) Generate sequences from patterns or practical contexts and describe the general term in simple cases. Be able to plot co-ordinates in all four quadrants of a graph.	Knowledge acquisition will be developed through the building of prior knowledge, revisiting skills covered, and through regular quick fire assessments throughout the term.	Continue a sequence that goes up/down in equal steps. Continue other sequences that have different rules e.g. doubling. Write a sequence from its rule. Continue picture sequences. Plot coordinates in all four quadrants. Find the nth term of a sequence. Generate coordinate pairs that follow a rule.	Give definitions for the key words sequence, term and position. Mathematics applied in different cultures and historical aspects of mathematical development are developed through investigating the Fibonacci sequence. Students are encouraged to discuss the use of mathematics in cultural symbols and patterns.	Ks3 Assessment on units 8-9.	A range of manipulatives available such as counters and multilink to show sequence progression visually. Geoboards can also be used to represent graphs. Students have access to Geogebra to show graph transformations at a higher level.
	Unit 10: Transformations	Find lines of symmetry and rotational symmetry. Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures. Enlargement of 2-D shapes, including given a centre of enlargement and a positive integer scale factor.		Enlarge shapes with integer and fractional scale factors. Enlarge shapes from a centre on a coordinate grid. Rotate, translate and reflect shapes. Use a column vectors to describe and draw translations.	Written instructions for the different transformations. Links to different cultural patterns and art work. Improves students' spatial awareness.		

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