

Y 5,6	Autumn 1 and Spring 2	Autumn 2 and Summer 1	Spring 1 and Summer 2			
My Money Modules	Year A – Young Enterprise project Year B – How does money affect my feelings?	Year A – Young Enterprise project Year B – What affects my choices about money?	Year A – Young Enterprise project Year B – How do I understand information about money from around the world?			
	Place Value	Multiplication	Fractions			
Key Skills	<ul style="list-style-type: none"> I can read, write, order and compare numbers to at least 1 000 000 using >, < and = I can count forwards or backwards in steps of powers of 10 for any given number up to 100 000. I can count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000. I can recognise and describe number sequences. I can count forwards and backwards with positive and negative whole numbers, including through zero I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000. 	<ul style="list-style-type: none"> I can read and write numbers up to 10 000 000 and beyond in numerals and words and determine the value of each digit. I can order numbers up to 10 000 000 and beyond. I can round any whole number. I can use negative numbers and calculate intervals across zero I can begin to understand the use of brackets. I can use calculators to develop and investigate patterns and sequences. 	<ul style="list-style-type: none"> I can identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers I know prime numbers, prime factors and composite numbers I can establish whether a number up to 100 is prime and recall prime numbers up to 19 I can use formal methods of short multiplication. I can multiply and divide numbers mentally drawing upon known facts. I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 I can multiply numbers up to 4 digits by a one- or two-digit number. I can divide numbers up to 4 digits by a one-digit 	<ul style="list-style-type: none"> I can multiply multi-digit numbers up to 4 digits by a two-digit whole number. I can divide numbers up to 4 digits by a two-digit whole number and interpret remainders as whole number remainders, fractions, or by rounding. I can use written division methods in cases where the answer has up to two decimal places I can understand the relationship between unit fractions and division to work backwards e.g. $\frac{1}{4}$ of a length is 36cm, then whole length is 36x4 I can identify common factors, common multiples and prime numbers I can multiply one-digit numbers with up to two decimal places by whole numbers. 	<ul style="list-style-type: none"> I can compare and order fractions whose denominators are all multiples of the same number. I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. I can recognise mixed numbers and improper fractions and convert from one form to the other. I can add and subtract fractions with the same denominator and denominators that are multiples of the same number I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. I can read and write decimal numbers as fractions. 	<ul style="list-style-type: none"> I can compare and order fractions, including fractions > 1. I can multiply simple pairs of proper fractions, writing the answer in its simplest form [e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] I can divide proper fractions by whole numbers. I can use common factors to simplify fractions and use common multiples to express fractions in the same denomination I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts I can identify the value of each digit in numbers given to three decimal places. I can use, read, write and convert between standard units using decimal notation to up to

	<ul style="list-style-type: none"> • I can read Roman numerals to 1000 (M) • I can recognise years written in Roman numerals • I can recognise and describe number sequences including fractions and decimals • I can describe the rules of sequences. 		<p>number using short division.</p> <ul style="list-style-type: none"> • I can divide numbers up to 4 digits by a one-digit number and express remainders as a fraction or decimal. • I can multiply and divide whole numbers and decimals by 10, 100 • I can recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) • I can solve problems using factors and multiples, squares and cubes. 	<ul style="list-style-type: none"> • I can multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. 	<ul style="list-style-type: none"> • I can round decimals with two decimal places to the nearest whole number and to 1dp • I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. • I can read, write, order and compare numbers with up to three decimal places • I can calculate simple fractions and percentages of whole numbers and quantities • I can add and subtract decimal numbers (to at least 3dp) and round as required • I can use all four operations to solve problems involving measure using decimal notation. • I can solve problems which require knowing percentage and decimal equivalents. • I can recognise the percent symbol (%) and write percentages as a fraction with 	<p>three decimal places.</p> <ul style="list-style-type: none"> • I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate • I can solve problems which require answers to be rounded to specified degrees of accuracy
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					denominator 100, and as a decimal.	
Activities and Context	<p>Explore sequences with images and counters/cubes first. Draw tables/grids to record pattern. Use place value counters and books to explore the relative sizes of bigger numbers. Make representations of relative sizes of powers of ten – could include billions for interest/wow factor. Use NRICH hot air balloon game. Find the nth using systematic recording and practically making patterns. Write formula.</p>		<p>Use arrays to find factors. Explore sequences to investigate multiples. Write rules for times tables. Don't introduce prime numbers until very secure with factors. Lots of exploration of multiplication and division by powers of 10 and using this to find related facts. Long and short division to be explore practically in detail. Make square and cube numbers and explore the rules as sequences. Introduce triangle numbers. Investigate when to use written strategies and when to use mental strategies. Use place value tokens for support if needed. Use bar models to explore word problems with fractions and percentages. Lots of explaining how they know.</p>		<p>Investigate how the size of fractions changes when the denominator stays the same but the numerator changes. Write the rule. Use hundred squares to explore fractions, decimals and percentage equivalents. Lot of use of place value tokens to add and subtract decimals. Link simplifying fractions to multiples and factors. Use lots of diagrams to illustrate equivalent. Multiplying and dividing fractions all practically to start with. Encourage learners to identify the rule themselves. Link to multiples and factors.</p>	
Key Vocabulary	<p>Number, Count, forwards, backwards, more, less, higher, lower, another, next, numerals, order, biggest, smallest, bigger, smaller, repeating, partition, odd, even, organising, conjecture, convince. Digit, Most, Least, Multiples, Place Value, Number Bonds, Represent, Compare, Order, Greater than, Less than, Equal, Place Holder, ascending order, Baker's dozen, Consecutive, Descending, score, face value, rounding, classify, imagine, express, specialize, generalise Negative, integer Million, powers,</p>		<p>Double, Half, Patterns, Arrays, Groups of, Sharing, multiple, multiply, divide, commutative, remainders, product. Distributive, factors, quotient, Common factors, prime numbers, prime factors, composite, square numbers, cube numbers, Digital root, triangle number.</p>		<p>Half, quarter, numerator, denominator, parts, whole, bisect, improper, mixed number fractions, equivalent. Unit fractions, tenths, hundredths, decimals, decimal places, percentage</p>	
	Addition and Subtraction		Measures		Shape and Statistics	
Key Skills	<ul style="list-style-type: none"> I can add and subtract whole numbers with more than 4 digits, including using formal written methods. I can add and subtract numbers mentally with 	<ul style="list-style-type: none"> I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. I can solve problems involving 	<ul style="list-style-type: none"> I can convert between different units of metric measure. I can understand and use approximate equivalences between metric units and common 	<ul style="list-style-type: none"> I can solve problems involving the calculation of percentages. I can convert between miles and kilometres. I can use simple ratio 	<ul style="list-style-type: none"> I can identify 3-D shapes, including cubes and other cuboids, from 2-D images. I can estimate and compare acute, obtuse and reflex angles. 	<ul style="list-style-type: none"> I can recognise that shapes with the same areas can have different perimeters and vice versa. I can recognise when it is possible to use formulae for

	<p>increasingly large numbers.</p> <ul style="list-style-type: none"> • I can use rounding to check answers to calculations and determine accuracy. • I can solve addition and subtraction multi-step problems deciding which operations and methods to use and why. • I can use calculators to explore more complex number problems • I can solve addition and subtraction multi-step problems in contexts. • I can use letters to represent missing numbers. 	<p>addition, subtraction, multiplication and division.</p> <ul style="list-style-type: none"> • I can use estimation to check answers to calculations. • I can explore the order of operations using brackets. • I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions 	<p>imperial units such as inches, pounds and pints.</p> <ul style="list-style-type: none"> • I can read labelled and unlabelled divisions • I can use all four operations to solve problems involving measure using decimal notation, including scaling with appropriate numbers. • I can solve problems involving converting between units of time • I can complete, read and interpret information in tables, including timetables. 	<ul style="list-style-type: none"> • I can solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • I can solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. • I can use simple formulae. • I can find pairs of numbers that satisfy an equation with two unknowns • I can generate and describe linear number sequences. • I can express missing number problems algebraically. • I can enumerate possibilities of combinations of two variables. 	<ul style="list-style-type: none"> • I know angles are measured in degrees. • I can draw given angles, and measure them to the nearest 10o. • I can draw given angles, and measure them to the nearest o. • I can identify angles at a point and one whole turn (total 360o) and at a point on a straight line and ½ a turn (total 180o) • I can draw given angles, and measure them to the nearest 5o. • I can sort regular and irregular polygons based on equal sides and angles. • I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres. • I can calculate and compare the area of rectangles and estimate the area of irregular shapes • I can use the properties of rectangles to deduce related 	<p>area and volume of shapes</p> <ul style="list-style-type: none"> • I can calculate the area of parallelograms and triangles • I can calculate, estimate and compare volume of cubes and cuboids using standard units. • I can draw 2-D shapes using given dimensions and angles. • I can recognise, describe and build simple 3-D shapes, including making nets. • I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals. • I can compare and classify regular polygons. • I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. • I can draw and translate simple shapes on the coordinate plane,
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					<p>facts and find missing lengths and angles.</p> <ul style="list-style-type: none"> • I can estimate volume. • I can describe positions on a 2-D grid as coordinates in the first quadrant • I can 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. • I can solve comparison, sum and difference problems using information presented in a line graph. 	<p>and reflect them in the axes</p> <ul style="list-style-type: none"> • I can describe positions on the full coordinate grid. • I can illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • I can interpret pie charts and line graphs and use these to solve problems. • I can construct pie charts and line graphs and use these to solve problems. • I can calculate and interpret the mean as an average. • I can solve problems involving similar shapes where the scale factor is known or can be found.
<p>Activities and Context</p>	<p>Use a context of money and measures for numbers given. Use relationship triangles and bar models. Lots of word problem practise as context once written methods are secure.</p>	<p>Use number lines to solve problems with time. Explore why not to use column. Link back to knowledge of base 10. Lots of time on converting measures and linked to multiplication and division by powers of 10. Use time tables to plan a day out – use bus and train time tables. Explore ratio through objects, images and bar models.</p>	<p>Draw grids and describe the lines used. Use bee bots and maps to give directions. Present data from time and measures into charts and graphs. Use 4 operations to solve problems with a data context. Link data to science work. Lots of time spent practically measuring angles and exploring missing angles. Make right angle measures using paper corners.</p>			

		<p>Make areas/volumes using cubes and explore formula. Link to square numbers and cube numbers.</p> <p>Explore tile patterns with 2D shapes.</p>	<p>Make area using cubes and explore the link to volume practically – link to cube numbers.</p> <p>Make boxes of different sizes.</p> <p>Lots of practical investigations with time spent on how to record and discussion of rules.</p> <p>Explore cutting out shapes and comparing to squares/rectangles for the rules of area.</p> <p>Lots of practically drawing and making shapes. Link to art.</p> <p>Explore graphs/pie charts by writing their own facts and questions.</p> <p>Link to science and time to find averages.</p>
<p>Key Vocabulary previous</p>	<p>group, sort, add, subtract, difference, sum. Addition, Subtraction, Equal, Bar Model, Total, Altogether, Commutative, Inverse, Regrouping, equation.</p>	<p>length, longer, shorter, height, taller, shorter, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, Pennies, Pence, minute, First, second, third, fourth, fifth, last, lots, a few, some, same, different, weight, hours, January, February, March, April, May, June, July, August, September, October, November, December, capacity, ordinal number.</p> <p>mass, volume, coins, notes, pounds, pennies, before, after, next, first, today, yesterday, years, months, days, weeks, tomorrow, morning, afternoon, evening, hour, half past, quicker, slower, earlier, later, centimeters, meters, litres, mililitres, grams, kilograms, minutes, seconds, quarter past, degrees Celsius, Analogue, am, pm, o'clock, noon, midnight, leap year, divisions, convert, perimeter, area, digital, Metric, imperial, gross,</p>	<p>circle, square, triangle, cube, cuboid, sphere, diagonal, corners, edges, cylinder, cone, pyramid, left, right, face, hexagon, line of symmetry, octagon, symmetrical, tally, rectangle.</p> <p>2D, 3D, orientation, pentagon, vertices, vertex, faces, position, direction, movement, quarter, three quarter, clockwise, pictogram, tally, pattern, sequence, heptagon, oblong, tetragon, trigon, anti-clockwise, block diagrams.</p> <p>perimeter, vertical, horizontal, perpendicular, parallel, North, South, East, West, compass, bar chart, scales, acute, obtuse, quadrilaterals, scalene, equilateral, isosceles, rhombus, trapezium, kite, parallelogram, lozenge, co-ordinates, quadrant, translations, line graphs, discrete, continuous. axis of symmetry, angle, base, carroll diagrams, dimensions, dodecagon, exterior, hendecagon, irregular, oblique, adjacent, congruent,</p> <p>reflex, degrees, composite, rectilinear, volume, polyhedron, base angles, intersection, Average, circumference, mean, median, mode, rotational symmetry.</p>
<p>Maths Superpowers</p>	<p>Conjecture: Yr 5 - Begin to work out the nth in a sequence. Explain why with clear examples. Identify rules when calculating using their own examples. Yr 6 - Work out the nth in a sequence. Begin to write their own formula. Explain calculation rules and use examples independently.</p> <p>Convince: Yr 5 - Use some diagrams, example and correct/accurate mathematical terminology to begin to persuade different audiences that their conjectures are correct. Yr 6 - Use a range of diagrams, examples and correct/accurate mathematical terminology to persuade a range of audiences that their conjectures are correct. Connect knowledge of a range of Mathematical concepts to support explanation e.g. use understanding of area to explain the formula for volume.</p>		

	<p>Organising: Yr 5 - Use more complex mathematical criteria when sorting shapes, objects, numbers or calculations. Select their own criteria and explain their choices. Use tables and grids independently to record information. Begin to use sub-groups to classify further. Yr 6 - Record work systematically to identify all possible answers and allow for identification of patterns and formulas.</p> <p>Classifying: Yr 5 - Explain their choices for their criteria using mathematical vocabulary. Use more complex groupings for numbers e.g. prime numbers, square numbers, factors. Yr 6 - Use formula and rules to explain the criteria for groups and sub-groups.</p> <p>Imagine: Yr 5 - Use grids and tables to record information more clearly. Begin to select a range of representations to explain rules and patterns. Yr 6 - Use grids and tables to identify patterns. Use a range of representations to explain rules and patterns. Use algebra to solve problems.</p> <p>Express: Yr 5 - Begin to discuss common misconceptions and explain why they are incorrect. Use representations and/or resources to support their explanations. Yr 6 - Discuss misconceptions and explain why they arise. Describe patterns and why they occur. Explain formula they have written. Use a range of representations and resources to support their explanations.</p> <p>Specialise: Yr 5 - Test examples to answer their own questions. Begin to collect and record in an appropriate, systematic way and select appropriate start and end points. Yr 6 - Collect and record in an appropriate, systematic way and select appropriate start and end points.</p> <p>Generalise: Yr 5 - Identify rules and patterns and explain how they know they are a rule. Use different representations to prove their rules. Begin to write formula. Yr 6 - Write formula for their rules and use a range of representations to prove their rules are correct.</p>
Possible books to support teaching.	How big was a dinosaur by Anne Milbourne, How high is the sky by Anne Milbourne, How deep is the Ocean by Anne Milbourne, Table Fables by J.Wilson, On beyond a million by David M Schwartz, If by David J.Smith, If the World were a Village by David J. Smith, , The Rabbit Problem by Emily Garrett.