

Year 8 Maths Curriculum Plan

	Key questions	Overview of the module	Assessment	Cross Curricular Skills	Suggested reading material and websites:
Module 1 Numbers	<ul style="list-style-type: none"> Show me two (three-digit) numbers with a highest common factor of 18. And another. And another... Show me two numbers with a lowest common multiple of 240. And another. And another... Jenny writes $7.1 \times 10^{-5} = 0.000071$. Kenny writes $7.1 \times 10^{-5} = 0.000071$. Who do you agree with? Give reasons for your answer. 	<ul style="list-style-type: none"> use the concepts and vocabulary of prime numbers, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation theorem round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures) interpret standard form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer 	<p>Students will sit a short diagnostic assessment at before the start of each topic to inform teaching.</p> <p>The unit finishes with an End of Unit Test. The department emails results to parents including improvements highlighted in pink. Students complete full corrections on tests to ensure they understand the entire unit before moving on.</p>	<p>Literacy: Prime Prime factor Prime factorisation Product Venn diagram Highest common factor Lowest common multiple Standard form Significant figure</p> <p>Thinking Skills: Students are supported to develop high level problem solving skills, applying challenging mathematical concepts to a range of unforeseen, multi-step problems. They will also be encouraged to infer the meaning of new vocabulary and deduce different methods of working.</p>	<p>www.kerboodle.com</p> <p>www.mymaths.co.uk/</p> <p>www.khanacademy.org/</p> <p>https://campus.mangahigh.com</p> <p>www.bbc.co.uk/education/subjects/z38pycw</p> <p>https://nrich.maths.org/</p>

<p>Module 2</p> <p>Calculating</p>	<ul style="list-style-type: none"> • Convince me that - 3 - -7 = 4 • Show me an example of a calculation involving addition of two negative numbers and the solution -10. And another. And another ... • Create a Carroll diagram with 'addition', 'subtraction' as the column headings and 'one negative number', 'two negative numbers' as the row headings. Ask pupils to create (if possible) a calculation that can be placed in each of the four positions. If they think it is not possible, explain why. Repeat for multiplication and division. 	<ul style="list-style-type: none"> • apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative • use conventional notation for priority of operations, including brackets, powers, roots and reciprocals 	<p>Students will sit a short diagnostic assessment at before the start of each topic to inform teaching.</p> <p>The unit will be followed by an end of unit assessment.</p> <p>These assessments are stored and marked on a system called MiniTest. This allows us to track the progress made throughout the topic.</p> <p>A copy of the end of unit assessment will be emailed to parents and students as well as being recorded in their work book.</p>	<p>Literacy:</p> <p>Negative number Directed number Improper fraction Top-heavy fraction Mixed number Operation Inverse Long multiplication Short division Power Indices Roots</p> <p>Thinking Skills:</p> <p>Students are supported to develop high level problem solving skills, applying challenging mathematical concepts to a range of unforeseen, multi-step problems. They will also be encouraged to infer the meaning of new vocabulary and deduce different methods of working.</p>	<p>www.kerboodle.com</p> <p>www.mymaths.co.uk/</p> <p>www.khanacademy.org/</p> <p>https://campus.mangahigh.com</p> <p>www.bbc.co.uk/education/subjects/z38pycw</p> <p>https://nrich.maths.org/</p>
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<p>Module 3</p> <p>Visualising and Constructing</p>	<ul style="list-style-type: none"> • Give an example of a shape and its enlargement (e.g. scale factor 2) with the guidelines drawn on. How many different ways can the scale factor be derived? • Show me an example of a sketch where the bearing of A from B is between 90° and 180°. And another. And another ... • The bearing of A from B is 'x'. Find the bearing of B from A in terms of 'x'. Explain why this works. • Provide the plan and elevations of shapes made from some cubes. Challenge pupils to build the shape and place it in the correct orientation. 	<ul style="list-style-type: none"> • measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings • identify, describe and construct similar shapes, including on coordinate axes, by considering enlargement • interpret plans and elevations of 3D shapes • use scale factors, scale diagrams and maps 	<p>Students will sit a short diagnostic assessment at before the start of each topic to inform teaching.</p> <p>The unit will be followed by an end of unit assessment.</p> <p>These assessments are stored and marked on a system called MiniTest. This allows us to track the progress made throughout the topic.</p> <p>A copy of the end of unit assessment will be emailed to parents and students as well as being recorded in their work book.</p>	<p>Literacy: Similar, Similarity Enlarge, enlargement Scaling Scale factor Centre of enlargement Object Image Scale drawing Bearing Plan, Elevation</p> <p>Thinking Skills: Students are supported to develop high level problem solving skills, applying challenging mathematical concepts to a range of unforeseen, multi-step problems. They will also be encouraged to infer the meaning of new vocabulary and deduce different methods of working.</p>	<p>www.kerboodle.com</p> <p>www.mymaths.co.uk/</p> <p>www.khanacademy.org/</p> <p>https://campus.mangahigh.com</p> <p>www.bbc.co.uk/education/subjects/z38pycw</p> <p>https://nrich.maths.org/</p>
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<p>Module 4</p> <p>Understanding Risk</p>	<ul style="list-style-type: none"> Show me an example of an event and outcome with a probability of 0. And another. And another... Always / Sometimes / Never: if I pick a card from a pack of playing cards then the probability of picking a club is $\frac{1}{4}$ Label this (eight-sided) spinner so that the probability of scoring a 2 is $\frac{1}{4}$. How many different ways can you label it? 	<ul style="list-style-type: none"> relate relative expected frequencies to theoretical probability, using appropriate language and the 0 - 1 probability scale record describe and analyse the frequency of outcomes of probability experiments using tables construct theoretical possibility spaces for single experiments with equally likely outcomes and use these to calculate theoretical probabilities apply the property that the probabilities of an exhaustive set of outcomes sum to one 	<p>Students will sit a short diagnostic assessment at before the start of each topic to inform teaching.</p> <p>The unit will be followed by an end of unit assessment.</p> <p>These assessments are stored and marked on a system called MiniTest. This allows us to track the progress made throughout the topic.</p> <p>A copy of the end of unit assessment will be emailed to parents and students as well as being recorded in their work book.</p>	<p>Literacy: Probability, Theoretical probability Event Outcome Impossible, Unlikely, Evens chance, Likely, Certain Equally likely Mutually exclusive Exhaustive Possibility space Experiment</p> <p>Thinking Skills: Students are supported to develop high level problem solving skills, applying challenging mathematical concepts to a range of unforeseen, multi-step problems. They will also be encouraged to infer the meaning of new vocabulary and deduce different methods of working.</p>	<p>www.kerboodle.com</p> <p>www.mymaths.co.uk/</p> <p>www.khanacademy.org/</p> <p>https://campus.mangahigh.com</p> <p>www.bbc.co.uk/education/subjects/z38pycw</p> <p>https://nrich.maths.org/</p>
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<p>Module 5</p> <p>Algebraic Proficiency</p>	<ul style="list-style-type: none"> • Convince me $a^0 = 1$. • What is wrong with this statement and how can it be corrected: $5^2 \times 5^4 = 5^8$? • Jenny thinks that if $y = 2x + 1$ then $x = (y - 1)/2$. Kenny thinks that if $y = 2x + 1$ then $x = y/2 - 1$. Who do you agree with? Explain your thinking. 	<ul style="list-style-type: none"> • use and interpret algebraic notation, including: a^2b in place of $a \times a \times b$, coefficients written as fractions rather than as decimals • understand and use the concepts and vocabulary of factors • simplify and manipulate algebraic expressions by taking out common factors and simplifying expressions involving sums, products and powers, including the laws of indices • substitute numerical values into scientific formulae • rearrange formulae to change the subject 	<p>Students will sit a short diagnostic assessment at before the start of each topic to inform teaching.</p> <p>The unit will be followed by an end of unit assessment.</p> <p>These assessments are stored and marked on a system called MiniTest. This allows us to track the progress made throughout the topic.</p> <p>A copy of the end of unit assessment will be emailed to parents and students as well as being recorded in their work book.</p>	<p>Literacy:</p> <p>Product Variable Term Coefficient Common factor Factorise Power Indices Formula, Formulae Subject Change the subject</p> <p>Thinking Skills:</p> <p>Students are supported to develop high level problem solving skills, applying challenging mathematical concepts to a range of unforeseen, multi-step problems. They will also be encouraged to infer the meaning of new vocabulary and deduce different methods of working.</p>	<p>www.kerboodle.com</p> <p>www.mymaths.co.uk/</p> <p>www.khanacademy.org/</p> <p>https://campus.mangahigh.com</p> <p>www.bbc.co.uk/education/subjects/z38pycw</p> <p>https://nrich.maths.org/</p>
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<p>Module 6</p> <p>Fractions Decimals and Percentages</p>	<ul style="list-style-type: none"> Without using a calculator, convince me that $\frac{3}{8} = 0.375$ Show me a fraction / decimal / percentage equivalent. And another. And another ... What is the same and what is different: 2.5, 25%, 0.025, $\frac{1}{4}$? 	<ul style="list-style-type: none"> work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$ or 0.375 or $\frac{3}{8}$) 	<p>Students will sit a short diagnostic assessment at before the start of each topic to inform teaching.</p> <p>The unit will be followed by an end of unit assessment.</p> <p>These assessments are stored and marked on a system called MiniTest. This allows us to track the progress made throughout the topic.</p> <p>A copy of the end of unit assessment will be emailed to parents and students as well as being recorded in their work book.</p>	<p>Literacy: Fraction Mixed number Top-heavy fraction Percentage Decimal Proportion Terminating Recurring Simplify, Cancel</p> <p>Thinking Skills: Students are supported to develop high level problem solving skills, applying challenging mathematical concepts to a range of unforeseen, multi-step problems. They will also be encouraged to infer the meaning of new vocabulary and deduce different methods of working.</p>	<p>www.kerboodle.com</p> <p>www.mymaths.co.uk/</p> <p>www.khanacademy.org/</p> <p>https://campus.mangahigh.com</p> <p>www.bbc.co.uk/education/subjects/z38pycw</p> <p>https://nrich.maths.org/</p>
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