

Year 7 Autumn Term 1			
What are we learning?	What knowledge, understanding and skills will we gain?	What does mastery look like?	What additional resources are available?
<p>Year 7 students are taught one of the three stages 5-7 depending on their prior learning. Most follow stage 7. Below are the learning intentions for each stage in the first term.</p> <p><b>Stage 5</b></p> <ul style="list-style-type: none"> <li>• Know the meaning of ‘multiple’</li> <li>• Identify multiples of a given number</li> <li>• Know the meaning of ‘factor’</li> <li>• Know how to find factors of a given number</li> <li>• Know the meaning of ‘common factor’</li> <li>• Know the meaning of ‘prime number’</li> <li>• Recall the prime numbers less than 20</li> <li>• Know how to test if a number up to 100 is prime</li> <li>• Understand the use of notation for squared and cubed</li> <li>• Work out the first 10 square numbers</li> <li>• Work out the first 5 cube numbers</li> </ul>	<p><b>Knowledge</b></p> <p><b>Understanding</b></p> <p><b>Skills</b></p> <p>See left.</p>	<p>All lessons are structured around fluency, reasoning and problem solving activities. Students are taught to have confidence in the mathematics that they have learnt in order to be able to apply it to unfamiliar situations. The depth of students’ understanding is tested through probing questions that are built into schemes of learning, star tasks and same surface different deep tasks. Students are challenged to question the precision of their mathematical language through structured oral tasks and the use of Frayer diagrams.</p>	<p>CorbettMaths website. MyMaths.</p>

<ul style="list-style-type: none"><li>• Know the definition and properties of a rectangle</li><li>• Use the properties of rectangles to find missing lengths and angles</li><li>• Use the properties of rectangles to find points on a coordinate grid</li><li>• Know the definition of a polygon</li><li>• Know the difference between a regular and an irregular polygon</li><li>• Identify whether or not a polygon is regular</li><li>• Use the properties of polygons to find missing lengths and angles</li><li>• Understand place value in numbers with up to seven digits</li><li>• Order numbers up to and including those with seven digits</li><li>• Write numbers up to and including those with seven digits</li><li>• Read numbers up to and including those with seven digits</li><li>• Count backwards in whole number steps when negative numbers are included</li><li>• Count forwards in whole number steps when negative numbers are included</li><li>• Understand and use temperatures below <math>0^{\circ}\text{C}</math></li><li>• Interpret negative numbers in other contexts</li></ul>			
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<ul style="list-style-type: none"><li>• Add four-digit numbers and ones, tens, hundreds or thousands mentally</li><li>• Subtract four-digit numbers and ones, tens, hundreds or thousands mentally</li><li>• Add a three-digit number to a two-digit number mentally (when no bridging of hundreds is required)</li><li>• Use column addition for numbers with more than four digits</li><li>• Use column subtraction for numbers with more than four digits</li><li>• Identify when addition or subtraction is needed as part of solving multi-step problems</li><li>• Explain why addition or subtraction is needed at any point when solving multi-step problems</li><li>• Solve multi-step problems involving addition and/or subtraction</li><li>• Identify 3D shapes from photographs</li><li>• Identify 3D shapes from sketches</li><li>• Identify 3D shapes from nets</li><li>• Identify 3D shapes from diagrams on isometric paper</li></ul>			
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<ul style="list-style-type: none"><li>• Construct diagrams of 3D shapes on isometric paper</li></ul> <p><b>Stage 6</b></p> <ul style="list-style-type: none"><li>• Understand place value in numbers with up to three decimal places</li><li>• Multiply whole numbers by 10 (100, 1000)</li><li>• Divide whole numbers by 10 (100, 1000) when the answer is a whole number</li><li>• Multiply (divide) numbers with up to three decimal places by 10 (100, 1000)</li><li>• Understand (order, write, read) place value in numbers with up to eight digits</li><li>• Understand and use negative numbers when working with temperature</li><li>• Understand and use negative numbers when working in other contexts</li><li>• Know the meaning of a common multiple (factor) of two numbers</li><li>• Identify common multiples (factors) of two numbers</li><li>• Know how to test if a number up to 120 is prime</li><li>• Recognise a simple formula written in words</li></ul>			
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<ul style="list-style-type: none"><li>• Interpret the information given in a written formula</li><li>• Substitute numbers into a one-step formula written in words</li><li>• Substitute numbers into a two-step formula written in words</li><li>• Interpret the information that results from substituting into a formula</li><li>• Create a one-step formula from given information</li><li>• Create a two-step formula from given information</li><li>• Use symbols to represent variables in a formula</li><li>• Combine addition and subtraction when multiplying mentally</li><li>• Multiply a two-digit number by a single-digit number mentally</li><li>• Add a three-digit number to a two-digit number mentally (when bridging of hundreds is required)</li><li>• Multiply a four-digit number by a two-digit number using long multiplication</li><li>• Identify when addition, subtraction or multiplication is needed as part of solving multi-step problems</li><li>• Explain why addition or subtraction is needed at any</li></ul>			
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<p>point when solving multi-step problems</p> <ul style="list-style-type: none"><li>• Solve multi-step problems involving addition, subtraction and/or multiplication</li><li>• Know that addition and subtraction have equal priority</li><li>• Know that multiplication and division have equal priority</li><li>• Know that multiplication and division take priority over addition and subtraction</li><li>• Use short division to divide a four-digit number by a one-digit number</li><li>• Use short division to divide a three- (or four-) digit number by a two-digit number</li><li>• Understand the method of long division</li><li>• Use long division to find the remainder at each step of the division</li><li>• Know how to write, and use, the remainder at each step of the division</li><li>• Use long division to divide a three- (or four-) digit number by a two-digit number</li><li>• Write the remainder to a division problem as a remainder</li><li>• Write the remainder to a division problem as a fraction</li></ul>			
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<ul style="list-style-type: none"><li>• Extend beyond the decimal point to write the remainder as a decimal</li><li>• Identify when division is needed to solve a problem</li><li>• Extract the correct information from a problem and set up a written division calculation</li><li>• Interpret a remainder when carrying out division</li><li>• Use the vocabulary of sequences</li><li>• Recognise a linear sequence</li><li>• Describe a number sequence</li><li>• Find the next term in a linear sequence</li><li>• Find a missing term in a linear sequence</li><li>• Generate a linear sequence from its description</li></ul> <p><b>Stage 7</b></p> <ul style="list-style-type: none"><li>• Recall prime numbers up to 50</li><li>• Know how to test if a number up to 150 is prime</li><li>• Know the meaning of 'highest common factor' and 'lowest common multiple'</li><li>• Recognise when a problem involves using the highest common factor of two numbers</li><li>• Recognise when a problem involves using the lowest</li></ul>			
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<p>common multiple of two numbers</p> <ul style="list-style-type: none"><li>• Understand the use of notation for powers</li><li>• Know the meaning of the square root symbol (<math>\sqrt{\quad}</math>)</li><li>• Use a scientific calculator to calculate powers and roots</li><li>• Make the connection between squares and square roots (and cubes and cube roots)</li><li>• Identify the first 10 triangular numbers</li><li>• Recall the first 15 square numbers</li><li>• Recall the first 5 cube numbers</li><li>• Use linear number patterns to solve problems</li><li>• Place a set of negative numbers in order</li><li>• Place a set of mixed positive and negative numbers in order</li><li>• Identify a common denominator that can be used to order a set of fractions</li><li>• Order fractions where the denominators are not multiples of each other</li><li>• Order a set of numbers including a mixture of fractions, decimals and negative numbers</li></ul>			
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<ul style="list-style-type: none"><li>• Use inequality symbols to compare numbers</li><li>• Make correct use of the symbols = and <math>\neq</math></li><li>• Use knowledge of place value to multiply with decimals</li><li>• Use knowledge of place value to divide a decimal</li><li>• Use knowledge of place value to divide by a decimal</li><li>• Use knowledge of inverse operations when dividing with decimals</li><li>• Be fluent at multiplying a three-digit or a two-digit number by a two-digit number</li><li>• Be fluent when using the method of short division</li><li>• Know the order of operations for the four operations</li><li>• Use brackets in problem involving the order of operations</li><li>• Understand and apply the fact that addition and subtraction have equal priority</li><li>• Understand and apply the fact that multiplication and division have equal priority</li><li>• Use a scientific calculator efficiently</li><li>• Know the meaning of faces, edges and vertices</li></ul>			
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| <ul style="list-style-type: none"><li>• Use notation for parallel lines</li><li>• Know the meaning of 'perpendicular' and identify perpendicular lines</li><li>• Know the meaning of 'regular' polygons</li><li>• Identify line and rotational symmetry in polygons</li><li>• Use AB notation for describing lengths</li><li>• Use <math>\angle ABC</math> notation for describing angles</li><li>• Use ruler and protractor to construct triangles from written descriptions</li><li>• Use ruler and compasses to construct triangles when all three sides known</li><li>• Know the vocabulary of 3D shapes</li><li>• Know the connection between faces, edges and vertices in 3D shapes</li><li>• Visualise a 3D shape from its net</li><li>• Recall the names and shapes of special triangles and quadrilaterals</li><li>• Know the meaning of a diagonal of a polygon</li><li>• Know the properties of the special quadrilaterals (including diagonals)</li></ul> |  |  |  |
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<ul style="list-style-type: none"> <li>• Apply the properties of triangles to solve problems</li> <li>• Apply the properties of quadrilaterals to solve problems</li> </ul>			
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Year 8 Autumn Term 1			
What are we learning?	What knowledge, understanding and skills will we gain?	What does mastery look like?	What additional resources are available?
<p>Year 8 students are taught one of the three stages 6-8 depending on their prior learning. Most follow stage 8. Below are the learning intentions for each stage in the first term.</p> <p><b>Stage 6</b></p> <ul style="list-style-type: none"> <li>• Understand place value in numbers with up to three decimal places</li> </ul>	<p><b>Knowledge</b></p> <p><b>Understanding</b></p> <p><b>Skills</b></p> <p>See left.</p>	<p>All lessons are structured around fluency, reasoning and problem solving activities. Students are taught to have confidence in the mathematics that they have learnt in order to be able to apply it to unfamiliar situations. The depth of students' understanding is tested through probing questions that are built into schemes of learning, star tasks and same surface different</p>	<p>CorbettMaths website. MyMaths.</p>

<ul style="list-style-type: none"> <li>• Multiply whole numbers by 10 (100, 1000)</li> <li>• Divide whole numbers by 10 (100, 1000) when the answer is a whole number</li> <li>• Multiply (divide) numbers with up to three decimal places by 10 (100, 1000)</li> <li>• Understand (order, write, read) place value in numbers with up to eight digits</li> <li>• Understand and use negative numbers when working with temperature</li> <li>• Understand and use negative numbers when working in other contexts</li> <li>• Know the meaning of a common multiple (factor) of two numbers</li> <li>• Identify common multiples (factors) of two numbers</li> <li>• Know how to test if a number up to 120 is prime</li> <li>• Recognise a simple formula written in words</li> <li>• Interpret the information given in a written formula</li> <li>• Substitute numbers into a one-step formula written in words</li> <li>• Substitute numbers into a two-step formula written in words</li> </ul>		<p>deep tasks. Students are challenged to question the precision of their mathematical language through structured oral tasks and the use of Frayer diagrams.</p>	
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<ul style="list-style-type: none"><li>• Interpret the information that results from substituting into a formula</li><li>• Create a one-step formula from given information</li><li>• Create a two-step formula from given information</li><li>• Use symbols to represent variables in a formula</li><li>• Combine addition and subtraction when multiplying mentally</li><li>• Multiply a two-digit number by a single-digit number mentally</li><li>• Add a three-digit number to a two-digit number mentally (when bridging of hundreds is required)</li><li>• Multiply a four-digit number by a two-digit number using long multiplication</li><li>• Identify when addition, subtraction or multiplication is needed as part of solving multi-step problems</li><li>• Explain why addition or subtraction is needed at any point when solving multi-step problems</li><li>• Solve multi-step problems involving addition, subtraction and/or multiplication</li><li>• Know that addition and subtraction have equal priority</li></ul>			
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<ul style="list-style-type: none"><li>• Know that multiplication and division have equal priority</li><li>• Know that multiplication and division take priority over addition and subtraction</li><li>• Use short division to divide a four-digit number by a one-digit number</li><li>• Use short division to divide a three- (or four-) digit number by a two-digit number</li><li>• Understand the method of long division</li><li>• Use long division to find the remainder at each step of the division</li><li>• Know how to write, and use, the remainder at each step of the division</li><li>• Use long division to divide a three- (or four-) digit number by a two-digit number</li><li>• Write the remainder to a division problem as a remainder</li><li>• Write the remainder to a division problem as a fraction</li><li>• Extend beyond the decimal point to write the remainder as a decimal</li><li>• Identify when division is needed to solve a problem</li></ul>			
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- Extract the correct information from a problem and set up a written division calculation
- Interpret a remainder when carrying out division
- Use the vocabulary of sequences
- Recognise a linear sequence
- Describe a number sequence
- Find the next term in a linear sequence
- Find a missing term in a linear sequence
- Generate a linear sequence from its description

**Stage 7**

- Recall prime numbers up to 50
- Know how to test if a number up to 150 is prime
- Know the meaning of 'highest common factor' and 'lowest common multiple'
- Recognise when a problem involves using the highest common factor of two numbers
- Recognise when a problem involves using the lowest common multiple of two numbers
- Understand the use of notation for powers

<ul style="list-style-type: none"><li>• Know the meaning of the square root symbol (<math>\sqrt{\quad}</math>)</li><li>• Use a scientific calculator to calculate powers and roots</li><li>• Make the connection between squares and square roots (and cubes and cube roots)</li><li>• Identify the first 10 triangular numbers</li><li>• Recall the first 15 square numbers</li><li>• Recall the first 5 cube numbers</li><li>• Use linear number patterns to solve problems</li><li>• Place a set of negative numbers in order</li><li>• Place a set of mixed positive and negative numbers in order</li><li>• Identify a common denominator that can be used to order a set of fractions</li><li>• Order fractions where the denominators are not multiples of each other</li><li>• Order a set of numbers including a mixture of fractions, decimals and negative numbers</li><li>• Use inequality symbols to compare numbers</li><li>• Make correct use of the symbols = and <math>\neq</math></li></ul>			
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<ul style="list-style-type: none"><li>• Use knowledge of place value to multiply with decimals</li><li>• Use knowledge of place value to divide a decimal</li><li>• Use knowledge of place value to divide by a decimal</li><li>• Use knowledge of inverse operations when dividing with decimals</li><li>• Be fluent at multiplying a three-digit or a two-digit number by a two-digit number</li><li>• Be fluent when using the method of short division</li><li>• Know the order of operations for the four operations</li><li>• Use brackets in problem involving the order of operations</li><li>• Understand and apply the fact that addition and subtraction have equal priority</li><li>• Understand and apply the fact that multiplication and division have equal priority</li><li>• Use a scientific calculator efficiently</li><li>• Know the meaning of faces, edges and vertices</li><li>• Use notation for parallel lines</li><li>• Know the meaning of 'perpendicular' and identify perpendicular lines</li></ul>			
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| <ul style="list-style-type: none"><li>• Know the meaning of 'regular' polygons</li><li>• Identify line and rotational symmetry in polygons</li><li>• Use AB notation for describing lengths</li><li>• Use <math>\angle ABC</math> notation for describing angles</li><li>• Use ruler and protractor to construct triangles from written descriptions</li><li>• Use ruler and compasses to construct triangles when all three sides known</li><li>• Know the vocabulary of 3D shapes</li><li>• Know the connection between faces, edges and vertices in 3D shapes</li><li>• Visualise a 3D shape from its net</li><li>• Recall the names and shapes of special triangles and quadrilaterals</li><li>• Know the meaning of a diagonal of a polygon</li><li>• Know the properties of the special quadrilaterals (including diagonals)</li><li>• Apply the properties of triangles to solve problems</li><li>• Apply the properties of quadrilaterals to solve problems</li></ul> |  |  |  |
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**Stage 8**

- Recall prime numbers up to 100
- Understand the meaning of prime factor
- Write a number as a product of its prime factors
- Use a Venn diagram to sort information
- Use prime factorisations to find the highest common factor of two numbers
- Use prime factorisations to find the lowest common multiple of two numbers
- Know how to identify any significant figure in any number
- Approximate by rounding to any significant figure in any number
- Write a large (small) number in standard form
- Interpret a large (small) number written in standard form
- Identify if a fraction is terminating or recurring
- Recall some decimal and fraction equivalents (e.g. tenths, fifths, eighths)
- Write a decimal as a fraction
- Write a fraction in its lowest terms by cancelling common factors

<ul style="list-style-type: none"><li>• Identify when a fraction can be scaled to tenths or hundredths</li><li>• Convert a fraction to a decimal by scaling (when possible)</li><li>• Use a calculator to change any fraction to a decimal</li><li>• Write a decimal as a percentage</li><li>• Write a fraction as a percentage</li><li>• Add or subtract from a negative number</li><li>• Add (or subtract) a negative number to (from) a positive number</li><li>• Add (or subtract) a negative number to (from) a negative number</li><li>• Multiply with negative numbers</li><li>• Divide with negative numbers</li><li>• Know how to square (or cube) a negative number</li><li>• Substitute negative numbers into expressions</li><li>• Enter negative numbers into a calculator</li><li>• Use a scientific calculator to calculate with fractions, both positive and negative</li><li>• Interpret a calculator display when working with negative numbers</li><li>• Understand how to use the order of operations including powers</li></ul>			
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| <ul style="list-style-type: none"><li>• Understand how to use the order of operations including roots</li><li>• Know the vocabulary of enlargement</li><li>• Find the centre of enlargement</li><li>• Find the scale factor of an enlargement</li><li>• Use the centre and scale factor to carry out an enlargement with positive integer (fractional) scale factor</li><li>• Know and understand the vocabulary of plans and elevations</li><li>• Interpret plans and elevations</li><li>• Use the concept of scaling in diagrams</li><li>• Measure and state a specified bearing</li><li>• Construct a scale diagram involving bearings</li><li>• Use bearings to solve geometrical problems</li><li>• Identify alternate angles and know that they are equal</li><li>• Identify corresponding angles and know that they are equal</li><li>• Use knowledge of alternate and corresponding angles to calculate missing angles in geometrical diagrams</li></ul> |  |  |  |
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| <ul style="list-style-type: none"><li>• Establish the fact that angles in a triangle must total <math>180^\circ</math></li><li>• Use the fact that angles in a triangle total <math>180^\circ</math> to work out the total of the angles in any polygon</li><li>• Establish the size of an interior angle in a regular polygon</li><li>• Know the total of the exterior angles in any polygon</li><li>• Establish the size of an exterior angle in a regular polygon</li></ul> |  |  |  |
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