

# YEAR 9 OVERVIEW – Maths

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>White Rose Maths - Year 9</b>	<b>Straight line graphs</b> <ul style="list-style-type: none"> <li>Revisit straight line graphs <math>y=8</math></li> <li>Reduce equations to the form <math>y = mx + c</math></li> <li>Compare to linear sequences and find the rule for the <math>n^{\text{th}}</math> term</li> </ul>	<b>Three-dimensional shapes</b> <ul style="list-style-type: none"> <li>Understand the language of faces, edges and vertices</li> <li>Know the names of common prisms and non-prisms</li> <li>Identify 2-D shapes within 3-D shapes</li> <li>Work out the volume and surface area of cuboids and cylinders</li> <li>Work out the volume of any prism</li> <li>Work out missing lengths given area and/or volume</li> <li>Careers Lesson – Quantity Surveyor</li> </ul>	<b>Using percentages</b> <ul style="list-style-type: none"> <li>Revisit percentage increase and decrease</li> <li>Use percentages over 100%</li> <li>Find percentage changes</li> <li>Use multipliers in a variety of contexts</li> <li>Solve “reverse percentage” problems</li> </ul>	<b>Rotation and translation</b> <ul style="list-style-type: none"> <li>Identify the order of rotational symmetry of a shape</li> <li>Find the result of rotating a shape</li> <li>Translate points and shapes by a given vector</li> <li>Understand variance and invariance in the context of transformations</li> </ul>	<b>Solving ratio &amp; proportion problems</b> <ul style="list-style-type: none"> <li>Direct proportion problems and graphs</li> <li>Conversion graphs</li> <li>Solve ratio problems given the whole or a part</li> <li>Simple inverse proportion</li> <li>Unit pricing problems ('best buys')</li> </ul>	<b>Algebraic representation</b> <ul style="list-style-type: none"> <li>Drawing and reading from quadratics</li> <li>Interpret other graphs e.g. reciprocal, piece-wise</li> <li>Represent inequalities</li> </ul>
	<b>Forming and solving equations</b> <ul style="list-style-type: none"> <li>Revisit and extend to equations and inequalities with unknown on both sides using all previous contexts: angles, probability, area etc</li> <li>Change the subject of a formula</li> </ul>	<b>Construction and congruency</b> <ul style="list-style-type: none"> <li>Construct 3-D shapes from nets, and construct the net of a given 3-D shape</li> <li>Construct and use scale drawings</li> <li>Construct perpendicular and bisectors</li> <li>Understand congruency</li> <li>Exploring congruency via construction</li> </ul>	<b>Maths and money</b> <ul style="list-style-type: none"> <li>Explore financial mathematics including: Bills and bank statements, Interest, Unit pricing (best buy)</li> <li>Careers Lesson – Travel Agent</li> </ul>	<b>Pythagoras' theorem</b> <ul style="list-style-type: none"> <li>Identify the hypotenuse of a right-angled triangle</li> <li>Determine whether a triangle is right-angled</li> <li>Calculate missing sides in right-angled triangles</li> </ul>	<b>Rates</b> <ul style="list-style-type: none"> <li>Work with speed, distance, time</li> <li>Solve problems involving density</li> <li>Work with compound units</li> <li>Careers Lesson – Air Traffic Controller</li> </ul>	<b>Congruence, similarity and enlargement</b> <ul style="list-style-type: none"> <li>Understand the difference between congruence and similarity</li> <li>Enlarge a shape about a given point, understand and use similarity</li> <li>Find missing sides in similar shapes including pairs of similar triangles</li> <li>Understand and use the conditions for a pair of congruent triangles</li> </ul>
	<b>Testing conjecture</b> <ul style="list-style-type: none"> <li>Test conjectures in a wide range of context e.g. Sums and products of odd and even numbers, is a given number in a sequence? Is this shape...? Are these lines parallel? What would happen if...?</li> </ul>	<b>Number</b> <ul style="list-style-type: none"> <li>Revisit types of number – extend to include rational and real numbers</li> <li>Revisit fraction arithmetic</li> <li>Extend knowledge of HCF and LCM</li> <li>Revisit standard form</li> </ul>	<b>Deduction</b> <ul style="list-style-type: none"> <li>Revisit angle rules, including within special quadrilaterals</li> <li>Find angles within algebraic methods</li> <li>Use chains of reasoning to evaluate angles</li> </ul>	<b>Enlargement and similarity</b> <ul style="list-style-type: none"> <li>Enlarge shapes by a positive scale factor, including from a given point</li> <li>Calculate the lengths of missing sides in similar shapes</li> </ul>	<b>Probability</b> <ul style="list-style-type: none"> <li>Relative frequency</li> <li>Expected number of outcomes</li> <li>Independent events</li> </ul>	<b>Trigonometry</b> <ul style="list-style-type: none"> <li>Understand trigonometric ratios</li> <li>Work out missing lengths and angles in right-angled triangles</li> <li>Know and use exact values of key angles</li> </ul>