

## Year 9 Mathematics Curriculum Map 2019-20

	Autumn Term	Spring Term	Summer Term
<b>Unit Length</b>	<p><b><u>Foundation and Higher</u></b>  <b>Unit 1</b> - Number: 7 weeks  <b>Unit 2</b> – Algebra: 7 weeks</p>	<p><b><u>Foundation</u></b>  <b>Unit 3</b> – Graphs, tables and charts –4 weeks  <b>Unit 4</b> – Fractions, decimals and percentages – 5 weeks  <b>Unit 5</b> – Equations, inequalities and sequences – 4 weeks</p> <p><b><u>Higher</u></b>  <b>Unit 3</b> – Interpreting and representing data –4 weeks  <b>Unit 4</b> – Fractions, ratio and percentages – 4 weeks  <b>Unit 5</b> – Angles, Pythagoras and trigonometry – 4 weeks</p>	<p><b><u>Foundation</u></b>  <b>Unit 6</b> – Angles –3 weeks  <b>Unit 7</b> – Averages – 3 weeks  <b>Unit 8</b> – Area and Volume – 4 weeks</p> <p><b><u>Higher</u></b>  <b>Unit 6</b> – Graphs –4 weeks  <b>Unit 7</b> – Area and Volume – 4 weeks  <b>Unit 8</b> – Transformations – 2 weeks</p>
<b>Assessment Objectives</b>	<p><b>AO1</b> Use and apply standard techniques (Foundation 50%, Higher 40%)  <b>AO2</b> Reason, interpret and communicate mathematically (Foundation 25%, Higher 30%)  <b>AO3</b> Solve problems within mathematics and in other contexts (Foundation 25%, Higher 30%)</p>		
<b>Description of the topic and key learning outcomes.</b>	<p><b><u>Foundation</u></b>  <b>Unit 1 - Number:</b> students will study calculations with the four operations, decimals, place value, factors, multiples, squares, cubes, roots, indices and prime factors.  <b>Unit 2 – Algebra:</b> students will study expressions, simplifying algebra, substitution, formulae, expanding brackets and factorising.</p>	<p><b><u>Foundation</u></b>  <b>Unit 3 – Graphs, tables and charts:</b> students will study various ways to represent and interpret data such as two way tables, pie charts and scatter graphs.  <b>Unit 4 – Fractions and percentages :</b> students will study calculating with fractions, converting between fractions, decimals and percentages and calculating percentages.  <b>Unit 5 – Equations, inequalities and sequences :</b> students will study solving equations, inequalities formulae and sequences.</p>	<p><b><u>Foundation</u></b>  <b>Unit 6 – Angles:</b> students will study properties of shapes, angles in parallel lines and interior and exterior angles in polygons.  <b>Unit 7 - Averages :</b> students will study calculating the mode, median, mean and range from a set of data. They will then go on to study averages from frequency tables and sampling methods.  <b>Unit 8 – Area and Volume:</b> students will study the perimeter and area of rectangles, triangles, parallelograms and trapezium. They will then apply this to areas of compound shapes. They will finish the unit by calculating the surface area and volume of prisms.</p>

	<p><b>Higher students</b></p> <p><b>Unit 1 - Number:</b> students will study place value and estimating, highest common factor and lowest common multiple, indices, standard form and surds.</p> <p><b>Unit 2 – Algebra:</b> students will study algebraic indices, expanding and factorising (including quadratics), equations, formulae, linear and quadratic sequences.</p>	<p><b>Higher</b></p> <p><b>Unit 3 – Interpreting and representing data:</b> students will study various ways to represent data such as to wat tables, time series graphs and scatter graphs. They will then focus on interpreting data with the use of averages and lines of best fit.</p> <p><b>Unit 4 – Fractions, ratio and percentages :</b> students will study calculating with fractions, ratios, proportion, percentage calculations and converting between fractions, decimals and percentages.</p> <p><b>Unit 5 – Angles and trigonometry:</b> students will study interior and exterior angles in polygons, Pythagoras’ Theorem and calculating missing sides and angles using trigonometry (SOHCAHTOA).</p>	<p><b>Higher</b></p> <p><b>Unit 6 – Graphs:</b> students will study linear graphs, equations of straight lines, rates of change, real-life graphs, quadratic, cubic and reciprocal graphs.</p> <p><b>Unit 7 – Area and Volume:</b> students will study perimeter and area of 2D shapes, units and accuracy, circles and sectors, prisms, cylinders, spheres, pyramids and cones.</p> <p><b>Unit 8 – Transformations and constructions:</b> students will study plans and elevations, reflection, rotation, translation and enlargement. Following this will be bearings, scale drawings, constructions and loci.</p>
Assessment objectives and skills being taught	AO1, AO2 & AO3	AO1, AO2 & AO3	AO1, AO2 & AO3
Milestone assessments	<p>w/c 4<sup>th</sup> December</p> <p>Milestone assessment on all work covered since September (Units 1 and 2)</p>	<p>w/c 23<sup>rd</sup> April</p> <p>Milestone assessment on all work covered since December (Units 3,4 and 5)</p>	<p>w/c 25<sup>th</sup> June</p> <p>Milestone assessment on all work covered over the course of the year (Unit 1-8)</p>
Wider reading	<p><b>Foundation Students</b></p> <p>Research the history of algebra. Where did the word algebra derive from? Which civilizations introduced algebra? Who were the early pioneers?</p> <p><b>Higher students</b></p> <p>Research the history of algebra. Where did the word algebra derive from? Which civilizations introduced algebra? Who were the early pioneers?</p>	<p><b>Foundation Students</b></p> <p>Investigate Egyptian fractions. What are they? How did they work? Are they still used anywhere today? What are the benefits and drawbacks of Egyptian fractions?</p> <p>Investigate misleading graphs. Where can they be seen? Why would the media use misleading charts or graphs?</p> <p><b>Higher students</b></p> <p>Research Greek Mathematician Pythagoras of Samos.</p> <p>Investigate some careers where Pythagoras and trigonometry skills could be required.</p>	<p><b>Foundation Students</b></p> <p>Investigate where averages are used in everyday life. What jobs might require you to work with averages.</p> <p><b>Higher students</b></p> <p>Investigate quadratic graphs. What do they look like? Where might quadratic graphs be used in real life?</p>

Literacy programme	<p><b>All Students:</b>  Definition and spelling tests., glossary/keyword bank, breaking down problem solving questions and explaining answers in full sentences.</p>
Independent Learning Tasks	<p>Knowledge organiser. PiXL Maths App. Weekly homeworks</p>
RRSA	<p>Article 2 – Non discrimination  Article 12 – Respect for the views of the child  Article 13 – Freedom of expression  Article 14 – Freedom of thought, belief and religion  Article 15 – Freedom of association  Article 16 – Right to privacy  Article 23 – Right to a full life if child with disability  Article 28 – Right to education  Article 29 – Goals of education  Article 42 – Knowledge of rights</p>
CEI	<p>The specific value of maths as a required or preferred subject for particular careers, e.g.:</p> <ul style="list-style-type: none"> <li>• Engineers and engineering technicians</li> <li>• Surveyors and surveying technicians</li> <li>• Systems analysts</li> <li>• Actuaries</li> <li>• Accountants</li> <li>• Operational researchers</li> <li>• Chemists</li> <li>• Software engineers</li> <li>• Statisticians</li> <li>• Graphical Designers</li> <li>• Architecture</li> <li>• Finance</li> <li>• Nursing (Calculating the percentage of medicine given to patients daily)</li> </ul>