

## SoW Outline Summer 2020 Year 7

This document provides an overview and possible timetable for some key topics and skills practice that students could work on whilst normal lessons are disrupted.

This is based on the Hampshire Scheme of Learning, which is available to schools subscribing to Moodle Plus' (<https://maths.hias.hants.gov.uk>) and seeks to cover a wide range of key ideas across the domains of the maths curriculum.

It is important that teachers provided a range of tasks to support the objectives as appropriate to their students. This should include a variety of tasks that are accessible from home such as teacher prepared materials and problem-solving opportunities such as those provided by 'Nrich'.

<https://nrich.maths.org/>

In this way, we are aiming for all students to experience the best study aids and opportunities, given the circumstances under which we are all working.

In addition to this, we will offer one or two 'Problems of the Week' for each unit to support teachers and students with further study.

### Summer 1

Week	Domain	Unit Objectives
1	Geometry: angle and transformations	<ul style="list-style-type: none"> <li>Apply the properties of angles at a point, angles at a point on a straight line and vertically opposite angles</li> <li>Identify properties of, and describe the results of, translations, rotations and reflections applied to given figures</li> </ul>
2	Statistics: Averages and distributions	<ul style="list-style-type: none"> <li>Describe, interpret and compare observed distributions of a single variable through data sets from univariate empirical distributions through appropriate measures of central tendency (mean, mode and median) and spread (range)</li> </ul>
3	Geometry: Area and Volume	<ul style="list-style-type: none"> <li>Derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders)</li> <li>Calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes</li> </ul>
4	Algebra: Substituting and solving linear equations	<ul style="list-style-type: none"> <li>Substitute numerical values into formulae and expressions, including scientific formulae</li> <li>Simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms and multiplying a single term over a bracket</li> <li>Use algebraic methods to solve linear equations in one variable</li> </ul>
5	Number: Fractions, decimals and percentages	<ul style="list-style-type: none"> <li>Order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, &lt;, &gt;, ≤, ≥</li> <li>Use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative</li> <li>Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8)</li> </ul>

## Summer 2

Week	Domain	Unit Objectives
1	Statistics: Averages and distributions	Construct and interpret appropriate tables, charts and diagrams including: <ul style="list-style-type: none"> <li>• frequency tables, bar charts and pictograms for categorical data</li> <li>• pie charts for categorical data</li> <li>• vertical line (or bar) charts for ungrouped numerical data</li> </ul>
2	Algebra: Sequences	<ul style="list-style-type: none"> <li>• Generate terms of a sequence from either a term-to-term or a position-to-term rule</li> <li>• Recognise arithmetic sequences and find the nth term</li> </ul>
3	Percentages	<ul style="list-style-type: none"> <li>• Express one quantity as a percentage of another</li> <li>• Compare two quantities using percentages</li> <li>• Use standard units of measure to solve problems involving percentages, including mass, length, time, money with integer and decimal quantities.</li> </ul>
4	Geometry: Volume and 3D shape	<ul style="list-style-type: none"> <li>• Use the properties of the faces, surface, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones and spheres to solve problems in 3-D</li> <li>• Derive and apply formulae to calculate the volume of cubes and cuboids.</li> </ul>
5	Ratio and proportion: Notation and part: whole	<ul style="list-style-type: none"> <li>• Use ratio notation, including reduction to the simplest form to solve problems.</li> <li>• Divide a given quantity into two parts in a given part: part or part: whole ratio.</li> </ul>
6	Factors, multiples and indices	<ul style="list-style-type: none"> <li>• Use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest common factor and lowest common multiple</li> <li>• Use integer powers and associated real roots (square, cube and higher), recognise powers of 2,3,4,5</li> </ul>
7	Number and PV, including rounding and approximation	<ul style="list-style-type: none"> <li>• Understand and use place value for decimals</li> <li>• Round numbers and measures to an appropriate degree of accuracy (for example, to a number of decimal places or significant figures)</li> <li>• Use approximation through rounding to estimate answers</li> </ul>