



# Mathematics

Year 9

**Week 1: continuing from Term #2 Averages and Data handling**

**Week 2-4: Revision lesson for CIE Checkpoint Examination; CIE Checkpoint Examinations (May 6<sup>th</sup>) and beginning Number Sequences (8 hours)**

	Level	Objectives
Substitution	4	<ul style="list-style-type: none"> <li>Simplify expressions by collecting like terms.</li> </ul>
	5	<ul style="list-style-type: none"> <li>Substitute integers into a given formula.</li> </ul>
	5	<ul style="list-style-type: none"> <li>Use formulae in spreadsheets to manipulate variables.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Substitute decimals, fractions and negative numbers into given formulae.</li> </ul>
nth term	4	<ul style="list-style-type: none"> <li>Generate and describe simple sequences.</li> </ul>
	5	<ul style="list-style-type: none"> <li>Generate sequences using fill functions on a spreadsheet.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Use linear expressions to use the nth term of a sequence.</li> </ul>
	8	<ul style="list-style-type: none"> <li>Find the nth term of quadratic and other more difficult sequences.</li> </ul>
	All	<ul style="list-style-type: none"> <li>Solve problems by reducing them to algebraic models.</li> </ul>

**Week 5 & 6: Transformations (8hrs)**

Reflection	4	<ul style="list-style-type: none"> <li>Reflect simple shapes in a mirror line.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Give equations of mirror lines.</li> </ul>
Rotation	5	<ul style="list-style-type: none"> <li>Rotate 2D shapes around a given centre of rotation.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Find a centre of rotation.</li> </ul>
Enlargement	5	<ul style="list-style-type: none"> <li>Enlarge shapes by a positive integer scale factor.</li> </ul>
	7	<ul style="list-style-type: none"> <li>Enlarge shapes by a fractional scale factor.</li> </ul>
	7	<ul style="list-style-type: none"> <li>Enlarge shapes by a negative scale factor.</li> </ul>
Translation	5	<ul style="list-style-type: none"> <li>Translate a 2D shape.</li> </ul>
	Extension	<ul style="list-style-type: none"> <li>Use vector notation for translations.</li> </ul>

**Week 8 & 9: Probability (8 hrs)**

Probability	5	<ul style="list-style-type: none"> <li>Understand and use the probability scale from 0-1.</li> </ul>
	5	<ul style="list-style-type: none"> <li>Find probabilities based on equally likely outcomes.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Find the relative frequency based on experimental evidence.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Understand that different outcomes may result from repeating an experiment.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Use sample space diagrams.</li> </ul>
	6	<ul style="list-style-type: none"> <li>Use the fact that mutually exclusive events add up to 1.</li> </ul>
	8	<ul style="list-style-type: none"> <li>Use tree diagrams for compound events.</li> </ul>
	Extension	<ul style="list-style-type: none"> <li>Use tree diagrams to solve problems with no replacement.</li> </ul>

**Week 10 & 11: Using and Applying Mathematics**

Using and applying Mathematics to solve problems	7	▪ Solve substantial problems by breaking them into simpler tasks, using a range of efficient techniques, methods and resources, including ICT.
	7	▪ Present a concise, reasoned argument, using symbols, diagrams, graphs and related explanatory text; give solutions to problems an appropriate degree of accuracy.
	8	▪ Generate fuller solutions to problems.
	Extension	▪ Recognise limitations on accuracy of data and measurements.

**Week 12: Calculators and Computers**

Calculators and Computers	Extension	▪ Using of scientific calculators, graphical calculators and computer software.
	Extension	▪ Investigating an activity by using Calculators and Maths software.

**Week 13: Revision and test/exam week****Week 14 & 15: Beginning IGCSE Mathematics on Numbers**

- Number, set notation and
- Language
- Standard form
- Squares, square roots and
- Cubes
- Directed numbers
- Vulgar and decimal fractions and percentages