

## S5/6 National 5 Maths – Success Criteria

### Skills, knowledge and understanding for the course:

- ✓ Understand and use mathematical concepts and relationships.
- ✓ Select and apply numerical skills.
- ✓ Select and apply skills in algebra, geometry, trigonometry and statistics.
- ✓ Use mathematical models.
- ✓ Use mathematical reasoning skills to interpret information, to select a strategy to solve a problem, and to communicate solutions.

### Skills, knowledge and understanding for the assessment:

Topic	I can...
<b>Percentages &amp; Fractions</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Round to any number of significant figures</li> <li><input type="checkbox"/> Calculate compound interest</li> <li><input type="checkbox"/> Find the value of an item after it has appreciated/depreciated in price over several years</li> <li><input type="checkbox"/> Find the original price of an item after its value has increased/decreased</li> <li><input type="checkbox"/> Add, subtract, multiply &amp; divide fractions including mixed numbers</li> <li><input type="checkbox"/> Use BODMAS</li> </ul>
<b>Pythagoras</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Calculate and side of a right angled triangle</li> <li><input type="checkbox"/> Recognise a right angled triangle within a circle problem and use Pythagoras to solve it</li> <li><input type="checkbox"/> Prove whether a triangle is right angled or not by using the converse of Pythagoras</li> <li><input type="checkbox"/> Find the length of a diagonal in a 3D shape by using Pythagoras twice</li> </ul>
<b>Vectors</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Add &amp; subtract 2D &amp; 3D vectors</li> <li><input type="checkbox"/> Write the pathway of a vector</li> <li><input type="checkbox"/> Find the magnitude of a 2D &amp; 3D vector</li> </ul>
<b>Trigonometry</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use SOH CAH TOA to find any side or angle in a right angled triangle</li> <li><input type="checkbox"/> Calculate the area of any triangle using the area formula</li> <li><input type="checkbox"/> Calculate a side or angle in a triangle using the Sine rule</li> <li><input type="checkbox"/> Calculate a side or angle in a triangle using the Cosine rule</li> <li><input type="checkbox"/> Use bearings alongside Trigonometry calculations</li> </ul>
<b>Equation of a Straight Line</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Find the gradient between two points using the gradient formula</li> <li><input type="checkbox"/> Read the gradient and y-intercept from a graph</li> <li><input type="checkbox"/> Rearrange an equation into the form <math>y = mx + c</math> to read off the gradient and y-intercept</li> <li><input type="checkbox"/> Use <math>y - b = m(x - a)</math> to find the equation of a straight line</li> </ul>
<b>Statistics</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Find the mean, median, mode &amp; range from a set of data</li> <li><input type="checkbox"/> Calculate the semi interquartile range</li> <li><input type="checkbox"/> Calculate the standard deviation</li> <li><input type="checkbox"/> Make comparisons between two means, medians, semi interquartile ranges &amp; standard deviations</li> <li><input type="checkbox"/> Find the equation of a line of best fit on a scattergraph and use this equation to estimate answers</li> </ul>
<b>ASSESSMENT 1</b>	
<b>Volume of Solids</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Calculate the volume of a cuboid, prism, cylinder, sphere, cone &amp; pyramid</li> <li><input type="checkbox"/> Calculate the volume of a composite shapes</li> <li><input type="checkbox"/> Calculate either the radius, diameter or height of a shape given the volume</li> </ul>

<b>Arcs &amp; Sectors</b>	<input type="checkbox"/> Calculate the length of an arc <input type="checkbox"/> Calculate the area of a sector <input type="checkbox"/> Find the angle given either the arc length or sector area
<b>Multiplying Brackets &amp; Factorising</b>	<input type="checkbox"/> Expand a single bracket <input type="checkbox"/> Expand two single brackets and simplify <input type="checkbox"/> Expand double brackets <input type="checkbox"/> Multiply a linear term by a quadratic term <input type="checkbox"/> Find a common factor <input type="checkbox"/> Recognise and factorise the difference of two squares <input type="checkbox"/> Factorise trinomials with $1x^2$ <input type="checkbox"/> Factorise trinomials with $2x^2, 3x^2$ etc
<b>Completing the Square</b>	<input type="checkbox"/> Write quadratics in completed square form $(x + a)^2 + b$
<b>Surds &amp; Indices</b>	<input type="checkbox"/> Simplify surds <input type="checkbox"/> Add & subtract surds <input type="checkbox"/> Multiply & divide surds <input type="checkbox"/> Rationalise the denominator of a fraction <input type="checkbox"/> Multiply & divide indices <input type="checkbox"/> Increase the power of an index <input type="checkbox"/> Change fractional indices into surds <input type="checkbox"/> Change negative indices into fractions
<b>Scientific Notation</b>	<input type="checkbox"/> Change very large numbers into scientific notation <input type="checkbox"/> Change very small numbers into scientific notation <input type="checkbox"/> Do scientific calculations using a calculator <input type="checkbox"/> Decide whether to add, subtract, multiply or divide to solve problems
<b>FAB 1 ASSESSMENT</b>	
<b>Algebraic Fractions</b>	<input type="checkbox"/> Simplify algebraic fractions by cancelling the same from the top and bottom <input type="checkbox"/> Simplify algebraic fractions by factorising first <input type="checkbox"/> Add, subtract, multiply & divide algebraic fractions
<b>Change the Subject</b>	<input type="checkbox"/> Rearrange an equation so that a different letter is at the front
<b>Simultaneous Equations</b>	<input type="checkbox"/> Write equations from the context of the question <input type="checkbox"/> Solve algebraically <input type="checkbox"/> Use simultaneous equations to find the coordinate of where two lines meet
<b>Similarity</b>	<input type="checkbox"/> Show that two shapes are similar <input type="checkbox"/> Calculate the length of a side <input type="checkbox"/> Calculate the area of a shape <input type="checkbox"/> Calculate the volume of a shape
<b>Equations &amp; Inequalities</b>	<input type="checkbox"/> Solve equations with $x$ on both sides <input type="checkbox"/> Solve equations which include fractions <input type="checkbox"/> Solve the above as inequalities
<b>Graphs of Quadratic Functions</b>	<input type="checkbox"/> Substitute numbers into functions and evaluate <input type="checkbox"/> Substitute letters into functions <input type="checkbox"/> Given the evaluation find the value of the letter <input type="checkbox"/> Draw functions by plotting points <input type="checkbox"/> Recognise and draw equations of the form $y = kx^2$ <input type="checkbox"/> Recognise and draw equations of the form $y = (x + p)^2 + q$ <input type="checkbox"/> Recognise and draw equations of the form $y = (x + a)(x + b)$ <input type="checkbox"/> Write down the nature, turning point & equation of the axis of symmetry

<b>Quadratic Equations</b>	<input type="checkbox"/> Solve given the factorised form <input type="checkbox"/> Solve by factorising first <input type="checkbox"/> Solve by using the quadratic formula <input type="checkbox"/> Use the discriminant to decide how many roots a function has
<b>Properties of 2D Shapes</b>	<input type="checkbox"/> Identify right angled triangles within circles using the tangent rule (a tangent meets the radius at a right angle) <input type="checkbox"/> Identify right angled triangles within circles using the diameter rule (the diameter forms a triangle and meets the circle at a right angle) <input type="checkbox"/> Use two radii to form an isosceles triangle <input type="checkbox"/> Use the above to find missing angles <input type="checkbox"/> Calculate angles in polygons
<b>Trig Equations &amp; Graphs</b>	<input type="checkbox"/> Draw and recognise $y = \sin(x)$ , $y = \cos(x)$ , $y = \tan(x)$ <input type="checkbox"/> Draw and recognise $y = a\sin(x)$ , $y = a\cos(x)$ <input type="checkbox"/> Draw and recognise $y = \sin(ax)$ , $y = \cos(ax)$ <input type="checkbox"/> Draw and recognise $y = \sin(x) + b$ , $y = \cos(x) + b$ <input type="checkbox"/> Draw and recognise $y = \sin(x - d)$ , $y = \cos(x - d)$ <input type="checkbox"/> Draw and recognise a combination of the above <input type="checkbox"/> Solve trig equations <input type="checkbox"/> Use the Trig Identities
<b>FAB 2 ASSESSMENT</b>	

**What will be taken into consideration when deciding on a teacher-estimated grade for S5/6 National 5 Mathematics?**

- Internal Assessment 1 assessing 30% of the course.
- FAB 1 Assessment (Dec) assessing 55% of the course.
- FAB 2 Assessment (Feb/March) assessing 100% of the course.
- Commitment and Quality in class/homework.
- Attendance at Supported Study.