

## Years 10 and 11

Required previous learning	Unit 1: Perimeter		Prerequisite for Unit		
Y9 - N Algebraic formulae			19 Circle theorems		
Learning outcomes		OCR specification references			
			Initial learning	Secure learning	Greater depth
Perimeter of simple and composite shapes	<ul style="list-style-type: none"> <li>To calculate the perimeter of a given simple shape, including the use of properties of triangles, quadrilaterals and regular polygons</li> <li>To understand that the perimeter of a shape is its boundary and what a boundary is for a composite shape where a smaller shape has been removed from the centre of a larger shape</li> <li>To calculate the perimeter of composite shapes</li> <li>To form expressions and equations for the perimeter of a given shape and solve these equations to find unknown lengths</li> </ul>	10.02a			
		10.02c			
Circumference of a circle	<ul style="list-style-type: none"> <li>To know and use a formula (either <math>C = \pi D</math> or <math>C = 2\pi r</math>) for the circumference of a circle to find the value of one variable given any other, e.g. <math>D</math> given <math>C</math></li> <li>To know how find the arc length of a given sector and hence the perimeter of this shape</li> </ul>	3.03a			
		8.05a			
		10.02b			
Problems involving perimeter and circumference	<ul style="list-style-type: none"> <li>To use known perimeter formulae to solve contextual problems</li> </ul>	10.02c			

**Required previous learning**

Y9 - B Whole number theory  
 Y9 - E Properties of shapes and solids

**Unit 2: Area****Prerequisite for Units**

10 Volume and surface area  
 19 Circle theorems  
 24 Interpreting graphs

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Area of polygons	<ul style="list-style-type: none"> <li>To know and use the formulae for calculating the area of rectangles, triangles, parallelograms and trapeziums</li> <li>To identify how composite shapes have been formed using these four shapes and use the formulae to calculate the total area of the composite shape</li> <li>To form algebraic expressions for the area of a shape given expressions for lengths of the shape</li> </ul>	10.03a		
		10.03b		
		10.03c		
Areas of circles and sectors	<ul style="list-style-type: none"> <li>To know and use the formula for calculating the area of a circle</li> <li>To adapt this formula to find the area of a sector given the angle formed at the centre between the radii using fractions of the whole</li> </ul>	8.05a,		
		10.03d		
Areas of composite shapes	<ul style="list-style-type: none"> <li>To split composite shapes into the sum of known shapes</li> <li>To recognise that the area of some composite shapes can be found by subtracting known areas from a larger shape</li> </ul>	10.03e		

**Required previous learning**

Y9 - E Properties of shapes and solids

**Unit 3: Angles****Prerequisite for Units**

16 Plane isometric transformations

17 Congruent triangles

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Angle facts	<ul style="list-style-type: none"> <li>To recall knowledge of basic angle facts including: vertically opposite angles, angles on a straight line and angles around a point</li> <li>To be able to apply basic angle facts to find the size of missing angles in various scenarios</li> </ul>	8.01b		
		8.03a		
		8.03b		
		8.03c		
Parallel lines and angles	<ul style="list-style-type: none"> <li>To recall knowledge of angle facts relating to parallel lines including: corresponding angles, alternate angles and co-interior angles</li> <li>To be able to apply basic angle facts and those relating to parallel lines to find the size of missing angles in various scenarios</li> </ul>	8.03c		
Angles in triangles	<ul style="list-style-type: none"> <li>To understand a proof for the sum of the interior angles of a triangle being 180 degrees</li> <li>To understand a proof for the exterior angle of a triangle being equal to the sum of the opposite interior angles</li> </ul>	8.03c		
Angles in polygons	<ul style="list-style-type: none"> <li>To be able to calculate the sum of the interior angles of any polygon</li> <li>To be able to calculate the size of a single interior angle of a regular polygon</li> <li>To be able to calculate the size of a single exterior angle of a regular polygon</li> </ul>	8.03d		

**Required previous learning**

Y9 - D Functions and sequences

Y9 - L Algebraic formulae

**Unit 4: Straight-line graphs****Prerequisite for Units**

5 Graphs of equations and functions

23 Analysing data

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Plotting graphs	<ul style="list-style-type: none"> <li>To use a table of values to plot graphs of linear functions</li> </ul>	7.01a,		
		7.01b		
Using the features of straight-line graphs	<ul style="list-style-type: none"> <li>To identify the main features of straight-line graphs and use them to sketch graphs</li> <li>To sketch graphs from linear equations in the form of <math>y = mx + c</math></li> <li>To find the equation of a straight line using gradient and points on the line</li> </ul>	7.02a		
Parallel lines, perpendicular lines, and tangents	<ul style="list-style-type: none"> <li>To identify lines that are parallel by considering their equations</li> <li>To find the equation of a line parallel to a given line (perhaps passing through a known point)</li> <li>To find the equation of a tangent that touches a circle centred on the origin</li> </ul>	7.02b		
Working with straight-line graphs	<ul style="list-style-type: none"> <li>To solve problems involving straight-line graphs</li> </ul>	7.01b		
		7.02a		
		7.02b		

**Required previous learning**

Y9 - H Equations  
4 Straight-line graphs

**Unit 5: Graphs of equations and functions****Prerequisite for Units**

16 Plane isometric transformations  
26 Transformations of curves and their equations

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Review of linear graphs	<ul style="list-style-type: none"> <li>To be able to work fluently with equations of straight-line graphs</li> </ul>	7.01a		
		7.01b		
		7.02a		
		7.02b		
Graphs of quadratic functions	<ul style="list-style-type: none"> <li>To be able to identify and plot graphs of quadratic functions i.e. parabolas</li> <li>To find roots of quadratic equations from the <math>x</math>-intercept of the parabola of the quadratic equation that defines the graph</li> <li>To know the features of graphs of quadratic equations</li> <li>To be able to sketch parabolas</li> </ul>	7.01c		
Graphs of other polynomials and reciprocals	<ul style="list-style-type: none"> <li>To work fluently with cubic polynomials and their graphs</li> <li>To be able to sketch cubic graphs</li> <li>To work fluently to calculate reciprocals of numbers and plot functions involving reciprocals</li> <li>To identify hyperbolas and match them to their equations</li> </ul>	7.01c		
Exponential functions	<ul style="list-style-type: none"> <li>To plot and sketch graphs from given functions</li> <li>To recognise linear, quadratic and reciprocal graphs</li> <li>To identify and plot exponential graphs</li> <li>To identify and plot trigonometric graphs</li> </ul>	7.01b		
		7.01d		
Circles and their equations	<ul style="list-style-type: none"> <li>To represent a circle given its centre on the origin and radius <math>r</math> by a function</li> <li>To identify equations of circles from their graphs</li> </ul>	7.01f		

**Required previous learning**

Y9 - E Properties of shapes and solids

**Unit 6: Three-dimensional shapes****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other units.

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Review of 3D solids	<ul style="list-style-type: none"> <li>To apply what you already know about the properties of 3D objects</li> </ul>	8.06a		
Drawing 3D objects	<ul style="list-style-type: none"> <li>To work with 2D representations of 3D objects</li> </ul>	8.01e		
		8.06b		
Plan and elevation views	<ul style="list-style-type: none"> <li>To construct and interpret plans and elevations of 3D objects</li> </ul>	8.06b		

**Required previous learning**

Y9 - A Basic calculation skills

**Unit 7: Powers and roots****Prerequisite for Units**

14 Standard form

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Index notation	<ul style="list-style-type: none"> <li>To write a series of numbers multiplied together in index form</li> <li>To write an exponent on a calculator</li> <li>To understand zero and negative indices</li> </ul>	3.01a		
The laws of indices	<ul style="list-style-type: none"> <li>To apply the laws of indices for multiplying and dividing, and for powers of indices</li> <li>To work with fractional indices and understand the link to surds</li> </ul>	3.01a		
		3.01b		
		3.01c		
		6.01c		
Working with powers and roots	<ul style="list-style-type: none"> <li>To calculate roots of a number</li> <li>To solve problems involving powers and roots</li> </ul>	3.01b		

**Required previous learning**

Y9 - G Further algebraic expressions

7 Powers and roots

**Unit 8: Surds****Prerequisite for Units**

9 Trigonometry

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Approximate and exact values	<ul style="list-style-type: none"> <li>To use a calculator to approximate the values of numbers involving surds</li> <li>To calculate exact solutions to problems using surds</li> </ul>	3.03a		
Manipulating surds	<ul style="list-style-type: none"> <li>To simplify expressions containing surds</li> <li>To manipulate surds when multiplying and dividing</li> <li>To rationalise the denominator of a fraction</li> </ul>	3.03b		
Working with surds	<ul style="list-style-type: none"> <li>To apply an understanding of surds to solve more complex problems</li> <li>To use surds in Pythagoras' theorem questions</li> </ul>	3.03a		
		3.03b		
		10.05a		



**Required previous learning**

Y9 - M Approximation and estimation

8 Surds

**Unit 9: Trigonometry****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other unit.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Trigonometry in right-angled triangles	<ul style="list-style-type: none"> <li>Use the trigonometric ratios given by the sine, cosine and tangent functions to find unknown lengths and angles in 2D right-angled triangles</li> </ul>	10.05b		
Exact values of trigonometric ratios	<ul style="list-style-type: none"> <li>Know the exact ratios given by sine and cosine of 0, 30, 45, 60 and 90 degrees and the exact ratios given by the tangent function for 0, 30, 45 and 60 degrees</li> </ul>	10.05c		
The sine, cosine and area rules	<ul style="list-style-type: none"> <li>To use the sine rule, cosine rule and sine area rule to solve problems relating to unknown sides, angles and areas in non-right-angled triangles</li> </ul>	6.02d		
		10.03a		
		10.05d		
		10.05e		
Using trigonometry to solve problems	<ul style="list-style-type: none"> <li>Know the difference between an angle of depression and an angle of elevation</li> <li>Identify when the trigonometric ratios must be used instead of Pythagoras' theorem to solve 2D problems relating to right-angled triangles, including contextual problems</li> </ul>	10.05b		
		10.05c		
		10.05d		
		10.05e		
		6.02d		
Graphs of trigonometric functions	<ul style="list-style-type: none"> <li>To identify and plot trigonometric graphs</li> </ul>	7.01e		

**Required previous learning**

2 Area

**Unit 10: Volume and surface area****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other units.

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Prisms and cylinders	<ul style="list-style-type: none"> <li>To calculate the volume of prisms (including cylinders)</li> <li>To calculate the surface area of prisms (including cylinders)</li> </ul>	10.04a		
Cones and spheres	<ul style="list-style-type: none"> <li>To calculate the volume and surface area of a cone</li> <li>To calculate the volume and surface area of a sphere</li> <li>To calculate the volume and surface area of composite 3D shapes</li> </ul>	10.04b		
Pyramids	<ul style="list-style-type: none"> <li>To find the volume and surface area of a pyramid</li> </ul>	10.04c		

**Required previous learning**

Y9 - F Fractions

## Unit 11: Calculations with ratio

**Prerequisite for Unit**

18 Similarity

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Introducing ratios	<ul style="list-style-type: none"><li>To use ratio notation to write ratios for diagrams and word statements and to simplify ratios</li></ul>	5.01a		
		5.01c		
Sharing in a given ratio	<ul style="list-style-type: none"><li>To divide a quantity into two or more parts given a specified ratio and to write the division of quantities into parts as a ratio</li></ul>	2.01c		
		5.01b		
Comparing ratios	<ul style="list-style-type: none"><li>To use a unitary method to solve ratio and proportion problems and relate ratios to fractions and linear functions in order to solve problems, including real-life ones such as conversions and scaling</li></ul>	5.01c		
		5.01d		

**Required previous learning**

Y9 -K Percentages

**Unit 12: Basic probability and experiments****Prerequisite for Units**

13 Combined events and probability diagrams

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Basic probability	<ul style="list-style-type: none"> <li>To understand and use the vocabulary of probability</li> <li>To express probabilities as a number between 0 (impossible) and 1 (certain), either as a decimal, fraction or percentage</li> <li>To understand that outcomes are equally likely if there is the same chance of each outcome occurring</li> <li>To calculate the theoretical probability of a desired outcome</li> <li>To relate relative frequency to theoretical probability</li> <li>To represent and analyse outcomes of probability experiments</li> </ul>	11.01a		
		11.01b		
		11.01c		
Further probability	<ul style="list-style-type: none"> <li>To calculate the probability of an event NOT happening</li> <li>To understand that the probabilities of mutually exclusive events sum to 1</li> <li>To use tables and frequency trees to organise outcomes, understanding that a frequency tree is not the same as a probability tree</li> </ul>	11.02a		
		11.02e		
Probability problems	<ul style="list-style-type: none"> <li>To calculate probabilities in different contexts</li> </ul>	11.01a		
		11.01b		
		11.01c		
		11.01d		
		11.02a		

**Required previous learning**

12 Basic probability and experiments

**Unit 13: Combined events and probability diagrams****Prerequisite for Unit**

The content in this unit is not prerequisite knowledge for other units.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Representing combined events	<ul style="list-style-type: none"> <li>To construct and use representations (tables, tree diagrams and Venn diagrams)</li> <li>To use the language and notation of basic set theory</li> </ul>	11.02a		
		11.02b		
		11.02c		
		11.02d		
Theoretical probability of combined events	<ul style="list-style-type: none"> <li>To use the addition rule, including an understanding of mutually exclusive events</li> <li>To use the multiplication rule, including an understanding of independent events</li> <li>To construct and use representations (tables, tree diagrams and Venn diagrams)</li> </ul>	11.02b		
		11.02e		
		11.02f		
Conditional probability	<ul style="list-style-type: none"> <li>To use methods of conditional probability, including questions phrased in the form 'given that'</li> </ul>	11.02f		

**Required previous learning**

Y9: M Approximation and estimation

7 Powers and roots

**Unit 14: Standard form****Prerequisite for units**

The content in this unit is not prerequisite knowledge for other units.

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Expressing numbers in standard form	<ul style="list-style-type: none"> <li>To apply understanding of multiplying and dividing by powers of ten to convert numbers to and from standard form</li> </ul>	3.02a		
Calculators and standard form	<ul style="list-style-type: none"> <li>To use a scientific calculator efficiently for standard form calculations</li> </ul>	3.02b		
Working in standard form	<ul style="list-style-type: none"> <li>To apply the laws of indices to multiply and divide numbers in standard form without the use of a calculator</li> <li>To apply understanding of place value, and previously learned conversion between standard form and ordinary numbers, to add and subtract numbers in standard form</li> <li>To solve problems, including contextualised ones, involving standard form</li> </ul>	3.01c		
		3.02b		

**Required previous learning**  
Y9 - H Equations

## Unit 15: Plane vector geometry

**Prerequisite for Unit**  
16 Plane isometric transformations

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Vector notation and representation	<ul style="list-style-type: none"> <li>Represent vectors as a diagram or column</li> </ul>	9.03b		
Vector arithmetic	<ul style="list-style-type: none"> <li>Apply add and subtract vectors</li> <li>Multiply vectors by a scalar</li> <li>Recognise parallel vectors</li> </ul>	9.03a		
Using vectors in geometric proofs	<ul style="list-style-type: none"> <li>Use vectors to construct geometric arguments and proofs</li> </ul>	9.01c		
		9.01d		
		9.03a		

**Required previous learning**

3 Angles

15 Plane vector geometry

**Unit 16: Plane isometric transformations****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for other units.

	Learning outcomes	OCR Specification references		
		Initial learning	Secure learning	Greater depth
Reflections	<ul style="list-style-type: none"> <li>Carry out, identify and describe reflections</li> </ul>	8.01g		
		9.01a		
Translations	<ul style="list-style-type: none"> <li>Carry out, identify and describe translations using 2D vectors</li> <li>Find the centre of rotation by construction</li> </ul>	9.01c		
Rotations	<ul style="list-style-type: none"> <li>Carry out, identify and describe rotations</li> </ul>	9.01b		
Combined transformations	<ul style="list-style-type: none"> <li>Carry out, identify and describe combined transformations</li> </ul>	9.01d		



**Required previous learning**

3 Angles

15 Plane vector geometry

**Unit 17: Congruent triangles****Prerequisite for Units**

18 Similarity

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Congruent triangles	<ul style="list-style-type: none"> <li>• To know what it means for two objects to be congruent</li> <li>• To know the conditions for which congruence for a pair of triangle is then implied:               <ul style="list-style-type: none"> <li>○ SSS – three sides are the same in both triangles</li> <li>○ ASA – two angles and one side length are the same in both triangles</li> <li>○ SAS – two sides and the angle between them are the same in both triangles</li> <li>○ RHS – the hypotenuse and another side of a right angled triangle are the same in both triangles</li> </ul> </li> </ul>	9.02a		
Applying congruency	<ul style="list-style-type: none"> <li>• To be able to apply the conditions for congruency to a variety of situations</li> </ul>	9.02b		

**Required previous learning**

Y9 - H Equations  
 11 Calculations with ratio  
 17 Congruent triangles

**Unit 18: Similarity****Prerequisite for Units**

19 Circle theorems

	<b>Learning outcomes</b>	<b>OCR Specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Similar triangles	<ul style="list-style-type: none"> <li>To know what is meant by the phrase 'mathematically similar'</li> <li>To be able to determine when two objects are mathematically similar</li> </ul>	9.04a		
Enlargements	<ul style="list-style-type: none"> <li>To know what is meant by a 'mathematical enlargement'</li> <li>To be able to enlarge a shape given a positive rational scale factor</li> <li>To know what the centre of enlargement is</li> <li>To be able to enlarge a shape given a scale factor and centre of enlargement</li> <li>To determine a given centre of enlargement and scale factor from a diagram</li> <li>To be able to enlarge a shape given a negative rational scale factor</li> </ul>	9.04b		
Similar shapes	<ul style="list-style-type: none"> <li>To be able to determine similar polygons</li> <li>To be able to determine similar 3D shapes</li> <li>To know the relationship between lengths, areas and volumes of similar shapes</li> </ul>	9.04c		

**Approximate start to Y11 (may vary from class to class)**

**Required previous learning**

Y9 - N Pythagoras' theorem

1 Perimeter

2 Area

18 Similarity

**Unit 19: Circle theorems****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for other units.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Review of parts of a circle	<ul style="list-style-type: none"> <li>To review the names of parts of a circle</li> <li>To be able to label angles correctly and refer to angles in a diagram involving a circle</li> </ul>	8.05a		
Circle theorems and proofs	<ul style="list-style-type: none"> <li>To learn how to prove the following circle theorems:               <ul style="list-style-type: none"> <li>Angles subtended at the centre and at the circumference</li> <li>Angles in a semicircle</li> <li>Angles in the same segment</li> <li>Angle between a radius and a chord</li> <li>Angle between a radius and a tangent</li> <li>Two tangent theorem</li> <li>Alternate segment theorem</li> <li>Angles in a cyclic quadrilateral</li> </ul> </li> </ul>	8.04a		
		8.04b		
		8.05b		
		8.05c		
		8.05d		
		8.05e		
		8.05f		
		8.05g		
		8.05h		

**Required previous learning**

Y9 - K Percentages

**Unit 20 Discrete growth and decay****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other unit.

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Simple and compound growth	<ul style="list-style-type: none"> <li>To be able to calculate with simple growth, such as simple interest rates</li> <li>To be able to calculate with compound growth, such as compound interest rates</li> <li>To be able to solve word problems using simple and/or compound growth</li> <li>To be able to use the formula <math>y = a(1 + r)^n</math> for compound growth</li> </ul>	5.03a		
Simple and compound decay	<ul style="list-style-type: none"> <li>To be able to calculate with simple decay</li> <li>To be able to calculate with compound decay, such as depreciation</li> <li>To be able to solve word problems using simple and/or compound decay</li> <li>To be able to use the formula <math>y = a(1 - r)^n</math> for compound decay</li> </ul>	5.03a		

**Required previous learning**

Y9 - L Algebraic formulae

**Unit 21: Direct and inverse proportion****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other units.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Direct proportion	<ul style="list-style-type: none"> <li>To be able to use direct proportion to solve problems</li> <li>To be able to use the unitary method to solve proportion problems</li> </ul>	5.02a		
Algebraic and graphical representations	<ul style="list-style-type: none"> <li>To be able to solve direct proportion questions graphically</li> <li>To be able to solve direct proportion questions using algebraic manipulation</li> </ul>	5.01d		
		5.02a		
Directly proportional to the square, square root and other expressions	<ul style="list-style-type: none"> <li>To be able to solve direct proportion problems involving the square or square root of a variable</li> </ul>	5.02a		
Inverse proportion	<ul style="list-style-type: none"> <li>To be able to solve inverse proportion questions, based on <math>y = 1/x</math></li> </ul>	5.02b		

**Required previous learning**

Y9 - J Units and measurement  
 Y9 - M Approximation and estimation  
 3 Angles

**Unit 22: Collecting and displaying data****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other units.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Populations and samples	<ul style="list-style-type: none"> <li>To be able to infer properties of populations or distributions from a sample, while knowing the limitations of sampling</li> </ul>	12.01a		
Tables and graphs	<ul style="list-style-type: none"> <li>To be able to interpret and construct tables, charts and diagrams, including frequency tables and bar charts</li> </ul>	12.02a		
Pie charts	<ul style="list-style-type: none"> <li>To be able to draw and interpret pie charts and pictograms for categorical data and vertical line charts for ungrouped, discrete numerical data</li> </ul>	12.02a		
Cumulative frequency curves and histograms	<ul style="list-style-type: none"> <li>To be able to draw and interpret histograms and cumulative frequency diagrams for continuous data and know their appropriate use</li> </ul>	12.02b		
Line graphs for time series data	<ul style="list-style-type: none"> <li>To use tables and line graphs for time series data</li> </ul>	12.02a		

Required previous learning 4 Straight-line graphs	Unit 23: Analysing data	Prerequisite for Units 24 Interpreting graphs		
Learning outcomes		OCR specification references		
		Initial learning	Secure learning	Greater depth
Summary statistics	<ul style="list-style-type: none"> <li>Calculate summary statistics from raw and grouped data</li> <li>Compare two or more sets of data</li> <li>To estimate quartiles from a cumulative frequency diagram</li> </ul>	12.03a		
Misleading graphs	<ul style="list-style-type: none"> <li>Identify why a graph may be misleading</li> </ul>	12.03b		
Scatter diagrams	<ul style="list-style-type: none"> <li>Construct scatter diagrams</li> <li>Describe correlation</li> <li>Draw a line of best fit</li> <li>Identify outliers</li> </ul>	12.03c		
		12.03d		
<b>HegartyMaths</b>	Statistics / Averages & ranges / tasks 404 - 421 Statistics / Displaying data (1) / tasks 434 – 436 Statistics / Displaying data (2) / tasks 453 - 454			
<b>Assessments</b>	In Maths Shared Area -> Y9 Y10 Y11 2016 ONWARDS -> OCR – 2018 onwards -> SOW Jan 2018			



**Required previous learning**

1 Area  
23 Analysing data

**Unit 24: Interpreting graphs****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other unit.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Graphs of real-world contexts	<ul style="list-style-type: none"> <li>Constructing and interpreting graphs in real-world contexts</li> </ul>	7.04a		
Gradients	<ul style="list-style-type: none"> <li>Interpreting the gradient of a straight-line graph as a rate of change</li> <li>To find and interpret the gradient at a point on a curve as the instantaneous rate of change</li> </ul>	6.02e		
		7.04b		
Areas under graphs	<ul style="list-style-type: none"> <li>To calculate and interpret the area under a graph</li> </ul>	7.04c		
<b>HegartyMaths</b>	Algebra / Exponential growth and decay / tasks 800 – 811 Algebra / Distance-time & speed-time graphs / tasks 874 – 886 Algebra / Other real-life graphs & rates of change / tasks 894 – 902 Algebra / Rates of change of curves / 887 – 890 Algebra / Area under curves / tasks 891 - 893			
<b>Assessments</b>	In Maths Shared Area -> Y9 Y10 Y11 2016 ONWARDS -> OCR – 2018 onwards -> SOW Jan 2018			

**Required previous learning**

Y9 - H Equations

**Unit 25: Algebraic inequalities****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other unit.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Expressing inequalities	<ul style="list-style-type: none"> <li>Understanding and interpreting inequalities and using the correct symbols to express inequalities</li> </ul>	6.04a		
Number lines and set notation	<ul style="list-style-type: none"> <li>To use a number line to represent an inequality</li> <li>To use set notation to represent an inequality</li> </ul>	6.04a		
Solving linear inequalities	<ul style="list-style-type: none"> <li>Solving linear inequalities in one variable and representing the solution set on a number line</li> </ul>	6.04a		
Solving quadratic inequalities	<ul style="list-style-type: none"> <li>To solve quadratic inequalities</li> </ul>	6.04a		
Working with inequalities	<ul style="list-style-type: none"> <li>Solving problems involving inequalities</li> </ul>	6.04a		
Graphing linear inequalities	<ul style="list-style-type: none"> <li>To solve (several) linear inequalities in two variables and represent the solution set on a graph</li> </ul>	6.04b		
		7.02a		

**Required previous learning**

5 Graphs of equations and functions

**Unit 26: Transformations of curves and their equations****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other unit.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Quadratic functions and parabolas	<ul style="list-style-type: none"> <li>Know the features of a quadratic function: axis of symmetry, roots and vertex, and identify these features from the sketch of a quadratic</li> <li>Sketch vertical and horizontal translations of quadratic functions</li> <li>Sketch quadratic functions that have been translated in both the horizontal and vertical directions</li> <li>Know the effect translations have on the axis of symmetry and vertex of a quadratic</li> <li>Use graph sketching to identify the effect of multiplying <math>f(x)</math> by <math>-1</math></li> <li>Use algebraic manipulation skills to identify the features above and sketch any quadratic of the form <math>y = ax^2 + bx + c</math></li> </ul>	7.03a		
Trigonometric functions	<ul style="list-style-type: none"> <li>Identify reflections and translations in the graphical representations of trigonometric functions</li> <li>Sketch a transformed trigonometric curve for a given domain</li> </ul>	7.03a		
Other functions	<ul style="list-style-type: none"> <li>Sketch translations and reflections of cubic, reciprocal and exponential functions</li> </ul>	7.03a		
Translation and reflection problems	<ul style="list-style-type: none"> <li>Apply transformations learnt in this chapter to a variety of problems including identifying the effect of a transformation on a feature of a graph and finding the equation of a function once a transformation has been applied</li> </ul>	7.03a		

**Required previous learning**  
Y9 - D Functions and sequences

## Unit 27: Functions

**Prerequisite for Unit**  
The content in this unit is not prerequisite knowledge for any other unit.

	Learning outcomes	OCR specification references		
		Initial learning	Secure learning	Greater depth
Functions	<ul style="list-style-type: none"> <li>To use and find composite and inverse functions</li> </ul>	6.05a		
		6.06a		
<b>HegartyMaths</b>	Algebra / Functions / tasks 288 - 297			
<b>Assessments</b>	In Maths Shared Area -> Y9 Y10 Y11 2016 ONWARDS -> OCR – 2018 onwards -> SOW Jan 2018			

**Required previous learning**

KS3 Maths

**Unit 28: Construction and loci****Prerequisite for Units**

The content in this unit is not prerequisite knowledge for any other unit.

	<b>Learning outcomes</b>	<b>OCR specification references</b>		
		<b>Initial learning</b>	<b>Secure learning</b>	<b>Greater depth</b>
Geometrical instruments	<ul style="list-style-type: none"> <li>To use ruler, protractor and pair of compasses to accurately construct angles and shapes</li> <li>To accurately copy diagrams using rulers and a pair of compasses only</li> </ul>	8.01e		
		8.01f		
Bisectors and perpendiculars	<ul style="list-style-type: none"> <li>To construct the perpendicular bisector of a line</li> <li>To construct the perpendicular at a given point on a line</li> <li>To construct a perpendicular from a given point to a line</li> <li>To bisect an angle</li> </ul>	8.02a		
		8.02b		
		8.02c		
Loci	<ul style="list-style-type: none"> <li>To use constructions to solve loci problems</li> </ul>	8.02d		
More complex problems	<ul style="list-style-type: none"> <li>To apply appropriate constructions and loci knowledge to a variety of problems including those set in context</li> </ul>	8.01a		
		8.02d		