

	Term	Торіс	Learning Outcomes	Assessment
Year 9	Spring 2	Unit 6: Angles - Parallel Lines	<ul> <li>Estimate sizes of angles;</li> <li>Measure angles using a protractor;</li> <li>Use geometric language appropriately;</li> <li>Use letters to identify points, lines and angles;</li> <li>Use two-letter notation for a line and three-letter notation for an angle;</li> <li>Describe angles as turns and in degrees and understand clockwise and anticlockwise;</li> <li>Know that there are 360° in a full turn, 180° in a half turn and 90° in a quarter turn;</li> <li>Identify a line perpendicular to a given line on a diagram and use their properties;</li> <li>Identify parallel lines on a diagram and use their properties;</li> <li>Find missing angles using properties of corresponding and alternate angles;</li> <li>Understand and use the angle properties of parallel lines.</li> <li>Recall the properties and definitions of special types of quadrilaterals, including symmetry properties;</li> <li>List the properties of each special type of quadrilateral, or identify (name) a given shape;</li> <li>Draw sketches of shapes;</li> <li>Classify quadrilaterals from everyday usage;</li> <li>Given some information about a shape on coordinate axes, complete the shape; Understand and use the angles at a point, angles at a point on a straight line, right angles, and vertically opposite angles;</li> <li>Use the fact that angle sum of a quadrilateral is 360°;</li> <li>Recall and use properties of angles at a point, angles at a point on a straight line, right angles, and vertically opposite angles;</li> <li>Distinguish between scalene, equilateral, isosceles and right-angled triangles;</li> <li>Distinguish between scalene, equilateral, sosceles and right-angled is 180°;</li> <li>Understand and use the angle properties of triangles, use the symmetry property of isosceles triangle to show that base angles are equal;</li> <li>Use the side/angle properties of isosceles and equilateral triangles;</li> <li>Understand and use the angle properties of triangles, use the symmetry property of isosceles triangle to show that base angles are equal</li></ul>	

⊁	CHUR	CH TTON DL	Mathematics Department	Key stage 4:Foundation
		Unit 6: Polygons	<ul> <li>Recognise and name pentagons, hexagons, heptagons, octagons and decagons;</li> <li>Understand 'regular' and 'irregular' as applied to polygons;</li> <li>Use the sum of angles of irregular polygons;</li> <li>Calculate and use the sums of the interior angles of polygons;</li> <li>Calculate and use the angles of regular polygons;</li> <li>Calculate and use the angles of regular polygons;</li> <li>Use the sum of the interior angles of an <i>n</i>-sided polygon;</li> <li>Use the sum of the exterior angles of any polygon is 360°;</li> <li>Use the sum of the interior angle and the exterior angle is 180°;</li> <li>Identify shapes which are congruent (by eye);</li> <li>Explain why some polygons fit together and others do not;</li> </ul>	End of Unit Test
	Summer 1	Unit 7: Statistics - Averages	<ul> <li>Specify the problem and: <ul> <li>plan an investigation;</li> <li>decide what data to collect and what statistical analysis is needed;</li> <li>consider fairness;</li> </ul> </li> <li>Recognise types of data: primary secondary, quantitative and qualitative;</li> <li>Identify which primary data they need to collect and in what format, including grouped data;</li> <li>Collect data from a variety of suitable primary and secondary sources;</li> <li>Understand how sources of data may be biased and explain why a sample may not be representative of a whole population;</li> <li>Understand sample and population.</li> <li>Calculate the mean, mode, median and range for discrete data;</li> <li>Interpret and find a range of averages as follows:</li> </ul>	End of Unit Test

⊁	CHURCH STRETTON SCHOOL	Mathematics Department	Key stage 4:Foundation
		<ul> <li>median, mean and range from a (discrete) frequency table;</li> <li>range, modal class, interval containing the median, and estimate of the mean from a grouped data frequency table;</li> <li>mode and range from a bar chart;</li> <li>median, mode and range from stem and leaf diagrams;</li> <li>mean from a bar chart;</li> <li>Understand that the expression 'estimate' will be used where appropriate, when finding the mean of grouped data using mid-interval values;</li> <li>Compare the mean, median, mode and range (as appropriate) of two distributions using bar charts, dual bar charts, pictograms and back-to-back stem and leaf;</li> <li>Recognise the advantages and disadvantages between measures of average.</li> </ul>	
	Summer Unit 8: Perimeter, Area and 2 Volume	<ul> <li>Indicate given values on a scale, including decimal value;</li> <li>Know that measurements using real numbers depend upon the choice of unit;</li> <li>Convert between units of measure within one system, including time and metric units to metric units of length, area and volume and capacity e.g. 1ml = 1cm<sup>3</sup>;</li> <li>Make sensible estimates of a range of measures in everyday settings;</li> <li>Measure shapes to find perimeters and areas using a range of scales;</li> <li>Find the perimeter of <ul> <li>rectangles and triangles;</li> <li>parallelograms and trapezia;</li> <li>compound shapes;</li> </ul> </li> <li>Recall and use the formulae for the area of a triangle and rectangle;</li> <li>Find the area of a parallelogram;</li> </ul>	End of Unit Test

⊁	CHUR STRET SCHOO	CH ITON OL	Mathematics Department	Key stage 4:Foundation
			<ul> <li>Calculate areas and perimeters of compound shapes made from triangles and rectangles;</li> <li>Estimate surface areas by rounding measurements to 1 significant figure;</li> <li>Find the surface area of a prism;</li> <li>Find surface area using rectangles and triangles;</li> <li>Identify and name common solids: cube, cuboid, cylinder, prism, pyramid, sphere and cone;</li> <li>Sketch nets of cuboids and prisms;</li> <li>Recall and use the formula for the volume of a cuboid;</li> <li>Find the volume of a prism, including a triangular prism, cube and cuboid;</li> <li>Calculate volumes of right prisms and shapes made from cubes and cuboids;</li> <li>Estimate volumes etc by rounding measurements to 1 significant figure</li> </ul>	
Year 10	Autumn1	Unit 6: Angles - Parallel Lines	<ul> <li>Estimate sizes of angles;</li> <li>Measure angles using a protractor;</li> <li>Use geometric language appropriately;</li> <li>Use letters to identify points, lines and angles;</li> <li>Use two-letter notation for a line and three-letter notation for an angle;</li> <li>Describe angles as turns and in degrees and understand clockwise and anticlockwise;</li> <li>Know that there are 360° in a full turn, 180° in a half turn and 90° in a quarter turn;</li> <li>Identify a line perpendicular to a given line on a diagram and use their properties;</li> <li>Identify parallel lines on a diagram and use their properties;</li> <li>Find missing angles using properties of corresponding and alternate angles;</li> <li>Understand and use the angle properties of parallel lines.</li> <li>Recall the properties and definitions of special types of quadrilaterals, including symmetry properties;</li> <li>List the properties of each special type of quadrilateral, or identify (name) a given shape;</li> <li>Draw sketches of shapes;</li> <li>Classify quadrilaterals by their geometric properties and name all quadrilaterals from everyday usage;</li> </ul>	



	<ul> <li>Given some information about a shape on coordinate axes, complete the shape; Understand and use the angle properties of quadrilaterals;</li> <li>Use the fact that angle sum of a quadrilateral is 360°;</li> <li>Recall and use properties of angles at a point, angles at a point on a straight line, right angles, and vertically opposite angles;</li> <li>Distinguish between scalene, equilateral, isosceles and right-angled triangles;</li> <li>Derive and use the sum of angles in a triangle;</li> <li>Find a missing angle in a triangle, using the angle sum of a triangle is 180°;</li> <li>Understand and use the angle properties of triangles, use the symmetry property of isosceles triangle to show that base angles are equal;</li> <li>Use the side/angle properties of isosceles and equilateral triangles;</li> <li>Understand and use the angle properties of intersecting lines;</li> <li>Understand a proof that the exterior angle of a triangle is equal to the sum of the interior angles at the other two vertices; Use geometrical language appropriately</li> </ul>	
Unit 6: Polygons	<ul> <li>Recognise and name pentagons, hexagons, heptagons, octagons and decagons;</li> <li>Understand 'regular' and 'irregular' as applied to polygons;</li> <li>Use the sum of angles of irregular polygons;</li> <li>Calculate and use the sums of the interior angles of polygons;</li> <li>Calculate and use the angles of regular polygons;</li> <li>Calculate and use the interior angles of an <i>n</i>-sided polygon;</li> <li>Use the sum of the exterior angles of any polygon is 360°;</li> <li>Use the sum of the interior angle and the exterior angle is 180°;</li> <li>Identify shapes which are congruent (by eye);</li> <li>Explain why some polygons fit together and others do not;</li> </ul>	End of Unit Test



	Specify the problem and:	
	<ul> <li>plan an investigation;</li> </ul>	
	decide what data to collect and what statistical	
	analysis is needed;	
	consider fairness;	
	• Recognise types of data: primary secondary, quantitative	
	and qualitative;	
	• Identify which primary data they need to collect and in	
	what format, including grouped data;	
	• Collect data from a variety of suitable primary and	
	secondary sources;	
	<ul> <li>Understand how sources of data may be biased and</li> </ul>	
	explain why a sample may not be representative of a	
	whole population;	
	<ul> <li>Understand sample and population.</li> </ul>	
	• Calculate the mean, mode, median and range for discrete	
	data;	
Unit 7: Statistics - Averages	• Interpret and find a range of averages as follows:	End of Unit Test
C C	• median, mean and range from a (discrete) frequency	
	table;	
	• range, modal class, interval containing the median,	
	and estimate of the mean from a grouped data	
	frequency table:	
	<ul> <li>mode and range from a bar chart;</li> </ul>	
	<ul> <li>median, mode and range from stem and leaf</li> </ul>	
	diagrams:	
	<ul> <li>mean from a bar chart:</li> </ul>	
	<ul> <li>Understand that the expression 'estimate' will be used</li> </ul>	
	where appropriate, when finding the mean of grouped	
	data using mid-interval values:	
	• Compare the mean, median, mode and range (as	
	appropriate) of two distributions using bar charts, dual bar	
	charts, pictograms and back-to-back stem and leaf:	
	Recognise the advantages and disadvantages	
	between measures of average.	

CHURCH STRETTON SCHOOL	Mathematics Department	Key stage 4:Foundation
Autumn 2 Unit 8: Perimeter, Area and Volume	<ul> <li>Indicate given values on a scale, including decimal value;</li> <li>Know that measurements using real numbers depend upon the choice of unit;</li> <li>Convert between units of measure within one system, including time and metric units to metric units of length, area and volume and capacity e.g. 1ml = 1cm<sup>3</sup>;</li> <li>Make sensible estimates of a range of measures in everyday settings;</li> <li>Measure shapes to find perimeters and areas using a range of scales;</li> <li>Find the perimeter of <ul> <li>rectangles and triangles;</li> <li>parallelograms and trapezia;</li> <li>compound shapes;</li> </ul> </li> <li>Recall and use the formulae for the area of a triangle and rectangle;</li> <li>Find the area of a trapezium and recall the formula;</li> <li>Find the area of a parallelogram;</li> <li>Calculate areas and perimeters of compound shapes made from triangles and rectangles;</li> <li>Estimate surface area by rounding measurements to 1 significant figure;</li> <li>Find the surface area of a prism;</li> <li>Find surface area using rectangles and triangles;</li> <li>Identify and name common solids: cube, cuboid, cylinder, prism, pyramid, sphere and cone;</li> <li>Sketch nets of cuboids and prisms;</li> <li>Recall and use the formula for the volume of a cuboid;</li> <li>Find the volume of a prism, including a triangular prism, cube and cuboid;</li> <li>Calculate volumes of right prisms and shapes made from cubes and cuboid;</li> </ul>	End of Unit Test

	Mathematics Department	Key stage 4:Foundation
Unit 9: Real Life Graphs	<ul> <li>Use input/output diagrams;</li> <li>Draw, label and scale axes;</li> <li>Use axes and coordinates to specify points in all four quadrants in 2D;</li> <li>Identify points with given coordinates and coordinates of a given point in all four quadrants;</li> <li>Find the coordinates of points identified by geometrical information in 2D (all four quadrants);</li> <li>Find the coordinates of the midpoint of a line segment; Read values from straight-line graphs for real-life situations;</li> <li>Draw straight line graphs for real-life situations, including ready reckoner graphs, conversion graphs, fuel bills graphs, fixed charge and cost per unit;</li> <li>Draw distance-time graphs and velocity-time graphs;</li> <li>Work out time intervals for graph scales;</li> <li>Interpret distance-time graphs, and calculate: the speed of individual sections, total distance and total time;</li> <li>Interpret graphs with negative values on axes;</li> <li>Interpret graphs, graphs of containers filling and emptying, and unit price graphs.</li> </ul>	

	Term	Торіс	Learning Outcomes	Assessment
Year 10		Unit 9: Linear Graphs	<ul> <li>Use function machines to find coordinates (i.e. given the input <i>x</i>, find the output <i>y</i>);</li> <li>Plot and draw graphs of <i>y</i> = <i>a</i>, <i>x</i> = <i>a</i>, <i>y</i> = <i>x</i> and <i>y</i> = -<i>x</i>;</li> <li>Recognise straight-line graphs parallel to the axes;</li> </ul>	End of Unit Test

	RCH TTON DOL	Mathematics Department	Key stage 4:Foundation
Spring 1		<ul> <li>Recognise that equations of the form y = mx + c correspond to straight-line graphs in the coordinate plane;</li> <li>Plot and draw graphs of straight lines of the form y = mx + c using a table of values;</li> <li>Sketch a graph of a linear function, using the gradient and y-intercept;</li> <li>Identify and interpret gradient from an equation y = mx + c;</li> <li>Identify parallel lines from their equations;</li> <li>Plot and draw graphs of straight lines in the form ax + by = c;</li> <li>Find the equation of a straight line from a graph;</li> <li>Find approximate solutions to a linear equation from a graph;</li> <li>Find the gradient of a straight line from real-life graphs too.</li> </ul>	
	Unit 10: Transformations	<ul> <li>Identify congruent shapes by eye;</li> <li>Understand that rotations are specified by a centre, an angle and a direction of rotation;</li> <li>Find the centre of rotation, angle and direction of rotation and describe rotations fully using the angle, direction of turn, and centre;</li> <li>Rotate and draw the position of a shape after rotation about the origin or any other point including rotations on a coordinate grid;</li> <li>Identify correct rotations from a choice of diagrams;</li> <li>Understand that translations are specified by a distance and direction using a vector;</li> <li>Translate a given shape by a vector;</li> <li>Use column vectors to describe and transform 2D shapes using single translations, so that any figure is congruent under rotations and translations;</li> <li>Understand that reflections are specified by a mirror line;</li> <li>Identify correct reflections from a choice of diagrams;</li> </ul>	End of Unit Test



	<ul> <li>Transform 2D shapes using single reflections (including those not on coordinate grids) with vertical, horizontal and diagonal mirror lines;</li> <li>Describe reflections on a coordinate grid;</li> <li>Scale a shape on a grid (without a centre specified);</li> <li>Understand that an enlargement is specified by a centre and a scale factor;</li> <li>Enlarge a given shape using (0, 0) as the centre of enlargement, and enlarge shapes with a centre other than (0, 0);</li> <li>Find the centre of enlargement by drawing;</li> <li>Describe and transform 2D shapes using enlargements by: <ul> <li>a positive integer &amp; fractional scale factor;</li> <li>Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides, simple integer scale factors, or simple fractions;</li> <li>Understand that distances and angles are preserved under reflections, so that any figure is congruent under this transformation;</li> <li>Understand that similar shapes are enlargements of each other and angles are preserved – define similar in this unit;</li> </ul> </li> </ul>
Unit 11: Ratio	<ul> <li>Understand and express the division of a quantity into a of number parts as a ratio;</li> <li>Write ratios in their simplest form;</li> <li>Write/interpret a ratio to describe a situation;</li> <li>Share a quantity in a given ratio including three-part ratios;</li> <li>Solve a ratio problem in context:</li> <li>use a ratio to find one quantity when the other is known;</li> <li>use a ratio to compare a scale model to a real-life object;</li> <li>use a ratio to convert between measures and currencies;</li> <li>problems involving mixing, e.g. paint colours, cement and drawn conclusions;</li> <li>Compare ratios;</li> <li>Write ratios in form 1 : m or m : 1;</li> <li>Write a ratio as a fraction:</li> </ul>

CHURCH STRETTON SCHOOL	Mathematics Department	Key stage 4:Foundation
	<ul> <li>Write a ratio as a linear function;</li> <li>Write lengths, areas and volumes of two shapes as ratios in simplest form;</li> <li>Express a multiplicative relationship between two quantities as a ratio or a fraction.</li> </ul>	

	Term	Торіс	Learning Outcomes	Assessment
Year 10		Unit 11: Proportion	<ul> <li>Understand and use proportion as equality of ratios;</li> <li>Solve word problems involving direct and indirect proportion;</li> <li>Work out which product is the better buy;</li> <li>Scale up recipes;</li> <li>Convert between currencies;</li> <li>Find amounts for 3 people when amount for 1 given;</li> <li>Solve proportion problems using the unitary method;</li> <li>Recognise when values are in direct proportion by reference to the graph form;</li> <li>Understand inverse proportion: as <i>x</i> increases, <i>y</i> decreases (inverse graphs done in later unit);</li> <li>Recognise when values are in direct proportion by reference to the graph form;</li> <li>Understand direct proportion&gt; relationship <i>y</i> = <i>kx</i>.</li> </ul>	End of Unit Test
	Summer 1	Unit 12: Pythagoras and Trigonometry	<ul> <li>Understand, recall and use Pythagoras' Theorem in 2D, including leaving answers in surd form and being able to justify if a triangle is right-angled or not;</li> <li>Calculate the length of the hypotenuse and of a shorter side in a right-angled triangle, including decimal lengths and a range of units;</li> <li>Apply Pythagoras' Theorem with a triangle drawn on a coordinate grid;</li> <li>Calculate the length of a line segment AB given pairs of points;</li> </ul>	End of Unit Test

	Mathematics Department	Key stage 4:Foundation
	<ul> <li>Understand, use and recall the trigonometric ratios sine, cosine and tan, and apply them to find angles and lengths in general triangles in 2D figures;</li> <li>Use the trigonometric ratios to solve 2D problems including angles of elevation and depression;</li> <li>Round answers to appropriate degree of accuracy, either to a given number of significant figures or decimal places, or make a sensible decision on rounding in context of question;</li> <li>Know the exact values of sin θ and cos θ for θ = 0°, 30°, 45°, 60° and 90°; know the exact value of tan θ for θ = 0°, 30°, 45° and 60°.</li> </ul>	
Summer 2 Unit 13: Probability	<ul> <li>Distinguish between events which are impossible, unlikely, even chance, likely, and certain to occur;</li> <li>Mark events and/or probabilities on a probability scale of 0 to 1;</li> <li>Write probabilities in words or fractions, decimals and percentages;</li> <li>Find the probability of an event happening using theoretical probability;</li> <li>Use theoretical models to include outcomes using dice, spinners, coins;</li> <li>List all outcomes for single events systematically;</li> <li>Work out probabilities from frequency tables, frequency trees, and two way tables;</li> <li>Record outcomes of probability experiments in tables;</li> <li>Add simple probabilities;</li> <li>Identify different mutually exclusive outcomes and know that the sum of the probability of an event not occurring where <i>p</i> is the probability of the event occurring;</li> <li>Find a missing probability from a list or table including algebraic terms;</li> <li>Find the probability of an event happening using relative frequency;</li> <li>Estimate the number of times an event will occur, given the probability and the number of trials – for both experimental and theoretical probabilities;</li> </ul>	



End of year assessment

This will include all topics covered

Misconceptions will be addressed as part of the end of year assessment review process



	Term	Торіс	Learning Outcomes	Assessment
Year 11	Autumn 1	Unit 14: Multiplicative Reasoning	<ul> <li>Understand and use compound measures:         <ul> <li>density;</li> <li>pressure;</li> <li>speed:</li> </ul> </li> <li>convert between metric speed measures;</li> <li>read values in km/h and mph from a speedometer;</li> <li>calculate average speed, distance, time - in miles per hour as well as metric measures;</li> <li>use kinematics formulae from the formulae sheet to calculate speed, acceleration (with variables defined in the question);</li> <li>change d/t in m/s to a formula in km/h, i.e. d/t × (60 × 60)/1000 - with support;</li> <li>Express a given number as a percentage of another number in more complex situations;</li> <li>Calculate percentage profit or loss;</li> <li>Make calculations involving repeated percentage change, not using the formula;</li> <li>Find the original amount given the final amount after a percentage increase or decrease;</li> <li>Use compound interest;</li> <li>Use a variety of measures in ratio and proportion problems: currency conversion;</li> <li>rates of pay;</li> <li>best value;</li> <li>Set up, solve and interpret the answers in growth and decay problems;</li> <li>Understand that X is inversely proportional to Y is equivalent to X is proportional to <sup>1</sup>/<sub>Y</sub></li> <li>Interpret equations that describe direct and inverse proportion.</li> </ul>	



Unit 15: Plans and Elevations	<ul> <li>Understand clockwise and anticlockwise;</li> <li>Draw circles and arcs to a given radius or given the diameter;</li> <li>Measure and draw lines, to the nearest mm;</li> <li>Measure and draw angles, to the nearest degree;</li> <li>Know and use compass directions;</li> <li>Draw sketches of 3D solids;</li> <li>Know the terms face, edge and vertex;</li> <li>Identify and sketch planes of symmetry of 3D solids;</li> <li>Use isometric grids to draw 2D representations of 3D solids;</li> <li>Make accurate drawings of triangles and other 2D shapes using a ruler and a protractor;</li> <li>Construct diagrams of everyday 2D situations involving rectangles, triangles, perpendicular and parallel lines;</li> <li>Understand and draw front and side elevations and plans of shapes made from simple solids;</li> </ul>	
Unit 15: Constructions, Loci and Bearings	<ul> <li>Understand congruence, as two shapes that are the same size and shape;</li> <li>Visually identify shapes which are congruent;</li> <li>Use straight edge and a pair of compasses to do standard constructions:</li> <li>understand, from the experience of constructing them, that triangles satisfying SSS, SAS, ASA and RHS are unique, but SSA triangles are not;</li> <li>construct the perpendicular bisector of a given line;</li> <li>construct the perpendicular from a point to a line;</li> <li>construct angles of 90°, 45°;</li> <li>Draw and construct diagrams from given instructions, including the following:</li> <li>a region bounded by a circle and an intersecting line;</li> </ul>	Mock Exams



- a given distance from a point and a given distance from a line;
- equal distances from two points or two line segments;
- regions may be defined by `nearer to' or `greater than';
- Find and describe regions satisfying a combination of loci;
- Use constructions to solve loci problems (2D only);
- Use and interpret maps and scale drawings;
- Estimate lengths using a scale diagram;
- Make an accurate scale drawing from a diagram;
- Use three-figure bearings to specify direction;
- Mark on a diagram the position of point *B* given its bearing from point *A*;
- Give a bearing between the points on a map or scaled plan;
- Given the bearing of a point *A* from point *B*, work out the bearing of *B* from *A*;
- Use accurate drawing to solve bearings problems;
- Solve locus problems including bearings.



	Term	Торіс	Learning Outcomes	Assessment
Year 11	Autumn 2	Unit 16: Quadratic Equations	<ul> <li>Define a 'quadratic' expression;</li> <li>Multiply together two algebraic expressions with brackets;</li> <li>Square a linear expression, e.g. (x + 1)<sup>2</sup>;</li> <li>Factorise quadratic expressions of the form x<sup>2</sup> + bx + c;</li> <li>Factorise a quadratic expression x<sup>2</sup> - a<sup>2</sup> using the difference of two squares;</li> <li>Solve quadratic equations by factorising;</li> <li>Find the roots of a quadratic function algebraically</li> </ul>	
		Unit 16: Quadratic Graphs	<ul> <li>Generate points and plot graphs of simple quadratic functions, then more general quadratic functions;</li> <li>Identify the line of symmetry of a quadratic graph;</li> <li>Find approximate solutions to quadratic equations using a graph;</li> <li>Interpret graphs of quadratic functions from real-life problems;</li> <li>Identify and interpret roots, intercepts and turning points of quadratic graphs</li> </ul>	
	Spring 1	Unit 17: Advanced Measures	<ul> <li>Recall the definition of a circle and identify, name and draw parts of a circle including tangent, chord and segment;</li> <li>Recall and use formulae for the circumference of a circle and the area enclosed by a circle circumference of a circle = 2πr = πd, area of a circle = πr<sup>2</sup>;</li> <li>Use π ≈ 3.142 or use the π button on a calculator;</li> <li>Give an answer to a question involving the circumference or area of a circle in terms of π;</li> <li>Find radius or diameter, given area or perimeter of a circles;</li> <li>Find the perimeters and areas of semicircles and quarter-circles;</li> </ul>	

⊁	CHURCH STRETTON SCHOOL	Mathematics Department	Key stage 4:Foundation
		<ul> <li>Calculate perimeters and areas of composite shapes made from circles and parts of circles;</li> <li>Calculate arc lengths, angles and areas of sectors of circles;</li> <li>Find the surface area and volume of a cylinder;</li> <li>Find the surface area and volume of spheres, pyramids, cones and composite solids;</li> <li>Round answers to a given degree of accuracy.</li> </ul>	
	Unit 18: Advanced Number	<ul> <li>Add and subtract mixed number fractions;</li> <li>Multiply mixed number fractions;</li> <li>Divide mixed numbers by whole numbers and vice versa;</li> <li>Find the reciprocal of an integer, decimal or fraction;</li> <li>Understand 'reciprocal' as multiplicative inverse, knowing that any non-zero number multiplied by its reciprocal is 1 (and that zero has no reciprocal because division by zero is not defined).</li> <li>Use index laws to simplify and calculate the value of numerical expressions involving multiplication and division of integer powers, fractions and powers of a power;</li> <li>Use numbers raised to the power zero, including the zero power of 10;</li> <li>Convert large and small numbers into standard form and vice versa;</li> <li>Add, subtract, multiply and divide numbers in standard form;</li> <li>Interpret a calculator display using standard form and know how to enter numbers in standard form.</li> </ul>	Mock Ezam
	Spring 2 Unit 19: Congruence and Similarity	<ul> <li>Use the basic congruence criteria for triangles (SSS, SAS, ASA and RHS);</li> <li>Solve angle problems involving congruence;</li> <li>Identify shapes which are similar; including all circles or all regular polygons with equal number of sides;</li> </ul>	

CHURCH STRETTON SCHOOL	Mathematics Department	Key stage 4:Foundation
	<ul> <li>Understand similarity of triangles and of other plane shapes, use this to make geometric inferences, and solve angle problems using similarity;</li> <li>Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides;</li> <li>Understand the effect of enlargement on perimeter of shapes;</li> <li>Solve problems to find missing lengths in similar shapes;</li> <li>Know that scale diagrams, including bearings and maps are 'similar' to the real-life examples.</li> </ul>	

	Term	Торіс	Learning Outcomes	Assessment
		Unit 19: Vectors	<ul> <li>Understand and use column notation in relation to vectors;</li> <li>Be able to represent information graphically given column vectors;</li> <li>Identify two column vectors which are parallel;</li> <li>Calculate using column vectors, and represent graphically, the sum of two vectors, the difference of two vectors and a scalar multiple of a vector.</li> </ul>	
Year 11		Unit 20: Rearranging equations, graphs of cubic and reciprocal functions and simultaneous equations	<ul> <li>Know the difference between an equation and an identity and use and understand the ≠ symbol;</li> <li>Change the subject of a formula involving the use of square roots and squares;</li> <li>Answer 'show that' questions using consecutive integers (n, n + 1), squares a<sup>2</sup>, b<sup>2</sup>, even numbers 2n, and odd numbers 2n + 1;</li> <li>Solve problems involving inverse proportion using graphs, and read values from graphs;</li> <li>Find the equation of the line through two given points;</li> <li>Recognise, sketch and interpret graphs of simple cubic functions;</li> </ul>	

Mathematics Department	Key stage 4:Foundation
<ul> <li>Recognise, sketch and interpret graphs of the reciprocal function y = 1/x with x ≠ 0;</li> <li>Use graphical representations of indirect proportion to solve problems in context;</li> <li>identify and interpret the gradient from an equation ax + by = c;</li> <li>Write simultaneous equations to represent a situation;</li> <li>Solve simultaneous equations (linear/linear) algebraically and graphically;</li> <li>Solve simultaneous equations representing a real-life situation, graphically and algebraically, and interpret the solution in the context of the problem;</li> </ul>	
Exam dates: Paper 1: 16 <sup>th</sup> May 2024 Paper 2: 3 <sup>rd</sup> June 2024 Paper 3: 10 <sup>th</sup> June 2024	