



SUBJECT: MATHEMATICS – Advanced+

Year Group	Year 10					
Rationale	Communicate mathematical thinking more clearly within more advanced areas of study. Be fluent in the use of numeric and algebraic manipulation. Use a scientific calculator with ease. Become fluent working with AO1, AO2 and AO3 style questions.					
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic/Unit	- Sketching & Using Quadratic Graphs & Quadratic Inequalities - Scales & Bearings - Iteration & Triple Brackets	- Further Trigonometry & Pythagoras - Solving Advanced Simultaneous Equations - Accuracy & Bounds	- Investigating Linear Graphs - Algebraic Fractions & Equations	- Numerical & Geometric Vectors - Similarity in 3D	- Functions - Circle Theorems	- Real Life Graphs & Measures - Complex Solids & Measures - Graphs of Trigonometric Functions & Transforming - Graphs
Knowledge	<u>Sketching & Using Quadratic Graphs & Quadratic Inequalities</u> Pupils will know how to sketch a quadratic graph, be able to identify from a graph if a quadratic has any real roots and find approximate solutions to a quadratic equation using a graph. Pupils will learn how to solve quadratic inequalities. <u>Scales & Bearings</u> Pupils will know how to interpret maps and scale drawings and know how to construct scale drawings and estimate real-life measures. Pupils will be able to draw and measure 3-figure bearings, including involving scale drawing and calculate bearings using angle properties and trigonometry skills. <u>Iteration & Triple Brackets</u> Pupils will be able to expand and simplify the product of three brackets, show that the solution to a higher power equation lies between two given values and rearrange a higher power equation in either 'show that' form or other, to begin the process of iteration.	<u>Further Trigonometry & Pythagoras</u> Pupils will know how to calculate the area of a triangle using $\frac{1}{2}ab \sin c$ formula and the sine and cosine rules to calculate missing lengths and angles in non-right-angled triangles. Pupils will be able to calculate the length of a diagonal on a cuboid, find the angle between a line and a plane and use Pythagoras' theorem and trigonometry to solve problems in 3D shapes. Solve and geometrical problems on coordinate axes including 3D coordinates. <u>Solving Advanced Simultaneous Equations</u> Pupils will be able to solve a pair of simultaneous equations, either one linear and one quadratic or one linear and one a circle. Pupils will know	<u>Investigating Linear Graphs</u> Pupils will know how to find the equation of a line through two points, work out graphs that are parallel or perpendicular to other graphs using a range of given information, interpret and analyse parallel and perpendicular graphs in various contexts. <u>Algebraic Fractions & Equations</u> Pupils will be able to simplify use the 4 rules of arithmetic and solve equations involving algebraic fractions. Pupils will know how to change the subject of a formula/equation where the variables are in the denominators of the algebraic fractions.	<u>Geometric Vectors</u> Pupils will know how to use vector notation. Pupils will understand the notation used with parallel vectors and the direction of a vector. Pupils will be able to represent vectors, combinations of vectors and scalar multiples in the plane pictorially. Pupils will know how to calculate the sum/difference or scalar multiple of a vector including algebraic terms. Pupils will be able to solve geometric problems in 2D, where vectors are divided in half or in a given ratio and produce geometrical and algebraic proofs to show that vectors are parallel or that points are co-linear. <u>Similarity in 3D</u> Pupils will understand the effect of enlargement on	<u>Functions</u> Pupils will be able to use function notation and evaluate numerical functions. Pupils will be able to add, subtract and find multiples of functions, numerically and algebraically. Pupils will know how to find the inverse of a function and use correct notation to represent an inverse function. Pupils will be able to find composite functions numerically and algebraically. <u>Circle Theorems</u> Pupils will remember the parts of a circle and be able to use/prove the circle theorems: the angle Pupils will be able to solve a range of missing angles problems	<u>Real Life Graphs & Measures</u> Pupils will know how to use straight line graphs for real-life situations. Pupils will be able to interpret the gradient and intercept on a linear or non-linear graph in a range of real-life contexts. Pupils will be able to interpret the rate of change of graphs of containers filling and emptying, draw distance-time graphs and use them to calculate and interpret a range of measures. Pupils will understand the compound measures of speed, distance and time and be able convert between metric speed measurements. Pupils will know how to draw velocity-time graphs and use them to calculate and interpret a range of measures. <u>Complex Solids & Measures</u>



	Pupils will know how to use iteration methods to find approximate solutions to complex equations, be able to comment on the accuracy of a solution found.	how to solve pairs of linear/quadratic or linear/circular graphically. <u>Accuracy & Bounds</u> Pupils will know how to calculate the upper and lower bounds of numbers and measurements given to various degrees of accuracy and be able to calculate upper and lower bounds of calculations with all four operations, powers and roots, using various metric units and in differing contexts. Pupils will know how to use inequality notation to write an error interval and give calculations involving bounds to an appropriate degree of accuracy, justifying the choice.		angles, lengths, area and volume. Pupils will be able to write the lengths, areas or volumes of shapes as ratio in their simplest form and be able to calculate the linear, area or volume scale factor from given 2D or 3D shapes. Pupils will know the relationship between linear, area and volume scale factors, using one to calculate another and find missing lengths, areas or volume from similar 2D and 3D shapes in a range of contexts.	using a combination of circle theorems and the angle and geometrical properties of shapes.	Pupils will know how to solve a range of problems involving complex solids including segments of circles and frustums. Pupils will be able to find the surface area and volume of compound solids constructed from cubes, cuboids, cones, pyramids, sphere, hemispheres and cylinders. Pupils will know how to convert between metric measurements of volume and capacity. Pupils will understand the compound measures of mass, density and volume and be able to convert between metric density measurements. Pupils will understand and use the compound measures of force, pressure and area and be able to convert between metric pressure measures. <u>Graphs of Trigonometric Functions & Transforming Graphs</u> Pupils will recognise, sketch and interpret graphs of trigonometric functions (in degrees) $y = \sin x$, $y = \cos x$ and $y = \tan x$ for angles of any size. Pupils will be able to apply to the graph of $y = f(x)$ the transformations
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						of reflection ($y = -f(x)$ and $y = f(-x)$) and translation ($y = f(x) + a$ and $y = f(x + a)$) including for linear, quadratic, cubic, reciprocal and trigonometrical functions.
Skills	<u>Sketching & Using Quadratic Graphs & Quadratic Inequalities</u> Sketch a quadratic graph, finding key features from factorising and completing the square. Identify from a graph whether a quadratic has any real roots. Find approximate solutions to a quadratic equation using a graph. Solve quadratic inequalities including by factorising and sketch to find critical values. <u>Scales & Bearings</u> Interpret maps and scale drawings using a variety of scales and metric units. Construct scale drawings. Estimate real life measures. Draw and measure 3-figure bearings, including involving scale drawing. Calculate bearings using angle properties and trigonometry where required. <u>Iteration & Triple Brackets</u> Expand and simplify the product of three brackets. Show that the solution to a higher power equation lies between two given values. Rearrange a higher power equation in either a 'show that' form or other, to begin the process of iteration.	<u>Further Trigonometry & Pythagoras</u> Calculate the area of a triangle and solve problems using $\frac{1}{2}ab \sin c$ formula. Use the sine and cosine rules to calculate missing lengths and angles in non-right angled triangles. Calculate the length of a diagonal on a cuboid. Find the angle between a line and a plane. Use both Pythagoras' theorem and basic and advanced trigonometry to solve problems in 3D shapes. Solve geometrical problems on coordinate axes including 3D coordinates. <u>Solving Advanced Simultaneous Equations</u> Solve a pair of simultaneous equations, one linear and one quadratic, using elimination and/or substitution. Solve a pair of simultaneous equations, one linear and one of a circle, using elimination and/or substitution.	<u>Investigating Linear Graphs</u> Find the equation of a line through two given points. Work out graphs that are parallel or perpendicular to other graphs using a range of given information. Interpret and analyse parallel and perpendicular graphs in various contexts. <u>Algebraic Fractions & Equations</u> Simplify algebraic fractions. Add, subtract, multiply and divide algebraic fractions. Solve equations involving algebraic fractions. Change the subject of a formula/equation where the variables are in the denominators of the algebraic fractions.	<u>Numerical & Geometric Vectors</u> Understand and use vector notation, including column notation. Understand the notation used with parallel vectors and the direction of a vector. Represent vectors, combinations of vectors and scalar multiples in the plane pictorially. Calculate the sum, difference or scalar multiple of a vector using column vectors and including algebraic terms. Represent vectors using algebra. Solve geometric problems in 2D, where vectors are divided in half or in a given ratio. Produce geometrical and algebraic proofs to show that vectors are parallel or that points are co-linear. <u>Similarity in 3D</u> Understand the effect of enlargement on angles, lengths, area and volume. Write the lengths, areas or volumes of shapes as a	<u>Functions</u> Use function notation. Evaluate numerical functions, e.g. $f(2)$ Add, subtract and find multiples of functions, numerically and algebraically. Find the inverse of a function and use correct notation to represent an inverse function. Find composite functions numerically and algebraically. <u>Circle Theorems</u> Recall the parts of a circle. Prove and use the following circle theorems: the angle subtended by an arc at the centre of a circle is twice the angle subtended at any point on the circumference; the angle is a semi-circle is a right angle; the perpendicular from the centre of a	<u>Real Life Graphs & Measures</u> Draw and use straight line graphs for real-life situations including conversion graphs. Interpret the gradient and intercept in a range of real-life contexts on a linear or non-linear graph. Interpret the rate of change of graphs of containers filling and emptying. Draw distance-time graphs. Use distance-time graphs to calculate and interpret a range of measures: speed, average speed, distance, time (including estimates from non-linear graphs). Understand and use the compound measures of speed, distance and time. Convert between metric speed measurements. Draw velocity-time graphs. Use velocity-time graphs to calculate and interpret a range of measures: acceleration, average acceleration, distance travelled including estimations from



	Use iteration to find approximate solutions to complex equations. Consider and comment on the accuracy of a solution found through iteration.	Solve pairs of linear/quadratic or linear/circular graphically, including where graphs are given or need to be drawn. <u>Accuracy & Bounds</u> Calculate the upper and lower bounds of numbers and measurements given to various degrees of accuracy. Calculate upper and lower bounds of calculations using all four operations, powers and roots, with various metric units and in various contexts. Use inequality notation to write an error interval. Give calculations involving bounds to an appropriate degree of accuracy, justifying the choice.		ratio in its simplest form. Calculate the linear, area or volume scale factor from given 2D or 3D shapes. Know the relationship between the linear, area and volume scale factors and use one to calculate another. Find missing lengths, areas or volume from similar 2D and 3D shapes in a range of contexts.	circle to a chord bisects the chord; angles in the same segment are equal; opposite angles in a cyclic quadrilateral sum to 180°; the alternate segment theorem. Use the fact that the tangent at any point on a circle is perpendicular to the radius at that point, and that tangents from an external point are equal in length. Use the fact that the angle between the tangent and radius is 90°. Solve a range of missing angles problems using circle theorems, angle properties and geometrical properties of shapes.	non-linear graphs. <u>Complex Solids & Measures</u> Solve problems involving more complex solids including segments of circles and frustums. Solve problems involving frustums where missing lengths require the use of similar triangles. Find the surface area and volume of compound solids constructed from cubes, cuboids, cones, pyramids, sphere, hemispheres and cylinders. Convert between metric measurements of volume and capacity. Understand and use the compound measures of mass, density and volume. Convert between metric density measurements. Understand and use the compound measures of force, pressure and area. Convert between metric pressure measures. <u>Graphs of Trigonometric Functions & Transforming Graphs</u> Recognise, sketch and interpret graphs of trigonometric functions (in degrees) $y = \sin x$, $y = \cos x$ and $y = \tan x$ for angles of any size.
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						Apply to the graph of $y = f(x)$ (including sketching or representing algebraically) the transformations of reflection ($y = -f(x)$ and $y = f(-x)$) and translation ($y = f(x) + a$ and $y = f(x + a)$) including for linear, quadratic, cubic, reciprocal and trigonometrical functions.
Assessments Formative	Assessment 12 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 13 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 14 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 15 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.
Assessments Summative		Assessment Window 1 (Mock)				End-of-Year Assessment
Homework	Mathswatch: Advanced+ revision assignment 12 Independent homework tasks based on class teacher professional judgement	Mathswatch: Advanced+ revision assignment 13 Mathswatch revision assignment for Window 1 assessment (mock). Independent homework tasks based on class teacher professional judgement	Mathswatch: Advanced+ revision assignment 14 Independent homework tasks based on class teacher professional judgement	Independent homework tasks based on class teacher professional judgement	Mathswatch: Advanced+ revision assignment 15 Independent homework tasks based on class teacher professional judgement	End-of-Year practice papers 6 x half papers 1A 1B 2A 2B 3A 3B End-of-year Advanced+ Mathswatch revision assignment Independent homework tasks based on class teacher professional judgement


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	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topics/Skills	- Sketching Circle Graphs, Using Quadratic Graphs & Inequalities - Scales & Bearings - Iteration & Triple Brackets	- Further Trigonometry & Pythagoras - Solving Advanced Simultaneous Equations Graphically - Accuracy & Bounds	- Investigating Linear Graphs - Algebraic Fractions & Equations	- Numerical & Geometric Vectors - Similarity in 3D	- Functions - Circle Theorems	- Real Life Graphs & Measures - Complex Solids & Measures - Graphs of Trigonometric Functions & Transforming Graphs
Knowledge	<u>Sketching & Using Quadratic Graphs & Quadratic Inequalities</u> Pupils will know how to sketch a quadratic graph, be able to identify from a graph if a quadratic has any real roots and find approximate solutions to a quadratic equation using a graph. Pupils will learn how to solve quadratic inequalities. <u>Scales & Bearings</u> Pupils will know how to interpret maps and scale drawings and know how to construct scale drawings and estimate real-life measures. Pupils will be able to draw and measure 3-figure bearings, including involving scale drawing and calculate bearings using	<u>Further Trigonometry & Pythagoras</u> Pupils will know how to calculate the area of a triangle using $\frac{1}{2}ab \sin c$ formula and the sine and cosine rules to calculate missing lengths and angles in non-right-angled triangles. Pupils will be able to calculate the length of a diagonal on a cuboid, find the angle between a line and a plane and use Pythagoras' theorem and trigonometry to solve problems in 3D shapes. Solve and geometrical problems on coordinate axes including 3D coordinates. <u>Solving Advanced Simultaneous Equations</u> Pupils will be able to solve a pair of simultaneous equations, either one linear and one quadratic or one linear and	<u>Linear Graphs</u> Pupils will know how to draw graphs of the form $ax + by = c$ and be able to identify and interpret gradient and intercept. Pupils will be able to find the equation of a line through one point with a given gradient and find the equation of a line through two given points. Pupils will know that parallel graphs have the same gradient and perpendicular graphs have gradients with a product of -1. Pupils will be able to work out graphs that are parallel or perpendicular to other graphs using a range of given information and interpret parallel and perpendicular graphs in various contexts.	<u>Numerical & Geometric Vectors</u> Pupils will understand and use vector notation including parallel vectors and the direction of a vector. Pupils will be able to represent vectors, combinations of vectors and scalar multiples in the plane pictorially. Pupils will know how to work out the sum, difference or scalar multiple of a vector using column vectors and including algebraic terms. Pupils will be able to represent vectors using algebra and solve geometric problems in 2D. Pupils will develop their knowledge of producing geometrical and algebraic proofs to show that vectors are parallel or that points are co-linear.	<u>Functions</u> Pupils will be able to use function notation and evaluate numerical functions. Pupils will be able to add, subtract and find multiples of functions, numerically and algebraically. Pupils will know how to find the inverse of a function and use correct notation to represent an inverse function. Pupils will be able to find composite functions numerically and algebraically. <u>Circle Theorems</u> Pupils will remember the parts of a circle and be able to use (but not need to prove) the circle theorems. Pupils will be able to solve a range of missing angles problems using circle theorems and the angle & geometrical properties of shapes.	<u>Real Life Graphs & Measures</u> Pupils will know how to use straight line graphs for real-life situations. Pupils will be able to interpret the gradient and intercept on a linear or non-linear graph in a range of real-life contexts. Pupils will be able to interpret the rate of change of graphs of containers filling and emptying, draw distance-time graphs and use them to calculate and interpret a range of measures. Pupils will understand the compound measures of speed, distance and time and be able to convert between metric speed measurements. Pupils will know how to draw velocity-time graphs and use them to calculate and interpret a range of measures.



	angle properties and trigonometry skills. <u>Iteration & Triple Brackets</u> Pupils will be able to expand and simplify the product of three brackets, show that the solution to a higher power equation lies between two given values and rearrange a higher power equation in either 'show that' form or other, to begin the process of iteration. Pupils will know how to use iteration methods to find approximate solutions to complex equations, be able to comment on the accuracy of a solution found.	one a circle. Pupils will know how to solve pairs of linear/quadratic or linear/circular graphically. <u>Accuracy & Bounds</u> Pupils will know how to calculate the upper and lower bounds of numbers and measurements given to various degrees of accuracy and be able to calculate upper and lower bounds of calculations with all four operations, powers and roots, using various metric units and in differing contexts. Pupils will know how to use inequality notation to write an error interval and give calculations involving bounds to an appropriate degree of accuracy, justifying the choice.	<u>Algebraic Fractions & Equations</u> Pupil will be able to simplify, use the rules of arithmetic and solve equations involving algebraic fractions.	<u>Similarity in 3D</u> Pupils will understand the effect of enlargement on angles, lengths, area and volume. Pupils will be able to write the lengths, areas or volumes of shapes as ratio in their simplest form and be able to calculate the linear, area or volume scale factor from given 2D or 3D shapes. Pupils will know the relationship between linear, area and volume scale factors, using one to calculate another and find missing lengths, areas or volume from similar 2D and 3D shapes in a range of context	<u>Complex Solids & Measures</u> Pupils will know how to solve a range of problems involving complex solids including segments of circles and frustums. Pupils will be able to find the surface area and volume of compound solids constructed from cubes, cuboids, cones, pyramids, sphere, hemispheres and cylinders. Pupils will know how to convert between metric measurements of volume and capacity. Pupils will understand the compound measures of mass, density and volume and be able to convert between metric density measurements. Pupils will understand and use the compound measures of force, pressure and area and be able to convert between metric pressure measures. <u>Graphs of Trigonometric Functions & Transforming Graphs</u> Recognise, sketch and interpret graphs of trigonometric functions (in degrees) $y = \sin x$, $y = \cos x$ and $y = \tan x$ for angles of any size. Apply to the graph of $y = f(x)$ (including sketching or
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						representing algebraically) the transformations of reflection ($y = -f(x)$ and $y = f(-x)$) and translation ($y = f(x) + a$ and $y = f(x + a)$) including for linear, quadratic, cubic, reciprocal and trigonometrical functions.
Skills	<u>Sketching & Using Quadratic Graphs & Quadratic Inequalities</u> Sketch a quadratic graph, finding roots from factorising or using the quadratic formula. Identify from a graph whether a quadratic has any real roots. Find approximate solutions to a quadratic equation using a graph. Estimate the gradient at a point, on a quadratic graph. Draw circles with a centre at the origin, in the form $x^2 + y^2 = r^2$. Solve quadratic inequalities including by factorising and sketch to find critical values. <u>Scales & Bearings</u> Interpret maps and scale drawings using a variety of scales and metric units. Construct scale drawings. Estimate real life measures.	<u>Further Trigonometry & Pythagoras</u> Calculate the area of a triangle and solve problems using $\frac{1}{2}ab \sin c$ formula. Use the sine and cosine rules to calculate missing lengths and angles in non-right angled triangles. Calculate the length of a diagonal on a cuboid. Find the angle between a line and a plane. Use both Pythagoras' theorem and basic trigonometry to solve simple problems in 3D shapes. <u>Solving Advanced Simultaneous Equations</u> Solve a pair of simultaneous equations graphically only, including: one linear and one quadratic. one linear and one of a circle, including where graphs are given or need to be drawn. <u>Accuracy & Bounds</u> Calculate the upper and lower bounds	<u>Investigating Linear Graphs</u> Plot and draw graphs of the form $ax + by = c$. Identify and interpret gradient and intercept from graphs of the form $ax + by = c$. Find the equation of a line through one point with a given gradient. Find the equation of a line through two given points. Know and use the fact that parallel graphs have the same gradient and perpendicular graphs have gradients with a product of -1. Work out graphs that are parallel or perpendicular to other graphs using a range of given information. Interpret and analyse parallel and perpendicular graphs in various contexts. <u>Algebraic Fractions & Equations</u> Simplify algebraic fractions.	<u>Numerical & Geometric Vectors</u> Understand and use vector notation, including column notation. Understand the notation used with parallel vectors and the direction of a vector. Represent vectors, combinations of vectors and scalar multiples in the plane pictorially. Calculate the sum, difference or scalar multiple of a vector using column vectors and including algebraic terms. Represent vectors using algebra. Solve geometric problems in 2D, where vectors are divided in half or in a given ratio. Produce geometrical and algebraic proofs to show that vectors are parallel or that points are co-linear, in simple cases. <u>Similarity in 3D</u> Understand the effect of enlargement on angles, lengths, area and volume. Write the lengths, areas or	<u>Functions</u> Use function notation. Evaluate numerical functions, e.g. $f(2)$. Add, subtract and find multiples of functions, numerically and algebraically. Find the inverse of a function and use correct notation to represent an inverse function. Find composite functions numerically and algebraically with very simple examples. <u>Circle Theorems</u> Recall the parts of a circle. Know and use (but not prove) the following circle theorems: the angle subtended by an arc at the centre of a circle is twice the angle subtended at any point on the circumference. the angle is a semi-circle is a right angle. the perpendicular from the centre of a circle to a chord bisects the chord; angles in the same segment are equal; opposite angles in a cyclic	<u>Real Life Graphs & Measures</u> Draw and use straight-line graphs for real-life situations including conversion graphs. Interpret the gradient and intercept in a range of real-life contexts on a linear or non-linear graph. Interpret the rate of change of graphs of containers filling and emptying. Draw distance-time graphs. Use distance-time graphs to calculate and interpret a range of measures: speed, average speed, distance, time (including estimates from non-linear graphs). Understand and use the compound measures of speed, distance and time. Convert between metric speed measurements. Draw velocity-time graphs. Use velocity-time graphs to calculate and interpret a range of measures: acceleration, average acceleration, distance



	Draw and measure 3-figure bearings, including involving scale drawing. Calculate bearings using angle properties and trigonometry where required. <u>Iteration & Triple Brackets</u> Expand and simplify the product of three brackets. Show that the solution to a higher power equation lies between two given values. Rearrange a simple higher power equation in either a 'show that' form or other, to begin the process of iteration. Given x_0, Use iteration to find approximate solutions to different equations. Consider and comment on the accuracy of a solution found through iteration.	of numbers and measurements given to various degrees of accuracy. Calculate upper and lower bounds of calculations using all four operations, powers and roots and with various metric units and in various contexts. Use inequality notation to write an error interval. Give calculations involving bounds to an appropriate degree of accuracy, justifying the choice.	Add, subtract, multiply and divide algebraic fractions. Solve equations involving algebraic fractions.	volumes of shapes as a ratio in its simplest form. Calculate the linear, area or volume scale factor from given 2D or 3D shapes. Know the relationship between the linear, area and volume scale factors and use one to calculate another. Find missing lengths, areas or volume from similar 2D and 3D shapes in a range of contexts.	quadrilateral sum to 180°; the alternate segment theorem; the tangent at any point on a circle is perpendicular to the radius at that point; tangents from an external point are equal in length; the angle between the tangent and radius is 90°. Solve a range of missing angles problems using circle theorems, angle properties and geometrical properties of shapes.	travelled including estimations from non-linear graphs. <u>Complex Solids & Measures</u> Solve problems involving more complex solids including segments of circles and frustums. Solve problems involving frustums where missing lengths require the use of similar triangles. Find the surface area and volume of compound solids constructed from cubes, cuboids, cones, pyramids, sphere, hemispheres and cylinders. Convert between metric measurements of volume and capacity. Understand and use the compound measures of mass, density and volume. Convert between metric density measurements. Understand and use the compound measures of force, pressure and area. Convert between metric pressure measures. <u>Graphs of Trigonometric Functions & Transforming Graphs</u> Recognise, sketch and interpret graphs of trigonometric functions (in degrees) $y = \sin x$, $y = \cos x$ and $y =$



						$\tan x$ for angles of any size. Apply to the graph of $y = f(x)$ (including sketching or representing algebraically) the transformations of reflection ($y = -f(x)$ and $y = f(-x)$) and translation ($y = f(x) + a$ and $y = f(x + a)$) including for linear, quadratic, cubic, reciprocal and trigonometrical functions.
Assessments Formative	Assessment 12 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 13 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 14 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 15 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.
Assessments Summative		Assessment Window 1 (Mock)				End-of-Year Assessment
Homework	Mathswatch: Advanced Revision assignment 12 Independent homework tasks based on class teacher professional judgement	Mathswatch: Advanced Revision assignment 13 Mathswatch revision assignment for Window 1 assessment (mock). Independent homework tasks based on class teacher professional judgement	Mathswatch: Advanced Revision assignment 14 Independent homework tasks based on class teacher professional judgement	Independent homework tasks based on class teacher professional judgement	Mathswatch: Advanced Revision assignment 15 Independent homework tasks based on class teacher professional judgement	EOY practice papers 6 x half papers 1A 1B 2A 2B 3A 3B End-of-year Advanced Mathswatch revision assignment


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Rationale	Communicate mathematical thinking more clearly within more advanced areas of study. Be more confident with numeric and algebraic manipulation, as well as proportional reasoning. Use a scientific calculator with ease. Become more confident working with AO1, AO2 and AO3 style questions.					
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic/Unit	- Ratio & Fractions - Applications of Scatter Graphs - Trigonometry	- Changing the Subject of a Formula - Working with Linear Graphs - Real Life Graphs - Similarity in 2D Shapes	- Transformations - Simultaneous Equations	- Working with Circles in 2D & 3D - Multiplicative Reasoning	- Proportion - Relative Frequency & Tree Diagrams	- Quadratic Expressions, Equations & Graphs - Scales, Scale Drawing & Bearings
Knowledge	<u>Ratio & Fractions</u> Pupils will know how to write and simplify ratios, share values in a ratio and find the other value in a ratio when given one part or total amount. Pupils will be able to apply the four rules of arithmetic to fractions and find fractions of amounts. <u>Applications of Scatter Graphs</u> Pupils will know how to plot and interpret scatter graphs, identify outliers and consider what they show, recognise correlation, & interpret patterns in the context of the problem. Pupils will be able to draw/use the line of best fit to make predictions for unknown data and assess the reliability of predictions based on interpolation or extrapolation.	<u>Changing the Subject of a Formula</u> Pupils will be able to rearrange equations and formula and change the subject of an equation or formula involving the use of squares, cubes, square roots and cube roots. Pupils will know how to change the subject of an equation or formula where the subject appears more than once, in simple cases. <u>Working with Linear Graphs</u> Pupils will be able to accurately draw, label and scale axes. Pupils will identify and plot co-ordinates in all 4 quadrants and find the co-ordinates of the midpoint of a line segment. Pupils will be able to draw linear graphs of the form $ax + by = c$.	<u>Transformations</u> Pupils will recognise, describe and draw rotations using centre of rotation and angle & direction. Pupils will recognise, describe and draw reflections using a mirror line and the equation. Pupils will recognise, describe and draw translations using a column vector. Pupils will recognise, describe and draw enlargements using a centre of enlargement and a scale factor, including fractional values. Pupils will be able to describe the effect of combined transformations as a single transformation. <u>Simultaneous Equations</u> Pupils will be able to solve a pair of linear simultaneous equations using elimination and working with positive,	<u>Working with Circles in 2D & 3D</u> Pupils will be able to calculate angles, arc lengths and the area of sectors of a circle. Pupils will know how to find the surface area and volume of cylinders, spheres, cones, pyramids and composite solids. <u>Multiplicative Reasoning</u> Pupils will be able to express a given number as a percentage of another number in complex situations and solving problems. Pupils will know how to calculate percentage profit and loss, find values after repeated percentage change, find the original amount after knowing the final amount due to a percentage increase or decrease and calculate compound interest or depreciation.	<u>Proportion</u> Pupils will understand the difference between direct and inverse proportion, recognise direct and inverse proportion from graphs and use graphs to solve problems. Pupils will be able to find missing values in tables of direct/inverse data and solve direct and inverse proportion problems in a range of contexts. <u>Relative Frequency & Tree Diagrams</u> Pupils will know how to find the probability of an event happening using relative frequency and estimate the number of times an event will happen from given information. Pupils will be able to compare relative frequencies from different sample sizes and find the probability of successive events. Pupils will know how to complete	<u>Quadratic Expressions, Equations & Graphs</u> Pupils will be able to factorise quadratic expressions of the form $x^2 + bx + c$ and of the form $x^2 - a^2$. Pupils will know how to solve simple quadratic equations by factorising and how to find the roots of a quadratic function algebraically. Pupils will be able to generate points and plot quadratic function, identifying the turning point, roots and line of symmetry and know how to find approximate solutions to a quadratic equation using its graph. Pupils will be able to generate points and plot cubic and reciprocal functions. <u>Scales, Scale Drawing & Bearings</u> Pupils will know how to interpret maps and scale drawings, estimate lengths using a scale



	<u>Trigonometry</u> Pupils will know and apply the trigonometric ratios sine, cosine and tangent, using them to find unknown sides and angles in right-angled triangles. Pupils will be able to find angles of elevation and depression. Pupils will be able to solve problems using the trig. ratios alongside known angle properties or Pythagoras' theorem. Pupils will know the exact values of $\sin \theta$, $\cos \theta$ and $\tan \theta$ for 0°, 30°, 45° and 60° and 90° for $\sin \theta$ and $\cos \theta$ only.	Pupils will know how to find the equation of a straight line from its graph, through one point and a given gradient, though two given points and be able to find approximate solutions to linear equations from graphs. <u>Real Life Graphs</u> Pupils will know how to draw and interpret straight line graphs for real-life situations and find/interpret the gradient of a real-life graph, in the context of the question. Pupils will be able to draw distance-time graphs, interpret them and calculate the speed of individual sections, the total distance and the total time. Pupils will also be able to draw velocity-time graphs. Pupils will know how to interpret the gradient as the rate of change in distance-time, speed-time graphs, graphs of containers emptying and unit-price graphs. <u>Similarity in 2D Shapes</u> Pupils will be able to write the lengths of two shapes as	negative and fractional solutions. Pupils will know how to identify the solutions of simultaneous equations drawn graphically. Pupils will be able to set up simultaneous equations to represent a situation and solve them within the context of the problem.		tree diagrams and use them to calculate the probability of two independent or dependent events.	diagram and draw to scale accurately. Pupils will be able to draw and measure three-figure bearings and mark on a diagram the position of point B given its bearing from point A. Pupils will be able to apply their knowledge of bearings in drawing scale diagrams.
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		a ratio in its simplest form. Pupils will know the conditions that make shapes similar and be able to prove that two shapes are similar using angle properties and/or enlargement. Pupils will identify the scale factor that links similar shapes and use it to find missing lengths in a range of situations.				
Skills	Ratio & Fractions Write and simplify ratios from given information. Share values in a given ratio in a range of contexts. Given the value of one part of a ratio find the other or the total amount. Apply the four rules of arithmetic to fractions in order to solve a range of problems. Find fractions of amounts in order to solve problems. Applications of Scatter Graphs Plot and interpret scatter graphs in a range of contexts. Identify outliers and consider what they show. Identify correlation and interpret in the context of the problem. Draw and use a line of best	Changing the Subject of a Formula Rearrange simple equations and formula. Change the subject of an equation or formula involving the use of squares, cubes, square roots and cube roots. Change the subject of an equation or formula where the subject appears more than once, in simple cases with simple factorising required. Working with Linear Graphs Identify and plot co-ordinates in all 4 quadrants. Find the co-ordinates of the midpoint of a line segment, with and without a given diagram. Draw, label and accurately scale axes. Plot and draw linear graphs	Transformations Recognise, describe and draw rotations using a centre of rotation, angle and direction. Recognise, describe and draw reflections using a mirror line and its equation. Recognise, describe and draw translations using a column vector. Recognise, describe and draw enlargements using a centre of enlargement (and without) and a scale factor, including fractional values. Describe the effect of combined transformations as a single transformation. Simultaneous Equations Solve a pair of linear simultaneous equations using elimination, including working with fractional and	Working with Circles in 2D & 3D Calculate arc lengths, angles and the area of sectors of a circle. Find the surface area of a cylinder. Find the volume of a cylinder. Find the surface area and volume of spheres, cones, pyramids and composite solids. Multiplicative Reasoning Express a given number as a percentage of another number in more complex situations including problem solving. Calculate percentage profit and loss. Make calculations involving repeated percentage change including the use of a formula. Find the original amount given the final amount after a percentage	Proportion Understand the difference between direct and inverse proportion. Recognise direct and inverse proportion from graphs and use graphs to problem solve. Find missing values in tables of data that are in direct or inverse proportion. Solve direct and inverse proportion problems in a range of contexts. Relative Frequency & Tree Diagrams Find the probability of an event happening using relative frequency. Estimate the number of times an event will happen from given information and relative frequency. Compare relative frequencies from different sample sizes.	Quadratic Expressions, Equations & Graphs Factorise quadratic expressions of the form $x^2 + bx + c$. Factorise quadratic expressions of the form $x^2 - a^2$ using the difference of two squares technique. Solve simple quadratic equations by factorising. Find the roots of a quadratic function algebraically. Generate points and plot quadratic functions. Identify the turning point, roots and line of symmetry from a quadratic graph. Find approximate solutions to a quadratic equation using its graph. Generate points and plot cubic and reciprocal functions. Scales, Scale Drawing & Bearings



	fit to make predictions for unknown data. Assess the reliability of predictions based on whether they come from interpolation or extrapolation. <u>Trigonometry</u> Know and use the trigonometric ratios sine, cosine and tangent and use them to find unknown sides and angles in right-angled triangles. Find angles of elevation and depression. Solve problems using the trig. ratios, including Pythagoras' theorem and angle properties. Know the exact values of $\sin \theta$, $\cos \theta$ and $\tan \theta$ for 0°, 30°, 45° and 60° and 90° for $\sin \theta$ and $\cos \theta$ only.	of the form $ax + by = c$. Find the equation of a straight line from its graph. Find the equation of the straight line through one point and a given gradient. Find the equation of the straight line through two given points. Find approximate solutions to linear equations from graphs. <u>Real Life Graphs</u> Draw and interpret straight line graphs for real-life situations including conversion graphs. Find and interpret the gradient of a real-life graph, in the context of the question. Draw distance-time graphs. Interpret distance-time graphs and calculate the speed of individual sections, total distance and total time. Draw velocity-time graphs. Interpret gradient as the rate of change in distance-time and speed-time graphs, graphs of containers emptying and unit price graphs. <u>Similarity in 2D Shapes</u> Write the lengths of two shapes as a ratio in its simplest form.	negatives solutions. Identify the solutions of simultaneous equations drawn graphically. Set up simultaneous equations to represent a situation and solve within the context of the problem.	increase or decrease. Calculate compound interest and depreciation, including the amount of interest or the final amount.	Find the probability of successive events, such as several throws of a dice. Complete tree diagrams from given information. Use tree diagrams to calculate the probability of two independent events and of two dependent events.	Interpret maps and scale drawings. Estimate lengths using a scale diagram or knowledge of real-life lengths. Make an accurate scale drawing from a diagram. Draw and measure three-figure bearings. Mark on a diagram the position of point B given its bearing from point A and vice versa. Use bearings with scale diagrams.
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		Understand the conditions that make shapes similar, for both lengths and angles. Prove that two shapes are similar using angle properties and/or enlargement. Identify the scale factor that links similar shapes and use it to find missing lengths in a range of situations (including the use of fractional scale factors)				
Assessments Formative	Assessment 12 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 13 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 14 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 15 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.
Assessments Summative		Assessment Window 1 (Mock)				End-of-Year Assessment
Homework	Mathswatch: Core+ revision assignment 12 Independent homework tasks based on class teacher professional judgement	Mathswatch: Core+ revision assignment 13 Independent homework tasks based on class teacher professional judgement	Mathswatch: Core+ revision assignment 14 Independent homework tasks based on class teacher professional judgement	Independent homework tasks based on class teacher professional judgement	Mathswatch: Core+ revision assignment 15 Independent homework tasks based on class teacher professional judgement	EOY practice papers 6 x half papers 1A 1B 2A 2B 3A 3B Independent homework tasks based on class teacher professional judgement



SUBJECT: MATHEMATICS – Core Pathway

Year Group	YEAR 10					
Rationale	Communicate mathematical thinking more clearly within more advanced areas of study. Be more confident working with number calculations and proportional reasoning. Use a scientific calculator effectively. Become more familiar with the differences between AO1, AO2 and AO3 style questions.					
	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Topic/Unit	- Ratio & Fractions revisit - Scatter Graphs revisit - Linking Fractions & Decimals - Changing the Subject of a Formula	- Working with Linear Graphs - Solving Linear Equations revisit - Real Life Graphs - Similarity & Congruency in 2D Shapes	- Transformations - Working with Inequalities	- Real Life Measurements - Working with Shapes in 2D & 3D	- Percentage Calculations - Ratio & Proportion revisit	- Relative Frequency & Tree Diagrams - Quadratic Equations, Expressions & Graphs - Scales, Scale Drawing & Bearings
Knowledge	<u>Ratio & Fractions revisit</u> Pupils will remember how to state and simplify ratios from given information. Pupils will know how to share values in each ratio in a range of contexts. Pupils will know how to find the value of one part of a ratio when given the other. Pupils will be able to apply the four rules of arithmetic and find fractions of amounts in problem solving situations. <u>Scatter Graphs revisit</u> Pupils will be able to plot and interpret scatter graphs in a range of contexts, identify outliers	<u>Working with Linear Graphs</u> Pupils will be able to draw, label and accurately scale axes and identify and plot co-ordinates in all 4 quadrants. Pupils will know how to find the co-ordinates of the midpoint of a line segment, with and without a given diagram and draw and identify graphs that are parallel to the axes, as well as $y = x$ and $y = -x$. Pupils will be able to plot and draw linear graphs of the form $y = mx + c$ using a table of values. Pupils will know how to find and interpret the gradient and intercept of a simple line from its equation or its graph. Pupils will be able to find the equation of a simple straight line from its graph and identify parallel lines from their equations. Pupils will be able to find approximate	<u>Transformations</u> Pupils will recognise, describe and draw rotations using angle, direction and centre of rotation. Pupils will identify, describe and draw reflections using a mirror line and its equation. Pupils will recognise, describe and draw translations using a column vector. Pupils will know how to describe and draw enlargements using a scale factor and with/without a centre of enlargement. Pupils will be able to describe the effect of combined transformations as a single transformation, in simple cases. <u>Working with Inequalities</u> Pupils will be able to show inequalities on number lines using open and	<u>Measurements</u> Pupils will know how to use correct notation for 12- and 24-hour clock and convert between the two. Pupils will be able to work out the time taken for a journey and calculate time intervals in hours, minutes or a mixture of both. Pupils will know how to use a calculator with time calculations and be able to read from and use timetables and mileage charts. Pupils will be able to choose an appropriate unit of measurement for a range of situations and be able to convert between metric measurements. <u>Working with Shapes in 2D & 3D</u> Pupils will be able to find the perimeter and area of rectangles, triangles, parallelograms	<u>Percentage Calculations</u> Pupils will be able to convert between and order fractions, decimals and percentages. Pupils will know how to express a given number as a percentage of another. Pupils will be able to find percentages of amounts with and without a calculator, calculate the amount of a percentage increase or decrease and use percentages to solve problems and in real-life contexts such as VAT, profit & loss and simple interest. <u>Ratio & Proportion revisit</u> Pupils will remember how to change between fractions and ratios and how to simplify ratios including those in simple unitary form. Pupils will be able to share a quantity in each	<u>Relative Frequency & Tree Diagrams</u> Pupils will be able to find the probability of an event happening using relative frequency and estimate the number of times an event will happen from given information. Pupils will know how to compare relative frequencies from different sample sizes and find the probability of successive events. Pupils will complete tree diagrams from given information and use tree diagrams to calculate the probability of two events happening. <u>Quadratic Expressions, Equations & Graphs</u> Pupils will be able to simplify expressions involving single brackets and develop their knowledge of expressions that



	considering what they show, recognise correlation and interpret what it means in the context of the question. Pupils will be able to draw/use a line of best fit to make predictions for unknown data. <u>Linking Fractions & Decimals</u> Pupils will be able to convert between fractions and decimals. Pupils will recognise recurring decimals and convert fractions into recurring decimals. Pupils will know how to compare and order fractions, decimals and integers. <u>Changing the Subject of a Formula</u> Pupils will be able to rearrange simple equations and formula and be able to change the subject of an equation or formula involving the use of squares, cubes, square and roots.	solutions to linear equations from graphs. <u>Solving Linear Equations revisit</u> Pupils will be able to write simple expressions or equations from given information. Pupils will know how to solve linear equations with integer coefficients where the unknown appears on either or both sides in simple cases. Pupils will know how to solve equations involving brackets and those with negative solutions. <u>Real Life Graphs</u> Pupils will be able to draw and interpret straight line graphs for real-life situations including conversion graphs. Pupils will be able to draw and interpret distance-time graphs. Pupils will know how to draw very simple velocity-time graphs. <u>Similarity & Congruency in 2D Shapes</u> Pupils will recognise and name different polygons. Pupils will be able to identify which shapes are similar by knowing and applying the conditions that make shapes similar.	closed circles and write down all integers that satisfy an inequality. Pupils will be able to solve linear inequalities in one variable and represent the solution on a number line. Pupils will know how to use inequality notation to express error intervals for rounding and possibly truncation.	and trapezia, including composite shapes. Pupils will develop their understanding of finding the surface area and volume of basic 3D shapes.	ratio, change between currencies, manipulate recipes, justify which product offers the best value, use a ratio to compare a scale model to a real-life object and solve proportion problems using the unitary method.	involve the expanding and simplifying of more than one bracket. Pupils will be able to fully factorise an expression into a single bracket. Pupils will know how to expand and simplify simple double brackets. Pupils will develop their understanding of factorise quadratic expressions of the form $x^2 + bx + c$ where all coefficients are positive. Pupils will know how to generate points, plot quadratic functions using a table of values and find approximate solutions to a quadratic equation using its graph. Pupils will be able to identify the turning point, roots and line of symmetry from a quadratic graph. <u>Scales, Scale Drawing & Bearings</u> Interpret maps and scale drawings. Estimate lengths using a scale diagram or knowledge of real-life lengths. Make an accurate scale drawing from a diagram. Draw and measure three-figure bearings. Mark on a diagram the position of point B given its bearing from point A and vice versa. Use bearings with scale diagrams.
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		Pupils will know how to identify the scale factor that links similar shapes. Pupils will know how to solve problems finding missing length for simple scale factors and how to identify shapes which are congruent, by eye.				
Skills	<u>Ratio & Fractions revisit</u> Write and simplify ratios from given information. Share values in a given ratio in a range of contexts. Given the value of one part of a ratio find the other or the total amount. Apply the four rules of arithmetic to fractions in order to solve problems. Find fractions of amounts in order to solve problems. <u>Scatter Graphs revisit</u> Plot and interpret scatter graphs in a range of contexts. Identify outliers and consider what they show. Identify correlation and interpret in the context of the problem. Draw and use a line of best fit to make	<u>Working with Linear Graphs</u> Identify and plot co-ordinates in all 4 quadrants. Find the co-ordinates of the midpoint of a line segment, with and without a given diagram. Draw, label and accurately scale axes. Draw and identify graphs that are parallel to the axes, as well as $y = x$ and $y = -x$. Plot and draw linear graphs of the form $y = mx + c$ using a given table of values or constructing one. Find and interpret the gradient of a line from its equation or its graph, in simple cases. Find and interpret the intercept of a line from its equation or its graph, in simple cases. Identify parallel lines from their equations. Find the equation of a straight line from its graph in very simple cases. Find approximate solutions to linear equations from graphs. <u>Solving Linear Equations revisit</u>	<u>Transformations</u> Recognise, describe and draw rotations using a centre of rotation, angle and direction. Recognise, describe and draw reflections using a mirror line and its equation. Recognise, describe and draw translations using a column vector. Recognise, describe and draw enlargements using a centre of enlargement (and without) and a scale factor, including fractional values. Describe the effect of combined transformations as a single transformation, in simple cases. <u>Working with Inequalities</u> Show inequalities on number lines using open and closed circles. Write down all integers that satisfy a given inequality. Solve linear inequalities in one variable and represent the solution on a number line. Use inequality notation to	<u>Real Life Measurements</u> Use correct notation for 12 and 24-hour clock and convert between the two. Work out the time taken for a journey. Calculate time intervals in hours, minutes or a mixture of both. Use a calculator correctly with time calculations. Read from and use timetables. Read from and use mileage charts. Choose an appropriate unit of measurement for a range of situations including estimations. Convert between metric measurements. <u>Working with Shapes in 2D & 3D</u> Find the perimeter of rectangles, triangles, parallelograms and trapezia, including composite shapes. Find the area of rectangles, triangles, parallelograms and trapezia, including composite shapes.	<u>Percentage Calculations</u> Convert between fractions, decimals and percentages. Compare and order fractions, decimals and percentages. Express a given number as a percentage of another number. Find percentages of amounts with and without a calculator. Calculate the amount of a percentage increase or decrease. Use percentages to solve problems and in real-life contexts such as VAT, value of profit and loss and simple interest. Calculate percentage profit and loss in simple cases. <u>Ratio & Proportion revisit</u> Simplify ratios including writing ratios in simple unitary form. Share a quantity in a given ratio including 3 part ratios. Interchange between fractions and ratios. Convert between currencies in a	<u>Relative Frequency & Tree Diagrams</u> Find the probability of an event happening using relative frequency. Estimate the number of times an event will happen from given information and relative frequency. Compare relative frequencies from different sample sizes. Find the probability of successive events, such as several throws of a dice. Complete tree diagrams from given information. Use tree diagrams to calculate the probability of two events. <u>Quadratic Expressions, Equations & Graphs</u> Simplify expressions involving single brackets including expanding and simplifying more than one single bracket. Fully factorise an expression into a single bracket. Expand and simplify simple double brackets.



	predictions for unknown data. Assess the reliability of predictions based. <u>Linking Fractions & Decimals</u> Convert between fractions and decimals. Recognise recurring decimals and converts fractions into recurring decimals. Compare and order fractions, decimals and integers, including using inequality signs. <u>Changing the Subject of a Formula</u> Rearrange simple equations and formula. Change the subject of an equation or formula involving the use of squares, cubes, square roots and cube roots.	Write simple expressions or equations from given information. Solve linear equations with integer coefficients where the unknown appears on either side, extending to both sides in simple cases. Solve equations involving brackets. Solve linear equation including those with negative solutions. Rearrange simple equations. <u>Real Life Graphs</u> Draw and interpret straight line graphs for real-life situations including conversion graphs. Draw distance-time graphs. Interpret simple distance-time graphs. Draw very simple velocity-time graphs. <u>Similarity & Congruency in 2D Shapes</u> Recognise and name different polygons. Identify shapes which are similar, understanding the conditions that make shapes similar, for both lengths and angles. Identify the scale factor that links similar shapes. Solve problems to find missing length for simple scale factors	express error intervals for rounding and possibly truncation.	Find the surface area of basic 3D shapes. Find the volume of basic 3D prisms including a cylinder.	range of contexts. Manipulate recipes in a range of contexts. Solve proportion problems using the unitary method. Work out and justify which product offers the best value for money, in simple cases. Use a ratio to compare a scale model to a real life object.	Factorise quadratic expressions of the form $x^2 + bx + c$ where all coefficients are positive. Generate points and plot quadratic functions using a table of values. Find approximate solutions to a quadratic equation using its graph. Identify the turning point, roots and line of symmetry from a quadratic graph. <u>Scales, Scale Drawing & Bearings</u> Interpret maps and scale drawings. Estimate lengths using a scale diagram or knowledge of real-life lengths. Make an accurate scale drawing from a diagram. Draw and measure three-figure bearings in simple diagrams. Mark on a diagram the position of point B given its bearing from point A. Use bearings with scale diagrams.
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		such as 2, 3 or 0.5. Identify shapes which are congruent, by eye.				
Assessments Formative	Assessment 12 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 13 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 14 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.	Assessment 15 Open book End-of-topic quizzes. Regular use of whiteboards in lessons.	End-of-topic quizzes. Regular use of whiteboards in lessons.
Assessments Summative		Assessment Window 1 (Mock)				End-of-Year Assessment
Homework	Mathswatch: Core revision assignment 12 Independent homework tasks based on class teacher professional judgement	Mathswatch: Core revision assignment 13 Independent homework tasks based on class teacher professional judgement	Mathswatch: Core revision assignment 14 Independent homework tasks based on class teacher professional judgement	Independent homework tasks based on class teacher professional judgement	Mathswatch: Core revision assignment 15 Independent homework tasks based on class teacher professional judgement	EOY practice papers 6 x half papers 1A 1B 2A 2B 3A 3B Independent homework tasks based on class teacher professional judgement