


SUBJECT: MATHEMATICS – Higher Pathway - Upper

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.					
Topic/Unit	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Knowledge	<ul style="list-style-type: none"> ▪ Sketching & Using Quadratic Graphs & Quadratic Inequalities ▪ Scales & Bearings ▪ Iteration & Triple Brackets 	<ul style="list-style-type: none"> ▪ Further Trigonometry & Pythagoras ▪ Solving Advanced Simultaneous Equations ▪ Accuracy & Bounds 	<ul style="list-style-type: none"> ▪ Investigating Linear Graphs ▪ Algebraic Fractions & Equations 	<ul style="list-style-type: none"> ▪ Numerical & Geometric Vectors ▪ Similarity in 3D 	<ul style="list-style-type: none"> ▪ Functions ▪ Circle Theorems 	<ul style="list-style-type: none"> ▪ Real Life Graphs & Measures ▪ Complex Solids & Measures ▪ Graphs of Trigonometric Functions & Transforming ▪ Graphs
Skills	<p><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.</p> <p><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</p>	<p><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.</p> <p><u>Solving Advanced Simultaneous Equations</u> Solve a pair of simultaneous equations, one linear and one quadratic, using elimination</p>	<p><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.</p> <p><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.</p>	<p><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.</p> <p><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</p>	<p><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.</p> <p><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;</p>	<p><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</p>



	<p>and trigonometry where required.</p> <p><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. Use iteration to find approximate solutions to complex equations. Consider and comment on the accuracy of a solution found through iteration.</p>	<p>and/or substitution. Solve a pair of simultaneous equations, one linear and one of a circle, using elimination and/or substitution. 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.</p> <p>Use inequality notation to write an error interval. Give calculations involving bounds to an appropriate degree of accuracy, justifying the choice.</p>		<p>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.</p>	<p>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 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.</p>	<p>interpret a range of measures: acceleration, average acceleration, distance travelled including estimations from non-linear graphs.</p> <p><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.</p> <p>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.</p> <p><u>Graphs of Trigonometric Functions & Transforming Graphs</u> Recognise, sketch and</p>
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						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.
Assess-ments	Assessment 12	Assessment 13	Assessment 14		Assessment 15	EOY Assessment
Homework	Mathswatch: Higher upper revision assignment 12	Mathswatch: Higher upper revision assignment 13	Mathswatch: Higher upper revision assignment 14	Retrieval grid	Mathswatch: Higher upper revision assignment 15	EOY practice papers 6 x half papers 1A 1B 2A 2B 3A 3B


SUBJECT: MATHEMATICS – Higher Pathway - Lower

Year Group	Year 10					
Rationale	Communicate mathematical thinking more clearly within more advanced areas of study. Be more confident with numeric and algebraic manipulation. Use a scientific calculator with ease. Become fluent working with AO1, AO2 and AO3 style questions.					
Topics/Skills	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Knowledge	<ul style="list-style-type: none"> Sketching Circle Graphs, Using Quadratic Graphs & Inequalities Scales & Bearings Iteration & Triple Brackets 	<ul style="list-style-type: none"> Further Trigonometry & Pythagoras Solving Advanced Simultaneous Equations Graphically Accuracy & Bounds 	<ul style="list-style-type: none"> Investigating Linear Graphs Algebraic Fractions & Equations 	<ul style="list-style-type: none"> Numerical & Geometric Vectors Similarity in 3D 	<ul style="list-style-type: none"> Functions Circle Theorems 	<ul style="list-style-type: none"> Real Life Graphs & Measures Complex Solids & Measures Graphs of Trigonometric Functions & Transforming Graphs
Skills	<p><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 $x^2 + y^2 = r^2$</p> <p>Solve quadratic inequalities including by factorising and sketch to find critical values.</p> <p><u>Scales & Bearings</u> Interpret maps and scale drawings using a variety of scales and metric units. Construct scale drawings. Estimate real life measures.</p>	<p><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.</p> <p><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</p>	<p><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.</p>	<p><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></p>	<p><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.</p> <p><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</p>	<p><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</p>



	<p>Draw and measure 3-figure bearings, including involving scale drawing. Calculate bearings using angle properties and trigonometry where required.</p> <p><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.</p> <p>Given x_0, Use iteration to find approximate solutions to different equations. Consider and comment on the accuracy of a solution found through iteration.</p>	<p>or need to be drawn.</p> <p><u>Accuracy & Bounds</u> Calculate the upper and lowers 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 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.</p>	<p><u>Algebraic Fractions & Equations</u> Simplify algebraic fractions. Add, subtract, multiply and divide algebraic fractions. Solve equations involving algebraic fractions.</p>	<p>Understand the effect of enlargement on angles, lengths, area and volume. Write the lengths, areas or 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.</p>	<p>chord bisects the chord; angles in the same segment are equal; opposite angles in a cyclic 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.</p>	<p>calculate and interpret a range of measures: acceleration, average acceleration, distance travelled including estimations from non-linear graphs.</p> <p><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.</p> <p>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.</p> <p><u>Graphs of Trigonometric Functions & Transforming Graphs</u></p>
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						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.
Assess-ments	Assessment 12	Assessment 13	Assessment 14		Assessment 15	EOY Assessment
Homework	Mathswatch: Higher lower revision assignment 12	Mathswatch: Higher lower revision assignment 13	Mathswatch: Higher lower revision assignment 14	Retrieval grid	Mathswatch: Higher lower revision assignment 15	EOY practice papers 6 x half papers 1A 1B 2A 2B 3A 3B


SUBJECT: MATHEMATICS – Foundation Pathway - Upper

Year Group	Year 10					
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.					
Topic/Unit	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Knowledge	<ul style="list-style-type: none"> Ratio & Fractions Applications of Scatter Graphs Trigonometry 	<ul style="list-style-type: none"> Changing the Subject of a Formula Working with Linear Graphs Real Life Graphs Similarity in 2D Shapes 	<ul style="list-style-type: none"> Transformations Simultaneous Equations 	<ul style="list-style-type: none"> Working with Circles in 2D & 3D Multiplicative Reasoning 	<ul style="list-style-type: none"> Proportion Relative Frequency & Tree Diagrams 	<ul style="list-style-type: none"> Quadratic Expressions, Equations & Graphs Scales, Scale Drawing & Bearings
Skills	<p><u>Ratio & Fractions</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 a range of problems. Find fractions of amounts in order to solve problems.</p> <p><u>Applications of Scatter Graphs</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 predictions for unknown data. Assess the reliability of predictions</p>	<p><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. Change the subject of an equation or formula where the subject appears more than once, in simple cases with simple factorising required.</p> <p><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. Plot and draw linear graphs of the form $ax + by = c$. Find the equation of a straight line from its graph. Find the equation of the straight line</p>	<p><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.</p> <p><u>Simultaneous Equations</u> Solve a pair of linear simultaneous equations using elimination, including working with fractional and negatives solutions. Identify the solutions of simultaneous</p>	<p><u>Working with Circles in 2D & 3D</u> 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.</p> <p><u>Multiplicative Reasoning</u> 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 increase or decrease. Calculate compound interest and depreciation, including the</p>	<p><u>Proportion</u> 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.</p> <p><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.</p>	<p><u>Quadratic Expressions, Equations & Graphs</u> 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. <u>Scales, Scale Drawing & Bearings</u> Interpret maps and scale drawings. Estimate lengths using a scale diagram or</p>



	<p>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.</p>	<p>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. Understand the conditions that make shapes similar, for both lengths and angles. Prove that two shapes are similar using angle properties and/or enlargement.</p>	<p>equations drawn graphically. Set up simultaneous equations to represent a situation and solve within the context of the problem.</p>	<p>amount of interest or the final amount.</p>	<p>Complete tree diagrams from given information. Use tree diagrams to calculate the probability of two independent events and of two dependent events.</p>	<p>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.</p>
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		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)				
Assess-ments	Assessment 12	Assessment 13	Assessment 14		Assessment 15	EOY Assessment
Homework	Mathswatch: Foundation upper revision assignment 12	Mathswatch: Foundation upper revision assignment 13	Mathswatch: Foundation upper revision assignment 14	Retrieval grid	Mathswatch: Foundation upper revision assignment 15	EOY practice papers 6 x half papers 1A 1B 2A 2B 3A 3B


SUBJECT: MATHEMATICS – Foundation Pathway - Lower

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.					
Topic/Unit	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Knowledge	<ul style="list-style-type: none"> ▪ Ratio & Fractions revisit ▪ Scatter Graphs revisit ▪ Linking Fractions & Decimals ▪ Changing the Subject of a Formula 	<ul style="list-style-type: none"> ▪ Working with Linear Graphs ▪ Solving Linear Equations revisit ▪ Real Life Graphs ▪ Similarity & Congruency in 2D Shapes 	<ul style="list-style-type: none"> ▪ Transformations ▪ Working with Inequalities 	<ul style="list-style-type: none"> ▪ Real Life Measurements ▪ Working with Shapes in 2D & 3D 	<ul style="list-style-type: none"> ▪ Percentage Calculations ▪ Ratio & Proportion revisit 	<ul style="list-style-type: none"> ▪ Relative Frequency & Tree Diagrams ▪ Quadratic Equations, Expressions & Graphs ▪ Scales, Scale Drawing & Bearings
Skills Skills	<p><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.</p> <p><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 predictions for unknown data.</p>	<p><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.</p>	<p><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.</p> <p><u>Working with Inequalities</u> Show inequalities on number lines using open and closed circles. Write down all integers that satisfy a given inequality.</p>	<p><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.</p> <p><u>Working with Shapes in 2D & 3D</u> Find the perimeter of rectangles, triangles, parallelograms and trapezia, including composite shapes.</p>	<p><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.</p> <p><u>Ratio & Proportion revisit</u> Simplify ratios including writing ratios in simple unitary form. Share a quantity in a given ratio</p>	<p><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.</p> <p><u>Quadratic Expressions, Equations & Graphs</u> Simplify expressions involving single brackets including expanding and simplifying more</p>



	<p>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.</p>	<p>Find approximate solutions to linear equations from graphs. <u>Solving Linear Equations revisit</u> 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.</p> <p><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.</p> <p><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</p>	<p>Solve linear inequalities in one variable and represent the solution on a number line. Use inequality notation to express error intervals for rounding and possibly truncation.</p>	<p>Find the area of rectangles, triangles, parallelograms and trapezia, including composite shapes. Find the surface area of basic 3D shapes. Find the volume of basic 3D prisms including a cylinder.</p>	<p>including 3 part ratios. Interchange between fractions and ratios. Convert between currencies in a 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.</p>	<p>than one single bracket. Fully factorise an expression into a single bracket. Expand and simplify simple double brackets. 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.</p> <p>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.</p>
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		links similar shapes. Solve problems to find missing length for simple scale factors such as 2, 3 or 0.5. Identify shapes which are congruent, by eye.				
Assess-ments	Assessment 12	Assessment 13	Assessment 14		Assessment 15	EOY Assessment
Homework	Mathswatch: Foundation lower revision assignment 12	Mathswatch: Foundation lower revision assignment 13	Mathswatch: Foundation lower revision assignment 14	Retrieval grid	Mathswatch: Foundation lower revision assignment 15	EOY practice papers 6 x half papers 1A 1B 2A 2B 3A 3B