KS4
Mathematics Curriculum Maps 22/23

GEORGE SALTER ACADEMY

Year 10 FOUNDATION

Autumn 1

Unit 8: Perimeter, area and volume 1

Lesson	Prior Knowledge	OBJECTIVES
8.1 Rectangles, parallelograms and triangles	Understand the meaning of 'perpendicular'.	Calculate the perimeter and area of rectangles, parallelograms and triangles.
	Work out the perimeter and area of triangles and rectangles.	Estimate lengths, areas and costs.
		Calculate a missing length, given the area.
8.2 Trapezia and changing units	Multiplying and dividing by powers of 10, converting between millimetres, centimetres and metres.	Calculate the area and perimeter of trapezia.
		Find the height of a trapezium given its area.
		Convert between area measures.
8.3 Area of compound shapes	Know that 1 km = 1000 m	Calculate the perimeter and area of shapes made from triangles and rectangles.
	Multiply and divide by powers of 10.	Calculate areas in hectares, and convert between ha and m2.
	Convert between metric measures of area.	
8.4 Surface area of 3D solids	Describe shapes using correct vocabulary, including face, edge and vertex.	Calculate the surface area of a cuboid.
	Sketch the net of a cuboid.	Calculate the surface area of a prism.
	Work out the area of rectangles, triangles and trapezia.	
8.5 Volume of prisms	Identify cross sections of prisms.	Calculate the volume of a cuboid.
	Decide whether a 3D solid is a prism.	Calculate the volume of a prism.
8.6 More volume and surface area	Multiply and divide by large powers of 10.	Solve problems involving surface area and volume.
	Know that 1 litre = 1000 ml.	Convert between measures of volume.
	Work out the volume and surface area of a prism.	

Unit 7: Averages and range

7.1 Mean and range	Understand that sharing equally involves dividing a total.	Calculate the mean from a list and from a frequency table.
	Identify the mode.	Compare sets of data using the mean and range.
7.2 Mode, median and range	Identify the mode, median and range.	Find the mode, median and range from a stem and leaf diagram.
	Identify an incorrect value.	Identify outliers.
	Draw a stem and leaf diagram.	Estimate the range from a grouped frequency table.
	Understand inequality notation.	
7.3 Types of average	Find the mode, median and mean.	Recognise the advantages and disadvantages of each type of average.
		Find the modal class.
		Find the median from a frequency table.
7.4 Estimating the mean	Calculate the value halfway between pairs of numbers.	Estimate the mean of grouped data.
	Calculate the mean.	
	Read data from a frequency table.	
7.5 Sampling	Understand the use of random numbers in a real-life situation.	Understand the need for sampling.
		Understand how to avoid bias.

Autumn 2

Unit: 9 Graphs

Lesson	Prior Knowledge	OBJECTIVES
9.1 Coordinates	Halve a number.	Find the midpoint of a line segment.
	Substitute into an equation, and solve for an unknown.	Recognise, name and plot straight-line graphs parallel to the axes.
9.2 Linear graphs	Use a function machine.	Generate and plot coordinates from a rule.
	Read scales	Plot straight-line graphs from tables of values.
		Draw graphs to represent relationships.
9.3 Gradient	Understand that parallel lines will never meet.	Find the gradient of a line.
	Identify which line is steepest.	Identify and interpret the gradient from an equation.
		Understand that parallel lines have the same gradient.
9.4 y = mx + c	Understand that in a linear equation, the coefficient of x is the gradient.	Understand what m and c represent in y = mx + c.
	Understand that parallel lines have the same gradient.	Find the equations of straight-line graphs.
	Draw a line with a given gradient.	Sketch graphs given the values of m and c.
9.5 Real-life graphs	Interpret scales.	Draw and interpret graphs from real data.
	Draw a graph of an equation in the form y = mx + c.	
9.6 Distance-time graphs	Understand and use the relationship between distance, average speed and time.	Use distance–time graphs to solve problems.
		Draw distance–time graphs.
		Interpret rate of change graphs.
9.7 More real-life graphs	Interpret a distance–time graph.	Draw and interpret a range of graphs.
	Recall the definitions of positive, negative and no correlation.	Understand when predictions are reliable.
	Find the equation of a line.	

Unit 10: Transformations

10.1 Translation	Use the words left and right	Translate a shape on a coordinate grid.
	List the four types of transformations	Use a column vector to describe a translation.
	Describe translations using left/right and up/down.	
10.2 Reflection	Define the word perpendicular	Draw a reflection of a shape in a mirror line.
	Reflect a shape in a mirror line.	Draw reflections on a coordinate grid.
		Describe reflections on a coordinate grid.
10.3 Rotation	Know the number of degrees in fractions of a turn.	Rotate a shape on a coordinate grid.
	Use the words clockwise and anticlockwise.	Describe a rotation.
10.4 Enlargement	Find scale factor from object to image and from image to object.	Enlarge a shape by a scale factor.
		Enlarge a shape using a centre of enlargement.
10.5 Describing enlargements	Recognise the properties of enlargements.	Identify the scale factor of an enlargement.
	Simplify fractions.	Find the centre of enlargement.
		Describe an enlargement.
10.6 Combining transformations	State key information for describing transformations.	Transform shapes using more than one transformation.
	Identify the type of transformation used.	Describe combined transformations of shapes on a grid.

Year 10 FOUNDATION

Spring 1

Unit 11: Ratio and proportion

Lesson	Prior Knowledge	OBJECTIVES
11.1 Writing ratios	Multiply and divide whole numbers.	Use ratio notation.
	Interpret bar charts.	Write a ratio in its simplest form.
		Solve problems using ratios.
11.2 Using ratios 1	Know and use metric conversions.	Solve simple problems using ratios.
	Find the HCF of a pair of numbers.	
11.3 Ratios and measures	Convert units of weight, length, capacity and time.	Use ratios to convert between units.
	Use index notation.	Write and use ratios for shapes and their enlargements.
	Work out areas of rectangles and volumes of cubes.	
11.4 Using ratios 2	Write ratios using correct notation.	Divide a quantity into 2 parts in a given ratio.
	Round to a specified degree of accuracy.	Divide a quantity into 3 parts in a given ratio.
	Write a ratio in its simplest form.	Solve word problems using ratios.
11.5 Comparing using ratios	Interpret ratios.	Use ratios involving decimals.
	Write a ratio in its simplest form.	Compare ratios.
		Solve ratio and proportion problems.
11.6 Using proportion	Understand and use place value to order decimals.	Use the unitary method to solve proportion problems.
	Write a ratio in the form 1 : n.	Solve proportion problems in words.
		Work out which product is better value for money.
11.7 Proportion and graphs	Understand and use y = mx + c.	Recognise and use direct proportion on a graph.
	Use conversion graphs.	Understand the link between the unit ratio and the gradient.
	Plot a line graph from a table of values.	
11.8 Proportion problems	Relate common sense to real life problems.	Recognise different types of proportion.
		Solve word problems involving direct and inverse proportion.

Unit 14: Multiplicative reasoning

14.1 Percentages	Convert percentages to decimals.	Calculate a percentage profit or loss.
	Express one number as a percentage of another.	Express a given number as a percentage of another in more complex situations.
	Work out percentage increases and decreases.	Find the original amount given the final amount after a percentage increase or decrease
14.2 Growth and decay	Write powers of numbers in index form.	Find an amount after repeated percentage change.
	Relate percentages to decimals.	Solve growth and decay problems.
14.3 Compound measures	Understand 'rate' as a mathematical concept.	Solve problems involving compound measures.
	Substitute into and solve equations.	
	Rearrange equations.	
	Convert between metric units of volume.	
	Calculate the area of a trapezium.	
	Calculate the volume of a prism.	
14.4 Distance, speed and time	Find speed in km/h, given distance travelled in minutes.	Convert between metric speed measures.
	Convert between metric units of length.	Calculate average speed, distance and time.
		Use formulae to calculate speed and acceleration.
14.5 Direct and inverse proportion	Identify graphs showing direct proportion.	Use ratio and proportion in measures and conversions.
	Write a ratio as a unit ratio.	Use inverse proportions.

Spring 2

Unit 12: Right-angled triangles

Lesson	Prior Knowledge	OBJECTIVES
12.1 Pythagoras' theorem 1	Calculate of simple squares and square roots.	Understand Pythagoras' theorem.
	Substitute into and evaluate expressions.	Calculate the length of the hypotenuse in a right-angled triangle.
	Round answers to a specified degree of accuracy.	Solve problems using Pythagoras' theorem.
12.2 Pythagoras' theorem 2	Understand the meaning of ≠.	Calculate the length of a line segment AB.
	Interpret a surd expression shown on the calculator display.	Calculate the length of a shorter side in a right-angled triangle.
	Identify the hypotenuse, and calculate its length.	
12.3 Trigonometry: the sine ratio 1	Simplify fractions.	Understand and recall the sine ratio in right-angled triangles.
	Convert fractions to decimals using a calculator.	Use the sine ratio to calculate the length of a side in a right-angled triangle.
		Use the sine ratio to solve problems.
12.4 Trigonometry: the sine ratio 2	Calculate the sine of an angle in a right-angled triangle.	Use the sine ratio to calculate an angle in a right-angled triangle.
	Use the sin key on a calculator.	Use the sine ratio to solve problems.
12.5 Trigonometry: the cosine ratio	Identify the hypotenuse and adjacent side in a right-angled triangle.	Understand and recall the cosine ratio in right-angled triangles.
		Use the cosine ratio to calculate the length of a side in a right-angled triangle.
		Use the cosine ratio to calculate an angle in a right-angled triangle. Use the cosine ratio to solve problems.
12.6 Trigonometry: the tangent ratio	Identify the opposite and adjacent sides in right-angled triangles.	Understand and recall the tangent ratio in right-angled triangles.
		Use the tangent ratio to calculate the length of a side in a right-angled triangle
		Use the tangent ratio to calculate an angle in a right-angled triangle.
		Solve problems using an angle of elevation or depression.
12.7 Finding lengths and angles using trigonometry	Identify the sine, cosine and tangent ratios.	Understand and recall trigonometric ratios in right-angled triangles.
		Use trigonometric ratios to solve problems.
		Know the exact values of the sine, cosine and tangent of some angles.

Year 10 FOUNDATION

Summer 1

Unit 13: Probability

Lesson	Prior Knowledge	OBJECTIVES
13.1 Calculating probability	Write probability as a fraction, a decimal and a percentage.	Calculate simple probabilities from equally likely events.
	Add and subtract fractions.	Understand mutually exclusive and exhaustive outcomes.
13.2 Two events	List outcomes.	Use two-way tables to record the outcomes from two events.
	Simplify fractions.	Work out probabilities from sample space diagrams.
13.3 Experimental probability	Convert fractions, decimals and percentages. Compare fractions.	Find and interpret probabilities based on experimental data.
	Understand theoretical probability (single event).	Make predictions from experimental data.
	Use two-way tables.	
13.4 Venn diagrams	Add and subtracting equivalent fractions.	Use Venn diagrams to work out probabilities.
	List primes and multiples.	Understand the language of sets and Venn diagrams.
	Calculate probabilities.	
13.5 Tree diagrams	Calculate with fractions.	Use frequency trees and tree diagrams.
	List the possible outcomes for two events.	Work out probabilities using tree diagrams.
	Work out the probability of something not happening.	Understand independent events.
	Calculate probabilities.	
13.6 More tree diagrams	Calculate with and simplify fractions.	Understand when events are not independent.
	Work out probabilities using tree diagrams.	Solve probability problems involving events that are not independent.

Unit 19: Congruence, similarity and vectors

19.1 Similarity & enlargement	Understand the scale factor of an enlargement.	Understand similarity.
	Equivalent fractions.	Use similarity to solve angle problems.
19.2 More similarity	Calculating fractions of whole numbers.	Find the scale factor of an enlargement.
	Using similarity of triangles to identify equal angles and lengths of corresponding sides.	Use similarity to solve problems.
	Identify similar shapes.	
19.3 Using similarity	Understand squares and cubes of whole numbers and decimals.	Understand the similarity of regular polygons.
	Use similarity to find unknown lengths.	Calculate perimeters of similar shapes.
19.4 Congruence 1	Know that the sum of the angles in a triangle must be 180°.	Recognise congruent shapes.
	Identify congrent shapes.	Use congruence to work out unknown angles.
19.5 Congruence 2	Recognise corresponding and alternate angles.	Use congruence to work out unknown sides.
	Find angles using corresponding and alternate angles.	
	Draw triangles accurately.	
19.6 Vectors 1	Add and subtract with negative numbers.	Add and subtract vectors.
	Use column vectors.	Find the resultant of two vectors.
19.7 Vectors 2	Calculate with negative numbers.	Subtract vectors.
	Find the resultant of two vectors.	Find multiples of a vector.

Summer 2

Unit 15: Constructions, loci and bearings

Lesson	Prior Knowledge	OBJECTIVES
15.1 3D solids	Recall names of common 2D shapes.	Recognise 3D shapes and their properties.
		Describe 3D shapes using the correct mathematical words.
		Understand the 2D shapes that make up 3D objects.
15.2 Plans and elevations	Identify names of 2D shapes from faces of 3D solids.	Identify and sketch planes of symmetry of 3D shapes.
	Recall names of common 3D shapes.	Understand and draw plans and elevations of 3D shapes.
	Know the properties of special triangles and quadrilaterals.	Sketch 3D shapes based on their plans and elevations.
15.3 Accurate drawings 1	Understand of the meaning of 'congruence'.	Make accurate drawings of triangles using a ruler, protractor and compasses.
	Draw lines, angles and circles accurately	Identify SSS, ASA, SAS and RHS triangles as unique from a given description.
		Identify congruent triangles
15.4 Scale drawings and maps	Work out scale factor of an enlargement.	Draw diagrams to scale.
	Write a ratio in the form 1 : m, and write equivalent ratios.	Correctly interpret scales in real-life contexts.
	Convert between metric measurements of length.	Use scales on maps and diagrams to work out lengths and distances.
		Know when to use exact measurements and estimations on scale drawings and maps.
		Draw lengths and distances correctly on given scale drawings.
15.5 Accurate drawings 2	Knowledge of scale factors of enlargement.	Accurately draw angles and 2D shapes using a ruler, protractor and compasses.
	Identify a solid from its net.	Construct a polygon inside a circle.
		Recognise nets and make accurate drawings of nets of common 3D objects.
15.6 Constructions	Identify parallel and perpendicular lines.	Draw accurately using rulers and compasses.
	Draw lines accurately.	Bisect angles and lines using rulers and compasses.
15.7 Loci and regions	Convert distances from map scale to real life distance and vice versa.	Draw loci for the path of points that follow a given rule.
	Construct the perpendicular bisector.	Identify regions bounded by loci to solve practical problems.
15.8 Bearings	Working out the complement to 180 or 360 (addition and subtraction).	Find and use three-figure bearings.
	Recall the properties of angles at a point, angles on a straight line, alternate and corresponding angles.	Use angles at parallel lines to work out bearings.
		Solve problems involving bearings and scale diagrams.

Year 10 HIGHER

Autumn 1

Unit 7: Area and volume

Lesson	Prior Knowledge	OBJECTIVES
7.1 Perimeter and area	Recognising units of length (perimeter) and area.	Find the perimeter and area of compound shapes.
	Work out the area and perimeter of rectangles, triangles and parallelograms.	Recall and use the formula for the area of a trapezium.
7.2 Units and accuracy	Recall the formulae for the area of quadrilaterals and triangles. Identify the possible integer values of x from an inequality.	Convert between metric units of area.
	Round numbers to a specified degree of accuracy.	Calculate the maximum and minimum possible values of a measurement.
	Work out percentages of quantities.	
7.3 Prisms	Calculate the volume and surface area of a cuboid.	Convert between metric units of volume.
	Calculate the volume of a shape made from cuboids.	Calculate volumes and surface areas of prisms.
7.4 Circles	Understand 'radius' and 'diameter'.	Calculate the area and circumference of a circle.
	Solve and rearrange simple equations.	Calculate area and circumference in terms of π.
7.5 Sectors of circles	Work out fractions of a circle given the angle of a sector.	Calculate the perimeter and area of semicircles and quarter circles.
	Simplify equations.	Calculate arc lengths, angles and areas of sectors of circles.
7.6 Cylinders and spheres	Find the area and circumference of a circle in terms of π.	Calculate volume and surface area of a cylinder and a sphere.
	Sketch a net of a cylinder.	Solve problems involving volumes and surface areas.
	Solve simple equations.	
7.7 Pyramids and cones	Find the volume of a cube.	Calculate volume and surface area of pyramids and cones.
	Find the side length of a cube given its volume.	Solve problems involving pyramids and cones.
	Calculate the area of a triangle.	
	Use Pythagoras' theorem to work out the length of the hypotenuse.	

Unit 8: Transformations and constructions

8.1 3D solids	Draw 3D shapes on an isometric grid.	Draw plans and elevations of 3D solids.
	Recognise dimensions of a cuboid.	
8.2 Reflection and rotation	Draw simple straight lines on a coordinate grid.	Reflect a 2D shape in a mirror line.
	Know whether the image is congruent to the original following a reflection or a rotation.	Rotate a 2D shape about a centre of rotation.
		Describe reflections and rotations.
8.3 Enlargement	Enlarge shapes on a coordinate grid in one quadrant.	Enlarge shapes by fractional and negative scale factors about a centre of enlargement.
8.4 Transformations and combinations of transformations	Describe translations.	Translate a shape using a vector.
		Carry out and describe combinations of transformations.
8.5 Bearings and scale drawings	Convert metric measures and apply to scales.	Draw and use scales on maps and scale drawings.
	Accurate drawing of right-angled triangle.	Solve problems involving bearings.
8.6 Constructions 1	Accurate drawings of triangles given SSS and ASA.	Construct triangles using a ruler and compasses.
	Know the meaning of the terms perpendicular, bisect, arc.	Construct the perpendicular bisector of a line.
		Construct the shortest distance from a point to a line using a ruler and compasses.
8.7 Constructions 2	Draw angles with a protractor.	Bisect an angle using a ruler and compasses.
	Construct triangles and deduce information from them.	Construct angles using a ruler and compasses.
		Construct shapes made from triangles using a ruler and compasses.
8.8 Loci		Draw a locus.
		Use loci to solve problems.

Autumn 2

Unit 9: Equations and inequalities

Lesson	Prior Knowledge	OBJECTIVES
9.1 Solving quadratic equations 1	Know that a square has two possible roots	Find the roots of quadratic functions.
	Find the factors of a given number.	Rearrange and solve simple quadratic equations.
	Factorise expressions.	
	Solve simple equations containing a squared term.	
9.2 Solving quadratic equations 2	Understand the term quadratic	Solve more complex quadratic equations.
	Find positive and negative square roots.	Use the quadratic formula to solve a quadratic equation.
	Solve quadratic equations by factorising.	
	Expand two pairs of brackets.	
	Simplify surds.	
9.3 Completing the square	Expand and simplify a square bracket.	Complete the square for a quadratic expression.
	Simplify surds.	Solve quadratic equations by completing the square.
	Solve simple equations, giving the answer in surd form.	
9.4 Solving simple simultaneous equations	Substitute into simple algebraic expressions.	Solve simple simultaneous equations.
	Rearrange equations.	Solve simultaneous equations for real-life situations.
9.5 More simultaneous equations	Recall the equation of a straight line.	Use simultaneous equations to find the equation of a straight line.
	Solve simple simultaneous equations.	Solve linear simultaneous equations where both equations are multiplied.
		Interpret real-life situations involving two unknowns and solve them.
9.6 Solving linear and quadratic simultaneous equations	Identify different types of equations.	Solve simultaneous equations with one quadratic equation.
	Solve quadraric equations.	Use real-life situations to construct quadratic and linear equations and solve them.
9.7 Solving linear inequalities	Understand inequality signs	Solve inequalities and show the solution on a number line and using set notation.
	Construct correct inequalities from given information	

Year 10 HIGHER

Spring 1

Unit 10: Probability

Lesson	Prior Knowledge	OBJECTIVES
10.1 Combined events	List all outcomes for a single event systematically.	Use the product rule for finding the number of outcomes for two or more events.
	List all outcomes for two events systematically.	List all the possible outcomes of two events in a sample space diagram.
10.2 Mutually exclusive events	Add decimals. Subtract decimals and fractions from 1.	Identify mutually exclusive outcomes and events.
	Understand the relationship between ratios and fractions.	Find the probabilities of mutually exclusive outcomes and events.
		Find the probability of an event not happening.
10.3 Experimental probability	Simplify fractions.	Work out the expected results for experimental and theoretical probabilities.
	Multiply whole numbers by decimals.	Compare real results with theoretical expected values to see if a game is fair.
10.4 Independent events and tree diagrams	Add and multiply fractions and decimals.	Draw and use frequency trees.
		Calculate probabilities of repeated events.
		Draw and use probability tree diagrams.
10.5 Conditional probability	Know that the probability of something not happening is 1 minus the probability of the event happening.	Decide if two events are independent.
	Draw and use probability tree diagrams.	Draw and use tree diagrams to calculate conditional probability.
		Draw and use tree diagrams without replacement.
		Use two-way tables to calculate conditional probability.
10.6 Venn diagrams and set notation	Interpret inequalities.	Use Venn diagrams to calculate conditional probability.
	Use Venn diagrams.	Use set notation.

Unit 11: Multiplicative reasoning

11.1 Growth and decay	Understand the use of indices.	Find an amount after repeated percentage changes.
	Work out the decimal multiplier for a percentage increase/decrease.	Solve growth and decay problems.
11.2 Compound measures	Calculate simple rates.	Calculate rates.
	Substitute numbers into equations, and solve for the unknown.	Convert between metric speed measures.
	Use speed = distance/time to solve problems.	Use a formula to calculate speed and acceleration.
11.3 More compound measures	Convert between metric units.	Solve problems involving compound measures.
	Recall the formulae for the area of a circle and volume of a prism.	
11.4 Ratio and proportion	Rearrange formulae.	Use relationships involving ratio.
	Recognise graphs of y = x and y = 1/x.	Use direct and indirect proportion.
	Find the gradient of a line given its equation.	
	Decide whether quantities are in direct proportion.	

Spring 2

Unit 12: Similarity and congruence

Lesson	Prior Knowledge	OBJECTIVES
12.1 Congruence	Know the angle sum of interior angles of a triangle.	Show that two triangles are congruent.
	Recognise congruent shapes.	Know the conditions of congruence.
	Recall basic angle facts.	
	Find missing lengths using Pythagoras' theorem.	
12.2 Geometric proof and congruence	Know the conditions of congruence and use correct mathematical notation for equal angles and sides.	Prove shapes are congruent.
	Recall the properties of special triangles and quadrilaterals.	Solve problems involving congruence.
12.3 Similarity	Use geometric properties to find similarities and differences between given polygons.	Use the ratio of corresponding sides to work out scale factors.
	Calculate scale factors.	Find missing lengths on similar shapes.
12.4 More similarity	Find area scale factor, given length scale factor.	Use similar triangles to work out lengths in real life.
		Use the link between linear scale factor and area scale factor to solve problems.
12.5 Similarity in 3D solids	Work out the volume and surface area of a cube.	Use the link between scale factors for length, area and volume to solve problems.
	Convert between metric units.	
	Work out cubes and cube roots.	

Year 10 HIGHER

Summer 1

Unit 13: More trigonometry

Lesson	Prior Knowledge	OBJECTIVES
13.1 Accuracy	Find upper and lower bounds of a given measurement.	Understand and use upper and lower bounds in calculations involving trigonometry.
13.2 Graph of the sine function	Know the exact values of sin θ for θ = 30°, 45° , 60° and 90°. Use Pythagoras' theorem.	Understand how to find the sine of any angle.
	Find angles using the sin function.	Know the graph of the sine function and use it to solve equations.
13.3 Graph of the cosine function	Know the exact values of cos θ for θ = 30°, 45° , 60° and 90°. Use Pythagoras' theorem.	Understand how to find the cosine of any angle.
	Find angles using the cos function.	Know the graph of the cosine function and use it to solve equations.
13.4 The tangent function	Know the exact values of tan θ for θ = 30°, 45° , 60°	Understand how to fi nd the tangent of any angle.
	Use Pythagoras' theorem.	Know the graph of the tangent function and use it to solve equations.
	Find angles using the tan function.	
13.5 Calculating areas and the sine rule	Calculate the area of a triangle using (1/2)b × h Know the formula for calculating the area of a circle. Use trigonometry	Find the area of a triangle & a segment of a circle.
		Use the sine rule to solve 2D problems.
13.6 The cosine rule and 2D trigonometric problems	Use bearings	Use the cosine rule to solve 2D problems.
	Calculate the area of a triangle.	Solve bearings problems using trigonometry.
	Solve calculations.	
13.7 Solving problems in 3D	Use the sine and cosine rule.	Use Pythagoras' theorem in 3D.
		Use trigonometry in 3D.
13.8 Transforming trigonometric graphs 1	Reflect and rotate a coordinate point. Know the exact values of sin θ and cos θ for θ = 0°, 30°, 45° , 60° and 90°; know the exact value of tan θ for θ = 0°, 30°, 45° and 60° Sketch y = sinx, y = cosx and y= tanx for x from 0° to 360°	Recognise how changes in a function affect trigonometric graphs.
13.9 Transforming trigonometric graphs 2	Translate coordinate points by column vectors.	Recognise how changes in a function affect trigonometric graphs.
	Understand negative translations.	

Unit 14: Further statistics

14.1 Sampling	Use fractions and percentages to work out data from a table.	Understand how to take a simple random sample.
		Understand how to take a stratifi ed sample.
14.2 Cumulative frequency	Find the median of a data set.	Draw and interpret cumulative frequency tables and diagrams.
		Work out the median, quartiles and interquartile range from a cumulative frequency diagram.
14.3 Box plots	Find the median and range from a stem-and-leaf diagram.	Find the quartiles and the interquartile range from stem-and-leaf diagrams.
		Draw and interpret box plots.
14.4 Drawing histograms	Division calculations	Understand frequency density.
	Draw a frequency diagram.	Draw histograms.
	Write the modal class	
	Estimate the mean mass.	
14.5 Interpreting histograms	Write the modal class	Interpret histograms.
	Estimate the mean mass.	
14.6 Comparing and describing populations	Work out the mean, median and mode of data sets.	Compare two sets of data.
	Work out the mean and range from a table.	

Summer 2

Unit 15: Equations and graphs

Lesson	Prior Knowledge	OBJECTIVES
15.1 Solving simultaneous equations graphically	Know and draw graphs of circles.	Solve simultaneous equations graphically.
15.2 Representing inequalities graphically	Know which integers satisfy an inequality	Represent inequalities on graphs.
	Solve inequalitites with one variable and show solution using set notation.	Interpret graphs of inequalities.
15.3 Graphs of quadratic functions	Solve quadratic equations by factorising.	Recognise and draw quadratic functions.
	Sketch simple quadratic graphs	
	Find coordinates of maximum point.	
15.4 Solving quadratic equations graphically	Understand maximum and minimum points.	Find approximate solutions to quadratic equations graphically.
	Find roots of an equation by completing the square and using the quadratic formula.	Solve quadratic equations using an iterative process.
15.5 Graphs of cubic functions	Know where a graph will cross the x-axis	Find the roots of cubic equations.
	Expand and simplify double brackets	Sketch graphs of cubic functions.
	Find roots of a quadratic equation by completing the square	Solve cubic equations using an iterative process.