Year 10: Module 12: Probability

Support (Prior knowledge from KS3)	Core	Extension
- I can apply systematic listing and counting strategies to identify all outcomes for a variety of problems. - I know that probabilities need to be written as fractions, decimals or percentages. - I understand that probabilities sum to 1. - I can calculate simple probabilities.	- I can calculate experimental probabilities and relative frequencies from experiments - I can recognise different methods for estimating probabilities. - I can predict the likely number of successful outcomes, given the number of trials and the probability of any one outcome. - I understand that the probability of something 'not' happening is 1 – the probability of it happening. - I can recognise bias in an experiment.	- I can calculate probabilities from diagrams such as two-way tables and stem and leaf diagrams. - I understand what is meant by mutually exclusive. - I can compare theoretical probabilities with experimental probabilities. - I can complete sample space diagrams.

Year 10: Module 13: Volume and Surface Area

Support (Prior knowledge from KS3)	Core	Extension
- I can use the correct terms when working with 3D shapes. - I understand the difference between 2D and 3D shapes. - I can name common 3D shapes. - I can find the area of common 2D shapes. - I can recognise the nets of 3D shapes. - I can calculate the surface area and volume of a cuboid and cube. - I can find the area and perimeter of circles	- I can calculate the volume and surface area of any prism. - I can calculate the volume of a cylinder. - I can find the volume and surface area of compound 3D shapes. - I can solve functional volume and surface area problems.	- I can calculate the surface area of a cylinder. - I can calculate the mass of a 3D shape. - I can find the volume and surface area of a 3D shape from its plans and elevations. - I can use the fact that 1 litre = 1000cm^3 to solve more difficult capacity problems involving 3D shapes.

Year 10: Module 14: Linear Equations

Support (Prior knowledge from Year 9)	Core	Extension
• I can use inverse operations and inverse flow diagrams. • I can simplify expressions. • I can rearrange equations. • I understand the difference between equations, expressions and formulae.	• I can solve equations by balancing • I can solve linear equations such as $3x - 1 = 11$ where the variable only appears on one side • I can solve equations in which the variable (the letter) appears in the numerator of a fraction • I can solve equations where you have to first expand brackets.	• I can solve equations where the variable appears on both sides of the equals sign. • I can solve equations that involve fractions. • I can solve equations from worded problems or diagrams. • I can change the subject of the formula.

Year 10: Module 15: Measures and Scale Drawings

Support (Prior knowledge from year 9)	Core	Extension
▪ I can convert from one metric unit to another ▪ I can use approximate conversion factors to change between imperial units and metric units. ▪ I can work with standard units of measure. ▪ I can recognise 3D shapes and the properties of 3D shapes. ▪ I can identify a 3D shape from its net. ▪ I can draw nets of some 3D shapes. ▪ I can accurately draw and measure angles.	▪ I can read and draw scale drawings ▪ I can use a scale drawing to make estimates. ▪ I can interpret diagrams to draw plans and elevations. ▪ I can read from and draw on isometric grids. ▪ I can construct accurate drawings of triangles, using a pair of compasses, a protractor and a straight edge.	• I can draw 3D shapes from their plans and elevations. • I can use plans and elevations to calculate the surface area and volume of 3D shapes. • I can convert between units for perimeter, area and volume.

Year 10: Module 16: Compound Measures and Variation

Support (Prior knowledge from year 9)	Core	Extension
• I can solve direct proportion problems using the unitary method • I can recognise the relationship between speed, distance and time •	• I can recognise, interpret and plot graphs that show direct variation. • I can interpret the gradient of a straight line as a rate of change. • I understand what I meant by inverse proportion. • I can recognise and solve problems involving the compound measures of rates of pay/flow, density and pressure. • I can solve worded problems involving speed, density and pressure • I can use kinematics formulae from the formulae sheet to calculate speed, acceleration (with variables defined in the question);	• I can solve problems in which two variables have an inversely proportional relationship (inverse variation) • I can work out the constant of proportionality. • I can use formal methods to solve direct and inverse proportion problems. • I can recognise, plot and interpret graphs that show inverse proportion • I can convert between units for length, area and volume.

Year 10: Module 17: Statistics 2

Support (Prior knowledge from year 9)	Core	Extension
• I can obtain a random sample from a population. • I understand the data handling cycle. • I can collect unbiased and reliable data for a sample. • I can calculate the mean, median, mode and range from small data sets and frequency tables.	• I can draw and interpret pie charts. • I understand what is meant by a random sample and how samples can be biased. • I can construct and interpret two-way tables • I can draw, interpret and use scatter diagrams • I can draw and use a line of best fit. • I can identify the modal group • I can calculate an estimate of the mean from a grouped table. • I can estimate the interval that contains the median from a grouped table.	▪ I can compare sets of data ▪ I can construct frequency polygons for grouped data.

Year 10: Module 18: Constructions and Loci

Support (Prior knowledge from year 9)	Core	Extension
• I can measure and draw lines to the nearest mm • I can measure and draw angles to the nearest degree • I can make accurate drawings of triangles and other 2D shapes using a ruler and a protractor • I can draw circles or part circles given the radius or diameter • I can use standard units of measure.	• I can construct the bisectors of lines and angles. • I can construct an angle of 60° • I can construct and interpret plans and elevations of 3D shapes. • I can convert measurements to calculate actual distances. • I can construct a region, for example, bounded by a circle and an intersecting line • I can draw a locus for a given rule. • I can use and interpret maps and scale drawings • I can construct scale drawings • I can use scale to estimate a length, for example use the height of a man to estimate the height of a building where both are shown in a scale drawing	• I can solve practical problems using loci. • I can describe regions satisfying several conditions. • I can construct a hexagon using a compass and a ruler.

Year 10: Module 19: Curved shapes and Pyramids

Support (Prior knowledge from year 9)	Core	Extension
• I can find the area of a triangle. • I can find the area of compound shapes. • I can find the area of compound shapes in worded problems. • I can calculate the area and circumference of a circle. • I can solve worded problems involving the area and circumference of circles. • I can calculate the volume and surface area of prisms. •	• I can calculate the length of an arc • I can calculate the area and angle of a sector. • I can solve functional problems involving arc lengths and sectors of circles. • I can calculate the volume and surface area of cylinders • I can calculate the volume and surface area of a pyramid.	• I can calculate the volume and surface area of a cone. • I can calculate the volume and surface area of a sphere. • I can calculate the volume and surface area of a hemisphere. • I can find the volume and surface area of composite solids. • I can solve worded problems involving volume and surface area.

Year 10: Module 20: Numbers and Sequences

Support (Prior knowledge from year 9)	Core	Extension
• I can recognise patterns in number sequences. • I can recognise how number sequences are built up • I can find the nth term of a linear sequence. • I can generate sequences, given the nth term.	• I can recognise and continue some special number sequences e.g. square, cube and triangular numbers. • I can recognise and continue Fibonacci type sequences • I can understand how prime, odd and even numbers interact in addition, subtraction and multiplication problems. • I can find the nth term from practical problems involving sequences.	• I understand the difference between arithmetic and geometric sequences • I understand what is meant by a quadratic sequence • I can generate a quadratic sequence • I can generate sequences derived from diagrams and complete a table of results that describes the pattern shown by the diagrams •

Year 10: Module 21: Right-Angled Triangles

Support (Prior knowledge from year 9)	Core	Extension
▪ I know what Pythagoras' theorem is ▪ I can calculate the length of the hypotenuse in a right-angled triangle. ▪ I can calculate the length of a shorter side in a right-angled triangle. ▪	▪ I can solve practical problems using Pythagoras' theorem. ▪ I can use Pythagoras' theorem in isosceles triangles. ▪ I can define, understand and use the three trigonometric ratios. ▪ I can use trigonometric ratios to calculate a length in a right-angled triangle. ▪ I can use the trigonometric ratios to calculate an angle. ▪ I can solve practical problems using trigonometry	▪ I can work out and remember trigonometric values for angles of 30°, 45°, 60° and 90°. ▪ I can solve problems using an angle of elevation or an angle of depression. ▪ I can solve bearing problems using trigonometry. ▪ I can use trigonometry to solve problems involving isosceles triangles. ▪ I can solve Pythagoras and Trigonometric problems in 3D.

Year 10: Module 22: Congruence and Similarity

Support (Prior knowledge from year 10)	Core	Extension
▪ I can enlarge shapes using a scale factor	▪ I can recognise similarity in any two shapes ▪ I can show that two shapes are similar ▪ I can work out the scale factor between similar shapes. ▪ I can find the missing lengths of similar shapes ▪ I can justify whether two triangles are congruent. ▪	▪ I can solve problems involving the area and volume of similar shapes. ▪ I understand and use conditions for congruent triangles: SSS, SAS, ASA and RHS