TERM	UNIT / LESSON	OBJECTIVES
AUTUMN	**1 Number**	
	1.1 Number problems and reasoning	Work out the total number of ways of performing a series of tasks.
	1.2 Place value and estimating	Estimate an answer.
		Use place value to answer questions.
	1.3 HCF and LCM	Write a number of the product of its prime factors.
		Find the HCF and LCM of two numbers.
	1.4 Calculating with powers (indices)	Use powers and roots in calculations.
		Multiply and divide using index laws.
		Work out a power raised to a power.
	1.5 Zero, negative and fractional indices	Use negative indices.
		Use fractional indices.
	1.6 Powers of 10 and standard form	Write a number in standard form.
		Calculate with numbers in standard form.
	1.7 Surds	Understand the difference between rational and irrational numbers.
		Simplify a surd.
		Rationalise a denominator.
AUTUMN	**2 Algebra**	
	2.1 Algebraic indices	Use the rules of indices to simplify algebraic expressions.
	2.2 Expanding and factorising	Expand brackets.
		Factorise algebraic expressions.
	2.3 Equations	Solve equations involving brackets and numerical fractions.
		Use equations to solve problems.
	2.4 Formulae	Substitute numbers into formulae.
		Rearrange formulae.
		Distinguish between expressions, equations, formulae and identities.
	2.5 Linear sequences	Find a general formula for the nth term of an arithmetic sequence.
		Determine whether a particular number is a term of a given arithmetic sequence.
	2.6 Non-linear sequences	Solve problems using geometric sequences.
		Work out terms in Fibonnaci-like sequences.
		Find the nth term of a quadratic sequence.
	2.7 More expanding and factorising	Expand the product of two brackets.
		Use the difference of two squares.
		Factorise quadratics of the form x2 + bx + c.
AUTUMN	**3 Interpreting and representing data**	
	3.1 Statistical diagrams 1	Construct and use back-to-back stem and leaf diagrams.
		Construct and use frequency polygons and pie charts.
	3.2 Time series	Plot and interpret time series graphs.
		Use trends to predict what might happen in the future.
	3.3 Scatter graphs	Plot and interpret scatter graphs.
		Determine whether or not there is a linear relationship between two variables.
	3.4 Line of best fit	Draw a line of best fit on a scatter graph.
		Use the line of best fit to predict values.
	3.5 Averages and range	Decide which average is best for a set of data.
		Estimate the mean and range from a grouped frequency table.
		Find the modal class and the group containing the median.
	3.6 Statistical diagrams 2	Construct and use two-way tables.
		Choose appropriate diagrams to display data.
		Recognise misleading graphs.
AUTUMN	**4 Fractions, ratio and percentages**	
	4.1 Fractions	Add, subtract, multiply and divide fractions and mixed numbers.
		Find the reciprocal of an integer, decimal or fraction.
	4.2 Ratios	Write ratios in the form 1 : n or n : 1.

TERM	UNIT / LESSON	OBJECTIVES
SPRING	**6 Graphs**	
	6.1 Linear graphs	Find the gradient and y-intercept from a linear equation.
		Rearrange an equation into the form y = mx + c.
		Compare two graphs from their equations.
		Plot graphs with equations ax + by = c.
	6.2 More linear graphs	Sketch graphs using the gradient and intercepts.
		Find the equation of a line, given its gradient and one point on the line.
		Find the gradient of a line through two points.
	6.3 Graphing rates of change	Draw and interpret distance–time graphs.
		Calculate average speed from a distance–time graph.
		Understand velocity–time graphs.
		Find acceleration and distance from velocity–time graphs.
	6.4 Real-life graphs	Draw and interpret real-life linear graphs.
		Recognise direct proportion.
		Draw and use a line of best fit.
	6.5 Line segments	Find the coordinates of the midpoint of a line segment.
		Find the gradient and length of a line segment.
		Find the equations of lines parallel or perpendicular to a given line.
	6.6 Quadratic graphs	Draw quadratic graphs.
		Solve quadratic equations using graphs.
		Identify the line of symmetry of a quadratic graph.
		Interpret quadratic graphs relating to real-life situations.
	6.7 Cubic and reciprocal graphs	Draw graphs of cubic functions.
		Solve cubic equations using graphs.
		Draw graphs of reciprocal functions.
		Recognise a graph from its shape.
	6.8 More graphs	Interpret linear and non-linear real-life graphs.
		Draw the graph of a circle.
SPRING	**7 Area and volume**	
	7.1 Perimeter and area	Find the perimeter and area of compound shapes.
		Recall and use the formula for the area of a trapezium.
	7.2 Units and accuracy	Convert between metric units of area.
		Calculate the maximum and minimum possible values of a measurement.
	7.3 Prisms	Convert between metric units of volume.
		Calculate volumes and surface areas of prisms.
	7.4 Circles	Calculate the area and circumference of a circle.
		Calculate area and circumference in terms of π.
	7.5 Sectors of circles	Calculate the perimeter and area of semicircles and quarter circles.
		Calculate arc lengths, angles and areas of sectors of circles.
	7.6 Cylinders and spheres	Calculate volume and surface area of a cylinder and a sphere.
		Solve problems involving volumes and surface areas.
	7.7 Pyramids and cones	Calculate volume and surface area of pyramids and cones.
		Solve problems involving pyramids and cones.
SPRING	**8 Transformations and constructions**	
	8.1 3D solids	Draw plans and elevations of 3D solids.
	8.2 Reflection and rotation	Refl ect a 2D shape in a mirror line.
		Rotate a 2D shape about a centre of rotation.
		Describe refl ections and rotations.
	8.3 Enlargement	Enlarge shapes by fractional and negative scale factors about a centre of enlargement.
	8.4 Transformations and combinations of transformations	Translate a shape using a vector.
		Carry out and describe combinations of transformations.
	8.5 Bearings and scale drawings	Draw and use scales on maps and scale drawings.
		Solve problems involving bearings.
	8.6 Constructions 1	Construct triangles using a ruler and compasses.

TERM	UNIT / LESSON	OBJECTIVES
SUMMER	**11 Multiplicative reasoning**	
	11.1 Growth and decay	Find an amount after repeated percentage changes.
		Solve growth and decay problems.
	11.2 Compound measures	Calculate rates.
		Convert between metric speed measures.
		Use a formula to calculate speed and acceleration.
	11.3 More compound measures	Solve problems involving compound measures.
	11.4 Ratio and proportion	Use relationships involving ratio.
		Use direct and indirect proportion.
SUMMER	**12 Similarity and congruence**	
	12.1 Congruence	Show that two triangles are congruent.
		Know the conditions of congruence.
	12.2 Geometric proof and congruence	Prove shapes are congruent.
		Solve problems involving congruence.
	12.3 Similarity	Use the ratio of corresponding sides to work out scale factors.
		Find missing lengths on similar shapes.
	12.4 More similarity	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	Use the link between scale factors for length, area and volume to solve problems.
SUMMER	**13 More trigonometry**	
	13.1 Accuracy	Understand and use upper and lower bounds in calculations involving trigonometry.
	13.2 Graph of the sine function	Understand how to find the sine of any angle.
		Know the graph of the sine function and use it to solve equations.
	13.3 Graph of the cosine function	Understand how to find the cosine of any angle.
		Know the graph of the cosine function and use it to solve equations.
	13.4 The tangent function	Understand how to fi nd the tangent of any angle.
		Know the graph of the tangent function and use it to solve equations.
	13.5 Calculating areas and the sine rule	Find the area of a triangle and a segment of a circle.
		Use the sine rule to solve 2D problems.
	13.6 The cosine rule and 2D trigonometric problems	Use the cosine rule to solve 2D problems.
		Solve bearings problems using trigonometry.
	13.7 Solving problems in 3D	Use Pythagoras' theorem in 3D.
		Use trigonometry in 3D.
	13.8 Transforming trigonometric graphs 1	Recognise how changes in a function affect trigonometric graphs.
	13.9 Transforming trigonometric graphs 2	Recognise how changes in a function affect trigonometric graphs.
SUMMER	**14 Further statistics**	
	14.1 Sampling	Understand how to take a simple random sample.
		Understand how to take a stratifi ed sample.
	14.2 Cumulative frequency	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 quartiles and the interquartile range from stem-and-leaf diagrams.
		Draw and interpret box plots.
	14.4 Drawing histograms	Understand frequency density.
		Draw histograms.

		Compare ratios.
		Find quantities using ratios.
		Solve problems involving ratios.
	4.3 Ratio and proportion	Convert between currencies and measures.
		Recognise and use direct proportion.
		Solve problems involving ratios and proportion.
	4.4 Percentages	Work out percentage increases and decreases.
		Solve real-life problems involving percentages.
	4.5 Fractions, decimals and percentages	Work out percentage increases and decreases.
		Solve real-life problems involving percentages.
AUTUMN	**5 Angles and trigonometry**	
	5.1 Angle properties of triangles and quadrilaterals	Derive and use the sum of angles in a triangle and in a quadrilateral.
		Derive and use the fact that the exterior angle of a triangle is equal to the sum of the two opposite interior angles.
	5.2 Interior angles of a polygon	Calculate the sum of the interior angles of a polygon.
		Use the interior angles of polygons to solve problems.
	5.3 Exterior angles of a polygon	Know the sum of the exterior angles of a polygon.
		Use the angles of polygons to solve problems.
	5.4 Pythagoras' theorem 1	Calculate the length of the hypotenuse in a right-angled triangle.
		Solve problems using Pythagoras' theorem.
	5.4 Pythagoras' theorem 1	Calculate the length of a shorter side in a right-angled triangle.
		Solve problems using Pythagoras' theorem.
	5.6 Trigonometry 1	Use trigonometric ratios to find lengths in a right-angled triangle.
		Use trigonometric ratios to solve problems.
	5.7 Trigonometry 2	Use trigonometric ratios to calculate an angle in a right-angled triangle.
		Find angles of elevation and angles of depression.
		Use trigonometric ratios to solve problems.
		Know the exact values of the sine, cosine and tangent of some angles.
END OF TERM 1 TEST		

		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	Bisect an angle using a ruler and compasses.
		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.
SPRING	**9 Equations and inequalities**	
	9.1 Solving quadratic equations 1	Find the roots of quadratic functions.
		Rearrange and solve simple quadratic equations.
	9.2 Solving quadratic equations 2	Solve more complex quadratic equations.
		Use the quadratic formula to solve a quadratic equation.
	9.3 Completing the square	Complete the square for a quadratic expression.
		Solve quadratic equations by completing the square.
	9.4 Solving simple simultaneous equations	Solve simple simultaneous equations.
		Solve simultaneous equations for real-life situations.
	9.5 More simultaneous equations	Use simultaneous equations to find the equation of a straight line.
		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	Solve simultaneous equations with one quadratic equation.
		Use real-life situations to construct quadratic and linear equations and solve them.
	9.7 Solving linear inequalities	Solve inequalities and show the solution on a number line and using set notation.
SPRING	**10 Probability**	
	10.1 Combined events	Use the product rule for finding the number of outcomes for two or more events.
		List all the possible outcomes of two events in a sample space diagram.
	10.2 Mutually exclusive events	Identify mutually exclusive outcomes and events.
		Find the probabilities of mutually exclusive outcomes and events.
		Find the probability of an event not happening.
	10.3 Experimental probability	Work out the expected results for experimental and theoretical probabilities.
		Compare real results with theoretical expected values to see if a game is fair.
	10.4 Independent events and tree diagrams	Draw and use frequency trees.
		Calculate probabilities of repeated events.
		Draw and use probability tree diagrams.
	10.5 Conditional probability	Decide if two events are independent.
		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	Use Venn diagrams to calculate conditional probability.
		Use set notation.
END OF TERM 2 TEST		

	14.5 Interpreting histograms	Interpret histograms.
	14.6 Comparing and describing populations	Compare two sets of data.
SUMMER	**15 Equations and graphs**	
	15.1 Solving simultaneous equations graphically	Solve simultaneous equations graphically.
	15.2 Representing inequalities graphically	Represent inequalities on graphs.
		Interpret graphs of inequalities.
	15.3 Graphs of quadratic functions	Recognise and draw quadratic functions.
	15.4 Solving quadratic equations graphically	Find approximate solutions to quadratic equations graphically.
		Solve quadratic equations using an iterative process.
	15.5 Graphs of cubic functions	Find the roots of cubic equations.
		Sketch graphs of cubic functions.
		Solve cubic equations using an iterative process.
END OF TERM 3 TEST		
END OF YEAR TEST		