TERM	UNIT / LESSON	OBJECTIVES
AUTUMN	**1 Number**	
	1.1 Calculations	Use priority of operations with positive and negative numbers.
		Simplify calculations by cancelling.
		Use inverse operations.
	1.2 Decimal numbers	Round to a given number of decimal place.
		Multiply and divide decimal numbers.
	1.3 Place value	Write decimal numbers of millions.
		Round to a given number of significant figures.
		Estimate answers to calculations.
		Use one calculation to find the answer to another.
	1.4 Factors and multiples	Recognise 2-digit prime numbers.
		Find factors and multiples of numbers.
		Find common factors and common multiples of two numbers.
		Find the HCF and LCM of two numbers by listing.
	1.5 Squares, cubes and roots	Find square roots and cube roots.
		Recognise powers of 2, 3, 4 and 5.
		Understand surd notation on a calculator.
	1.6 Index notation	Find square roots and cube roots.
		Recognise powers of 2, 3, 4 and 5.
		Understand surd notation on a calculator.
	1.7 Prime factors	Write a number as the product of its prime factors.
		Use prime factor decomposition and Venn diagrams to find the HCF and LCM.
AUTUMN	**2 Algebra**	
	2.1 Algebraic expressions	Use correct algebraic notation.
		Write and simplify expressions.
	2.2 Simplifying expressions	Use the index laws.
		Multiply and divide expressions.
	2.3 Substitution	Substitute numbers into expressions.
	2.4 Formulae	Recognise the difference between a formula and an expression.
		Substitute numbers into a simple formula.
	2.5 Expanding brackets	Expand brackets.
		Simplify expressions with brackets.
		Substitute numbers into expressions with brackets and powers.
	2.6 Factorising	Recognise factors of algebraic terms.
		Factorise algebraic expressions.
		Use the identity symbol ≡ and the not equals symbol ≠
	2.7 Using expressions and formulae	Write expressions and simple formulae to solve problems.
		Use maths and science formulae.
AUTUMN	**3 Graphs, tables and charts**	
	3.1 Frequency tables	Designing tables and data collection sheets.
		Reading data from tables.
	3.2 Two-way tables	Use data from tables.
		Design and use two-way tables.
	3.3 Representing data	Draw and interpret comparative and composite bar charts.
		Interpret and compare data shown in bar charts, line graphs and histograms.
	3.4 Time series	Plot and interpret time series graphs.
		Use trends to predict what might happen in the future.
	3.5 Stem and leaf diagrams	Construct and interpret stem and leaf and back-to-back stem and leaf diagrams.
	3.6 Pie charts	Draw and interpret pie charts.
	3.7 Scatter graphs	Plot and interpret scatter graphs.
		Determine whether or not there is a relationship between sets of data.
	3.8 Line of best fit	Draw a line of best fit on a scatter graph.
		Use the line of best fit to predict values.
AUTUMN	**4 Fractions and percentages**	
	4.1 Working with fractions	Compare fractions.
		Add and subtract fractions.

TERM	UNIT / LESSON	OBJECTIVES
SPRING	**6 Angles**	
	6.1 Properties of shapes	Solve geometric problems using side and angle properties of quadrilaterals.
		Identify congruent shapes.
	6.2 Angles in parallel lines	Understand and use the angle properties of parallel lines.
		Find missing angles using corresponding and alternate angles.
	6.3 Angles in triangles	Solve angle problems in triangles.
		Understand angle proofs about triangles.
	6.4 Exterior and interior angles	Calculate the interior and exterior angles of regular polygons.
	6.5 More exterior and interior angles	Calculate the interior and exterior angles of polygons.
		Explain why some polygons fit together and some others do not
	6.6 Geometrical patterns	Solve angle problems using equations.
		Solve geometrical problems showing reasoning.
SPRING	**7 Averages and range**	
	7.1 Mean and range	Calculate the mean from a list and from a frequency table.
		Compare sets of data using the mean and range.
	7.2 Mode, median and range	Find the mode, median and range from a stem and leaf diagram.
		Identify outliers.
		Estimate the range from a grouped frequency table.
	7.3 Types of average	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	Estimate the mean of grouped data.
	7.5 Sampling	Understand the need for sampling.
		Understand how to avoid bias.
SPRING	**8 Perimeter, area and volume 1**	
	8.1 Rectangles, parallelograms and triangles	Calculate the perimeter and area of rectangles, parallelograms and triangles.
		Estimate lengths, areas and costs.
		Calculate a missing length, given the area.
	8.2 Trapezia and changing units	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	Calculate the perimeter and area of shapes made from triangles and rectangles.
		Calculate areas in hectares, and convert between ha and m2.
	8.4 Surface area of 3D solids	Calculate the surface area of a cuboid.
		Calculate the surface area of a prism.
	8.5 Volume of prisms	Calculate the volume of a cuboid.
		Calculate the volume of a prism.
	8.6 More volume and surface area	Solve problems involving surface area and volume.
		Convert between measures of volume.
SPRING	**9 Graphs**	
	9.1 Coordinates	Find the midpoint of a line segment.
		Recognise, name and plot straight-line graphs parallel to the axes.
	9.2 Linear graphs	Generate and plot coordinates from a rule.
		Plot straight-line graphs from tables of values.
		Draw graphs to represent relationships.
	9.3 Gradient	Find the gradient of a line.
		Identify and interpret the gradient from an equation.
		Understand that parallel lines have the same gradient.
	9.4 y = mx + c	Understand what m and c represent in y = mx + c.
		Find the equations of straight-line graphs.
		Sketch graphs given the values of m and c.
	9.5 Real-life graphs	Draw and interpret graphs from real data.
	9.6 Distance-time graphs	Use distance–time graphs to solve problems.
		Draw distance–time graphs.
		Interpret rate of change graphs.
	9.7 More real-life graphs	Draw and interpret a range of graphs.
		Understand when predictions are reliable.
SPRING	**10 Transformations**	
	10.1 Translation	Translate a shape on a coordinate grid.

TERM	UNIT / LESSON	OBJECTIVES
SUMMER	**11 Ratio and proportion**	
	11.1 Writing ratios	Use ratio notation.
		Write a ratio in its simplest form.
		Solve problems using ratios.
	11.2 Using ratios 1	Solve simple problems using ratios.
	11.3 Ratios and measures	Use ratios to convert between units.
		Write and use ratios for shapes and their enlargements.
	11.4 Using ratios 2	Divide a quantity into 2 parts in a given ratio.
		Divide a quantity into 3 parts in a given ratio.
		Solve word problems using ratios.
	11.5 Comparing using ratios	Use ratios involving decimals.
		Compare ratios.
		Solve ratio and proportion problems.
	11.6 Using proportion	Use the unitary method to solve proportion problems.
		Solve proportion problems in words.
		Work out which product is better value for money.
	11.7 Proportion and graphs	Recognise and use direct proportion on a graph.
		Understand the link between the unit ratio and the gradient.
	11.8 Proportion problems	Recognise different types of proportion.
		Solve word problems involving direct and inverse proportion.
SUMMER	**12 Right-angled triangles**	
	12.1 Pythagoras' theorem 1	Understand Pythagoras' theorem.
		Calculate the length of the hypotenuse in a right-angled triangle.
		Solve problems using Pythagoras' theorem.
	12.2 Pythagoras' theorem 2	Calculate the length of a line segment AB.
		Calculate the length of a shorter side in a right-angled triangle.
	12.3 Trigonometry: the sine ratio 1	Understand and recall the sine ratio in right-angled triangles.
		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	Use the sine ratio to calculate an angle in a right-angled triangle.
		Use the sine ratio to solve problems.
	12.5 Trigonometry: the cosine ratio	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	Understand and recall the tangent ratio in right-angled triangles.
		Use the tangent ratio to calculate the length of a side in a right-anglesd 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	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.
SUMMER	**13 Probability**	
	13.1 Calculating probability	Calculate simple probabilities from equally likely events.
		Understand mutually exclusive and exhaustive outcomes.
	13.2 Two events	Use two-way tables to record the outcomes from two events.
		Work out probabilities from sample space diagrams.
	13.3 Experimental probability	Find and interpret probabilities based on experimental data.
		Make predictions from experimental data.
	13.4 Venn diagrams	Use Venn diagrams to work out probabilities.
		Understand the language of sets and Venn diagrams.
	13.5 Tree diagrams	Use frequency trees and tree diagrams.
		Work out probabilities using tree diagrams.
		Understand independent events.
	13.6 More tree diagrams	Understand when events are not independent.
		Solve probability problems involving events that are not independent.
SUMMER	**14 Multiplicative reasoning**	
	14.1 Percentages	Calculate a percentage profit or loss.
		Express a given number as a percentage of another in more complex situations.

		Use fractions to solve problems.
	4.2 Operations with fractions	Find a fraction of a quantity or measurement.
		Use fractions to solve problems.
	4.3 Multiplying fractions	Multiply whole numbers, fractions and mixed numbers.
		Simplify calculations by cancelling.
	4.4 Dividing fractions	Divide a whole number by a fraction.
		Divide a fraction by a whole number or a fraction.
	4.5 Fractions and decimals	Convert fractions to decimals and vice versa.
		Use decimals to find quantities.
		Write one number as a fraction of another.
	4.6 Fractions and percentages	Convert percentages to fractions and vice versa.
		Write one number as a percentage of another.
	4.7 Calculating percentages 1	Convert percentages to decimals and vice versa.
		Find a percentage of a quantity.
		Use percentages to solve problems.
		Calculate simple interest.
	4.8 Calculating percentages 2	Calculate percentage increases and decreases.
		Use percentages in real-life situations.
		Calculate VAT (value added tax).
AUTUMN	**5 Equations, inequalities and sequences**	
	5.1 Solving equations 1	Understand and use inverse equations.
		Rearrange simple linear equations.
		Solve simple linear equations.
	5.2 Solving equations 2	Solve two-step equations.
	5.3 Solving equations with brackets	Solve linear equations with brackets.
		Solve equations with unknowns on both sides.
	5.4 Introducing inequalities	Use correct notation to show inclusive and exclusive inequalities.
		Solve simple linear inequalities.
		Write down whole numbers which satisfy an inequality.
		Represent inequalities on a number line.
	5.5 More inequalities	Solve two-sided inequalities.
	5.6 More formulae	Substitute values into formulae and solve equations.
		Change the subject of a formula.
		Know the difference between an expression, an equation, a formula and an identity.
	5.7 Generating sequences	Recognise and extend sequences.
	5.8 Using the nth term of a sequence	Use the nth term to generate terms of a sequence.
		Find the nth term of an arithmetic sequence.
END OF TERM 1 TEST		
TERM	**UNIT / LESSON**	**OBJECTIVES**
AUTUMN	**16 Quadratic equations and graphs**	
	16.1 Expanding double brackets	Multiply double brackets.
		Recognise quadratic expressions.
		Square single brackets.
	16.2 Plotting quadratic graphs	Plot graphs of quadratic functions.
		Recognise a quadratic function.
		Use quadratic graphs to solve problems.
	16.3 Using quadratic graphs	Solve quadratic equations ax2 + bx + c = 0 using a graph.
		Solve quadratic equations ax2 + bx + c = k
		Using a graph.
	16.4 Factorising quadratic expressions	
	16.5 Solving quadratic equations aleebraically	
AUTUMN	**17 Perimeter, area and volume 2**	
	17.1 Circumference of a circle 1	Calculate the circumference of a circle.

		Use a column vector to describe a translation.
	10.2 Reflection	Draw a reflection of a shape in a mirror line.
		Draw reflections on a coordinate grid.
		Describe reflections on a coordinate grid.
	10.3 Rotation	Rotate a shape on a coordinate grid.
		Describe a rotation.
	10.4 Enlargement	Enlarge a shape by a scale factor.
		Enlarge a shape using a centre of enlargement.
	10.5 Describing enlargements	Identify the scale factor of an enlargement.
		Find the centre of enlargement.
		Describe an enlargement.
	10.6 Combining transformations	Transform shapes using more than one transformation.
		Describe combined transformations of shapes on a grid.
END OF TERM 2 TEST		

		Find the original amount given the final amount after a percentage increase or decrease
	14.2 Growth and decay	Find an amount after repeated percentage change.
		Solve growth and decay problems.
	14.3 Compound measures	Solve problems involving compound measures.
	14.4 Distance, speed and time	Convert between metric speed measures.
		Calculate average speed, distance and time.
		Use formulae to calculate speed and acceleration.
	14.5 Direct and inverse proportion	Use ratio and proportion in measures and conversions.
		Use inverse proportions.
SUMMER	**15 Constructions, loci and bearings**	
	15.1 3D solids	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 and sketch planes of symmetry of 3D shapes.
		Understand and draw plans and elevations of 3D shapes.
		Sketch 3D shapes based on their plans and elevations.
	15.3 Accurate drawings 1	Make accurate drawings of triangles using a ruler, protractor and compasses.
		Identify SSS, ASA, SAS and RHS triangles as unique from a given description.
		Identify congruent triangles
	15.4 Scale drawings and maps	Draw diagrams to scale.
		Correctly interpret scales in real-life contexts.
		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	Accurately draw angles and 2D shapes using a ruler, protractor and compasses.
		Construct a polygon inside a circle.
		Recognise nets and make accurate drawings of nets of common 3D objects.
	15.6 Constructions	Draw accurately using rulers and compasses.
		Bisect angles and lines using rulers and compasses.
	15.7 Loci and regions	Draw loci for the path of points that follow a given rule.
		Identify regions bounded by loci to solve practical problems.
	15.8 Bearings	Find and use three-figure bearings.
		Use angles at parallel lines to work out bearings.
		Solve problems involving bearings and scale diagrams.
END OF TERM 3 TEST		
END OF YEAR TEST		

		Solve problems involving the circumference of a circle.
	17.2 Circumference of a circle 2	Calculate the circumference and radius of a circle.
		Work out percentage error intervals.
	17.3 Area of a circle	Work out the area of a circle.
		Work out the radius or diameter of a circle.
		Solve problems involving the area of a circle.
		Give answers in terms of π.
	17.4 Semicircles and sectors	Understand and use maths language for circles and perimeters.
		Work out areas of semicircles and quarter circle and perimeters.
		Solve problems involving sectors of circles.
	17.5 Composite 2D shapes and cylinders	Solve problems involving areas and perimeters of 2D shapes.
		Work out the volume and surface area of cylinders.
	17.6 Pyramids and cones	Work out the volume of a pyramid.
		Work out the surface area of a pyramid.
		Work out the volume of a cone.
		Work out the surface area of a cone.
	17.7 Spheres and composite solids	Work out the volume of a sphere.
		Work out the surface area of a sphere.
		Work out the volume and surface area of composite solids.
AUTUMN	**18 Fractions, indices and standard form**	
	18.1 Multiplying and dividing fractions	Multiply and divide mixed numbers and fractions.
	18.2 The laws of indices	To know and use the laws of indices.
	18.3 Writing large numbers in standard form	Write large numbers in standard form.
		Convert large numbers from standard form into ordinary numbers.
	18.4 Writing small numbers in standard form	Write small numbers in standard form.
		Convert numbers from standard form with negative powers of ordinary numbers
	18.5 Calculating with standard form	To multiply and divide numbers in standard form.
		To add and subtract numbers in standard form.
AUTUMN	**19 Congruence, similarity and vectors**	
	19.1 Similarity and enlargement	Understand similarity.
		Use similarity to solve angle problems.
	19.2 More similarity	Find the scale factor of an enlargement.
		Use similarity to solve problems.
	19.3 Using similarity	Understand the similarity of regular polygons.
		Calculate perimeters of similar shapes.
	19.4 Congruence 1	Recognise congruent shapes.
		Use congruence to work out unknown angles.
	19.5 Congruence 2	Use congruence to work out unknown sides.
	19.6 Vectors 1	Add and subtract vectors.
		Find the resultant of two vectors.
	19.7 Vectors 2	Subtract vectors.
		Find multiples of a vector.
AUTUMN	**20 More algebra**	
	20.1 Graphs of cubic and reciprocal functions	Draw and interpret graphs of cubic functions.
		Draw and interpret graphs of y = 1/x.
	20.2 Non-linear graphs	Draw and interpret non-linear graphs to solve problems.
	20.3 Solving simultaneous equations graphically	Solve simultaneous equations by drawing a graph.
		Write and solve simultaneous equations.
	20.4 Solving simultaneous equations algebraically	Solve simultaneous equations algebraically.
	20.5 Rearranging formulae	Change the subject of a formula.
	20.6 Proof	Identify expressions, equations, formulae and identities.
		Prove results using algebra.
END OF TERM 4 TEST		