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| A picture containing text  Description automatically generated | Maths Curriculum |
|  | YEAR 7 | YEAR 8 | YEAR 9 | YEAR 10 | YEAR 11 |
| AUT 1 TOPIC | Algebraic thinking | Proportional reasoning | Reasoning with algebra | Similarity | Graphs |
| Key Focus | Sequences | Ratio and scale | Straight line graphs  | Congruence, similarity, and enlargement  | Gradients and lines  |
| Understand and use algebraic notation | Multiplicative change | Forming and solving equations  | Trigonometry  | Non-linear graphs  |
| Equality and equivalence | Multiplying and dividing fractions | Testing conjectures  |  | Using graphs  |
| Knowledge and skills | * Describe and continue sequences
* Continue linear and non-linear sequences
* Explain the term-to-term rule
* Use function machines to find output and input.
* Use letters to generalise number operations
* Substitute values into one and two-step expressions
* Solve one step linear equations
 | * Understand the meaning of ratio
* Express ratio in their simplest form
* Ratios in the form 1 to n
* Compare ratios and fractions
* Convert between currencies
* Draw and interpret scale diagrams
* Multiply and divide fractions up to and including mixed fractions
 | * Draw straight lines using table of values.
* Compare gradients and intercepts.
* Label lines parallel to the axes
* Solve one and two step equations.
* Substitute into formulae and equations
* Solve equations with unknowns on both sides.
* Factors multiples and primes
* True or false
* Always, sometimes, never true
 | * Enlarge a shape by positive integer scale factor and by a fractional scale factor.
* Identify similar shapes.
* Work out missing sides and angles in similar shapes
* Use parallel lines to work out missing angles.
* Identify hypotenuse, opposite and adjacent sides.
* Explore ratio in similar right-angled triangles.
 | * Find equations of lines parallel to axis
* Find equations of straight lines from a graph
* Determine whether a point is on a line.
* Recognise graph shapes.
* Plot and read cubic and quadratic graphs.
* Construct and interpret conversion graphs.
* Construct and interpret real-life straight-line graphs.
* Reflect shapes.
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| Assessment Objectives |  |  |  |  |  |
| Assessment | Each Focus area will be followed up with a summative assessment to measure pupils progress through the curriculum. Teachers will also use appropriate formative assessment strategies throughout lessons in each topic to assess and then adapt teaching where necessary to meet the needs of the pupils in each class. They will also use the formative assessment strategies to clear up misconceptions early.  | Each Focus area will be followed up with a summative assessment to measure pupils progress through the curriculum. Teachers will also use appropriate formative assessment strategies throughout lessons in each topic to assess and then adapt teaching where necessary to meet the needs of the pupils in each class. They will also use the formative assessment strategies to clear up misconceptions early. | Each Focus area will be followed up with a summative assessment to measure pupils progress through the curriculum. Teachers will also use appropriate formative assessment strategies throughout lessons in each topic to assess and then adapt teaching where necessary to meet the needs of the pupils in each class. They will also use the formative assessment strategies to clear up misconceptions early. | Each Focus area will be followed up with a summative assessment to measure pupils progress through the curriculum. Teachers will also use appropriate formative assessment strategies throughout lessons in each topic to assess and then adapt teaching where necessary to meet the needs of the pupils in each class. They will also use the formative assessment strategies to clear up misconceptions early. | Each Focus area will be followed up with a summative assessment to measure pupils progress through the curriculum. Teachers will also use appropriate formative assessment strategies throughout lessons in each topic to assess and then adapt teaching where necessary to meet the needs of the pupils in each class. They will also use the formative assessment strategies to clear up misconceptions early. |
| Careers |  |  |  |  |  |
| Key Dates/Events |  |  |  |  |  |
| AUT 2 TOPIC | Place value and proportion | Representations | Constructing in 2 and 3 dimension | Developing algebra | algebra |
| Key Focus | Place value and ordering integers and decimals | Working in the cartesian plane | Three dimensional shapes  | Representing solution of equations and inequalities  | Expanding and factorising  |
| Fraction, decimal and percentage equivalence | Representing data | Constructions and congruency  | Simultaneous equations  | Changing the subject  |
|  | Tables and probability |  |  | Functions  |
| Knowledge and skills | * Recognise place value of numbers
* Numbers on a number line
* Round numbers to the nearest power of ten
* Compare and order integers
* Find range and median of a set of numbers
* Place value of decimals and position on a number line
* Round a number to 1 significant figure
* Convert fluently between fractions, decimals and percentages
 | * Coordinates in all four quadrants
* Identify and draw lines parallel to the axis
* Plot graphs of the form $y=mx+c$
* Draw and interpret scatted graphs
* Draw and use lines of best fit
* Identify different types pf data
* Find probabilities from sample space diagrams, two way tables and Venn diagrams
 | * Know names of 2-D and 3-D shapes
* Make accurate nets of 3-D shapes.
* Find surface area of 3-D shapes.
* Draw and measure angles.
* Construct perpendicular bisector.
* Construct perpendicular from and to a point.
* Identify congruent triangles
 | * Form and solve one-step and two-step equations.
* Show solutions to inequalities on a number line.
* Find solutions to equations using straight line graphs.
* Solve a pair of linear simultaneous equations by substituting a known variable.
* Solve a pair of linear simultaneous equations by substituting an expression.
 | * Expand and factorise a single bracket.
* Solve quadratic equations by factorisation.
* Solve equations.
* Solve linear equations.
* Change the subject of a simple formula.
* Change the subject of a known formula.
* Use function machines.
* Work with inverse functions
* Substitute into expressions and formulae
* Use function notation.
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| Key Dates/Events |  |  |  |  |  |
| SPR 1 TOPIC | Applications of number | Algebraic techniques | Reasoning with number | Geometry | Reasoning |
| Key Focus | Solving problems with addition and subtraction | Brackets, equations and inequalities | Numbers  | Angles and bearings  | Multiplicative  |
| Solving problems with multiplication and division | Sequences | Using percentages  | Working with circles | Geometric  |
| Fractions and percentages of amounts | Indices | Maths and money  | Vectors  | Algebraic |
| Knowledge and skills | * Mental strategies for addition and subtraction
* Formal methods of addition and subtraction with integers and decimals
* Solve addition and subtraction problems in context
* Use formal methods to multiply and divide integers and decimals
* Use order of operations
* Understand and use factors and multiples
* Solve multiplication and division problems in context
* Find a fraction of an amount
* Find a percentage of an amount
 | * Form algebraic expressions
* Expand and simplify brackets
* Factorise into a single bracket
* Solve equations including brackets
* Solve simple inequalities
* Complete a sequence given a word rule
* Complete a sequence given an algebraic rule
* Add and subtract expression with indices
* Laws of indices
 | * HCF and LCM
* Multiplying and dividing fractions
* Solve problems with integers and decimals.
* Numbers in standard form
* Solve ‘reverse’ percentage problems.
* Express a change as a percentage.
* Calculate percentage increase and decrease.
* Solve problems with bills and bank statements.
* Calculate interest
 | * Measure and read bearings.
* Understand and represent bearings.
* Draw and interpret scale diagrams.
* Recognise and label parts of a circle.
* Calculate fractional parts of a circle.
* Calculate the length of an arc.
* Calculate the area of a sector.
* Understand and represent vectors.
* Add vectors.
 | * Use scale factors.
* Calculate with pressure and density.
* Understand inverse proportion.
* Angles at points
* Work out exterior and interior angles of a polygon
* Proving geometric facts
* Find the nth term of linear and quadratic sequences.
* Simplify complex expressions.
* Use rules for sequences.
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| Careers | Sports Commentator – Adding up scores when a team scores (rugby, basketball, aggregate scores in football) |  |  |  |  |
| Key Dates/Events |  |  |  |  |  |
| SPR 2 TOPIC | Directed number | Developing number | Reasoning with geometry | Proportions and proportional change | Revision and communication |
| Fractional thinking |
| Key Focus | Operations and equations with directed number | Fractions and percentages | Deduction  | Ratios and fractions  | Transforming and constructing  |
| Addition and subtraction of fractions | Standard index form | Rotation and translation  | Percentages and interest | Listing and describing  |
|  | Number sense | Pythagoras’ theorem  | Probability  | Show that …  |
| Knowledge and skills | * Arithmetic with directed numbers
* Directed numbers and algebra
* Use order of operations with directed number
* Calculator skills with directed number
* Add and subtract fractions with the same denominator
* Add and subtract fractions with different denominators
* Add and subtract improper fractions and mixed numbers
* Use fractions in algebraic contexts
 | * Convert between fractions, decimals and percentages
* Calculate fractions, decimals and percentages of an amount with and without a calculator
* Investigate positive and negative powers of 10
* Arithmetic with standard form
* Round numbers to 1 significant figure
* Round numbers correct to decimal places
* Estimate answers
* Calculate using order of operations
* Calculate with money
 | * Angles in parallel lines
* Solve angle problems using chains of reasoning.
* Angle problems with algebra
* Identify the order of rotational symmetry.
* Rotate a shape about a point.
* Translate shapes by a given vector.
* Squares and roots
* Calculate missing sides on a right-angled triangle
 | * Compare quantities using a ratio.
* Link ratio and fractions
* Use and interpret ratios of the form (1: n) and (n:1).
* Combine a set of ratios.
* Calculate simple and compound interest.
* Find the original value after percentage change.
* Use tree diagrams to calculate probability.
* Probabilities add up to one.
 | * Perform and describe a series of transformations of shapes.
* Solve loci problems.
* Work with organised lists
* Create sample space and probability diagrams.
* Complete and use Venn diagrams using set notation.
* Show that tasks involving number, algebra, shape, and angles.
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| Key Dates/Events |  |  |  |  |  |
| SUM 1 TOPIC | Lines and angles | Developing geometry | Reasoning with proportion | Delving into data | Revision and Exams |
| Key Focus | Constructing, measuring and using geometric notation | Angles in parallel lines and polygons | Enlargement and similarity  | Collecting, representing, and interpreting data  | GCSE AQA topic revision |
| Developing geometric reasoning | Area of trapezia and circles | Solving ratio and proportion problems  |  |  |
|  | Line symmetry and reflection | Rates  |  |  |
| Knowledge and skills | * Draw and measure line segments
* Classify angles
* Measure and draw angles up to 180 and 360
* Identify perpendicular and parallel lines
* Identify types of polygons
* Construct triangles using SSS, SAS and ASA
* Draw and interpret pie charts
* Sum angles on a straight line and around a point
* Know and apply angle knowledge in triangles and quadrilaterals
 | * Basic angle rules and notation
* Investigate angles in parallel lines
* Work out interior and exterior angles of polygons
* Calculate area of triangles, rectangles, trapezia and parallelograms
* Perimeter and area of compound shapes
* Work out area of a circle with and without a calculator
* Reflect shapes over a line of symmetry
 | * Work out missing sides and angles in a pair of given similar shapes.
* Enlarge by a positive scale factor.
* Solve ratio problems given the whole or a part.
* Solve best buy problems.
* Solve problems with direct proportion.
* Solve problems with inverse proportion.
* Solve speed, distance, and time problems with and without a calculator.
* Use distance/time graphs
 | * Construct and interpret two-way tables.
* Construct and interpret pie charts.
* Find and interpret averages from lists and tables.
* Construct and interpret stem and leaf diagrams.
* Construct and interpret line and bar charts.
* Construct and interpret frequency tables and polygons.
 | * Number
* Shape
* Algebra
* Probability
* Data
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| SUM 2 TOPIC | Reasoning with numbers | Reasoning with data | Representations | Using Number |  |
| Key Focus | Developing number sense | The data handling cycle | Probability  | Non-calculator methods  |  |
| Sets and probability | Measures of location | Algebraic representation  | Types of number and sequences  |
| Prime numbers and proof |  |  | Indices and Roots  |
| Knowledge and skills | * Know mental strategies for arithmetic with integers and decimals
* Simplify using common factors
* Identify and represent sets
* Interpret and draw Venn diagrams
* Understand set notation with Venn diagrams
* Generate sample space diagrams
* Calculate probability
* Know probabilities sum to 1
* Find multiples, factors and prime numbers
* Find common factors and multiples
* Write a number as a product of its prime factors
 | * Design and criticise questionnaires
* Draw and interpret pictograms, bar charts and vertical line charts
* Draw and interpret pie charts
* Draw and interpret multiple bar charts
* Work out the mean, median and mode
* Choose the most appropriate average
* Identify outliers
 | * Single event probability
* Use diagrams to work out probabilities.
* Expected outcomes.
* Independent events
* Work out relative frequency
* Draw and interpret quadratic graphs.
* Interpret graphs.
* Represent inequalities
 | * Mental and written methods for addition, subtraction, multiplication, and division
* Rounding to decimal places and significant figures
* Understand the difference between factors and multiples.
* Find HCF and LCM
* Continue arithmetic and geometric sequences.
* The addition and subtraction rules for indices
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