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| **Year 8 Curriculum Overview [2023-2024]** **Mathematics**  |
|  **Autumn Term** | **Knowledge & Understanding** | **Literacy Skills****Opportunities for****developing** **literacy skills** | **Employability Skills****[if any]** | **Assessment Opportunities** |
| **Composites** | **Components****[KEY concepts & subject specific vocab]** | **Formal Retrieval****[if any]** |
| **HT1** | **Ratio and Scale** | * Understanding the meaning and representation of ratio
* Understand and use ratio notation
* Solve problems involving ratios of the form 1:n or n:1
* Solve proportional problems involving the ratio m:n
* Divide a value into a given ratio
* Express ratios in their simplest integer form
* **H - Express ratios in the form 1:n**
* Compare ratios and related fractions
* Understand pi as the ratio between diameter and circumference
* **H - Understand gradient of a line as a ratio**
 | * Retrieval in class starter
* Prior knowledge whiteboard questions
* End of Topic Unit Test Intervention lessons using knowledge organiser material
 | * Key Vocabulary in Retrieval starters
* Encourage use of subject language
* Questioning
* Pupil explanations and reasoning
* True and False Tasks
* Problem Solving Tasks
* Blooms Questioning Tasks
 | * Personal skills- Thinking and problem solving- Working together and communicating
* Fundamental skills- Using numbers effectively- Using language effectively

- Using a calculator effectively.• Chef • Working in the catering industry • Business • Architecture • Surveyor • Financial • Currency exchange • Hair dressers • Medical •Business • Construction work • Retail • Hotel and catering | * Plenary True and False Tasks
* Peer and self-assessment
* Feedback and reflective practise
* End of Topic Tests
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|  | **Multiplicative Change** | * Solve problems involving direct proportion
* Explore conversion graphs
* Convert between currencies
* **H - Explore direct proportion graphs**
* Explore relationships between similar shapes
* Understand scale factors as multiplicative relationships
* Draw and interpret scale diagrams
 |
|  | **Multiplying and Dividing Fractions** | * Interpret maps using scale factors and ratio
* Represent multiplication of fractions
* Multiply a fraction by an integer
* Find the product of a pair of unit fractions
* Find the product of a pair of any fractions
* Divide an integer by a fraction
* Divide a fraction by a unit fraction
* Understand and use the reciprocal
* Divide any pair of fractions
* **H - Multiply and divide improper and mixed fractions**
* **H - Multiply and divide algebraic fractions**
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| **HT2** | **Working in a Cartesian Plane** | * Work with coordinates in all four quadrants
* Identify and draw lines that are parallel to the axes
* Recognise and use the line y=x
* Recognise and use lines of the form y=kx
* Link y=kx to direct proportion problems
* **H - Explore the gradient of the line y=kx**
* Recognise and use lines of the form y=x+a
* Explore graphs with negative gradients (y=-kx, y=a-x, x+y=a)
* Link graphs to linear sequences
* Plot graphs of the form y=mx+c
* **H - Explore non-linear graphs**
* **H - Find the midpoint of a line segment**
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|  | **Representing Data** | * Draw and interpret scatter graphs
* Understand and describe linear correlation
* Draw and use line of best fit (1)
* Draw and use line of best fit (2)
* Identify non-linear relationships
* Identify different types of data
* Read and interpret ungrouped frequency tables
* Read and interpret grouped frequency tables
* Represent grouped discrete data
* Represent continuous data grouped into equal classes
* Represent data in two-way tables
 |
|  | **Tables and Probability** | * Construct sample spaces for 1 or more events
* Find probabilities from sample space
* Find probabilities from two-way tables
* Find probabilities from Venn diagrams
* **H - Use the product rule for finding the total number of possible outcomes**
 |
|  | **Brackets, Equations and Inequalities** | * Form algebraic expressions
* Use directed number with algebra
* Multiply out a single bracket
* Factorise into a single bracket
* Expand multiple single brackets and simplify
* H - Expand a pair of binomials
* Solve equations, including with brackets
* Form and solve equations with brackets
* Understand and solve simple inequalities
* Form and solve inequalities
* **H - Solve equations and inequalities with unknowns on both sides**
* **H - Form and solve equations and inequalities with unknowns on both sides**
* Identify and use formulae, expressions, identities and equations
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| **Year 8 Curriculum Overview [2023-2024]** **Mathematics** |
| **Spring****Term** | **Knowledge & Understanding** | **Literacy Skills****Opportunities for****developing** **literacy skills** | **Employability Skills****[if any]** | **Assessment Opportunities** |
| **Composites** | **Components****[KEY concepts & subject specific vocab]** | **Formal Retrieval****[if any]** |
| **HT3** | **Brackets, Equations and Inequalities** | * Form algebraic expressions
* Use directed number with algebra
* Multiply out a single bracket
* Factorise into a single bracket
* Expand multiple single brackets and simplify
* H - Expand a pair of binomials
* Solve equations, including with brackets
* Form and solve equations with brackets
* Understand and solve simple inequalities
* Form and solve inequalities
* **H - Solve equations and inequalities with unknowns on both sides**
* **H - Form and solve equations and inequalities with unknowns on both sides**
* Identify and use formulae, expressions, identities and equations
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- Using a calculator effectively.• Medical | * Plenary True and False Tasks
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 |
| **HT3** | **Sequences** | * Generate sequences given a rule in words
* Generate sequences given a simple algebraic rule
* Generate sequences given a complex algebraic rule
* **H - Find the rule for the nth term of a linear sequence**
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|  | **Indices** | * Adding and subtracting expressions with indices
* Simplifying algebraic expressions by multiplying indices
* Simplifying algebraic expressions by dividing indices
* Using the addition law for indices
* Using the addition and subtraction laws for indices
* **H - Exploring powers of powers**
 |
| **HT4** | **Fractions and Percentages** | * Convert between decimals and percentages more than 1/100%
* Percentage decrease with a multiplier
* Calculate percentage increase and decrease using a multiplier
* Express one number as a fraction or a percentage of another without a calculator
* Express one number as a fraction or a percentage of another using calculator methods
* Work with percentage change
* Choose appropriate methods to solve percentage problems
* **H - Find the original amount given the percentage less than 100%**
* **H - Find the original amount given the percentage more than 100%**
* **H - Choose appropriate methods to solve complex percentage problems**
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|  | **Standard Index Form** | * Work with numbers greater than 1 in standard form
* Investigate negative powers of 10
* Work with numbers between 0 and 1 in standard form
* Compare and order numbers in standard form
* Mentally calculate with numbers in standard form
* Add and subtract numbers in standard form
* Multiply and divide numbers in standard form
* Use a calculator to work with numbers in standard form
* **H - Understand and use negative indices**
* **H - Understand and use fractional indices**
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| **Year 8 Curriculum Overview [2023-2024]** **Mathematics** |
| **Summer** **Term** | **Knowledge & Understanding** | **Literacy Skills****Opportunities for****developing** **literacy skills** | **Employability Skills****[if any]** | **Assessment Opportunities** |
| **Composites** | **Components****[KEY concepts & subject specific vocab]** | **Formal Retrieval****[if any]** |
| **HT5** | **Number Sense** | * Round numbers to a number of decimal places
* H - Understand and use error interval notation
* Calculate with money
* Convert metric units of weight and capacity
* **H - Convert metric units of area**
* **H - Convert metric units of volume**
* Solve problems involving time and the calendar
 | * Retrieval in class starter
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|  | **Angles in parallel lines** | * R - Understand basic angle rules and notation
* Investigate angles between parallel lines and the transveral
* Identify and calculate with alternate and corresponding angles
* Identify and calculate with co-interior, alternate and corresponding angles
* Solve complex problems with parallel line angles
* Construct triangles and special quadrilaterals
* Identify and calculate with sides and angles in special quadrilaterals.
* **H - Understand and use the properties of diagonals of quadrilaterals**
* Understand and use the sum of exterior angles of any polygon
* Understand and use the sum of interior angles of any polygon
* Calculate missing interior angles in regular polygons
* **H - Prove simple geometric facts**
* **H - Construct an angle bisector**
* **H - Construct a perpendicular bisector of a line segment**
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|  | **Area of Trapezia and Circles** | * Calculate the area of a trapezium
* Calculate the perimeter and area of compound shapes (1)
* Calculate the circumference of a circle
* Investigate the area of a circle
* Calculate the area of a circle and parts of a circle without a calculator
* Calculate the area of a circle and parts of a circle with a calculator
* Calculate the perimeter and area of compound shapes (2)
 |
| **HT6** | **Line Symmetry and Reflection** | * Recognise line symmetry
* Reflect a shape in a horizontal or vertical line 1 (shapes touching the line)
* Reflect a shape in a horizontal or vertical line 2 (shapes not touching the line)
* Reflect a shape in a diagonal line 1 (shapes touching the line)
* Reflect a shape in a diagonal line 2 (shapes not touching the line)
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 |
|  | **The Data Handling Cycle** | * Set up a statistical enquiry
* Design and criticise questionnaires
* Draw and interpret multiple bar charts
* Draw and interpret pie charts
* Draw and interpret line graphs
* Choose the most appropriate diagram for a given set of data
* Represent and interpret grouped quantitative data
* Find and interpret the range
* Compare distributions using charts
* Identify misleading graphs
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|  | **Measures of Location** | * Understand and use the mean, median and mode
* Choose the most appropriate average
* **H - Find the mean from an ungrouped frequency table**
* **H - Find the mean from a grouped frequency table**
* Identify outliers
* Compare distributions using averages and the range
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