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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 |
|  | **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** |
| **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** | * 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.  • Jobs that require a statistics background  • Data Analyst | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **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 |  |  |  |  |
| **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 | * 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.  • Medical | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
| **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** |
|  | **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** | * 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.  • Business  • Retail  • Computing  • Textiles | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **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** |
| **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 * 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.  • Construction  • Surveyor  • Architecture  • Carpet fitter  • Decorator | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **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** |
|  | **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) | * 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.  • Data Analyst  • Statistician | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **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 |
|  | **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 |