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| **Year 7 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** | **Sequences** | * Describe and continue a sequence given diagrammatically * Predict and check the next term(s) of a sequence * Represent sequences in tabular and graphical forms * Recognise the difference between linear and non-linear sequences * Continue numerical linear sequences * Continue numerical non-linear sequences * Explain the term-to-term rule of numerical sequences in words * **H - Find missing numbers within sequences** | * 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 * Financial management – predicting financial models * Nuclear engineers – prediction of radioactive models | * Baseline Assessment * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **Understanding Algebraic Notation** | * Given a numerical input, find the output of a single function machine * Use inverse operations to find the input given the output * Use diagrams and letters to generalise number operations * Use diagrams and letters with single function machines * Find the function machine given a simple expression * Substitute values into single operation expressions * Find numerical inputs and outputs for a series of two function machines * Use diagrams and letters with a series of two function machines * Find the function machine given a two-step expression * Substitute values into two-step expressions * Generate sequences given an algebraic rule * Represent one- and two-step functions graphically | * 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 | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **Equality and Equivalence** | * Understand the meaning of equality * Understand and use fact families, numerically and algebraically * Solve one-step linear equations involving addition and subtraction using inverse operations * Solve one-step linear equations involving multiplication and division using inverse operations * Understand the meaning of like and unlike terms * Understand the meaning of equivalence * Simplify algebraic expressions by collecting the like term using the ≡ symbol | * 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. | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
| **HT2** | **Place Value and Ordering Integers and Decimals** | * Recognise the place value of any digit in an integer up to one billion * Understand and write integers up to one billion in words and figures * Work out intervals on a number line * Position integers on a number line * Round intervals to the nearest power of 10 * Compare two numbers using =, ≠, <, >, ≤ and ≥ * Order a list of integers * Find the range of a set of numbers * Find the median of a set of numbers * Understand place value for decimals * Position decimals on a number line * Compare and order any number up to one billion * Round a number to 1 significant figure * **H - Write 10, 100, 1000 etc as powers of 10** * **H - Write positive integers in the form A x 10^n** * **H - Investigate negative powers of 10** * **H - Write decimals in the form A x 10^n** | * 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.   * Life skills * Money Management | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests * End of Term Test |
|  | **Fraction, Decimals and Percentage Equivalence** |  | * Retrieval in class starter * Prior knowledge whiteboard questions * End of Topic Unit Test Intervention lessons using knowledge organiser material |  | * Personal skills - Thinking and problem solving - Working together and communicating * Fundamental skills - Using numbers effectively - Using language effectively   - Using a calculator effectively. |  |
|  | **Solving Problems with Addition and Subtraction** | * Represent tenths and hundredths as diagrams * Represent tenths and hundredths on number lines * Interchange between fractional and decimal number lines * Convert between fractions and decimals - tenths and hundredths * Convert between fractions and decimals - fifths and quarters * **H - Convert between fractions and decimals - eighths and thousandths** * Understand the meaning of percentage using a hundred square * Convert fluency between simple fractions, decimals and percentages * Use and interpret pie charts * Represent any fraction as a diagram * Represent fractions on number lines * Identify and use simple equivalent fractions * Simplify fractions (no small step on this - but this is in the assessment) * Understand fractions as division * Convert fluently between FDP * **H - Explore fractions above one, decimals and percentages** | * 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.   * Number skills involved in many areas of different work | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
| **Year 7 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** | **Solving problems with Multiplication and Division** | * Properties of multiplication and division * Understand and use factors * Understand and use multiples * Multiply and divide integers and decimals by powers of 10 * **H - Multiply by 0.1 and 0.01** * Convert metric units * Use formal methods to multiply integers * Use formal methods to multiply decimals * Use formal methods to divide integers * Use formal methods to divide decimals * Understand and use order of operations * Solve problems using the area of rectangles and parallelograms * Solve problems using the area of triangles * **H - Solve problems using the area of trapezia** * Solve problems using the mean * **H - Explore multiplication and division in algebraic expressions** | * 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. | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **Fractions & Percentages of Amounts** | * Find a fraction of a given amount * Use a given fraction to find the whole and/or other fractions * Find a percentage of a given amount using mental methods * Find a percentage of a given amount using a calculator * **H - Solve problems with fractions greater than 1 and percentages greater than 100%** | * 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. | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
| **HT4** | **Operations and Equations with Directed Number** | * Understand and use representations of directed numbers * Order directed numbers using lines and appropriate symbols * Perform calculations that cross zero * Add directed numbers * Subtract directed numbers * Multiplication of directed numbers * Multiplication and division of directed numbers * Use a calculator for directed number calculations * Evaluate algebraic expressions with directed number * Introduction to two-step equations * Solve two-step equations * Use order of operations with directed numbers * **H - Understand that positive numbers have more than one square root** * **H - Explore higher powers and roots** |  | * 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. | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **Addition and Subtraction of Fractions** | * Understand representations of fractions * Convert between mixed numbers and fractions * Add and subtract unit fractions with the same denominator * Add and subtract fractions with the same denominator * Add and subtract fractions from integers expressing the answer as a single fraction * Understand and use equivalent fractions * Add and subtract fractions where denominators share a simple common multiple * Add and subtract fractions with any denominator * Add and subtract improper fractions and mixed numbers * Use fractions in algebraic contexts * Use equivalence to add and subtract decimals and fractions * **H - Add and subtract simple algebraic fractions** | * 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. | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
| **Year 7 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** | **Constructing, Measuring and Using Geometric Notation** | * Understand and use letter and labelling conventions including those for geometric figures * Draw and measure line segments including geometric figures * Understand angles as a measure of turn * Classify angles * Measure angles up to 180 degrees. Draw angles up to 180 degrees. * Draw and measure angles between 180 and 360 degrees * Identify parallel and perpendicular lines. * Recognise types of triangle * Identify polygons up to decagons. * Recognise types of quadrilaterals * Construct triangles using SSS * Construct triangles using SSS, SAS and ASA * Construct more complex polygons * Interpret simple pie charts using proportion * Interpret pie charts using a protractor * Draw pie charts | * 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.   * Engineering and architecture and planning | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **Developing Geometric Reasoning** | * Understand and use the sum of angles at a point * Understand and use the sum of angles on a straight line * Understand and use the equality of vertically opposite angles * Know and apply the sum of angles in a triangle * Know and apply the sum of angles in a quadrilateral * Solve angle problems using properties of triangles and quadrilaterals * Solve complex angle problems * **H - Find and use the angle sum of any polygon** * **H - Investigate angles in parallel lines** * **H - Understand and use parallel line angle rules** * **H - Use known facts to obtain simple proofs** | * 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 | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
| **HT6** | **Developing Number Sense** | * Know and use mental addition and subtraction strategies for integers * Know and use mental multiplication and division strategies for integers * Know and use mental strategies for decimals * Know and use mental strategies for fractions * Use factors to simplify calculations * Use estimation as a method for checking mental calculations * Use known number facts to derive other facts * Use known algebraic facts to derive other facts * Know when to use a mental strategy, formal written method or a calculator | * 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. | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **Sets and Probability** | * Identify and represent sets * Interpret and create Venn diagrams * Understand and use the intersection of sets * Understand and use the union of sets * H - Understand and use the complement of sets * Know and use the vocabulary of probability * Generate sample spaces for single events * Calculate the probability of a single event * Understand and use the probability scale * Know that the sum of probabilities of all possible outcomes is 1 | * 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 | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests |
|  | **Prime Numbers and proof** | * Find and use multiples * Identify factors of numbers and expressions * Recognise and identify prime numbers * Recognise square and triangular numbers * Find common factors of a set of numbers including the HCF * Find common multiples of a set of numbers including the LCM * Write a number as a product of its prime factors * **H - Use a Venn diagram to calculate the HCF and LCM** * Make and test conjectures * Use counterexamples to disprove a conjecture | * 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. | * Plenary True and False Tasks * Peer and self-assessment * Feedback and reflective practise * End of Topic Tests * End of Term Test |