MATHEMATICS

What are the aims and intentions of this curriculum?

The aim of our Year 9 Curriculum is to ensure that all students are confident in fundamental mathematical concepts and are able to reason mathematically by following a line of enquiry, forming relationships and generalisations, and developing an argument, justification or proof using mathematical language. Furthermore, the curriculum also aims to encourage students to understand and appreciate the subject area.

Term	Topics	Knowledge and key terms	Skills developed	Assessment
Autumn 1	**Using numbers and the number system:** • Read, write, order and compare large numbers • Multiply and divide whole numbers and decimals by 10, 100, 1000. • Squared Numbers • Positive and negative numbers • Order of precedence of operators • Fractions	• Calculate the squares of one-digit and two-digit numbers • Calculations with Positive and Negative Numbers • Use BIDMAS • Read, write, order and compare common fractions and mixed numbers • Find fractions of whole number quantities or measurements **Key terms:** Place Value, Digit, Tens, Hundreds, Thousands, Millions, Difference, Order, Compare, Most, Greater Than, Least, Less Than, Fewest, Highest, Smallest, Positive, Negative.	• Interpret numbers given as words or digits. • To carry out calculations on single, two-digit and three digit numbers. • Able to compare fractions • Apply mathematical thinking effectively to solve problems in real-life situations	1. Diagnostic Assessment 2. On-going Worksheets. 3. RAGs Worksheet 4. Summative Test on topics covered. 5. MyMaths 6. Online Quiz 7. Teacher and peer assessment 8. Give Feedback (WWW/EBI)

Autumn 2	**Using numbers and the number system:** • Decimals • Percentages- Percentage Increase/Decrease • Relationship between fractions, decimals and percentages. • Work with simple ratio and direct proportions	• Read, write, order and compare decimals up to three decimal places • Add, subtract, multiply and divide decimals up to two decimal places. • Approximate by rounding to a whole number or to one or two decimal places. • Read, write, order and compare percentages in whole numbers • Calculate percentages of quantities, including simple percentage increases and decreases by 5% and multiples thereof • Recognise and calculate equivalences between common fractions, percentages and decimals **Key terms:** Decimals, Add, Multiply, Subtract, Divide Whole Numbers, Fractions, Equivalences Percentage, Ratio, Direct Proportions, Compare, interest, discount.	• Apply mathematical thinking effectively to solve problems in real-life situations. • Carry out calculations with decimal numbers. • Carry out calculations with percentages • estimate answers to calculations using fractions and decimals • recognise and calculate equivalences between common fractions, percentages and decimals. • Understand the relationship between ratios and fractions. • work out simple interest on amounts of money • work out discount on amounts of money.	1. On-going Worksheets. 2. Summative Test on topics covered. 3. MyMaths 4. Online Quiz 5. Teacher and peer assessment 6. Give Feedback (WWW/EBI) 7. RAGs Worksheet
Spring 1	**Using common measures, shape and space:** • Simple Interest • Discount • Conversion (Length. Weight/Capacity/Money and Time) • Scale and Map Drawings	• Simple interest in multiples of 5% on amounts of money. • Calculate discounts in multiples of 5% on amounts of money. • Convert between units of length, weight, capacity, money and time, in the same system. • Recognise and make use of simple scales on maps and drawings. **Key terms:** conversion graph, conversion factor, kilometres, metres, centimetres, millimetres, kilograms, grams, litres, millilitres, cubic units, scale factor, key.	• convert between units of length, weight, capacity, money and time in the same system • calculate accurately to two decimal places, using the correct units • calculate discount and simple interest • recognise and make use of simple scales on maps and drawings. • Interpret their results and provide a valid conclusion	1. On-going Worksheets 2. Summative Test on topics covered. 3. MyMaths 4. Online Quiz 5. Teacher and peer assessment 6. Give Feedback (WWW/EBI) 7. RAGs Worksheet 8. Collection of Receipts 9. Collection of Maps 10. Role-play- To demonstrate shopping experience with discount/interest.

Spring 2	Using common measures, shape and space: • Area and Perimeter • Volume • Lines of Symmetry • 3D Shapes- Plans, Elevations and Nets • Angles	• Calculate the area and perimeter of simple shapes including those that are made up of a combination of rectangles • Calculate the volumes of cubes and cuboids. • Draw 2-D shapes and demonstrate an understanding of line symmetry and knowledge of the relative size of angles. • Interpret plans, elevations and nets of simple 3-D shapes. • Use angles when describing position and direction, and measure angles in degrees. **Key terms:** area, perimeter, volume, metres, centimetres, millimetres, square and cubic units, edge, vertices, faces 2-D and 3-D shapes, rectangle, square, pentagon, trapezium, circle, cube, cuboid, line of symmetry, plan (top view), elevation (front and side view), net, faces, vertices, edges, right angle, acute angle, obtuse angle, straight angle, reflex angle, protractor, bearings, clockwise	• Able to calculate area and volume of several shapes. • Use memorization skills to recall formulas. • Interpret the structure of 3-D models. • Interpret their results and provide a valid conclusion. • Able to sketch a model • describe position or direction using angles, including bearings • measure angles in degrees.	1. On-going Worksheets 2. Summative Test on topics covered. 3. Building and Collection of 3D Shapes 4. MyMaths 5. Online Quiz 6. Physical assessment through the use of materials in their environment (Area, Perimeter and Volume) 7. Teacher and peer assessment 8. Give Feedback (WWW/EBI) 9. Oral Presentations 10. RAGs Worksheet
Summer 1	Handling information and data: • Charts and Tables • Averages- Mean, mode, median and range. • Probability	• Represent discrete data in tables, diagrams and charts including pie charts, bar charts and line graphs. • Group discrete data and represent grouped data graphically. • Find the mean, mode, median and range of a set of quantities. • Understand probability on a scale from 0 (impossible) to 1 (certain) and use probabilities to compare the likelihood of events • Use equally likely outcomes to find the probabilities of simple events and express them as fractions. **Key terms:** discrete data, two-way table, diagram, pie chart, bar chart, line graph, scale, labels, plotting, axes, sectors, criteria	1. extract and interpret information from tables, diagrams, charts and graphs 2. recognise features of charts to summarise and compare sets of data 3. group discrete data and represent grouped data graphically. 4. To understand the likelihood of an event. 5. Interpret their results and provide a valid conclusion	1. On-going Worksheets 2. Summative Test on topics covered. 3. MyMaths 4. Completion of Statistical Diagrams 5. Online Quiz 6. Teacher and peer assessment 7. Give Feedback (WWW/EBI) 8. Observation of Group Activity

Summer 2	Algebra: • Evaluate Formulas	• Substitute a variable in a formula with a correct value. • Follow the correct order of operations to evaluate a formula. • Evaluate expressions in a given formula. **Key terms:** Substitution, Constant, Variable, Order of Operations (BIDMAS), Operations	• Evaluating Formulas/expressions.	1. On-going Worksheets 2. Summative Test on topics covered. 3. MyMaths 4. RAGs Worksheet