

### **AUTUMN TERM**

- Retrieval Starters throughout the year.
- Literacy in Maths used throughout the year- Frayer Modelling.
- SPARX Maths for home learning.
- Number: Symbol notation. Calculating with integers, decimals and negatives and rounding to decimal places or sig. figures. Indices Inc. roots. Factors, multiples and primes. HCF and LCM. Fraction, decimal and percentages operations and comparison. Percentage real life (VAT, profit, simple interest and income tax).
- Algebra and shape: Forming, simplifying, rearranging, solving equations and formulae. Using substitution in expressions, equations and formulae. In context (polygons, angles). Sequences, nth term (arithmetic) and types of geometric.
- Data: composite, dual/comparative bar charts for categorical and ungrouped discrete data, bar-line charts, vertical line charts, line graphs for time-series data, histograms with equal class intervals, stem and leaf (including back-to-back), pie charts and scatter graphs (line of best fit). Interpolation and extrapolation.
- Recall, assessment and review.

### **SPRING TERM**

- Shape and algebra: Properties of parallel lines and polygons. Interior and exterior angles. Congruence and tessellation.
- Data: Averages from discrete and grouped data sets. Understand estimation.
- Shape and number: Area, perimeter and volume of 2d and 3d shapes including trapezia. Use scale and conversions. Volume and surface area of cube, cuboid and triangular prism.
- Algebra: Real life graphs. Midpoints, gradients and their interpretation. Use  $y = mx + c$  and  $ax + by = c$  to understand properties of straight lines.
- Shape: Transformations (translation, reflection, rotation and enlargement). Use scale factor and column vectors.
- Careers: Product development cycle (car)
- Recall, assessment and review.

### **SUMMER TERM**

- Ratio: Share total, given a share, unitary, fractional and simplified. Compare using scale. Direct and inverse proportion.
- Shape: Pythagoras and trigonometry. Plans and elevations. Construction leading to loci, regions and bearings.
- Data: Probability understanding outcomes, theoretical and bias. Frequency tables and trees. Two way tables, Venn diagrams and tree diagrams.
- Number: Compound measures (density, pressure, speed). % profit and loss, rates of pay and best value. Exchange rates.

- Recall, assessment and review.

**BUILDING EXCEPTIONAL YOUNG MEN**

### **AUTUMN TERM**

- Retrieval Starters throughout the year.
- Literacy in Maths used throughout the year- Frayer Modelling.
- SPARX Maths for home learning.
- Number: Indices, roots and reciprocals. Factors, multiples, primes, standard form and surds. Fractions, % and ratio (unitary and 3 part).
- Algebra: Notation. Forming, rearranging, solving equations and formulae.
- Data: Analysis of diagrams including scatter graphs (line of best fit), time series and associated interpolation and extrapolation.
- Shape and algebra: Pythagoras, trigonometric ratios (including exact values) and polygon facts (interior and exterior). In context and using algebra.
- “Decision Maths” Club.
- Recall, assessment and review.

### **SPRING TERM**

- Shape and algebra: Graphs, distance-time and velocity-time. Speed, acceleration and distance (trapezia). Linear  $y=mx + c$ ,  $ax + by =c$ , perpendicular and types of.
- Shape and number: Area, perimeter and volume of 2d and 3d shapes including bounds and accuracy. Transformations, loci and bearings. Plans and elevations.
- Algebra: Equations and inequalities of quadratics. Complete the square (solve, sketch and min point). Simultaneous equations Inc. linear/quadratic and circle.
- Data: Theoretical and experimental probability. Use of Venn, tree and 2-way diagrams with or without replacement.
- Careers: Product development cycle (car)
- UKMT Intermediate Challenge
- Recall, assessment and review.

### **SUMMER TERM**

- Number and ratio: Rates of pay. Compound interest, depreciation and measures. Direct and indirect proportion (growth and decay models). Kinematics.
- Shape: Congruence and similarity with proof. Similar shapes ( $sf$ ,  $sf^2$ ,  $sf^3$ ), develop to frustums. Trigonometric functions and their transformations. Sine, cosine,  $\frac{1}{2} ab\sin C$  rules with 2D, 3D and planes of incline.
- Data: Primary and secondary data collection, analysis (with and without bias) and conclusions in context. Cumulative frequency, box plots and histograms with estimated mean and median.
- Algebra: Graphically interpreting simultaneous, inequality, quadratic, cubic and reciprocal functions.

- Recall, assessment and review.

**BUILDING EXCEPTIONAL YOUNG MEN**

**AUTUMN TERM**

- Retrieval Starters throughout the year
- Literacy in Maths used throughout the year- Frayer Modelling
- SPARX Maths for home learning
- Algebra: Quadratic equations: expanding and factorising (including difference of two squares). Plotting and recognising a quadratic.
- Shape: Find the perimeter, area and volumes of circles, cylinders, cones, pyramids and spheres. Including semi-circles, sectors and composite 2D shapes.
- Number: Fractions and reciprocals. Indices and standard form excepting negative fractional indices.
- Recall, assessment and review.

**BUILDING EXCEPTIONAL YOUNG MEN**

### **AUTUMN TERM**

- Retrieval Starters throughout the year
- Literacy in Maths used throughout the year- Frayer Modelling
- SPARX Maths for home learning
- L2 AQA Further Mathematics.
- Shape and algebra: Prove, recall and use the six circle theorems. Circle geometry using  $x^2 + y^2 = r^2$  to find associated gradients and line equations. Reciprocal and exponential graphs; Gradient and area under graphs.
- Algebra: Changing the subject of formulae (more complex), solving equations from algebraic fractions and rationalising surds. Proof using  $2n$  (even)  $2n + 1$  (odd), contradiction and exhaustion.
- Shape: Vectors and geometric proof. Divided in a given ratio and collinear.
- Number: Direct and inverse proportion.
- Support through targeted form time sessions.
- Recall assessment and review.

### **SPRING TERM**

- Revisit revision advice and exam direction.
- PPE1 focussed topics linked to QLA.
- Revision using knowledge of class, revisit priority 68 topics, greater emphasis on variety and past paper exams.
- Recall (PPE Revision), assessment (3rd PPE February 2021) and review (QLA).
- Support through after school sessions and Easter session.

### **SUMMER TERM**

- Revisit revision advice and exam direction.
- Exams TBC May onwards. Dates are provisional.

**BUILDING EXCEPTIONAL YOUNG MEN**