2019-2020

Programmes of Study

Key Stage 3

Mathematics

MATHEMATICS

<table>
<tr><th colspan="2" style="text-align:center">OVERVIEW OF COURSE</th></tr>
<tr><td colspan="2">Mathematics is a core subject. The 3-year course will build and extend students understanding that has been taught at KS2. Mastery skills will be delivered throughout all years to help aid progress. Consolidation of key topics will also be delivered. An outline is shown below.</td></tr>
</table>

PROGRAMME OF STUDY

Term	Year 7	Year 8	Year 9
Autumn 1	Using Numbers (Timetables, charts, money, negatives), Sequences (Function machine and Nth term), Perimeter, area and volume	Multiplying, dividing with negative numbers, LCM, HCF, prime factors, powers and roots. Geometry (angles in parallel lines, rotations, translations, constructions)	Percentage using a multiplier (simple, increase/decrease, reverse percentages) Equations and Formulae (Brackets, factorising linear and fractions)
Autumn 2	Decimal numbers (x/÷ by powers of 10, estimation, numeracy with decimals) Working with numbers (squares, rounding, BIDMAS, multiplying, dividing, converting units) Statistics (averages, read/interpret diagrams, tallies)	Probability scales, Mutually exclusive events, Sample space, experimental probabilities Calculating percentages, calculating percentage increases and decreases, percentage change The nth term of a sequence, working out the nth term of a sequence, the Fibonacci sequence	Polygons (interior & exterior angles) & tessellation Using Data (scatter-plots, 2-way tables, estimated mean, time-series) Applications of Graphs (Step, Time, Exponential)
Spring 1	Algebra (expressions, substitution, simplifying, formulae) Fractions (equivalent, compare, add, subtract, mixed) Angles (measuring, drawing, angle facts, triangles, quadrilaterals, interior/exterior)	Area of 2D and 3D shapes, Surface area of cuboids) Graphs (Y=mx+c , equation of a line, quadratic curves, real life graphs) Simplifying Numbers (x/÷ with powers of 10, round to a given significant figure, standard form)	Pythagoras Theorem Fractions (add, subtract, multiply, divide & simplify) Algebra (Quadratics expanding and factorising)
Spring 2	Coordinates and graphs (Drawing linear equations, real word) Percentages (percent of an amount, increase/decrease) Probability (line, simple, experimental)	Interpret pie charts , calculate angles for pie charts, scatter graph Algebra (write and simplify expressions, multiply out brackets, write algebraic expressions Congruent shapes, use scales in drawings and maps	Decimal Numbers (Standard form, rounding) Surface Area and Volume of cylinders and prisms.
Summer 1	Symmetry (line, rotational, reflection, tessellation) Equations (solving using balancing) Interpreting Data (pie charts, comparing data, surveys)	Fractions and decimals Proportion, Graphical and algebraic representations of direct proportion,	Solving Equations Graphically (linear, quadratic, cubic, solving sim eqns graphically Compound Units (speed, distance, time & mass, density, volume)

			Right-angled Triangles (trigonometry)
Summer 2	3-D shapes (naming, isometric drawing, constructing) Ratio (simplifying, sharing, direct ratio)	Circles, calculate circumference and area of a circle) Equations and Formulae (Solve equations involving brackets and fractions, solve equations) Grouped frequency tables, interpret grouped frequency, draw grouped frequency diagrams	Revision and GCSE preparation

SKILLS / KNOWLEDGE / UNDERSTANDING

Students will be expected to retain prior knowledge from previous years. Skills used in previous years will be further developed. Constant practise of topics such as; Number, Algebra, Ratio, Proportion, Rates of Change, Geometry and Statistics will need to be recapped and consolidated. Skills and understanding from KS2 is paramount in the building blocks for Year 7, 8 and 9 and will place students in the advantageous position to achieve beyond their target.

METHODS OF ASSESSMENT

We will use a range of assessments:

- Formal tests – PR assessments as set out per school calendar
- End of topic tests after each topic.

We will also use a range of different styles of feedback to students:

- Marking in which the teacher provides formative comments for future improvement which the student is expected to act upon.
- Non-written feedback which can take the form of verbal, peer and self-assessment.

HOW PARENTS / CARERS CAN HELP

It is requested that parents play a role in their child's home learning. The list outlined suggests a few quick and easy methods, where parents/carers are able to help and support.

- Monitoring of books in terms of their content, presentation and organisational skills
- Oversee at least 20 mins of their homework sitting by their side.
- The use of MathsWatch as the MAIN resource for their independent home learning.

EXTRA-CURRICULAR

Year 7 UK Maths Challenge + Lunchtime club (commences from October)
Year 8 UK Maths Challenge + Set 1 to carry out the Edexcel Level 2 Algebra exam
Year 9 UK Maths Challenge + Lunchtime club (commences from October)

RECOMMENDED READING / OTHER RESOURCES

https://vle.mathswatch.co.uk/vle/ (MathsWatch)