

What are the aims and intentions of this curriculum?

Students are taught how to work with numbers, algebra, ratio, proportions and rates of change, geometry and measures, probabilities and statistics. The skills attained in KS2 are consolidated mainly through visual arithmetic and concrete applications. At the end of each topic, a closing-the-gap-questionnaire in the form of a review sheet is required to be completed by the students. Homework is given on a weekly basis and is expected to be completed online. To provide students with a holistic experience, prepare them for future success, help them aspire and value mathematics, **Personal Social Health and Economic (PSHE)** education and **Careers Education (CE)** are incorporated into the curriculum. Ambitiously, students are enriched by exploring the origins of numbers and receive exposure to current limits within mathematics.

| Term | Topics | Knowledge and key terms | Skills developed | Assessment |
|----------|--------------------------------------|--|---|---|
| Autumn 1 | <i>Numbers</i> | Addition/sum, subtraction/difference, multiplication/product, division/quotient, BIDMAS, factors, multiples, prime numbers, Highest common factor, Lowest common multiple, surds | Use various written and mental processes to do calculations; estimate answers; use calculators; find and apply the HCF and LCM of numbers; create and use tree and Venn diagrams CE: Clerk, accountant, banker, treasurer, auditor, engineer | End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment |
| | <i>Area and volume</i> | Area, perimeter, volume/capacity, 2D/3D, nets, surface area, plans, elevations, isometric, convert, metric/imperial | Determine the perimeter of rectilinear shapes; determine area of rectangles, triangles, parallelograms and trapezia; calculate the volume of cuboids and compounded cuboidal shapes; draw views and nets of cuboids; convert between metric and imperial units as well as between different measures of volume/capacity CE: Construction worker, math teacher, interior designer, CAD engineer, plumber PSHE: Use the context of Venn diagrams to explain commonalities of people and to build resilience and tolerance in relationships. | |
| Autumn 2 | <i>Statistics, graphs and charts</i> | Graphs, charts, models, data, mean, median, mode, range, frequency, compare, interpret, draw | Draw and interpret pie charts; use data to create tally tables, grouped frequency tables, two-way tables and stem-and-leaf diagrams; calculate and describe comparisons between mean, median, mode and range of various data expressions; find and describe the correlation in bivariate data CE: Market specialist, data specialist, data analyst, business intelligence analyst, business systems analyst | End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment |

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| | <i>Expressions and equations</i> | Powers/exponents/indices, expressions, equations, identities, formulae, simplify, expand, factorise, function machines, inverse, balance, order of operations | <p>Expand and simplify algebraic expressions with powers; deduce expressions and equations; factorise common factors; solve equations (excluding equations with fractions)</p> <p>CE: Broadcast technician, carpenter, market analyst, buyer, professor</p> <p>PSHE: Use pie charts to express time spent on daily routines to promote mental well-being.</p> | |
| Spring 1 | <i>Real-life graphs</i> | Convert, measure, draw, compare, interpret, speed, distance, time, depth, rate | <p>Use graphs to represent conversions; evaluate and compare graphs representing rates of change; draw and use STEM based graphs</p> <p>CE: Animator, cartographer, fashion designer, urban planner, game developer</p> | <p>End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment</p> |
| | <i>Decimals and ratio</i> | Compare, order, round, calculate, simplify, decimals, negative, powers of 10, ratio | <p>Develop an implicit understanding of decimals and how they are used in calculations; round to significant figures and indicated decimal points; use powers of 10 to multiply and divide; solve problems that require decimals; use decimals accurately in ratios; compare ratios; share in a ratio</p> <p>CE: Industrial maintenance, manufacturing, warehouse clerk, barista, sales, assembler</p> <p>PSHE: Interpret number size of social media followers/likes count expressed as decimals and raise awareness of becoming emotionally attached to these.</p> | |
| Spring 2 | <i>Lines and angles</i> | Symmetry, properties, parallel, right-angled, regular/irregular, equal, interior, exterior, solve | <p>Identify line and rotational symmetry; apply properties of quadrilaterals; find interior and exterior angles of regular and irregular polygons; solve angle problems by using equations</p> <p>CE: Animator, cartographer, fashion designer, urban planner, game developer</p> | <p>End of topic review Homework Bookmarking Classroom feedback Half-term formal assessment</p> |
| | <i>Calculating with fractions</i> | Proper/improper, common fractions, common denominators, mixed fractions | <p>Add, subtract, multiply and divide fractions represented in various forms to solve problems, prioritizing those linked to time and money</p> <p>CE: Packaging inspector, packer, housekeeper, janitor, helper, food services</p> <p>PSHE: Physical wellbeing is promoted by the use fractions to make comparisons between the different weights animals can carry and their own body weight, as well as how high animals can jump compared to their relativistic height.</p> | |

