**Curriculum – Maths Faculty (2024 – 2025)**

**Key stages 3 to 4**

**A math symbols and math formulas

Description automatically generated with medium confidence**

**Intent**

Our focus is **breadth of curriculum**. We want our students to **experience and learn new skills and ideas in as many subjects** as possible **for as long as possible**.

We want our curriculum to be challenging in its depth and breadth so that it will:

* **Challenge** all students to be the best that they can be
* Provide students with **knowledge**required to be successful
* Provide then with the skills to **retain** and **apply**knowledge
* Equip our students with **Character Resilience Organisation Excellence C.O.R.E. values** thus developing students who are **resilient**, lifelong learners
* Provide **deep learning** that accelerates our students understanding of the world around them
* Equip our students with **ambition** and aspirations so that they become happy and successful members of society
* Enables students have a range of qualifications that facilitate their **next steps** in their education and career

Our mathematics curriculum aims to inspire and empower students to become confident mathematicians. We are committed to developing numerate individuals who possess the critical problem-solving skills essential for success in their careers and everyday lives. Through a dynamic and engaging learning environment, we strive to instill a deep understanding and appreciation of mathematical concepts, encouraging students to think logically and creatively. Our curriculum fosters resilience, curiosity, and a growth mindset, ensuring all students leave school with the confidence and competence to navigate the numerical challenges of the future.

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| **Term** | **Year 7: KS3** | **Year 8: KS3** | **Year 9: KS3** | **Year 10: GCSE** | **Year 11: GCSE** | **Year 12: A Level** | **Year 13: A Level** |
| **Autumn 1a** | Number and Proportion 1: Place value and the number line  Number and Proportion 2: Addition and subtraction | Number and Proportion 7: Fractions  Number and Proportion 8: Percentages, fractions and decimals | Statistics and Probability 2: Bivariate Data and Time Series  Algebra 7: Sequences 1 | Geometry and Measure 7: Advanced drawing, measuring and constructing  Statistics and Probability 4: Continuous data  Statistics and Probability 5: Set theory and logic | Number and Proportion 15: Indices and surds  Algebra 14: Advanced quadratic graphs and equations | AS Pure 1: Algebra and functions  AS Statistics 1: Statistical sampling  AS Mechanics 6: Quantities and units in mechanics  AS Mechanics 7: Kinematics 1 (constant acceleration) | A2 Statistics 1: Regression and correlation  A2 Mechanics 4: Moments  A2 Pure 3: Fractions and modelling  A2 Pure 4: Series and sequences |
| **Autumn 1b** | Number and Proportion 3: Multiplication and division | Geometry and Measure 1: Drawing, measuring and constructing  Number and Proportion 9: Estimation and use of a calculator | Algebra 8: Linear Inequalities  Number and Proportion 9: Estimation and Use of a Calculator  Number and Proportion 12: Standard Form | Number and Proportion 14: Number theory  Algebra 11: Advanced manipulating and simplifying expressions | Number and Proportion 16: Numerical and algebraic representations of proportion and change  Geometry and Measure 10: Advanced vectors  Statistics and Probability 7: Advanced probability | AS Pure 2: Coordinate geometry in the (x,y) plane  AS Statistics 2: Data presentation and interpretation  AS Statistics 3: Probability | A2 Pure 5: The binomial theorem  A2 Pure 6: Trigonometry  A2 Pure 7: Parametric equations  A2 Mechanics 5: Forces at any angle |
| **Spring 2a** | Number and Proportion 4: Powers, roots and primes  Number and Proportion 5: Order of operations | Algebra 2: Manipulating and simplifying expressions 1  Algebra 3: Manipulating and simplifying expressions 2 | Algebra 9: Contextual Graphs | Algebra 12: Quadratic graphs and equations | Algebra 15: Fractions and advanced graphs  Algebra 16: Pre-calculus | AS Pure 3: Further algebra  AS Pure 4: Trigonometry  AS Mechanics 8: Forces | A2 Pure 8: Differentiation  A2 Mechanics 6: Applications of kinematics  A2 Statistics 2: Probability  A2 Pure 9: Numerical methods |
| **Spring 2b** | Number and Proportion 6: Directed numbers | Algebra 4: Linear equations  Number and Proportion 10: Proportional reasoning | Statistics and Probability 3: Introduction to probability  Algebra 10: Advanced linear graphs and equations | Geometry and Measure 8: Surface area and volume  Algebra 13: Advanced sequences | Algebra 17: Advanced algebra skills and proof  Geometry and Measure 11: Solving geometric problems | AS Pure 5: Vectors  AS Statistics 4: Statistical distributions | A2 Pure 10: Integration (part 1)  A2 Pure 11: Integration (part 2)  A2 Mechanics 7: Applications of forces |
| **Summer 3a** | Algebra 1: Introduction to algebraic thinking | Geometry and Measure 2: Polygons and angles | Geometry and Measure 4: Congruence and similarity | Geometry and Measure 9: Advanced length and area | Exam Prep | AS Pure 6: Differentiation  AS Statistics 5: Hypothesis testing  AS Pure 7: Integration | A2 Pure 12: Vectors  A2 Statistics 3: The normal distribution  A2 Mechanics 8: Further kinematics  Exam Prep |
| **Summer 3b** | Number and Proportion 7: Fractions  Geometry and Measure 1: Drawing, measuring and constructing | Statistics and Probability 1: Discrete data | Number and Proportion 13: Advanced proportion and rates of change | Statistics and Probability 6: Sampling and advanced data analysis | Examinations | AS Pure 8: Exponentials and logarithms  AS Mechanics 9: Kinematics 2  A2 Pure 1: Proof  A2 Pure 2: Algebraic and partial fractions | Examinations |
| **Personal development** | UK Maths Challenge  OAT Maths Challenge | UK Maths Challenge  OAT Maths Challenge | OAT Maths Challenge  Maths Cub  Year 9 options evening with mathematical careers explored | AMSP Maths Feast  OAT Maths Challenge | OAT Maths Challenge  Maths Intervention | AMSP Maths Feast |  |

**Conscious curriculum links:**

At KS3 many links can be found with other subjects. Here is an example of a few:

* For example, in science when doing speed = distance / time, Students needs to be able to convert time from minutes to seconds.
* In food, students look at the ratio of ingredients, and scaling up for more guest.
* In geography students should be able to interpret graphs and pie charts to understand various geography concepts, such as population across different continents.
* In science, when looking at variation, students need to be able to collect, record data and represent this in an appropriate format.
* Venn diagrams are used in science when looking at similarities and differences between animal and plant cells.
* When studying density of materials in DT and Science, students need to understand mass and volume, and how to measure volume of a regular object,

**Our contribution to numeracy:**

It goes without saying that our secondary math curriculum strengthens numeracy by building a solid foundation in essential mathematical skills. Students learn to work with numbers confidently, understand patterns, and solve real-life problems. By practicing calculations, measurements, and data analysis, they develop the ability to think logically and make informed decisions. This focus on practical math skills ensures students are well-prepared for everyday tasks, future studies, and various careers.

**Our contribution to literacy:**

Our mathematics curriculum supports literacy by integrating precise subject specific language and effective communication skills into mathematical learning. Students engage in reading complex word problems, interpreting mathematical texts, and articulating their reasoning both verbally and in writing. This emphasis on clear expression and understanding enhances students’ ability to convey complex ideas succinctly and accurately. Furthermore, collaborative problem-solving activities encourage dialogue and discussion, fostering a deeper understanding of mathematical concepts while simultaneously building essential literacy skills.

**Our contribution to CORE and personal development:**

At OSWB we believe academic success is really important, but we don’t think it is everything. We want our young people to leave education feeling confident not only in knowledge, but also in personal skills and qualities. Our C.O.R.E curriculum is intended to allow students to learn for life, equipping them with knowledge of the world, essential skills and a strong character. The C.O.R.E Curriculum is built around our 4 values of Character, Organisation, Resilience and Excellence.

Our mathematics curriculum is designed to develop students' core values, including character, organisation, resilience, and excellence. Through challenging problems and collaborative projects, students cultivate integrity, responsibility, and teamwork. The structured nature of maths fosters strong organisational skills, teaching students to approach problems methodically and manage their time effectively. We emphasize resilience by encouraging a growth mindset, where persistence through challenges and learning from mistakes are valued. Striving for excellence is encouraged, with high standards set and achievements celebrated, motivating students to reach their full potential. This approach ensures students become proficient mathematicians and well-rounded individuals equipped for success in all areas of life.