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

**Key stages 3 to 4**

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**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 lineNumber and Proportion 2: Addition and subtraction | Number and Proportion 7: FractionsNumber and Proportion 8: Percentages, fractions and decimals | Statistics and Probability 2: Bivariate Data and Time SeriesAlgebra 7: Sequences 1 | Geometry and Measure 7: Advanced drawing, measuring and constructingStatistics and Probability 4: Continuous dataStatistics and Probability 5: Set theory and logic | Number and Proportion 15: Indices and surdsAlgebra 14: Advanced quadratic graphs and equations | AS Pure 1: Algebra and functionsAS Statistics 1: Statistical samplingAS Mechanics 6: Quantities and units in mechanicsAS Mechanics 7: Kinematics 1 (constant acceleration) | A2 Statistics 1: Regression and correlationA2 Mechanics 4: MomentsA2 Pure 3: Fractions and modellingA2 Pure 4: Series and sequences |
| **Autumn 1b**  | Number and Proportion 3: Multiplication and division | Geometry and Measure 1: Drawing, measuring and constructingNumber and Proportion 9: Estimation and use of a calculator | Algebra 8: Linear InequalitiesNumber and Proportion 9: Estimation and Use of a CalculatorNumber and Proportion 12: Standard Form | Number and Proportion 14: Number theoryAlgebra 11: Advanced manipulating and simplifying expressions | Number and Proportion 16: Numerical and algebraic representations of proportion and changeGeometry and Measure 10: Advanced vectorsStatistics and Probability 7: Advanced probability | AS Pure 2: Coordinate geometry in the (x,y) planeAS Statistics 2: Data presentation and interpretationAS Statistics 3: Probability | A2 Pure 5: The binomial theoremA2 Pure 6: TrigonometryA2 Pure 7: Parametric equationsA2 Mechanics 5: Forces at any angle |
| **Spring 2a**  | Number and Proportion 4: Powers, roots and primesNumber and Proportion 5: Order of operations | Algebra 2: Manipulating and simplifying expressions 1Algebra 3: Manipulating and simplifying expressions 2 | Algebra 9: Contextual Graphs | Algebra 12: Quadratic graphs and equations | Algebra 15: Fractions and advanced graphsAlgebra 16: Pre-calculus | AS Pure 3: Further algebraAS Pure 4: TrigonometryAS Mechanics 8: Forces | A2 Pure 8: DifferentiationA2 Mechanics 6: Applications of kinematicsA2 Statistics 2: ProbabilityA2 Pure 9: Numerical methods |
| **Spring 2b**  | Number and Proportion 6: Directed numbers | Algebra 4: Linear equationsNumber and Proportion 10: Proportional reasoning | Statistics and Probability 3: Introduction to probabilityAlgebra 10: Advanced linear graphs and equations | Geometry and Measure 8: Surface area and volumeAlgebra 13: Advanced sequences | Algebra 17: Advanced algebra skills and proofGeometry and Measure 11: Solving geometric problems | AS Pure 5: VectorsAS 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: DifferentiationAS Statistics 5: Hypothesis testingAS Pure 7: Integration | A2 Pure 12: VectorsA2 Statistics 3: The normal distributionA2 Mechanics 8: Further kinematicsExam Prep |
| **Summer 3b**  | Number and Proportion 7: FractionsGeometry 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 logarithmsAS Mechanics 9: Kinematics 2A2 Pure 1: ProofA2 Pure 2: Algebraic and partial fractions | Examinations |
| **Personal development**  | UK Maths ChallengeOAT Maths Challenge | UK Maths ChallengeOAT Maths Challenge | OAT Maths ChallengeMaths CubYear 9 options evening with mathematical careers explored | AMSP Maths FeastOAT Maths Challenge | OAT Maths ChallengeMaths 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.