



St. Joseph's Catholic High School



Living, Loving and Learning through Christ

Curriculum 2021: Maths

We aim to deliver the Mission Statement of the school:

The Maths department enhance students' lives in the study of maths by fulfilling the St Joseph's Mission statement, **Living, loving, learning through Christ.**

- One curriculum for all, is a single curriculum map that all learners follow, there is no ceiling imposed on what learners can achieve.
- While there is only one curriculum, we recognise that not all learners come to each lesson at the same starting point. Teachers adapt lessons to provide scaffolding and depth according to the needs of their learners.
- We strive to make learning enjoyable, inspire a love of maths and a thirst for knowledge in our students, developing them as independent and enquiring learners.

In order to achieve our aim, we endeavour to:

- Ensure our Jesuit pupil profile is used to exemplify the qualities we develop in our students and ensure our catholic traditions are fully lived out in our department and the most vulnerable are protected and encouraged.
- Develop generous, caring, ambitious and compassionate learners with a culture of reading within maths. Enable all students to develop mathematical language to strengthen conceptual understanding enabling students to explain and reason. Build character and develop resilient, independent learners.
- To ensure there is a wide range of materials available to inspire interest and enjoyment in maths and its applications.
- Develop a love for problem solving and inspire future engineers, a vital part of the local community. Link learning in maths across subjects and professions. (Engineering etc.)
- Develop a healthy mindset where students are active learners engaging in extra-curricular maths activities; national maths competitions (UKMC, Maths Feast) and participate in enrichment programs. (Pi Club) Help all students develop into creative, analytical and independent thinkers.
- Provide all students with the opportunity for meaningful dialogue to take place in lessons.
- Promote independent learning on Hegarty, Dr Frost Maths and SENECA.
- Provide mathematical tasks to deepen their understanding by representing concepts using objects, pictures, symbols and words
- Provide students with opportunities to develop mathematical thinking skills and develop their confidence when problem solving.
- Prepare students for the world of Higher Education and work by guiding them to successful assessment at GCSE and raising their aspirations.
- Master maths - to enable all learners to enjoy and succeed in mathematics. We want learners to think about maths beyond what is tested in national examinations and to be equipped with an understanding of mathematics that will be relevant and useful in their future studies and/or in the world of work through assemblies and within lessons.
- Provide learners with a deep conceptual understanding of mathematical principles, the ability to confidently communicate in precise mathematical language as part of the whole school oracy focus, while becoming mathematical thinkers.

To achieve our Mission Statement, our curriculum:

Our course follows the National Curriculum and leads to a GCSE in Mathematics.

The course covers mathematical skills including Using and Applying Mathematics and the main areas of mathematics: Number, Ratio, Proportion & Rates of Change, Algebra, Statistics & Probability and Geometry & Measures.

How are they delivered

Conceptual Understanding

- Each year all the main areas of maths are revisited and built upon, spiralling up until all 6 areas link together.
- Mathematics tasks are about constructing meaning and making sense of relationships. Learners deepen their understanding by representing concepts using objects, pictures, symbols and words.



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- Different representations stress and ignore different aspects of a concept and so moving between representations and making explicit links between them allows learners to construct a comprehensive conceptual framework that can be used as the foundation for future learning.
- We use the content of the national curriculum as the starting point for our curriculum, but this is expanded upon by making explicit the foundational knowledge that learners need to understand in order to access this.
- Tasks are sequenced to help learners build a narrative through different topics. These topics are then sequenced in a logical progression that allows learners to establish connections and draw comparisons. The sequencing principles (linking to previous learning) have been developed using the NCETM curriculum overviews, to ensure the learning taking place in KS2 is reflected in the starting points for each class. St. Joseph's also works with the NNW Maths Hub and within the West Coast Teaching Schools Alliance Subject Consortium to develop a robust order in teaching the key skills. This has adhered to the fact that Mathematics is a hierarchical interdependency, where success at each level is reliant on the mastery of all that sits below. We lead the Y5-Y8 Transition workgroup in the NNW.
- Multiple representations are carefully selected so that they are extendable within and between different areas of mathematics. Using these rich models encourages learners to develop different perspectives on a concept
- We are introducing mastery with the NCETM.

Language and Communication

- Mathematical language strengthens conceptual understanding by enabling pupils to explain and reason. This must be carefully introduced and reinforced through frequent discussion to ensure it is meaningfully understood.
- The more learners use mathematical words the more they feel themselves to be mathematicians. Talk is an essential element of every lesson and time is dedicated to developing confidence with specific vocabulary as well as verbal reasoning.
- The content of our curriculum carefully progresses in order to induct learners into the mathematical community. A large part of this community is confident use of the language, signs and symbols of mathematics. Verbal and non-verbal communication is part of every sequence of learning in the curriculum.
- This often starts with more informal language initially, building up to formal and precise mathematical language.
- Literacy is part of every lesson in the curriculum and understanding is checked regularly

Mathematical Thinking

- We support pupils to develop mathematical 'habits of mind' – to be systematic, generalise and seek out patterns.
- The creation of a conjecturing environment and considered use of questions and prompts encourage learners to think like mathematicians.
- Our curriculum is designed to give learners the opportunities to think mathematically. Throughout the curriculum you will see tasks that require learners to specialise and generalise, to work systematically, to generate their own examples, to classify and to make conjectures.

The extra material added into the higher tier has been done so in order to stretch and challenge the most able and better prepare them for the study of 'A' level Mathematics. The extra material added into the foundation tier was originally part of the Higher tier and has been done so in order to further equip students with the numeracy skills needed in future education and employment.

- An important distinction to make when thinking about the needs of a team is between subject knowledge and pedagogical knowledge. Individuals in teams may need to develop their own understanding of parts of the subject as well thinking about the ways in which it can be taught.
- Professional development aims to address both of these needs. We provide opportunities for both at a variety of levels through department CPD, white rose maths resources and online courses with AMSP.