Mathematics @ Brixham College – Curriculum Intent, Implementation, and Impact

Intent

We are passionate about improving the life chances of all students who learn with us. Published research by the EEF shows us that a good knowledge and understanding of Mathematics will bring improved opportunities and greater personal autonomy to our students throughout their lives; this is what drives us.

Our vision is for "All students at Brixham College to leave **competent**, **confident** in their abilities and sufficiently **qualified** in Mathematics to take their next steps in education, work and personal lives."

To that end we seek to mirror and embed the Brixham College Values in Mathematics in the following ways:

High Expectations – We expect all students to complete GCSE level programmes and aim for the highest grades possible. We do not accept prior attainment as the only predictor of a student's success and will never 'give up' on a student who has not quite 'got it' –yet. We focus on high quality instruction for all students. We want as many of our students as possible to go on to study A-level and Core Maths. We want students to take pride in their books and their work and show the steps in their working.

Knowledge – We teach a knowledge rich mastery curriculum and focus on the key elements of mastery in Mathematics – see our implementation below. We want students to develop their literacy by using accurate mathematical terminology and demonstrate their understanding by explaining their reasoning.

Continuous improvement - We aim to be inclusive and ambitious for all our students and are here to make a difference. We are explicit in our feedback to students, highlighting areas for improvement and expect that students can and will work hard to improve. Likewise, we seek to improve our teaching and understanding of pedagogy to better enable us to support our students.

Leadership - We are guiding our students towards taking initiative towards their own learning and developing resilience. We want to model what strong leadership looks like and start to develop this by creating conditions where students have confidence to share their own reasoning and support their peers.

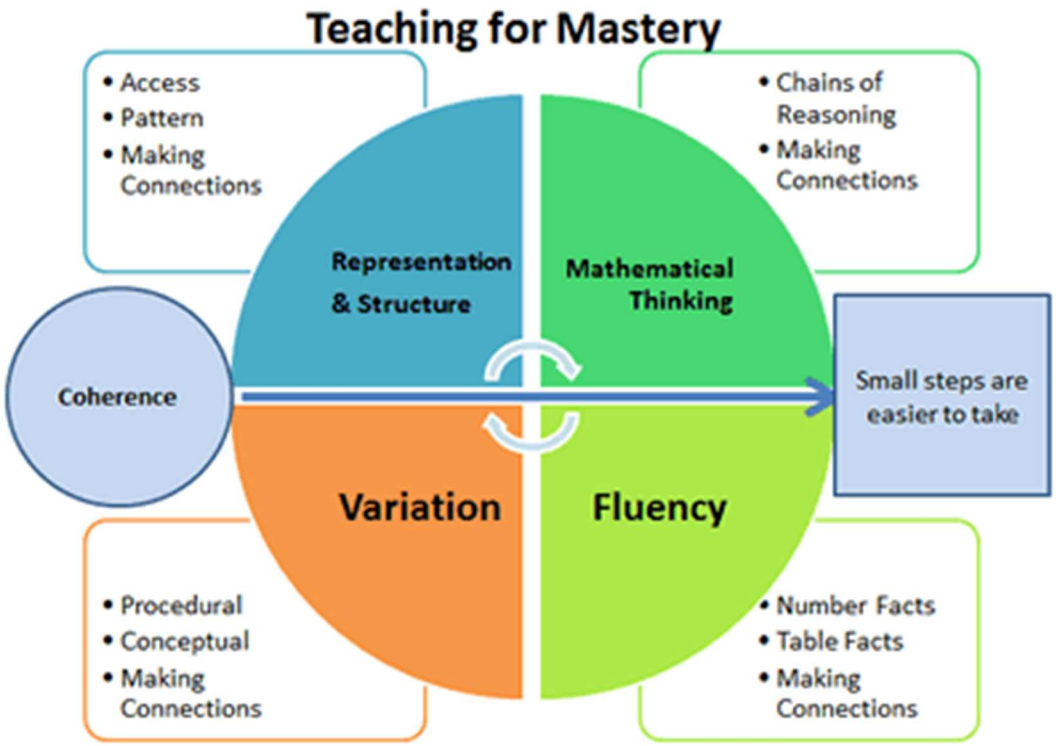
Character - We want students to show their character and grit when learning is hard and celebrate their own and other successes. We want students to think and learn how to challenge and question themselves and us appropriately.

We want Brixham College students to believe and see that it is **possible to be successful** and **experience success** in Mathematics during their time with us. We are preparing students for A-level, degree level Mathematics and beyond. We are preparing students to study Core Mathematics to complement their other A-Levels and further study. We are preparing students to achieve gateway qualifications for FE courses and apprenticeships. We are preparing those with fears or anxieties around Mathematics to conquer these and hope that many of our students will develop Mathematical acumen which exceeds ours.

We are also enabling students to budget, pay their own bills, get the best deals on purchases, decorate their homes, run their own profitable businesses lead content home lives and enjoy Mathematics for its own sake.

Implementation

Our Curriculum - Utilising a mastery approach to learning, we will ensure students are given the opportunity to learn mathematical concepts through representation and structure, mathematical thinking, fluency, and variation. Through this process our students will make their way through small steps towards coherence. (NCETM).



We seek to combine the need for declarative and procedural knowledge with a wider understanding of the links between mathematical concepts themselves and their use, application, and impact on the wider world.

We have chosen the Sparx Curriculum because it matches the characteristics of a 'mastery' curriculum and encompasses the 5 big ideas in Mathematics; Number, Algebra, Ratio, Proportion and rates of change, Geometry and Measure and Statistics and Probability. We share these explicitly and frequently with students, pointing out links between our subjects within Faculty and externally.

We use careful sequencing, regular practice, assessment, and feedback in our teaching. We are forensic in our assessment and data collection and are developing this to target teaching and improve outcomes.

We follow the Brixham Way in our lessons and use this to provide a predictable and focused learning environment for our students.

We are seeking to develop our pedagogy further by incorporating the Thinking Toolkit into our lessons and applying what we learn in deliberate practice sessions.

Impact

We measure our impact against the following key performance indicators.

Attainment – At GCSE, A-Level and in Core Mathematics – Achievement of 'gateway' qualifications and progress measures.

Attainment gaps – We look closely at our data and work to reduce these gaps by focusing our time on those who are disadvantaged first.

Learning Walks – We take time to learning walk lessons within the faculty and discuss best practice. This enables faculty leadership to focus on identifying areas of strength and those areas for development within the faculty.

Work scrutiny – Quality of work in books completed by distinct groups of students, end of term assessments and during time spent in lessons on learning walks and when speaking with students.

Sparx completion- We monitor hand in rates and the levels being worked at by students. Improvement of completion rates is a focus.

Further study – We want to increase the number of students choosing to study GCSE Maths at A-level, Core Maths and beyond into tertiary education.

Student Voice – We care about students' perception of their Mathematics lessons, teachers, own abilities, and belief around their own capacity to improve.

Case Studies

Student A Year 10 and studying for GCSE Mathematics

Student A is a conscientious and dedicated student who thrives by pushing themselves and believing that there are no limits to their successes. Student A is very organised in their approaches to independent study and has already begun preparations for sitting the higher tier exam at the end of Year 11. Student A enjoys the problem-solving aspects of maths and working systematically to reach an answer. This is supported by Student A's logical thinking skills and clear workings. Student A has found the trips to the University of Plymouth for masterclasses of huge benefit for 'thinking outside of the box', working collaboratively with others, as well as their participation in the Junior Maths Challenge stretching their imagination and enjoyment of the subject.

Student B Studied GCSE Mathematics

Student B had to really push them self to achieve a grade C in maths. All they wanted to do was be a beauty technician but knew from the start of year 11 how important the grade C would be. After College they got their dream job working for a beauty company in a department store. Their career has continued, and they will be joining the RAF. Student B is fully aware that they would not have been able to join the RAF without their grade C in maths.

Student C Studying to be a Doctor of Mathematics

Student E decided at the end of year 11 that they wanted to be a Professor of Mathematics. After completing their A Levels Student E achieved an incredible A* in their A level Maths and also studied Further Maths. Student E has since studied Maths at University and achieved a Masters degree after writing a dissertation on 'Orthogonal Polynomial Systems and Higher Dimensional Fibonacci Numbers'. Student E has now started their PHD in maths so when they graduate, they will be a Doctor of Mathematics.