



# Faculty of Mathematics Curriculum Overview

*'Mathematics is, in its own way, the poetry of logical ideas' – Albert Einstein.*

## The Intent of the Mathematics Curriculum

The intent of the Mathematics Curriculum at Biddick Academy is to provide all students with a rewarding and enjoyable experience of the subject. We will prepare students to become confident, numerate individuals who are able to deal with all aspects of mathematics in their chosen career and adult life – this will be accomplished through our commitment to the high-quality teaching of a well-designed curriculum containing an interesting variety of lessons which motivate and engage all students. For example, in the Autumn Term of Year 7, students learn how to read and use 'algebraic notation' and develop their understanding of 'fraction, decimal and percentage equivalence' – this knowledge is then interleaved, consolidated, strengthened and mastered in the Spring Term of Year 8 where 'expanding brackets' and 'percentage change' are introduced and explored. These strong foundations which have been built in Key Stage 3 provide students with the pre-requisite skills to competently tackle advanced questions in the GCSE Mathematics course.

We have high expectations of all students so that they will deeply understand mathematical knowledge, master and apply mathematical skills and realise and achieve their full potential. We will support students in developing their own skills in analysis, reasoning, creativity, collaboration and self-evaluation so that they can meet the mathematical problems they face both throughout their education and in the real world, with resilience, thoughtfulness and enthusiasm. As passionate and committed educators, we strive to deliver, achieve and realise a coherently-planned, appropriately-sequenced, broad, balanced and suitably-ambitious mathematics curriculum designed to give all students the knowledge and skills required for future education, employment or training.

## The Implementation of the Mathematics Curriculum

Teachers in the faculty create a positive and engaging climate for learning, set high expectations for academic achievement, demonstrate good knowledge of the mathematics curriculum, plan and deliver well-structured lessons presenting subject matter clearly using their professional expertise, assess understanding and address misconceptions systematically providing clear and direct feedback and adapt their teaching to respond to the strengths and needs of all students. We will provide a structured and supportive learning environment in which our students are given the best possible opportunity to demonstrate, develop and deeply embed the following forms of mathematical subject-knowledge:

- **Declarative:** Facts, concepts and rules which are cognitively encoded ready to be recalled and applied (for example, to know the formulae for 'Area of a Circle' and 'Volume of a Sphere' as well as the 'Cosine Rule' for working out unknown sides in a triangle).
- **Procedural:** The ability to know how to perform the steps in a process (for example, to know how to use the 'Trigonometric Formulae' to work out the size of unknown angles and sides in a right-angled triangle).
- **Conditional:** The knowledge and awareness of when and when not to use a procedure, skill or strategy; why a procedure works and under what conditions; why one procedure is better than another.

## The Impact of the Mathematics Curriculum

Students develop a detailed knowledge of and master the skills in the mathematics curriculum and subsequently make good progress, achieve well and are ready and prepared for the next stage of their lives within education, employment or training. We believe that through the successful implementation of our faculty vision students will benefit by:

- Attaining transferable life skills such as problem-solving, logical thinking, working out 'best value' and resilience.
- An improvement and strengthening in personal self-confidence and independence.
- Engaging in challenging learning of a consistently high level.
- A broader range and higher future level of further education, training, employment and career opportunities.
- By being able to use, synthesise and apply their mathematical skills and strategies to real-life situations and professional contexts.
- From being better able to describe, analyse, evaluate and interpret our ever-changing world.