

# Mathematics KS3 Intent

The aim of the KS3 mathematics curriculum at Queensbridge is to embed an energetic mastery based curriculum. The concrete, pictorial, abstract model is carefully considered at this stage of learning. A large focus is placed on the pictorial stage through the use of bar modelling. Concrete manipulatives are used with LA pupils where necessary.

We aim to engage pupils through carefully selected questions and rich and sophisticated problems whilst motivating pupils using success and reward. Carefully crafted projects are used in year 7 to help embed the learning that has taken place throughout the cycle, whilst in year 8 each cycle ends with a week long competition. We aim to promote pupils independence through homework, exam week revision and our assessment system.

By the end of KS3, pupils should have tackled a variety of problems surrounding the content covered. They should also have secured a fluent knowledge of the fundamental mathematic skills, particularly based around number and algebra.

## Year 7

### Cycles:

- Algebraic thinking
- Number application and reasoning
- Lines and angles
- Working with fractions

### Methodology:

*Students will learn how to think algebraically, to apply their number skills, be skilful in geometry and begin to understand how to reason mathematically. Underpinning these areas are the core principles of a mastery curriculum; to be fluent, to be able to reason and to problem solve.*

### KS4 Skills:

*All pupils must be fluent in the fundamentals of mathematics, so that pupils develop conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems. Pupils must be proficient with mathematical equipment such as rulers, protractors and a compass. By the end of the year they must also be fully fluent with mental arithmetic, including times tables. Pupils must be able to complete long division and multiplication and have a strong understanding of  $\times \div \pm$  fractions. Pupils must also have secured a complete understanding of the key terminology covered throughout the year.*

## Year 8

### Cycles:

- Using proportion
- Algebraic techniques
- Developing geometry
- Using representations

### Methodology:

*Students will learn how to represent a variety of mathematical information, how to calculate proportion, develop their algebra techniques, and improve their geometric understanding and skills. These areas continue to be underpinned by the core principles of a mastery curriculum; to be fluent, to be able to reason and to problem solve*

### KS4 Skills:

*The fundamental skills secured in year 7 will be continually practised and used throughout this year, due to their significance in allowing pupils to progress on to developing conceptual understanding and apply their knowledge rapidly and accurately to problems. However, by the end of the year we would also expect students to have secured a basic level of algebraic fluency. Pupils must also have secured a complete understanding of the key terminology covered throughout the year.*