

## MATHEMATICS DEPARTMENT

Welcome to the Mathematics Department. Mathematics is a core subject with every pupil completing a full GCSE in KS4. Pupils experience excellent teaching from an enthusiastic mathematics team. Pupils experience challenge during their lessons and are encouraged to look beyond the classroom and apply the maths in context.

The department structure currently includes a Subject Leader, A KS4 Co-Ordinator, a KS3 Co-Ordinator and eight other teachers that teach mathematics

There is a strong culture of academic success in the department. We achieve consistently strong results and are always reflecting on our practice to see where we can make further improvements. Our most recent GCSE exam results are shown below:

2019: 83% 9-4, 65% 9-5  
 2018: 87% 9-4, 65% 9-5  
 2017: 83% 9-4; 55% 9-5

In September 2020 we introduced a new approach to mathematics by incorporating and developing teaching for mastery ideas into our practice. The use of the phrase “teaching for mastery” refers to the classroom concepts and approaches that best help pupils to “master” the mathematics they are taught. These concepts and approaches include incorporating a new KS3 scheme of work where concepts are looked at for longer and in more depth with the aim of pupils achieving a deeper, more connected, and more fluid understanding of the mathematics they are taught. More information on this approach is available on the school website.

Our belief is that all children can understand and succeed in mathematics. Each key stage 3 cohort has a booster class for pupils who find maths particularly challenging. In these lessons pupils focus on core topics which include the key numeracy concepts and skills. As part of our teaching for mastery approach, we have adapted the scheme of work further for these pupils to give them the time to really understand and practise key ideas that are required before moving onto further content.

As part of our teaching for mastery approach pupils study similar mathematical concepts at the same time, regardless of their prior attainment. Support is provided through greater scaffolding. A core idea within teaching for mastery is that those pupils who grasp an idea quickly are not rushed on to new content, instead they cover the same content as all other pupils but are challenged further by exploring concepts in greater depth and given questions where they need to apply the ideas to new and unfamiliar problem-solving contexts.

### Year 7

|        | Week 1   | Week 2  | Week 3                         | Week 4 | Week 5                             | Week 6   | Week 7               | Week 8                  | Week 9                                       | Week 10 | Week 11 | Week 12 |
|--------|--|---|--------------------------------|--------|------------------------------------|--|----------------------|-------------------------|--|---------|---------|---------|
| Autumn | Algebraic Thinking                                   |   |                                |        |                                    | Place Value and Proportion                     |                      |                         |  |         |         |         |
|        | Sequences  | Understand and use algebraic notation             |                                |        | Equality and equivalence           | Place value and ordering integers and decimals |                      |                         | Fraction, decimal and percentage equivalence |         |         |         |
| Spring | Applications of Number                               |   |                                |        |                                    | Directed Number                                |                      | Fractional Thinking     |  |         |         |         |
|        | Solving problems with addition & subtraction         | Solving problems with multiplication and division |                                |        | Fractions & percentages of amounts | Operations and equations with directed number  |                      |                         | Addition and subtraction of fractions        |         |         |         |
| Summer | Lines and Angles                                     |   |                                |        |                                    | Reasoning with Number                          |                      |                         |  |         |         |         |
|        | Constructing, measuring and using geometric notation |   | Developing geometric reasoning |        |                                    | Developing number sense                        | Sets and probability | Prime numbers and proof |  |         |         |         |

### Year 8

|        | Week 1                                | Week 2 | Week 3                | Week 4                       | Week 5                             | Week 6                       | Week 7                         | Week 8 | Week 9              | Week 10              | Week 11              | Week 12 |
|--------|---------------------------------------|--------|-----------------------|------------------------------|------------------------------------|------------------------------|--------------------------------|--------|---------------------|----------------------|----------------------|---------|
| Autumn | Proportional Reasoning                |        |                       |                              |                                    |                              | Representations                |        |                     |                      |                      |         |
|        | Ratio and scale                       |        | Multiplicative change |                              | Multiplying and dividing fractions |                              | Working in the Cartesian plane |        | Representing data   |                      | Tables & Probability |         |
| Spring | Algebraic techniques                  |        |                       |                              |                                    |                              | Developing Number              |        |                     |                      |                      |         |
|        | Brackets, equations and inequalities  |        |                       | Sequences                    | Indices                            | Fractions and percentages    |                                |        | Standard index form | Number sense         |                      |         |
| Summer | Developing Geometry                   |        |                       |                              |                                    |                              | Reasoning with Data            |        |                     |                      |                      |         |
|        | Angles in parallel lines and polygons |        |                       | Area of trapezia and circles |                                    | Line symmetry and reflection | The data handling cycle        |        |                     | Measures of location |                      |         |

Pupils start formally studying for their GCSE mathematics exams at the start of Year 9. The course is split into two tiers higher and foundation. The majority of pupils take the higher tier Edexcel exam series. A sample scheme of work overview for these pupils is shown below:

| Year 9 Content                             | Year 10 Content                      | Year 11 Content                                       |
|--|--------------------------------------|---|
| Unit 1. Number                             | Unit 10. Probability                 | Revision  |
| Unit 2. Algebra                            | Unit 11. Multiplicative Reasoning    | Unit 15. Equations and Graphs                         |
| Unit 3. Interpreting and Representing Data | Unit 9. Equations and Inequalities   | Unit 19. Proportion and Graphs                        |
| Unit 4. Fractions, Ratio and Percentages   | Unit 12. Similarity and Congruence   | Revision  |
| Unit 5. Angles and Trigonometry            | Unit 13. More Trigonometry           | Mocks round 1   |
| Unit 6. Graphs                             | Unit 14. Further Statistics          | Mocks round 2   |
| Unit 7. Area and Volume                    | Unit 17. More Algebra                | Response to mock, analysis, intervention and revision |
| Unit 8. Transformations and Constructions  | Unit 16. Circle Theorems             |   |
|  | Unit 18. Vectors and Geometric Proof |   |

For every unit studied, pupils are assessed using a mixture of class, homework and formal end of unit assessment. Pupils are provided with written feedback on success and areas for development and are given the opportunity to address any misconceptions.

Pupils will begin to sit full GCSE papers as mock examinations from the end of Year 10. Pupils are given detailed feedback of their performance after every mock exam series in Year 11 showing the areas of the course that each pupil needs to work on in order to progress.

Year 11 pupils receive a detailed QLA (question level analysis) that creates a bespoke revision guide for each pupil.

Pupils are set two pieces of homework per week in Maths. The department make use of three websites for the majority of homework tasks. Year 7 pupils will utilise Times Table Rock Stars, alongside MathsWatch and Hegarty Maths. Years 8-11 will receive a combination of online (MathsWatch and Hegarty Maths) and paper based homeworks. MathsWatch and Hegarty Maths contain support videos attached to the majority of questions. This allows pupils to access support and seek further explanation to support them with their work at home.

There are plenty of opportunities throughout the school year for pupils to utilise their maths skills outside of curriculum time. Pupils can engage with their love of the subject through UKMT Maths challenge team events, Maths enrichment activities and the numerous Maths week activities held annually, including a trip to the Bank of England.

There is also opportunity for extra support with their maths outside of lesson time through weekly interventions, and revision sessions as well as Prep club plus to gain supported help with homework and drop in homework support sessions.

The maths department includes three classrooms with IT facilities and a separate class set of laptops. Most of the maths department have their own classroom base. If you have any further questions regarding the department, please do contact Robert Jacobs, Assistant Principal and Subject Leader for Mathematics: [mrjacobsr@strichardscc.com](mailto:mrjacobsr@strichardscc.com). We look forward to welcoming you to the department.