

## Year 9 Curriculum Intent for Maths

At Dixons Cottingley we develop students to lead successful and happy lives and make a positive contribution to their community. Our curriculum in each year is designed to provide experiences, opportunities, knowledge and skills that enrich and challenge our students. We understand that the curriculum is key to determining the life chances and choices for our students and therefore we will not compromise on providing the very best. We achieve this in maths through the below:

### During Year 9 students at Dixons Cottingley studying maths will be exposed to the following:

- Straight line graphs
- Forming and solving equations
- Testing conjectures
- Three dimensional shapes
- Constructions and congruency
- Numbers
- Using percentages
- Maths and money
- Deduction
- Rotation and translation
- Pythagoras' Theorem
- Enlargement and similarity
- Solving ratio and proportion problems
- Solving problems using graphs, tables and algebra

### During Year 9 students at Dixons Cottingley studying maths will be taught the following skills:

- Constructing scale drawings with rulers, protractors and compasses
- Constructing perpendicular bisectors and understanding congruency via construction
- Understanding financial maths including bills and bank statements, interest and unit pricing (best buys)
- Using tables and charts to organise and interpret information
- Identifying and accurately criticising misleading graphs and data
- Using specialist equipment to transform shapes on the 2D plane

### In order to truly appreciate the subject and create deep schema, maths has been sequenced with the following rationale:

- Much greater focus is placed on mathematical reasoning throughout Year 9 compared to KS3. In Years 7 and 8 pupils were taught *how* mathematical methods worked, in Year 9 pupils are taught *why* these methods work, which often facilitates a greater love of the subject. During the first half term, pupils will learn to reason with algebra, testing conjectures and proving them algebraically. Then they will cover reasoning with number, reasoning with geometry and reasoning with proportion, allowing pupils to gain a deeper understanding of why different methods work and the links between different areas of maths. Practical skills (including money sense skills) are also taught, and more challenging KS4 topics are introduced, such as Pythagoras' Theorem.
- Throughout Year 9 all six key maths strands of: number; algebra; ratio, proportion and rates of change; geometry and measure; probability; and statistics are covered ensuring that fluency, reasoning, and problem solving are embedded in each strand throughout the entire course. Content is designed with interleaving as a key element meaning skills learnt are woven throughout this and subsequent years so that students constantly reinforce and extend their understanding. In addition it features smaller learning steps to help embed deeper learning, ensuring students have secured the prior knowledge needed to successfully continue along a pathway to a Grade 5 (Foundation) or Grade 9 (Higher) at Key Stage 4

### The maths curriculum at Cottingley has been influenced by:

- White Rose Maths' work on creating a new culture of deep understanding, confidence and competence in maths – a culture that produces strong, secure learning and real progress.
- The National Curriculum – our scheme of work covers every aspect detailed in the National Curriculum.



**Our maths curriculum ensures that social disadvantage is addressed through:**

Research shows that teaching maths for Mastery has a positive impact on all pupils, particularly ensuring that disadvantaged students have a secure understanding of mathematical concepts to the same level as their peers. For this reason, our curriculum is based on Maths Mastery and is supported using the following strategies:

- 1 – to – 1 catch up support for selected pupils with SEN needs
- Varied representation of concepts, including pictorial representation, to support SEN and EAL students
- Weekly after-school club to support students, particularly disadvantaged, with their homework
- Focus on disadvantaged students when planning in-class interventions

Our belief is that homework is used for deliberate practice of what has been taught in lessons. We also use retrieval practice and spaced revision to support all students with committing knowledge to long term memory. In Year 9, homework will be delivered through Hegarty Maths, as this platform provides video tuition to support student understanding and hence ensure **all** students are able to perform highly. Students will also be given exam question homework to develop their confidence in answering this style of question, in preparation for taking mock GCSE papers.

**Opportunities to build an understanding of social, moral and ethical issues are developed alongside links to the wider world, including careers, through:**

- The use of examples which pupils may come across in real-life
- Discussion of how maths is applied to real-world problems and in particular jobs
- Dedicated 20 minute lessons (one per Cycle) on STEM careers, exploring their importance and the different types of careers available
- Dedicated 20 minute lessons (a minimum of one per year) exploring issues linked to the Global Dimension such as social justice, climate change, and equality and diversity, with mathematical themes.

**Further Information can be found in:**

- Long term plans
- <https://whiterosemaths.com/wp-content/uploads/2019/12/National-Curriculum-Progression-Secondary.pdf>