

Year 10 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 10 students at Dixons Cottingley studying maths will be exposed to the following:

- Congruence, similarity and enlargement
- Trigonometry
- Representing solutions of equations and inequalities
- Simultaneous equations
- Angles and bearings
- Working with circles
- Vectors
- Ratios and fractions
- Percentages and interest
- Probability
- Collecting, representing and interpreting data
- Non-calculator methods
- Types of number and sequences
- Indices and roots

During Year 10 students at Dixons Cottingley studying maths will be taught the following skills:

- Transforming shapes using rulers, compasses and tracing paper
- Calculating simple and compound interest, and evaluating exponential change (e.g. depreciation)
- Using estimation strategies to check the validity of answers
- Using tables and charts to organise and interpret information
- Using statistical diagrams and measures to compare distributions
- Applying algebraic techniques to solve problems

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

- The Year 10 scheme of work is designed to expose pupils to the more challenging GCSE topics such as trigonometry, simultaneous equations and vectors, at the earliest practical stage. This allows time to revisit these topics throughout the year and in Year 11, facilitating mastery of these topics. In addition to new content, previously taught topics are revisited and expanded upon to ensure strong understanding and to fill gaps in knowledge, for instance 7 weeks is spent reviewing and extending data analysis skills.
- Throughout Year 10 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 achieve their desired targets in their GCSE exams.

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 Key Stage 4 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 10, 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>