

Year 11 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 11 students at Dixons Cottingley studying maths will be exposed to the following:

- Gradients and Lines
- Non-linear graphs
- Using graphs
- Expanding and factorising
- Changing the subject
- Functions
- Multiplicative Reasoning
- Geometric Reasoning
- Algebraic Reasoning
- Transforming and constructing
- Listing and describing
- Show that...

During Year 11 students at Dixons Cottingley studying maths will be taught the following skills:

- Making links between equations, graphs and sequences and applying algebraic techniques to solve problems
- Constructing formal geometric proofs
- 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

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

- The Year 11 scheme of work is designed to revisit all content required for the GCSE exam at a more challenging level while introducing the most difficult GCSE topics, such as trigonometric graphs and area under curves, to the higher sets. Time is built in after the winter holiday for revision and practicing past papers. Pupils will also be required to work independently on previously taught topics, based on an in-depth analysis of mock papers through Pinpoint Learning software.
- Throughout Year 11 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 fully embedded in time for the final GCSE examination. The content is designed to review the knowledge and skills taught over the past 4 years with questions that draw on various mathematical strands.

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
- After school intervention sessions

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 11, students will be given exam paper homework to develop their confidence in preparation for taking their GCSEs. Based on the marking of these papers and their classwork, students may also be required to complete Pinpoint booklets and Hegarty maths quizzes in order to plug gaps in their knowledge.

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>