The Oaks Academy

Mathematics Curriculum Intent Statement

Across our school, we have a culture of 'everyone can do maths' for both adults and children. We want all pupils to experience success no matter what their starting point and our curriculum means that every student will leave the secondary phase with a formal qualification in Mathematics.

We encourage all of our pupils to progress further in their education and recognise the central importance of maths to: functioning as citizens in an ever-changing world; securing education, employment or training; and, to local industry.

At The Oaks Academy every pupil will learn to reason mathematically and will become fluent in the fundamentals of mathematics. Every pupil will be able to enquire and rationalise. Every pupil will feel safe in their maths environment and confident in the mathematical knowledge they have gained.

How do we exceed the ambition of the National Curriculum that makes our curriculum exceptional? Link to programme of study

National Curriculum	KCS Exceeding ambition
The national curriculum for English aims to ensure that all pupils can: The national curriculum for mathematics aims to ensure that all pupils: • become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately • reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language • can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.	• By teaching a mastery approach our pupils will develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment

Intent:

We believe that students deserve a creative and ambitious mathematics curriculum, rich in skills and knowledge, which ignites curiosity and prepares them well for everyday life and future employment. Our mathematics curriculum will give students the opportunity to:

- become fluent in the fundamentals of mathematics, through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and preserving in seeking solutions.

- can communicate, justify, argue and prove using mathematical vocabulary.
- develop their character, including resilience, confidence and independence, so that they contribute positively to the life of the school, their local community and the wider environment.

Implementation: - What does learning look like?

We consider progression in mathematics to be a spiral - students come to us in Year 7 already equipped with knowledge and skills in number, algebra and geometry. During their time with us, they will return repeatedly to this set of knowledge and skills - each time developing the deeper understanding and skills to tackle more complex problems independently.

In Years 7, 8 and 9

Students follow a scheme of work based around the Whiterose scheme that has a mastery approach to the teaching of mathematics for understanding. A spiral curriculum basing future teaching on the building blocks taught previously. Concepts that are broken down into small connected and structured steps enabling application to range of contexts with variation to develop deep and holistic understanding, procedural fluency and repetition of key facts to free up working memory. Manipulatives and multiple representations are used to build and scaffold learning.

In Years 10 and 11

Students continue to follow a teaching for mastery approach with a spiral curriculum. Each lesson builds on the previous lessons content or understanding. Each unit of work has several blocks within it covering key skills. At the end of each block there is a small quiz that can be used to inform planning going forward. Assessments at the end of each half term are based on actual exam papers utilising real grade boundaries with question level analysis to pin point areas of strength and weakness.

Impact

Outline the assessment procedures and how assessment is used to impact outcomes

At KS3

We assess pupils not via grades, but a 'traffic light' system, in which teachers use their expertise and detailed knowledge of the pupils' work to identify how successfully they are currently mastering each key skill:
Red (1, 2, 3) The progress of the pupil in this key skill is a cause for concern. Extra intervention is required in order to support them to make progress.
Amber (1, 2, 3) The progress of the pupil in this key skill is good. There is evidence of clear understanding.
Green (1, 2, 3) The progress of the pupil in this key skill is above where the teacher expected. The challenge required of the student will be increased.
We recognise that as part of their progression within our subject, some students may need longer or more practice to get to grips with unfamiliar forms, which may mean that they are not as strong on key skills for some texts as they are for others (e.g. they may be strong at number but weaker at geometry). This may manifest itself as a pupil demonstrating 'Green' number skills in one half term, but then as 'Amber' in the next. This is to be expected and does not indicate lack of progression. Over the course of the Key Stage, however, pupils should be able to track clear overall progress in the key mathematical skills.

At KS4

For each unit of work, pupils will be assessed using formative quizzes at the end of each block of work, this details what went well and the steps that students need to take to improve their work. At the end of each half term students will complete exam papers, marked and assessed in the same way that GCSE's are marked and graded. Where possible comparisons will be sought with local and national data to validate grades awarded

Cultural Capital Opportunities linked to Personal and Character development

The department offers KS3 a variety of extra-curricular options: Mathematics Clinic, after school club