

Mathematics

Vision Statement

Subject Vision - What are we trying to achieve

Together, at Carlton we build a culture of deep understanding, confidence and competence in maths – a culture that produces strong, secure learning and real progress. No matter what their starting points, we help learners to achieve excellence.

We shape, happy and resilient mathematicians who relish the challenge of maths. They become independent, reflective thinkers, whose skills not only liberate them in maths but also support them across the curriculum. We're committed to working together to be and give the very best, and to make a difference to every pupil.

Our Whole-School Maths Vision is:

- To foster positive attitudes, fascination and excitement of discovery through the teaching and learning of mathematical concepts.
- To develop a 'can do' attitude
- To broaden children's knowledge and understanding of how mathematics is used in the wider world by making rich and varied real life connections.
- To enable our pupils to confidently reason and problem solve about their mathematics, using a suitable range of mathematical language, recognising its importance for communication and deep thinking.
- To use a wide range of models, visual manipulatives and practical resources to develop and deepen conceptual understanding alongside procedural fluency.

How the subject is taught

Our math curriculum is taught using the mastery approach. All pupils are exposed to fluency questions using the concrete, pictorial then abstract approach. This approach builds the foundations, enabling pupils to understand and apply skills taught in problem solving and reasoning contexts. Once fluency is developed, all pupils are given real life context problems to solve using the skills they have acquired. Our aim is to develop a whole new culture of deep understanding, confidence and competence in **maths** – a culture that produces strong, secure learning and real progress. At Carlton we currently use the Whiterose blocks and NCETM resources for the teaching and learning of maths. The school is also working alongside the Yorkshire and Humberside Maths Hub to further embed the mastery curriculum.

What difference is the subject making

The teaching of mathematics is **an application of matter** and contributes to our pupils methodical and systematic behaviours. Pupils **inherited human qualities are nurtured and developed by Maths theories**, like spatial awareness, problem-solving skills, power to reason (which involves calculated thinking) and even creativity and communication.

Things that you wouldn't expect to bear any relation to Maths do in fact come down to an underlying need for mathematics and **the structure it brings to our everyday lives**.

Take shopping, cooking, buying a property, doing DIY, traveling, playing video games, driving and telling the time, for instance... none of these would be possible without the existence of Mathematics.

Furthermore, Maths is everywhere when you consider **the educational and professional worlds**. Here at Carlton we ensure every child is given the opportunity to develop in all these areas and are able to transfer the skills to real life situations.

SMSC/PSHE links

SMSC in Mathematics

Spiritual development in Mathematics

The study of mathematics enables students to make sense of the world around them and we strive to enable each of our students to explore the connections between their numeracy skills and every-day life. Developing deep thinking and an ability to question the way in which the world works promotes the spiritual growth of students. Students are encouraged to see the sequences, patterns, symmetry and scale both in the man-made and the natural world and to use maths as a tool to explore it more fully.

Moral development in Mathematics

The moral development of students is an important thread running through the mathematics framework. Students are provided with opportunities to use their maths skills in real life contexts, applying and exploring the skills required in solving various problems. For example, students are encouraged to analyse data and consider the implications of misleading or biased statistical calculations. All students are made aware of the fact that the choices they make lead to various consequences. They must then make a choice that relates to the result they are looking for. The logical aspect of this relates strongly to the right/wrong responses in maths.

Social development in Mathematics

Problem solving skills and teamwork are fundamental to mathematics through creative thinking, discussion, explaining and presenting ideas. Students are always encouraged to explain concepts to each other and support each other in their learning. In this manner, students realise their own strengths and feel a sense of achievement which often boosts confidence. Over time they become more independent and resilient learners.

Cultural development in Mathematics

Mathematics is a universal language with a myriad of cultural inputs throughout the ages. Various approaches to mathematics from around the world are used and this provides an opportunity to discuss their origins. This includes different multiplication methods from Egypt, Russia and China and algebra from the Middle East. We try to develop an awareness of both the history of maths alongside the realisation that many topics we still learn today have travelled across the world and are used internationally.

Challenge:

At Carlton all pupils are challenged to achieve their maximum potential. To cater for the needs of our more able learners, our staff skillfully anticipate and adapt teaching to suit the needs of individual pupils. Skillful questioning is used to promote conceptual understanding, encouraging learners to explore different ways of answering questions.

Extended problems and reasoning challenges are provided to deepen pupils understanding.