



Maths Curriculum Rationale

At Oreston Community Academy we believe the importance of Mathematics in everyday life. It equips pupils with a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving and the ability to think in abstract ways. Mathematics is integral to all aspects of life and for this reason we endeavour to ensure that pupils develop a healthy and enthusiastic attitude towards Mathematics that will stay with them.

The National Curriculum for Mathematics describes what must be taught in each key stage. Oreston Community Academy follows the National Curriculum through White Rose Maths to ensure continuity and progression in the teaching of Mathematics. Foundation Stage planning is supplemented with Power Maths. This offers planning and visual resources to support the teaching process.

Intent

We believe it is important that a positive attitude towards Mathematics is encouraged amongst all pupils and staff in order to foster self-belief and a sense of achievement. We give all children the opportunity to be creative, independent, inquisitive and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical knowledge, skills and understanding to their full potential. The National Curriculum says:

'Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content'.

We believe all children should get the opportunity to be challenged in greater depth where they can apply their skills and articulate their thinking.

We believe the use of language in Mathematics is highly important and we use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary throughout maths lessons, so pupils have the opportunity to work with word problems from the beginning of their learning.

We believe pupils should:

- Justify, take and defend a position
- Reflect and discuss their learning
- Solve problems in a variety of ways and be able to explain what they are doing and why

Problem solving and application of their learning is crucial to embed the concepts. We believe that deep learning of mathematics is important so that children can see and use the connections between different areas of the subject. Our Calculation Policy reflects the Concrete, Pictorial, Abstract (CPA) approach that is implemented across the school. The CPA approach provides pupils with visual aids, develops their fluency, enables them to reason and become confident problem solvers. We believe the CPA approach is able to meet the needs of all learners and will support our end goal of having mixed ability groups in Maths. CPA is needed for all abilities and it is important that all children are able to access it. CPA supports children by deepening their understanding and thinking. This is done through challenges set, using concrete, pictorial and abstract methods. CPA can also support children below the age expectancy by supporting their thinking and allowing them to work visually and physically. We believe CPA helps to close gaps in learning at all stages of a child's journey.

Oreston Community Academy believe it is very important to create an agreed whole school approach of which staff, children, parents, carers and governors have a clear understanding. We believe it is important to review and evaluate our mathematical policy and provision regularly, to integrate cross curricular links and to ensure mathematic planning enables continuity and progression across all year groups and key stages.

Implementation

The Mathematics curriculum at Oreston Community Academy is cumulative – each school year begins with a focus on the concepts and skills that have the most connections, and this concept is then applied and connected throughout the school year to consolidate learning. This gives pupils the opportunity to 'master maths'; by using previous learning throughout the school year, they are able to develop mathematical fluency and conceptual understanding. The curriculum is designed to make sure that the requirements of the 2014 National Curriculum for Mathematics are fully met. Each year's curriculum includes all of the National Curriculum objectives for that year.

Our Mathematics curriculum is derived through a series of carefully planned detailed small steps designed to develop children's understanding and learning in the subject. Pupils are provided with a variety of opportunities to develop and extend their mathematical skills in and across each phase of education. Before new learning is introduced, the children revisit and review prior learning. This is encouraged by our spiral curriculum where children revisit units, with each encounter increasing in complexity and reinforcing previous learning. Lessons follow the agreed format with a mental/oral start to strengthen their fluency, a do now task to get the children stimulated or revisit previous learning, a main teaching activity and a plenary session. The Mathematics teaching sequence at Oreston Community Academy provides opportunities for group learning, adult guided groups, paired learning, whole class teaching and individual learning.

All areas of Mathematics at our school follow the Concrete, Pictorial and Abstract approach.

Concrete – the doing: A pupil is first introduced to an idea or a skill by acting it out with real objects. This is a 'hands on' component using real objects and it is the foundation for conceptual understanding. Concrete refers to objects such as base ten, bead strings, Numicon or other objects that can be physically manipulated.

Pictorial – the seeing: When a pupil has sufficiently understood the hand-on experiences performed, they can now relate them to pictorial representations.

Abstract – the symbolic: A pupil is now able to represent problems by using mathematical notation, for example: $12 \div 2 = 6$.

Through the CPA approach, pupils are initially introduced to the idea through physical resources. This provides children with visual aid to support them in their learning. Once concrete resources have been used these are gradually changed to pictorial representations such as drawings or images. Finally, children progress to an abstract approach in their learning by representing calculations using number sentences and beginning to use more formal written methods. We believe children should always move between concrete, pictorial and abstract and apply all three to their mathematical thinking. We believe this will secure their understanding and enable them to make mathematical connections more easily.

We develop mathematical language within lessons that include sharing essential vocabulary at the beginning of every lesson and insisting on its use throughout, modelling clear sentence structures using mathematical language, paired language development activities, open questioning and plenaries which give further opportunity to assess understanding through pupils explanations.

All teachers ensure to plan stimulating lessons which incorporate outdoor learning and ICT so that pupils are enthused and engaged in their lessons. Pupils engage in the development of mental strategies, compact written methods, practical tasks, investigational learning, problem solving, mathematical discussion and consolidation of basic skills and number facts. The learning environment is designed to stimulate, support and celebrate learning. Ongoing formative

assessment is integral to every lesson ensuring that misconceptions are identified straight away and addressed within the lesson.

Impact

At Oreston we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. When these fundamental skills have been achieved, then the stages of development in written methods are implemented as defined in our school's calculation policy. Mathematics contributes to many subjects and it is important children are given opportunities to apply and use Mathematics across the curriculum and in real contexts when possible. For example, Key Stage 2 collect data and measurements for pupil voice groups such as Eco and YET. We endeavour at all times to set tasks that have high expectations for all, are challenging, motivating and encourages pupils to talk about what they have been doing as well as responding to written questions to develop their understanding as outlined in the school's marking policy.

We strive to ensure that our children's attainment is in line or exceeds their potential when we consider the starting points of all our children. We measure this using a range of materials, whilst always considering the expectations for each year group. Children will make at least good progress in Mathematics from their last point of statutory assessment or from their starting point in Nursery and Foundation. We intend the impact of our Maths curriculum will ensure our pupils are academically prepared for life beyond Oreston Community Academy and throughout their educational journey. The % of pupils working at ARE within each year group will be at least in line with national averages. The % of pupils working at Greater Depth within each year group will be at least in line with national averages. There will be no significant gaps in the progress of different groups of pupils (e.g. disadvantaged vs nondisadvantaged).