Maths Intent at Oakley CE Junior School

Our vision and rationale

It is our aim that children should leave Oakley CE Junior School with a breadth of maths skills that will give them confidence to use maths in their everyday lives. At Oakley CE Junior School we want to develop a sense of awe and wonder about maths, allowing children to be excited by what numbers can help them do and to express how creation is built with mathematical patterns. We believe that maths is a journey and long-term goal, achieved through exploration, clarification, practice and application over time. At each stage of learning, children should be able to demonstrate a deep, conceptual understanding of the topic and be able to build on this over time.

Our maths curriculum is based on the White Rose maths scheme. White Rose uses a mastery approach to maths teaching. This is a research-driven teaching and learning method that meets the goals of the National Curriculum. The Mastery approach to mathematics

:

- **Puts numbers first**: We believe confidence with numbers is the first step to competency in the curriculum as a whole.
- **Puts depth before breadth**: we reinforce knowledge again and again. The use of concrete. pictorial and abstract representations alongside number sentences
- **Encourages collaboration**: children can progress through the schemes as a group, supporting each other as they learn.
- **Focuses on fluency, reasoning and problem solving**: it gives children the skills they need to become competent mathematicians.

Our **Maths Learning journey** at Oakley CE Junior School from Year 3 to Year 6 can be viewed using this link.
Link to Long term map to add here

Maths Talk

We develop our school Christian values of **courage, respect** and **grace** at the beginning of every maths lesson when pupils are encouraged to take part in Maths Talk. This discussion nurtures confidence in mathematical thinking, mathematical language and sharing of the different ways we view mathematical patterns and calculation methods.

Problem-Solving Skills

Alongside the White Rose maths scheme, we teach the children a range of problem-solving skills. Problem-solving encourages the pupils at Oakley CE Junior School to: wonder about maths, look for patterns, take risks in their thinking, make their own theories and test and prove their own thinking. The progression of the problem-solving learning journey at Oakley CE Junior School is shown below:

Oakley CE Junior School Mathematical Problem-Solving Learning Journey

- Year 3: Autumn Term - Drawing a Diagram
  Spring Term – Acting Out
  Summer Term - Drawing a Table
- Year 4: Autumn Term – Guessing and Checking
  Spring Term – Creating an Organised List
  Summer Term – Looking for a Pattern
- Year 5: Autumn Term – Creating a Tree Diagram
  Spring Term – Working Backwards
  Summer Term – Using Simpler Numbers
- Year 6: Autumn Term – Open-Ended Problem Solving
  Spring Term – Analysing and Investigating
  Summer Term – Logical Reasoning

Daily Maths meetings – Maths 5 A Day

In addition, we have daily 'Maths meetings' to ensure a daily review of key concepts. These retrieval sessions ensure mathematical declarative and procedural knowledge is secure in the long-term memory. These daily sessions also focus on the recall of identified key facts and multiplication times table facts. These progressive, specific facts are non-negotiables that every child should know by the end of each term in each year group.

How We Ensure Challenge

We ensure that the majority of pupils will move through the curriculum at broadly the same pace. However, based on good assessment for learning (AfL), our teachers make decisions about when to progress children, based on the security of pupils' understanding and their readiness to progress to the next stage. This does not mean that 'we hold children back' and that all children access the same questions and same activities all of the time. Pupils who grasp concepts rapidly are challenged by 'going deeper', being offered rich and more sophisticated problems before any acceleration through new content. Differentiation still takes place although it will often be through the same concept, posing different questions and problems for 'rapid graspers' to extend their thinking. Mastery strategies such as 'Prove it, Compare and Make a Conjecture' are used for our learners. '**Deepening' through differentiation is important for all learners in all year groups.** Pupils who are not sufficiently fluent with earlier material, consolidate their understanding, including through additional practice, before moving on. A ceiling is not put on children's learning and flexible grouping is adopted based on pre-assessments.

Times Tables

Times tables play an important part in our maths learning, with children developing their fluency and knowledge in rapid recall of tables up to 12 x 12 by the end of year 4. While the rapid recall of times tables are being developed, children are also learning how to apply and manipulate their understanding of this to reason and solve problems. Our Times Tables Policy Document provides more information about the progression of the teaching of multiplication times tables in our school setting.

Link to Times Tables Policy Document

Daily assessment is incorporated throughout the lesson through live and verbal feedback. Where children require additional support, 'Closing the Gaps' are used to support children ensuring that they are ready for the next 'small step'. Termly assessments are used as a diagnostic tool to ensure that teachers are adapting learning to meet the needs of all children and ensure that any necessary interventions are targeted specifically to meet the needs of children.

Purpose of study:

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject

The National Curriculum for maths aims to ensure that all pupils:

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.
The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage.
Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Inclusion

As teachers and educators, we need to flexible. As a school, we believe in **'Great expectations for all'** and this is fostered in our approach.

Some pupils might need the following adaptions:

- continued use of concrete, pictorial and abstract (CPA)representations. Research shows that when children are introduced to a new concept, working with concrete physical resources and pictorial representations leads to a better understanding of abstract concepts. We use CPA throughout our schemes of learning and continue to use theses resources for SEND needs.
-words highlighted and given to them on their desk so they can refer to new vocabulary
-word and number mats available for children throughout the unit of work
-including picture clues to help understanding and allow for visual clues
-continue to develop set skills before moving them on to the next step
-assessment for learning opportunities and making reference to previous years learning when a child is working below age related expectations.
-use a range of stimuli to support a range of learners and needs: Visual- learners respond to images and graphics. Auditory- learners prefer verbal presentations. Kinesthetic- learners prefer a physical, hands-on approach.
-small group work supported by an adult to develop the children's thinking and understanding further
-make tasks accessible by adapted the resources
-allow children time to explore and process to build their confidence and understanding before committing their understanding to paper
-allowing the children, the chance to record their understanding and ideas in a range of ways e.g. using CPA representations, adults scribing for them, using ICT to record ideas, recording their responses using the i-pad
-tasks broken down into manageable chunks of learning
-teacher recording skills and processes in the classroom so children can make reference to them

All lessons will have scaffolded opportunities throughout, the class teacher to ask SENDCo for further guidance if/when needed