

CROOKHAM CE (A) INFANT SCHOOL

MATHEMATICS

"I should count them, they are more in number than the sand." Psalm 139:18

At Crookham Infant School we aim to make learning irresistible so that as Team Crookham we all develop the life-long learning habits of resilience, resourcefulness, reflectiveness and reciprocity through exploring together the loving invitation of Jesus to 'live life in all its fullness' John 10:10.

Our vision stems from our Christian foundation and is firmly rooted in our values: Love God, Love Others, Love Learning.

This document is a statement of the aims, principles and strategies for teaching and learning Mathematics at Crookham Infant School.

Introduction

At Crookham Infant School we believe that Mathematics provides a way of viewing and making sense of the world. Problem-solving is an integral part of Mathematics as it encourages communication, creative and logical thought and an enquiring mind. Mathematics at Crookham Infant School provides children with challenge, enjoyment and a sense of achievement. It prepares them with opportunities to show initiative and take responsibility for their learning. Through learning Mathematics children develop their learning habits of reflection, resourcefulness, reciprocity and resilience and are well equipped for their next steps in learning and life.

Aims

In Mathematics we teach to achieve depth or 'mastery' for all pupils, drawing upon the research of the Education Endowment Fund (EEF) and their recommendations. The intention of our Mathematics curriculum is to ensure depth in conceptual understanding as children progress in acquiring mathematical fluency, reasoning and problem-solving skills. So that our pupils know and remember more, we plan and sequence learning in small steps of progression through concepts, utilising a concrete, pictorial, abstract approach.

Within our mixed attainment classes, we scaffold mathematical learning and provide timely feedback, intervention and directed support. Children who grasp concepts quickly are given opportunities to construct and apply knowledge. They question, justify and prove, so deepening their fluency, reasoning and problem-solving skills within the content and context. All children appreciate working collaboratively in Mathematics, as Team Ant, and relish learning from and with their peers. They value Maths that is meaningful, explores their environment indoors and out, and is relevant to their developmental schema, interests or curiosities. They expect mathematical learning to be engaging, enjoyable and 'challenging learning', providing them with opportunity to demonstrate reflection like Owl, resourcefulness like Squirrel, or resilience like Tortoise as new concepts are 'learning pits' of challenge to be encountered on their learning journey.

The Teaching of Mathematics

We teach the National Curricula for Early Years Foundation Stage and for Key Stage One. We do not follow a particular scheme of work for materials or rate of coverage, but do draw from quality researched resourcing where appropriate. We utilise NCETM Spine documents to inform our pedagogy and guide teacher subject knowledge so that learning is planned to meet the needs of all pupils. Teachers make informed judgements about children's readiness to progress. Small steps in both conceptual and procedural understanding are planned for, with consideration given to addressing the common misconceptions which are likely to occur. Teachers plan to cover all areas of the curriculum within the school year, building flexibility into long, medium-term and short-term planning so that they can teach concepts to an appropriate depth of understanding for the vast majority of the group before moving on. Gaps in learning are identified and addressed promptly, with same day intervention wherever possible. Concrete, pictorial and abstract models are used to support learning for all our pupils. Tens Frames are used to introduce new concepts when concrete resources are needed, allowing children to see the connection between all areas of

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Mathematics. In line with EEF research, we teach to develop efficiency and fluency in mathematical understanding using a range of manipulatives and representations, before moving learning to procedural methods. We pay particular attention to the role of Perceptual and Conceptual Subitising in developing calculation skills in order to prevent over-reliance on inefficient 'counting on' methods, understanding that mathematical fluency is not mere speed but rather an efficient choice of strategy, often supported by a strong mental image or model.

Mathematics learning in each year group at Crookham Infant School builds on prior skills, knowledge and understanding so that children develop the strong foundation of number sense, pattern and relationships on which mastery in all Mathematics is built. Our progression documentation shows the likely learning trajectories of each strand of Mathematics taught, drawing from the research and recommendations of EEF, NCETM and Learning Trajectories - the work of Clements and Sarama in particular.

Delivering Mathematics

Mathematics learning at Crookham will typically include:

- A problem focussed on procedural fluency or reasoning - links to prior learning, review and consolidation of a concept, pattern, relationships or connections in maths.
- Activating our learning habits - Owl, Squirrel, Ant or Tortoise to decide how prior learning, knowledge and skills will help us form a strategy to tackle this task
- Pre-teaching a concept, skill or procedure in order to prepare for new learning.
- A hook problem or calculation where children can work as Team Ant (collaboratively) to share ideas and initial strategies
- A series of activities with direct instruction, collaborative learning and dialogue to unpick the idea around which the learning is based.
- Resourcing which supports the move from the concrete, through pictorial to abstract and develops a strong visual model or image.
- Independent working, including practise of a skill, progressing to trial and error within a concept and reasoning around an idea (critical Owl thinking).
- Looking at a well understood concept in a different context, applying different reasoning to embed deep understanding in long term memory.
- Identifying children who would benefit from further support, breaking a concept into smaller steps, providing additional scaffolding in resource or time, and removing this scaffolding when confidence and independence can be achieved.
- Addressing misconceptions, self or peer review, assessing the learning within the session and where it fits within the larger unit of learning.
- Intervening to address the misconception or fill a gap before moving on.
- Using mistakes positively to move learning on and unpick thinking to deepen understanding and promote further independence.
- Marking/Feedback allowing children to complete, correct and go deeper in their learning.
- Well timed return and repetition to concepts over and over in order to apply them in different contexts and deepen learning.

The above would be seen in learning over time. We would not expect to see all elements within one learning session.

Targets/Tracking

At Crookham Infant School we layer targets in Mathematics:

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- Whole School target on School Improvement Plan or Raising Attainment Plans
- Cohort targets
- Group targets/ individual targets
- ILP targets

Each cohort tracks attainment in Mathematics and uses this information to set targets (as listed above) and amend planning accordingly.

Moderation meetings are held to support the 'levelling' and 'next steps' process on a termly basis. Termly progress meetings for each year group ensure that children who are making better than expected/ expected/ below expected progress are monitored and intervention is put in place.

Assessment

Assessment is in line with the school's Assessment Policy.

Date of next review: September 2024