Abbots Ripton Church of England Primary School

Mathematics Policy

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Our church school creates a firm foundation where together, with God's help and with the help of others, we learn for life, achieve our best and grow in faith.

Intent

Mathematics is a creative and highly inter-connected subjects 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 around the subject.

Here at Abbots Ripton, we firmly support the three core National Curriculum aims to ensure that pupils can:

- become **fluent** in the fundamentals of mathematics, including 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 series of simpler steps and persevering in seeking solutions.

Implementation

Maths Mastery

We firmly believe that **all** children can master mathematics and achieve. We structure our lessons so that they:

- are achievable for all
- develop deep and sustainable learning
- create the ability to build on something that has already been sufficiently mastered
- develop deep mathematical understanding
- develop both factual/procedural and conceptual fluency.

Teaching and Learning:

At Abbots Ripton, teachers follow the White Rose Maths (WRM) schemes of work to support their teaching. Following this scheme is designed to ensure that all maths teaching is consistent and of a high quality by providing a solid base of teaching resources and questions, linked to each year group's curriculum expectations, for teachers to use and adapt as necessary. We supplement this scheme using other resources such as NRICH and the NCETM mastery resources.

In all classes, pupils will use a range of concrete, pictorial and abstract forms. They will explore these in depth through careful variation (conceptual and procedural). All

pupils, regardless of prior experiences of mathematics, will utilise concrete and pictorial resources; they are used as a key tool to develop the pupils' depth of understanding and the visualisation of a mathematical topic.

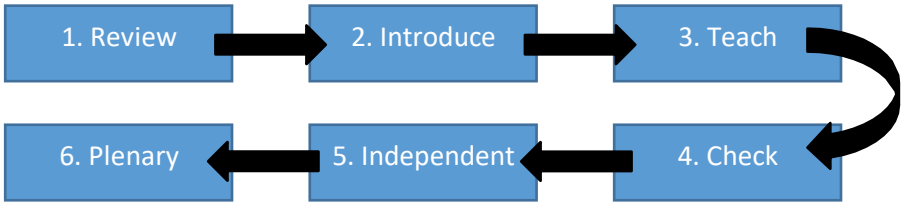
The expectation is that all pupils use the correct mathematical terminology and this is reinforced by all teaching staff. In school, pupils frequently use stem sentences; these are recited back to the teacher as a whole class, in groups or individually. The correct use of mathematical vocabulary supports the children's verbal and written reasoning, alongside the understanding of key concepts.

Units of lessons are planned in careful sequences, with longer periods of time being spent on each topic. Small steps are taken and teachers plan for misconceptions prior to lessons, enabling pupils to access rich learning experiences.

Teachers structure lessons so that they facilitate a high level of understanding and depth of learning through both investigation and discussion.

At Abbots Ripton, we use the long and medium-term plans from WRM to structure our units, which all teachers are expected to follow to ensure full coverage of the curriculum, adapting as necessary.

Our mathematics lessons usually follow the following structure



1. Review

Each lesson starts with a review of previous learning. This might be an activity such as '*Last Lesson, Last Week, Last Term, Last Year*', or the '*Get Ready*' slides from the WRM scheme, or both. This is because constantly being required to recall prior learning means it is more likely to be transferred to our long term memory.

2. Introduce

After the review, the learning objective for the lesson is introduced, drawn from the WRM scheme of work, and teachers make explicit links to previous learning where children have encountered similar concepts, for example in previous year groups.

3. Teach

During the 'teach' section of the lesson, teachers may use the WRM slides to structure high quality inputs, supplementing the slides with additional modelling and examples to ensure understanding. Concrete resources will be used as appropriate.

4. Check

During this initial input, children are provided with some initial questions. As a class, the teacher would then work through the answers to these initial questions, asking children to participate through high quality questioning and whiteboard work, to ensure understanding. Children who might need additional support during the

lesson are identified at this point. At this point in the lesson, the more confident mathematicians may move away from the rest of the classes' learning and access work with a deeper level of challenge.

5. Independent Activity

Following the 'check', additional teaching is undertaken to introduce the children to their independent learning activities, with a particular focus on reasoning and problem solving questions. Children are then expected to complete these independently to ensure individual accountability and learning.

6. Plenary

Plenaries are used as an opportunity to reflect and summarise the key learning once more, as well as to discuss any misconceptions.

Time is also dedicated in each class daily to arithmetic and mathematical fluency of key skills, such as times tables and number bonds. This includes using Flashback 4 from White Rose Maths, Four a Day from the Cambridge Maths Hubs, or teacher produced questions aimed at identified areas which need consolidation.

Children are given opportunities to use Times Table Rock Stars (Y2-Y6) and White Rose Maths 1 minute Maths (YR- Y2) in school and they are encouraged to use the apps for additional practice at home to increase their average time and accuracy per question.

Mathletics is used to set homework based on learning already completed in school to consolidate understanding.

Inclusion:

At Abbots Ripton, we believe that all children are entitled to the same high quality teaching and it is therefore our expectation that all children move through the schemes of work at the same pace. However, we recognise that some children need additional scaffolds and support to achieve the same objectives, and other children may need additional challenge to deepen their understanding further.

Teachers carefully utilise scaffolds to ensure that all pupils are engaged and accessing the learning. Pupils may be taught prior to the lesson (pre-teaching) or have a short session after the lesson in order to support their learning (look back and learn). Extra concrete resources, word banks, visual frames, guided groups, teaching assistants and low floor – high ceiling activities are used to both engage and support all learners.

For some particularly more confident mathematicians, for whom the schemes of work do not provide sufficient stimulation, we provide additional challenge by exposing them to deeper reasoning and problem solving questions and targeted teaching within lessons.

Impact

Across the school, teachers assess pupil's depth of understanding through the children's verbal and written responses; this may be in the form of written marking after the lesson, verbal feedback or noting observations. Assessment can take

place across a variety of curriculum areas, such as science, due to the cross curricular nature of certain concepts (such as statistics).

Following a unit of work in mathematics, teachers may use the White Rose 'end of block' assessment. At the end of a term, teachers may also utilise the 'end of term' White Rose assessment.

Monitoring and Review

The Head teacher and Maths leader will carry out monitoring as part of the whole school monitoring schedule. This policy will be reviewed at least every 3 years.