



Maths at Abbey Hill Primary and Nursery School

Curriculum Intent

We want our Abbeyhillians to:

be confident communicators

develop a strong sense of self

understand the wide diversity of people and cultures in modern Britain

acquire knowledge and understanding of the world

Maths Intent

Maths at Abbey Hill is taught using the White Rose Maths Schemes of learning. The school's long term plan has a particular focus on ensuring pupils acquire the key knowledge they need to progress and succeed in maths.

Our aim is to ensure all pupils become fluent in the basic skills of mathematics and can:

- apply knowledge rapidly and accurately
- reason mathematically
- solve problems by applying their mathematic knowledge and skills
- use maths vocabulary with understanding to reason, problem solve, communicate and explain.

Pupils work systematically in mathematics and can make connections between concrete, pictorial and abstract representations. A wide range of both physical manipulatives and visual representations are used from F1 to Y6 to support learning in maths.

Counting and arithmetic skills are taught daily at Abbey Hill as well as frequent teaching of number bonds, mental maths and multiplication and division facts. This is to ensure all pupils have the opportunity to develop their fluency in mathematics.

Daily 'thinking deeply' tasks allow pupils to apply this fluency to reasoning and problem solving questions.

Fortnightly arithmetic and times tables tests allow practitioners to highlight gaps in learning and plan suitable interventions.

Stem sentences are used in lessons to provide opportunity to develop pupils' 'sticky knowledge'.

Worked examples are displayed, giving children essential resources to aid their learning when working independently.

Maths Implementation

An input is taught at the start of every lesson where the teacher introduces or recaps subject specific vocabulary, stem sentences and models the concept for the lesson. When

teaching the concept, the teacher will model using manipulatives, visual representations and abstract calculations.

Children will be given opportunity to work independently and adults will support where needed. Adults will rove the room to offer support, stop the class to give more input where needed or take small groups to offer more focussed support.

Every lesson will have an element of fluency and problem solving or reasoning. 'Thinking deeply' questions are given at the end of some lessons to challenge pupils thinking by applying what they have learnt to a reasoning or problem solving context.

Nine White Rose Maths lessons will be taught each fortnight.

The concrete, pictorial and abstract approach

At Abbey Hill, we follow the journey of concrete to pictorial to abstract learning.

Concrete refers to learning through physically manipulating with resources. All children in all year groups should access these resources and they should be readily available in each classroom's maths area. Each classroom should have a wide range of manipulatives. Others are stored in the central maths cupboard. Teacher judgement is used to know when to give children manipulatives to aid their learning and when to allow children to fetch them independently (this may depend on age, concept and children's individual needs).

Pictorial refers to learning through visual representations. These may be drawn by children themselves or pre-made models they use to aid them with their calculations e.g. bar model, part-part-whole model, base 10 drawings, tens frames and number lines. Pre-made models (from White Rose Maths or teacher made) can be used initially but evidence of children drawing their own visual representations is essential.

Abstract learning refers to written calculations which are completed in books and are used to solve fluency, problem solving and reasoning questions.

The processes of concrete, pictorial and abstract should not be isolated and should be used alongside each other to make connections and develop pupils' understanding of the mathematical concepts.

Worked examples

Worked examples demonstrate all the steps needed to complete a calculation or problem. They not only show a clear method to solve the calculation but explain each process step by step. Children can use these independently to complete their work. They can be presented on flipchart paper, handwritten or typed and put on the working wall for children to refer back to. Children can access smaller versions to refer to at their table.

My turn, your turn

My turn, your turn is a type of worked example where a process is clearly modelled to children by the teacher, then children complete their own independently. The teacher demonstrates by thinking out loud and modelling the questions that they ask themselves at each step of the process. Children should then complete their own question using the steps modelled by the teacher. These can be presented on flipchart paper, handwritten or typed and put on the working wall for children to refer back to.

Fluent in 5

Fluent in 5 is completed every day by all pupils from Y1 to Y6. Five minutes is given for pupils to answer a range of fluency questions. These focus on the same concepts for the entire week enabling children to develop confidence, understanding and accuracy. Every child accesses the activity set for their year group – children who are below the expected standard receive adult support early in the week with an aim to complete selected questions independently by the end of the week.

Flashback 4

Flashback 4 is completed every day by every child from Y1 to Y6. Five minutes is given for pupils to answer 4 reasoning and problem solving questions. There is one question from the previous lesson, last week, a previous topic and last year.

With both **Fluent in 5** and **Flashback 4**, when the pupils have completed the activity, teachers model how to solve the questions and pupils self-mark their work. The activities encourage pupils to interrupt the forgetting and remain confident and accurate when answering questions from previously taught concepts. Where many children have struggled with a question, a mini-teach is completed and several similar questions are given for pupils to practise the concept.

Counting

Counting is taught daily in sessions of approximately ten minutes. All children in the class participate in the sessions. Every class has a teacher counting stick and some children use individual counting sticks. Counting sessions can be linked with times tables to practise the multiplication table chosen for that week and can also be used to count in fractions, decimals, percentages and negative numbers.

Arithmetic test

All pupils complete a fortnightly arithmetic test. Every child completes the arithmetic test for their year group and these scores are recorded each week on the arithmetic tracker. The tests are used as a **teaching tool** and not as a formal assessment. Children are encouraged to use manipulatives and adult support is given to improve children's understanding of the mathematical concepts e.g. children who are working below the expected standard may work in an adult supported group focusing on 3 or 4 different concepts. The following week teachers will assess children's understanding of those questions by allowing them to complete them independently and focussing on other concepts to work on together.

In KS1, teachers may mark the tests or work through them with children who would benefit from this.

In KS2, all tests are marked with the children, where teachers model how to solve the questions under the visualiser. TAs could mirror this with small focus groups. Where many children have struggled with a question, a mini-teach is completed and several similar questions are given for pupils to practise the concept.

Times tables and times tables test

We must ensure that children in Years 1 to 4 are provided with opportunities to learn their times tables in a way that is memorable and contextualised to encourage retention of the

facts. In UKS2 the profile of times tables must remain high. Children should be provided with an array of opportunities to practise their rapid recall of these multiplication facts, supporting their confidence and competence in arithmetic.

Times tables should be taught three times per week and follow the whole school times table plan. One times tables test should be completed every fortnight and scores recorded on the times tables tracker, found on the T-drive. Children should be tested on the times table they have practised that week. Times Tables Rock Stars should be accessed weekly for children to practise their times tables facts.

Marking

In KS1 teachers mark children's work with a tick for correct answers and a dot for incorrect answers, in green pen, during the lesson when roving the room where possible. Self-marking is developed towards the end of Y2, completed in blue pen. Where children have answered a question incorrectly, further support or intervention is provided.

In KS2 children self-mark their work in blue pen so adults can provide in the moment support to clarify children's understanding. Correct answers are marked with a tick and incorrect answers with a dot. Corrections of incorrect answers are also completed in blue pen. Where children have answered questions incorrectly and have unsuccessfully corrected their work, further teacher input, 1:1 support or group intervention is provided.

Assessment

In F2, teachers make 'best fit' judgements against the Early Learning Goals in the summer term.

In Y1 children complete White Rose Maths end of unit assessments to test their understanding of previously taught concepts. These are completed at Assessment points 1 and 2. At assessment point 3 children complete the Summer NFER assessment.

In Y2 and 6, children complete previous year's arithmetic and reasoning SATs papers at each of the 3 assessment points.

In Y3, 4 and 5 children complete NFER arithmetic and reasoning papers at each of the 3 assessment points.