



Mathematics Policy

Reviewed: October 2021

INTRODUCTION

The National Curriculum order for mathematics describes what must be taught in each key stage. This policy follows a whole school format and rationale.

Why do we teach Maths?

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships, which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real-life problems. It also provides the materials and means for creating new imaginative worlds to explore.

Mathematics equips pupils with the uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem solving skills and the ability to think in abstract ways.

Curriculum Impact:

What will this look like?

By the end of KS2 we aim for children to be fluent in the fundamentals of mathematics with a conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. They should have the skills and the resilience to solve problems by applying their mathematics to a variety of situations with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios. Children will be able to reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

2. RATIONALE

All school policies form a corporate, public and accountable statement of intent. As a primary school it is very important to create an agreed whole school approach of which staff, children, parents, governors and other agencies have a clear understanding. This policy is the formal statement of intent for mathematics. It reflects the essential part that mathematics plays in the education of our pupils. It is important that a positive attitude towards mathematics is encouraged amongst all our pupils in order to foster self-confidence and a sense of achievement. The policy also facilitates how we, as a school, meet the legal requirements of recent Education Acts and National Curriculum Requirements.

3. EQUAL OPPORTUNITIES

All children are provided with equal access to the mathematics curriculum. We aim to provide suitable learning opportunities regardless of gender, ethnicity or home background.

We have a moral duty to provide for our vulnerable children and we strive to support them in making at least expected progress in comparison with other children. We receive funding for vulnerable pupils which is used to facilitate the progress and attainment of pupil premium children, looked after children and armed forces children.

We ensure that:



- We know who our vulnerable and disadvantaged children are.
- When planning these children have adequate provision.
- We talk to these children about their learning frequently.
- We monitor the progress of these children frequently.

At Kingswood Primary Academy maths is fully inclusive. We ensure this in a number of ways including:

- Teachers adapting planning to meet the needs of all SEND children where appropriate.
- Meeting regularly with staff to discuss provision and whether it needs to be adapted for individuals.
- Liaising with outside agencies to receive the best advice on how to help SEND children learn.

PRINCIPLES

The principles of Kingswood Primary Academy mathematics are:

- Policy and provision are evaluated and reviewed regularly.
- Resources of time, people and equipment are planned, budgeted for and detailed when appropriate.
- Cross curricular links will be highlighted where appropriate.
- It is the right of all children to achieve well at mathematics.
- Planning of mathematics using the White Rose scheme ensures continuity and progression across all year groups and key stages.
- Concrete Pictorial Abstract approach.

4. AIMS

Curriculum Intent:

We want pupils to become fluent in the fundamentals of mathematics, to be able to reason and to solve problems. Our curriculum embraces these National Curriculum aims, and provides guidance to help pupils to become:

Visualisers – we use the CPA approach to help pupils understand mathematics and to make connections between different representations.

Describers – we place great emphasis on mathematical language and questioning so pupils can discuss the mathematics they are doing, and so support them to take ideas further.

If I know the length and width of a rectangle, how can I calculate the perimeter? Can you tell me 2 different ways? Which way do you find the most efficient?

If I know the perimeter of a shape and the length of one of the sides, how can I calculate the length of the missing side?

Can a rectangle where the length and width are integers, ever have an odd perimeter? Why?

Which of these shapes are split into quarters and which are not?

How many more ways can you find to split a 4 by 4 dotted square into quarters?



Experimenters – as well as being fluent mathematicians, we want pupils to love and learn more about mathematics.


How might this sequence continue?

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Describe the ways in which your sequences are similar and how they are different.

Dora says,

The taller you are, the longer your shoes are.



Measure the height of people in your class and measure the length of their shoes.

Is Dora correct?

To learn mathematics effectively, some things have to be learned before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication (as a model of repeated addition). You will see this emphasis on number skills first, carefully ordered, throughout our primary curriculum. For some other topics, the order isn't as crucial, e.g. Shapes and Statistics need to come after number, but don't depend on each other. We try to mix these so pupils have as wide a variety of mathematical experiences as possible in each term and year.

5. PROVISION

Curriculum Implementation:

What do we teach? What does this look like?

Our whole curriculum is shaped by our school vision which aims to enable all children to develop their individual talents, realise their potential and aspire to become the very best they can be, regardless of background and ability.

We teach the National Curriculum through the White Rose curriculum. White Rose sequences have been designed to support our teachers to deliver a carefully planned progression that ensures consistency. The sequences have in built assessment opportunities that make those meeting expectations of the task and those who require more support or challenge visible to any adult in the room. This allows for intervention within the lesson through responsive teaching.

There is no single lesson format at Kingswood Primary Academy, teachers use their professional judgement to decide the most appropriate format for teaching based on the concept being taught and what their assessment tells them about their learners.

We use a Concrete Pictorial Abstract (CPA) approach in our lessons. The CPA approach is a system of learning that uses physical and visual aids to build a child's understanding of abstract topics. Pupils are always introduced to a new mathematical concept through the use of concrete resources (e.g. fruit, Dienes blocks etc). When they are comfortable solving problems with physical aids, they are given problems with pictures – usually pictorial representations of the concrete objects they were using. Then they are asked to solve problems where they only have the abstract i.e. numbers or other symbols. Building these steps across a lesson and a unit can help pupils better understand the relationship between numbers and the real world, and therefore helps secure their understanding of the mathematical concept they are learning.

The teaching of mathematics at Kingswood Primary Academy over time provides opportunities for:

- group work
- paired work
- whole class teaching

- individual work

Pupils engage in:

- the development of mental strategies
- written methods
- practical work
- investigational work
- problem solving
- mathematical discussion
- consolidation of basic skills and number facts

At Kingswood Primary Academy we recognise the importance of understanding the underpinning concepts and knowledge that are needed for all children to be successful in mathematics. We teach these alongside fact acquisition and procedural automaticity.

Mathematics contributes to many subjects within the primary curriculum and opportunities will be sought to draw mathematical experience out of a wide range of activities. This will give children the opportunities to apply and use Mathematics in real contexts. We endeavour, at all times, to make mathematics challenging and motivating and ensure that we encourage the pupils to talk about what they have been doing.

6. ORGANISATION OF TEACHING AND LEARNING

The Early Learning Goals have been adopted for children at the foundation stage. At this stage, pupils experience some mathematics on a daily basis. This early introduction to mathematics will generally be undertaken orally and often in the context of a class theme, e.g. a particular story. Wherever possible, opportunities for mathematics are exploited such as when taking the register.

In key stages 1 and 2 every child takes part in a daily mathematics lesson which consists of fluency, reasoning and problem-solving activities.

Maths is taught in class groups across the school. Children work in mixed attainment pairs/groupings for the majority of the time. Formal lessons last between 20 mins in Reception when children are ready to learn and between 45 and 60 mins in KS1 and 2

All teachers are responsible for planning their own maths lessons but follow the White Rose curriculum where the content and progression is clearly laid out. The maths leader is available to support this planning as necessary. Training includes Learning Supports Assistants (LSAs) where possible. Planning is monitored by the maths lead where necessary.

Teachers differentiate learning within the lesson through targeted questioning, activities and/or support using the White Rose materials as a starting point.

In addition to formal lessons, we value the opportunities there are to learn mathematics in a creative and/or cross curricular way. This is especially evident in the Foundation Stage where problem solving, reasoning and numeracy are clearly reflected within the plans and enhanced within the learning environment.

There is also strong emphasis on the development of mathematical vocabulary. Key words are displayed on working walls and teachers ensure that they model the correct use of mathematical words. Teachers value pupils' oral contributions and create an ethos in which all children feel they can contribute. Activities are planned to encourage the full and active participation of all pupils and teachers differentiate or scaffold tasks during the main part of the lesson in order to meet the needs of all abilities.

7. HOMEWORK

When guidance by Public Health England allows, at Kingswood Primary Academy we encourage parents to be involved by:

- Visiting them into school twice yearly to discuss the progress of their child
- Inviting parents into school in the summer term to discuss the yearly report
- Inviting parents to curriculum evenings or circulating information via newsletters when significant changes have been/are made to the mathematics curriculum
- Holding workshops for parents focusing on areas of mathematics
- Use of TT Rockstars in years 2-6 and Number Bots in year 1