



At Ashfield Valley we care for and value every child in a nurturing, inclusive environment.

All members of our school community will work hard to ensure that every pupil achieves their full potential and has the opportunity to shine.

Mathematics Policy

Reviewed: September 2022

Date of next review:
September 2023

Rationale

This policy details the provision we make for the learning and teaching of mathematics at our school and in particular:

- The importance mathematics plays on a child's lifelong learning.
- The aims that our mathematics curriculum has.
- The delivery of our mathematics curriculum and how this will look for differing key stages.
- How maths supports the delivery of SMSC.
- How our maths curriculum is inclusive of all children and differing ability levels.
- How maths is linked to other curriculum areas in a cross-curricular approach.
- The assessment and reporting of mathematics.
- The monitoring of mathematics and the role that the subject leader plays in this.

Purpose

The purpose to this policy is to:

- Ensure that there is a consistency of approach towards to delivery and implementation of the mathematics curriculum.

The value of mathematics within our curriculum

Mathematics is a creative and highly interconnected 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.

National Curriculum 2014

Mathematics introduces children to concepts, skills and thinking strategies that are essential in everyday life and support learning across the curriculum. It helps children make sense of the numbers, patterns and shapes they see in the world around them, offers ways of handling data in an increasingly digital world and makes a crucial contribution to their development as successful learners. Children delight in using mathematics to solve a problem, especially when it leads them to an unexpected discovery or new connections. As their confidence grows, they look for patterns, use logical reasoning, suggest solutions and try out different approaches to problems. Mathematics offers children a powerful way of communicating. They learn to explore and explain their ideas using symbols, diagrams and spoken and written language.

They start to discover how mathematics has developed over time and contributes to our economy, society and culture. Studying mathematics stimulates curiosity, fosters creativity

and equips children with the skills they need in life beyond school. In summary, mathematics is integral to all aspects of life and provides children with vital life skills.

Intent

Our aim is to ensure that every child has a secure understanding of the four rules of number so that they can use and apply their knowledge across the mathematics curriculum with accuracy, being able to use these skills to reason and problem solve across all areas of maths. With this knowledge securely embedded, the children will be ready to begin the next phase of their education and flourish as lifelong learners. We aim to provide a rigorous and sequential mathematics curriculum which develops all pupils' knowledge, confidence and enjoyment in mathematics. We endeavor to surpass the National Curriculum expectations, at every stage, to ensure all pupils in our school can access the full curriculum and have strong foundations for future learning.

Implementation

At Ashfield Valley, we use the National Curriculum for mathematics as a basis for our Mathematics Programme of Study. We follow the National Curriculum objectives in a logical and sequential order, building on previously learnt skills. To support with the effective delivery of this, teachers follow our Medium-term planning documents and calculation policy, when planning units and lessons. These documents combined, ensure continuity and progression and high expectations for attainment in mathematics in our school. We have identified that the development of reasoning skills is a key area of focus and have implemented extra reasoning lesson slots throughout the week.

We believe that the essential components to teaching maths effectively are:

- A logically sequenced and carefully planned curriculum so that children make progress (why this, why now?)
- An emphasis on automaticity with mathematical facts (knowing more and remembering more).
- A focus on problem solving and the development of mathematical thinking.
- Consolidation and repetition of key learning.
- Assessment to ensure pupils have acquired understanding and automaticity in the facts, concepts and procedures required (careful analysis of this is carried out).

EYFS

We follow the EYFS curriculum guidance for mathematics. We are committed to ensuring the confident development of number and put emphasis on mastery of key early concepts. Pupils initially explore the number system to 20 and the development of models and images for numbers as a solid foundation for further progress. Pupils are involved in manipulating numbers through calculation processes. Pupils also learn about pattern, shape and space and measure through a range of teaching and practical activities.

KS1

In KS1, the implementation of the National Curriculum is supported by resources from reputable providers. Whilst delivering our maths lessons, we ensure there is the opportunity to build in additional consolidation lessons if needed or lessons to deepen children's understanding. Key mathematical facts such as number bonds, timetables, mental calculations and simple conversions are taught and revisited early on to ensure retention. Each class also takes home a half termly knowledge organisers to ensure that parents have the opportunity to practice key mathematical facts with their children.

KS2

In KS2, the implementation of the National Curriculum is also supported by resources from reputable providers. Teachers use and follow their classes medium term plan with objectives from the National Curriculum to ensure our pupils are receiving the best possible mathematical education.

In KS2 all classes have extra reasoning, arithmetic and timetables slots to help embed and retain learning. Each class also takes home a half termly knowledge organisers to ensure that parents have the opportunity to practice key mathematical facts with their children.

SMSC

At Ashfield Valley, the teaching and development of SMSC is not a separate subject that is taught explicitly but an aspect of learning that should be present throughout the school in both its lessons and the behaviour from everyone in and around school. However, there are aspects of SMSC that can be developed through the discrete teaching of mathematics. To develop children's spiritual development through maths, the awe and wonder of mathematics is shared with the children and this helps them to explain the world. There is also a sense of wonder in the exactness of mathematics as well as a sense of personal achievement in solving problems. Where relevant, to develop the children's social development, a real-life link is made at the beginning of lessons to engage pupils and to show how maths is used in the real world. When maths lessons require pupils to work together collaboratively during investigative work they are able to use, apply and develop their social skills. To promote cultural development through maths, we look at the history of maths and its development – this is particularly evident in the measurement strand of the curriculum when discussion takes place around how measuring systems have changed and evolved over time. When carrying out work on number in KS2, Roman Numerals are taught, looking at how other number systems have been used. Throughout the maths curriculum, children discuss the use of mathematical language and how it is a universal language used worldwide.

Inclusion, equality of opportunity and differentiation

Our mathematics curriculum aims to ensure that all children engage with mathematical learning and they are able develop a positive and enthusiastic attitude towards mathematics to enable them to become confident mathematical learners. Children are taught through daily whole-class teaching, where the focus is on all children working together on the same lesson content, whilst at the same time challenging and supporting pupils to gain depth of understanding and proficiency. This ensures that all children can master concepts before moving on to the next step and over time our children are expected to have the ability to

reason and clearly explain their thinking. Children who are struggling to grasp concepts will have further adult input or intervention sessions to ensure that all children are maintaining progress and have the knowledge and automaticity to use a mathematical concept in complex ways. Some children, who have significant gaps in their knowledge and understanding, will have a specifically identified programme of study to remediate gaps and to develop automaticity in key aspects of the mathematics curriculum.

Ensuring differentiation so that all can succeed and achieve, is a fundamental and core element of inclusion. As such we plan and resource our learning, in line with our whole school policies, to enable all pupils to make good and sustained progress in mathematics including those with special educational needs, those with disabilities and those identified as more able and those with English as an additional language. In our differentiation planning we take due regard of factors such as classroom organisation, learning materials and the learning environment.

Connecting mathematics to other areas of the Curriculum

Mathematics contributes to many other subjects and we value the importance in giving our children the opportunity to apply and use mathematics across the curriculum and in real life contexts. Therefore, links are made in other subjects for pupils to develop, use and apply their mathematical skills. These links are often made in science and technology when measuring is needed, for the consideration of properties of shape and geometric patterns in technology and art and for the collection and presentation of data in history and geography. Science lessons are also used to allow children to collect and present data, applying their knowledge of statistics. As well as discrete curriculum subjects, a range of real-life learning contexts are provided throughout the year where children are able to use and develop their enterprise and ambition skills, often encompassing the children using their mathematical skills to ensure there is a profit on their idea.

Impact-Expectations of outcomes

As a result of the monitoring and evaluation processes, including pupil voice, work scrutinies and lesson observations, we would know that that the children are competent mathematicians through the outcomes they display. We would see the children have high attainment and have made the desired progress based on their starting points – they would have a high proficiency of maths skills. This would mean that the children were performing at or above National Standard at every stage. We would see the children enjoying maths and feeling confident within it – being enthusiastic mathematicians who like to showcase their knowledge and skills. They would be next stage ready, not only at the end of each key stage but also for each academic year. The curriculum in its progressive design and sequential approach to the objectives would contribute greatly to the outcomes that the children reach.

Assessment and reporting

Mathematics is assessed daily through formative assessment when the teachers review and

mark the children's work and from when they have been working with and supporting children within lessons. This feedback and assessment is then used to inform how the children have succeeded with the objective/s taught. This teacher assessment is integral to closing any gaps and moving learning on.

In addition to this, the children's arithmetic and reasoning skills are assessed using summative assessment each half term provided by NFER. This is carefully used and analysed and again informs further planning.

All of the summative assessment data is reported to SLT and to the mathematics lead at the varying points throughout the year so that it can be closely monitored and children who need to be targeted can be.

Monitoring and Evaluation and the role of the subject leader

All teachers at our school are responsible for monitoring standards in mathematics but the mathematics subject leader, under the direction of the Head teacher, takes a lead in this. Monitoring activities are planned across the year and form part of the mathematics leader's leadership schedule. In summary, these include:

- The moderation of teachers' planning once per term to monitor coverage and delivery of planned objectives.
- Analysing samples of pupils' mathematics work to moderate standards (attainment and progress against outcomes and end of Key Stage Expectations) to ensure consistency.
- Lesson observations and Learning Walks to ensure that learning and teaching is appropriately engaging and challenging and that the anticipated subject progress is being made by the pupils.
- The sampling of pupils' work to ensure that expectations in terms of subject outcomes are being maintained through the curriculum.
- Speaking to pupils (Pupil Interviews) about their maths lessons and what they know and remember about the subject.
- The subject leader provides feedback to staff about the quality of mathematics being taught and leads a discussion on standards being achieved within the subject.
- Uses summative assessment data to track any classes where it is needed and support teachers with the planning process and delivery of the mathematics curriculum.
- Reporting to Governors to give them a detailed update on mathematics within our school – where it is up to and where it is heading.
- In collaboration with the Head teacher, Governors and teaching colleagues the subject leader drafts and finalises a Mathematics Action Plan which is informed by the School Development Plan.
- The mathematics leader has the responsibility to take a lead in developing mathematics further across the school within the school's development plan; monitoring the effectiveness of teaching and learning; and the use of resources. Teachers and educational support staff

can expect support from the mathematics leader arising from targets identified in the school improvement plan.

To develop staff and parents' confidence and competence in teaching mathematics the leader will:

- Ensure teachers understand the requirements of the National Curriculum and will support teachers with teaching and learning if required.
- Attend subject professional development opportunities as they arise and in the context of the priorities of the whole School Development Plan together with the Mathematics Action Plan
- Identify and source staff training needs arising.
- Arrange for relevant advice and information from professional development programmes, including courses, to be disseminated.
- Where necessary lead (or arrange) school-based professional development meetings for colleagues
- Arrange and oversee a range of further mathematical opportunities throughout the year that are above and beyond the daily maths lesson. These are to enhance and deepen the curriculum further for both children and parents. This could include events such as, parents drop ins to maths lessons.