

Policy for Mathematics

Mission Statement

We have the motto "Believe and Achieve" to remind everyone in the school community, pupils, parents, staff and governors that we should always have high expectations of ourselves and each other. If we believe we can do it then we can do it.

Aims

At Pheasey Park Farm Primary School everyone aims to work together to strive for excellence in learning and behaviour. Every child has the right to achieve their potential in a positive, orderly and stimulating environment. We aim to bring learning alive and encourage confident learners who enjoy thinking, active enquiry and participation.

We aim to value children as individuals and support them to achieve success. The curriculum is responsive to changes in society and in education and promotes responsibility to prepare children to become responsible citizens. The school aims to provide the essential building blocks for future learning as well as fostering at each stage vital social, emotional, intellectual and spiritual developments, as well as British Values and Cultural Capital.

Curriculum Drivers

Our **Curriculum Drivers** are:

**Possibilities** - for pupils to be aware of all opportunities available to them and to have high aspirations for the future

**Resilience** - for pupils to have the courage to bounce back from any setbacks or challenges and maintain a positive outlook on life

**Diversity** - for pupils to appreciate and understand that each individual is unique and to recognise and celebrate our individual differences

Curriculum Intent

Our Mathematics curriculum is designed with the intent that all children will become a competent mathematician, equipped with the required maths skills to thrive in later life. We foster positive 'can do' attitudes and believe that all children can achieve in

Mathematics. It is our aim for children to become fluent in the fundamentals of Mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. We intend for children to be able to solve problems by applying their mathematics to a variety of problems with increasing sophistication. It is our goal that all 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.

### **Implementation**

To ensure high standards of teaching and learning in Mathematics, we implement a curriculum that is progressive throughout the whole school. Great importance is placed upon Mathematics as it is an area of knowledge that children will require throughout their lives.

Mathematics is taught on a daily basis, with sequences of lessons planned for every unit of work. Long term plans identify the duration of time that each unit needs to be the focus for each year group. These plans also ensure that every unit of work is revisited each term in order for prior learning to be embedded and developed to ensure children are secure in their knowledge and understanding by the end of the academic year. Year group staff plan sequences of lessons using the Progression Grid document, Calculations Policy and Fractions Policy (as relevant). Staff also regularly update a Maths tracker that identifies, using a colour coded highlighting system, the extent to which programmes of study have been achieved; These trackers are referred to by staff when planning sequences of lessons throughout the year. Our planning process ensures full coverage of the National Curriculum objectives and a logical progression in the knowledge and skills taught year upon year.

Mathematics lessons begin with a brain warm up activity and a mental oral starter. These provide daily opportunities for children to practise previously taught concepts and to further embed their knowledge and understanding. Previous days learning is recapped and built upon in lesson introductions, during which pupil engagement is essential; Various strategies are used to ensure children are active learners throughout lessons, such as paired and group discussion, small whiteboard work and pupil participation in interactive whiteboard work. We believe that all children should be provided with the equal opportunity to access the same level of work; Therefore, pupils begin their independent task with an activity pitched at all children. Scaffolds are put in place for those pupils who require additional support to access the learning, while pupils working well below age related expectations are provided with activities appropriate for their level in order for them to further progress. Staff

continually assess pupils' progress throughout the lesson and quickly identify when pupils are ready to move on in their learning. The Mastery approach to learning is used to challenge pupils and deepen their understanding through the application of their mathematical knowledge and understanding in different contexts, including open ended questions, problem solving and reasoning tasks. Setting for Mathematics across the school into parallel groups and an AA group further enables staff to ensure children's learning is accurately pitched and appropriate challenge is provided to all.

Staff are effective at identifying pupils who have found learning particularly challenging on a day to day basis and arrange for them to receive 'fast response' intervention by a member of staff before the following days Mathematics lesson. In addition, staff use both formative and summative assessments to identify pupils who would benefit from participation in weekly intervention groups to develop their knowledge and understanding of concepts and therefore, improve the progress they make in Mathematics.

Pupils in Years 2-6 take part in weekly 'Superheroes' times tables tests and both pupils and teachers keep record of scores. This enables pupils to see the progress they are making in their times tables knowledge, and for staff to identify where gaps are in learning. Additionally, Times Tables Rockstars is used in Years 2- 6 to develop rapid recall.

Homework is set every week for children in Years 1-6 to consolidate their learning. As we are an Ed Tech school, homework is set online using various platforms such as Education City, Purple Mash, My Maths, Times Tables Rockstars and Numbots (KS1).

### **Impact**

Our Mathematics curriculum is designed to ensure that pupils' mathematical knowledge and skills are embedded throughout their time at our school and provides opportunity for them to master concepts. The Maths Progression Grid document provides clear targets for pupils at each stage of their learning which enables teachers to provide learning opportunities at the appropriate level. The Calculations Policy and Fractions Policy identify appropriate strategies to be taught, ensuring a logical progression in the skills that pupils acquire year upon year.

The impact of our Mathematics curriculum will be measured through teacher assessment, school leader monitoring and subject leader monitoring. Outcomes in Mathematics books will identify children's ability to recall and apply knowledge rapidly and accurately, their secure procedural fluency, conceptual understanding, their ability to solve problems and to reason mathematically at an age-appropriate level.

Teachers will assess children's learning at the beginning and throughout each Mathematics lesson through questioning, discussion and live marking. Teachers will use these assessments within lessons to offer support where necessary, or to move children on in their learning at a quicker pace. Staff will also use them to inform and adapt their planning of further mathematical knowledge and skills and to address any misconceptions. In addition, formative assessments support staff in identifying pupils who would benefit from intervention, whether that be 'fast response' to enable them to move forward with the whole class in the next lesson, or weekly intervention to develop their knowledge and understanding of key concepts.

Summative assessments are conducted termly and provide evidence of where there are gaps in pupils' learning. This information, in addition to formative assessments, is used by staff when planning sequences of work to ensure they plug the gaps in learning. At the end of each term staff determine whether pupils are working below, at or above the expected level. Teachers will use a range of sources such as Mathematics books, questioning, marking, planning and outcomes of summative assessments when making these judgements. There will also be opportunities for moderation sessions across the school and the Trust to ensure accuracy of these judgements. At the end of each academic year, these assessments will be passed on to the following year group's staff to ensure that future planning of learning opportunities is pitched appropriately.

As children progress throughout the school, they will deepen their mathematical fluency, conceptual understanding, ability to recall and apply knowledge rapidly and accurately, problem solving skills and their ability to reason mathematically. Pupils will be equipped with mathematical skills and knowledge that will enable them to be ready for secondary education and for a range of future careers of a mathematical nature.

## **Early Years Foundation Stage**

The statutory framework for the EYFS states that:

'Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically.'

Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding, children will develop a secure base of knowledge and vocabulary from which mastery of Mathematics is built. In addition, the Early Years curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of Mathematics including shape, space and measures. We aim for children to develop positive attitudes and interests in Mathematics, look for patterns and relationships, spot connections, talk to adults and peers about what they notice and 'have a go', not being afraid to make mistakes.

## **Key Stages 1 and 2**

At Pheasey Park Farm, the principal focus of Mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency. Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

The principal focus of Mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and

number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

The principal focus of Mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

### **Organisation and Planning**

At Pheasey Park Farm Primary School, our curriculum planning is in three phases, (long term, medium term and short term). Our long term planning maps the mathematical concepts studied in each term, during each key stage. The subject leader devises this plan in conjunction with teaching colleges in each year group. We use the National Curriculum as the basis for our medium term plans. This gives details of each unit of work for each term. The subject leader reviews these plans, ensuring that children have complete coverage of the National Curriculum. Each class teacher creates a short term plan for each lesson and each wrapper lists specific mathematical vocabulary, learning objectives and activities for each lesson. We plan the units in Mathematics so that they build on prior learning. Children of all abilities have the opportunity to develop their skills and knowledge in each unit and, through planned progression built into the unit of work, we offer them an increasing challenge as they move up the school.

### **Teaching and Learning**

Teaching and Learning in Mathematics at Pheasey Park Farm aims to ensure that all pupils:

- become fluent in the fundamentals of Mathematics, including through 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 a series of simpler steps and persevering in seeking solutions.

The aims stated above will be achieved by:

- Promoting enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- Promoting confidence and competence with numbers and the number system;
- Developing the range of mental calculations skills the children have and encouraging their use in a range of settings;
- Developing the ability to solve problems through decision-making and reasoning in a range of contexts;
- Allowing children to discuss and present their work using rich mathematical language, diagrams and charts;
- Exploring the features of shape and space and developing measuring in a range of real-life contexts;
- Understanding and respecting the importance of mathematics in everyday life.

### **Assessment**

Assessment is an integral part of teaching and learning and based upon teachers' judgements of pupil attainment and progress. It is continuous and informs future planning. Assessment in Mathematics takes place in several forms; Short-term assessments are used to help adjust daily plans. These short-term assessments are closely matched to the teaching objectives. Teachers make dynamic teaching assessments throughout a lesson that may result in them adjusting the pre-planned lesson. This ensures that teachers are moving children forward at a suitable pace for them and, if necessary, repeating teaching areas to ensure children have a deep and contextualised understanding of the learning taking place.

Medium-term assessments are used to measure progress against the key objectives, and to help to plan the next unit of work. Teachers use a Maths Tracker to ensure they have full coverage of the curriculum.

Summative assessments are conducted termly to enable teachers to gather data evidence. This is used to map progress and identify individuals who require additional support in the subject. Pupil Progress Meetings are also undertaken during this time. This is an opportunity for each class teacher to meet with a member of the Senior Leadership Team in order to identify pupils who are making progress or who may require additional support in order to attain and make progress. National tests for children in Year 2 and Year 6 are carried out in summer term.

Long-term assessments are made towards the end of the school year, and are used to assess progress against school and national targets. Targets for the next school year are set and a summary of each child's progress is made before discussing it with parents. Information is passed on to the next teacher at the end of the year so that new Maths class teachers can plan for the new school year.

### **Special Educational Needs**

When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors - classroom organisation, teaching materials, teaching style, differentiation - so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the age related expectations allows us to consider how secure each child's attainment and progress is. This ensures that our teaching is matched to the child's needs.

Intervention through Education Health Care Plans can lead to reasonable adjustments to the curriculum for the pupils with special educational needs. The plan may include, as appropriate, specific targets relating to Mathematics.

Individual children may be identified to attend an additional mathematical intervention group in addition to their daily Mathematics lesson. This ensures that our teaching is matched to the child's needs and that all children are able to make progress at a suitable rate for them.

### **Academically More Able**

At Pheasey Park Farm Primary School, we adopt a mastery approach to the teaching and learning of Mathematics. Staff cater for those children who are academically more able learners in Mathematics through differentiated short-term planning.

Academically more able pupils are challenged through being offered at an accelerated rate, rich and sophisticated problems, as well as reasoning and justification tasks.

### **Cross-Curricular Links**

Mathematics is a subject that touches on many other areas taught at Pheasey Park Farm Primary School, including Science, Geography, History and ICT.

These cross curricular links are important because ...



- They help the curriculum to become a 'whole learning experience' with continuity rather than a series of separated lessons on different subjects.
- They can improve teaching by getting both teachers and pupils to work together for common goals.
- They add fun and novelty to lessons, encouraging wider thinking, participation and enthusiasm.
- They promote subjects with 'reality', setting topics into a relevant context for pupils and remove the isolated learning so often associated with single subject teaching.
- It gives opportunities to practise and apply skills using technology in order to locate and present information efficiently and appropriately.

### **Roles and Responsibilities**

At Pheasey Park Farm Primary School, there is a named co-ordinator responsible for co-ordinating the teaching of Mathematics throughout the school.

Their role is to:

- Provide support, advice and resources to members of staff.
- Monitor the teaching of Mathematics and outcomes for all children, revising policies and supporting staff with planning of Mathematics where necessary.
- Monitor the teaching of Mathematics across the school, highlighting the continuity and progression of the areas taught across the school.
- Attend relevant training and support staff through relevant INSET sessions.
- Monitor the use and needs of resources throughout the school.

### **Inclusion**

All children are presented with the opportunity to experience success, regardless of race, ethnicity, gender, ability or disability. Pupils are expected to produce work to the best of their ability and learning opportunities are tailored to match the needs of all pupils.

Teachers set high expectations for all pupils, using assessment information to plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEND
- Pupils with English as an additional language (EAL)

### **Health and Safety**

Staff at Pheasey Park Farm Primary School work in accordance with Health and Safety Guidelines; more information can be found in the Health and Safety Policy.

Health and safety has been considered for all subjects and risk assessments can be found in the Health and Safety folder on SharePoint.

With any practical activity there can be an element of risk. To minimise this:

- Children should be taught to manage their environment to ensure the health and safety of themselves and others
- Materials/equipment should be stored in a safe and appropriate area of the classroom.
- All children must be taught how to use materials and tools correctly and safely
- Children should be taught to recognise and consider hazards and risks and to take action to control these risks, having followed simple instructions
- Children should be strictly supervised in their use of equipment at all times.
- Teachers should make sure children are aware of the need to maintain tools carefully and to return them to the correct location.
- Any cutting tools should only be used under adult supervision.
- Glass containers should not be used for water to prevent any unnecessary hazards.
- If any spillages occur they must be cleared immediately to prevent the possibility of children slipping.
- Any new materials to be used should be checked by the class teacher prior to use within the classroom.

### **Equal Opportunities**

In accordance with the Equal Opportunities Policy, all pupils regardless of race, ethnicity, gender, ability or disability, will have access to the National Curriculum for Mathematics as set out in the Framework for teaching.

### **Monitoring and Review**

All teaching staff are involved in the planning and teaching of Mathematics.

Monitoring will be carried out by the Head Teacher, Senior Leadership Team and the Subject Leader in the following ways:

- Informal discussion with staff and pupils.
- Collection/monitoring of Mathematics planning.
- Monitoring of work through book trawls.
- Classroom observations.

Policy for: Mathematics

Completed by: Mrs C. Fereday

Date: November 2022