

Pheasey Park Farm Primary School

Mathematics Policy

Philosophy

Mathematics at Pheasey Park Farm Primary School is essential in teaching children how to make sense of the world around them. Our structure aims to develop each child's ability to calculate, to reason and to solve problems fluently. Children develop an understanding and appreciation of relationships and pattern in both number and space in their everyday lives and the experience will contribute to the social, emotional, moral and educational development of each child. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

Teaching provides up to date use of technology as well as securing children's use of traditional methods when calculating. Pheasey Park Farm Primary School places emphasis on mechanical accuracy of calculations and enjoyment of the subject as well as the development of using and applying skills to solve problems in all areas of the curriculum.

Rationale

The aims and values of Pheasey Park Farm Primary School follow the broad aims embedded in the mathematics programmes of study (September 2013) namely that pupils develop mathematical fluency and are able to reason mathematically in order to problem-solve by making connections across mathematical ideas and applying knowledge in other subject areas.

National curriculum in England framework document
(September 2013):

2.2 The school curriculum comprises all learning and other experiences that each school plans for its pupils. The national curriculum forms one part of the school curriculum.'

(National curriculum in England: framework for key stages 1 to 4)

Aims and Value

- ✓ To establish an entitlement for all children.
- ✓ To establish high standards and to raise standards for all groups of learners.
- ✓ To promote continuity, coherence and progression across year groups, phase groups, key stages and across the school.
- ✓ To raise mathematical understanding in children, parents and the governors of the school.
- ✓ Promote enjoyment and enthusiasm for learning through practical activities, exploration and discussion.
- ✓ Promote confidence and competence with numbers and the number system
- ✓ Children will develop fluency in a range of written and mental strategies.
- ✓ Develop the ability to reason and solve problems through decision-making in a range of contexts.
- ✓ Allow children to discuss and present their work using mathematical language, diagrams and charts.
- ✓ Understand the importance of mathematics in everyday life.

Basic Skills as Pheasey Park Farm Primary School

Basic skills is defined by the Basic Skill Agency as,

‘the ability to read, write and speak in English and use Mathematics at the level necessary to function and progress at work and in society in general’

At Pheasey Park Farm Primary School we believe that a whole school approach is the most effective way of improving standards in English and Maths for all children. It is the responsibility of all staff to teach and extend basic skills to ensure equality of opportunity is equal for all.

Basic skills at Pheasey Park Farm Primary School are taught through:

- ✓ The English National Curriculum and objectives
- ✓ The Maths National Curriculum and objectives
- ✓ The Early Learning Goals and Foundation Stage
- ✓ Cross Curriculum opportunities for literacy and maths work
- ✓ IPC

By having high expectations, setting challenging targets, regular analysis of data and strategic targeted support allocated every term for all children. This ensures that each child is supported in achieving their full potential in learning basic skills.

Additional Needs

Children identified as requiring additional support are taught in small target groups or 1:1 in line with whole school policy. SENCO or Pupil Premium Co-ordinator tracks and monitors these children setting them specific targets that may be linked to number work. Class teacher is aware that the responsibility of these children making progress is with themselves. Scaffolding is used to support these learners and teaching assistants receive training and guidance from SENCO to provide additional support. Mathematical intervention teaching is also available at Pheasey Park Primary School through Every Child Counts. The

Numbers Count programme provides 1:1 teaching for children who have significantly low levels of learning in mathematics. 1stClass@Number and Success@Arithmetic interventions are also used to support learners underperforming.

Academically More Able Mathematicians (AMA)

Any child identified as being ‘more able’ within mathematics is identified to the Academically More Able Co-ordinator. Regular meetings involving the child, coordinator, teacher and parents take place and specific targets are set to ensure the child has the opportunities provided to reach their full potential.

A teacher trained in secondary maths, works with specific AMA target groups in years 5 and 6 several times a week, to ensure secondary readiness and they are confident in accessing L6 material.

Monitoring and Measuring

In order to raise standards and improve previous performances, specific and measurable action points are contained within the Subject / School Development plan. It includes; timescales, cost, resources, monitoring, impact and evaluation procedures. This document is created and evaluated by the Maths Curriculum leader at least annually.

The school’s basic skills strategy is supported by the following:

- ✓ Schools overall aims and mission statement
- ✓ Curricular policies and schemes of work
- ✓ SDP
- ✓ SEN policy
- ✓ EAL policy
- ✓ Equal opportunities policy
- ✓ Assessment policy
- ✓ Teaching and Learning policy
- ✓ Academically Most Able policy and procedure

- ✓ Equality policy and procedure

General Aims and Purposes

Mathematics is a core subject within the National Curriculum and work in Mathematics follows the structure set out in The National Curriculum. The general aims of Mathematical teaching at Pheasey Park Farm Primary School are;

- ✓ To fulfil the requirements of the National Curriculum Programmes of Study.
- ✓ To promote positive attitudes, enjoyment and enthusiasm towards Mathematics.
- ✓ To use Mathematics to analyse and communicate information.
- ✓ To develop mathematical understanding through practical tasks, following a line of enquiry and using correct mathematical language.
- ✓ To apply mathematical skills and understanding to solve problems.
- ✓ To ensure a progressive development of mathematical concepts, knowledge, skills and attitudes.
- ✓ To provide a balanced range of mathematical activities as an integral part of the whole school curriculum.
- ✓ To encourage children to ask questions about the Maths they are learning and other mathematical concepts.
- ✓ To develop children's factual knowledge of Mathematics.
- ✓ To provide opportunities to acquire, practise and develop basic mathematical skills, concepts, attitudes and knowledge appropriate to the development of the child.
- ✓ To provide opportunities to work in a variety of ways, including class, group and individual, depending on the task.
- ✓ To develop in children the ability to perform basic operations and apply them in a variety of situations.

- ✓ To give children access to practical tasks which will enable them to develop mathematical language and understanding.
- ✓ To ensure all children become fluent in the fundamentals of mathematics.
- ✓ To ensure that all children have the opportunity to reason mathematically.

Inclusion

Through assessment and planning all Staff will aim;

- ✓ To provide breadth and balance of mathematical activities for all children.
- ✓ To provide a differentiated Mathematics curriculum to meet the needs of all the children through the continuity of experiences.
- ✓ To set suitable learning challenges for individuals or small groups of children.
- ✓ To respond to pupils diverse learning needs.
- ✓ To liaise with the Special Needs Co-ordinator to ensure that provision is made for all children with S.E.N.
- ✓ To liaise with the Academically More Able Co-ordinator to ensure that provision is made for all children who are AMA.

Teaching and learning approaches

Pupils will be involved in their learning and made aware of the purpose of a particular piece of work. The school views conceptual understanding as a basis for the development of skills. Opportunities are provided for;

- ✓ Teacher led input
- ✓ Questioning – teacher and child
- ✓ Child led input

- ✓ Peer and small group discussion
- ✓ Discussion in a whole group situation
- ✓ Practical work
- ✓ Mental work
- ✓ Recording in a variety of ways
- ✓ Investigational work
- ✓ Problem solving
- ✓ Consolidation and practice of fundamental skills and routines

Organisation and Management

Foundation Stage

Children will be provided with opportunities to practise and improve their skills in counting numbers, calculating simple addition and subtraction problems and describe shape, space and measures. Children will be encouraged to use the correct mathematical language and work practically to solve mathematical problems. Numicon structured equipment will be implemented across the Foundation Stage phase to support children's mathematical understanding and help make maths less abstract.

KS1

The principle focus of mathematics in Key Stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This will involve working in the areas of number, place value, fractions, measures, geometry and the four operations, including the use of practical objects and concrete resources to aid learning. Year 1 and 2 SEN and Pupil Premium children will be supported through the Numicon resource to bring structure into an abstract subject.

KS2

The main focus of mathematics in Key Stage 2 is to ensure pupils become increasingly fluent with whole numbers and fractions whilst developing a greater sense of decimals and the

four operations. Children will develop an increased efficiency in their method choice for written and mental calculation operations. Geometry and statistics will also form part of their development. Mathematical learning will become more abstract but concrete experiences and practical resource may still be used to support the learning process. Children should be confident and skilled to solve mathematical problems, showing methodical working and accurate findings.

Upper-KS2

The main focus in the teaching of mathematics in Upper-Key Stage 2 is to ensure that children extend their understanding of the number system and place value to include much larger integers. Connection should be made different mathematical areas – multiplication / division, fractions / decimals / percentage. Vocabulary should be more sophisticated and complex and written methods for all operations should be the most efficient and fluent in application. Geometry, statistics, ratio and algebra will be incorporated to ensure each child accesses a wide range of maths across the primary phase.

Planning is completed in Year Groups and is led by the Year Leader. Children are grouped in ability groups throughout the school as follows;

Reception	Whole class lessons with ability group work taking place Autumn term. Setting across the year group in Spring and Summer terms.
Key Stages One/Two	Setting across the year groups into four ability groups with differentiated work taking place within those groups

All Year Groups take part in a daily one hour Maths lesson and Year 1-6 an additional Mathematics Booster session to consolidate key skills and reinforce areas identified in lessons.

Level 5/6 sessions are available for AMA children in Year 5 and Year 6.

Intervention lessons are undertaken by those children identified through monitoring.

Parental Involvement

The school encourages Parents to be involved in their child's mathematical development. Mathematical workshops have been introduced to support Parents curriculum understanding and to gain confidence when supporting children in their learning. Parents are encouraged to support children both at home and at school.

Maths Activity Booklets are provided for each and every parent. The booklets are differentiated across the school from Nursery – Year 6. Each child will have a different activity booklet each term. Parents will find them useful to extend their child's mathematical development at home in real life scenarios – aiming to make maths more purposeful for the child.

Use of I.C.T. within Mathematics

The use of I.C.T. within each subject holds great emphasis. Mathematics has always linked to I.C.T. well and will continue to do so in all areas especially when teaching statistics. Staff will be expected to use their judgement about when I.C.T. tools should be used in order to enhance the learning taking place in many Mathematics lessons. Weekly planning will identify the intention that teaching staff will have to use I.C.T in their weekly Mathematics plan. Many of the children's wider I.C.T. experiences across the curriculum will also have cross-curricular links to Mathematics. I.C.T and Mathematics are linked with statistics and control. The children may have to input and sort data and interpret results in a variety of ways. Robots need to be controlled by numerical data.

Calculators are not to be used as a substitute for good written and mental arithmetic but they are excellent teaching resources for decimal and fraction work as well as checking working out.

Cross Curricular Links

Although mathematics is taught as a daily lesson throughout the school, it can be accessed through other areas of the curriculum. Mathematics is essential to everyday life and can be taught and developed through many subjects.

English

Children may be asked to interpret graphs, tables and charts in extended reading lessons. Words used specifically in the field of mathematics may lend themselves to another meaning, for example 'take-away' could hold different meanings for different children. Ambiguities such as these may be discussed in all aspects of the curriculum.

Science

Mathematics and Science are very closely linked with much work overlapping, particularly at KS2. The children will be expected to measure and record experiments on a variety of different topics. The children will also have to interpret graphs, tables and charts, which contain scientific data. The main emphasis here is on data handling and measurement.

Design Technology

Children will be expected to mark out and cut designs by measuring lines and angles.

Geography

The children may have to complete or interpret a chart or graph of geographical data. They will be expected to look at maps with varying scales and understand the relationship between the map and the actual distance. The children may also have to produce maps and plans, which may include measuring.

Art

Children will need to look for patterns and shape in a variety of art work, including their own. Famous artists also used ratio to produce paintings.

Music

Music involves the use of rhythm and beat. This can be linked to mathematics.

P.E.

Children may have to include turns in their dance activities and will need to know about quarter and half turns. Some games also involve scoring and the children will need to be aware of the scoring system and be confident with using numbers.

Resources

Resources for Mathematics are stored within the appropriate year base with some cross-phase resources in a central location. The Numbers Count room provides a varied abundance of resources that can be used across the school to support the teaching and learning process. 1stClass@Number materials are kept in the accredited teaching assistants teaching area. All teaching assistants have a scaffolding toolbox of resources that travel with them to assist the children who they work with either inside the whole group teaching or to support small group intervention.

The maths coordinator regularly audits the school's mathematical resources and equipment with the support of all Staff. The budget allocated to the subject of Maths supports the replacement and incorporation of exciting learning resources to enhance the children's mathematical learning experience.

Assessment, Recording and Reporting

Learning objectives are identified within all planning. Activities are planned to address the learning objectives from the Yearly Teaching Programmes within the National Numeracy Strategy, which are in line with the Programmes of Study and Attainment Targets in The National Curriculum. The assessment of a pupil's

progress is made against the learning objectives, with Reception also using The Foundation Stage Profile. This is done through the direct observation of a child's performance in written work, oral work and practical tasks. An ongoing record is maintained. Formal assessment takes place throughout the school in written, oral and practical form as appropriate. Mathematics is assessed in line with the school's Assessment Policy – with termly assessment weeks and half-termly teacher assessment weeks. This information is used to maintain National Curriculum Records and Pupil Progress Records for individual children. The ongoing assessment also aids individual targets for the children. Teachers create their own assessment tasks and activities that are identified in the Medium and Short term lesson plans. Rising Stars assessments, including mental tests, are used through the teaching of the different mathematical areas to support teacher's diagnostic assessment of the children and to support children in developing their using and applying skills.

Review

This policy will be reviewed annually.

Miss. S. Deville, Maths Co-ordinator, September 2014.