Edith Cavell Primary School

Mathematics Policy

Signed: G. Bishop Chair of Governors

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Mathematics Policy

Rationale

Mathematical skills are important in everyday life, they enable children to understand and appreciate relationships and patterns in both number and space in the world around them. This policy is intended to provide clear guidance for the delivery of Mathematics throughout the school. It will provide a consistent approach that will enable teachers to plan and assess their teaching of Mathematics as well as meeting their statutory obligations.

Our main aim at Edith Cavell is to engender a positive attitude towards Mathematics amongst all our pupils in order to foster self-confidence and a sense of achievement that will stay with them.

Aims

The knowledge, skills and understanding of Mathematics teaching is based on the National Curriculum (2014) and Statutory framework for the Early Years Foundation Stage (2014)

The National Curriculum for Mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of Mathematics 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.

In addition, at Edith Cavell we aim to:-

- provide a tailored Mathematics curriculum in which all children can gain success and satisfaction.
- use practical activities, a stimulating environment and an investigative approach to Mathematics to promote enjoyment and enthusiasm.
- promote confidence and competence with numbers and the number system
- develop skills of mental arithmetic in order to speed up calculations, check answers and foster an understanding of relationships in Mathematics.
- encourage children to be competent users of Mathematics' resources, especially the appropriate use of ICT.
- help children to understand the importance of Mathematics in all other curriculum areas and the wider environment.
- ensure children develop a mathematical vocabulary and understanding of Mathematical terms to be able to express themselves fluently.
- give children the opportunities to use and apply their skills throughout the school day and develop a positive attitude to life-long use of Mathematics.

Teaching and Learning

The National Curriculum requires that we provide a broad and balanced curriculum that meets the needs of all pupils and enables pupils to achieve their full educational potential and make progress in their learning.

In the Foundation stage, Mathematics forms the basis of one of the seven areas of learning as laid out in the requirements and recommendations set out in the Early Years 'Development Matters' EYFS document. All children are given ample opportunity to develop their understanding of Mathematics.

At Edith Cavell we adopt a positive approach to Mathematics and recognise the importance of motivating the children through the teacher's attitudes, the challenges the children are given and the recognition of their efforts and achievements.

Each class teacher is responsible for the Mathematics in their own class in consultation with, and guidance from, the Mathematics Co-ordinator.

A Mathematics lesson should be taught daily but time allocation is flexible depending on a series of lessons and year group.

In all classes children have a wide range of Mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child.

We achieve this through a range of strategies: –

- Whole class discussions including mental/oral teaching and daily counting
- Group and paired work. (Grouping is done according to ability to allow groups to be given different tasks when appropriate. Paired work is sometimes done according to ability but also using Talking Partners).
- Individual work
- Guided Mathematics groups to ensure that the teacher spends time with each child
- Problem Solving and reasoning tasks built into the lesson.
- Mental Challenges
- Open Ended activities/ investigations
- Plenaries and mini plenaries (reviewing the progress and ensuring all children are on task).
- Differentiated groups where appropriate.
- The use of Mathematic focused tutor sessions where appropriate.

We use teaching assistants to support children, and to ensure that work is matched to the needs of individuals.

The children have the opportunity to use a wide range of resources to develop their learning. Information & Communication Technology (ICT) is commonly used throughout the school in Mathematics lessons with each classroom having an Interactive Whiteboard.

We encourage our children to apply their learning to everyday situations. Wherever possible, Mathematics is applied in other subject areas to ensure children are applying their knowledge and

skills in a cross curricular way. For example, measuring and recording in Technology, Science and Geography; patterns in Art, Music and Dance; time and dates in History.

Teachers take advantage of all opportunities in order to link Mathematics to other areas of learning and existing knowledge and understanding.

Equal Opportunities and Inclusion

All children have an entitlement to participate fully in Mathematics, regardless of gender, race, age or ability, in accordance with the school's Equality Plan.

Teaching and learning is monitored to ensure that no group of pupils is disadvantaged. The full participation of all children –

- both girls and boys
- different ethnicity/ faith groups
- those with English as an Additional Language
- those with Special Educational Needs (SEND)
- More Able children
- Children Looked After (CLA)
- and any child disaffected in their learning, is encouraged in all Mathematics lessons.

The Mathematics Co-ordinator will monitor attainment and achievement of these pupils.

Children with additional needs are taught within the class lesson and are encouraged to take part at every opportunity. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to enable a child to learn more effectively. Assessment takes place half-termly against the National Curriculum and allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs. Assessment data is recorded centrally on the Insight system. Teachers may also assess their class at the end of a topic of learning to monitor their understanding and plan activities to help close any gaps made apparent by the testing.

Where applicable, additional and time-limited interventions (normally on a 6 weekly assess and review cycle) will be provided for some pupils who need help to accelerate their progress to enable them to work at or above age-related expectations. Children with very specific needs hindering their progress in Mathematics will have specific targets and be provided with highly tailored interventions such as 1:1. These targets are reviewed on a termly basis by the class teacher and key members of staff.

We recognise the importance of setting high standards for more able children and ensure the appropriate level of challenge within Mathematics lessons. Mathematics lessons include extension activities for those more able pupils. Targets and progress of more-able children is monitored by the class teacher, Head Teacher, Mathematics Co-ordinator and Inclusion Lead.

Planning

In each year group Mathematics is taught by the class teacher. Lessons are structured following the appropriate curriculum and are differentiated to meet the needs of the children.

We carry out the curriculum planning in three phases – long term, medium term and short term.

Long Term Planning. Key Stage 1 and 2 use the programmes of study for Mathematics as laid out in the National Curriculum as a basis for implementing the statutory requirements. The Foundation Stage planning is based on the Curriculum for the EYFS, which encompasses ages and stages of development.

Medium Term Planning shows the area of focus that will be covered during the term. Class teachers follow medium term plans from White Rose which consist simply of objectives that they need to plan to teach during the term and based on their understanding of what children need to learn next.

Short Term Planning Teachers are responsible for planning Maths lessons and tasks for their own class. In some cases, these are the same as the classes for their other lessons, in other cases (particularly KS2) classes are streamed by ability to ensure that children are able to make appropriate progress.
Short term Maths plans are completed on teaching slides that follow a prescribed order. This is to ensure that there is parity in our offer across the school from reception to Year 6. Planning slides should include;

- Starter – This can be used to practice skills already taught, practice counting exercises (particularly times tables) or to pre-learn certain skills or topics.
- Learning Journey – This is a visualization tool that shows children the skills they will be focusing on throughout the week. It allows them to understand how skills build upon each other.
- Learning Objectives – LO are shared, and discussed, with learners so they are able to see what they need to do to have success in the lesson.
- New Learning – Teachers use the White Rose scheme of learning to introduce new topics and skills to pupils. They also have access to a wide range of resources to help them teach new topics. Reasoning and problem-solving tasks should also be covered in this part of the lesson.
- Independent Task -Teachers are responsible for giving children appropriate independent tasks for their class to complete. These should be accessible by all members of the class and also build upon the skills taught to ensure that appropriate challenge is presented to all learners. Reasoning and problem-solving questions could also be included here.
- Plenary – This can be a group, pair or independent task that allows children to practice the skills introduced in the lesson. This should be an assessment point for teachers to determine if the key skills/small steps of the lesson have been met by all learners.

Slides should be shared with TA's/other adults to ensure they are aware of the learning outcomes of the lesson. These plans should also be shared on the shared drive in a timely manner so they can be reviewed by subject co-ordinator or SLT.

To assist in planning and teaching, the school has invested in Classroom Secrets, Teach Active and Primary Maths Stars for EYFS, KS1 and KS2. However, teachers should use resources and teaching styles which best fit the success criteria and children – these might come from the published scheme but might come from elsewhere.

Foundation Stage

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the Early Years 'Development Matters' EYFS document. All children are given ample opportunity to develop their understanding of Mathematics. Lessons in the Early Years aim to do this through varied activities that allow children to use, enjoy, explore, practise and talk confidently about Mathematics. This involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating, simple addition and subtraction problems; and to describe patterns, shapes, spaces and measures. This is done through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.

Children will become very competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding.

The children will have rich opportunities to develop their spatial reasoning skills, including shape and space through exploring the characteristics of everyday objects and shapes and use mathematical language to describe them.

We firmly believe in allowing children 'to have a go' and talk about what they are exploring mathematically so that they develop positive attitudes to mathematics and are not afraid to try out theories or make mistakes.

Key Stage 1 and 2

The Programmes of study for Mathematics are set out year by year for Key Stages 1 and 2 in the National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains.
Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key Stage 1

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 (e.g. concrete objects and measuring tools).

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 correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Lower Key Stage 2

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 tables and show precision and fluency in their work. Year 4 pupils will use this knowledge when completing the Multiplication Tables Check.

Pupils should read and spell Mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

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.

Calculation

Our school has adopted the White Rose Hub's calculation documents, who are leaders in the field of Mastery in Mathematics. We adapted the policy to match with our school's approach.

This policy shows individual methods for stages of progression that build to a compact, efficient method (standard method) for all four operations. This forms the basis for the use of calculation within our school. The calculation policy is available on the school website.

Resources

Resources such as dienes, number lines, digit cards, bead strings, dice, counters etc are available in every classroom. Other resources, such as weighing scales, 3D shapes, measuring cylinders and containers are kept in a central resource area.

ICT resources are installed on the school computers for all children to access.

All teachers are responsible for the care of Mathematics resources which are overseen and audited by the Mathematics Co-ordinator.

Display

In the classrooms there are, either on display or easily accessible to children, level appropriate resources, particularly concrete and pictorial apparatus to support children to grasp concepts.

Mathematical vocabulary is displayed so that children use this in the communication of their understanding.

Mathematics work will be on display in classrooms and in other areas of the school in order to encourage a positive attitude and enthusiasm towards Mathematics for all groups of children.

These displays are changed regularly to ensure that the information on them is relevant to what is being taught in the classrooms. Teachers may also use these boards as a resource for pre-teaching certain vocabulary or concepts.

Mathematics boards also have a *build it, draw it, say it, write it* section. This enables children to see concepts move through the CPA approach. This part of the board may also be completed by the children during their Mathematics lessons, so they are able to take ownership over their work.

A “Vision for Mathematics” is also displayed in classrooms. This short document, written in child accessible language, gives children a shared understanding of the importance of Mathematics.

Assessment

Assessment is an integral part of teaching and learning and is a continuous process in order to carefully monitor the progress of each pupil. It is the responsibility of the class teacher to regularly assess all the pupils in their class. This is mainly achieved through mini-plenaries, questioning, marking, T.A. feedback and pupil assessment.

We are committed to ensuring that all pupils achieve mastery in the key concepts of Mathematics. These should be appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for learning, an emphasis on investigation, problem solving and the development of Mathematical thinking and a rigorous approach to the development of teacher subject knowledge are therefore essential components of the Edith Cavell approach to this subject.

Assessment for learning should occur throughout the entire Mathematics lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs. This feedback should be incisive and regular.

Pupil's work is to be marked in line with the Marking Policy and should model how corrections should be made, giving children a chance to learn from their misconceptions or incorrect methods.

The assessment of pupil's progress is updated every half term by the class teacher in order to provide further understanding of the level a child is working at and to inform a more rounded judgement of their abilities. The data which is recorded centrally on the Insight system is used in order that children who are not making good progress over time can be targeted for support in one form or another. The type of support and intensity of that support depends upon the child's needs - it may be a simple strategy within the whole class teaching that is needed. Where further support is deemed necessary, children may need to access specific interventions.

Pupil progress meetings are held between the head teacher and class teacher to discuss the progress made by each child. The data also allows the Mathematics Co- ordinator, Inclusion Lead and SLT to oversee the progress of children.

Statutory Assessment

EYFS profile assessments must be completed for all children in the final year of the EYFS who will be five years old. We provide parents with a written report of the child's progress against the EYFS ELGs and the opportunity for discussion.

Although no longer statutory, Year 2 pupils carry out SATs to help teachers assess their understanding.

Year 4 Multiplication Tables Check is carried out annually.

Year 6 SAT's are carried out annually.

The profile assessments and SATs must comply with national data submission requirements and be reported to parents at the end of the summer term.

Target Setting

All pupils are set aspirational targets in Mathematics. Targets are set based on test results and teacher's assessments.

Parents are informed of their child's progress in Mathematics during parent's evenings; and an annual report at the end of the school year.

These include details of their children's progress and areas for development.

Homework – This follows the school policy on Home Learning.

Parental Involvement

We recognise that parents make a significant difference to children's progress in Mathematics and encourage this partnership. We value this support and keep parents up to date on any developments in this area. We actively encourage parents to help their children in learning Mathematical facts and skills, through formal and informal meetings.

The Calculation Policy is available on the school website, together with links to support homework and mathematical development, in the children's learning zone.

During the year we organise Mathematics workshops and curriculum evenings, to which parents are invited.

Children are given the opportunities to share their Mathematics learning with parents during informal open afternoon events.

Subject Co-ordinator

The coordination of the Mathematics curriculum is the responsibility of the subject leader, who also:

- supports colleagues in their teaching, by keeping them informed about current developments and by providing a strategic lead and direction for Mathematics;
- advises on in-service training – in line with School Development Plan, identifies INSET needs, plans and delivers INSET
- advises and supports colleagues in the implementing and assessment of Mathematics throughout the school
- evaluates the strengths and weaknesses in Mathematics and indicates areas for further improvement;
- uses specially allocated regular management time to review evidence of the children's work, and to observe Mathematics lessons across the school.

In order to monitor standards and progress, the following systems are in place:

- At Pupil Progress meetings six times a year the class teacher, Head teacher and or Phase Leader monitor and evaluate the progress of children in Mathematics.
- The Mathematics Subject Leader is given time to observe lessons and give oral and written feedback, to monitor planning and also to see children's work.
- Staff meet regularly to engage in whole school moderation.
- The progress of pupils with SEND, EAL and G&T is reviewed with the Inclusion Lead each half term.

- Observations through learning walks are carried out by the Head teacher/Mathematics Co-ordinator at least twice annually.
- A named member of the school's governing body is briefed to oversee the teaching of Mathematics. The Mathematics governor meets regularly with the subject leader to review progress and learning walks are carried out.

Review

The Maths Subject Leader and staff will review this policy every three years. The next review will be May 2028