

Mathematics Policy

Documents to accompany this policy:	420[O] Teaching & Learning Policy
Member of staff responsible:	Mrs Pengelly/Mrs Moore
Governor delegation:	Headteacher
Statutory/Non-Statutory	Non-Statutory
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1. Statement of intent

At Coley Primary School we recognise that mathematics is a vital and necessary life skill. Teaching in primary school must ensure that children develop firm foundations in mathematics to support their future understanding and independent application of these skills in their secondary education and everyday life. It is vital that a positive attitude towards mathematics and a strong understanding of its importance is fostered amongst all of our pupils in order to develop their confidence and help maximise their achievement so that they are successful in their learning and have the mathematical skills to manage their daily adult lives.

At Coley Primary mathematics is planned from National Curriculum for Mathematics (2014) and does not follow a particular mathematical scheme. We are committed to ensuring that all pupils achieve mastery in the key concepts of mathematics, 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, a clear progression through written and mental calculation strategies, approaching learning moving through the process Concrete – Pictorial – Abstract, a clear whole school approach to investigation and problem solving, and development of teacher subject knowledge are therefore essential components of the Coley approach to this subject.

Through the teaching of maths, we aim to develop:

- A positive attitude towards maths and an awareness of the importance and need for maths skills in daily life.
- An ability to solve problems and think logically in order to work systematically and accurately.
- An understanding of how mathematics is applicable and useful in other subjects.
- An ability to work both independently and in cooperation with others.
- Competence and confidence in maths knowledge, concepts and skills.
- An appreciation of the creative aspects of maths and an awareness of its aesthetic appeal.

2. Legal framework

This policy has due regard to statutory guidance including, but not limited to, the following:

- DfE (2014) 'National curriculum in England: Mathematics programmes of study'
- DfE (2017) 'Statutory framework for the early years foundation stage'

3. Roles and responsibilities

The **subject leader** is responsible for:

- Preparing and reviewing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of maths in conjunction with SLT.
- Ensuring the continuity and progression from year group to year group.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out an **annual** audit of all maths-related resources.
- Liaising with SLT and teachers across all phases.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Advising on the contribution of maths to other curriculum areas, including cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for the development of maths in subsequent years in conjunction with SLT.

The **classroom teacher** is responsible for:

- Implementing maths policies in their daily planning and practise.
- Ensuring progression of pupils' mathematical skills, with due regard to the national curriculum.
- Planning lessons effectively, ensuring a range of teaching methods are used to cover the content of the national curriculum.
- Liaising with the subject leader and SENCO about key topics, resources and support for individual pupils.
- Monitoring the progress of pupils in their class and reporting this on a termly basis with SLT and informing parents of progress at parents evenings.
- Reporting any concerns regarding the teaching of the subject to the subject leader or a member of the SLT.
- Undertaking any training that is necessary in order to effectively teach the subject.

The **special educational needs coordinator (SENCO)** is responsible for:

- Liaising with the subject leader in order to implement and develop maths throughout the school.
- Organising and providing training for staff regarding the maths curriculum for pupils with special educational needs and disabilities (SEND).
- Advising staff how best to support pupils' needs.
- Advising staff on the inclusion of mathematical objectives in pupils' individual education plans.

4. Early years provision

Activities and experiences for pupils will be based on the seven areas of learning and development, as outlined in the DfE's 'Statutory framework for the early years foundation stage'.

Provision for early years pupils focusses on four specific areas:

- Literacy
- Maths
- Understanding the world
- Expressive arts and design

A wide variety of activities, both child initiated and adult led, will provide pupils with the opportunity to develop their mathematical skills in counting, understanding and using numbers, using addition and subtraction within 20, describing shapes, spaces and measurements and develop their mathematical language and vocabulary following the early years curriculum.

5. The National Curriculum

The National Curriculum documents are followed and each provides a full breakdown of the statutory content to be taught within each Key Stage and year group.
DfE (2014) 'National curriculum in England: Mathematics programmes of study'

6. Cross-curricular links

Wherever possible, the maths curriculum will provide opportunities to establish links with other curriculum areas.

English

- Mathematical terminology is used, where appropriate and explicit explanations are given of common words used in a mathematical context.
- Maths-based texts are sometimes used in English lessons and in guided reading sessions.

Science

- Pupils' data collection and analysis skills are further developed through the conduction of physical experiments, using units of measurement, calculating averages and interpreting results.
- Pupils record their finding using charts, tables and graphs.
- Pupils are given data and information to interpret to research different subjects.

Humanities

- Data analysis, pattern seeking and problem-solving skills are developed through the teaching of geography.
- Pupils' understanding of time and measurements of time are developed through discussions of historical events.

Art and Design

- Apply skills of systematic in creating and following sets of instructions.
- Looking for, creating and using patterns to explore and create art work.
- Use of measuring skills to produce accurate models.

ICT

- Pupils are encouraged to use calculators and other electronic devices, gaining confidence throughout their school experience.
- ICT will be used to enhance pupils' maths skills through the use of online resources and the creation of spreadsheets.
- ICT will be used to record findings, using text, data and tables.
- Application of logic and reasoning skills developing understanding of coding.

PE

- Apply knowledge of sequences in dance and gymnastics.
- Use of patterning and counting applied in dance lessons.
- Recording times in PE lessons for circuits or races.
- Keeping score in simple games.

7. Teaching and learning

Pupils will be taught to describe key characteristics and associated processes in common language, as well as understand and use technical terminology and specialist vocabulary.

Pupils will undertake independent work, and have the opportunity to work in groups and discuss work with fellow classmates.

Lessons will allow for a wide range of mathematical, enquiry-based research activities, including the following:

- Questioning, predicting and interpreting
- Pattern seeking
- Collaborative work
- Problem-solving activities
- Classifying and grouping

Lessons will involve the use of a variety of sources, including data, statistics, graphs and charts.

The **classroom teacher**, in collaboration with the **subject leader**, will ensure that the needs of all pupils are met by:

- Setting tasks which can have a variety of responses.
- Ensuring that all abilities/group of children are supported in guided activity by the class teacher over the week.
- Providing resources of differing complexity, according to the ability of the pupils.
- Using planning to consider how to support children with Concrete – Pictorial – Abstract. Planning for new learning and revision to follow this method to support mastery and consolidate learning before using abstract skills.
- Setting tasks of varying difficulty, depending on the ability group.
- Planning for teaching assistants so that pupils are effectively supported and children of all abilities have guided activities with assistants over the week.

- Making use of Bloom's Taxonomy to support wide variety of questioning so that mastery in supported in deepening the childrens' thinking skills through higher level thinking and not just simple closed questions.

A maths mastery approach is taken to the curriculum, in which fluency comes from deep knowledge and practice. This means that structured questioning is used to ensure that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts. We make use of bar models throughout the school starting the concept with our youngest children and using them into Year 6.

Teachers are referred to a separate document of how to use and present bar models.

Focus is put on the development of deep structural knowledge and the ability to make connections, with the aim of ensuring that what is learnt is sustained over time.

At **Coley primary School**, we do not prioritise between technical proficiency and conceptual understanding, and we aim to develop these in parallel.

To ensure progression in calculation and written calculation teachers are referred to the Whole School Calculation policy as a separate document.

8. Planning

All relevant staff members are briefed on the school's planning procedures as part of their staff training.

Throughout **Coley Primary School** maths is taught as a discrete lesson and as part of cross-curricular themes when appropriate.

Teachers will use the key learning content in the DfE's statutory guidance 'National curriculum in England: mathematics programmes of study', published in 2014.

Lesson plans will demonstrate a balance of interactive and independent elements used in teaching, ensuring that all pupils engage with their learning.

There will be a clear focus on direct, instructional teaching and interactive oral work with the whole class and targeted groups.

Teachers will ensure that all maths lessons include a focus on mental calculation.

Long-term planning will be used to outline the units to be taught within each year group.

Medium-term planning will be used to outline the vocabulary and skills that will be taught in each unit of work, as well as highlight the opportunities for assessment.

Medium-term plans will identify learning objectives, main learning activities and differentiation.

Medium-term plans will be shared with the **subject leader** to ensure there is progression between years.

Short-term planning will be used flexibly to reflect the objectives of the lesson, the success criteria and the aims of the next lesson.

Short-term planning is the responsibility of the teacher. This is achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.

All lessons will have clear learning objectives, which are shared and reviewed with pupils.

Homework will be set on a **weekly** basis and will build on that week's lesson objectives.

Homework will take a variety of formats, including mental maths tasks, games, data analysis activities and written tasks.

9. Assessment and reporting

Pupils will be assessed and their progression recorded in line with the school's **Primary Assessment Policy**.

Pupils aged between two and three will be assessed in accordance with the 'Statutory framework for the early years foundation stage', in order to identify a pupil's strengths and identify areas where progress is less than expected.

An EYFS Profile will be completed for each pupil in the final term of the year in which they reach age five.

The progress and development of pupils within the EYFS is assessed against the early learning goals outlined in the 'Statutory framework for the early years foundation stage'.

Throughout the year, teachers will plan on-going creative assessment opportunities in order to gauge whether pupils have achieved the key learning objectives.

Assessment will be undertaken in various forms, including the following:

- Talking to pupils and asking questions
- Discussing pupils' work with them
- Marking work against the learning objectives
- Pupils' self-evaluation of their work
- Classroom tests and formal exams

Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and inform their immediate lesson planning.

In terms of summative assessments, the results of end-of-year assessments will be passed to relevant members of staff, such as the pupil's future teacher, in order to demonstrate where pupils are at a given point in time.

Standardised tests will be used once a year, towards the end of the academic year, to measure each pupil's attainment in all areas of maths. These results will be compared with an 'average' for all pupils of that age.

Parents will be provided with a written report about their child's progress during the **Summer** term every year. These will include information on the pupil's attitude towards maths, understanding of mathematical terminology, investigatory skills and the knowledge levels they have achieved.

Verbal reports will be provided at parent-teacher interviews during the **Autumn** and **Spring** terms.

The progress of pupils with SEND will be monitored by the **SENCO**.

10. Resources

The **subject leader** is responsible for the management and maintenance of maths resources, as well as for liaising with the **school business manager** in order to purchase further resources.

Maths resources will be stored in **each classroom**, including a range of practical equipment appropriate to the age of the children.

Resources which are not required regularly, and those in relation to key whole-school topics, will be stored in the **department office**.

Display walls will be utilised and updated regularly, in accordance with the area of maths being taught at the time.

Maths equipment and resources will be easily accessible to pupils during lessons.

The **subject leader** will undertake an audit of maths equipment and resources on an **annual** basis.

11. Equal opportunities

All pupils will have equal access to the maths curriculum.

Gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all maths lessons.

Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.

All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.

Coley Primary School aims to provide more academically-able pupils with the opportunity to extend their mathematic thinking through extension activities such as problem solving, investigative work and research of a mathematic nature.

12. Monitoring and review

This policy will be reviewed on an **annual** basis by the **subject leader**.

The **subject leader** will monitor teaching and learning in the subject at **name of school**, ensuring that the content of the national curriculum is covered across all phases of pupils' education.

A named **member of the governing body** is briefed to oversee the teaching of numeracy, and meets regularly with the **subject leader** to review progress.

Any changes made to this policy will be communicated to all teaching staff.