

## Maths Policy

At Cayley Primary School, our mathematics curriculum follows the programme of Study and Aims of the National Curriculum. We believe that Mathematics equips pupils with a powerful set of skills to understand the world around them. These skills include logical reasoning, problem solving and ability to think in abstract ways. Mathematical teaching and learning from Foundation Stage (EYFS) to Year 6 is underpinned by a mastery approach and we follow a connected curriculum where Mathematics is purposeful and motivational. Every day, children participate in maths activities that promote fluency, reasoning, investigation and problem solving.

### 1. Our Intent

Our intent is that children are taught the essential mathematical skills that will allow them to develop positive attitudes towards the subject and an awareness of the relevance of mathematics in the real world. At Cayley we strive to provide children with a rich and balanced curriculum that develops their fluency, reasoning and problem solving – the key aims of our National Curriculum for Mathematics. In order to deliver this intent, we follow the aims and objectives below.

- To develop knowledge of the Mathematics contained within the programmes of study of the National Curriculum
- To develop pupils' enjoyment and interest in Mathematics and an appreciation of its contribution to all aspects of everyday life by providing a range of meaningful experiences
- To ensure pupils use discussion in order to learn; they should be able to elaborate and reason clearly their understanding and ideas.
- To ensure pupils acquire the language and vocabulary of mathematics
- To develop pupils' use of computing in their Maths lessons.
- To provide high quality Mathematics experiences outside the designated Maths lessons through a connected curriculum approach.
- To develop a knowledge and appreciation of the contribution made by famous Mathematicians to our
  - knowledge (e.g. Arthur Cayley) of the world including mathematicians from different cultures.

## 2. Inclusion

At Cayley Primary School, we aim to provide equal access to the Mathematics curriculum for all children. We recognise, respect and celebrate the diversity of experiences our children bring to school. We aim to reflect these in our classroom and to promote parental involvement to strengthen the links between home and school communities. We believe that all children can achieve, and we value and promote each child's achievements.

We give our children every opportunity to achieve their best by taking account of our children's range of life experiences when planning for their learning. The planning and organising of teaching strategies for each subject is consistently reviewed to ensure that needs of all pupils are taken into consideration. We regularly review our curriculum and the resources we use to ensure that our teaching reflects equality and respects diversity.

## 3. Implementation

**3.1 Teaching and Learning:** Teachers are expected to use a teaching for mastery approach. At Cayley this means that the whole class will work together in the same lessons, particularly those that introduce and explore a new concept. Teachers will use targeted questioning, working with the whole class, focusing on key representations, questions and misconceptions, aiming for all children to become secure in the concept.

In other lessons, it might be effective for the class to spend more time working in smaller groups or on independent practice; this will be based on the teacher's assessment, after the previous lesson. Teachers will, informed by their assessments, adjust lessons and activities so that they are pitched at appropriate levels of challenge and provide the right 'next step'. Best practice at Cayley is keeping the whole class working on the same concept, taking small steps to master this but also assessing progress and using 'flexible grouping': grouping that is informed by day to day marking and assessment of misconceptions.'

When appropriate, throughout the lesson, the children will be drawn together to learn from each other, share misconceptions and share learning, so they can progress as a class. Children with Special Educational Needs will be working to an individual plan and teachers will differentiate their work, ensuring they are included in the theme of the lesson.

In the EYFS, mastery approaches are being embedded in the range of activities and experiences within the 'enabling environment'. (See also *Lesson Structure* below.)

**3.2 Planning:** The core of our planning is taken from the National Curriculum for Mathematics and teachers use resources such as White Rose Maths to design their weekly lesson plans. White Rose

Maths from EYFS to Year 6 provides the yearly overview and Medium-Term planning. Teachers should write their own weekly planning using the EYFS proformas or the Y1-Y6 Notebook/PowerPoint template. For calculation, the calculation policy is closely linked with the White Rose Planning. (*see Calculation Policy*)

These documents set out key curriculum targets, teaching notes and suggested approaches for each year; they are kept in year group folders in our shared drive. We encourage teachers to personalise lesson plans to meet the needs of the children. Teachers plan in year group teams and the Maths leader makes regular time to support maths planning.

### **Lesson Structure**

In the EYFS, Mathematics is taught through an integrated approach – mathematical opportunities are everywhere! EYFS staff ensure that children learn through a mixture of adult-led activities and child-initiated activities, both inside and outside of the classroom. Children explore maths through the range of ‘workshops’ and experiences available – e.g. construction; water, sand and mud play; creative resources; use of stories and non-fiction sources. Adults work both responsively in ‘free-flow’ with the children, and devise focussed activities for individuals, and small and large groups.

All Y1-Y6 Mathematics lessons at Cayley Primary School follow the following structure:

- Starter Activity
- Recap
- Fluency
- Modelled teaching example
- Talk to Your Partner (TTYF)
- Develop learning for challenge and problem solving
- Learning Check

This sequence of lesson structure is included on the planning template for ease and consistency across the whole school when teaching mathematics. Whilst teachers can adapt and change the structure to suit their teaching, they are generally expected to include most aspects in every lesson. The tasks should be differentiated three ways (mild, medium, hot) in line with the current concept taught. Children are encouraged to choose their own challenge.

In addition to White Rose Maths, teachers also have access to the following:

- Collins Mathematical Textbooks
- Target your maths textbooks
- Maths No problem Textbooks
- NCTEM website
- Testbase Website
- NRich

Key questions considered as part of monitoring are:

- Is there evidence of plans being adapted for the class?
- Is it clear what the aims are for each week/lesson/unit of work?
- Are these plans live working documents informed by regular assessments?

### **3.3. Marking and Assessment:**

Each child's progress should be continually assessed and should inform day to day planning.

At Cayley this means:

- Observation whilst children are engaged in a task or targeted questioning;
- Intuitive on the spot comments made by the teacher to the child/group which extend/limit or change the direction of the given task;
- Discussions with the class or group, particularly during learning check;
- Termly formal assessment task;
- End of unit 'quizzes'
- Regular Times Table/Number bonds tests.
- End of term (Y2 to 6) tests. Class teachers mark the papers themselves in order analyse gaps in knowledge and to inform future planning. These scores are used to inform teacher assessment and tracker termly
- Termly data enables us to track progress and aids teachers and senior leaders to identify gaps, trends and children who need support in Pupil Progress Meetings (PPM).

All teachers are expected to follow the school's Marking Policy and mark and assess pupils' understanding and progress. All pupils should leave each lesson feeling successful and confident. Any misconceptions or concerns to be addressed immediately and where required, appropriate intervention and guidance should be provided to pupils.

Assessment should be regular and on-going. It should be used to inform future planning and to make the Teacher Assessment. Book monitoring will take place in year group phases at least once each term.

### **3.4 Resources & Learning environment:**

Each class should have a well-maintained stock of core resources (e.g., ten frames, number lines, dice, playing cards, fraction cards, Numicon, place value counters, 100 squares, etc...) kept in a defined area to use regularly. Pupils should be encouraged to access equipment independently, based on what they think will help them. Because of this, it may be appropriate to have key resources on all tables for a sequence of lessons; for example, place value counters during Year 3 lessons on columnar addition.

Each classroom should have key visuals displayed and referred to in lessons:

- EYFS and KS1 should have number lines, washing lines, number tracks, Numicon number lines and 100 squares. Multiplication squares and fraction walls are helpful in Year 2.
- KS2 classrooms should have 100 squares, multiplication squares and fraction walls clearly visible. In Years 4, 5 and 6, you should have place value charts showing tenths, hundredths and thousandths. Number lines showing negative numbers are a good idea too!

Larger resources, such as measuring equipment, are stored in the Maths resource room. Each class should have a wall space dedicated to maths – the working wall. It can include examples of calculation strategies, reasoning sentence stems, key vocabulary, times tables strategies, a times tables chart, examples of children’s investigations and reasoning, Mathematician of the Week and Number of the Day.

**3.53.5 Talking classroom:** A mastery classroom should never be a quiet classroom. The way pupils speak and write about mathematics transforms their learning. Mastery approaches use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary.

To encourage talk in mathematics, teachers may introduce concepts by including sentence structures (stem sentences). Pupils should be able to say not just what the answer is, but to explain how they know it’s right. This can come from explaining, celebrating and learning when something is wrong or a mistake. This is key to building mathematical language and reasoning skills. This gives pupils the confidence to communicate their ideas clearly, before writing them down. (*See example stem sentences and vocabulary*)

**3.6 Times Tables:** Times Tables must be taught in the classroom and then practiced every day at school and at home. For those who have secured multiplication facts, they should move on to division facts. Times Tables Rockstars is another great resource to teach times table in a fun and interactive way. We teach times tables using the following progression:

- Year 1: Be able to count in multiples of twos, fives and tens.
- Year 2: Be able to recall 2, 5 and 10 multiplication and division facts.
- Year 3: Be able to recall 3, 4 and 8 multiplication and division facts

Year 4: Be able to recall 6, 7, 9, 11 and 12 multiplication and division facts.

- Year 4 children sit the Multiplication Tables Check (MTC) test.
- Year 5/6: Application of multiplication and division facts to problem solving.

As part of our homework policy, pupils are expected to practise their times table at home regularly using teacher set activities and Times Table Rockstars.

#### **4. Management arrangements:**

Role of the Maths Subject Leader:

- To lead in the development of maths throughout the school.
- learning of mathematics throughout the school. To help raise standards in maths.
- To provide teachers with support in the teaching of mathematics.
- To provide staff with CPD opportunities in relation to maths within the confines of the budget and the School
- Development Plan
- To monitor and maintain high quality resources.
- To keep up to date with new developments in the area of mathematics

*Lead: Andrew Tattaris Date: Feb 2022 Review Feb 2023*