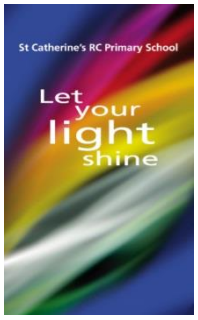

St Catherine's Mathematics Policy

'A high-quality mathematics education provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.' (DfES 2014)

Aims:

Our aims for maths at St Catherine's School are based on the 'The national curriculum in England mathematics programme of study, KS1 and KS2 framework' document which is to ensure that all pupils:

- become fluent in the fundamentals of mathematics
- reason mathematically .
- can solve problems

To achieve these aims, we strive to:

- Develop a numerate environment where mathematical risk-taking, creativity and logical thought are encouraged in order to develop independent learners.
- Secure fluency with numbers and the number system;
- Develop the ability to solve problems through decision-making, reasoning and logic in a range of contexts;
- Promote a positive and confident attitude to mathematics through celebrating achievement, supporting and challenging all pupils
- Develop mathematical communication through speaking and listening, practical activities and recording work.

Equal Opportunities

At St Catherine's we teach mathematics to all children whatever their ability. Maths forms part of the school curriculum policy to provide a broad and balanced education for all children. Teachers provide learning opportunities matched to the needs of children. Work in maths takes into account the targets set for individual children in their Support Plans. Teachers provide help with maths through:

- Adapting materials to suit the needs of the child.
- Using visual and written materials in different formats.
- Providing different materials to support children's understanding
- Using ICT, other technological aids and taped materials.
- Working in small groups led by teaching assistant/teacher.

Classroom presentation and organisation should reflect and support the achievement of all abilities. Staff should make careful decisions about groupings and pairings. Staff should have high expectations of all pupils. The attainment and progress of children with protected characteristics under the Equality Act (2010) are regularly reviewed. Additional support and intervention may be implemented to enable these children to achieve their full potential.

B.Tabone December 2018

TEACHING and LEARNING: Mathematics Mastery Approach

At the centre of the mastery approach to the teaching of mathematics is the belief that all children have the potential to succeed. They should have access to the same curriculum content and, rather than being extended with new learning, they should deepen their conceptual understanding by tackling challenging and varied problems. Similarly, with calculation strategies, children must not simply rote learn procedures but demonstrate their understanding of these procedures through the use of concrete materials and pictorial representations.

In the Foundation Stage, children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching sessions as well as a range of planned structured play situations, where there is plenty of scope for exploration. Children will become competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding. Counting forwards and backwards in many different sized steps as well as from different starting and ending points is essential and opportunities for this will be planned for.

At St Catherine's, we believe maths learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts can be represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations. Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts.

Children's fluency in arithmetic remains of great importance, with number facts, times table facts and various strategies for calculation taught and practiced at school with support sought from parents through homework activities. A progression towards efficient written calculations is developed and applied consistently in each year-group .

Mathematical Language

The 2014 National Curriculum is explicit in articulating the importance of children using the correct mathematical language as a central part of their learning (reasoning). Indeed, in certain year groups, the non-statutory guidance highlights the requirement for children to extend their language around certain concepts. It is therefore essential that teaching using the strategies outlined in this policy is accompanied by the use of appropriate and precise mathematical vocabulary. New vocabulary should be introduced in a suitable context (for example, with relevant real objects, apparatus, pictures or diagrams) and explained carefully. High expectations of the mathematical language used are essential, with teachers only accepting what is correct.

'The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof'.

2014 Maths Programme of Study

B.Tabone December 2018

Planning

All teachers follow a termly overview plan and are encouraged to design lessons using a range of resources, including, but not limited to, the scheme of work from the White Rose Maths Hub and NCETM. Weekly plans must include clear learning intentions for each lesson. In keeping with the 'Teaching for mastery' approach, teachers are required to keep the class working together on the same topic, whilst at the same time addressing the need for all pupils to master the curriculum and for some to gain greater depth of proficiency and understanding. Challenge is provided by going deeper rather than accelerating into new mathematical content. Therefore, teachers are required to base their planning around their year group objectives and not to move onto a higher year group's scheme of work. Lessons should be designed and delivered to include opportunities for pupils to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

Assessment and recording

Each child's progress should be continually assessed and should inform day to day planning. Teachers assess by:

- Observation whilst children are engaged in a task or are specifically asked to work through a question or problem;
- Questioning and discussions with the class or group, particularly during the plenary;
- Formal assessment tasks – End of unit assessments
- Termly assessments in arithmetic and problem solving and reasoning;
- Using the NCETM Mastery and reasoning documents
- Star Assessments -4 times a year

At the end of each term, teachers use the curriculum objective assessment grids (APP's) together with other assessments carried out that term to inform a judgement for each child. These judgements are then input into the school's tracking system.

At the end of Year 2 and 6 the children sit standard assessment tasks (SATs). These are marked internally in Year 2 and externally in Year 6.

Assessment for Learning is integral to teaching and learning and should feed into teacher's planning. It should also inform any focus groups for the following day's teaching.

Marking and Feedback

Marking is an important part of assessment and feedback. Wherever possible, the child should be present whilst their work is marked. The most important 'marking' is informal diagnostic assessment during the lesson. In Maths, marking symbols will be used e.g. (a smiley face for Learning Intention achieved.) Also included in marking should be an indication of whether the child has worked independently, with support, or using resources.
Note: Errors in mathematics are always corrected.
In line with our marking policy, teachers use a blue pen, TA's use green pens and pupils use a purple polishing to mark work .A pink highlighter is used to identify errors

B.Tabone December 2018

See Marking and Feedback Policy for further details. In 2018/2019 we are trialling a whole class feedback approach where teachers use a class feedback proforma. This may mean less marking evident in children's work.

At St Catherine's, children in KS2 write learning objectives as 'LO' statements and in KS1 use WALT. At the end of lessons, children in KS1 are asked to mark next to the learning intention whether they feel they have met the learning intention traffic light (KS1) In KS2 children are asked to make a comment about their learning at the end of their work. This informs future planning (AFL).

The teacher should follow up the child's self- assessment in either the next session or in an intervention session later that day .(e.g. think pinks or teacher/ TA works with identified children to give further explanation, or move onto the next stage)

Record Keeping

Teachers keep informal records on individual pupil's curriculum objective assessment grids to inform their teaching and assessments.

At the end of each term, teachers from Years 1 to 6 record children's achievement in any standardised tests as well as their progress as seen in their books. Teacher assessment against National Curriculum objectives are entered onto School Pupil Tracker, These are used to inform target setting and pupil progress meetings are held termly to discuss how to support, challenge and target individual children's needs in mathematics and identify focus groups. Teacher assessments in early years are also entered onto School Pupil Tracker and used to inform pupil progress meetings.

Presentation

Work should always start with a date and learning objective or WALT. Books are to be seen as 'work' books and the recording of working and thinking is encouraged! Teachers each have their own style and expectations for this. We encourage clear layout of calculations to minimise errors in accordance with the calculation policy when using written methods.

In line with our display policy, there should be a maths working wall in every class which should reflect current learning and be actively used in maths lessons.

Resources

Each class should have a well-maintained stock of core resources kept in a defined area to use regularly to provide visual and kinaesthetic support during the lesson and interactive teaching. The other maths resources are kept in the maths cupboard outside the Y5 classroom. These must be returned at the end of each day to be available to other classes.

Homework

A weekly homework task is set throughout the school, this includes using My Maths. In Key Stage 1, this has a maths focus every other week. In Key Stage 2, maths homework is set weekly. Homework should reinforce learning already covered in class. At Key Stage 1 and 2, the tasks are differentiated where necessary.

Monitoring and review

B.Tabone December 2018

Monitoring of the standards of the children's work and the quality of teaching is the responsibility of the Maths Subject Leader and SMT. Pupil Progress meeting take place every half term to ensure attainment and progress is good also to address any concerns about individuals or groups of children. CPD opportunities are made available for individual staff or whole school through sharing of good practice, lesson studies, training courses and staff meeting. The Math Subject Leader also supports colleagues in teaching Maths, keeping up to date in current developments in the subject, and providing a strategic lead and direction for the subject.

Governors

A designated member of the governing body has responsibility for maths and is welcome to attend training sessions and take part in daily mathematics lessons. The maths governor reports back to the governing body on a regular basis.

Parents

We recognise and value the interest, support and involvement of the parents in their children's mathematical development and keep them up to date with any developments in this area. We actively encourage parents to help their children in learning mathematical facts and skills, through formal and informal meetings as well as leaflets prompts and booklets for year group on website. Homework is also set to consolidate schoolwork and encourage involvement of parents.

Progression in Calculations

The following documents provide clear examples of methods which show progression in calculations:

1. **St Catherine's Calculation policy**
2. **NCETM progression papers**

This calculation policy is based on the CPA (concrete-pictorial-abstract) approach - a key component of the mastery approach.
Concrete - we use physical resources to bring the maths to life e.g. numicon, base 10, counters.
Pictorial - we use pictorial representations of the problem to help pupils to 'see the maths'.
Abstract - when we are ready we move on to using numbers and key concepts confidently

The focus for EYFS / Reception should be on the understanding of early number concepts and number sense through the use of concrete manipulatives and practical experiences, as exemplified in the programmes of study. They are currently using **the Development Matters' EYFS document** Progression guidance for the Foundation Stage is therefore not provided in this document. This document focusses on progression of calculations from Year 1 to Year 6.

This calculation policy is a guide for all staff at St Catherine's and has been adopted from work by the National Centre for Excellence in the Teaching of Maths (NCETM) and Maths Hub documents. It is purposely set out as a progression of mathematical skills and not into year group phases to encourage a flexible approach to teaching and learning. It is expected that teachers will use their professional judgement as to when consolidation of existing skills is required or if to move onto the next concept. However, **the focus must always remain on breadth and depth rather than accelerating through concepts**. Children should deepen their conceptual understanding by tackling challenging and varied problems. For each of the four rules of number, different strategies are laid out, together with examples of what concrete materials can be used and how, along with suggested pictorial representations. Please note that the concrete and pictorial representation examples are not exhaustive, and teachers and pupils may well come up with alternatives. Where necessary, additional guidance is given to support in teaching the given strategies.

B.Tabone December 2018

The principle of the concrete-pictorial-abstract (CPA) approach is that for pupils to have a true understanding of a mathematical concept, they need to master all three phases. Teachers can use any teaching resources that they wish to use and the policy does not recommend one set of resources over another, rather that, a variety of resources are used.

Date of policy: December 2018 Review date: December 2020

B.Tabone December 2018