



**Starbeck Primary Academy  
Mathematics Policy  
September 2022**

**Rationale**

*Mathematics is a tool for everyday life. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems. At Starbeck we encourage children to develop a love for Mathematics. Pupils practice, support and challenge one another through concepts. A mastery approach to teaching and learning is used throughout the school.*

**We aim to enable children to:**

- Develop positive attitudes towards mathematics to raise children's confidence.
- Become fluent in mathematical knowledge, concepts and skills.
- Communicate learning; solve problems, reason, think logically and to work systematically and accurately.
- Show initiative and an ability to work both independently and in cooperation with others.
- To build resilience and respond to challenges by applying key skills already learnt.
- Use and apply mathematics across the curriculum and in real life situations.
- Show an understanding of mathematics through a process of enquiry and experiment.
- Improve children's mental recall of number facts.
- Improve children's skills in mental calculations by ensuring that they have a repertoire of strategies to draw upon.

**Curriculum:**

We use the core learning objectives from the national curriculum mathematics programme of study. The White Rose Hub long term and medium term planning offers support and continuity throughout the school, helping teachers to deliver a mastery approach to the teaching and learning of all mathematical concepts.

Please see attached document – teaching for mastery at Starbeck Primary Academy.

Alongside everyday mathematics teaching, we use a whole-school approach to learning KIRFs (Key Instant Recall Facts) These are designed to support the development of the mental fluency skills that underpin much of the mathematics curriculum. Each year group is allocated up to six facts to focus on throughout the year, in line with the National Curriculum and age-related expectations.



## **Teaching and Learning:**

The aim of mathematics lessons are to teach learning objectives which have been broken down into small steps. This will ensure children deepen their knowledge and understanding of core concepts. Using a concrete, pictorial and abstract approach as an integral part of the learning process will enable children to master concepts. Fluency, reasoning and problem solving is part of every lesson. Teachers use the White Rose Hub examples, Maths No problem teacher guides and NCETM mastery materials to support teaching and learning. Good teaching and learning is achieved through:

- Creating a stimulating environment and building children's confidence and love of mathematics.
- Introducing concepts through familiar events and real life situations.
- Modelling and reinforcing key mathematical language.
- Directing –introducing new concepts with examples and by using a concrete, pictorial and abstract approach.
- Demonstrating – showing, describing and modelling aspects of mathematics using appropriate resources, images and vocabulary.
- Questioning and discussion –to ensure that all pupils understand the mathematics and for further consolidation.
- Problem Solving – use mathematics skills to solve meaningful problems.
- A balance between group, paired and individual learning.
- Becoming fluent in key facts by learning, reinforcing and assessing 'KIRFs'
- Every day practice at solving Arithmetic questions during 'Fluent in 5 sessions' enables pupils to practice facts, develop fluency and share methods.
- Using early work to reinforce and develop what has been taught as well opportunities for children to practice learning and applying key mathematical facts.
- Assessment – identifying and correcting pupils' misconceptions and taking learning further by providing tasks that allow children to work at greater depth. Children are involved in assessment of their learning by self -checking and peer assessments.

## **Mathematics Curriculum Planning:**

We use the national curriculum guidelines as the basis for implementing the statutory requirements of teaching mathematics. Long term planning is specific for each year group. The White Rose Maths Hub schemes of learning are used by all year groups and provide coverage of all mathematical areas. The White Rose Hub termly block plans break down national curriculum objectives into small steps. These form the basis for our medium term planning with the block small steps guidance and examples. Class teachers complete weekly timetables that outline the small steps in each maths lesson for the week. Included in this is a maths feedback record where the main lesson points are outlined and Assessment notes are added at the end of each lesson. The class teacher keeps these individual plans, and the class teacher and subject leader discuss them on an informal basis. The subject leader, alongside the head teacher, also makes regular lesson observations across the year groups to ensure consistency and quality throughout the school.



## **The Foundation Stage:**

We teach mathematics in the Nursery and Reception classes as an integral part of the day. Teachers plan and organise teaching of the mathematics learning objectives working towards the Early Learning Goals which underpin the curriculum planning for children aged birth to five. The development and understanding of mathematical language is at the heart of all learning throughout the Foundation Stage.

## **Curriculum Management and Organisation:**

On a weekly basis children will be involved in the following:

- Mathematics lessons every day.
- Daily 'Fluent in 5' sessions
- Opportunities for practice and recall of half termly KIRFs
- Direct teaching and use of discussion with whole class or groups.
- Opportunities for children to apply known skills in order for children to develop reasoning and fluency.
- Differentiation of tasks relating to the same learning intention by additional support or challenge.
- Use of mathematics in other subjects.
- Recall of number facts and times tables challenges.
- KIRF targets and other key facts sent home weekly for home work
- Maths shed and Purple mash are online programmes used from Year 1 to Year 6. Children have weekly access to the programme using laptops or ipads and children are encouraged to use this regularly at home to help practice recall of facts.

## **Assessment and Recording:**

Teachers assess children's work in mathematics in three phases. The short-term assessments that teachers make as part of every lesson help them to adjust their daily plans to the children's needs. Teachers match these short-term assessments closely to the teaching objectives. Regular catch up interventions will be organised and carried out by teachers to provide additional support and time for children who may not have achieved learning objectives during lessons. The White Rose Hub termly assessments are used in Year 1 to year 6.

Half termly assessments of KIRFs are carried out to monitor pupils fluency and recall of Key facts.

These support teachers to measure progress against the key objectives, and support teachers judgements when using the STAT online tracking system. This tracking system is ongoing and will be used to continually assess children's progress throughout each academic year.

Teachers make long-term assessments towards the end of the school year, and they use these to assess progress against school and national targets. With the help of these long-



term assessments, teachers are able to set targets for the next school year and summarise the progress of each child before discussing it with the child's parents. The next teacher also uses these long-term assessments as the basis for planning work for the new school year. These long-term assessments are made using end-of-year tests and teacher assessments. Children undertake the Standard Assessment Tests at the end of Year 2 and Year 6.

### **Monitoring and Review:**

The mathematics subject leader has written an Action Plan which outlines whole school priorities for mathematics for the academic year 2022-2023. From this, a whole school maths target has been identified and is a key focus throughout the school.

Monitoring of the standards of the children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader. The work of the subject leader also involves supporting colleagues in planning and carrying out the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The subject leader gives the head teacher an annual action plan which outlines targets for the year and indicates areas for further improvement. Monitoring opportunities follow a cycle of book and planning scrutinies, lesson observations, data analysis, discussion with teachers and feedback to Governors. Such opportunities are planned for and organised throughout each term.

**This policy will be reviewed every year.**

**Signed: Mrs J Willans**

**Date: September 2022**

**Review Date: September 2023**



## Teaching for Mastery Mathematics at Starbeck Primary Academy

Mastery of mathematics is something we want all pupils to acquire and continue to acquire throughout their school lives, and beyond. The phrase 'teaching for mastery' describes the range of elements of classroom practice and school organisation that combine to give pupils the best chance at mastering mathematics.

Mastering mathematics means acquiring a deep and secure understanding of the subject. A mathematical concept or skill has been mastered when a pupil can represent it in multiple ways, has the mathematical language to communicate related ideas, and can independently apply the concept to new problems.

Mastery is a journey and a long-term goal, achieved through exploration, clarification, practice and application over time.

### **At Starbeck school we are teaching for mastery by:-**

- \*Pupils are taught in single year groups through whole-class interactive teaching, where the focus is on all pupils working on the same lesson content at the same time. This ensures that all children can master concepts before moving onto the next part of the curriculum sequence, allowing no pupil to be left behind.
- \*We believe all pupils can achieve in maths and understand that a positive teacher mindset and strong subject knowledge are key to student success.
- \* By making high expectations clear and emphasising the value of mathematics education, pupils are encouraged to build confidence and resilience.
- \*All pupils are encouraged by the belief that by working hard at maths they can succeed.
- \*Support is given during lessons by use of high quality resources and methods of scaffolding/modelling to enable all children to grasp mathematical concepts
- \*If a pupil fails to grasp a concept or procedure, this is identified during lessons and early intervention such as additional support or recap of concepts is used to support such pupils.
- \* A further challenge is used in lessons to challenge pupils understanding and enable them to dive deeper into the concepts taught within the lesson.
- \*Pupils working at Greater depth will be encouraged to explain their mathematical thinking further and encouraged to dive even deeper by further investigations or questions.
- \*Lesson design identifies the new mathematics that is to be taught, through small steps taught separately in lessons. In a typical lesson the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion.
- \*Pupils are presented with multiple representations through a concrete, pictorial, abstract (C-P-A) approach to ensure a deep and sustainable understanding of maths. Pupils are encouraged to physically represent mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.
- \*Key facts such as multiplication tables and addition facts are learnt through our whole school approach SMIRFs. Children are regularly assessed in their learning of these key facts and are given opportunities within class to develop fluency and instant