



## REDESDALE PRIMARY SCHOOL POLICY FOR THE TEACHING OF MATHEMATICS

### Introduction

This document is a statement of aims, principles and strategies for the teaching and learning of mathematics at Redesdale Primary School. It is linked to the school policies for teaching and learning, behaviour and equal opportunities.

### Aims

Mathematics teaches pupils how to make sense of the world around them through developing their ability to calculate, reason and solve problems. It enables pupils to understand relationships and patterns in both numbers and space in their everyday lives. Through their growing knowledge and understanding, pupils learn to appreciate the contribution made by many cultures to the development and application of mathematics.

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including 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.

### Principles of Teaching and Learning of Mathematics

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into distinct domains, but pupils should 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.

## **Teaching Structure**

### Early Years Foundation Stage (EYFS)

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the 'Early Years Outcomes' September 2013 document. All pupils are given opportunities to develop their understanding of mathematics through an enabling environment. Lessons in the Early Years aim to do this through varied activities that allow pupils to use, enjoy, explore, practise and talk confidently about mathematics including:

- Observation of number, shape and pattern in the environment and daily routines;
- Board games;
- Large and small construction;
- Stories, songs, rhymes and finger games;
- Sand and water;
- Two- and three-dimensional work with a range of materials;
- Imaginative play;
- Cooking and shopping;
- Outdoor play and 'playground' games;
- Investigations and challenges.

### Key Stage 1 & 2

All staff design well crafted lessons to provide a scaffolded, conceptual journey through the relevant strands of mathematics assigned in their year group Progression Maps, engaging pupils in reasoning and the development of mathematical thinking. The Progression Maps follow a set pattern each half-term and ensure that all pupils are progressing through the same mathematical strand at approximately the same time. This enables teachers to discuss and share good practice as well as support each other in the planning of meaningful learning opportunities.

Staff use pre-learning tasks to inform their planning and to identify any pupils who require intervention to support their understanding of a particular learning objective or mathematical concept. Each year group's journey through a math's topic includes teaching that is focused on developing fluency, reasoning and problem solving in an approach that is rigorous and thorough and over a period of time that allows sufficient practice to ensure that learning is embedded.

### **Progression of calculation**

(See our calculation policy).

## **Resources**

Staff are encouraged to make use of a range of different resources to support the teaching of mathematics. Manipulatives or practical apparatus play a significant role in the classroom, enabling pupils to develop a deep understanding through looking at concepts in detail using a variety of representations and contexts.

All pupils also have access to Mathletics, an interactive maths programme that pupils can access at school and at home.

**Homework** (See also Homework policy).

All homework for Yr 1 to Year 6 is completed in a School Learning Log or booklet. Homework is set in accordance with the school's homework policy to support the teaching of mathematics. In Reception the pupils complete an individual learning journey that will include maths related work. Mathletics is often used for additional homework to support the teaching and learning of particular topics and concepts and pupils are encouraged to access Mathletics and take responsibility for their own learning. All pupils who access Mathletics are rewarded in weekly assemblies where their successes are rewarded with certificates.

## **Differentiation**

The expectation of the New Mathematics Curriculum is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

All children have the right to an education that enables them to make progress and are entitled to a broad and balanced curriculum. At Redesdale Primary School, all staff endeavour to:

- design and plan learning opportunities that are matched to the needs of all pupils, including those with specific learning difficulties.
- provide speedy intervention to support pupils who have gaps in their learning
- provide opportunities for all pupils to master the curriculum relevant to their year group
- ensure some pupils gain a greater depth and proficiency of understanding

## Assessment for Learning

Progress in mathematics learning each year should be assessed according to the extent to which pupils are gaining a deep understanding of the content taught for that year, resulting in sustainable knowledge and skills. Key measures of this are the abilities to reason mathematically and to solve increasingly complex problems, doing so with fluency, as described in the aims of the National curriculum:

Pupil's understanding of each year group standard is recorded in the school's tracking system in order to build up a detailed picture of their mathematical ability and progress. Information gathered from marking and feedback, observations in lessons by teachers and teaching assistants of individuals and groups of learners is fed into the tracking system to monitor an individual pupil's progress. By regularly gathering formative assessment information, staff are able to make accurate judgements about pupils' attainment at the end of each term. This involves identifying each child's progress against the year group key objectives (statements) determining which objectives they are still working towards (shallow learning), which they have achieved (deep learning) and which they have mastered (can apply to a new context). Daily assessment for learning is carried out by individual class teachers and teaching assistants, this will involve verbal feedback, observations, written feedback, and self assessment activities.

A pre-learning task will be used to assess the pupils' understanding of a **unit of work**. Pre-learning tasks should be carried out in advance of the planning of the next topic, this will ensure pupil results are used meaningfully to inform staff of key areas that need to be addressed in the topic and planning will reflect the areas pupils need to work on. A post-learning task is carried out at the end of the topic so that pupils can see the progress they have made.

Other formative and summative tasks will be used throughout each year group to support teacher assessment. All pupils take the Statutory Assessment Tests at the end of Key Stage 1 (Year 2) and Key Stage 2 (Year 6).

**Feedback to Pupils and Targets** (See Marking and Feedback Policy)

## Parental Links

Engaging and involving parents in a range of mathematically linked events is achieved through informal workshops and events that are held throughout the year. These may be linked to new developments in mathematics, national changes to the curriculum or calculation guidance or to showcase pupil work and celebrate their successes.

## **Continuing Professional Development of staff**

Whole school in-service training takes place as required and new mathematical initiatives are shared with staff on a regular basis. Sharing good practice is key to a successful school and opportunities for discussions regarding pedagogy, resources and new strategies are encouraged through key stage meetings and whole staff meetings. Staff are invited to identify relevant CPD through performance management meetings and through connections within the Learning Trust and other professional colleagues and networks.

This policy was amended in November 2015

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