



# **Mathematics Policy**

**June 2017**

# Downview Primary School

## Mathematics Policy

### Introduction

Mathematics in our school complies with the requirements of the National Curriculum.

### Aims

Mathematics is important in our everyday lives. It is integral to all aspects of life and, with this in mind, we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them and enable them to draw upon throughout their lives.

In our teaching of mathematics at Downview Primary School, we aim to:

- Indicate an enjoyment and love of maths
- Ensure numeracy
- Enable children to have opportunities for mathematical thinking and discussion
- Provide opportunities for children to demonstrate and use their mathematics
- Provide a role-model, by using mathematics for practical purposes, organisational and administrative tasks
- Give children opportunities to use mathematics in everyday situations
- Help children to understand that mathematics is a powerful tool for communication
- Instil confidence in using mathematics
- Ensure that children use mental methods as a first resort
- Teach children to think and be able to explain their thinking, to ask questions and make suggestions about their work
- Help children recognise that mathematics is a search for pattern and relationship
- Instil a fascination for mathematics and the manipulation of number
- Encourage children to take responsibility for their own learning

The children at Downview Primary School should

- Have a sense of the size of a number and where it fits into the number system
- Know by heart number facts, such as number bonds, multiplication tables, doubles and halves
- Be able to use concrete, pictorial and abstract approaches to problem solving
- Use what they know to figure things out mentally first
- Calculate accurately and efficiently, both mentally and in writing, drawing on a range of calculation strategies
- Make sense of number problems, including non routine problems, and recognise the operations needed to solve them
- Explain their methods and reasoning using correct mathematical terms
- Judge whether their answers are reasonable and have strategies for checking them where necessary
- Suggest suitable units for measuring and make sensible estimates of measurements
- Explain and make predictions from the numbers in graphs, diagrams, charts and tables
- Develop spatial awareness and an understanding of the properties of 2D and 3D shapes

## **Reception**

In Reception emphasis is placed on practical activities and informal recording, working towards a more formal recording. Children are given opportunities to work through a variety of planned practical experiences that develop mathematical understanding and skills.

## **Key Stage 1**

In Key stage 1 emphasis is placed on practical activities and informal recording, working towards a more formal recording. Children are given opportunities to work through a variety of planned practical experiences that develop mathematical understanding and skills. Children should be developing the ability to explain their reasoning (this will be recorded by an adult or by the child themselves, depending on their age and stage).

## **Key Stage 2**

At Key Stage 2 children are provided with practical experiences and problems, set in a context which will help them to understand concepts and deal with Mathematics in an abstract form. The children will use a range of concrete and pictorial methods before moving on to abstract forms. Children will continue to develop the ability to explain their reasoning (this will be recorded by an adult or by the child themselves, depending on their age and stage).

Learning and Teaching in both Key Stages is in accordance with our Written Calculation Policy, alongside the primary framework. There is also a version of the Calculations policy for parents on the school website.

## **The mathematics lesson**

In the course of the week each child will receive a daily session of mathematics teaching and regular Target Time to practise targets or to address misconceptions from previous lessons. This will include:

**Oral work and mental calculation** in which the whole class works to rehearse, sharpen and develop mental and oral skills.

## **Main teaching input and pupil activities in which:**

- A new topic is introduced, or previous work is consolidated or extended.
- Vocabulary is developed, using correct notation and terms and using new ones.
- New concepts and skills are used and applied.
- Children will develop their fluency, reasoning and/or problem solving skills.

The learning intentions are made clear to the children in the form of an I can/ Can I and this is referred to throughout the lesson. At the end of the lesson the children will assess their own learning against this I can using the traffic light system from Year 1 upwards.

Green: I've got it!

Amber: I'm nearly there!

Red: I can't do this yet.

After the whole class introduction, the teacher may have a focus group, while the other children work independently.

Main activities can be:

- Investigative and problem solving tasks, that may be open ended and enable children to see a variety of options for completing tasks.

- Mathematics games, which are fun and allow children to extend and consolidate mathematical and collaborative skills.
- Consolidation, which provides an opportunity to practise and extend mathematical learning.
- ICT based.

### **Plenary**

- This part of the lesson can be used by the teacher and children to assess and discuss what has been learned. It can be used as a period of consolidation. Mini-plenaries can be used through the lesson.

### **Homework**

The mathematics lessons will provide opportunities for children to practise and consolidate their skills and knowledge, to develop and extend their techniques and strategies, and to prepare for their future learning. These will be extended through homework tasks. These activities will be short and focused and will be referred to and valued in future lessons. In KS1, the majority of homework tasks will develop children's knowledge of number bonds. In KS2, the majority of tasks will be to develop children's knowledge and quick recall of times tables. Termly challenges will also be given.

### **Recording Mathematics**

The children spend a significant amount of time developing mental strategies and investigating mathematical concepts to clarify their own thinking and to communicate their ideas. Evidence is provided through recording their work, sometimes this may be in the form of photographs or photocopies of group work or whiteboard work.

At **Key Stage 1** recording is done through:

- Pictures
- Numerical facts
- Visual displays
- Graphs
- Real objects i.e. sorting trays, peg boards
- Writing
- Interactive displays
- Number lines
- Children's own recording methods
- ICT e.g. digital photographs

At **Key Stage 2** the following are some ways of recording:

- Charts
- Plans
- Diagrams
- Written accounts
- Pictures
- Number lines
- Children's own recording methods
- ICT e.g. digital photographs, Excel.

## **Planning For Mathematics**

**Long term plans:** Based upon the Primary Framework for Mathematics

**Medium term plans:** Based upon the White Rose Maths Hub planning.

**Short term plans:** (Format of planning is irrelevant, as long as it contains the essential elements) completed showing

- Learning objectives
- Daily sessions/lessons being taught.
- Clear learning objectives which can be assessed
- Resources and vocabulary listed
- Mental starter
- Intro to the lesson
- Differentiation: support, core and extension
- Outcomes
- Plenary
- Use of adults
- Evaluation
- Evidence of ICT when appropriate
- Brain breaks

### **Resources**

- The school uses the mathematics scheme of work laid out in the Primary Framework for Mathematics.
- Each classroom has a basic stock of mathematics equipment. Maths boxes have been prepared for each year group and these should be on tables so that all children have access to relevant resources. There is additional equipment in the resources cupboard. All classrooms have a Maths board which will display vocabulary and resources relevant to Maths being taught in the class.

### **Assessment**

All the children are assessed half-termly by the class teacher and this data is recorded centrally. As a school we also keep Attainment Spreadsheets on the server. The children all have targets set for their Maths work, these are reviewed regularly and this informs the planning for the class. The children also assess their own learning each session with a system that works for their age group e.g. traffic light system or the smiley face system. The children should also write a comment about the activity (Year 2 upwards).

### **The role of the mathematics coordinator**

- To work with colleagues in developing confidence and skills necessary for the teaching of mathematics.
- To have an overall responsibility for auditing plans, children's work and resources.
- To bring new developments and ideas to the attention of the staff.
- To attend INSET.

This policy will be renewed in 2020.