

# Ringway Primary School

## Mathematics

### Policy

Our aim is to provide the foundations for a positive future for our pupils.

A future where pupils learn to stay safe, to understand the importance of a healthy lifestyle, and to enjoy all they do.

A future where they are money smart & make a positive & respectful contribution to their culturally diverse community - at a local, national & global level.

A future where they aspire to be the best they can be & achieve their full potential.

Updated.....November 2018.....

Signed C of Gov.....

Headteacher.....Ms Forkan.....

## **Introduction statement**

This policy reflects the values and philosophy in relation to the teaching and learning of mathematics at Ringway Primary School. The policy is written with regard to the National Curriculum 2014 which sets out in detail what pupils at different stages of development and education should be taught. This policy is underpinned by our mission statement.

*'The future starts here'*

## **Why is numeracy so important to our pupils?**

Numeracy skills enable pupils to understand and interpret numerical and graphical information. This facilitates improvements in pupil's abilities to make their own judgements and draw sensible conclusions from information. We endeavour to ensure that pupils develop a positive and enthusiastic attitude towards mathematics that will stay with them.

We aim for our children to become confident mathematicians by developing their skills, concepts and knowledge and to offer our pupils intellectual excitement. We also aim to ensure equality of opportunity for all our children including the most able, those with special educational needs and those with English as an additional language.

The National Curriculum for mathematics describes in detail what pupils must be taught in each year group. Assessment for learning, an emphasis on investigation, problem solving and the development of mathematical thinking and a rigorous approach to the development of teacher subject knowledge are therefore essential components of Ringway Primary School's approach to this subject.

## **Aims**

We aim to provide the pupils with a mathematics curriculum and high-quality teaching to produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical skills to the full.

Our pupils should

- Have a well-developed 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 to 12x12 by year 4, doubles and halves
- Use what they know by heart to figure out numbers mentally
- Calculate accurately and efficiently, both mentally and in writing and paper,
- Drawing on a range of calculation strategies
- Make sense of number problems, including non-routine/'real' problems and identify 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

## **Provision**

Pupils are provided with a variety of opportunities to develop and extend their Mathematical skills, including:

- Group work
- Paired work
- Whole class teaching
- Individual work

Pupils engage in:

- The development of mental strategies
- written methods
- Practical work
- Investigational work
- Problem solving
- Mathematical discussion
- Consolidation of basic skills and number facts
- Maths games

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations.

Mathematics contributes to many subjects and it is important that the children are given opportunities to apply and use mathematics in real contexts. It is important that time is found in other subjects for pupils to develop their Numeracy Skills, e.g. there should be regular, carefully-planned opportunities for measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and for the collection and presentation of data in history and geography. We endeavour at all times to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning. Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g. through cooking, music, and maths investigations and games. Teachers plan problem solving and investigational activities every week to ensure that pupils develop the skills of mathematical thinking and enquiry.

To provide adequate time for developing mathematics, maths is taught daily and discretely. Maths lessons may vary in length but will usually last for about 30-40 minutes in the foundation stage, 45-60 minutes in Key Stage 1 and 45 - 70 minutes in Key Stage 2. These lessons are timetabled for the morning. Additional time is given to maths in the afternoon; this is usually about 15-20 minutes and is often an oral/ mental maths session used to practise key skills or address misconceptions from the morning session.

## **A Typical Lesson**

A typical lesson in Year 1 to 6 will often have the following components:

◆ An oral/mental start to the lesson which could cover a wide range of mathematics.

This will involve work to rehearse, sharpen and develop mental and oral skills.

◆ Main teaching session

This will include the 'I do, We do, You do' approach to teaching. It will include both teaching input and pupil activities and a balance between whole class, guided groups and independent work, (groups, pairs and individual work) effectively differentiated and offering appropriate challenge. Sometimes the focus for this session is new learning, at other times pupils may be practising, to master the application of a concept they have learned earlier. The focus of this session may vary for different children depending on their learning needs.

◆ Plenary

This will involve work with the whole class to address misconceptions, identifying progress and carrying out mastery and deepening understanding activities. It will also involve discussion about next steps.

## **Reasoning and Mastery**

We embed problem solving and reasoning within our daily teaching. Some lessons will focus on fluency but many will involve reasoning too. Children are encouraged to reason and challenge their thinking about mathematical concepts. Once children have understood the skill, they should be given the opportunity to master it and move deeper. We often use resources from Maths Hub and Deepening Understanding to help children master the skill.

Planning should be annotated as a result of that week's assessment to inform coming weeks' planning.

At times, there may be opportunities to develop skills and understanding of mathematics through additional activities, some of which may take place at home.

Teachers plan learning that is differentiated to meet the needs of all pupils, whether they have a specific learning difficulty in maths or whether they are particularly able. For most lessons, children choose their own level of differentiation (bronze, silver, gold or platinum). Children should ensure they are challenging themselves appropriately and can move up or down a level if they need to during the lesson.

When scrutinising work in maths books, the subject leader for mathematics expects to see work from any one lesson on a similar theme, differentiated (bronze, silver, gold, platinum) for high

attaining, middle attaining and low attaining pupils – possibly with individual work for an SEN pupil at one end of the achievement spectrum, to individual work for a gifted pupil at the other.

### **Assessment and recording in Key Stage 1 and 2.**

Every class has an assessment file on the school's system which is kept up to date by the class teacher. The children's scores are recorded in the class assessment file on TA Only. Children are working towards beating their previous score.

#### **Every week:**

##### Reasoning

Children in year 1-Y6 complete a reasoning paper weekly. The actual paper alternates between an Assertive Mentoring paper and a SATs-style reasoning paper. The children spend half of a lesson completing the paper and the other half of the lesson discussing the answers with the teacher. Year 2 and 6 may use other reasoning papers in preparation for their End of Key Stage tests.

##### Arithmetic

Children in year 1- 6 complete an arithmetic paper weekly. Lesson starters and afternoon sessions focus on arithmetic gaps in preparation for the test that week.

##### Times Tables

Children are given weekly times tables to practise and revise. As well as practising at home, children practise the weekly times tables in class too. Children are then tested on these at the end of the week.

#### **Every half term:**

Children are tested on all 144 times tables half-termly. Children are working towards becoming Times Tables Rock Stars and are competing to be their year group's rock star and the school's rock star. The Times Tables' Championship concert is held once each year. Children in YR and Y1 will practise counting and number bonds during these sessions.

The children will complete the Assertive Mentoring numeracy test or the White Rose assessments. There are 6 tests over the year. A child must sit the test of the stage they are on. The results then get entered into the Assertive Mentoring or Whiterose numeracy tracker. This will generate targets for each individual child. (Y2 & Y6 may complete other appropriate tests.)

#### **End of every term:**

- Teachers to update the class tracker for numeracy.
- Pupil progress meetings with the head teacher.
- The class tracker will be looked at and the possible barriers to learning of each individual child.

## **End of Key Stage**

National Curriculum tests are used at the end of KS1 and 2. The school's assessment and marking policies inform high-quality feedback and pupils' responses in mathematics.

## **Early Years Foundation Stage (EYFS)**

We follow EYFS curriculum guidance for Mathematics. However, we are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. Pupils explore the 'story' of numbers to one hundred and the development of models and images for numbers as a solid foundation for further progress.

From September 2015, Ringway have introduced a NFER baseline assessment for all children at the start of reception and the nursery children will also have a base line test upon entry.

## **Gifted and Talented**

Children who have been identified as gifted and talented for mathematics will access advanced work that has been specifically differentiated to meet their needs. Children will be given the opportunity to master the mathematics and move deeper. Children will be given the opportunity to work independently, with the class teacher and with the teaching assistant.

## **SEN**

Children who have been identified as having a special educational need may need extra support during maths lessons, this will be provided by the class teacher or the classroom based teaching assistant. Work will be differentiated to support all levels of learning within the classroom. For most lessons, children will be sat in mixed ability pairs or groups.

## **EAL**

Children who have English as an additional language often can excel in maths, particularly if they have studied mathematics in another country. They may have learnt some areas of maths in significant depth such as algebra and trigonometry yet may have missed out areas of maths such as investigations and shape. We will provide lots of opportunities to talk about maths and show learners how to break down wordy problems into manageable chunks. Children will be taught specific maths language during interventions and have the opportunity to practise their new skills during numeracy lessons.

## Resources

A bank of essential mathematics resources such as 'Numicon' and 'shapes' both 2d and 3d are kept in each classroom stock cupboards. Further resources relating to key whole school topics for example 'Fractions' are kept in the main cold room. Teacher's reference books and research documents are kept in the classroom stock cupboards.

## Computing

Computing is used in various ways to support teaching and motivate children's learning. Each classroom has a laptop connected to an interactive whiteboard and a 'visualiser'. All teachers are provided with a laptop to support their planning and provision and are encouraged to use computing to enhance teaching and learning in mathematics where appropriate. The school is equipped with three laptop caddies (each with 15 laptops) and a MacBook Caddie (15 Macs) and a 2 class set of 16 'I-pads'. The school subscribes to 'Mathletics' to facilitate further practice of key skills online and at home.

## The Mathematics Coordinator's role

- Ensures teachers understand the requirements of the National Curriculum.
- Leads by example by setting high standards in their own teaching.
- Prepares, organises and leads PDMs with the support of the Head teacher.
- Works with the SENCO and the assessment coordinator to ensure progression.
- Observes colleagues from time to time with a view to identifying the support they need.
- Attends CPD training when necessary
- Keeps parents informed about Mathematics issues
- Discusses regularly with the Head teacher and the mathematics governor the progress of implementing National Curriculum for Mathematics in school
- Deploys support staff to address mathematics related needs within the school.
- Monitors and evaluates mathematics provision in the school by conducting regular work scrutiny, learning walks and assessment data analysis.

Last reviewed: September 2018

Date of next review: September 2021

Signed: Chair of Governors