

# Cotmanhay Infant and Nursery School

## Maths Policy

February 2018

**We are committed to safeguarding and promoting the welfare of children and young people and expect all staff and volunteers to share this commitment.**

### Introduction

The purpose of this policy is to describe our practice in teaching mathematical skills and the principles upon which these are based.

#### Aims:

We aim for all pupils to have the opportunity to:

- Become fluent in the fundamentals of mathematics, 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, noticing relationships and making connections, and developing an argument, justification or proof using mathematical language.
- Solve problems by applying their mathematics to a variety of routine and non-routine problems, breaking down problems into a series of simpler steps and persevering in seeking solutions.
- Develop an awareness of the relevance of mathematics in everyday situations.
- Recognise what they have done well against success criteria and identify their next steps to make continued progress.

#### Wider school aims:

This policy supports our aim to raise attainment in mathematics and for all our pupils to be confident, happy learners able to explain their reasoning in maths activities. We are developing a mastery curriculum in line with the Key Stage 1 mathematics curriculum 2014 and recommendations for EYFS, whereby all pupils can achieve by providing opportunities for them to develop the greater depth and understanding of the key concepts they need to make secure and sustained progress over time. We recognise the importance of active learning and that concrete, practical, hands-on learning using a range of resources and manipulatives should be included for all children, alongside working pictorially and in the abstract to solve mathematical problems.

#### Consultation:

This policy was written by April Stenson, Maths leader in consultation with:

- Katy Latchford, Headteacher
- Saphron Foster, EYFS leader
- Sarah Dawson, Assessment leader.
- Briony Stallard, KS1 leader.

Sources and references:

Abacus EVOLVE (EYFS)

EYFS curriculum policy

Key Stage 1 mathematics curriculum 2014

Teaching for mastery Y1 and Y2 documents (NCETM)

nrich.org

White Rose Maths Hub for R, Y1 and 2.

Calculation guidance document (EYFS and KS1)

Marking policy

Assessment policy

## Procedures and practice

Definition:

Mathematics is a core subject and as such has a high priority at our school. A significant proportion of our week is devoted to mathematical learning and every opportunity is taken to practise and develop mathematical skills during and outside of mathematics lessons every day.

At this time, EYFS are following EYFS guidance and Developmental matters and KS1 are following the Mathematics Curriculum 2014.

Equal opportunities:

Every effort is made to ensure that all our pupils access the mathematics curriculum fully, at a level appropriate to them. This may mean small group, one-to-one teaching and learning or the use of additional resources to enable individuals to make progress and meet their potential.

Health and safety:

Classroom maths resources are stored safely, with all resources accessible to children in boxes or trays, drawers or cupboards and within easy reach.

## Planning:

In the Foundation stage planning is in line with EYFS guidance and Developmental matters documents. Reception teachers use ABACUS EVOLVE. Medium Term Planning is saved on the p-drive and weekly plans are displayed in class.

In Key Stage 1 Medium Term Plans have been created from the national curriculum 2014 by breaking down objectives and age-related expectations into smaller 'sub-objectives'. These are organised into 6 termly blocks to ensure curriculum coverage across a school year. These plans are saved onto the p-drive. The 'Teaching for mastery' Y1 and Y2 documents (NCETM) and nrich.org and the White Rose Maths Hub for R, Y1 and 2 provide essential information and ideas to support our MTPs.

Teaching staff meet in year group teams to discuss and modify medium term plans. They take note of individual class learning needs and assessment information to inform future planning.

They plan together on a weekly basis ensuring consistency of coverage across the year band and to share strategies and resources. Electronic and paper-based resource folders have been developed and are all staff members contribute towards these. Peer observation occurs from time to time as a means of sharing good practice. Weekly plans are created per class and saved electronically as well as being displayed in class.

## Weekly planning shows:

- Learning Objectives and Success Criteria.
- Mental and Oral maths starters.
- Whole class teaching input.
- Opportunities for the children to practise and apply taught methods.
- Variation for ability groupings and individuals where appropriate.
- Opportunities, at least weekly, for pupils to apply their mathematical learning in new ways to solve real life and everyday mathematical problems.
- Plenary sessions.
- Resources required.
- Adult support.
- Mathematical vocabulary to be modelled by teaching staff and used by pupils.
- Questions for Afl (assessment for learning).
- Links to other curriculum areas, including computing.

Weekly plans may be annotated to include assessment information to inform future planning.

Copies of medium term plans are submitted to the Headteacher at the start of every term and weekly plans are monitored over the year with feedback given by the maths leader.

## Teaching:

The teaching of mathematics in Reception and in Key Stage 1 may take the form of a daily maths lesson or extended maths mornings of 2 consecutive sessions.

Typically, this would include:

- A mental/oral starter session with opportunities to develop and secure children's calculation strategies and rapid recall skills, with an emphasis on active, fun activities. Concepts included are mainly prerequisite skills needed for later in the lesson.
- Direct teaching of the whole class and identified groups, with teachers using a variety of methods and resources to meet different learning needs. Often a problem will be introduced on a 'low threshold, high ceiling' basis, which is then solved in different ways during the rest of the lesson. The required vocabulary will be revised or introduced.
- Opportunities to practise and apply mathematical skills - deepening knowledge and understanding. This may take the form of small group work, differentiated to the needs of the group. It may be adult led, involve paired tasks or an opportunity for independent learning. It may involve pupils working practically, pictorially or mentally or a combination of these methods to help build conceptual and procedural knowledge. Pupils who grasp concepts rapidly will be moved on to more demanding or 2 step problems to deepen understanding and knowledge, not onto new content for the next year group.
- Plenary – This may be at the end of the lesson, or part way through depending on the learning needs. It may be with small groups or with the whole class, whichever has the most impact to develop learning and address misconceptions. Mini-plenaries mid-session are encouraged.
- Afl (assessment for learning) opportunities will occur at relevant parts of the lesson.
- Outdoor learning will be promoted where appropriate.

Teachers have a secure knowledge of the progression of maths skills and especially the appropriate steps for teaching and learning in calculation and the significance of part-whole relationships. See Calculation guidance document (EYFS and KS1).

Teachers develop and consolidate pupil's understanding and confidence in their abilities using careful questioning, including as many pupils as possible and targeting individuals to take account of specific abilities and needs.

Teachers model and encourage pupils to use correct mathematical vocabulary and key words are displayed in class. Pupils are encouraged to demonstrate and explain methods and reasoning by responding to questions such as 'Prove it! True or false?', which require them to use precise and accurate vocabulary.

Every effort is made by teachers to make learning in mathematics relevant and enjoyable. Links are made to other subjects wherever possible, so that opportunities arise whereby mathematical skills can be applied in a purposeful and meaningful way. Enrichment activities are sought out to support this.

In Reception maths work is stored in a folder or recorded or stuck into a maths book. In Y1 and Y2 there are 2 maths books. The 'Numbers' maths books contains all examples of recorded learning in calculation and showcases progress within place value, addition, subtraction, multiplication, division and fractions work. The 'Reasoning' maths books contains all problem-solving activities involving the application of calculation skills and recorded work for Geometry, Measures and Statistics. Over the course of a pupil's schooling, the use of worksheet material will become less evident and more work will be directly recorded into their maths books.

Organisation:

Homework/parent partnership:

Parents are involved in their pupil's mathematical learning in many ways:

- Specific maths objectives are displayed on the parents' noticeboard and updated each term as part of the Termly 'Diary of events' letter.
- Weekly maths targets are also displayed outside the class on the parents' noticeboard.
- Maths worksheets are available in folders on class boards for parents to take.
- Parents receive a set of maths targets for their child three times a year; these show the targets that the pupils are working on for that term in calculation. They are split into 3 levels of attainment; working towards the expected standard, working at the expected standard and working at greater depth within the expected standard.
- Parents are invited into school to look through their child's work books following a class assembly or parent morning. They are encouraged to fill out an evaluation form to express their views.
- Teachers are available before and after school every day if parents have concerns about their child's progress in maths.
- Maths games mornings occur during the year. Maths games and activities are set out in class for when the pupils and parents arrive in school and parents are invited to stay and play for the first twenty minutes of the day. This provides an opportunity for parents to see what maths is happening in school and provides another opportunity for concerns and questions to be answered.
- The Maths and English subject leaders host parent information meetings for Year 1 and Year 2 in the Autumn term setting out what their children will be learning in maths and how we structure the lessons. Parents' are invited to give written feedback and to ask questions directly.
- In the spring term the assessment leader invites the Year 2 parents to a presentation about the end of key stage assessments. Parents have the opportunity to give feedback.
- Individual classes set maths homework from time to time over the year.
- Parents are invited into school for a teacher-parent interview three times a year.
- Parents receive a written report during the summer term with their child's attainment at the end of the key stage.

Resources:

The maths leader has responsibility for the annual budget and will seek the views of colleagues and consult the maths action plan before prioritising what to buy.

Many maths resources are stored in centrally located cupboards and are clearly organised and labelled.

A named TA has responsibility for the day to day tidying of the resources.

Teachers store the key resources in class that are likely to be used on a daily basis such as number lines, 100 grids, number fans and numeral cards, and a range of manipulatives (Numicon, Unifix cubes, Dienes apparatus, Cuisenaire Rods, 10s frames, place value counters and money). These resources are accessible to all children, stored where they can easily be reached and clearly labelled to encourage independence.

Each class has an area or 'zone' devoted to learning in maths which provides an opportunity for all children to practise maths skills independently, consolidating skills and extending learning through play. Useful maths vocabulary and method prompts are displayed so children may use these to help with calculations or other independent maths 'challenge' activities.

#### Assessment:

Assessment for learning is embedded across school and takes place during every lesson. Assessment information is used to inform planning to ensure that the work is pitched at the correct level to move every child forward in their mathematical learning.

This information also informs our target setting. Every class has a 'Be a Better Mathematician' board where individual targets are displayed and referred to during lessons. Children should be able to say what their 'next step' in their mathematical learning is.

This is also evident in our marking. Every taught piece of work will be marked with a 'smiley face' to indicate what the child has understood and an 'arrow' to indicate if they need to show corrections, consolidation of the skill being taught or to complete a 'challenge' question to demonstrate they can use and apply the learnt content and show greater understanding. Children are encouraged to refer to these symbols in the marking and to say what their next step is.

Where misconceptions have been identified during a teaching session or following marking, intervention will address this as soon as possible. This may involve the whole class in the following session, or by a Teacher/teaching assistant working with a single pupil or a small group to provide additional teaching. In this way all the pupils can be kept moving together through content at broadly the same time.

Specific assessment may take place at the end of a block of learning to gain a clear picture of the individual child's level of understanding of a concept or skill. This will take place if there is not already sufficient evidence in the work books or from the direct teaching of learning tasks.

More formal assessment occurs towards the end of each term.

PUMA tests are completed in Y1 at the end of T2, T4 and T6. The maths leader has designed standard tests for Sept (as a baseline test), end of T1, end of T3 and the end of T5.

In Y2 PUMA tests are completed at the end of T2 and T4. The maths leader has designed standard tests for Sept (as a baseline test) and the end of T1. Former SAT assessments are used at the end of T3. The new SAT is used during the assessment period in T5 and to support judgements against the end of key stage expectations in T6.

Testing gives important information to CTs to assist them when entering data on O track and provides a comparison between classes within a year group. Moderation of pupil books within a year band and consideration of test data helps to ensure that teacher assessment judgements are consistent.

Y1 and Y2 teachers input mathematics data for each child onto 'O track' 6 times a year.

In this way progress can be closely monitored and difficulties identified swiftly. For example, if a child is not making expected progress they will receive extra support through a targeted group intervention or one to one activities with a teaching assistant, planned by the teacher.

If the assessment information shows a trend or a pattern over time this will be addressed on the maths action plan.

Assessment in the foundation stage is in line with EYFS guidance and Developmental matters documents. In YR PUMA is used during term 6. For more information about assessment in the foundation stage please see the EYFS policy.

For more information about assessing without levels - see the assessment policy.

For more information about marking – see the marking policy.

Monitoring and evaluation:

The Maths leader is responsible for monitoring teaching and learning in mathematics.

Monitoring needs are identified on the School Improvement Plan review and the Maths action plan.

Monitoring mathematics takes the following forms:

- Lesson observation and feedback.
- Work scrutiny.
- Pupil discussion.
- Moderation of expected progress within year groups.
- Planning scrutiny.
- Maths environment check/learning walks.

A programme of monitoring is planned according to priorities identified on the maths action plan with reference to the School Improvement Plan.

Monitoring takes place throughout the year and is recorded on the monitoring overview.

## Conclusion

Monitoring and review:

Monitoring is lead by the subject leader and includes governors, the Headteacher and other members of the maths curriculum team.

Following all maths monitoring, governors and staff receive written feedback. In addition, a Mid-point review and an Annual summary is shared with the curriculum team and a report is written for governors.

Any issues arising from monitoring will be addressed by the maths leader and will form part of the next maths action plan.

Governor approval date:

Next review date: January 2021