



Mathematics Policy

Signed on behalf of Governors.....

Date.....

Review Date.....



Abbeyfield Primary Academy MATHEMATICS POLICY

Purpose

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

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.

AIMS

This policy is set within the context of the school's vision, aims and policy on teaching and learning. It is based around the idea of helping children to master each maths concept and deepening their knowledge. We aim:

To provide interesting and well planned work to promote children's enjoyment of Mathematics

To develop children's mathematical thinking and conceptual understanding

To deepen the understanding of all children

To help children acquire and apply the mathematical skills necessary for solving problems

To develop children's confidence in Mathematics

To prepare our children for applying their skills effectively in everyday life situations, in their future learning and in the work place.

To give all the children building blocks in place to provide a solid foundation to lead onto secondary, further and higher education.

We work to develop children's ability to:

- Use mathematics for practical tasks.
- Use number to solve problems, estimate, interpret and check results.
- Select the most efficient methods of solving calculations
- Recognise and explore patterns in number and use symbolic representation.
- Recognise and use properties of 2D and 3D shapes.
- Collect and interpret data.
- Choose, use and take responsibility for all mathematical equipment to support their own learning.

ABBEYFIELD'S- NON_NEGOTIABLES

The following points reflect what we as a staff feel is essential to deliver quality first Mathematics teaching:

- Everyday is a mental Maths day
- Hands on learning is essential
- Use models and images to support learning
- Talk Maths! (model the correct use of mathematical vocabulary)
- Make Maths Fun and interesting
- Help children learn from their mistakes
- Use Inspire Maths, **White Rose** and Numicon along with other practical and interactive resources to involve children in their learning in a fun way.
- AFL used throughout all learning to support in planning and the next steps for the children.

Principles

Planning

- Planning begins from a thorough understanding of children's needs gleaned through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve. We track the children's progress and we use this to plan at the correct level for the class.
- Within short term planning, clear success criteria and learning objectives taught should be created – demonstrating the progression needed to reach and exceed the objective. Objectives and supporting information for this is all included in the Inspire scheme and we use this to support our planning across school. This will enable the class teacher to follow a clear and systematic teaching sequence, where input and activities are differentiated by considering which parts of the success criteria individual children are ready for. It should also include deepening activities to show how the early graspers are being challenged through real life application without moving on to a new concept.
- Planning, where possible, should involve real life contexts for maths, where children are problem solving with a purpose in mind.
- Throughout the lesson, children will be using talk frames to ensure they are engaged in the language of maths correctly and they are cooperating effectively with the children on their table. They should be encouraged to verbalise all number sentences to help them understand the relationships within the calculation.
- Class teachers should regularly plan for opportunities for children to apply their maths skills to different problems within maths lessons and across the curriculum. This will also allow children to revisit, practice and consolidate different areas of maths and apply them within different contexts.
- When planning across the curriculum, questions should be used within titles of units of work and lessons, to initiate an 'enquiry' approach. Skills of problem solving can then be taught with consistency and we use RUCSAC to support the children in a systematic approach to problem solving.

All staff are expected to use an agreed planning template. Planning must show

Short term:

- Plans must show the learning objectives for the session. The Inspire Teacher Guides are used. **White Rose progression in maths concepts are used.**
- The key vocabulary that EAL learners need to be taught if they are to fully access the content of Maths lessons.
- Deepening activities to extend the early graspers
- Any resources which are required in the lesson.

Short term planning is to be accompanied by a detailed flipchart that clearly shows the structure and progression in the lesson. There needs to be evidence on this flip chart to show where it links with the Inspire textbooks or **White Rose** (through scanned images or the pages that the slide links to) and opportunities for the children to be using resources and discussion work.

TEACHING

- In the Foundation Stage, children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.
- Children will become **extremely** competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding. Counting forwards and backwards in many different sized steps as well as from different starting and ending points is essential.
- Maths learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations.
- Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts. Children should be encouraged to fully explain how they have arrived at their answer rather than just accepting that they have arrived at the right or wrong answer.
- Children's mental maths is of great importance, with number bonds, times tables facts and various strategies for calculation taught and practiced at school with support sought from parents through homework activities.
- A progression towards efficient written calculations should be developed and applied consistently in each year-group. The school Calculation Policy should be followed.
- Class targets should be used to ensure areas where the majority of the class have not grasped a concept can be revisited and mastered.
- Though the nature of lessons will be very different depending on the needs of the class, children should be: active; practicing skills they haven't yet mastered (perhaps recapping on class targets); learning something new OR learning to apply their knowledge to different contexts. They should be: 'doing' very quickly; working at a good pace and being productive; sharing their thoughts and methods and being successful.
- When teaching problem solving skills across the curriculum, time (and sometimes whole lessons) should be given to each aspect of problem solving ensuring children get thorough practice at: 'preparing for problem solving', 'thinking through problems to establish what they know and don't know so far';

actually 'doing the problem solving' effectively AND 'communicating the answer effectively'. They should evaluate the process too. Over time children will improve at each aspect.

VOCABULARY

The development of children's mathematics vocabulary is crucial. At Abbeyfield, teachers have mathematics vocabulary, learning objectives and visual aids on display which are referred to throughout the lesson. This emphasises the key words. In the Mental and Oral session children are encouraged to use key words, and during the lesson they are expected to describe and explain their work using appropriate mathematical language. Wherever possible, they are encouraged to use complete sentences to answer questions.

HOMEWORK

Homework is set weekly for every group in school. Homework may involve learning number facts by heart as well as using Maths in more creative ways though topic-based tasks. Each year group provides a weekly homework club to which parents are invited too. The school actively encourages parents to support children with their homework. To make this easier, the school provides Maths homework packs for every child: these contain basic stationery as well as resources to support children with their Mathematics homework

PARENTAL INVOLVEMENT

At Abbeyfield, we believe parental involvement is crucial in helping children to fulfil their potential. As a result, a number of whole school initiatives have been put in place:

- Maths workshops for parents: children and parents attend the sessions together. The aim is to develop the confidence of all who attend while at the same time clarifying more difficult areas of Maths.
- Maths Fun Days: parents can join their children as they take part in a range of mathematical activities. The aim of Fun days is to raise the profile of Maths in school and to develop children's enjoyment of the subject

ASSESSMENT

- Assessment for learning should occur throughout the entire maths lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs. This feedback should be incisive and regular.
- **Children should self-assess against the learning objective and success criteria, giving them a sense of success. Children should know when they are meeting their targets and be self-assessing against those too.**

Short term:

- Pupil's work should be marked daily in line with the Marking Policy and should model how corrections should be made, giving children a chance to learn from their misconceptions or incorrect methods.
- Future lesson design should depend on class success evaluated through marking and observations made during the lesson.

Longer term:

- Children are tested regularly on their times tables and on other areas of Maths to support ongoing assessment
- Children from Year 1-6 regularly use Times Table Rockstars online support package to build multiplication table knowledge.
- Assertive Mentoring – children are set individual targets which are reviewed three times a year between the teacher, child and the child's parents to ensure all the children are making progress and are aware of what they need to work on in the future. These targets personalises the learning for the children at the level they need.
- Sheffield Tracking grids are completed over the year to help support the teachers' assessment of the children against the Steps. Teachers use this information to inform planning for groups and individual pupils.
- Y2 pupils are assessed against the interim framework and Sheffield Tracking Grids.
- Y6 pupils are assessed using the statutory SATs material.
- Summative assessments are entered onto SIMS on a termly basis in order to provide further understanding of the level a child is working at and to inform a more rounded judgement of their abilities.
- Pupil Progress Meetings are held with SLT to ensure all children are being supported at the level they need, progress is being made and interventions are used where necessary to stop children falling behind. What that support will be and how intensive, depends upon the child's needs and it may be a simple strategy within whole class teaching that is needed. Where further support is deemed necessary, children can access interventions, explained below.

REPORTING

Parents are invited to discuss their child's progress with the class teacher on a termly basis. Extra meetings between parents and teachers can also be arranged at mutually convenient times. Reports are also written yearly and parents are invited in to discuss the report with the class teacher.

MONITORING AND EVALUATION

- Teachers' Maths planning is available to the Maths Co-ordinator and Head teacher for monitoring purposes on the Network

- Maths lessons are regularly monitored by the Maths Co-ordinator and SLT as part of the School Improvement plan.
- Maths data is analysed termly by the Assessment Co-ordinator and the Maths Co-ordinator. Key issues are shared with staff and governors.

SCHOOL/STAFF DEVELOPMENT IN MATHEMATICS

The Mathematics team is responsible for:

- Keeping up-to-date with mathematical issues.
- Attending the LEA briefings for Co-ordinators.
- Attending designated courses for Co-ordinators.
- Providing feedback and advice to staff on mathematical matters.
- Implementing the school improvement plan.

Regular staff INSET is provided in staff meetings. This is facilitated by the Co-ordinator, with assistance from external consultants/ organisations when necessary.

EQUAL OPPORTUNITIES:

All children at Abbeyfield Primary Academy have equal access to the mathematics curriculum regardless of gender, race or ability.

Due to the school's high number of children with EAL needs, all staff have received extensive training designed to develop the use of EAL strategies during Mathematics lessons (Andy Harvey training, Talk Maths training). The use of these strategies is monitored through planning scrutiny and lesson observations by the SMT and Maths Co-ordinator.

In practice, EAL support for mathematics is available daily through a withdrawal group. This helps cater for those children whose language needs are the greatest. Other EAL children receive support in class through the pre-teaching of key vocabulary (usually done by the teaching assistant).

We recognise that mathematics has its roots in many different and diverse cultures and links with these cultures are included in our teaching wherever possible.

POLICY REVIEW:

Staff review the way mathematics is taught in school on a regular basis, both in year group teams and as a whole staff. The next formal review of the policy for mathematics will take place within one year.

September 2017