

St Meriadoc C of E VA Junior Academy
Mathematics policy

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems. It also provides the materials and means for creating new imaginative worlds to explore. Numeracy is a key life skill. Through our work at school in mathematics children will gain the knowledge and understanding to use confidently the skills needed to work within our world today.

Aims

Our Aims at St Meriadoc Junior Academy are to develop:

- **An enjoyment of mathematics for all children whatever their needs, talents or cultural background via a positive attitude.**
- **Every individual's potential in mathematics by becoming independent, confident and logical thinkers with flexibility of mind.**
- ***A positive attitude towards mathematics and an awareness of the fascination of mathematics***
- ***An ability to solve problems, to reason, to think logically and to work systematically and accurately.***
- ***Initiative and an ability to work both independently and in cooperation with others***
- ***An ability to use and apply mathematics across the curriculum and in real life***
- ***An understanding of mathematics through a process of enquiry and experiment***
- ***For all children to make 2 levels progress***

And for parents to:

- **Be actively involved in their child's mathematical learning in school and at home.**
- **Understand and support the school mathematics and homework policy.**
- **Help, encourage and support their children to learn all their times tables up to and including 12 x 12.**

School Policy and the National Curriculum

To develop further the knowledge, skills and understanding taught in Key Stage 1, teachers use the New Primary Framework for Teaching Mathematics to ensure that all parts of the National Curriculum Programme of Study are taught. Through careful planning and preparation we aim to ensure that throughout the school children are given opportunities for:

- practical activities and mathematical games
- problem solving
- individual, group and whole class discussions and activities
- open and closed tasks
- A range of methods of calculating eg. mental, pencil and paper and using a calculator
- working with computers as a mathematical tool

The approach to calculation:

The approach to calculation is set out in the school's agreed Calculation Policy document which covers all four operations including mental and written strategies.

Mental mathematics

Mental methods will continue to be developed. Children will be directly taught and provided with regular opportunities to develop the different skills involved. These skills include:

- Remembering number facts
- Using known facts to work out new facts
- Developing a repertoire of mental strategies
- Solving problems

Written work

Written recordings will be used to:

- Informally support a mental calculation
- Develop the skill of explaining the method used
- Help someone else follow the method or assess the work
- Practise writing and using the correct symbols and notation
- Help remember or practise the recall of number facts
- Carry out the working of a standard written method of calculation

The role of calculators

"In the primary years, the calculator's main role in mathematics lessons is not as a calculating tool, since children are still developing the mental calculation skills and written methods that they will learn throughout their lives." (Framework for Mathematics, DfEE © 2012)

However, children are taught the technical skills they will require, the order in which to press the keys, how to enter money, measurements and fractions and how to read and interpret the display. Children will be directly taught, and given opportunities to develop the correct vocabulary, and also to make decisions about when it best to use a calculator. Calculators, for the above reasons, are more appropriate to Upper KS2.

Lesson organisation

From year 3 onwards, all pupils will have a daily dedicated mathematics lesson. There will be a good balance between whole-class work, group teaching and individual practice. The overall structure of the lessons may contain:

- **A daily mathematics lesson** to focus on place value, number and calculations
- **A clear focus on direct, instructional teaching** and interactive oral work with the whole class and groups
- **An emphasis on mental calculation** - using and applying and breadth of learning developing a mastery led teaching approach, whereby all children have access to and experience of, first quality teaching of their year group's learning intentions.
- **Oral work and mental calculation** - Whole class work to rehearse, sharpen and develop mental and oral skills.
- **The main teaching activity** - To include teaching input and pupil activities. Pupils might work as a whole class, in groups, in pairs or as individuals.
- **A plenary** - Work with the whole class to sort out misconceptions and identify progress, to summarise key facts and ideas and what to remember, to make links to other work and discuss the next steps, and to set work to do at home.
- **A mini plenary** - To be used as a reminder for children to bring learning back to the directed learning statement, or to deal with whole class/group misconceptions.

Teachers will use their professional judgement to determine the activities, timing and organisation of each part of the lesson to suit its objectives. There will therefore be considerable variety and creativity on different days.

Multiplication facts

Learning times tables is very important, it can make Maths so much easier for children and gives them huge amounts of confidence in the process. To support the children learning times table facts, the school uses a system called the 'FAST' maths. Fast maths is a times tables test, based around a mixed up multiplication grid, which is completed 3 times a week, the children receive praise for beating their score or completing the grid in a faster time. The test is based around the focus of speed and accuracy. The multiplication grids are differentiated from year group to year group with progressions for each. National average for completing a grid in year 6 is 4m 10s, this will be a target for the school. Our expectation at school is that all children know their times tables by the end of Year 4.

Mathematical language:

Children will be taught, and provided with opportunities, to use the correct mathematical language and notation to discuss their mathematics and explain their thinking.

Differentiation

This is always incorporated into all mathematics lessons and can be done in various ways:

- Stepped Activities which become more difficult and demanding but cater for the less able in the early sections.]
- In some mathematic sessions the children will need to assess their own learning choosing where they would like to start in 'buffet' style learning. This allows children to evaluate their own learning throughout the lesson.
- Common Tasks which are open ended activities/investigations where differentiation is by outcome.
- Resourcing which provides a variety of resources depending on abilities e.g. counters, cubes, 100 squares, number lines, mirrors, bead strings etc.
- Grouping according to ability so that the groups can be given different tasks when appropriate. Activities are based on the same theme and usually at no more than three levels.

Mathematics across the curriculum

Opportunities will be used to draw mathematical experiences out of a range of activities in other subjects to provide opportunities to apply and use mathematics in real life contexts. Mathematics will also contribute to other subjects in practical ways. Children will also be posed real life questions within a context of a topic; using story maths to engage children in their learning.

Special Educational Needs

Children with SEN are taught within the daily mathematics lesson and are encouraged to take part when and where possible (please see the section on differentiation).

Where applicable children's IEPs incorporate suitable objectives from the national curriculum and teachers keep these objectives in mind when planning work.

When additional support staff are available to support groups or individual children they work collaboratively with the class teacher.

Within the daily mathematics lesson teachers not only provide activities to support children who find mathematics difficult but also activities that provide appropriate challenges for children who are high achievers in mathematics.

Equal opportunities

It will be ensured that all pupils will have equal access to the full mathematics curriculum. See the school's equal opportunities policy.

Assessment

Using the curriculum materials, teachers are expected to make regular assessments of each child's progress and to record these systematically. The data should then be used to inform planning and identify and address any misconceptions. Assessment in mathematics is formative and summative and allows the mathematics coordinator to track each child's learning journey termly, throughout their time at St. Meriadoc Junior Academy.

✓ **Mini Targets (Floating targets)**

Teachers set mini targets throughout the year for individuals based on the learning statements for their year group. These will be based around a unit of work/ or consecutive lessons work.

✓ **Formative assessment**

Teachers use children's mathematics books to assess children's learning daily and ensure mastery of the curriculum is achieved by all. Post teach is planned for children who need to spend more time on a concept to master it efficiently and this is evident in children's books. Rather than children being exposed to pages and pages of calculations, teachers are encouraged to develop their children's understanding of the breadth and depth of a particular concept, for example using empty box calculations and looking at number patterns in a variety of ways.

✓ **Summative assessment**

At the end of each term tests are administered to determine the mathematical level of each child. This data is recorded on Classroom monitor and tracked by the class teacher and mathematics coordinator to ensure that the progression of each child is rapid and that the expected progress (See assessment policy) is being met in each cohort. Children carry out national end of key stage assessments in Year 6.

Resources

Resources will be stored centrally though each class has a counting library. Teachers will use resources to;

- Demonstrate or model an idea, an operation or method of calculation e.g. a number line, large arrow cards, counting stick,
- Enable children to use a calculation strategy or method that they couldn't do without help; e.g. individual number grids or lines, counters, fingers.
- Provide a context for the application and practise of mental calculation strategies and number skills e.g. dice, 0-10 number cards, number games, coins.

Out of class work/homework/parental involvement

Opportunities will be provided for children to practise and consolidate their skills and knowledge, and to develop and extend their techniques and strategies, and to prepare for their future learning through out-of-class activities or homework. Children are set differentiated tasks each week which when completed are checked by the teacher. The homework will be varied, interesting and fun so that the children are motivated, it stimulates their learning and fosters different study skills. Whatever the nature of the work it is aimed that feedback will always be given.

'We can make our plans, but the lord determines our steps.'

Proverbs 16:9