

# Culgaith C of E School



## Maths Policy

| Issue Number | Author    | Date Written   |
|--------------|-----------|----------------|
| 1            | Megan Ray | September 2022 |
| 2            | Megan Ray | September 2026 |
| 3            |           |                |

Date of review: July 2027

At Culgaith CE School, our mathematics curriculum follows the Programme of Study and Aims of the National Curriculum. This policy outlines the teaching and learning of mathematics at Culgaith Primary School.

Mathematics teaches children how to make sense of the world around them through developing their ability to use number, calculate, reason and solve problems. It helps children to understand relationships and patterns in both number and space in their everyday lives.

The implementation of this policy is the responsibility of all the teaching staff within school.

### **Aims:**

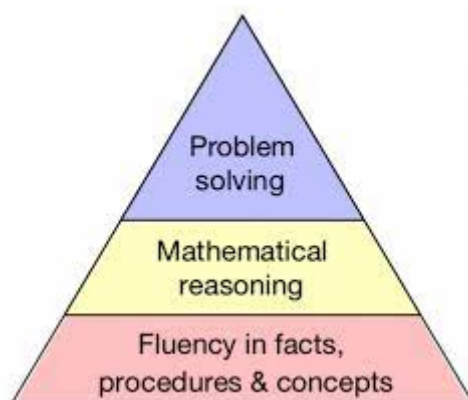
The National Curriculum for mathematics aims to ensure that all pupils:

- 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.

At Culgaith C of E School we empower our children with a 'CAN DO' attitude in mathematics. We intend for all our pupils to develop their mathematical knowledge and skills and we intend for all pupils to enjoy and achieve in mathematics and become confident mathematicians.

We believe that ability within Mathematics is not fixed. We are developing the mindsets of children and adults alike to develop a Growth Mindset and a 'We Can' attitude to Mathematics. We believe that through quality first teaching and intelligent practice, children learning together and immediate intervention that all children have the potential to 'go deeper' and broaden their understanding of mathematical concepts.

## Our Approach at Culgaith:



It is essential that children are secure with arithmetic calculations, can decide when one procedure is more appropriate to apply than another and have a quick recall of times tables and number bonds. Mathematical fluency skills help students think faster and more clearly, giving them the energy, attention and focus to tackle complete problem-solving and reasoning questions. Children are challenged to show, explain or prove their answers. They can use concrete resources, pictorial methods, or an abstract calculation as well as a written explanation.

### What is fluency?

Fluency in maths is about developing number sense and being able to decide the most appropriate method for the task; to be able to apply a skill to multiple contexts. The National Curriculum states that pupils should become fluent in the fundamentals of mathematics through varied and frequent practise.

Children need to have:

Accuracy - pupils need to carefully complete calculations with no or few careless errors.

Pace - pupils are able to quickly recall the appropriate strategy to solve the calculation

Retention - pupils will be able to retain their knowledge and understanding.

### What is reasoning?

Reasoning requires discussion, a classroom should never be quiet when the children are discussing a solution or explanation. Children are also encouraged to use the correct mathematical vocabulary. Teachers need to encourage mathematical talk and use effective questioning to provide the opportunities for children to explain their answers or thinking. For example: - Show me how to complete the calculation - Teach your friend how to complete the calculation - How do you know which operation to use? - Why have you chosen this method? - How else can you represent this number?

### What is problem solving?

Problem solving is at the heart of mastering mathematics. Pupils combine different concepts to solve complex problems, and apply knowledge to real-life situations. Through problem solving, pupils are required to select their mathematical knowledge and apply this to a new concept.

Children need to feel confident and have determination to approach complex problems. We use a variety of reward systems in school, along with praise and peer encouragement to develop children's confidence and self esteem.

In order to solve a problem, children need to draw on one or more problem-solving skills, such as:

- Working systematically
- Trial and improvement
- Logical reasoning
- Spotting patterns
- Visualising
- Working backwards

'Pupils are confident mathematicians who solve number and shape mysteries and persevere with challenges. Our curriculum enriches pupils with the skills and knowledge they need to find solutions to puzzles, problems and investigations.' From our maths vision 2021.

### What maths looks like at Culgaith School...

For additional fluency practise we follow the big maths scheme, which ensures every child has a solid foundation of basic skills that they then use and apply to wider mathematical concepts. Children complete big maths daily and a weekly challenge, which the children thoroughly enjoy. We also use times table rockstars and complete a weekly times table test in KS2 to help support the children in their learning of the times tables.

We ensure children have access to a high quality maths curriculum that is both challenging and fun, encouraging children to be confident mathematicians who are not afraid to take risks, through; teachers understanding where their children need to be, by secure subject knowledge and having high expectations for every child.

We provide children with the opportunity to explore mathematics using a range of concrete, abstract and pictorial resources. Each classroom has a range of resources to support learning.

We are following the busy ants scheme to help with planning of the objectives and skills progression, but teachers have the flexibility to plan their own activities and use other resources, such as, Nrich, white rose, third space learning and NCETM. To ensure consistency throughout the school, every classroom follows the school calculation policy.

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

We follow the EYFS statutory framework for Mathematics. We are committed to ensuring the confident development of number and put emphasis on key early concepts. Pupils initially explore numbers to 10 and the development of models and images for numbers as a solid foundation for further progress. Within their Mathematics learning, children will explore:

#### **Number:**

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number
- Subitise (recognise quantities without counting) up to 5
- Automatically recall (without reference to rhymes, counting or other aids) number bonds to 5 (including subtraction facts) and some number bonds to 10, including doubles

#### **Numerical Patterns:**

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

### **Recording of Learning:**

EYFS use tapestry

Pupils have a blue square-paged Maths Exercise Book each.

All Learning to be evidenced. This could be photographs, worksheets or mathematical jottings.

The presentation of mathematics books to be consistent, age appropriate and show that pupils take pride in the appearance of their work.

The date to be written in either figures or words and underlined

The objective to be at the top of the page (handwritten or typed)

When sticking in question sheets/resources, these to be trimmed to ensure they fit

Pencils and rulers to be used – no pens (except Green Pen)

### **8 Classroom Norms to Establish in Mathematics:**

1. Everyone can learn mathematics to the highest levels.
2. If you 'can't do it', you 'can't do it yet'.
3. Mistakes are valuable.
4. Questions are important.
5. Mathematics is about creativity and problem solving.
6. Mathematics is about making connections and communicating what we think.
7. Depth is much more important than speed.
8. Maths lessons are about learning, not performing.

**Assessment:**

Formative assessment occurs daily, with teachers making notes on their plans. This will inform them how to move forward, especially for classrooms with shared teaching responsibility. Children complete weekly big maths challenges.

Summative assessment occurs every 3 weeks through busy ants unit tests. The children also complete an end of year assessment in June and repeat the same test in September for baseline. The option for teachers to do short reasoning assessments at the assessment check points is there too if extra clarity is needed.

Marking - teachers will mark children's work, addressing misconceptions and giving next steps as appropriate. Children in Key Stage 2 should be involved in marking their own work during the lesson so that any misconceptions can be identified and worked on with guided adult support straight away rather than at the start of the next lesson.

**Impact:**

For all of the above to have impact, children need to have a good growth mindset. Children have a 'can do' attitude and choose, themselves, the resources they require to help them learn along with the strategies they think are best suited for them and each problem. Children are developing skills in being articulate and are able to verbally, pictorially and in written form reason well. Our maths books are packed with a range of activities showing evidence of fluency, reasoning and problem solving. Our feedback, planning, engaging teaching and interventions are supporting children to strive to be the best mathematicians they can be.