



Edleston Primary School

Denver Avenue

Crewe

CW2 7PX

01270 685770

Headteacher: Mrs R Bagni

# Mathematics Policy

Traditionally, Maths has been taught by memorising key facts and procedures, which tends to lead to superficial understanding that can easily be forgotten. At Edleston Primary School, we believe that children should be able to select which mathematical approach is most effective in different scenarios.

All pupils can achieve in mathematics! There is no such thing as a 'Maths person', that is the belief that some pupils can do maths and others cannot. A typical Maths unit of learning will provide the opportunity for all children, regardless of their ability, to work through Fluency, Reasoning and Problem Solving activities.

## Intent

Maths is a journey and long-term goal, achieved through exploration, clarification, practice and application over time. At each stage of learning, children should be able to demonstrate a deep, conceptual understanding of the topic and be able to build on this over time.

There are 3 levels of learning:

- **Shallow learning:** surface, temporary, often lost
- **Deep learning:** it sticks, can be recalled and used
- **Deepest learning:** can be transferred and applied in different contexts

The deep and deepest levels are what we are aiming for by teaching maths using the Mastery approach.

## We aim for our pupils to:

- Have equal access to the mathematics curriculum.
- Experience success and achieve their potential.
- Have challenging learning experiences which stretch each child's acquisition of skills, knowledge and understanding.
- Develop independence.
- Develop mathematical understanding and thinking as well as asking questions.
- Experience and follow a range of alternative methods to develop their understanding, independence and reasoning.
- Have access to resources needed to support learning.
- Receive high quality support and interventions if required.

## Implementation

### Concrete, pictorial, abstract representations

Objects, pictures, words, numbers and symbols are everywhere. The mastery approach incorporates all of these to help children explore and demonstrate mathematical ideas, enrich their learning experience and deepen understanding. Together, these elements help cement knowledge so pupils truly understand what they've learnt.

All pupils, when introduced to a key new concept, should have the opportunity to build competency in this topic by taking this approach. Pupils are encouraged to physically represent

mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.

**Concrete** – children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing.

**Pictorial** – children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems.

**Abstract** – With the foundations firmly laid, children can move to an abstract approach using numbers and key concepts with confidence.

At Edleston Primary School, we use White Rose Hub as the starting point for our maths learning. We also use a variety of resources within each year group from Reception to year 6 including: Active Maths, NCETM, BEAM, DfE Problem Solving packs, Maths Hubs from Oxford Owl (Mastery document), NRICH website, Challenging More Able Learners, interactive games and classroom secrets. This wide range of resources help to ensure that lessons are varied and challenging as well as meet the needs of all pupils including high achievers and children working below expectations of their year group. Some practical resources and equipment are stored within each classroom for children to access independently daily as well as some being stored in central locations.

At Edleston we structure our maths lessons as follows:

In EYFS, the class will be organised to promote social skills and the development of mathematical language and understanding based on the guidance in the Development Matters document – Mathematics (Numbers and Shape Space and Measure) and some Communication and Language (Speaking) objectives. Children will have access to high quality maths provision, both indoors and outdoors, whether it is through continuous provision, child initiated learning or focussed adult led activity.

Children are presented with a practical mathematics experience with a firm foundation in sorting; experience in measures; shape and space; pictorial representation; number and the growing use of both their own and mathematical language. The work children undertake will often be integrated with the other areas of learning. Assessments are recorded in the Foundation Stage Profile.

In key stage one (KS1), each class has five maths sessions and additional sessions that focus on times tables and mental arithmetic skills.

In key stage two (KS2), they also have five maths sessions, additional times tables sessions and 'Mega Maths' Key skills session (using Assertive mentoring Weekly Skills check) each week. Assertive Mentoring Weekly Skills checks allow opportunities to identify, practice and consolidate mathematical understanding and the regular skills checks are used for teachers to teach weaknesses based on the data analysis.

The structured daily mathematics lessons will involve a combination of oral/mental calculation work, focussed teaching as well as independent activities. All children will be working towards the stated learning intentions. Independent activities may involve teacher input, group work, paired work and individual work or ICT based learning.

Problem solving and reasoning is embedded throughout teaching units.

Mathematics lessons should be enjoyable for both pupils and teachers. This can be achieved by both varying lessons and ensuring each pupil experiences success and challenge. Teachers will ensure that episodic learning is taking place within their maths lessons.

Pupils should engage in:

- Development of mental strategies.
- Development of their own methods of organisation.
- Development and practise of written methods.
- Practical and investigational work.
- Mathematics discussion.
- Consolidation of work and skills.
- Active maths lessons.

We recognise the importance of pupils achieving independently and as part of this we commit the use of teaching assistants to mathematics sessions to support pupils as needed. School's expectations are that all children will be involved and challenged in maths whether they are working below, at or exceeding expectations for the year group.

At Edleston Primary School, we target individuals/groups who need further intervention for maths misconceptions or further consolidation and where possible these are carried out the same day or next day by either the class teacher or teaching assistant.

## **Assessment**

Assessment is to be informative, useful and manageable. Informal and on-going assessment happens daily in the lessons. Teachers use questions and monitoring/marking of work to discover who is working and achieving the objective or who isn't and needs more support either during the lesson.

At the beginning of the academic year, each teacher meets with the previous teacher to discuss common strengths and weaknesses and analysis of summer assessments is shared.

Progress and attainment is monitored at various times.

Year 1-6 are assessed formally 3 times per year using PUMA or NFER Maths tests to review attainment, progress and inform planning. These are shared with the Leadership Team and all teachers meet with them to discuss at Pupil Progress meetings where target children/groups are discussed and next steps identified and then monitored.

All children from Year 1 upwards will have termly times tables test data which is tracked and progress monitored.

Year 1, 2 and 3 have termly place value data which is similarly tracked and monitored.

## Impact

At Edleston Primary School, we have committed ourselves to achieve the best outcomes for our pupils, including:

- Ensuring first quality teaching is at the heart of every lesson
- Encouraging teachers and pupils to enjoy mathematics.
- Pupils refining by practising their mathematical explanations.
- Pupils master key skills and concepts – [it is *mastered* when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations].
- Ensuring mental skills and written methods are taught and practised regularly.
- Ensuring that times tables are taught rigorously throughout school.
- Increasing the amount of using and applying skills being taught and practised.
- Adopting whole class interactive teaching methods incorporating ICT regularly.
- Ensuring mathematic lessons have a fast pace, where all learners are challenged and progress is evident.
- Using effective questioning techniques including higher order questions.
- Emphasising the use of mathematical terminology and encouraging the correct use of it from pupils.
- Engaging staff in high quality training.

## Monitoring

Governors monitor coverage of National Curriculum subjects and compliance with other statutory requirements through:

- School visits,
- meetings with the school parliament,
- sharing children's work
- feedback from staff.

Learning is monitored by the Leadership team and subject leaders across a variety of methods including:

- work scrutinies,
- learning walks,
- pupil interviews,
- analysing data.

## Inclusion

Teachers set high expectations for all pupils. They will use appropriate assessment to set ambitious targets and plan challenging work for all groups, including:

- More able pupils
- Pupils with low prior attainment
- Pupils from disadvantaged backgrounds
- Pupils with SEN
- Pupils with English as an additional language (EAL)

Teachers will plan lessons so that pupils with SEN and/or disabilities can study every National Curriculum subject, wherever possible, and ensure that there are no barriers to every pupil achieving. Teachers will also take account of the needs of pupils whose first language is not English. Lessons will be planned so that teaching opportunities help pupils to develop their English, and to support pupils to take part in all subjects; deepening and broadening their knowledge and understanding of concepts.

Further information can be found in our statement of equality information and objectives, and in our SEN policy and information report.

#### **Policy links**

Calculation policy

Marking and feedback policy