

# Ingleby Mill Primary School



## Mathematics Policy

<b>Date of Review</b>	<b>Date of Next Review</b>
December 2019 No changes	December 2022

## **Ingleby Mill Primary School** **Mathematics Policy**

### **Rationale**

The purpose of this document is to provide teachers, parents, carers and governors with the aims, principles and strategies for the teaching and learning of Mathematics at Ingleby Mill Primary School. This policy is the formal statement of intent for this subject. It reflects the essential part that Mathematics plays in the education of all of the pupils and staff at Ingleby Mill. It also facilitates how we, as a school, meet the legal requirements of recent Education Acts and National Curriculum requirements.

This policy should be read in conjunction with the following school policies:

- Teaching and Learning Policy
- Assessment and Record Keeping
- Special Educational Needs and Disability Policy
- Equal Opportunities Policy
- Continuing Professional Development Policy
- Curriculum Statement
- Marking policy
- Computing Policy
- E-safety Policy
- Health and Safety Policy
- Calculation Policy

### **Aims**

The following aims of Mathematics are in accordance with our school Mission Statement.

At Ingleby Mill we aim to:

- Develop a 'can do' attitude, demonstrating confidence, perseverance, enjoyment and curiosity for Mathematics.
- Build confidence and competence, i.e. mastery, with numbers and the number system including recall of facts, mental methods, jottings and standard written methods, reasoning and problem solving.
- Make mathematics relevant by relating it to the real world and everyday situations, and enable children to communicate their findings with confidence, accuracy and understanding.
- Enable children to think and reason logically and systematically through problem solving and investigations.
- Consolidate learning through practical activities.
- Develop initiative and an ability to work independently, as well as in co-operation with others.
- Develop 'number sense' by demonstrating flexibility in methods; understanding and explaining these methods; producing accurate answers efficiently and encouraging children to recognise if the answer is 'reasonable'.
- Encourage mathematical thinking through discussion and investigation by showing and talking about thinking in different ways, making connections and seeing relationships,
- Use and apply their mathematical knowledge, skills and vocabulary in different contexts and across different subjects.

- Recognise the importance of mathematics in everyday life in the past, today and future.

## **The National Curriculum for Mathematics**

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The 2014 National Curriculum programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to Science, geography, design technology and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

## **Planning**

The National Curriculum is organised into the following strands:

- Number and place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurements
- Geometry
- Statistics (Year 2 onwards)
- *Algebra and Ratio and Proportion are not included until year 6*

The above strands are broken down into statutory objectives for each year group. These can be found in more detail in the National Curriculum for Mathematics (2014). By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programmes of study, as set out in the National Curriculum.

Ingleby Mill has a common format for short term planning, which is used throughout the school. It outlines the learning objectives (taken from the medium term planning), key questions, differentiation, use of additional adults, activities, success criteria and assessment opportunities. This is regularly monitored and evaluated by the Mathematics subject leader and members of the leadership team. Class teachers select the objectives to be taught each week. Teachers use their own judgment as to the order of delivery and timing may be flexible in response to learning. Whole school and/or cohort issues raised during monitoring and national tests analysis inform the selection of objectives to be prioritised. Teachers highlight these specific objectives at the initial planning stages to ensure that school priorities are addressed. Assessment opportunities are indicated and ongoing assessment notes are made on the planning. Plans are annotated by individual teachers to allow for amendments throughout the unit of learning.

Planning reflects a greater emphasis of mastery of the key skills of mathematics. Teachers ensure that children have adequate time to develop their fluency and understanding, combined

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with opportunities for children to reason and solve problems (routine and non-routine), before moving onto a new concept.

Differentiation is evidenced through the amount of support and intervention needed, not in the content taught. Challenge is through complex problem solving to deepen understanding, not a rush to new mathematical content.

### **Organisation**

Classes are organised into whole class mixed ability groups. From Y5 upwards the children are grouped into a challenge group and two other groups of children of similar ability. There is flexibility in these groups that allows for movement of pupils between classes. This depends on regular discussions of the teachers in year groups who closely monitor individual children's progress. Teaching Assistants work closely with class teachers, providing support and additional teaching for small groups of targeted children.

In the Foundation Stage, children receive adult led whole class and group mathematics teaching as well as daily independent child initiated activities. They are given opportunities to work on mathematical skills both indoors and outdoors. Activities relate to the Number and Shape, Space and Measures strands of the Early Years Foundation Stage Curriculum and also make links to others areas of the Curriculum. Numicon is used but this is supplemented with other manipulatives.

In KS1 and KS2 children have a daily mathematics lesson between 45 and 60 minutes. Opportunities for children to use and apply their mathematical knowledge, skills and vocabulary in different contexts, including outdoor mathematics, are also planned. Teachers can choose to plan a longer session e.g. whole morning mathematics activities, as long as there is appropriate coverage of other subjects across the timetable.

Children in KS2, and from 2019 Year 2, also complete a morning maths activity each morning using a recognized scheme (Schofield & Sims). The children are allocated the book that is most appropriate to their ability and spend 10 to 15 minutes each morning working through a range of questions. This is followed by a weekly marking session where methods are explained.

A typical lesson in KS1 and KS2 consists of a number of components but the timing and organisation of each component may vary over a sequence of lessons.

### **Oral / mental calculation**

This involves rehearsing, sharpening and developing mental and oral mathematical skills.

### **Main teaching and independent learning episodes**

This involves both teaching input and pupil activities with a balance between whole class, grouped, paired and individual work.

### **Plenaries and mini plenaries**

These are a vital part of every lesson. They involve working with the whole class or small groups to identify and deal with misconceptions, summarising key facts and ideas, making links to other work, evaluating learning and progress and discussing next steps.

Following the mastery approach, children work on the same tasks and engage in common discussions. Differentiation is achieved through choice of manipulatives and visual representations, and skillful questioning. Difficulties and misconceptions are identified through regular formative assessments and addressed with quick intervention.

## **Assessment**

Teachers plan lessons that aim for all children to master the key skills. Therefore, ongoing assessment is an important component of the mastery curriculum. Class teachers are responsible for assessing individual's attainment in mathematics in line with the school's Assessment Policy.

Assessments are either formative (day to day assessments that take place continually and inform planning) or summative (formal assessments that take place at the end of a strand, term or year).

Assessments include:

- Work samples e.g. books
- Observation notes e.g. from guided sessions
- Questioning e.g. recall of facts 1:1, asking a child to explain how they solved a problem
- Photographs
- Task and Tests e.g. teacher generated, from the Abacus scheme, Test Base, published tests or end of Key Stage National Curriculum tests
- Feedback from pupils e.g. responses in books, verbal feedback.

In the Foundation Stage teachers continually update the children's 'Learning Journeys' and also keep more formal records directly relating to the learning objectives and Early learning Goals. Children are also given targets each term.

Children are involved in self-assessment of their own learning through the use of a traffic light system to show how well they have understood a concept.

Throughout the school a child's attainment is regularly updated on Target Tracker to monitor progress against age appropriate expectations.

At the end of KS1 and 2 children complete National Curriculum Tests and results are reported to parents.

## **Homework**

Homework is set regularly to memorise number facts, practise a strategy, play a game or collect information. These activities should be varied, frequent, short and focused so that they motivate children and foster study skills. Children should be given some feedback on their progress by going over their homework at the earliest opportunity, by marking it altogether or by setting a short quiz, going over any difficulties encountered. Some homework will be set using the online Abacus resource 'Active Learn' and the school's Virtual Learning Environment materials (DB Primary).

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### **SEND Provision**

It is assumed that the large majority of children progress through the curriculum content at the same pace. If a child has a specific difficulty relating to Mathematics that is listed on their SEND plan, they are given extra time or additional support with a teacher or teaching assistant to address their specific needs and to support and develop their mathematical knowledge and skills accordingly.

### **More Able Provision**

If a child has demonstrated that they have a deep understanding of an age appropriate concept and is excelling in an area of mathematics, they are given further opportunities to develop fluency, reasoning and problem solving and apply higher order thinking skills through carefully planned tasks.

### **Intervention**

In Foundation, KS1 and KS2 if a child is identified as having a difficulty or misconception with an age related expectation they are immediately targeted through individual or small group work. These interventions provide short-term targeted support using precise questioning and scaffolding to enable learners to reach their full potential.

### **Equal Opportunities**

We incorporate mathematics into a wide range of cross-curricular subjects and seek to take advantage of multicultural aspects of mathematics e.g. Islamic patterns in RE, estimating and measuring in design technology and collecting, collating and interpreting data in science and geography. All children have equal access to the curriculum regardless of their gender. This is monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups

### **The role of governors:**

The governors will liaise with the Head Teacher over all aspects of Mathematics at Ingleby Mill. The governing body will discuss, review and endorse agreed strategies and will discuss the Head's report on the working of this policy.

The governors will liaise with the Head Teacher to arrange for a regular programme of staff development. This will include training for support staff as well as teachers when required.

### **The role of the Headteacher**

It is the responsibility of the Head Teacher to ensure that the LA, staff, governing body, parents and other appropriate agencies are informed about our Mathematics policy, and that the policy is implemented effectively. The Head Teacher monitors this policy on a regular basis and reports to governors, when requested, on the effectiveness of the policy.

### **The role of the Mathematics Subject Leader**

The subject leader, together with the Head Teacher, have a general responsibility for supporting other members of staff in the implementation of this policy and will also disseminate information and provide CPD relating to Mathematics when required.

The Subject Leader is responsible for improving the standards of teaching and learning in Mathematics through:

- -Monitoring and evaluating mathematics including:
  - Pupil progress
  - Provision of Mathematics
  - The quality of the Learning Environment,
    - Taking the lead in policy development,
    - Auditing and supporting colleagues in their CPD,
    - Purchasing and organising resources,
    - Keeping up to date with recent Mathematics developments.

### **Secondary school liaison**

Children from Ingleby Mill transfer into a number of secondary schools. Transition meetings and curriculum planning sharing currently takes place with staff from some of the neighbouring secondary schools.

### **Dissemination and implementation of the policy**

This policy will be given to all members of the governing body, teaching and non-teaching staff. All parents will be invited to read the document and reference copies will be available from the Head Teacher. Reference copies are also available from the Head Teacher for all other persons who come into contact with the children.

### **Date of implementation: December 2019**

**Monitoring and evaluating the policy:** This policy will be reviewed every two years by the Head Teacher, Mathematics Subject Leader and the governing body.