Slaley First School

Mathematics Curriculum Policy 2021-22

Nurturing Ambitious Individuals

SLALEY FIRST SCHOOL
MATHEMATICS POLICY

INTENT

A Vocabulary and Knowledge Rich Curriculum

"Communication and language are the foundations of learning and thinking. Words describe and define the limits of our understanding." (Education, Endowment foundation 2019).

Children at Slaley First School have a real thirst for new vocabulary. Terminology is taught and built up over time as the children progress through the school. Children are challenged to apply their use of **vocabulary** in written work and our curriculum is set out in **small incremental steps** in order to minimise the scaffolding needed. Research by the Education Endowment Foundation indicates that it is just as important to avoid over-scaffolding as it is to ensure all pupils are adequately supported. It also indicates that it is important to take account of the prior knowledge that children bring to lessons and to help them to build upon this understanding. Our curriculum is therefore designed to build upon prior knowledge and skills. It is **self-reviewing** whereby knowledge gained is consolidated and revisited in order to support retention and recall.

Aims and Vision

Our aims in teaching mathematics are that all children should:

- become learners who can communicate using sophisticated mathematical language
- be equipped with a uniquely powerful set of mathematical tools
- develop an ability to calculate, reason and solve problems
- understand and appreciate relationships and patterns in both number and space in their everyday lives
- believe that maths should be purposeful and children are made aware of its importance in real-life contexts
- develop a positive attitude towards mathematics
- be resilient and embrace challenge
- develop a secure foundation of mathematical fluency from EYFS to Year 4
- develop competence and confidence with numbers and the number system and other mathematical knowledge, concepts and skills
- Become learners who can reason, think logically and work systematically to solve problems, both independently and with others

THE TEACHING OF MATHEMATICS

- The structure of mathematics teaching is based upon the mathematics National Curriculum guidelines and covers all of the recommended objectives to ensure that a broad and balanced mathematics curriculum is taught to all pupils at Slaley First School.

- Our curriculum addresses the following aspects:

  Early Years – Number / Numerical Patterns

  Key Stage 1 and Key Stage 2
- Number and Place Value
- Addition and Subtraction
- Multiplication and Division
- Fractions
- Measures
- Geometry
- Statistics

It is understood that, within a unit of work, the time spent on teaching a specific learning objective or set of learning objectives depends on the needs of the children in the class. The specific units above are revisited on a cycle throughout the year in order to ensure that the children revisit specific facts before going on to learn in a deeper sense thus aiding knowledge retention.

- We ensure that across each term, children are given a range of experiences in mathematics lessons e.g. practical activities and mathematical games, group problem solving activities, individual, group and whole class discussion activities, open and closed tasks. We ensure that children can use a range of methods to calculate and have the ability to check whether their chosen methods are appropriate, reliable and efficient.
- On a daily basis, children are encouraged to develop their reasoning and fluency skills and regular 'Flashback Four' activities ensure that the children regularly re-visit previous concepts.

MATHEMATICS VOCABULARY

At Slaley First School, our children enjoy language and have a thirst for new words. As a result, we have rich vocabulary embedded throughout our curriculum.

- In all lessons, attention is given to whether key vocabulary has been learnt.
- Paired talk activities are used to encourage children to talk about their mathematics.
- Teachers insist that children mirror the language they hear the adults using
- Where appropriate, children are encouraged to answer in full sentences.
- Adults mirror back alternative words for the same meaning to enrich children's range of vocabulary. E.g. Child says '3 times 5 is 15', teacher says, 'yes, the product of 3 and 5 is 15' or '3 multiplied by 5 equals 15'. Children are required to provide justification and reasoning for their

answers. For example, 'I know the shape is a square because….'

- Teachers are required to have sound subject knowledge and understanding of the correct terminology and vocabulary e.g. there is no such thing as a 'take away' sum (because 'sum' means 'add'). We use the terms 'calculation' or 'equation'.

STRATEGIES AND PLANNING

A detailed calculation policy is in operation and was written as a joint collaboration between members of the Hexham Partnersip.

Concrete, Pictorial, Abstract (CPA) Approach

At Slaley First School, children learn mathematics through the 'concrete, pictorial, abstract' approach. As shown in the Calculation Policy, children will use first physical objects to represent mathematical concepts before moving to pictorial representations, and finally abstract representation (ie numerical symbols). Teachers model different ways of representing solutions to a problem in order to develop children's conceptual variation and reasoning skills. Children are encouraged to move between these different stages (sometimes returning to concrete or pictorial) in order to fully understand a mathematical concept.

FLUENCY AND REASONING

One of the three aims of the new curriculum states that pupils will: "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." Children are regularly encouraged to further develop their mathematical ability through specific tasks which are structured in order to encourage fluency and reasoning within mathematics.

PROVISION AND DIFFERENTIATION

Our staff have high expectations of all children, irrespective of ability, and encourage them to be successful and achieve their full potential. Our aim is to ensure challenge for all. We set ambitious targets for all and children are encouraged to have a growth mindset about their ability to do mathematics. Encouraging children to 'have a go' is seen as paramount.

The differentiation of tasks is done in various ways:

- <u>Open ended questioning and activities</u> which allow more able children to offer more sophisticated mathematical responses
- <u>Recording</u> e.g. allowing some children to give verbal responses and photographing their learning
- <u>Resourcing</u> eg Use of cubes, 100 squares, number lines, mirrors to support some children

- Grouping according to ability so that the groups can be given different tasks when appropriate. Activities are based on the same theme.

Part of independent work often involves some focused, targeted group work from the teacher. However groupings are 'fluid and flexible' based on the children's performance in a previous lesson or the beginning of that particular lesson.

Where members of support staff (HLTAs and TAs) are supporting, they are fully briefed before the lesson and use the same teaching methods modelled by the teacher to support individuals or groups. In some cases, they may also model concepts to the class allowing the teacher to assess particular groups of children in more detail and identify their next steps.

Maths in EYFS

In the Early Years Foundation Stage, mathematics is taught holistically through play, based upon the children's' interests and class themes. Children are taught in two ways. Firstly, there are carpet sessions where groups of children focus on particular aspects. This learning can continue in pairs or with individuals. Secondly, practitioners will explore mathematical concepts through play-based activities during child-initiated play.

Special educational needs

Children with SEN are taught within the daily mathematics lesson. When additional staff are available to support groups or individual children, they may withdraw small groups to use intervention materials. Within the daily mathematics lesson, teachers not only provide activities to support children who find mathematics difficult, but also activities that provide appropriate challenges (eg more open-ended investigations and in-depth reasoning tasks) for children who are high achievers in mathematics.

ASSESSMENT IN MATHEMATICS

Assessment for learning

- The learning objective is referred to during the lesson to gauge progress and at the end of the lesson to assess progress. The learning objective

is visible throughout the lesson to ensure the children have clarity of the learning focus. Teachers monitor and assess children throughout the lesson, and through marking their work, identifying any misconceptions that need to be addressed.

- pieces of unaided and levelled written work are kept in the moderation file
- teachers provide accurate teacher assessments; based on their analysis of pupils' work and the use of NFER assessments.
- we moderate pupils' work, as a whole staff, at least termly. Levels are agreed between professionals. We seek to moderate with other schools whenever possible.
- identified children who have not made expected progress across the year are targeted within intervention groups and sessions.
- children who we feel have been adversely affected by Covid-19 are given specific 'Catch Up' sessions
- work is assessed via marking and improvements encouraged through highlighting and response to this.
- spelling Tests are carried out weekly
- phonics screening is undertaken at the end of Year 1 and Y2 if necessary,
- Reading and writing assessments are recorded on a tracking system which is kept updated and analysed
- pupils on the SEN records are identified and monitored.
- progress towards targets in their individual IEP passport is analysed by teachers and the SENCo
- cross-curricular links are made in specific subject areas

Self-Assessment

Children are encouraged to assess their own understanding at the end of their work by the use of a smiley or 'straight' face.

Record Keeping

Teachers complete their own assessment sheets every term within all aspects of mathematics which indicate a detailed resume of what each child can and cannot do. Pupil progress meetings are held half termly and each and every child's attainment is discussed within these. These meetings ensure that teachers reflect upon progress, have a more strategic overview of pupil attainment and a focused conversation in which they are encouraged to identify and plan for gaps in learning.

Formal Assessment

NFER Assessments have been adopted to enable the teaching staff to gain a more detailed and accurate picture of each child's current level of attainment. Each child will complete three tests – one in the Autumn Term; one in the Spring Term and one in the Summer term. This information will also inform pupil progress meetings and planning for the upcoming academic year.

Reporting to Parents

Parents are given the opportunity to discuss their child's progress on three official occasions but understand that the school's 'open door' policy enables them to address concerns throughout the year. Reports are completed before the end of the summer term. Teachers use the information gathered from their assessments to help them comment on individual children's progress.

ROLE OF THE HEADTEACHER

In consultation with other teachers on the curriculum team, the Headteacher:

- determines the ways Mathematics should support, enrich and extend the curriculum
- decides the provision and allocation of resources;
- decides ways in which developments can be assessed, and records maintained;
- ensures that Mathematics is used in a way to achieve the aims and objectives of the school;
- ensures that there is an Mathematics policy,

ROLE OF THE MATHEMATICS SUBJECT LEADER

The Mathematics curriculum team should:

- ensure the development of a long term and medium-term mathematics plan. This will follow the New Primary Framework guidelines and will be built around the school's curriculum topics and cover aspects of the Mathematics National Curriculum statements.
- promote the integration of mathematics within appropriate teaching and learning activities;
- manage the provision and deployment of resources and give guidance on classroom organisation support,
- inspire colleagues to deliver high quality teaching and learning opportunities;
- aid the evaluation and review of the school's mathematics policy,
- monitor and review the mathematics provision within the school,

MONITORING AND EVALUATION

- The teaching of mathematics will be monitored through the School Improvement Plan by the Headteacher
- Governors are kept informed via FGB Meetings
- The Governor(s) assigned to monitoring the curriculum will be kept abreast of developments, progress and changes within the subject.

EQUALITY STATEMENT

We actively seek to encourage equity and equality through our teaching. We seek to advance the equality of opportunity between people who share any of the following characteristic: • gender; • ethnicity; • disability; • religion or belief; • sexual orientation; • gender reassignment; • pregnancy or maternity. The use of stereotypes under any of the above will always be challenge

Working walls

Both Key stage One and Key Stage Two classrooms have a clear working wall where models, vocabulary and visual images used in previous lessons are displayed and referred to. Children use these to support their learning.

Cross-curricular links

Throughout the whole curriculum, opportunities exist to extend and promote mathematics. Teachers seek to take advantage of all these opportunities within our topic-based curriculum.

Pupils' Record of Work

There are occasions when it is both quick and convenient to carry out written calculations. It is also important to record aspects of mathematical investigations. Children are taught a variety of methods for recording their work and they are encouraged and helped to use the most appropriate and convenient method of recording. All children are encouraged to work legibly when recording their work. When using squares, we encourage children to use one square for each digit.

Marking

The quality of marking is crucial. All work is marked daily to show the children where they have succeeded and where errors have been made. Children are asked to respond to marking at the beginning of every lesson using their 'purple polishing pen.'
Please refer to the Feedback and Marking Policy for further detail.

Homework

It is our school policy to provide parents and carers with opportunities to work with their children at home. Homework set can be invaluable in promoting children's learning in mathematics.

Assessment

Monitoring and Evaluation

The Headteacher has overall responsibility for monitoring of maths. Time is set aside to monitor and evaluate the quality and standards of mathematics

throughout the school and this is done through:

- Lesson observations
- Checking of marking and progression in children's books
- Checking of planning and lesson resourcing
- Liaising with teaching staff and offering guidance on planning and supporting the children in their learning

Opportunities for teachers to review the mathematics policy are given on a regular basis during staff meetings