



UPPERBY PRIMARY SCHOOL

Mathematics Policy

Introduction

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world. (National Curriculum 2014)

At Upperby School we want our pupils to become competent and confident mathematicians. We strive to embed the skills and processes necessary to enable pupils to use and apply their Mathematics learning in a variety of contexts. By providing opportunities for children to build a conceptual understanding, develop their basic skills, fluency and recall, before applying their knowledge to everyday problems and challenges, we aim to develop pupils' enjoyment of mathematics.

The aims of the 2014 National Curriculum are for our pupils to:

- become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time
- develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately
- reason mathematically; follow a line of enquiry, conjecture relationships and generalisations
- develop an argument, justification and proof by using mathematical language. problem solve by applying knowledge to a variety of routine and non-routine problems, breaking down problems into simpler steps and persevering in answering

The National Curriculum sets out year-by-year programmes of study for Key Stages 1 and 2. This ensures continuity and progression in the teaching of mathematics. At Upperby School we use White Rose Maths to implement these programmes of study.

Early Years Mathematics

The EYFS Statutory Framework 2014 sets standards for the learning, development and care of pupils from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development Matters' non statutory guidance as well as the White Rose Medium Term plans for EYFS Mathematics.

The EYFS Framework in relation to mathematics aims for our pupils to:

- develop and improve their skills in counting
- Understand and use numbers
- calculate simple addition and subtraction problems
- describe shapes, spaces, and measures



The purpose of mathematics in our school is to develop:

- positive attitudes towards the subject and awareness of the relevance of mathematics in the real world
 - competence and confidence in using and applying mathematical knowledge, concepts and skills
 - an ability to solve problems, to reason, to think logically and to work systematically and accurately
 - initiative and motivation to work both independently and in cooperation with others
 - confident communication of mathematics where pupils ask and answer questions, openly share work and learn from mistakes
 - an ability to use and apply mathematics across the curriculum and in real life
 - an understanding of mathematics through a process of enquiry and investigation
- We aim to provide a stimulating and exciting learning environment that takes account of different learning styles and uses appropriate resources to maximise teaching and learning.

Teaching for Mastery Principles

At Upperby Primary School we believe that the vast majority of children can succeed in learning mathematics in line with national expectations. The whole class is taught mathematics together, expectation here is that every child will master the key concept, whilst some will work more deeply on challenging tasks. Children are work in a variety of groups, doing the same work at the same time, with there being no differentiation by acceleration to new content. Differentiation is in the form of the amount of time children will spend using concrete resources to grasp concepts. With higher attaining children challenged through more demanding problems, which deepens their knowledge of the same content. Further differentiation will be seen through targeted questioning and the feedback and scaffolding individual pupils receive in class. Depth of understanding and readiness for the next stage (whether it is the next lesson, next unit of work, year or key stage) is prioritised, alongside high expectations of every child. Precise mathematical language, often couched in full sentences, is used by teachers so that mathematical ideas are conveyed with clarity and precision. Sufficient time is spent on key concepts to ensure learning is well developed and deeply embedded before moving on.

Breadth of study

Careful planning and preparation ensures that throughout the school pupils engage in:

- practical, pictorial and abstract activities as they gain knowledge and skills.
- practical activities and games using a variety of resources
- problem solving to challenge thinking
- individual, paired, group and whole class learning and discussions
- purposeful practise where time is given to apply their learning
- open and closed tasks
- a range of methods of calculating e.g. mental, pencil & paper and using a calculator
- working with computers as a mathematical tool



Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

Long term planning

At Upperby we follow the planning sequences from White Rose Maths scheme which link to the National curriculum programmes of study.

Medium term planning

Years EYFS -6 use the White Rose Maths schemes of learning as their medium term planning documents.

These schemes provide teachers with exemplification for mathematics objectives and are broken down into fluency, reasoning and problem solving, key aims of the National Curriculum.

They support a mastery approach to teaching and learning and have numbers at their heart. They ensure teachers stay in the required key stage and support the ideal of depth before breadth. They support pupils working together as a whole group and provide plenty of time to build reasoning and problem solving elements into the curriculum.

Short term planning

The White Rose Maths schemes of learning support weekly planning and are monitored at intervals by the mathematics subject leader. EYFS planning is based on the medium term plans and delivered as appropriate to individual pupils with thought to where the pupils are now and what steps they need to take next.

All classes have a daily mathematics lesson where possible. In Key Stage 1 lessons are usually 45-50 minutes and in Key Stage 2 are usually 50 – 60 minutes. In addition to this, Flashback 4 questions are used most days.

Teachers of the EYFS ensure the pupils learn through a mixture of adult led activities and pupil initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach.

Special educational needs & disabilities (SEND)

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, pupils' IEPs incorporate suitable objectives from the National Curriculum for Mathematics or Development Matters and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Mathematics focused intervention in schools helps pupils with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the class teacher.



Within the daily mathematics lesson, teachers have a responsibility to not only provide differentiated activities to support pupils with SEND but also activities that provide sufficient challenge for pupils who are high achievers. It is the teachers' responsibility to ensure that all pupils are challenged at a level appropriate to their ability.

Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all pupils, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics. The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all pupils including those for whom English is an Additional Language (EAL). Differentiated questions are used in lessons to help pupils and planned support from teaching assistants and other adults enables more access in lessons.

Lessons

The emphasis in lessons is to make teaching interactive and lively, to engage all pupils encouraging them to talk about mathematics. Lessons involve elements of:

- Instruction – giving information and structuring it well
- Demonstrating – showing, describing and modelling mathematics using appropriate resources and visual displays
- Explaining and illustrating – giving accurate and well paced explanations
- High quality questioning and discussing
- Consolidating
- Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points
- Summarising – reviewing mathematics that has been taught enabling pupils to focus on next steps

Pupils' Records of work

Pupils are taught a variety of methods for recording their work and are encouraged and helped to use the most appropriate and convenient. Pupils are encouraged to use mental strategies and their own jottings before resorting to more formal written methods. Pupils' own jottings to support their work is encouraged throughout all year groups. Where tasks are practical, the class teacher or teaching assistant may take photographic evidence. In Years 5 and 6 children may complete mathematical work through learning by questions and evidence will be recorded on this system.

Marking

Marking of pupils' work is essential to ensure they make further progress. Work is marked in line with the school marking policy, and includes next steps. Pupils are encouraged to self-assess their work and given time to read teachers' comments and



make corrections or improvements. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in mathematics can be marked by pupils themselves, exercises involving routine practice with support and guidance from the teacher – particularly in years 5 and 6.

Assessment, record keeping and target setting

Assessment is an integral part of teaching and learning and is a continuous process. Teachers make assessments of pupils daily through:

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments.

Summative assessment

Assessments are carried out across the school at three times during the year using the National Test Style (NTS) assessment materials. These materials which provide a national benchmark are used alongside judgements made from class work support teachers in making an assessment for each pupil at the of each term.

Pupil Progress meetings are timetabled each term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate.

Long term

In EYFS children are measured at the end of Foundation stage against the Early Learning goals criteria for the Mathematics specific area of development and are graded as emerging, have met or exceeded the goals for number and shape, space and measure.

Years 2 and 6 complete the national tests (SATs) in May. Years 3, 4 and 5 complete their final NTS paper in the summer term which will help to accurately create a final judgement for each child in each year group.

Resources

Each class has a stock of core resources that are age appropriate. These are regularly updated to support the curriculum.



Homework

All years have mathematics homework with an arithmetic's focus each week appropriate to their age and stage of mathematical development.

Role of the Mathematics Subject Leader

- To lead in the development of mathematics throughout the school
- To monitor the planning, teaching and learning of mathematics throughout the school
- To help raise standards in mathematics
- To provide teachers with support in the teaching of mathematics
- To provide staff with CPD opportunities in relation to mathematics within the confines of the budget and the School Improvement Plan
- To monitor and maintain high quality resources
- To keep up to date with new developments in the area of mathematics

Monitoring and review

This policy is monitored on a day-to-day basis by the head teacher, who reports to governors about the effectiveness of the policy on request. The policy will be reviewed every two years