

Subject Rationale

Our vision for Mathematics

At The District, the rationale underpinning our maths curriculum is the importance of pupils leaving school as mathematicians. We believe that every pupil has the right to be confident in their maths knowledge, skills and understanding, so that they can apply these in their lives beyond school. Maths in our school is about developing pupils' fluency, reasoning and problem solving, applying skills learned in maths to real life situations. We want pupils to develop a deep understanding and lasting interest in maths, making concrete links between areas of maths, the wider curriculum and the world.

Teaching and Learning Mathematics

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.

In order to achieve these aims, mathematics is taught daily. As outlined in the National Curriculum, our aim is for every pupil to develop mastery of mathematics. Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject. We aim to teach for mastery, in that we organise our lessons and classroom practice to give pupils the best chances of mastering maths through small steps, thus acquiring a solid enough understanding of the maths that is being taught to enable pupils to move on to more advanced materials. Making connections between the interwoven concepts of mathematics is of vital importance. These connections are developed through regular revisiting of previous learning, building on this to develop mathematical knowledge and understanding further.

Early Years (EYFS)

In Nursery, maths is taught through song and continuous provision as this allows the practitioners the opportunity to observe the children when they are fully engaged in a self-initiated task and then encourage them to solve problems. In Reception, a play approach is also used throughout 'Thinking Play' time. This is enhanced by group focus challenges. A daily maths session is taught, following the concept of a number a week, using a story stimulus or number song hook. This incorporates addition, subtraction, doubles, shape space and measure, problem solving, etc. within the week. EYFS teachers have access to White Rose EYFS documentation to support their planning.

Key Stages 1 & 2

From year 1 to year 6, we follow the White Rose Maths long term overview, with lessons structured to develop the 5 big ideas for maths based on the 3 aims of the National Curriculum. Daily maths lessons consist of a 45-minute maths lesson followed by a 15 minutes maths skills lesson. The aim of the maths skills lesson is to promote continued practise of calculation strategies and enable rapid recall of key facts (e.g. number bonds, times tables and related divisions).

Every maths lesson begins with a vocabulary check, where pupils are expected to explain their maths knowledge, understanding and strategies using correct maths vocabulary. Lesson structure includes 'ping pong', focusing on discussion, developing questioning, explaining, practising together and developing mastery in small steps. In order to support pupils' learning and ability to make connections in maths, working walls display: vocabulary; fluency (including concrete, pictorial and abstract representations of calculation strategies) 'this is what we know'; reasoning and problem solving 'this is how we use it'; and making connections 'and now we know'. The school's calculation policy outlines the agreed calculation strategies and progression of vocabulary to be used within lessons and demonstrated on maths learning walls.

Opportunities and Resources

Complementing the maths curriculum, we make cross-curricular links to other subjects (found on learning project unit plans). We also plan termly whole school maths weeks and themed STEM weeks, which promote real life maths.

We are very fortunate to have a wide range of physical resources to support maths learning opportunities. These include each y1 to y6 class having a help desk where manipulatives such as: place value counters, number lines, money, 2D and 3D shapes. Pupils are taught, then encouraged, to choose and use these resources independently to support their learning. Within EYFS, mathematical opportunities are planned across continuous provision areas (both inside and outside), supporting the daily teacher led tasks.

We access a range of quality resources and organisations to support our teaching and learning, including:

www.bbc.co.uk

www.ncetm.co.uk

www.nrich.co.uk

www.classroomsecrets.co.uk

www.whiterosemaths.com

Inclusion

As a school, we ensure that all pupils can engage with mathematical learning. As far as is appropriate, pupils with special educational needs should follow the same mathematics curriculum as all other students. Careful consideration is given concerning the level of differentiation needed, and in some cases the content or delivery will have to be adapted. Teachers and/or learning support assistants work with individual pupils where required, and if appropriate. It is not the school's policy to withdraw pupils with special educational needs from maths lessons.

Recording and assessment

In EYFS, class teachers assess children's development and progress in maths by making informal judgements as they observe children. Alongside these judgements, teachers use the Number and Shape, Space and Measures objectives (as stated in the Early Years Outcomes) to make more formal judgements of children's progress and development in this prime area of learning. Teachers keep a record of children's achievements through daily and weekly evaluations, or photographs/videos. Pupils in Reception record their written responses in passports as they complete the weekly carousel of tasks linked to their focus learning.

Pupils in years 1 to 6 have a maths book in which to record their written work. As outlined in school's marking and feedback policy, teachers and learning support assistants give immediate written and

verbal feedback within lessons. Daily formative assessment for learning feeds in to the following lesson, with individual pupils receiving further support during tutorial time, where necessary.

In Key Stage 1 and 2, class teachers gather evidence of what individual pupils know, understand and can do in maths by observing them at work, listening to and discussing with them, and evaluating and responding to written work they produce. In accordance with school's assessment cycle, pupils are formally assessed on three occasions throughout the school year. For pupils in year 1, this takes the form of teacher assessments in Autumn and Spring, followed by NFER test in Summer term. Year 3, 4 and 5 pupils are assessed using NFER tests, whereas year 2 and year 6 pupils are assessed using past SATs papers. Question Level Analysis provides teachers with information of gaps in knowledge and areas of mathematics to revisit.

Outcomes of assessments are recorded on Insight.

Monitoring

The maths lead monitors and reviews the implementation and development of the maths curriculum in consultation with the Head teacher, SLT, staff members and governors. Monitoring is done through a range of methods, including:

- Regular book scrutiny
- Learning walks
- Display and learning journey observations
- Teacher observations
- Teacher, pupil and parent consultations