Mathematics Framework

Intent

At Hemingbrough Primary School we want children to explore, question, trial, spot patterns, generalise and solve problems in Maths. We aim to deliver lessons that are creative and engaging, using real life contexts, as this helps children develop skills they can use in their everyday lives. It gives Maths meaning. It makes Maths more fun! We want children to make rich connections across mathematical ideas to develop fluency, reasoning and competence in solving increasingly sophisticated problems.

We teach maths following the NCETM Prioritisation scheme with support from White Rose, chosen because it ensures progression throughout school through its use of resources, detailed documents, vocabulary, methods of recording, and incorporates fluency, reasoning and problem solving at all levels. The focus is not on rote learning but on making connections across mathematical ideas to deepen and embed understanding. Pupils are introduced to new concepts using the Concrete, Pictorial and Abstract (CPA) approach. We ensure that children have the chance to grapple with numbers, shapes and statistics, and believe that there is as much (if not more) to be gained from making mistakes and addressing them, as in getting it right first time. We encourage mixed ability grouping to encourage peer support and explanations which serve to deepen understanding.

We ensure that all learners are supported in their learning by continual teacher assessments within lessons, and then follow up with support, interventions (either same-day, pre-teaching, or extra tuition in and out of class) and with extra challenge for those who have grasped the objectives. These include the use of low threshold, high ceiling activities which are mathematically accessible for all, and have built-in extension opportunities.

We intend for our pupils to be able to apply their mathematical knowledge to science and other subjects. We want them to know that it is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

We can link mathematical understanding to our school values:

Community – To support others when they need help, working in pairs and groups

Aspirations – To challenge themselves to attempt trickier problems and to explain reasons and patterns

Resilience – To keep on grappling with problems encountered, that mistakes are inevitable and valuable

Empathy – To understand that not everyone enjoys maths or finds it easy, and that we can support them

Implementation

At HCPS, children are taught in an environment centred around the balanced mix of independent work, partner tasks and whole class tuition. Teachers work to support and guide their children through the following stages of development:

- Talking mathematically; using appropriate vocabulary and examples.
- Developing the use of concrete, pictorial and abstract means of recording.
- Using and applying flexible mental strategies to solve calculations.
- Explain and justify their use of strategies or resources to solve problems and calculations.
- In Key Stage 2, using an expanded method which leads into a standard written method for each of the four main operations.
- Understanding when to apply either written or mental methods when completing calculations.
- To develop skills of reasoning and problem solving, embedding these skills through regular opportunities.

We believe all children can succeed mathematically, and as such all children should follow the same curriculum and expectations.
We ensure, through our informed planning and preparation process, that all children are given opportunities to:

- 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.

Scheme

All class teachers are responsible for weekly planning, based on the yearly overviews produced by the subject lead, supported by NCETM. Class teachers are supported to adapt materials for their own classroom and encouraged to use other schemes to support such as White Rose.
Teachers will:

● Identify the appropriate teaching and learning strategies required.
● Plan lessons with a balanced and engaging range of activities.
● Plan for the specific needs of children within their own class – adapting lessons appropriately and facilitating interventions where appropriate.
● Assess children routinely using formative and summative approaches – adapting and revisiting the areas of learning where necessary.

Mixed year groups will be will be taught on a two-year cycle. See Overviews in curriculum tab on the website.

Impact

Assessment

The teaching and assessing of mathematics at HCPS follows the Assessment for Learning cycle of; plan, teach, review, assess. Children's work is marked regularly, and assessed against national curriculum objectives. Children in EYFS are assessed regularly using the Early Learning Goals. Formal tests are administered to children from Year 1 to 6, to assist teachers with their assessment of individual achievement and progress in mathematics. The following test formats are used within this process:

- PUMA Progress Tests (Half Termly): The results are analysed and used to identify gaps in children's knowledge, which in turn informs the future planning. They are also used to monitor progress in maths.
- NCETM Assessment questions (Weekly throughout a module): These are used in some classes as a more informal way to assess the children's understanding at the end of each unit.
- SATs Preparation Assessments: Year 6 undertake a range of preparation assessments over the course of the year. These tests are used to track progress and attainment, encourage children's confidence, and support the identification of gaps in knowledge and understanding.

All data is entered into Otrack and then analysed for the mini sef which is produced for each class every term. The maths lead uses this information to produce a subject summary which highlights areas of concern. Information gathered is used to inform the implementation of intervention programmes for those children who require additional support to catch up to their peers.

Provision for Inclusion

All children have equal access to the Mathematics curriculum, regardless of race or gender. Children access the curriculum at the level appropriate to them, ensuring rapid measurable progress. Resources and learning environments are planned and designed to enable all children access to the learning required. Differentiated activities are provided to support struggling learners and challenge rapid graspers so they are able to work at greater depth. We aim to provide for all children so that they achieve as highly as they can in Maths according to their individual abilities. We will identify which pupils or groups of pupils are under-achieving and take steps to improve their progress in order to close the gap. This will be done in discussion with the class teacher at pupil progress meetings. This information will then be shared with the SLT, SENCO and parents if required. More able children will be identified, and suitable learning challenges provided to deepen and strengthen their skills in Maths. Hemingbrough school has high expectations for every child, whatever their background or circumstances. Children learn and thrive when they are healthy, safe and engaged. In order to engage all children, cultural diversity, home languages, gender and religious beliefs are all celebrated. Our maths curriculum includes a wide range of questions and problem-solving scenarios which represent the diversity and backgrounds of different children. We recognise that parents play a large part in the education of their children. Parents and staff work together in partnership to encourage the qualities, attitudes, knowledge, understanding and competences which are necessary to equip children for adult life.

Health and Safety/Safeguarding

Health and Safety issues in Maths include the safe teaching of appropriate procedures when dealing with e.g. manipulatives, rulers, compasses etc. The children are taught to be aware of their own and others' safety. Children also learn about e.g. what constitutes appropriate scenarios for problem-solving questions. They are expected to display appropriate behaviour at all times. Any safeguarding concerns are noted down and reported to the safeguarding lead.