

Mathematics Policy

National Curriculum

The national curriculum states: "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, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject."

Curriculum Intent

At Haydn Primary School the intent is for our Maths teaching to enable each child to develop their learning and achieve their full potential. We endeavour to not only develop the mathematics skills and understanding required for later life, but also to foster an enthusiasm and fascination about maths itself. We aim to increase pupil confidence and ambition in maths so they are able to express themselves and their ideas using the language of maths with assurance. We aim to inspire and excite students by making learning exciting, personalising our interactions with pupils through feedback and expectations, promoting independent study and encouraging risk taking by rewarding the process not just the final outcome.

Our aim is to ensure that all children:

- Become **Fluent** in the fundamentals of mathematics, including varied and frequent practice using increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Are able to **Reason and Explain** 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 skill and confidence, including breaking down problems, persevering in tasks and being able to consider a variety of approaches.

At Haydn, we value and encourage, across all classrooms, talk opportunities, a concrete, pictorial, abstract path to learning which supports pupils to work towards having the resilience and skills required to be real life problem solvers and to be fluent in both their number skills and ability to express their understanding.

Planning

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term).

The Foundation Stage

The Long Term plan is from the curriculum objectives outlined in The Early Learning Goals (ELG)

The Medium Term plans are adopted from the The Early Learning Goals and use the White Rose resources.

Daily planning identifies taught sessions, focussed activities and provision in the environment (weekly) for the goals identified.

Key Stage 1 and 2

The curriculum map (NCETM) for Mathematics gives a detailed outline of the objectives that we teach. Our curriculum map identifies the key objectives and vocabulary for each year group.

Our medium-term mathematics plans, give details of the teaching objectives for each term, and define what we teach. These are reviewed yearly by each year group, and are designed to ensure logical progression, a systematic approach and have considered the linking of topics where appropriate e.g. Fractions and Division.

Daily Planning is completed each week. This must include: clear objectives / teaching sequence / differentiated activities / key Questions (Highlighted in Yellow)/ two or more problem solving, reasoning activities a week (Highlighted in Red)/ weekly arithmetic session KS2/fluency skills activities (daily KS1 and 2-3 times a week KS2)/ ICT use and opportunities.

Planning across the key stages is developed to offer opportunities for pupils to learn and revisit, promoting the acquisition of new skills, opportunities to explore and problem solve, build maths vocabulary and retain the knowledge and skills taught over time. Planning will reflect the teacher's knowledge and response to common misconceptions, and opportunities to engage with alternative strategies.

Curriculum Implementation

Teaching

Foundation Stage

F1 Maths is integrated into the daily routines including songs, rhymes and stories

F2 4 teacher taught sessions a week

Focussed activities and provision in the environment planned weekly (self-initiated)

Key Stage 1

Year 1 Daily Maths lessons (target grouped)

Year 2 Daily Maths lessons (target grouped)

Approximately 1 hour a day

Key Stage 2

Year 3 to 6 Daily Maths lessons (target grouped)

Approximately 1 hour a day

The school uses a variety of teaching and learning styles (VAK) in mathematics lessons. Children are encouraged to explore ideas and present findings in a variety of ways to this end we have adopted the "CPA approach": concrete, pictorial, abstract. There are manipulatives in every classroom to help facilitate this. Our principal aim is to develop children's knowledge, skills and understanding of key concepts in mathematics, whilst fostering enthusiasm and confidence. Children are encouraged to reason, problem solve and apply knowledge using maths vocabulary. Tasks are set to embed knowledge, challenge understanding and provide a safe and encouraging environment to take risks.

During lessons we value and encourage children to ask mathematical questions, discuss with peers and the wider class their findings and explanations. They have the opportunity to use a wide range of resources such as number lines, number squares, digit cards and small apparatus to support their work. Time is given for children to explore, generalise and prove their learning. We also provide opportunities across the year for pupils to revisit key skills to support the embedding and retention of the areas taught.

Staff are kept up to date on current thinking, new teaching methodologies and ideas by the subject leader through staff meetings, INSET and individual support. CPD opportunities are shared with staff, these may be directed if a need is identified, or requested.

Monitoring of the school's data and planning and delivery of maths, through observations, work and planning analysis, moderation, discussion and interactions with the maths governor provide a consistently

updated picture of the success and needs across the school. These are responded to with appropriate CPD, support from the maths co-ordinator and sharing of identified good practice.

The Environment

Classrooms reflect the key priorities for the maths curriculum, including the display and use of maths vocabulary, access to manipulatives, examples of alternative strategies being celebrated and the use of heuristics. The environment needs to promote a safe working space for taking risks, supporting all learners and celebrating success.

Contribution of mathematics to teaching in other curriculum areas:

English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work to others during plenary sessions. Younger children enjoy stories and rhyme that rely on counting and sequencing, this includes rhymes in different languages and from a variety of cultures. Older children encounter mathematical vocabulary and the need to explain and justify, graphs and charts when using non-fiction texts.

Information and communication technology (ICT)

Children use and apply mathematics in a variety of ways when solving problems using ICT. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations.

Personal, social and health education (PSHE) and citizenship

Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present children with real-life situations in their work wherever possible to help develop life skills including finance.

Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results.

Home Study

Homework is provided in all year groups in an investigative style, to encourage parental involvement and develop problem solving skills and vocabulary. The amount and level of homework will meet the needs of the children it is provided for.

Science

Children use maths skills across the science curriculum including: generalising and hypothesising, problem solving, collecting and presenting data.

Teaching mathematics to children with special educational needs (including able mathematicians)

At Haydn we teach mathematics to all children, whatever their ability. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

Intervention

When progress falls significantly outside the expected range (above or below), the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

Intervention through School Action and School Action Plus will lead to the creation of an Individual Provision Management (IPM) for children with special educational needs. The IPM may include, as appropriate, specific targets relating to mathematics.

We enable pupils to have access to the full range of activities involved in learning mathematics. Where children are to participate in activities outside the classroom, for example, a maths trail, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Support for pupils falling below and achieving above age expectation are carried out within year groups, this including: differentiated activities, additional sessions, 1:1 and small group support, communication with home and additional study tasks. Progress for these pupils is monitored, effective strategies shared and training needs acted upon.

Assessment

We assess children's work in mathematics in different ways.

We make short-term assessments daily which we use to help us adjust our daily plans and the individual needs of the children. These short-term assessment include: marking and feedback, whiteboard responses, paired talk, thinking time, questioning and discussion.

Children are also assessed for progress three times a year using the NTS assessment papers, with the results being recorded on the class tracker (SIMs). This information is reviewed by year group teams and acted upon appropriately e.g change of target group, TA intervention.

We make long-term assessments towards the end of the school year, and we use these to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We make the long-term assessments with the help of end-of-year tests and teacher assessments.

Monitoring and Review

Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the Senior Management team and mathematics subject leaders. The work of the mathematics subject leaders also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The mathematics subject leaders provides the headteacher with feedback in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement. The headteacher allocates leadership time to the mathematics subject leaders so that s/he can review samples of children's work and undertake lesson observations of mathematics teaching across the school.

A named member of the school's governing body is briefed to oversee the teaching of numeracy. This governor meets with the subject leader to review progress termly and receives a written commentary which reports on:

- recent development work
- performance analysis
- pupil outcomes in relation to development priorities, their impact on teaching and learning, and future developments.

Governors are also invited to monitor the effectiveness of the school through a variety of other activities including learning walks and classroom observations as per the Monitoring and Evaluation framework in the School Improvement Plan.

Impact

Planning, teaching and assessments have impact on progress and learning through:

- Developing and embedding knowledge and skills in maths that show a change in long term memory – and can be applied in different contexts and time periods. As a result, pupils achieve well as reflected in national tests.
- A curriculum which is carefully planned to sequence the acquisition of knowledge and skills systematically over time and ensures coverage at least meets, and often exceeds the ambition of the National Curriculum.
- A curriculum that divides new material into manageable steps lesson by lesson.
- The maths curriculum is planned to revisit previously learned knowledge so that it becomes deeply embedded in pupil's memory.
- Quality first teaching which includes:
 - Providing exciting lessons that generate enthusiasm and enjoyment so that children know more and remember more in maths.
 - Quickly identifying and acting upon misconceptions with swift and appropriate action being taken by teachers to meet needs
 - Setting challenges which stretch and deepen understanding
 - Providing environments that celebrate and encourage investigation, and perseverance
 - Consistent review of planning, assessments and progress
 - SEND, disadvantaged and vulnerable children closely monitored and appropriate interventions being put in place so that they catch up.

Outcomes

At Haydn Primary School the outcomes in Maths consistently match or exceed the outcomes of the top 20% of schools. There is a clear expectation for the majority of pupils to reach the expected standard, with an ambitious number of pupils attaining Greater Depth.

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