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| Hambleton Primary Academy  2020 - 2021 | A close up of a logo  Description automatically generated | Mathematics  Policy |

*Covid 19 UPDATE: In the case of a bubble having to self-isolate, Mathematics will still be offered remotely and will reflect any learning, which was included in the Year Group’s Curriculum offer for that period of time. However, where practical application is planned and cannot be offered remotely, the learning will have to be adapted to work effectively with Google Classroom. We will use White Rose resources to supplement our remote Mathematics teaching, including powerpoints, videos and editable worksheets. We will issue appropriate work to the whole class and support parents in their remote teaching methods (see Calculation Policy) to ensure the children continue as independent and confident Mathematicians from home.*

**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, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

(National Curriculum 2014)

**Aims and Objectives**

Mathematics teaches us how to make sense of the world around us through developing a child’s ability to calculate, reason and solve problems. It enables children to understand and appreciate relationships and patterns in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

The aims of teaching mathematics are:

* To reason mathematically by following a line of enquiry and generalisations.
* To develop an argument justification or proof using mathematical language.
* To solve problems by applying mathematics to a variety of routine and non-routine problems by breaking down problems into simple steps and persevering in seeking solutions.
* To become fluent in the fundamentals of mathematics 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.

**Teaching and Learning Style**

Hambleton Primary Academy use a variety of teaching and learning styles in mathematics. Our principal aim is to develop children’s knowledge and understanding, as well as investigative and thinking skills. During our daily lessons we encourage children to ask as well as answer mathematical questions. 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 and where relevant each child is provided their own pack filled with appropriate resources for the daily Maths lesson. Computing is used as an integral part of Mathematics lessons where it will enhance learning. Wherever possible, we encourage the children to apply their learning to everyday situations.

In all classes children have a wide range of mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – in some lessons through differentiated group work, and in other lessons by organising the children to work in pairs on open-ended problems or games. We use classroom assistants to support some children, and to ensure that work is matched to the needs of individuals. Teachers use a class timetable to ensure that Mathematics is taught daily and follow the White Rose scheme of work. Teachers have included a morning mental arithmetic and times table slot into their timetables to ensure children practice mental mathematics on a daily basis. Each class teaches mathematics for 45minutes to 1 hour daily and these lessons include a range of reasoning and problem solving challenges. We set a reasoning question at the start of each lesson for children as reasoning in maths is the process of applying logical thinking to a situation to derive the correct problem solving strategy for a given question, and using this method to develop and describe a solution. Put more simply, mathematical reasoning is the bridge between fluency and problem solving therefore we are aiming to improve our children’s reasoning skills with the link of fluency and problem solving.

**Mathematics Curriculum Planning**

Mathematics is a core subject in the National Curriculum, and we use the White Rose scheme as the basis for implementing the statutory requirements of the programme of study for Mathematics. This gives us a detailed outline of what we teach in the long term.

Using the White Rose medium-term Mathematics plans these give us details of the main teaching objectives for each term and define what we teach. They ensure an appropriate balance and distribution of work across each term. Examples of these plans are kept and reviewed by the subject leader and teachers in the planners.

It is the class teacher who follows the weekly plans or annotates unit plans from White Rose for the teaching of Mathematics. These weekly plans list the specific learning objectives and expected outcomes for each lesson and give details of how the lessons are to be taught with pictorial, abstract and concrete methods. The class teacher keeps these individual plans in their red planners which are made available for the Mathematics subject leader to monitor.

**The Foundation Stage**

We teach Mathematics in both our Nursery and Reception classes. As our Reception class is part of the Foundation Stage of the National Curriculum, we relate the mathematical aspects of the children’s work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space, through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics. Teachers also have access to the White rose scheme of work which breaks up the simple steps needed for children to reach the ELG.

**Calculation Policy**

Please see the sperate document for our school’s Calculation Policy, which is in line with White Rose. As parents, as a general rule, if your child brings home some mathematics work which involves calculations:

* Ask them to explain how they would solve this at school, and to explain to you the methods they have been taught. Use the calculation policy booklet to help, this available on our school’s website and will be on your child’s Google Classroom page if there was a bubble isolation.
* If your child is unable to explain their method, or unsure about what to do, the best advice is to contact your child’s class teacher through their Google Classroom email address.

**Contribution of mathematics to teaching in other curriculum areas**

**English**

The teaching of Mathematics contributes significantly to children’s understanding of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, in Mathematics lessons we expect children to read and interpret problems, in order to identify the mathematics involved. They are also improving their command of English when they explain and present their work to others during lessons. Younger children enjoy stories and rhyme that rely on counting and sequencing, while older children encounter mathematical vocabulary, graphs and charts when reading non-fiction texts.

**Computing**

Computing enhances the teaching of Mathematics significantly. Teachers can use software such as Interactive Teaching Programs (ITPs) and internet games and resources to present information visually, dynamically and interactively, so that children understand concepts more quickly. Children use and apply Mathematics in a variety of ways when solving problems using Computing through use of individual iPads. Younger children use Computing 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. When working on control, children can use both standard and non-standard measures for distance and angle. They can also use simulations to identify patterns and relationships. We use E-mail and video conferencing with children at a feeder high school for collaborative problem-solving.

**Personal, Social and Health Education (PSHE)**

Mathematics contributes to the teaching of PSHE. 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 mathematics work on the spending of money.

**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. The study of famous mathematicians around the world contributes to the cultural development of our children.

**Teaching Mathematics to Children with Special Needs**

At our schoolwe teach Mathematics to all children, whatever their ability. It is part of the school curriculum policy to provide a broad and balanced education to all children. We provide learning opportunities that are matched to the needs of children with learning difficulties. Work in Mathematics takes into account the targets set for individual children in their Personal Plans (PPs).

**Assessment and Recording**

We assess children’s work in Mathematics from three aspects (long-term, medium-term and short-term). We use short-term assessments to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives. We also use the White Rose end of unit assessments to check for misconceptions and children’s understanding, these results are used to inform our future planning for that block as well as our intervention groups.

We make medium-term assessments to measure progress against the key objectives, and to help us plan and adapt the next unit of work. We use the White Rose end of half term assessments as the recording format for this. We then use this data to implement interventions to support all children, regardless of their abilities.

We make long-term assessments at the beginning and 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. We use the national tests for children in Year 2 and Year 6. Children in Nursery and Reception take a Baseline test which assesses their number and shape understanding at entry to school. We will assess multiplication weekly by carrying out a class multiplication test using TimesTable Rockstars. This will prepare children for the upcoming multiplication test in Year 4.

As part of the monitoring cycle, the Mathematics subject leader observes samples of children’s work in each class, in order to monitor standards throughout school in comparison with those nationally. As well as this the subject leader also speaks to children in monitoring sessions and gets first hand knowledge from the children themselves.

**Marking**

Marking of children’s work is essential to ensure they make further progress. Work is marked against success criteria being the learning objective for the lesson, in line with the school marking policy, and includes next steps in the form of fix its or challenge time. Children are encouraged to self-assess their work and given time to check the teachers’ marking and make corrections or improvements in our fix it time. 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 children themselves, exercises involving routine practice with support and guidance from the teacher – particularly in years 5 & 6.

**Resources**

There is a range of resources to support the teaching of Mathematics across the school, with many shared resources stored centrally. All classrooms have 100 squares, a wide range of small apparatus and individual resource packs, which were updated in July 2020. Mathematical dictionaries are available on display in all classrooms. The library contains a number of books to support children’s individual research. A range of software and interactive internet resources are available to support work with the computers, iPads and Interactive Whiteboards.

**Monitoring and Review**

Monitoring of the standards of children’s work and of the quality of teaching in Mathematics is the responsibility of the subject leader and overseen by the curriculum lead, Andrew Kenworthy (2020). The work of the subject leader also involves supporting colleagues in their teaching, being informed about current developments in the subject, and providing a strategic lead and direction for mathematics in the school. The subject leader reports to the headteacher, Holly Wood, regarding strengths and weaknesses in the subject and indicates areas for further improvement. The Headteacher allocates regular management time to the subject leader 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 Mathematics. This governor meets regularly with the subject leader to review progress.

This policy will be reviewed every year.

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| Approved by: | Holly Wood - Headteacher | Date: September 2020 |
| Last reviewed on: | September 2019 | |
| Next review due by: | September 2021 | |