Dorchester Primary School

Mathematics Policy

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Mathematics Policy – Dorchester Primary

1 Aims and objectives

1.1 *Our vision at Dorchester Primary School is that a high-quality mathematics education 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. Mathematics enables children to understand and appreciate relationships and pattern 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. We aim for children to use and understand mathematical language and recognise its importance as a language for communication and thinking providing them with powerful ways to describe, analyse and change the world.*

1.2 The aims of mathematics are:

- to promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- to promote confidence, fluency and competence with numbers and the number system;
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- to develop a practical understanding of the ways in which information is gathered and presented;
- to explore features of shape and space, and develop measuring skills in a range of contexts;
- to understand the importance of mathematics in everyday life.

2 Teaching and learning

2.1 The school uses a mastery approach in mathematics lessons. Our principal aim is to develop all children's knowledge, skills and understanding in mathematics to a high standard. We do this through a methodical curriculum design, carefully crafted daily lessons and resources which foster deep conceptual and procedural knowledge. During these lessons we encourage children to ask as well as answer mathematical questions and use mathematical language structures to describe and justify their reasoning. They have the opportunity to use a wide range of concrete manipulatives, models and images such as Numicon, Dienes, bead strings and Cuisenaire rods to explain, represent and support their work. Children also use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods. Wherever possible, we encourage the children to use and apply their learning in everyday situations and through identified cross-curricular opportunities. It is the responsibility of all staff to ensure Basic Skills are developed and maintained at every level and age range through frequent practise and consolidation.

2.2 In all classes there are children with differing levels of mathematical understanding. We recognise this fact and provide suitable learning opportunities to ensure that all children have full access to the curriculum. In KS2 children are taught in small mixed classes and KS1 work in ability sets. We aim to ensure that the majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved

by emphasising deep knowledge and through individual support and intervention. Other strategies include peer support, tuition and booster groups as well as bespoke SEND mathematics teaching in our HIVE additional provision class. We use Achievement Support Assistants to good effect, to support individual children and groups of children in class and to ensure that activities are appropriately matched to the needs of these individuals. They also assist the class teacher with regular assessments of pupils to identify those requiring intervention so that all pupils keep up.

3 Mathematics curriculum planning

3.1 Mathematics is a core subject and we use the National Curriculum for England as the basis for implementing the statutory requirements of the programme of study for mathematics in KS1 and 2

3.2 We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The National Curriculum gives a detailed outline of what we teach in the long term, and identifies the key objectives. Our long term and medium term plans follow the White Rose Hub guidance and documentation. This ensures an appropriate balance, depth and distribution of work across the year.

It is the class teacher who completes the weekly STP plans for the teaching of mathematics. These weekly plans identify the essential learning objectives for each lesson and give details of how the content of the lesson will be delivered through whole class guided practice and differentiated independent tasks. Lessons are also carefully designed to begin with oral mental starters which consolidate previous learning and include key question stems and language structures to be modelled and rehearsed.

4 The Foundation Stage

4.1 Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. By providing frequent and varied opportunities to build and apply their understanding of number, patterns and relationships - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, ‘have a go’, talk to adults and peers about what they notice and not be afraid to make mistakes. Teachers use the new EYFS framework and Development Matters guidance to support children to develop their early mathematical understanding through planned group tasks designed and facilitated by the EYFS practitioner and a wide variety of mathematical opportunities throughout the environment which they access through continuous provision.

5 Contribution of mathematics to teaching in other curriculum areas

5.1 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 mathematical procedures and relationships involved. The children explain and present their work to others during sessions. Younger children enjoy stories and rhyme that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts. Language structures and the use of correct mathematical terminology form a fundamental part of all mathematics lessons.

5.2 Cross Curricular

In addition to these opportunities, the children are also exposed to mathematical challenges in their topic and science work in a range of problems designed to consolidate and deepen their understanding of key mathematical concepts such as interpreting statistical information, collecting data through accurate measuring, ordering events, dates and times and applying their calculation skills in a range of contexts.

5.3 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. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships. Each maths group has a specified time each week when the ICT suite is available for use. This is an opportunity for the whole class to use IT to support or reinforce their learning.

5.4 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, actively listen to one another and respect each other's views. We present all children with real-life situations in their mathematics lessons so that they develop their understanding of financial responsibility, equality and democratic process.

5.5 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 collaboratively, offer each other guidance and support and provide them with the opportunity to discuss their ideas and results.

6 Teaching mathematics to children with special educational needs

6.1 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 achieve and for most children to progress through the curriculum content at the same pace. 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.

6.2 When progress is seen to be significantly outside the expected range, the child may have special educational needs which require additional support to be put in place. Our SEND assessment process looks at a range of factors – classroom organisation, teaching materials, teaching approach, differentiation – so that we can effectively evaluate the current provision and consequently put in place additional support to enable the child where possible to learn effectively within the class setting. This may involve the use an additional teacher or ASA to deliver an intervention programme, the provision of bespoke tasks which meet the needs of the individual or having the child work within a class in a lower year group for mathematics. When a child's SEND Mathematics evaluation suggests that they would benefit from alternative provision, the child would access the HIVE classroom for mathematics and receive a bespoke programme of SEND mathematics support using the Numicon programme.

For children with special educational needs identified as receiving School support or who have an Education, Health and Care Plan (EHCP), their support plan may include, as appropriate, specific targets relating to mathematics.

6.4 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.

7 Assessment and recording

7.1 We assess children's work in Mathematics both formatively and summatively. We make daily assessments which help us plan our next steps in the lessons that follow or inform same day intervention to ensure that all children keep pace with the rest of the class. Teachers record children's progress against national curriculum outcomes using Pupil Asset and use their subsequent analysis to inform future planning and intervention. Each unit of work begins with a 'harvest' activity to review children's prior knowledge followed by a 'cold task' which provides a baseline for each pupil. Children then complete a 'hot task' at the end of the unit to demonstrate their progress.

7.2 Children's progress is shared with them through verbal and written feedback which includes ticks against the learning objective to show level of mastery achieved and targets identified after the cold task for children to focus on over the course of the teaching sequence which follows. This help the children to know what they have achieved within their year groups expectations and what they are working towards.

7.3 We use the national tests for children in Year 2 and Year 6, which are used to assess pupil progress against school and national targets, plus White Rose Hub unit tests. Scores and question level analysis are used by teachers to inform planning, lesson design and intervention.

In addition to teacher assessments the children are also encouraged from Y1 onwards to self and peer assess as critical friends.

8 Resources

8.1 There is a range of resources to support the teaching of mathematics across the school. All classrooms have access to a wide range of appropriate concrete manipulatives including Numicon, Dienes and Place Value Counters. Mathematical dictionaries and further apparatus are available in all areas. A range of software is available to support mathematics work on the computers and all children have access Timestables Rockstars.

9 Monitoring and review

9.1 Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the SLT. The work of the mathematics subject leader 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 leader gives the head teacher a termly summary in which s/he analysis the data to identify concerns with progress and develop strategies to correct it. The head teacher allocates regular management time to the mathematics 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 Numeracy.