Almondsbury
Church of England Primary School
Creating our Pathways

"Show me your way, Lord teach me your paths." Psalms (25.4)

POLICY STATEMENT - MATHEMATICS

RATIONALE:

Mathematics is an area which leads to a greater understanding of the world around us, providing a precise means of communication using numbers, symbols and shapes. It is a powerful universal language, used to explain, predict and represent events and tackle problems in everyday life. Through their growing knowledge and understanding, our pupils learn to appreciate the contribution made by many cultures to the development and application of mathematics.

PURPOSES:

The aims of Mathematics are:

- to promote enjoyment and enthusiasm for learning through practical and pictorial activities, exploration and discussion
- to delight in Mathematics as a creative and exploratory medium and to develop a confident and positive attitude towards Mathematics
- to develop pupils' mental arithmetic skills and their flexible mental methods
- to develop the ability to solve problems through decision-making and reasoning in a range of contexts
- to encourage pupils to ask questions, try different approaches and search for patterns in their work
- to encourage pupils to work independently when appropriate and to devise their own ways of checking and recording results
- to encourage the use of mathematical language in order to discuss, explain and express ideas and to interpret results
- to encourage perseverance, concentration and diverse thinking
- to familiarise pupils with the calculator, computer and other IT equipment and to help them to use them in a variety of contexts
- to ensure that special needs in all areas of mathematics are recognised and that all pupils, regardless of race, gender, class, culture or disability have equal opportunity to develop their full potential in all areas of the mathematics curriculum
- to develop a practical understanding of the way 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.

TEACHING AND LEARNING STYLE

The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop a pupil's knowledge, skills and understanding in mathematics and create links between other subject areas and their everyday lives. We do this through a daily lesson that has a balance of whole-class, group-direct teaching and individual work. During these lessons we encourage pupils 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, Numicon and small apparatus to support their work. Mathematical dictionaries are available in all classrooms. Pupils have opportunities to use digital technologies in mathematics lessons where it will enhance their learning. Wherever possible, we encourage the pupils to use and apply their learning in everyday situations. The pupils are encouraged to reason why an answer is correct or incorrect and talk about the strategies they have used to develop their mathematical skills of thinking and enquiry.

We follow a mastery approach to mastering mathematics. This means pupils of all ages acquire a deep, long-term, secure and adaptable understanding of the subject. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering mathematics. Achieving mastery means acquiring a solid enough understanding of the mathematics that's been taught to enable pupils to move on to more advanced material.

In all classes, there are pupils of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all. We achieve this through a range of strategies – in some lessons through support, use of deepening activities, through scaffolding, use of manipulatives and by organising the pupils to work in pairs on open-ended problems or games. We use support staff to assist pupils throughout their lessons and for pre and post teaching sessions.

MATHEMATICS CURRICULUM PLANNING:

Mathematics is a core subject in the National Curriculum, and we use the 2014 National Curriculum for Mathematics as the basis for implementing the statutory requirements of the programme of study for mathematics.

We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The National Curriculum for mathematics is taught in the long term.

Our medium-term mathematics plans, which are adopted from the long-term overview and The White Rose Scheme give details of the main teaching objectives for each term. They are broken down into fluency, reasoning and problem solving and support the mastery approach to teaching and learning. They ensure an appropriate balance and distribution of work across each term and support the idea of depth before breadth. These plans are kept on the teachers shared drive and reviewed by the subject team.

It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson (WALT and WILF) and give details of how the lessons are to be taught.

We follow the school's calculation policy to ensure there is progression throughout the school.

The School has implemented a whole school mental calculations system, Mastery Mathematics Attack, which is shared with parents and pupils develop their skills through practise both in school and at home.

The school has also implemented a daily structure at the start of each lesson to ensure each pupil has opportunities for mental Mathematics, problem solving, calculation, number bonds and times table practise in addition to the normal mathematics lesson.

THE FOUNDATION STAGE:

We teach mathematics in our reception classes. As the classes are part of the Foundation Stage of the National Curriculum, we relate the mathematical aspects of the pupils' work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for pupils aged three to five. We give all the pupils 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.

LINKING 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 pupils to read and interpret problems in order to identify the mathematics involved. The pupils explain and present their work to others during plenary sessions. Younger pupils enjoy stories and rhyme that rely on counting and sequencing. Older pupils encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

Science – Mathematics contributes to the teaching and recording of science within our school, by further developing knowledge of number and data handling.

Computing – Pupils use and apply mathematics in a variety of ways when solving problems using digital technologies. Younger pupils use digital technologies to communicate results with appropriate mathematical symbols. Older pupils use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When coding, pupils use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships.

Wider curriculum – Pupils are able to apply their learning in mathematics to many different areas of the curriculum such as Geography when investigating mapping skills and use of co-ordinates; use of measure and accuracy in Design and Technology, investigation of shape in Art and sculpture. These are examples of a wide range of mathematical links to the wider curriculum.

Personal, social and health education (PSHE) and citizenship – Mathematics contributes to the teaching of personal, social, health education and citizenship. The work that pupils do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that pupils do within the classroom encourage them to work together and respect each other's views. We present older pupils with real-life situations in their work on the spending of money.

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

TEACHING MATHEMATICS TO PUPILS WITH SPECIAL EDUCATIONAL NEEDS:

At our school we teach Mathematics to all pupils, whatever their ability. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all pupils. 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 pupil's different needs. Assessment against the National Curriculum allows us to consider each pupil's attainment and progress against expected levels.

When progress falls significantly outside the expected range, the pupil may have special educational needs and we need to take additional or different action to enable the pupil to learn more effectively. This ensures that our teaching is matched to the pupil's needs.

Intervention through School Action and School Action Plus will lead to the creation of a Pupil Passport for pupils with special educational needs. The Pupil Passport 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.

ASSESSMENT AND RECORDING:

Assessment is regarded as an integral part of teaching and learning and is a continuous process. It is the responsibility of the class teacher to assess all pupils in their class. In our school we are continually assessing our pupils and recording their progress. We see assessment as an integral part of the teaching process and strive to make our assessment purposeful, allowing us to match the correct level of work to the needs of the pupils, thus benefiting the pupils and ensuring progress.

We assess pupils' work in mathematics from three aspects (long-term, short-term and medium-term). We make short-term assessments which we use to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives.

We take medium-term assessments to measure progress against the key objectives, and to help us plan the next unit of work.

We make long-term assessments using Arbor three times a 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 pupil'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 using teacher assessment and information from end-of-year tests. We use the national tests for Year 6.

RESOURCES:

There is a range of resources to support the teaching of Mathematics across the school. All classrooms have number lines and a wide range of appropriate small apparatus. Calculators and a range of audio-visual aids are also available.

PARENTAL INVOLVEMENT

At our school we encourage parents to be involved by:

- inviting them into school twice yearly to discuss the progress of their child
- inviting parents into school in the summer term to look at their child's work
- inviting parents to curriculum evenings or circulating information when significant changes have been/are made to the mathematics curriculum
- inviting parents of Year 4 pupils to a meeting on supporting their child with the multiplication check
- inviting parents of Year 6 pupils to a meeting on supporting their child with SATs
- Supporting their child with the practicing of Mastery Mathematics Attack
- Supporting their child with the mathematics homework set in Year 5 and Year 6

MONITORING AND REVIEW

Monitoring of the standards of the pupils' work and of the quality of teaching in Mathematics is the responsibility of the Mathematics subject team. The work of the Mathematics subject team also involves supporting colleagues in the teaching of Mathematics, being informed about current developments in the subject, and providing strategic lead and direction for the subject in the school. The Mathematics subject team creates an annual action plan each year which is reviewed and shared with the headteacher, governors and staff. The headteacher allocates management time to the Mathematics subject team so that they can review samples of pupils' 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.

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