



Mathematics Policy

Rationale

At Whitchurch C E Primary School believe that Mathematics is a key skill that helps us to make sense of the world around us. It 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 understand and apply their knowledge to solve real life problems.

At Whitchurch C E Primary School we also believe that Mathematics equips children with a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem-solving skills and the ability to think in abstract ways.

Mathematics is important in everyday life, many forms of employment, science and technology, medicine, the economy, the environment and development and in public decision-making. Different cultures have contributed to the development and application of mathematics. Today, the subject transcends cultural boundaries, and its importance is universally recognised.

AIMS

- *Have a sense of the size of a number and where it fits into the number system*
- *Know by heart number facts, such as number bonds, multiplication tables*
- *Use what they know by heart to figure out answers mentally*
- *Calculate accurately and efficiently, both mentally and with pencil and paper, drawing on a range of calculation strategies*
- *Recognise when it is appropriate to use a calculator, and be able to do so effectively*
- *Make sense of number problems, including non-routine problems, and recognise the operations needed to solve them*
- *Explain their methods and reasoning, using correct mathematical terms*
- *Judge whether their answers are reasonable, and have strategies for checking them where necessary*

Whitchurch Church of England Primary School



- *Suggest suitable units for measuring, and make sensible estimates of measurements*
- *Explain and make predictions from the numbers in graphs, diagrams, charts and tables.*

Implementation of Policy

Whitchurch C E Primary School uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in mathematics.

We do this through a daily lesson that has a mix of whole-class and group teaching. During these 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 Numicon, Ten frames, number lines, number squares, digit cards and small apparatus to support their work appropriate to their age and ability level.

In all classes there are children of differing mathematical ability. 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 Learning Support Assistants to support targeted groups and to provide in situ feedback to ensure that work is matched to the needs of individuals.

At Whitchurch C E Primary School, we do this through careful planning and preparation, ensuring that throughout the school:

- *children are given opportunities for: practical activities, role play and mathematical board games, IT games to practise number bonds and multiplication tables (Times Tables Rock Stars)*
- *the development of mental and oral strategies with an emphasis on speed recall of number bonds and multiplication tables*
- *the development of mathematical vocabulary*
- *problem solving*
- *individual, group and whole class discussions and activities*

Whitchurch Church of England Primary School



- *open and closed tasks*
- *a range of methods of calculating e.g. mental, pencil and paper and using a calculator*
- *understand mathematics through a process of enquiry and experiment*
- *regular use of ICT games to reinforce, develop and enthuse learning*

THE NATIONAL CURRICULUM

The National Curriculum order for Mathematics describes what must be taught in each key stage. Whitchurch C E Primary School follows the White Rose Maths, which provides detailed guidance for the implementation of the orders and ensures continuity and progression in the teaching of mathematics.

Every teacher in Whitchurch C E Primary School has access to the White Rose Maths resources and the school curriculum map outlining progression, which has been designed by the subject leader to meet the needs of children in our school. In early years, the curriculum is guided by the Early Learning Goals.

Early Years Foundation Stage

At Whitchurch C E Primary School, children follow the early years foundation stage curriculum. We give all children the opportunity to talk and communicate in a widening range of situation and to practise and extend their range of vocabulary and numeracy skills. They have the opportunity to explore, enjoy, learn about, and use mathematics in a range of situations. Mathematics is planned on a half termly basis and assessed using the criteria from the early learning goals. Mathematics is taught both as a discrete subject and within the whole early years curriculum to give children opportunities to use their Numeracy skills in real life situations.

Key Stages 1 and 2

At Whitchurch C E Primary School daily maths lessons are between 45 minutes and one hour depending on the age of the children. There are medium term plans for each half term's work. There are also weekly plans, which cover the daily content of each lesson.

Whitchurch Church of England Primary School



Number

The programme of Study specifies a progression of number-based skills for children to acquire as they develop their mathematical ability. In order to facilitate this, the teaching staff in Whitchurch C E Primary School will ensure that:

- *Children will be encouraged to use mental calculations where appropriate*
- *Children will have the opportunity to discuss and develop a range of calculation strategies*
- *Teaching will encourage flexibility of thinking and utilisation of connections within mathematics*
- *Children's computational skills will be developed and consolidated using a balance between practice and application in meaningful contexts*
- *Opportunities will be provided for children to develop their estimation skills, and will be encouraged to estimate answers before completing calculations*
- *Teaching will place a strong emphasis on ensuring children gain a sound understanding of the Place Value basis of the number system*

Shape and Space

The Programme of Study specifies a progression of skills in Shape and Space for children to acquire as they develop their mathematical ability. In order to facilitate this, the teaching staff in Whitchurch C E Primary School will ensure that:

- *Teaching will place emphasis on observing and understanding the properties of 2-D and 3-D shapes*
- *Opportunities will be provided for the practical construction and investigation of shapes*

Whitchurch Church of England Primary School



- *Children will be given opportunities to explore position and movement in real-life contexts, utilising ICT.*

Measures

The programme of study specifies a progression of skills in measures for children to acquire as they develop their mathematical ability. In order to facilitate this, the teaching staff in Whitchurch C E Primary School will ensure that:

- *Children will use a range of measuring equipment in meaningful contexts, and be encouraged to make choices regarding the most suitable equipment*
- *Children will follow a progression beginning with direct comparison, through measuring with non-standard units, to measuring with standard units with increasing accuracy*
- *Children will be given opportunities to develop estimation skills in all measures*
- *Teaching will place strong emphasis on ensuring that children understand that all measurement is approximate, and that they can make sensible decisions on the accuracy necessary in different situations.*

Handling Data

The programme of study specifies a progression of skills in handling data for children to acquire as they develop their mathematical ability. In order to facilitate this, the teaching staff in Whitchurch C E Primary will ensure that:

- *Teaching will be designed to ensure that children understand that the collection, representation and interpretation of data is a means through which real-life decisions can be made*
- *Handling data skills are used as a means of solving problems, through a four-point process: Pose a question; Collect data; organise, display & interpret data; Answer original question*

Whitchurch Church of England Primary School



- *Children will be given opportunities to make decisions regarding what information is collected, how it is collected, how information is processed and how it is displayed*
- *Children will be given opportunities to apply data handling skills in a range of contexts, across subject areas*
- *Children will be given opportunities to develop an increasing range of ICT based handling data skill*

Teaching Methods and Approaches

At Whitchurch C E Primary School, lessons generally follow this format with a mental and oral starter, a main activity and a plenary session. In reception the aim is to have prepared the children by the end of the year for a daily 45-minute maths lesson.

The teaching of maths at provides opportunities for:

- *Group work*
- *Paired work*
- *Whole class teaching*
- *Individual work*

Children engage in:

- *The development of mental strategies*
- *Written methods*
- *Practical work*
- *Investigational work*
- *Problem- solving*
- *Mathematical discussion*
- *Consolidation of basic skills and routines*

At Whitchurch C E Primary School we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use the 'Mathematical Vocabulary Book' when planning to help determine

Whitchurch Church of England Primary School



the appropriate vocabulary to use in our teaching and children are expected to use it in their verbal and written explanations.

We endeavour to set work that is challenging, motivating and encourages the children to talk about what they have been doing.

Parental Involvement

Whitchurch C E Primary School recognise that parental involvement is an important factor in helping children achieve their best and actively encourage parents to become involved with their children's development in Mathematics through:

- *Parents' meetings twice a year, along with opportunities to look at children's work*
- *The school's 'open' attitude to visits from parents/carers, where teachers make themselves available whenever a discussion need is identified.*
- *Attending Maths events in and out of school e.g maths information evenings
Use of the Homework Materials, maths games and subscription to MyMaths and Doodle
Maths online learning for use at home*
- *Class newsletters informing them of curriculum information and how they can help at home.*

At Whitchurch C E Primary School we recognise the important role display has in the teaching and learning of mathematics by having maths work displayed in the school. Every class has a 'Numeracy Working Wall' which is a visual aid to support children with their work.

Resources

At Whitchurch C E Primary School resources for the delivery of the maths curriculum are stored both centrally and in classrooms. Everyday basic equipment is kept in classrooms. Additional equipment and topic-specific items are stored centrally in the KS2 central area and the outdoor resource cupboard.

Whitchurch C E Primary School uses a variety of materials to facilitate the teaching of mathematics but recognises the need for the teaching of maths to be investigative and grounded in real life circumstances wherever possible.

Whitchurch Church of England Primary School



Contribution in Mathematics to Teaching in Other Curriculum Areas

Science

At Whitchurch C E Primary School almost every scientific investigation or experiment is likely to require one or more of the mathematical skills of classifying, counting, measuring, calculating, estimating and recording in tables and graphs. In science children will for example order numbers, including decimals, calculate simple means and percentages, use negative numbers when taking temperatures, decide whether it is more appropriate to use a line graph or bar chart, and plot, interpret and predict from graphs. There is useful information within the Renewed Framework in relation to 'cross-curricular' aspects of mathematics and science.

Art, Design and Technology

At Whitchurch C E Primary School measurements are often needed in art and design and technology. Many patterns and constructions are based on spatial ideas and properties of shapes, including symmetry. Designs may need enlarging or reducing, introducing ideas of multiplication and ratio. When food is prepared a great deal of measurement occurs, including working out times and calculating cost; this may not be straightforward if only part of a packet of ingredients has been used.

History, Geography and Religious Education

At Whitchurch C E Primary School history and geography children will collect data by counting and measuring and make use of measurements of many kinds. The study of maps includes the use of co-ordinates and ideas of angle, direction, position, scale and ratio. The pattern of the days of the week, the calendar and recurring annual festivals all have a mathematical basis. For older children historical ideas require understanding of the passage of time, which can be illustrated on a timeline, similar to the number line that they already know.

Physical Education and Music

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At Whitchurch C E Primary School athletic activities require measurement of height, distance and time, while ideas of counting, time, symmetry, movement, position and direction are used extensively in music, dance, gymnastics and ball games.

Personal, Social and Health Education (PSHE) and Citizenship

At Whitchurch C E Primary School 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.

Assessment and Record Keeping

At Whitchurch C E Primary School we are continually assessing our children and recording their progress. We see assessment as an integral part of the teaching process and endeavour to make our assessment purposeful, allowing us to match the correct level of work to the needs of the children, thus benefiting the children and ensuring progress.

Reporting

At Whitchurch C E Primary School all parents receive an annual written report on which there is a summary of their child's effort and progress in mathematics over the year. Parents also have opportunities to discuss progress at two parent's evenings. Within curriculum newsletters parents will receive information on areas of development in mathematics for their child.

Equal Opportunities

At Whitchurch C E Primary School, the staff endeavour to maintain an awareness of, and to provide for equal opportunities for all our children in mathematics. We aim to take into account cultural background, gender and Special Needs, both in our teaching attitudes and in the published materials we use with our children.

Whitchurch Church of England Primary School



Special Educational Needs

At Whitchurch C E Primary School wherever possible we aim to fully include children with SEND in the daily mathematics lesson so that they benefit from the emphasis on oral and mental work and by listening and participating with other children in demonstrating and explaining their methods.

Where necessary teachers will, in consultation with the SENCO, draw up a target within an Individual Educational Plan for a child. If a child's needs are particularly severe, they will work on an individualised programme written in consultation with the appropriate staff.

When planning teachers will try to address the child's needs through simplified or modified tasks or the use of support staff.

Where appropriate a group educational plan is developed with common objectives and learning targets for a group.

Role and Responsibilities of Mathematics Subject Leader

- *Monitor planning, teaching and learning in mathematics, to ensure continuity and progression.*
- *Ensure there is well sequenced and progressive curriculum map which contains the key knowledge, skills and vocabulary children need to be procedurally fluent in mathematics.*
- *Monitor standards in mathematics throughout the school, including SEND, more able, LAC, etc.*
- *Identify strengths and areas for improvement and to lead and drive improvements within the school.*
- *Keep up to date with new initiatives and train staff on these (also to facilitate in or out of school training for staff).*
- *Feed back to the Headteacher on standards in mathematics*

Whitchurch Church of England Primary School



Monitoring and Review

At Whitchurch C E Primary School, the subject leader supports colleagues in their teaching, by keeping informed about current developments in mathematics, and by providing a strategic lead and direction for this subject; gives the headteacher an annual summary report in which he evaluates the strengths and weaknesses in mathematics and indicates areas for further improvement.

At Whitchurch C E Primary School, the subject leaders use allocated management time to review evidence of the children's work, and to observe mathematics lessons across the school. The quality of teaching and learning in mathematics is monitored and evaluated by the headteacher as part of the school's agreed cycle of lesson observations. A named member of the school's governing body is briefed to oversee the teaching of mathematics. The mathematics link governor meets regularly with the subject leader to review

Disability Equality Impact Assessment

This policy has been written with reference to and in consideration of the school's Disability Equality Scheme. Assessment will include consideration of issues identified by the involvement of disabled children, staff and parents and any information the school holds on disabled children, staff and parents.

This policy will be reviewed at least every two years.

Any questions or concerns regarding this policy should be made to the Head Teacher.