Christ Church CE School
Mathematics Policy
Autumn 2016

Christ Church
CE Primary School
Regents Park
NW1 4BD

Christ Church C of E Primary School
Mathematics Policy

CONTENTS

Mission Statement
Our School Aims
Rationale
Aims and objectives
Key skills
Planning
Continuity and progression
Teaching and learning styles
Inclusion
Resources
Cross-curricular links
Assessment
School initiatives
Responsibilities
Monitoring and review

Christ Church C of E Primary School
Mathematics Policy

Mission Statement

The Christian Faith is at the heart of our school community. At Christ Church we care for each other and learn together.

Christ Church is a small, caring school which is committed to a broad, balanced curriculum and to a continual raising of standards. We aim to contribute to the spiritual, moral, cultural, mental and physical needs of every individual.

We are a Church of England school, with a strong commitment to the teaching of Christianity whilst supporting a multi-faith approach to the curriculum. We recognise, value and celebrate the rich cultural diversity that exists in our school.

The Christian ethos of the school is reflected in our positive, disciplined and calm atmosphere. We believe that effective learning takes place when children work in a purposeful and stimulating environment that supports a wide range of learning styles. Mutual respect between adults and children promotes excellent behaviour and well developed social skills. With this approach we seek to achieve high academic standards.

We aim to cater for each individual, taking particular account of any specific needs or abilities. We endeavour to ensure that all our children fulfil their potential and, within this context, we emphasise health and safety, enjoyment and achievement and the beginnings of responsibility for themselves and others. These skills will be carried forward to the next phase of education and throughout life.

The whole school community is committed to a collective responsibility for the implementation of the values inherent in this statement.

Our School Aims - **Every Child Matters**

The Ethos of the School

The school aims to provide a positive, disciplined, purposeful environment, within a Christian context. We aim to teach children to be caring, to exhibit good behaviour and appropriate social skills and to begin to take responsibility for themselves and others.

The Values of the School

The School aims to value every child and to contribute to the Spiritual, Moral, Cultural, Mental and Physical well being of our whole school community. We value the diversity of our community and we aim to promote the health and safety of everyone.

The Standards of the School

The School aims to teach a balanced Curriculum and to ensure that each child fulfils his or her potential. We aim to provide teaching and learning of a high standard. We believe that this is achieved when pupils are highly motivated, enjoy coming to school, and are appropriately challenged.

Christ Church C of E Primary School

Mathematics Policy

Date of policy: Autumn 2016
Review date: Autumn 2018

RATIONALE

Our purposes for developing a written policy for mathematics are:

- To raise the standards of mathematics throughout the school;
- To enable us to have a unified and consistent approach to the teaching of mathematics throughout the school;
- To assist teachers in planning and implementing activities for the children appropriate to their stage of development throughout the school;
- To provide a framework for monitoring, evaluating and assessing children's progress in mathematics and for developing, reviewing and revising our work as a staff;
- To have a joint statement and explanation of our policy available for parents, governors and teachers.

AIMS AND OBJECTIVES

'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.'
Mathematics programme of study, National Curriculum, September 2013

Our objectives in the teaching of mathematics are:

- to promote enjoyment of learning through practical activity, exploration and discussion;
- to promote confidence 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 help children understand the importance of mathematics in everyday life;
- to develop the cross-curricular use of mathematics in other subjects.

KEY SKILLS

The teaching of mathematics should help children develop the key skills of:

- Using and applying mathematics in the context of their environment through problem solving;
- Counting and understanding number;
- Knowing and using number facts;
- Calculating;
- Understanding shape;
- Measuring;
- Handling and recording data;
- Recording thinking;
- Discussing and recording thinking processes to demonstrate how mathematical tasks are solved;
- Collect, analysing and organising information;
- Communicating ideas and information.

PLANNING

Mathematics is a core subject in the National Curriculum, and we use the Mathematics Programmes of Study, along with a range of other sources, to inform planning and delivery of the curriculum.

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

Long Term Planning

The long term curriculum maps for each year group outline the broad topics to be covered during each term. Topics are arranged to ensure a balance of the content is taught across both key stages. These plans are reviewed and updated yearly.

Medium Term Planning

Medium term plans include the key objectives for each topic taught each half term. Medium term plans provide a clear indication of the duration and depth needed for each unit. Medium term plans are to be annotated and changed where necessary by each class teacher.

Weekly Planning

Weekly plans provide detail about each lesson and include a descriptive outline of the mental and oral starter, main teaching focus and plenary. It also breaks down the independent activities to demonstrate differentiation. Areas for assessment or success criteria are also outlined in the weekly plans, which allow teachers to evaluate how successful their lessons were in relation to pupil understanding. Weekly plans are to be annotated and changed where necessary by each class teacher.

Monitoring of Coverage

Teachers fill in a tracking sheet to indicate how well each objective has been covered each term. This is then used to inform planning in subsequent terms.

CONTINUITY AND PROGRESSION

At Christ Church we aim to follow the following weekly provision for each class:

Early Years Foundation Stage (EYFS)

- Independent activities are set up in the indoor and outdoor learning environments – to be used for child- and adult-initiated learning
- One focus, whole class session per week – adult-led

Key Stage 1

- Year 1:
    - 5x 45 minute sessions per week
    - Weekly mathematics homework
- Year 2:
    - 5x 45 minutes sessions per week

- Weekly mathematics homework
- Booster sessions (outside of lesson time) for children who will need extra support to achieve expected outcomes at the end of Key Stage 1

Key Stage 2

- Years 3, 4, 5:
  - 5x 60 minute sessions per week
  - Weekly mathematics homework

- Year 6:
  - 5x 60 minute sessions per week
  - Weekly mathematics homework
  - Additional intervention (in the form of boosters and tuition) to support children in achieving a given level in the end of key stage 2 tests (SATs). These include sessions designed to challenge more able pupils in working towards higher levels of attainment

TEACHING AND LEARNING STYLES

A variety of teaching styles are used to teach mathematics. These will include:

- Whole class teaching;
- Talk between children (talk partners on carpet, small group talk for investigations etc);
- Use of ICT to enhance learning e.g. SMARTboard, internet etc;
- Use of tangible, real-world objects to support learning e.g. bags of rice for measure, scales
- Role play e.g. set up a shop area in classroom for children to 'act out' mathematical scenarios;
- Co-operative learning and peer support;
- Child-led, problem solving tasks, e.g. small groups given a task, in which they need to select their own methods and approaches for solution;
- Small-group, adult-led sessions;
- Songs, e.g. to learn times tables facts;
- Learning through games;
- 1:1 support.

Maths Meeting

The school now uses a structure of mental and oral starter called a 'Maths Meeting'. This 10/15 minute starter to a mathematics lesson is designed to work on the recall of key number facts (e.g. number bonds, multiplication facts), real-world application of the more challenging aspects of mathematics (e.g. the date and time) and quick mental calculation on a daily basis in order to ensure that these essential skills are learnt and rehearsed regularly. The session usually consists of three to four short activities which are repeated on a weekly basis.

Mathematics targets

Each child is set a termly mathematics target which focuses on a key area of mathematical learning. Opportunities are provided on a regular (at least fortnightly) basis for children to achieve this target on a piece of work and at the end of each term teachers assess each child's progress towards the achievement of their target (defined by meeting the learning intention on six separate occasions) and also evaluate the effectiveness of the target set.

The achievement of targets is recorded in a child's mathematics book and children are encouraged to take responsibility for the recording of their progress, through colouring in stars on their progress chart and also updating any classroom displays designed to share progress.

INCLUSION

At our school, we teach mathematics to all children, whatever their ability and individual needs. 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 good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents and those learning English as an additional language, and we take all reasonable steps to achieve this.

When progress falls significantly outside the expected range, a 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 steps to enable the child to learn more effectively. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected outcomes. This ensures that our teaching is matched to the child's needs.

We enable all pupils to have access to the full range of activities involved in learning mathematics, regardless of their ability. For this to be achieved, a number of strategies may be employed:

- Structured play with a mathematical bias in EYFS;
- Setting common tasks which are open ended and can have a variety of responses, whereby simple differentiation can be included or determined by outcome;
- Setting tasks of increasing/decreasing difficulty;
- Grouping children by ability and setting differentiated tasks that will ensure success in mathematical learning;
- Providing suitable resources matched to learning and abilities of children;
- Using Teaching Assistants (TAs) and Learning Support Assistants (LSAs) to support individual students or small groups;
- Liaising with support teachers when planning for particular children to ensure personal educational needs are being met;
- Working with EMA staff when planning in mathematics to ensure simple and meaningful vocabulary is included in each lesson without 'word overload';
- Providing children with independent tasks that will allow them to achieve in mathematics;
- Focused, small-group sessions for children with particular needs, e.g. 'Mathematics Masters' group for gifted and talented mathematicians.
- Identifying groups/individuals who require specific intervention or support.

RESOURCES

All classes have access to the following resources, either within their own classroom or in an adjacent classroom:

- Number fans and cards
- Counting sticks
- Number lines
- 100 number squares
- Multiplication squares
- Mathematical dictionaries
- Rulers and metre sticks
- Money
- 2D and 3D shapes
- Counters
- Dice

- Base 10 equipment
- Multilink
- Clocks
- Timers
- Partitioning cards

Additional age-appropriate resources will also be provided in the relevant Key Stage:

- EYFS - sorting hoops and equipment, pegs and peg boards, large numbers or number line displayed puzzles, beads and dominoes, role play equipment;
- Years 1 and 2 – sorting hoops and equipment, pegs and peg boards, large numbers or number line displayed puzzles, beads and dominoes, role play equipment;
- Years 3 and 4 – Place value charts, calculators;
- Years 5 and 6 - Place value charts, calculators, protractors, compasses.

Additional measuring resources can be found in the Resources Room (behind Cedar Class), e.g.

- Balance scales
- Measuring scales
- Weights
- Measuring jugs and containers
- Trundle wheels
- Thermometers

CROSS-CURRICULAR LINKS

The teaching of mathematics may be used to both support, and be taught through, other curriculum areas; for example:

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 plenary sessions. In English lessons, too, mathematics can contribute: 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.

Science

Many key mathematical skills can be utilised and enhanced during Science lessons. For example, children can practise their measuring skills when observing the results of scientific investigations and can then tabulate and present their results in the form of charts and graphs.

ICT

Information and communication technology (ICT) can significantly enhance the teaching of mathematics as it offers ways of impacting on learning which are not possible with conventional methods. Teachers can use software to present information visually, dynamically and interactively, so that children understand concepts more quickly. 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 can use both standard and non-standard measures for distance and angle. They can also use simulations to identify patterns and relationships. E-mail permits collaborative problem-solving.

Personal, social and health education (PSHE) and citizenship

The teaching of mathematics helps children to gain a better understanding of money and the role this will play in their futures, including spending, saving and budgeting. This will help children to gain a better understanding of how they can achieve financial stability and enjoy economic well-being.

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.

ASSESSMENT

Class teachers use a variety of assessment techniques when assessing the progress of children in their class. These can include:

- Formal test assessment – test weeks will take place once per term
- Revision activities – these ensure teachers know where their children are performing mathematically and forms the basis of their planning.
- End of unit assessments/ quizzes

- Observation of targeted groups and children
- 1:1 practical assessments
- Monitoring of a child's progress towards their mathematics target
- Marking - should be specific to the learning intention. This may explain how a child approached the tasks and if they have gained any specific mathematical skills or made relevant progress. Learning intention stamps are used and examples of children's work are highlighted to illustrate the learning intention has been met
- Recording of the verbal responses given by children, for example during mental/oral starter sessions
- Self Assessment and Review - opportunities for children to assess themselves through the success criteria in each lesson.

End of Key Stage 1 tests (SATs) – Year 2

Children in Year 2 take two mathematics tests in May – one arithmetic test (assessing knowledge of number facts and calculation skills) and one reasoning test (assessing the ability to solve problems). The scores of these tests are added together and converted to create a 'scaled score', where 100 represents the expected attainment.

Children's daily work in maths, along with their performance on tests, is also assessed according to an end of key stage framework. In order to be described as working at the 'expected' level for key stage 1, a teacher must have evidence that a child is able to complete **all** of the statements on the framework in a range of contexts.

End of Key Stage 2 tests (SATs) - YEAR 6

All year 6 children are required to take end of year, statutory tests during 'SATs' week. Currently these consist of:

- An arithmetic paper
- Two reasoning papers

The scores of these tests are added together and converted to create a 'scaled score', where 100 represents the expected attainment.

Children's daily work in maths, along with their performance on tests, is also assessed according to an end of key stage framework. In order to be described as working at the 'expected' level for key stage 2, a teacher must have evidence that a child is able to complete **all** of the statements on the framework in a range of contexts.

SCHOOL INITIATIVES

Times tables badges

Children are encouraged to achieve their times tables badge. These are awarded to children who have a quick recall of all multiplication and associated division facts.

Mathematics week

A themed week of activities based around mathematical concepts. This will include:

- Whole school/key stage assemblies with a mathematics theme
- Extra opportunities for cross-curricular work
- Parent and child workshops and games sessions

RESPONSIBILITIES

The Mathematics Subject Leader is responsible for drawing up of this policy. Whole staff involvement is essential to ensure a shared approach to developing good practise in teaching and learning throughout the school.

MONITORING AND REVIEW

The Mathematics Subject leader and Senior Leadership Team are responsible for monitoring the effectiveness of this policy. It will be reviewed at least every two years.