



Buckden Church of England School



Mathematics Subject Statement

Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems.

Purpose of this statement:

- ◆ To establish an entitlement for all pupils in the subject of Mathematics;
- ◆ To establish expectations for teachers and pupils;
- ◆ To promote continuity and coherence across the school;
- ◆ To promote a shared understanding of Mathematics, within the community;
- ◆ To explain how Mathematics is taught in Buckden CE Academy
- ◆ To give further guidance about teaching methods and the resources available

Entitlement:

Every pupil should be given the opportunity to think and solve problems mathematically by using appropriate skills, concepts and knowledge. As a school we follow the National curriculum which aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

[Mathematics Programmes of Study for Key Stages 1-2 2014]

As a School we also follow **the Big Maths principle** which runs alongside and supports all aspects of the Primary Maths Curriculum. It clarifies the relationship between core numeracy, that's leads to a person becoming numerate and outer numeracy which is the use of core numeracy skills across the rest of the maths curriculum and beyond into other subject areas.

Time Allocation:

To provide adequate time for developing mathematical skills each class teacher will provide a daily mathematics lesson. This may vary in length but will usually last for about 30 minutes in Foundation Stage and 60 minutes in Key Stage 1 and Key Stage 2.

Links will also be made to mathematics within other subjects and through our thematic approach, so that pupils can develop and apply their mathematical skills in real contexts.

Teaching and Learning

The Mathematics programme of study and Big Maths forms the basis of teaching and learning in Mathematics for KS1 & 2, with the Foundation Profile being used in Reception. However, Reception begin to incorporate the Big Maths Principle from the Spring term onwards.

Teachers work towards independent learning, and plan for different working groups e.g. whole class/small group/paired/individual.

Mathematical programme of study:

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2.

Schools are, however, only required to teach the relevant programme of study by the end of the key stage.

Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate.

Key Stage 1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools]. At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money. By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Upper Key Stage 2

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Big Maths:

Big Maths is organized into four elements referred to as CLIC

1. Counting – Learn to count
2. Learn its – Learn to remember totals as facts
3. Its Nothing New – Learn to apply those facts in new situations through ‘swapping’ the ‘thing’ being counted.
4. Calculation – Learn to structure all the previous three into a formal calculation.

CLIC is a sequential programme of daily basic skills for numeracy. The implementation of CLIC ensures that all children have a constant, daily drive to improve their mathematical skills. CLIC involves teaching each stage in 4 roughly equal sized stages of 5 minutes each, leaving time for the main part of the lesson which may be an extension of CLIC or an aspect of the Primary Maths Curriculum.

Each year group has a termly plan which forms the basis of CLIC and gives the teacher clear guidelines and ensures progression across the school. The Objectives from the plans can be taught in any sequence, however the teacher must ensure that all aspects have been taught and achieved by the end of each term.

Teachers employ a range of teaching strategies which include:

- instructing or directing; modelling, demonstrating and scribing; explaining; questioning; discussing; consolidating; evaluating; summarising; assessing;
- Setting clear objectives for each session and sharing them with pupils;
- Differentiating according to the needs of the pupils;
- Using ICT where it enhances, extends and complements teaching and learning.

Additional adults are used to support the teaching of Mathematics. They work under the guidance of the teacher with small groups of children or individuals.

A typical daily mathematics lesson broadly uses a three-part structure as follows:

- ◆CLIC - this will involve whole-class or small group work to rehearse, sharpen and develop mental and oral skills.
- ◆ The main teaching activity (about 30 to 40 minutes) - this will include both teaching input and pupil activities and a balance between whole class, grouped, paired and individual work.
- ◆ A plenary (about 10 to 15 minutes) - this will involve work with the whole class to sort out misconceptions, identify progress, to summarise key facts and ideas and what to remember, to make links to other work and to discuss next steps.

EYFS

Maths is covered as a specific area. This is broken down into two sub sections; Number and Shape, Space and Measure in Development Matters and the Early Learning Goal with details of what a child is to learn, what adults can do to support this learning and how to enable the environment to achieve this. Daily maths direct teaching is planned for with continuous provision activities linked to this for children to further develop their mathematic skills through exploration. Big Maths is used as a tool to teach number and mental maths strategies. Additionally, the Creating and Thinking Critically section of the Characteristics of Effective Learning supports children's learning in maths.

Differentiation and support, including support for SEN.

This is incorporated into all mathematics lessons and is done in various ways, for all pupils including those who are lower and higher achieving:

- Setting appropriately challenging tasks based on systematic, accurate assessment of pupils' prior skills, knowledge and understanding.
- Timely support and intervention; systematically and effectively checking pupils' understanding throughout lessons.
- Ensuring that marking and constructive feedback is frequent and of a consistently high quality enabling pupils to understand how to improve their work; children must be given time to respond to feedback.
- Open ended activities/investigations where differentiation is by outcome.
- Providing a variety of resources depending on abilities eg: Counters, cubes, 100 squares, number lines, mirrors.
- Support from teacher or TA in class, annotated on planning.
- IEPs are implemented for those children who need them and are reviewed termly.
- Intervention programmes delivered by TAs such as 'Wave3 and 5 minutes boxes'.
- Year 6 level 6 target group.

Planning, Assessment and Marking

These are carried out in line with the School's Planning, Assessment and Quality Marking and Feedback policies.

Children's understanding and learning of the different domains which have been taught are assessed using maths quizzes. These are carried out approximately 2 weeks after the particular area of maths has been taught and used to assess whether the children have retained their new knowledge and understanding or not.

Homework

Homework is set in line with the school's Homework policy. The amount set differs depending on age and ability. Mathematics is used weekly both as homework and within lessons.

British Values

In Buckden, during math lessons, we believe in the right to learn and the right to teach. All students have the right to a safe and secure learning environment. All teachers have the right to be treated with respect and in turn give out respect that students deserve. Students are given the opportunity to work in pairs and groups where they learn to work with each other and understand how different people solve problems in various ways. Students are encouraged to respect the opinions and beliefs of others when discussing mathematics. Students will learn the origins of mathematics and that it comes from different cultures.

Resources

Resources play an important role in providing a balance of experiences for pupils. All pupils benefit from opportunities to work with concrete examples, apparatus and equipment before moving on to abstract recording.

Technology, such as calculators and computers are used alongside books, worksheets and other resources where appropriate.

The Collins Primary Mathematics scheme, which follows the format of the Renewed Numeracy Frameworks is used as the principal text in Key Stage 2. The scheme provides teaching activities, assessment, resource copy masters and textbooks for each year group. Teachers select from and supplement this material according to the needs of their pupils.

The bulk of math resources are shared and are stored in the maths resource area.

There are a number of interactive teaching programs which are available on the network and these form an integral part of the learning experience. The programs are suitable for all ages from Reception to Year 6.

Attached to this Policy is the school calculation policy. The policy ensures all teachers are aware of the progression of the written pencil and paper procedures and teach the required next steps as and when appropriate for each individual child's needs.

Dyslexia Friendly School

We recognise that some pupils, despite intellectual and other abilities, have unexpected difficulty learning to read and/or to spell and write fluently. These pupils may be described as having dyslexia.

We recognise that some of these pupils have special educational needs; that these needs have to be met to the best of our ability and resources; and that these pupils have the same right of access to the curriculum and to all the activities of the school as all other pupils. We will therefore make the following arrangements to try to ensure that their needs are met.

- We will operate an early identification and monitoring programme to try to ensure that all pupils who are experiencing difficulties with reading and spelling are identified as early in their school career as possible.
- Where necessary we will assess and make provision for the pupil's difficulties within the accepted framework for Special Educational Needs. We will prepare an individualised education plan setting out the provision we propose to make for the pupil and the objectives for that provision.
- If, despite our efforts to ameliorate the pupil's difficulties, it is felt that there is still a noticeable mismatch between a pupil's oral skills (talking and listening) and his/her attainment in reading, spelling and general English skills, we will, following consultation with parents, refer the pupil for assessment by an Educational Psychologist. This assessment will address the need for specialist support.
- Following discussion with the Educational Psychologist we will formulate a revised individualised education plan for each pupil.
- The plan will set out the provision which we can make from within our own resources and the strategies which class teachers can adopt to help the pupil access the curriculum. All teachers who teach the pupil will be made aware of his/her difficulties and will be made aware of the agreed plan and the agreed strategies to help give the pupil access to the printed aspects of the curriculum.
- These strategies will include the use of word banks, personal (illustrated) dictionaries, the use of spellcheckers and other spelling aids. We will try, within the limits of our resources, to promote the use of Information and Communication Technology (ICT) where appropriate to support learning (e.g., reinforce basic literacy skills, editing and revising text, etc.).
- We will try to be as sensitive as possible to sources of anxiety and embarrassment e.g. being asked to read aloud in class without adequate preparation, being asked to copy large amounts of written material from the board.
- Teachers will take account of the pupil's difficulties when marking work by, for example, concentrating on content. They will also be aware of the need to find alternative ways of assessing progress rather than always through written tests and examinations.
- We will try, as far as is possible within our resources, to make appropriate arrangements for pupils to undertake tests or examinations. This may involve giving the pupil additional time; allowing the questions to be read to him/her; allowing the pupil to use I.C.T.
- Teachers will take account of the pupil's difficulties when setting homework assignments. They will consult with parents and set homework which can be completed by the pupil within a reasonable period of time.

Teachers will also try to ensure that assignments set by different teachers are co-ordinated and do not impose an unfair burden on the pupil.

- We are aware that pupils with dyslexia have experienced “failure” and that often their motivation for reading and written work is low. We are conscious of the need to make these tasks as attractive and stimulating as possible and of the need to find ways of raising the pupil’s motivation generally. This is particularly important since the nature of their difficulties means that there will need to be a lot of repetition of basic work to ensure that reading vocabulary, spellings etc. are learned and retained.

- We will try to suggest ways in which parents can help us help their child. We believe that parents can contribute a great deal to an educational programme by, for example, reading to their child on a regular basis; participating in paired-reading schemes; hearing their child read every day, making and illustrating personal dictionaries and word-banks; supporting the child while doing homework etc.

Review. To be reviewed September 2019