Buckden CE Primary Mathematics Subject Guidance

Whole School Curriculum Intent

Every child, loved by God, is educated for wisdom, aspiration and global citizenship to thrive in our community through a culture of dignity and respect. Their gifts, talents and wellness are cultivated with knowledge, skills and wisdom to live life purposefully in all its' fullness: sadness, struggles, joys and celebrations.

Math Curriculum intent

Every child is encouraged to have a love for maths, an enquiring mind and the ability to thrive in both the school and global community. As a school we aim to create a pupil who is resilient, confident and fluent in the language of mathematics.

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

Implementation

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 under-standing 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.

In both KS1 and KS2, the children follow the mathematical programme: Power Maths. This is based upon the White Rose scheme of work which aims to promote and encourage maths mastery. Through the use of textbooks, online support and resources and a range of teaching strategies, children are taught the content of the National Curriculum.

In addition to the children's math lessons, each class receives a 20-minute arithmetic session every day. During these times children build upon their number fluency and arithmetic strategies. Children also complete Big Maths Beat That which aims to embed their number bonds and multiplication facts.

Time Allocation:
To provide adequate time for developing mathematical skills each class teacher will provide a daily mathematics lesson. It will usually last for approx. 30 minutes in Foundation Stage and 45 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.

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.

To ensure progression, teachers do not introduce concepts and ideas from later years too soon but rather instill the concept of mastery.

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.

Teaching and Learning

Teachers employ a range of teaching strategies which include:

- instructing or directing; modelling, demonstrating and scribing; explaining; questioning; discussing; retrieval; 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.

EYFS

Maths is covered as a specific area in the Early Years framework. By the end of the Reception year, children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding, including daily maths direct input and continuous provision linked to the learning, children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, the children develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. Children are encouraged to 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.

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.
- Open ended activities/investigations where differentiation is by outcome.
- Providing a variety of resources depending on need 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'.

Dyslexic 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 maths curriculum and to all the activities of the school as all other pupils.

Planning, Assessment and Marking

Within maths we follow the School's Planning, Assessment and Quality Marking and Feedback policies.

Homework

All children are set maths homework using the online programme Abacus, which is part of active learning. Teachers set this homework depending on the area of study being covered. Children are expected to take responsibility for using this programme and their own additional learning at home.

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 computers are used alongside books, worksheets and other resources where appropriate.

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

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.

Impact

A Buckden pupil will be able to use Mathematics as a tool for everyday life. They will be able to demonstrate mathematical fluency across a range of concepts and areas of the curriculum which will allow them to use, reason and communicate information and ideas, to tackle a range of practical tasks and solve real life problems.

Review. To be reviewed September 2021