

RYHALL CE ACADEMY



Maths Curriculum Statement

INTENT

At Ryhall CE Academy, the teaching of Mathematics is geared towards enabling each child to develop their learning and achieve their full potential. We endeavour to not only develop mathematics skills and understanding required for later life, but foster an enthusiasm and fascination about Maths itself. We want all children to enjoy Mathematics and to experience success in the subject, with the ability to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. We aim to increase pupil confidence in maths so they are able to express themselves and their ideas using the language of maths with assurance.

We are committed to developing children's curiosity about the subject, as well as an appreciation of the beauty and power of Mathematics. We want the children to see Maths as being relevant to their world and applicable to everyday life as well as being something that they will need as they move on through their school life and ultimately to the world of employment.

Our aim is to ensure all children:

Become **FLUENT** in the fundamentals of Mathematics

Can REASON and **EXPLAIN** their thinking mathematically

Can **SOLVE PROBLEMS** by applying their Mathematics

Have **KEY FACTS** (e.g. number bonds and times tables), committed to long term memory; recalling them with speed and accuracy and using them to calculate and work out unknown facts.

How we ensure an ambitious Maths curriculum:

Our Maths teaching is underpinned by the belief that all children need **a deep understanding of the mathematics they are learning**. This is what we mean by Mastery. There is one set of Mathematical concepts for all. We ensure all pupils have access to these concepts and the rich connections between them. Mastery is, therefore, the aim for all children, hence we have an ambitious Maths curriculum for all.

Mastery is a continuum. We believe mastery is only going to be achieved when **more time is spent on key concepts** that are revisited and reviewed. This allows for the development of depth and sufficient practice to embed learning.

IMPLEMENTATION

How we ensure challenge:

We ensure that the majority of pupils will move through the curriculum at broadly the same pace. However, based on good assessment for learning (AfL), our teachers make decisions about when to progress children, based on the security of pupils'

understanding and their readiness to progress to the next stage. This does not mean that 'we hold children back' and that all children access the same questions and same activities all of the time. Pupils who grasp concepts rapidly are challenged by 'going deeper', being offered rich and more sophisticated problems before any acceleration through new content. Differentiation still takes place although it will often be through the same concept, posing different questions and problems for 'rapid graspers' to extend their thinking. Mastery strategies such as Prove it; Compare; True or False are used. A ceiling is not put on children's learning and flexible grouping is adopted based on pre-assessments.

How we ensure a well sequenced, progressive curriculum:

We teach the National Curriculum 2014. Pupils gain understanding of the mathematics relevant to their year group so that it is built upon in subsequent years.

- Our **high level long term map** for Maths outlines in year groups when mathematical knowledge, in blocks of work, will be taught and revisited. This is the basis for our well sequenced and progressive curriculum.
- Our **progression documents** provide an overview of the development of concepts across the primary years. These allow subject leaders to have an overview of the progression of concepts over time and allow class teachers to know what children have learnt previously and how the learning continues subsequently.
- Our **calculation policy** outlines in more detail which concepts and strategies will be introduced and how they are developed.
- Our **weekly planning** is based on White Rose Maths which is tailored to the needs of our children. There is a progression of 'small steps' structure within each block being taught. We use many concrete resources throughout the school to ensure children are exposed to multiple representations of a concept. This is part of our CPA (Concrete, Pictorial and Abstract) approach.

Whilst we teach Maths in progressive distinct domains (blocks) we recognise that Maths is an interconnected subject. Therefore, we encourage children to make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Children also apply their mathematical knowledge across the curriculum, and particularly in Science, where relevant.

We regard talk in Maths as important and introduce mathematical vocabulary in an age appropriate way. We encourage children to verbalise their thinking; our teachers ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

We make time to teach Maths:

Children in EYFS have daily mathematical opportunities to develop their principles of counting. Within the continuous provision both indoors and outdoors, children have opportunities to explore mathematical concepts. There are 4 adult led inputs for maths each week and objective led planning ensures these are supported and developed through the continuous provision. In addition to the 4 adult led inputs, maths meetings are used to review and reinforce prior learning, such as subitising, number recognition and shape.

*Live life in all its fullness** so that we may look back with pride and move forward with confidence **(John 10:10)*

Children in KS1 and 2 have a daily Maths session lasting for 60 minutes. They also take part in 'Maths Meetings' at least three times a week. These sessions are rapid paced, quick recall sessions that aim to revisit and reinforce previous learning and also cover elements of the Maths curriculum that are not taught regularly across the academic year, for example: telling the time, 2D and 3D shape names and properties. These meetings are planned sessions but do not follow a particular progression, it is felt the class teacher can plan the sessions according to the needs of the children. KIRFs can be covered during these sessions too.

We also understand the importance of revisiting and consolidating learning so throughout KS1 and KS2 we use a consistent pattern of starters for Maths sessions throughout the week.

- Memory Jogger Monday – children revisit previous learning from the week before
- Times Table Tuesday – children practise times table recall
- Wednesday Workout – children practise and revisit the four rules of number
- Throwback Thursday – children revisit learning from previous week/term/year
- Friday - teacher discretion in this session.

We also use Flashback Fours, Daily Ten etc.to support consolidation and revisiting of learning and make it 'sticky'.

If children are not reaching the expectations outlined below we intervene quickly by giving extra support. We give catch up support as targeted and focussed interventions. Pre teach and same day interventions take place when appropriate and required. The content of these sessions is determined by on-going gap analyses and our in depth knowledge of each child. These sessions are additional to our daily Maths sessions.

We build a skilled team who can teach Maths:

Members of our teaching staff have accessed training led by a Maths Consultant on each domain in the Maths curriculum throughout the last academic year. This has focussed on Maths subject knowledge and pedagogical subject knowledge. Our Maths Subject Leader has also accessed Subject Leader specific CPD in the last academic year. We have carried out a number of in house CPD sessions based on the aforementioned training and ensured information has been disseminated amongst staff members.

Leaders in our academy prioritise the teaching of Maths. Maths is identified as a key priority on our Academy Improvement Plan. Leaders monitor the provision of Maths through learning walks in Maths sessions, book scrutiny and planning. The impact of this provision through the analysis of (i) end of year cohort data (end of KS1 and 2 Maths) and (ii) individual pupil attainment and progress throughout the year (on going assessments).

Early Maths (EYFS):

From the beginning of EYFS (after completion of baseline assessments) we prioritise the **five principles of counting**:

- (i) The one-to-one principle: A child knows that we only count each item once.
- (ii) The stable order principle: A child knows that the order of the number names always stays the same. We always count by saying one, two, three, four, five....in that order.
- (iii) The cardinal principle: A child knows that the number they attach to the last object they count gives the answer to the question how many....?

- (iv) The abstraction principle: A child knows that we can count anything – they do not all need to be the same type of object.
- (v) The order irrelevance principle: A child knows that we count a group of objects in any order and in any arrangement and we will still get the same number.

We also prioritise:

- **Subitising:** the ability to recognise how many there are in a small group of objects without counting them. This allows children to see that numbers can be represented in different ways.
- **Unitising:** one object can have a value of more than one (equivalence). e.g. using Base 10 equipment, Numicon, coins.

IMPACT

EYFS

By the end of EYFS, we expect the vast majority of our children to achieve the ELGs in Number and Shape, Space and Measure.

Number ELG: Count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Shape, Space and Measure ELG: Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

KS1:

In KS1 our main priority is to ensure children are developing an appropriate, deep understanding and fluency of **place value and the four operations**.

We focus on:

- Using the CPA approach (Concrete, Pictorial and Abstract) as a way to introduce children to a range of representations. Each year group / class has a toolkit of concrete resources.
- Practice to aid fluency at this early stage.
- Early Addition and Subtraction strategies.
- Partitioning in different ways.
- Early multiplication and division strategies

(See detailed progression in our Calculation Policy and Key Instant Recall Fact document.)

In addition, we aim for children to:

- Develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary.

- Use a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

KS1 Impact

By the end of KS1 we expect the vast majority of our children to have developed confidence and mental fluency with whole numbers, counting and place value including working with numerals, words and the four operations.

Lower KS2:

In Lower KS2 our main priority is to ensure children **are becoming increasingly fluent with the four operations (including efficient methods), number facts and place value (including simple fractions and decimals) and are able to problem solve.**

We focus on:

- Continuing to use the CPA approach (Concrete, Pictorial and Abstract) as a way to develop children's conceptual understanding.
- Encouraging the most efficient strategies for calculation. Children are taught a range of strategies; they are taught to look at the calculation as a whole to encourage thinking about what the numbers mean rather than just the digits and using one strategy.
- Progressing understanding of multiplication by looking for linked / connected calculations:
- Progressing understanding of division

(See detailed progression in our Calculation Policy and Key Instant Recall Facts Progression documents.) In addition, we aim for children to:

- Draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them.
- Use measuring instruments with accuracy and make connections between measure and number.

LKS2 Impact

By the end of Year 4 we expect the vast majority of our children to have:

- **Become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value.**
- **Developed efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.**
- **Developed their ability to solve a range of problems, including with simple fractions and decimal place value.**
- **Memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.**

Upper Key Stage 2:

In Upper KS2 our main priority is to ensure that children are:

- Extending their understanding of the **number system and place value** to include larger integers.
- Developing connections between multiplication and division with **fractions, decimals, percentages and ratio**.
- Developing 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.
- Introduced to the language of **algebra** as a means for solving a variety of problems.

Calculators are introduced near the end of KS2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure.

In addition, we aim for children to:

- Consolidate and extend their knowledge developed in number in geometry and measures.
- Classify shapes with increasingly complex geometric properties and learn the vocabulary they need to describe them.

UKS2 Impact

By the end of Year 6, we expect the vast majority of our children to:

- **Be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.**
- **Have deep conceptual understanding and the ability to recall and apply mathematical knowledge rapidly and accurately.**
- **Reason mathematically by following a line of enquiry, using their knowledge of relationships and generalisations, and justify using mathematical language**
- **Solve problems by applying their mathematics to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.**

We build in opportunities for verbalisation of thinking in younger years leading to written explanations of thinking / reasoning by Year 5 / 6. Children are encouraged to answer in 'full sentence answers' by the use of sentence stems.