Hertford St Andrew Curriculum Plan
Maths

What is it like to be a mathematician at Hertford St Andrew?

All our children enjoy a high quality maths lesson every day from Reception to Year 6. These lessons include a fluency session, arithmetic and reasoning as well as differentiated activities to develop children's learning across each area of maths.

Children recognise the importance of Maths in everyday life and learn practical applications of their learning.

What do we want for all our mathematicians?

At Hertford St Andrews our intent is to deliver a curriculum that will encourage pupils to be efficient, resilient problems solvers, able to apply their mathematical skills to any real life context they encounter after leaving primary school. Through learning mathematics, our pupils will develop the logical thinking skills to break problems in a wide range of contexts into manageable steps. Pupils will embrace the interconnected nature of the concepts within mathematics and how mathematics can be applied to contexts within everyday life, academia and careers. Their mathematical skills and knowledge will open doors for our pupils to select whichever future path they choose. We encourage children to be the very best that they can be whilst demonstrating the school vision, ***Love Learning. Aim High. Trust God.***

What does the National Curriculum require us to teach?

In EYFS, maths teaching is guided by the Early Years Foundation Stage profile to enable children to reach the expected level of development by the end of Reception.

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.

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.

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

How have we designed and adapted our curriculum to meet the needs of our children?

As a school we implement the strategies used in the 'Herts for Learning Essential Maths' sequences which guide teachers on how to best cover the maths curriculum as well as supporting the delivery of carefully planned progression to ensure consistency across the school.
Throughout maths teaching, children will explore a range of approaches and skills using the CPA approach (Concrete, Pictorial and Abstract).

Concrete

This stage of learning encourages children to build on new concepts by using physical manipulation of objects to explore and develop their core skills and language.
We use a range of resources such as base-ten, tens frames, counters, dice playing cards, money and many more. This allows children to use a variety of different equipment to explore maths in different concepts.

Pictorial

This stage involves the use of images to represent the concrete learning. It is usually pupil's drawings of resources or the use of other strategies such as bar models, number lines or graphs. This stage bridges children's learning between the concrete phase and the abstract. This stage develops their ability to represent their mathematical understanding in a different way.

Abstract

This is the use of words and numbers to represent mathematical concepts. Pupils need to have the first two stages before moving onto this stage or to work along side it.
The abstract concept is what we usually expect children to be able to use once they are fully secure in their understanding.

Early Years

Maths is taught daily with an adult led activity to accompany it. The children then are encouraged to explore maths through their play. Children in Reception have the opportunity to build, create and write numbers within their free play and are given many resources to do this within their setting. Children are also encouraged to role play real life mathematical situations to develop their understanding of the world around them.

Daily Lessons

Children's daily lessons involve a fluency session, arithmetic and reasoning as well as differentiated activities to develop children's learning across each area of maths.

Fluency sessions

Fluency sessions are a quick ten minute booster of maths to develop children's fluency. This is a time for the children to recap and revisit previous learning to secure and embed their learning on a daily basis. Fluency sessions also give children the opportunity to make links between mathematical topics such as multiplication and fractions.

Arithmetic

Each maths lesson will have a discreet arithmetic element taught. This is the basic concept of the learning usually with a number focus. This part of the lessons allows children to become secure with the skill they are learning before using this to solve problems.

Reasoning

Once children are secure with the discreet skill taught we will look at how to apply this to problem solving. Reasoning allows children to use rich mathematical vocabulary to communicate how they solved a problem. Developing children's reasoning skills means they can have a much deeper understand of the concept they are learning about and use it to solve a variety of problems.

How do we know children are learning and developing their skills?

Teachers provide in the moment assessment and feedback in every lesson. This enables them to further adapt their teaching to ensure all children make progress.

Daily monitoring informs planning.

Regular diagnostic assessments from HfL Essential Maths enable teachers to make judgements about children's progress and where they are working at that point. These judgements inform whole class and individual planning based on whether children are working:

- below the expected standard
- towards the expected standard
- at the expected standard
- at greater depth than the expected standard.

What do we expect children to achieve at each key point in their school life?

Reception

Children work towards a good level of development in Maths. To be at the expected level of development, children should:

Number
• Have a deep understanding of number to 10, including the composition of each number;
• Subitise (recognise quantities without counting) up to 5;
• Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns
• Verbally count beyond 20, recognising the pattern of the counting system;
• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
• Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

KS1

SATs materials are used as part of internal summative assessment as to whether children are working:

- below the level of the Key Stage standards
- towards the expected standard
- at the expected standard
- at greater depth than the expected standard.

KS2

In Year 4, children take part in the National Multiplication Check

In Year 6, children take part in the Maths SATs tests which are externally marked. Children are judged from these to be working:

- below the level of the Key Stage standards
- towards the expected standard
- at the expected standard
- at greater depth than the expected standard.

As they leave HSA, children should all have made good progress from their starting point in Maths and be ready to progress to Secondary School study of Maths so they can achieve

GCSE grades required by employers. Children should begin to be able to apply their skills learned in Maths lessons as part of their journey towards adult numeracy.