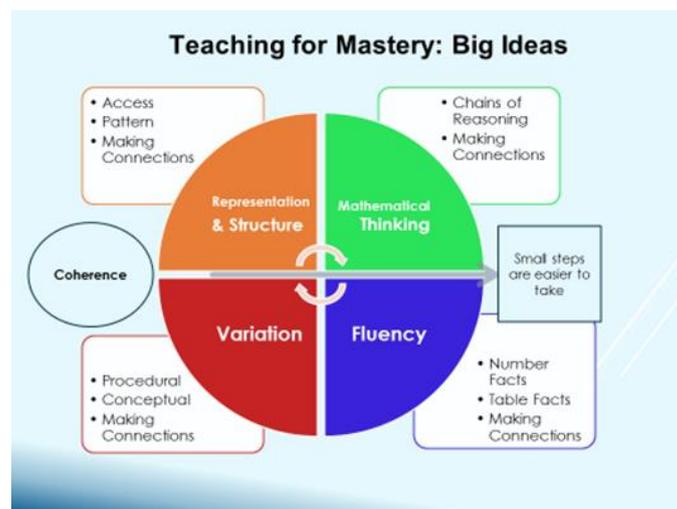




Teaching Mathematics at Hunsbury Park Primary School

At Hunsbury Park we believe that **all** children can and will achieve in their maths learning. All staff are committed to this, promoting mathematics as an enjoyable and fundamental part of life. We teach maths using a 'maths mastery' approach through the text book scheme 'Power Maths'.

The Principles of Maths Mastery.



Key features of a mastery style lesson

- Teaching the whole class altogether
- Small steps in learning
- Precise and accurate use of mathematical language by the teacher
- Precise and accurate use of mathematical language by the pupils
- Pupils speaking in full sentences (including use of stem sentences)
- Analysis of strategies
- Discussion
- Variation – concepts
- Variation – procedural
- Small focus
- Common misconceptions addressed and planned for

Common aspects of 'teaching for mastery' learning and teaching

Small focus of learning for the lesson
Start with problem which all pupils attempt
Review approaches
Exemplify / teach approach using Concrete/Pictorial/Abstract (CPA)
Work on one approach which is key to lesson (ping pong style lesson) whole class involvement

Independent learning

Power Maths

In Years 1 to 6 maths is taught using 'Power Maths' which is an exciting whole-class mastery approach with a focus on Fluency, Reasoning and Problem Solving.



The most important features of Maths Mastery, using Power Maths, are the following:

- It has a **Concrete – Pictorial – Abstract** approach that allows children to visualise abstract concepts.
- There are opportunities to 'do' maths **throughout** the lesson rather than just during independent work.
- There is effective learning by teaching in **small steps**.
- There is no false ceiling on learning, allowing children to reach their full potential.

Power Maths

This a quality text book scheme that is approved by the DfE

For each year group it is comprised of the following:

- Text Books A, B and C (one for each term)
- Children's Practice Books A, B and C (One for each term)
- Online resources through 'Active Learn' – (This includes a long-term plan for each year group, individual lesson plans and answers, online text books, models and images to display and more.)

The lesson structure of 'Power Maths' is taught with the support of colourful textbooks (one for each term) that can also be displayed on the interactive screens in classrooms, which the children find engaging. 'Power Maths' provides a coherent structure through the curriculum and supports children on their journey to deeper understanding. By using 'Power Maths', we have a **whole school approach with consistency across the school** in the use of **concrete apparatus; models and images; approaches; and calculation strategies**. There are loveable characters in the books who grow up with the children, give prompts, ask questions and develop a growth mindset.

Teachers focus on planning for the next lesson - to address misconceptions or to move the learning forward - rather than writing extensive comments in books.

For each year group the maths is organised into units of work which are made up of a sequence of lessons – usually lasting one or two weeks.

Before starting a new unit of work **all** adults – both teachers and TAs – watch a short video produced by Power Maths that explains the approach to learning; the models and images that will be used; and most importantly, the likely misconceptions so that all adults know how to support the children.

At the end of each unit, teachers can use the optional assessments – 'End of Unit Check' - that are found in both the Text Books and the children's Practice Books. After this there are then 'strengthening' or 'deepening' activities that can be used before moving on.

The Power Maths Lesson Structure (1 hour)

The lessons are designed to be very interactive with 'ping pong' style teaching, in small steps, so that the children understand each step before moving on. There is a lot of thinking, discussion and opportunities for the children to do maths **throughout** the lesson.

Whole Class Teaching

Power Up	5 minutes	This supports fluency in key number facts.
Discover	10 minutes	The 'Discover' part of the lesson is a daily problem for the children to 'have a go at', without any guidance from the teacher, as an introduction to the learning in the lesson. If they get this wrong, the 'share' and 'think together' sections of the lesson are where the teacher explains and models strategies. The children are given concrete resources if they need them and can record their responses in their jotters to help them feedback in the next part of the lesson.
Share	10 minutes	In this section of the lesson children feedback the strategies they used to answer the problem in the Discover section of the lesson. The teacher helps the children to understand by using the images and worked examples on the 'share' page – which can be shown on the classroom screen.
Think Together	10 minutes	In this section of the lesson further 'ping pong' style teaching takes place but with more challenge than at the start of the lesson. The teacher poses the first question in the book, the children have a go on their own, then feedback and then the teacher models the answer using the images and worked example in the book.

Practice (Independent Work in Practice Books)

Practice Children work in their own printed Practice Book. (One for each term – A, B, and C)	15 minutes	By using the printed Power Maths Practice Books (for independent work) every child has the opportunity to reach their full potential – without any ceiling on learning that differentiated activities impose on the level of challenge, for different groups of learners. The questions in the children's 'Power Maths' independent work books are an extremely well thought out series of questions that build on the children's conceptual understanding. They are based on 'intelligent practice' and rather than doing pages and pages of maths questions that test the same skill. All children attempt the same series of questions where each subsequent practice question develops the children's thinking and understanding through a sequence of questions with conceptual or procedural variation. The more able the mathematician, the further he or she will be able to progress through the questions.
Reflect Question	5 minutes	This is a question found at the end of the independent work for each lesson. All children complete this at the end of the lesson each day, even if they do not finish all of the previous questions. This gives the teacher useful assessment information to know how deeply they have understood the target concept and helps to identify any misconceptions.

Maths Assessment (Summative Judgements)

In Reception and Year 1, maths is assessed using teacher judgements through questioning, observing and marking.

In Years 2 to 6, in addition to teacher judgements, maths is assessed formerly using written tests that mimic the style of SATs Tests. The tests include questions based on previous learning within that key stage, rather than only the content that has just been taught. We also teach children the skills needed to take a test.

Question Level Analysis

After each test, teachers complete a question level analysis (QLA) for each paper.

Teachers use the QLA to identify 'gaps in learning' (for objectives taught) for individuals / small groups and the class as a whole.

Small groups interventions are put in place if necessary – outside the maths lesson.

Fluency in Multiplication and Division Facts

The Multiplication Challenge



To enable children to gain fluency in their multiplication tables, the Hunsbury Park 'Multiplication Challenge' is used.

Children are introduced to the Multiplication Challenge once they are confident with number bonds to ten and once they understand the concept of multiplication (repeated addition). This should take place two or three times per week.

In addition, children have daily opportunities to 'roll their numbers' in Years 3 and 4 (and further up the school if appropriate). The same songs are used consistently in all classes.

All classrooms (where children are taking part in the Multiplication Challenge) have Multiplication Challenge displays to motivate children to make progress. Children have a named laminated image of their class animal and can move it across the display until they reach 'The Speed Challenge'.

When this is achieved, children are presented with a certificate in Celebration Assembly. Further certificates are awarded when the 'Speed Challenge' can be completed accurately in less than one minute and then in less than 30 seconds.



Arithmetic

Children are given many opportunities to practise arithmetic.

Children also complete SATs style arithmetic tests at an appropriate level.

Subitising and Number Bonds (Years 1 and 2)

Subitising is the ability to recognise a small number of dots (or objects) without having to count them. (Up to about 8.)

By combining 2 groups of dots/objects, children can see a visual image allowing them 'to picture' the number bonds of all the numbers to ten, thus making something abstract into a pictorial or concrete image that they can remember and understand. (Dice patterns, tens frames and Numicon are especially useful to build this skill.)

Following on from Reception, children are given daily (5 minute) opportunities to experience subitising activities. The ability to be able to subitise is fundamental to further maths learning so our aim is for all children to be able to subitise and know their number bond to ten by the end of year 1.

If children can not do this they are identified and given intensive practice in Year 2. It is essential that all children develop this skill as early as possible.