Year 5 Maths Workshop

Wednesday 6th October, 2021



Maths at Pope Paul Aims of this afternoon session

• To get an insight into how Maths is taught at Pope Paul.

•To take away some ideas to support your child(ren) at home.

National Curriculum

- The national curriculum for mathematics aims to ensure that all pupils:
- become fluent in the fundamentals of mathematics,
- reason mathematically
 can solve problems



- At Pope Paul School, the mathematical learning that children are presented with enables them to
 respond to mathematics in many forms. Being a 'mathematician' is not, simply, completing
 mathematical tasks: it is the ability to formulate and choose an appropriate, efficient response which
 utilises a true understanding of the problem or situation.
- Using **Essential Maths** as a key driver for our planning of mathematics at Pope Paul School, we aim to provide children with deeper knowledge and understanding of mathematical procedures and related concepts. As such teachers identify the key learning for each class and plan to secure these. Learning sequences are developmental and, depending on the concept, a good proportion of time will be spent securing key learning. Teachers will use their judgement about when it is the right time to move on.

What does this look like at in our school? Whole class direct teaching with clear and progressive modelling of concepts and procedures with sequences of varied examples.

The consistent use of core manipulatives and representations to support ability to access learning and to deepen children's understanding.

Rich mathematical talk is given high status and supported by the learning environment and teachers' questioning.

Emphasis placed on 'learning' through reasoning, developing multiple strategies and concepts towards understanding.

Pupils 'grappling' with learning mathematical concepts

Challenge for pupils grasping concepts quickly is provided through depth and breadth of experience. We encourage maths talk and collaborative learning – they work together to master a concept.



By working hard, <u>all</u> children can succeed

We provide time to **secure learning** before moving on We encourage intelligent practice and use of key facts to 10.

Children are challenged through **depth** of experience



Moving freely between concrete materials, pictorial representations and abstract symbols.

- 1. The children are first introduced to an idea or skill using objects.
- 2. When the hands on experience is understood we relate them to representations such as a **diagram** or a **picture**.
- 3. The children represent their learning using **numbers** and **symbols**





When we plan a Maths sequence we always ensure children are exposed to correct mathematical language, symbols (+ - = x), an image and a context.

Bringing concrete, pictorial and abstract together

Have a go!

Try these calculations using some of the 'objects' on your table.



The Year 5 Learner

Working mathematically

By the end of year 5, children will apply their mathematical experiences to explore ideas and raise relevant questions, constructing complex explanations and reasoned arguments. They will be able to solve a wide variety of complex problems which require sustained concentration and demand efficient written and mental methods of calculations. These will include problems relating to fractions, scaling (times as many), converting between units of measure and employ all four operations (+, -, x, ÷).

Number

· Counting and understanding numbers

Children extend and apply their knowledge of place value for numbers up to one million, rounding, estimating and comparing them (including decimals and negative numbers) in a variety of situations. They are introduced to powers of ten and are able to count forwards or backwards from any number (for example, -50, -5... 5, 50, 500, 5000...). Through investigations, they will discover special numbers including factors, primes, square and cube numbers.

Calculating

Children will be fluent in a wide range of mental calculation strategies for all operations and will select the most appropriate method dependent on the calculation. They apply their knowledge of place value fluently to multiply and divide numbers (including decimals) by 10, 100 and 1000. When mental methods are not appropriate, they use formal written methods of addition and subtraction accurately. They continue to develop their understanding of the formal methods through hands-on resources and use their known facts within long multiplication (up to 4-digit numbers by 2 digit numbers e.g. 2345 x 68) and short division (up to 4 digit numbers by 1 digit number e.g. 2345 ÷ 7) which may result in remainders. They solve multi-step problems in meaningful contexts and decide which operations to use.

Place Value and Rounding of Large Numbers

Key NC Statement

Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit

Related NC Statements

- count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000
- round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000
- solve number problems and practical problems that involve place value
- add and subtract numbers mentally with increasingly large numbers

Steps within the Learning Sequence

- Step 1: Value of digits within large numbers
- Step 2: Number magnitude and conservation of a million
- Step 3: Comparing numbers
- Step 4: Ordering numbers
- Step 5: Counting in steps of powers of 10
- Step 6: Rounding numbers

Place Value

explore to deepen pupils' understanding of the position of the digits by asking a variety of questions.



Step three

Comparing numbers

Pupils generate their own 7-digit number by rolling a 0-9 dice or selecting from a set of 0-9 digit cards. Then use the spinner (handout_5LS1_step3_spinner) to determine whether to record the number 1, 10, 100, 10,000 or 100,000 more than and less than the original number.

100 less than two million, six hundred and seventy eight thousand, two hundred and twenty two is two million, six hundred and seventy eight thousand, one hundred and twenty two.

2,678,222

100 more than two million, six hundred and seventy eight thousand, two hundred and twenty two is two million, six hundred and seventy eight thousand, three hundred and twenty two.

Repeat for a range of numbers including those that require a boundary to be crossed.



Speaking Frame - Comparing

I know that \Box is greater than \Box because...

 \Box must be smaller than \Box because...

□ is not greater than □ because...

Key words: place, position, digit, number, less than, more than, size, proportion Learning Sequences, Speaking Frames, Destination Questions

Introduction

Mathletics switches students onto maths. It's fun, supportive and effective for students of all ages and abilities, helping them achieve more.



Mathletics

Pupil Engagement

Mathletics gives each student their very own personal learning space. Filled with targeted curriculum content, interactive tutorials and support, alongside engaging games and rewards - the Student Console is a powerful hub of learning.

- Curriculum content can be assigned and controlled by the teacher.
- Self-directed learning is the focus, with searchable access to activities, interactive content, eBooks and video.
- Targeted and adaptive practice activities for differentiated learning.



Encourage your child to play maths puzzles and games. Puzzles and games – anything with a dice really – will help kids enjoy maths, and develop 1 number sense, which is critically important.



Always be encouraging and never tell your child they are wrong when they are working on a maths problem. Instead find the logic in their thinking – there is always some logic to what they say. For example if your child multiplies 3 by 4 and gets 7, say – Oh I see what you are thinking, you are using what you know about addition to add 3 and 4, when we multiply we have 4 groups of 3...



Encourage your child to take time to understand the logic...speed comes later.



Encourage number sense. What separates high and low achievers is number sense – having an idea of the size of numbers and being able to separate and combine numbers flexibly.



Encourage them to do their home learning and use the online resources.

How to assist your child



Timestables

https://youtu.be/5_RBfrNAZEY

https://www.oxfordowl.co.uk/forhome/oxford-owl-videos/videos-fun-mathsgames/#timestablesgames Andrew Jeffrey talks about his favourite games to help children with their times tables.



Dice games

Andrew Jeffrey shares five of his favourite dice games to help children with all sorts of maths skills, such as counting, addition, and subtraction.



Questions?