



Maths at Barnsbury Primary School and Nursery

Year 2

Aims of the session:

- To outline the maths curriculum and end of year expectations
- To share some of the activities in a typical lesson
- To share our ethos toward the teaching of maths (CPA approach, Numicon , WhiteRose)
- To provide suggestions as to how you can support your child at home (including Growth Mindset)



The National Curriculum:

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.**

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.

This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

Questioning

Discussion

Team work

Sharing ideas

Collaborating



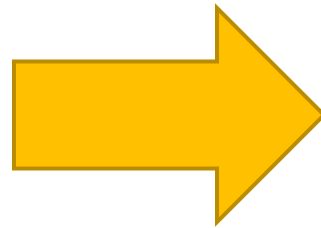
Exploring hands on



End of year expectations:

The areas covered in Year 2:

- Number and place value
- Addition and subtraction
- Multiplication and division (2's 3's 5's and 10's, making connections)
- Fractions (write simple fractions and recognise equivalence.)
- Measurement
- Property of shapes
- Position and direction
- Statistics (e.g tally's and tables)



Mathematics

- Read and write numbers to at least 100 in numerals and in words.
- Compare and order numbers from 0 up to 100: use $<$ $>$ and $=$ signs.
- Partition two-digit numbers into different combinations of tens and ones, possibly using apparatus.
- Solve problems with addition and subtraction.
- Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
- Subtract mentally a two-digit number from another two-digit number when there is no regrouping required (e.g. $74 - 33$).
- Recognise the inverse relationships between addition and subtraction and use this to check calculations and work out missing number problems (e.g. $\Delta - 14 = 28$).
- Estimation to check that their answers to a calculation are reasonable (e.g. knowing that $48 + 35$ will be less than 100).
- Recall and use multiplication and division facts for the 2, 3, 5 and 10 multiplication tables to solve simple problems.
- Solve problems involving multiplication and division.
- Recognise, find, name and write $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ of a length, shape, set of objects, quantity and know that all parts must be equal parts of the whole.
- Identify simple equivalent fractions (e.g. $\frac{2}{4}$ and $\frac{1}{2}$).
- Use different coins to make the same amount (e.g. pupil uses coins to make 50p in different ways; pupil can work out how many £2 coins are needed to exchange for a £20 note).
- Read scales in divisions of ones, twos, fives and tens in a practical situation where all numbers on the scale are given (e.g. pupil reads the temperature on a thermometer or measures capacities using a measuring jug).
- Tell and write time to five minutes, including quarter past/to the hour.
- Describe properties of 2-D and 3-D shapes (e.g. the pupil describes a triangle: it has 3 sides, 3 vertices and 1 line of symmetry; the pupil describes a pyramid: it has 8 edges, 5 faces, 4 of which are triangles and one is a square).
- Use mathematical vocabulary to describe position, direction and movement.
- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.



How is Maths taught at Barnsbury?:

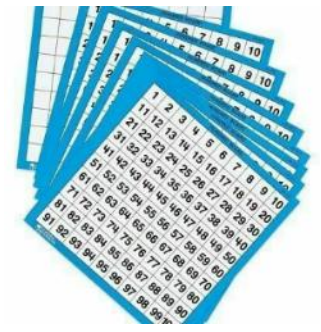
At Barnsbury we aim to provide children with mathematical **experiences** which stimulate the children's enthusiasm and develop their fluency, ability to reason mathematically and their ability to solve problems.

- Daily 1 hour lesson.
- Practical exploration through a **concrete, pictorial, abstract** approach.
- Time for children to develop their **fluency** and **verbal reasoning skills**.
- Spotting the maths around us and applying new concepts to everyday life.
- **RAP time** to ensure children can revisit concepts and address misconceptions.



A typical lesson: Learning practically at school (concrete)

The **'doing'** stage. Brings concepts to life by allowing children to experience and handle physical objects.



100 square



Bead strings



Multi-link cubes



Number lines



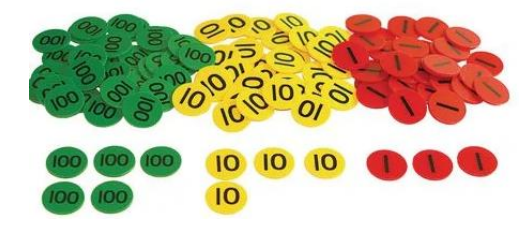
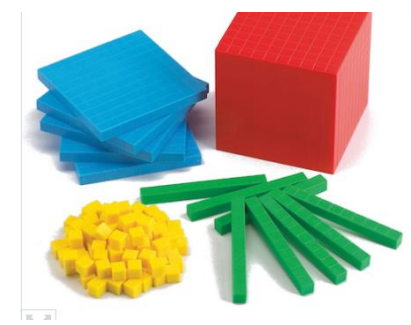
Numicon



Counters, including buttons, beads and natural objects.



Base 10



Place value counters



A typical lesson: Learning practically at school with Numicon

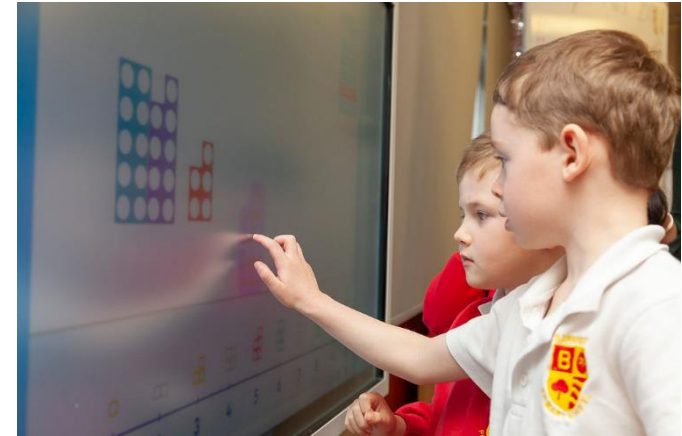
As a Numicon advocate school learners from Nursery to Year 6 use the teaching resource **Numicon**. The Numicon approach is multi-sensory, using apparatus and focusing on Action, Imagery and Conversation.

Numicon is an approach to teaching maths that **helps your child to see connections** between numbers. The program of activities helps students to **understand number relationships, spot patterns and make generalisations**. When Numicon patterns are arranged in order, pupils begin to notice important connections between numbers, for instance that each number is one more than the last and one fewer than the next, odd and even numbers and place value.



A typical lesson: Learning practically at school with Numicon

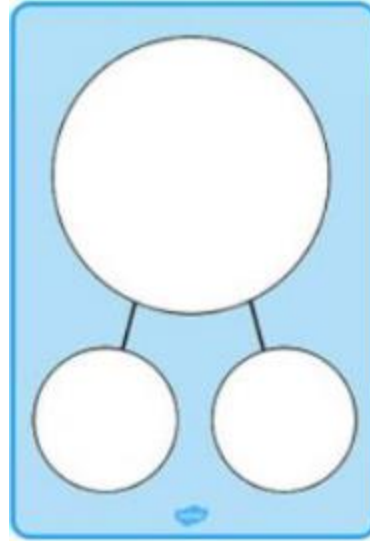
Numicon illustrates number bonds, addition and subtraction, place value, doubling and halving, estimation, division and multiplication. The Numicon Shapes and rods help teachers and students to communicate their ideas. **Students are encouraged to work together on activities which emphasise applying understanding to solve problems.**



In Year 2 Numicon resources feature in all areas of the maths curriculum.

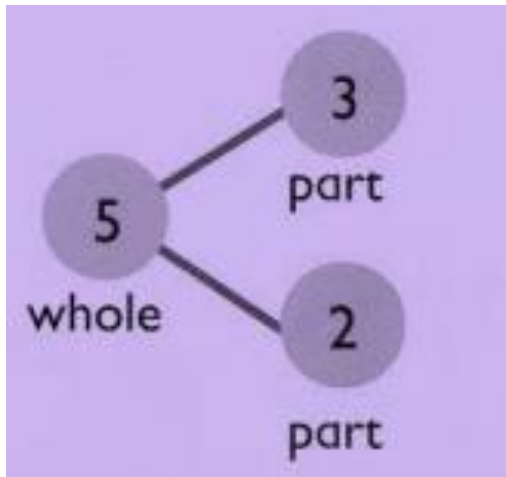
A typical lesson: Learning practically at school (pictorial)

The 'seeing' stage. Visual **representations** of concrete objects are used to model problems. Children make a mental connection between the physical object they just handled and the abstract **pictures**.



Tens	Ones
	••
2	3

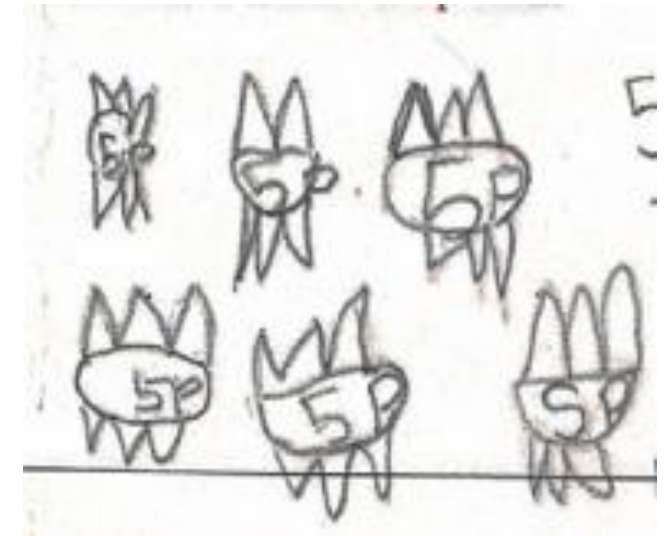
Tens and ones/sticks and crosses



Bar/Part-whole model

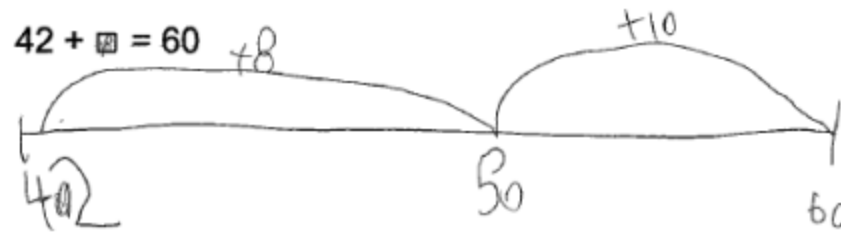


Drawing pictures, footballs, cupcakes etc.


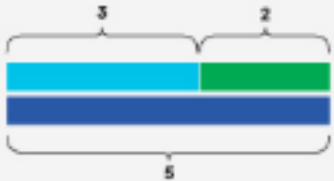


A typical lesson: Learning practically at school (abstract)

The '**symbolic**' stage. Introducing abstract concepts for example, **mathematical symbols**. Using only numbers, notation, and mathematical symbols (for example, +, -, x,) to indicate addition, subtraction and multiplication.



$$\begin{aligned} 81 - 23 &= 58 \\ 81 - 20 &= 61 \\ 61 - 3 &= 58 \checkmark \\ 52 - 17 &= 35 \\ 52 - 10 &= 42 \\ 42 - 7 &= 35 \checkmark \end{aligned}$$

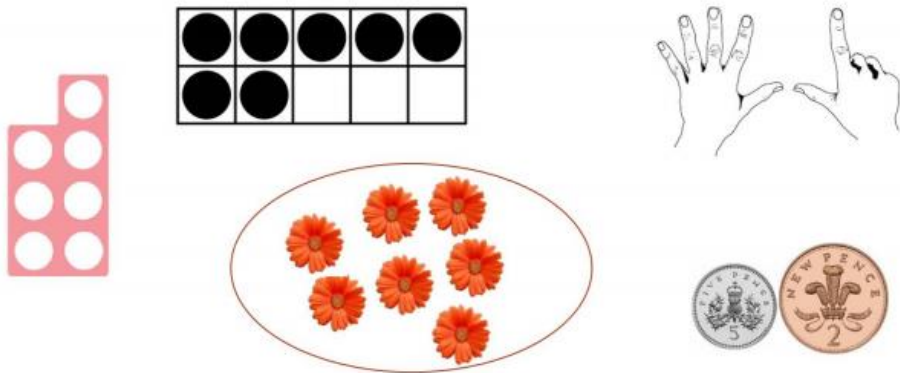
		$3 + 2 = 5$
Concrete	Pictorial	Abstract

$$80 > 18$$



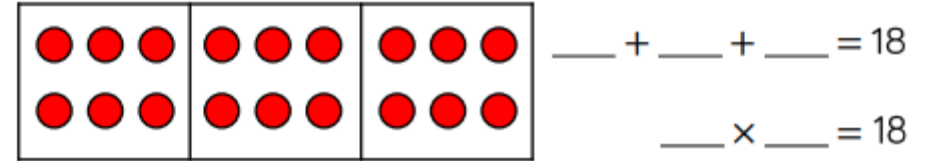
A typical lesson: Learning practically at school: Varied Fluency & Verbal Reasoning

Varied Fluency- Opportunities for practice help them reach an effortless stage of fluency where they can **apply** their knowledge to solve unfamiliar problems. Learners choose efficient strategies, recall facts and double check their answers. They understand that there are many ways to solve a problem.



Varied Fluency

- Complete the sentences to describe the equal groups.



There are ___ equal groups with ___ in each group.
There are three ___.

- Complete:

Three 2s	Draw It	Addition	Multiplication
There are 3 equal groups with 2 in each group.			

- Complete:


Addition	Multiplication	Story
10 + 10 + 10		
	6 × 5	



A typical lesson: Learning practically at school: Varied Fluency & Verbal Reasoning

Verbal reasoning- Opportunities for solving mathematical problems. Finding the solution, **justifying** their answer and giving proof.

Reasoning and Problem Solving

 <p>$3 + 3 + 3 = 3 \times 3$</p>	<p>He is correct because $3 + 3 + 3 = 9$ and $3 \times 3 = 9$</p>
<p>Is Mo correct? Explain why.</p> <p>Draw an image to help you.</p>	
<p>Use $<$, $>$ or $=$ to make the statements correct.</p> <p>3×5 <input type="radio"/> $5 + 5 + 5 + 5$</p> <p>2×2 <input type="radio"/> $2 + 2$</p> <p>10×2 <input type="radio"/> $5 + 5 + 5$</p>	<p>$3 \times 5 < 5 + 5 + 5 + 5$</p> <p>$2 \times 2 = 2 + 2$</p> <p>$10 \times 2 > 5 + 5 + 5$</p>

$19 \times 10 =$ 190 185 192

I think its 190 because when you count in tens its all ways ends in a 0.

- It can't be ... because ...
- I noticed that...
- It must be ... because ...
- This is true here because ...
- If ... then ...
- I wonder whether ...
- This is different because ...
- I already know that ... so ...
- This is the same because ...
- I know that ... because ...
- I think that ... because ...
- This is always true because ...

854 x 500



White Rose Maths:

EVERYONE CAN DO MATHS:

EVERYONE CAN!

The **White Rose** curriculum is a cumulative curriculum so that once a topic is covered it is met many times again in other contexts.

Together, we're building a whole new culture of deep understanding, **confidence** and **competence** in maths – a culture that produces strong, secure learning and real progress.

We're shaping assured, happy and resilient mathematicians who relish the challenge of maths. They become **independent, reflective thinkers**, whose skills not only liberate them in maths but also support them **across the curriculum**.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value		Number: Addition and Subtraction					Measurement: Money		Number: Multiplication and Division		
Spring	Number: Multiplication and Division	Statistics		Geometry: Properties of Shape			Number: Fractions			Measurement: Length and Height	Consolidation	
Summer	Geometry: Position and Direction		Problem solving and efficient methods		Measurement: Time		Measurement: Mass, Capacity and Temperature			Investigations		

White Rose Maths:

'All children can be successful with mathematics, provided that they have opportunities to **explore mathematical ideas in ways that make personal sense to them and opportunities to develop mathematical concepts and understanding.** Children need to know that practitioners are interested in their thinking, respect their ideas, are sensitive to their feelings and value their contributions.'

DCSF (2008)

Use Arrays

Notes and Guidance

Children explore arrays to see the commutativity of multiplication facts e.g. $5 \times 2 = 2 \times 5$

The use of the array could be used to help children calculate multiplication statements.

The multiplication symbol and language of 'lots of' should be used interchangeably.

Mathematical Talk

Where are the 2 lots of 3?

Where are the 3 lots of 2?

What do you notice?

What can we use to represent the eggs?

Can you draw an image?

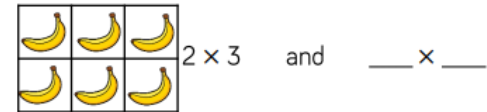
Varied Fluency

- On the image, find 2×5 and 5×2



Can you represent this array using another object?

- Complete the number sentences to describe the arrays.



- Draw an array to show:

$$4 \times 5 = 5 \times 4$$

$$3 \text{ lots of } 10 = 10 \text{ lots of } 3$$

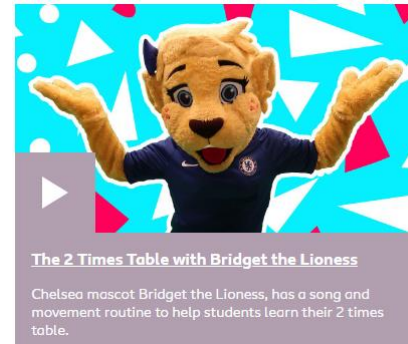
Times tables:

Why is it important for my child to know the times tables?

When children know their times tables, mental arithmetic becomes easier. Practising times tables also helps children to understand number and number relationships, and to see patterns in numbers. These skills will help them to master key concepts and move quickly through more complex maths problems with confidence-Oxford Owl.

The end of year expectation is for learners to be able to **Recall and use** multiplication and division facts for the **2, 3, 5 and 10** multiplication tables to solve simple problems.

At home:



Songs (BBC super movers)



Homework: once a week, alternating between books and online.



Your child will have a TTRS login. They can create their own rock star and compete in battles with other year groups/



Games



Number bonds:

Why is it important for my child to learn number bonds?

Knowledge of number bonds is essential when it comes to harder calculations involving addition and subtraction (for example, children learn to use the [bridging through 10 method](#) to help them add numbers mentally), so it is vital children get a firm grounding in this from Years 1 to 3.

The end of year expectation is for learners to be able to Recall and use addition and subtraction facts to **20** fluently, and derive and use related facts up to **100**.

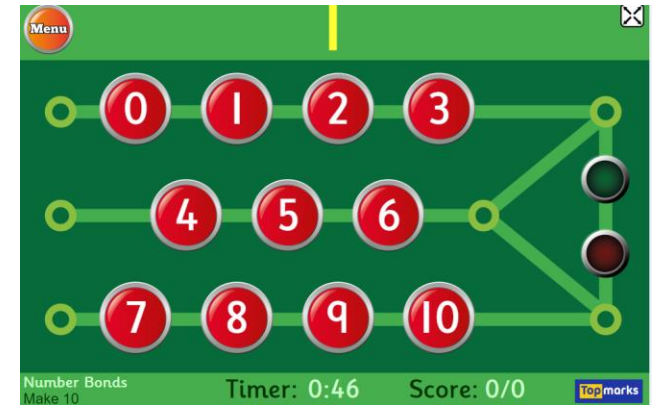
At home:



Practical problems



Your child will have a Numbots login.



Online games (Top Marks)

	$1 + 19$		$19 + 1$
	$2 + 18$		$18 + 2$
	$3 + 17$		$17 + 3$
	$4 + 16$		$16 + 4$
	$5 + 15$		$15 + 5$
	$6 + 14$		$14 + 6$
	$7 + 13$		$13 + 7$
	$8 + 12$		$12 + 8$
	$9 + 11$		$11 + 9$
	$10 + 10$		$10 + 10$

Charts and posters



Growth mind-set and parental support:

Our children are active participants in their own learning. They are taught to develop skills of self-evaluation and understand the importance of taking responsibility for their own learning and for their actions.

At Barnsbury we: **Believe • Persevere • Succeed**

Fixed mind- Believing that intelligence cannot be changed in any meaningful way. People are naturally intelligent, it is fixed.

VS

Growth mind- Believing that intelligence can be developed over time. Through effort and determination, intelligence can grow.



Promoting a growth mind set at school and home:

‘But I am hopeless at maths’:

-If children hear ‘I can’t do maths’ from parents, family or friends they begin to believe it isn’t important. Don't tell them you are/were hopeless at maths. You were probably not hopeless, and even if you were, that implies to your child, “**I was hopeless at maths, and I'm a successful adult, therefore maths is not important**”

-Children who succeed at maths are usually the ones who **enjoy** it most, so remember – maths is fun, everyone! even if that’s not the way you remember it from your own childhood. We all know how easily children pick up on the things we say, so it’s **vital that you don’t pass on your dislike or fear of maths** by saying things like ‘I was never any good at maths’ or ‘I hated maths at school’ etc...-bbc

Growth mind set in 1, 2, 3...

1. View challenge positively
2. The power of yet ‘I can’t do ... YET!’
3. Mistakes are okay, in fact we value them! We can promote them as opportunities for growth, in class we might say ‘good mistake’.



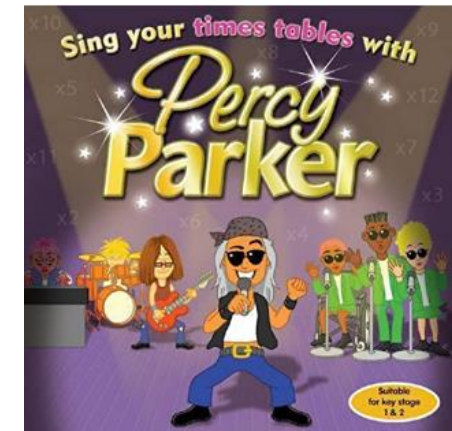
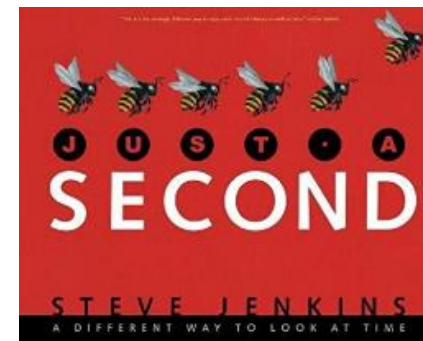
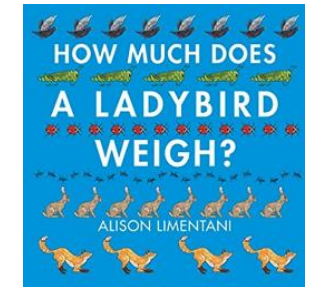
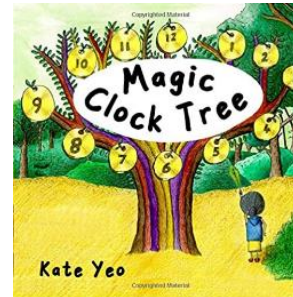
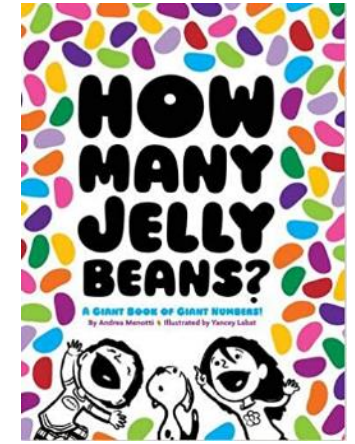
miStAkEs
are proof
that you are
TRYING



How can I support my child at home?:

Maths is all around:

- Cooking/ baking- weighing, measuring, problem solving, double, half, using scales, estimating weight
- The food shop- comparing size/weight, counting money
- The school run- Using clocks and watches for time, discussing temperature.
- Important dates- months, days of the week, 'sleeps until...'
- Songs- times tables.
- Time in nature- counting objects at the beach or in the woods. Discussing the shapes of objects 2D/3D
- Number problems– make them a part of everyday life 'what time will it be in one hour?'



How can I support my child at home?:

Websites for information:

<https://home.oxfordowl.co.uk/maths/primary-maths-age-6-7-year-2/>

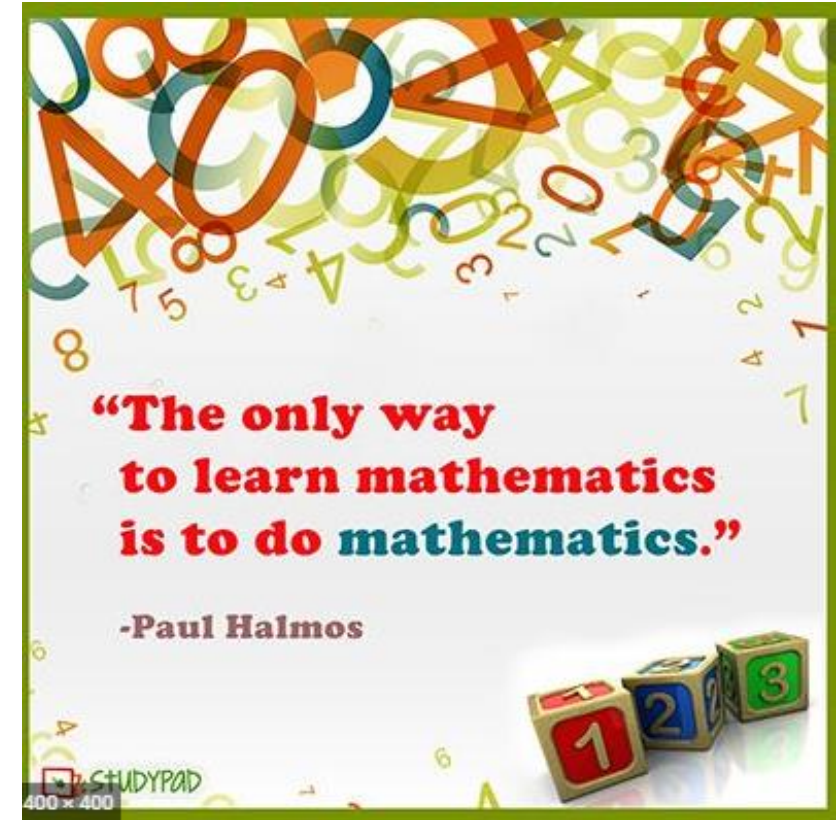
<https://home.oxfordowl.co.uk/maths/numicon-guide-for-parents/>

<https://thirdspacelearning.com/blog/category/for-parents/>

<https://www.pacey.org.uk/news-and-views/pacey-blog/2017/november-2017/maths-it%e2%80%99s-an-attitude/>

<https://thirdspacelearning.com/blog/fun-maths-games-activities-for-kids/>

<https://www.bbc.co.uk/bitesize/learn>



How can I support my child at home?:

Online games and educational television:

<https://www.topmarks.co.uk/maths-games/5-7-years/counting>

<https://www.bbc.co.uk/cbeebies/shows/numberblocks>

<https://www.bbc.co.uk/teach/ks1-maths/zhng7nb>

<https://ttrockstars.com/>

NUMBOTS

<https://www.bbc.co.uk/programmes/b007qn3c/clips>

<https://www.youtube.com/user/JackHartmann>

®
**Without mathematics,
there's nothing you can do.**

**Everything around you
is mathematics.**

**Everything around you
is numbers.**

-Shakuntala Devi



How can I support my child at home?:

Games, toys and resources:

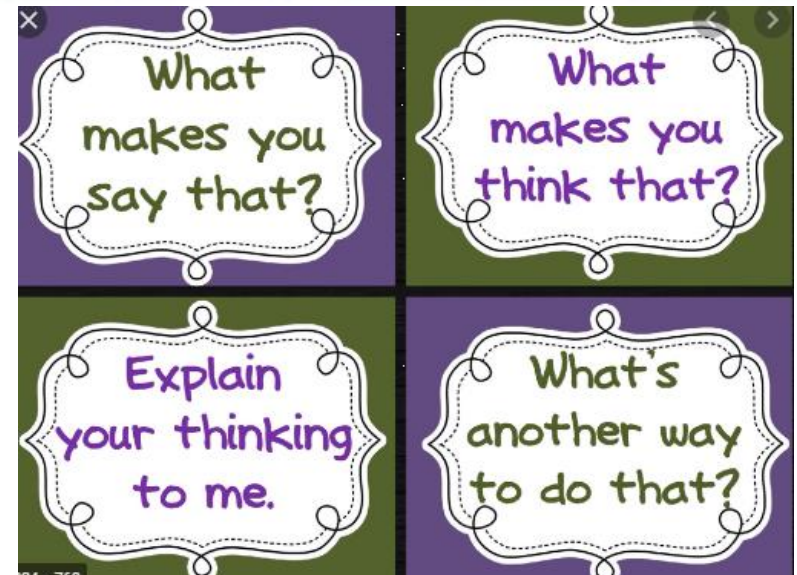
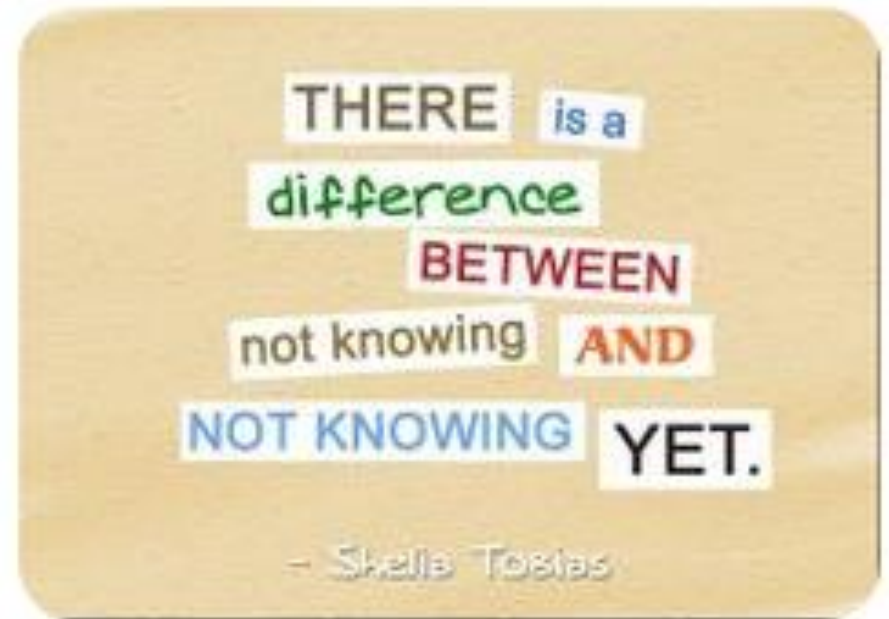
Numicon shapes 1-10: https://www.amazon.co.uk/Numicon-Bag-Shapes-1-10/dp/0198487312/ref=sr_1_2?dchild=1&keywords=numicon&qid=1592909454&sr=8-2

Orchard farm maths games: https://www.amazon.co.uk/Orchard-Toys-Catch-Count-Game/dp/B00JPERI16/ref=sr_1_11?dchild=1&keywords=orchard+farm+maths&qid=1592909555&sr=8-11

Board games with dice: https://www.amazon.co.uk/HTI-Traditional-Snakes-Ladders-Family/dp/B00ILADTEK/ref=sr_1_30?dchild=1&keywords=kids+board+games&qid=1592919368&sr=8-30

4 operation flash cards: https://www.amazon.co.uk/The-Green-Board-Game-G0944021/dp/B000XSMYD0/ref=sxin_7_ac_d_rm?ac_md=5-3-bWF0aHMgY2FyZCBnYW1lcw%3D%3D-ac_d_rm&cv_ct_cx=maths+games&dchild=1&keywords=maths+games&pd_rd_i=B000XSMYD0&pd_rd_r=b07324db-e444-4dcb-92de-7401c4bce915&pd_rd_w=APwQY&pd_rd_wg=kWlpK&pf_rd_p=3e438efd-52f0-43c2-b2a2-764ab9552a9e&pf_rd_r=61XCTZ93QZQPS2T0JAJ0&pssc=1&qid=1592994939&sr=1-4-fe323411-17bb-433b-b2f8-c44f2e1370d4

Printables: <https://www.twinkl.co.uk/resources/parents/free-resources-parents/math-free-resources-parents>



Your child is at the very beginning of their maths journey. While developing their understanding at this stage can be extremely valuable, try to make sure their learning does not become a chore, for you or for them.

It doesn't take a great deal of imagination or enthusiasm to turn any part of this early learning into a brief, playful experience. You will also likely find that a 'little-and-often' approach will pay off, and as your child's confidence as a mathematician grows, the more that they will want to engage with maths.

Third Space Learning



Please ask your child's class teacher if you have any further questions.

