Maths at Barnsbury Primary School and Nursery

Year 1

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

Exploring hands on

Collaborating

End of year expectations:

The areas covered in Year 1:

- Number and place value
- Addition and subtraction
- Multiplication and division (counting in 2's 5's and 10's)
- Fractions (finding 2 equal parts and finding 4 equal parts.)
- Measurement
- Property of shapes
- Position and direction

- Count to and across 100, forwards and backwards from any number.
- Read and write numbers to 100 in numerals and words.
- Say 1 more/1 less to 100.
- Count in multiples of 2, 5 and 10.
- Use bonds and subtraction facts to 20.
- Add and subtract 1 digit and 2 digit numbers to 20, including zero.
- Solve one-step multiplication and division using objects, pictorial representation and arrays.
- Recognise half and quarter of object, shape or quantity.
- Compare, measure, record and solve practical problems for: lengths and heights, mass and weight, capacity and volume, and time.
- Sequence events in chronological order.
- Use language of day, week, month and year.
- Tell time to hour and half past.
- Recognise and name common 2-D (rectangles, squares, circles, triangles) and 3-D (cubes, cuboids, pyramids, spheres) shapes.
- Describe position, direction and movement, including whole, half, quarter and three quarter turns.

How is Maths taught at Barnsbury?:

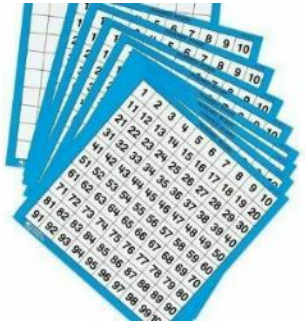
At Barnsbury we aim to provide children with mathematical **experiences** which stimulate the children's enthusiasm and develop their fluency, ability to reason mathematically and their ability to solve problems.

- 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.

Number lines



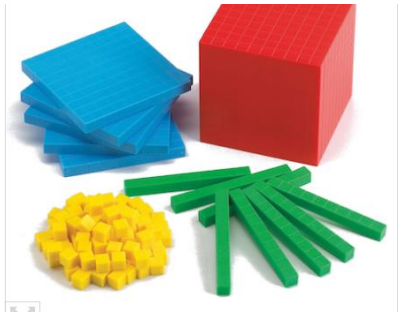
100 square

Bead strings

Multi-link cubes

Counters, including buttons, beads and natural objects.

Numicon



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.

numicon advocate school

A typical lesson: Learning practically at school with Numicon

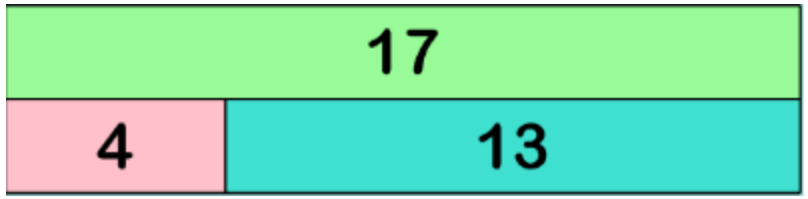
Numicon illustrates number bonds, addition and subtraction, place value, doubling and halving, estimation, division and multiplication. The Numicon Shapes and rods help teachers and students to communicate their ideas. **Students are encouraged to work together on activities which emphasise applying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

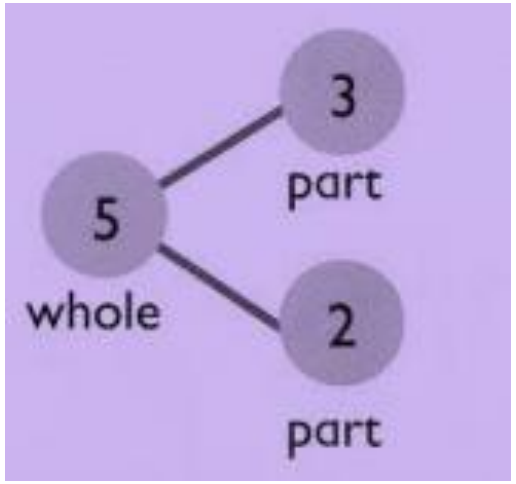
In Year 1 Numicon resources feature in all areas of the maths curriculum.

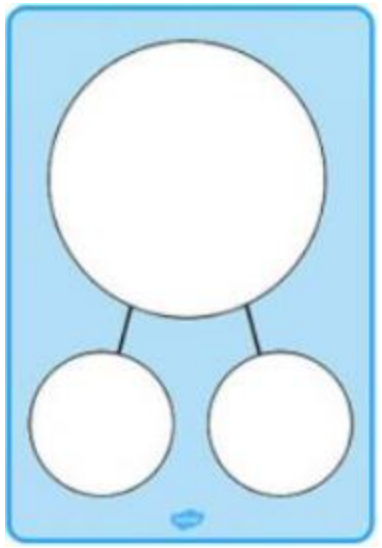
numicon advocate school

A typical lesson: Learning practically at school (pictorial)

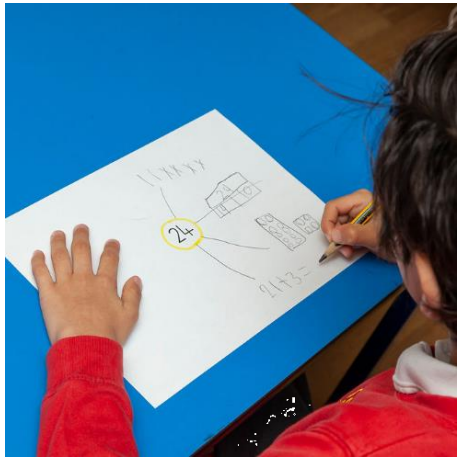
The **'seeing'** stage. Visual **representations** of concrete objects are used to model problems. Children make a mental connection between the physical object they just handled and the abstract **pictures.**

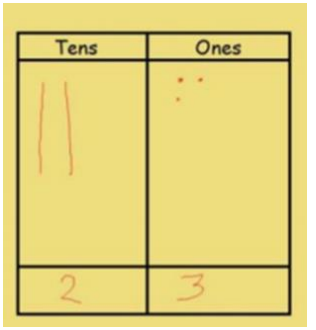






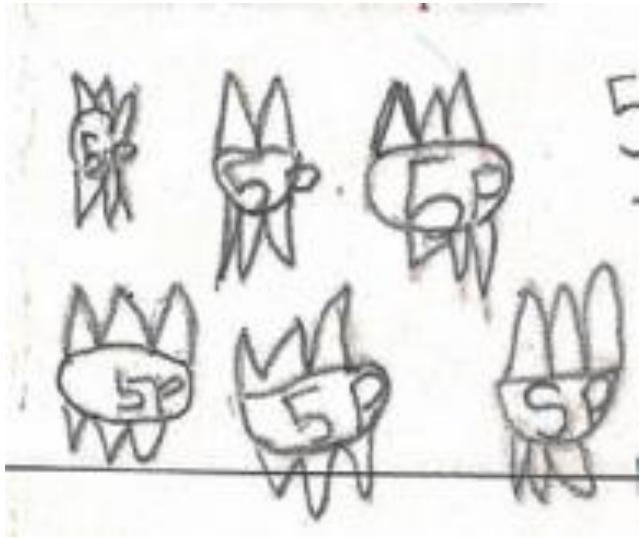
Bar/Part-whole model





Tens and ones/sticks and crosses

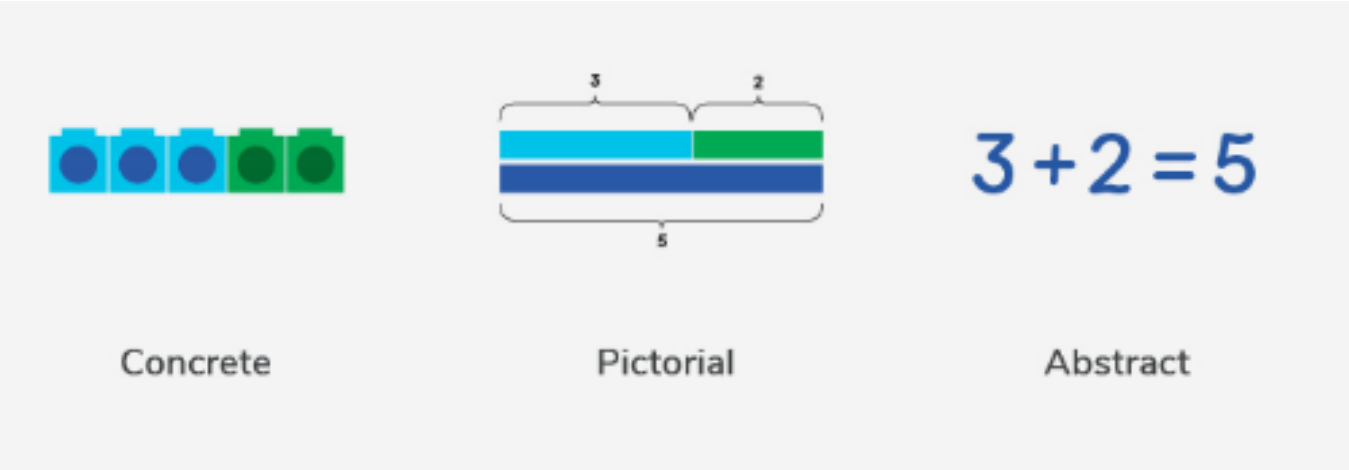
Drawing pictures, footballs, cupcakes etc.



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.

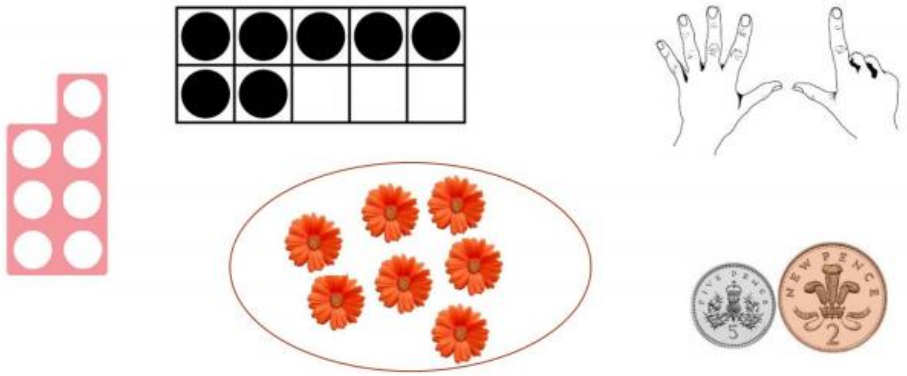
$10-4=6$
$10-6=4$
$4+16=20$
$6+14=20$
$20-6=14$
$20-4=16$



$80 > 18$

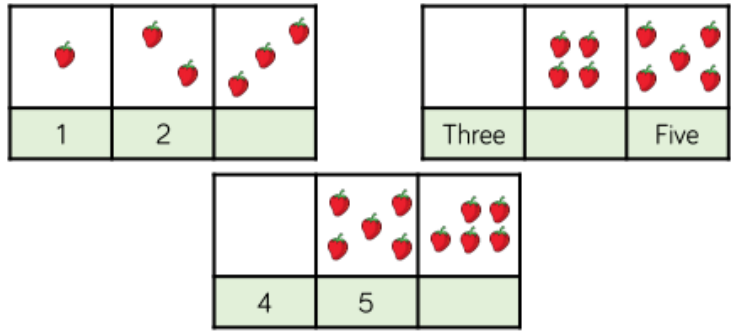
A typical lesson: Learning practically at school: Varied Fluency & Verbal Reasoning

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 number tracks.



Complete the number tracks.

1		3	4	5	6		8	9	10
one		three	four	five	six		eight	nine	ten

Fill in the missing numbers.

___, 1, 2, 3

3, 4, ___, 6

1, ___, 3, ___

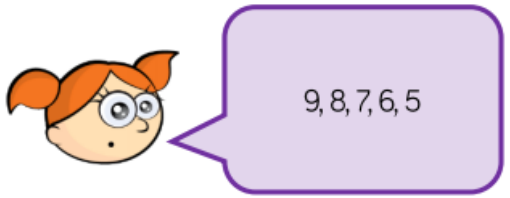
six, _____, _____, nine

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

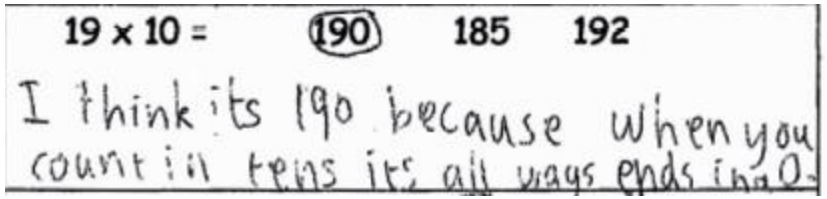
Alex is counting.

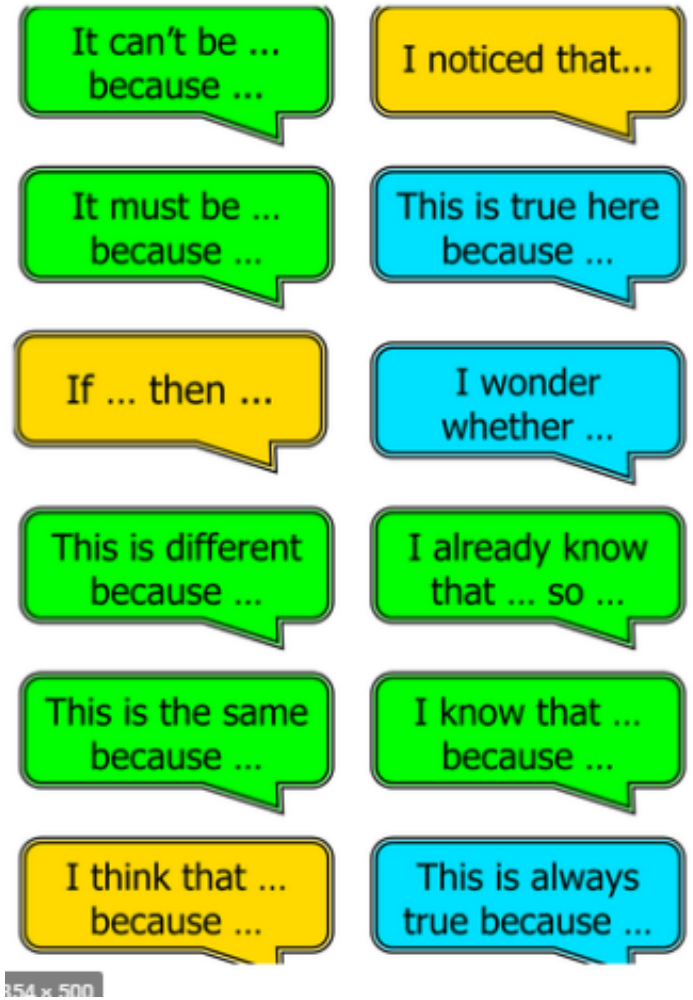


How do you know that Alex is counting backwards?

Alex is counting backwards because the numbers are getting smaller.

Children could show this using concrete manipulatives.





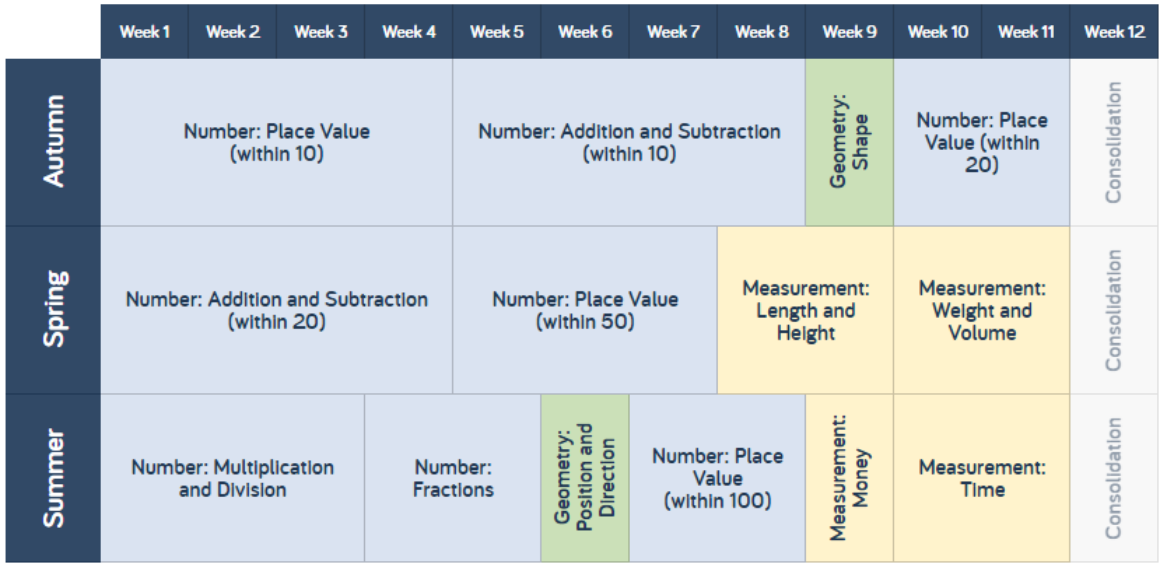
White Rose Maths:

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 (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation
Spring	Number: Addition and Subtraction (within 20)				Number: Place Value (within 50)			Measurement: Length and Height		Measurement: Weight and Volume		Consolidation
Summer	Number: Multiplication and Division			Number: Fractions		Geometry: Position and Direction	Number: Place Value (within 100)		Measurement: Money	Measurement: Time		Consolidation

White Rose Maths

Year 1

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)

Notes and Guidance

Children order numbers from smallest to greatest or greatest to smallest. Children should use concrete and pictorial representations to prove or check their answers.

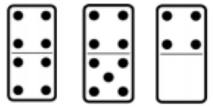
Children use the vocabulary 'smallest' and 'greatest' and may also use the < or > symbols to show the order of their numbers.

Mathematical Talk

Explain how you ordered the dominoes.
Can you use the inequality symbols to compare/order numbers?
How many answers are there? Can you prove it with cubes?
Which is/has the greatest? How do you know?
Which is/has the smallest? How do you know?
How are you going to order the amounts?
How have these objects/numbers been ordered? How do you know?

Varied Fluency

Order the dominoes from smallest to greatest.



Complete the sentences:

- The greatest number is _____
- _____ is the smallest number.

Order the number cards from smallest to greatest.

1	ten	7

- _____ is the greatest number.
- _____ is the smallest number.
- _____ is greater than _____
- _____ is smaller than _____

Use < or > to make the statement correct.

9 ◯ 8 ◯ 7

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 count in **2's 5's and 10's**. This is often taught through song and repetition.

At home:

Songs (BBC super movers)

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?

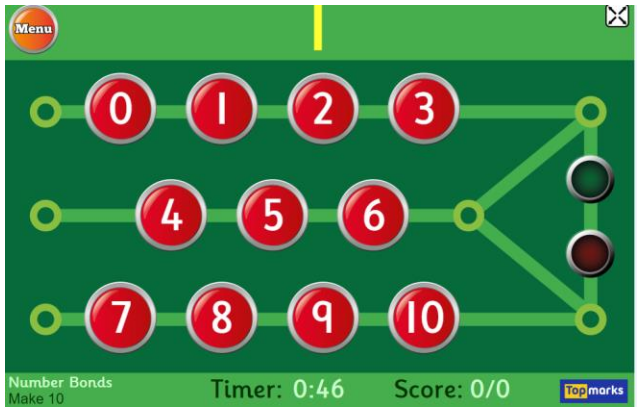
Knowledge of number bonds is essential when it comes to harder calculations involving addition and subtraction (for example, children learn to use the bridging through 10 method to help them add numbers mentally), so it is vital children get a firm grounding in this from Years 1 to 3.

The end of year expectation is for learners to be able to recall and use the number bonds to **10 and 20** (including subtraction)

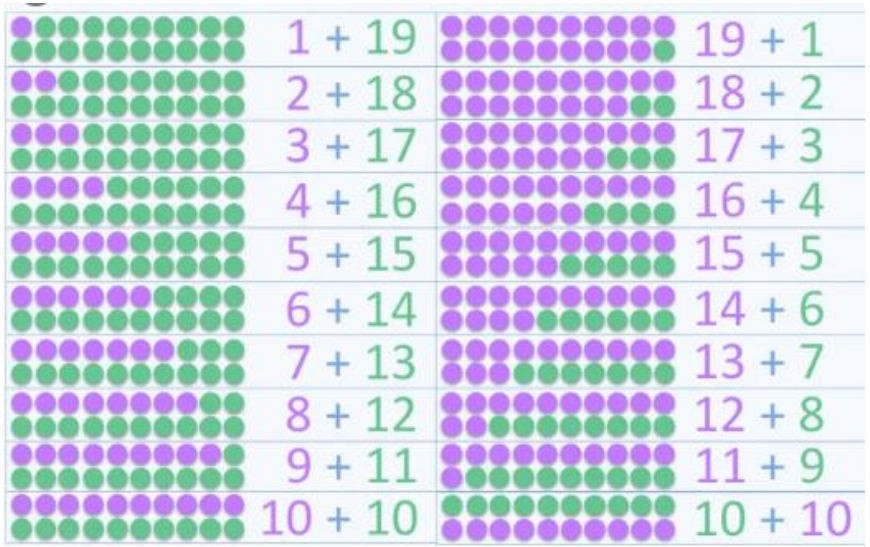
At home:

Practical problems

Your child will have a Numbots login.



Online games (Top Marks)



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

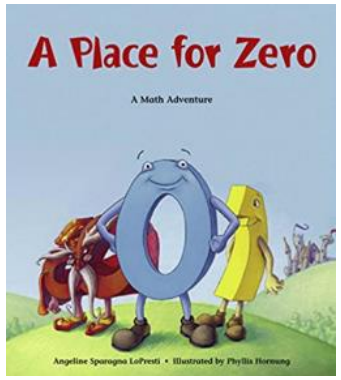
Growth mind set in 1, 2, 3...

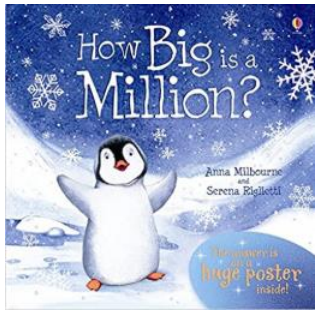
1. View challenge positively
2. The power of yet ‘I can’t do ... YET!’
3. Mistakes are okay, in fact we value them! We can promote them as opportunities for growth, in class we might say ‘good mistake’.

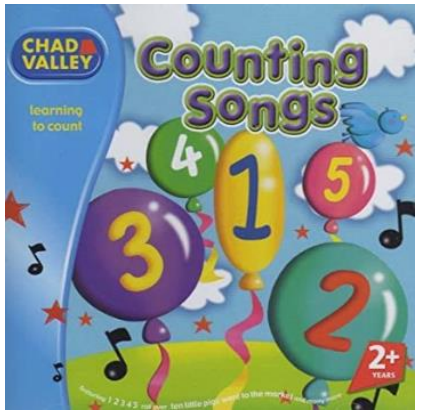
How can I support my child at home?:

Maths is all around:

- Cooking/ baking- weighing, measuring, problem solving, double, half
- The food shop- counting, money
- The school run- numbers in the world around us, numbers for a purpose on buses and road signs etc.
- Important dates- months, days of the week, 'sleeps until...'
- Songs- nursery rhymes for counting.
- Time in nature- counting objects at the beach or in the woods.







How can I support my child at home?:

Websites for information:

https://home.oxfordowl.co.uk/maths/

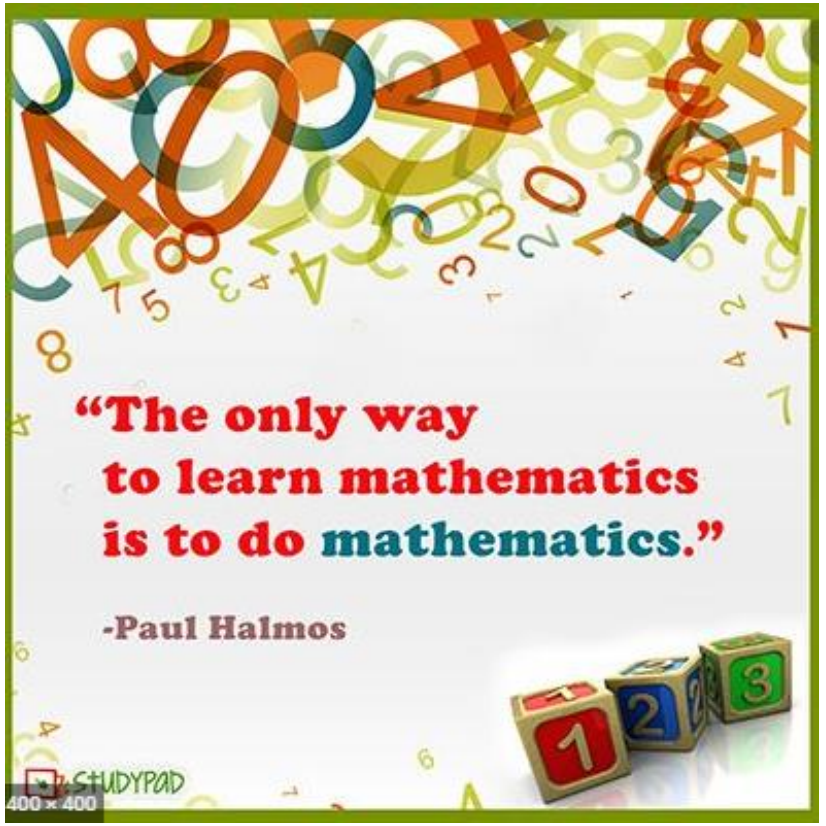
https://home.oxfordowl.co.uk/maths/numicon-guide-for-parents/

https://www.bbc.co.uk/cbeebies/grownups/help-your-child-with-maths

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

https://www.pacey.org.uk/news-and-views/pacey-blog/2015/march-2015/play-by-numbers/

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

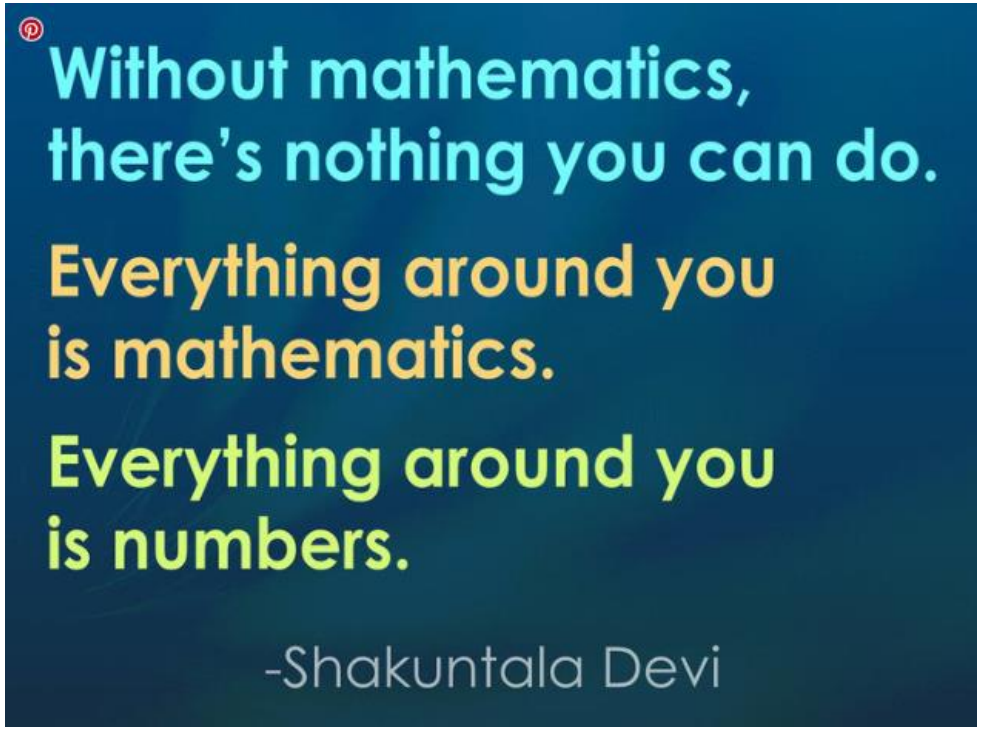
https://www.bbc.co.uk/cbeebies/topics/numeracy

https://ttrockstars.com/

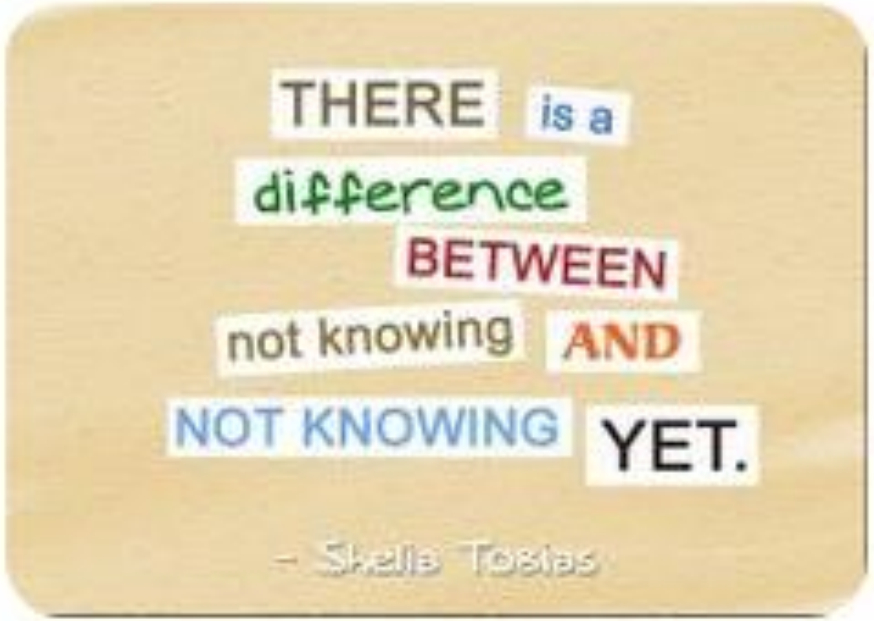
NUMBOTS

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

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



How can I support my child at home?:



Games, toys and resources:

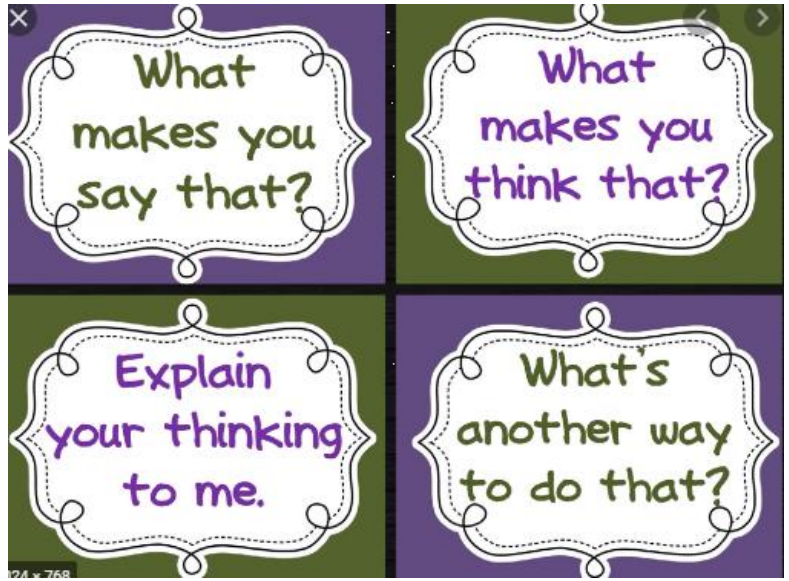
Numicon shapes 1-10: https://www.amazon.co.uk/Numicon-Bag-Shapes-1-10/dp/0198487312/ref=sr_1_2?dchild=1&keywords=numicon&qid=1592909454&sr=8-2

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

Number flash cards: https://www.amazon.co.uk/The-Green-Board-Game-G0944010/dp/B000C8UZ0A/ref=sr_1_13?dchild=1&keywords=number+game+kids&qid=1592919449&sr=8-13

Printables: https://www.twinkl.co.uk/resources/parents/free-resources-parents/maths-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 if you have any further questions.