



Roe Green Infant School

YEAR 1 PARENT MATHS WORKSHOP 2023-2024



MathsBeat

At the heart of MathsBeat is the desire to make maths more available to more children.

Two principles have been used throughout the programme:

- 1. Mathematical thinking is a natural human ability that all children can do through solving problems. Through learning maths, we can teach children to find the most efficient ways to solve problems.**
- 2. No two classrooms are the same. MathsBeat provides progression with built-in flexibility, and regular formative assessment support, so teachers can choose to spend longer on a task or decide that their children are ready to move on.**

By using the sequences of carefully designed learning tasks, children will develop knowledge, fluency, reasoning and understanding.

Aims of this workshop

- Explain taught mathematics strategies in Year 1
- To familiarise you with taught processes using concrete materials
- How simple objects around your house can have a huge impact on your child's learning.
- How to support your child at home

- **MATHS IS EVERYWHERE**

Positivity is the key...

- **Children who succeed at maths are usually the ones who enjoy it most, so remember – maths is fun, everyone!**
- **Something we aim to promote in Year 1.... 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.'**
- **We want mathematics to be a positive experience for everyone.**

Reasoning:

What is reasoning in maths?

- Reasoning in maths is the process of applying logical thinking to a situation.
- Because we teach a range of strategies, this gives children a solid base and skill level to use the correct problem solving strategy for a given question. They are encouraged to use their mathematical language and methods to describe the solution.
- It is the “how do you know...?” or “why is the answer six and not seven?”
- Mathematical reasoning is the bridge between fluency and problem solving. It allows pupils to use their fluency to accurately carry out the problem solving.

What is problem solving in maths?

- It is a process or series of processes to solve mathematical problems. This follows logic, reasoning and communication.
- Problem solving in maths is finding a way to apply knowledge and skills you have to answer unfamiliar types of problems.

8 The numbers have been ordered smallest to greatest...



1 ... 3 ... 4 ... ? ... 7 ... 8

Write a number that could go in the box. _____

Write a number that could not go in the box. _____

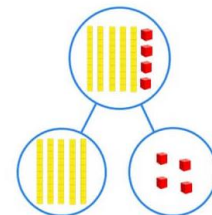
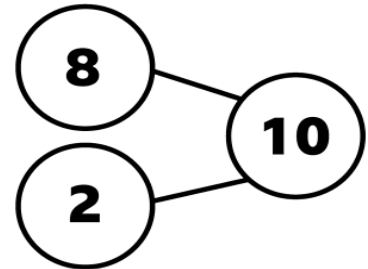
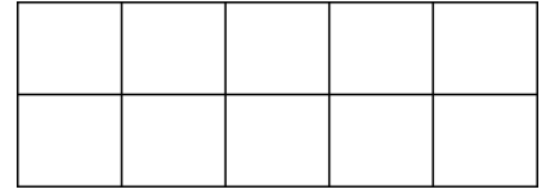
Maths Mastery: fluency, reasoning and problem solving

Fluency:

- involves knowing key mathematical facts and being able to recall them quickly and accurately.
- This means being able to apply the same skill and knowledge to multiple contexts and be able to choose the most appropriate method for a particular task.

We teach the content using a range of concrete resources to deepen the children's understanding by having them represent it in a variety of ways, ensuring that all children have sufficient time to practise what has been taught.

We move from concrete materials, to pictorial representations to abstract questions. We encourage children to continue to use the resources to solve their problems and help to justify the answers.



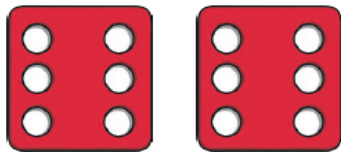
Mathematical Language

Year 1 Addition and Subtraction

add
altogether sum



and plus
total



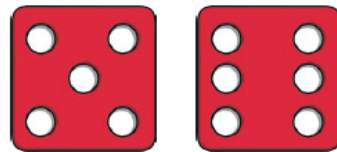
$$6 + 6 = 12$$

double

minus
take away subtract



difference less



$$5 + 6 = 11$$

near double

equals



makes



$$10 =$$



$$1 + 9$$



$$2 + 8$$



$$3 + 7$$



$$4 + 6$$



$$5 + 5$$



$$6 + 4$$



$$7 + 3$$



$$8 + 2$$

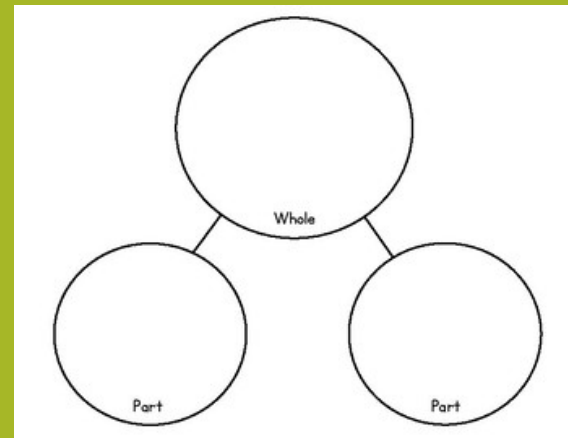
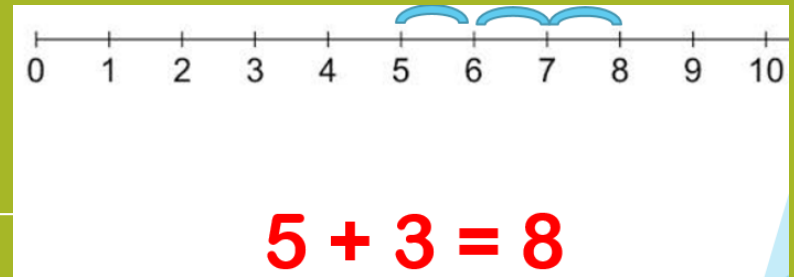
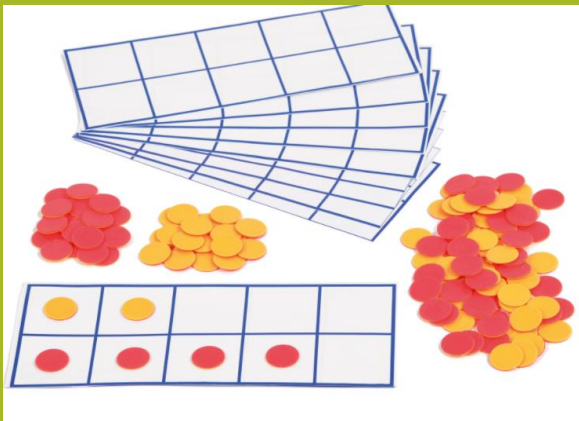


$$9 + 1$$

Mathematical Language

- **Mathematical language is all around children – words and expressions such as “bigger”, “smaller”, “shorter”, “taller”, “greater than”, “less than”, “equal to,” “beside,” “above,” “below,” “heavy,” “light,” “same,” “different.”**
- **Using a variety of vocabulary helps children to develop understanding and have a wide range of language and gain more confidence in the process.**

RESOURCES USED IN SCHOOL

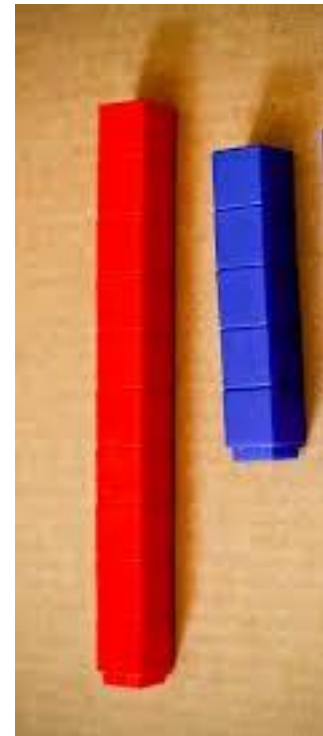


Cubes

- Cubes- making groups of numbers counting out 10... to make a 10 train

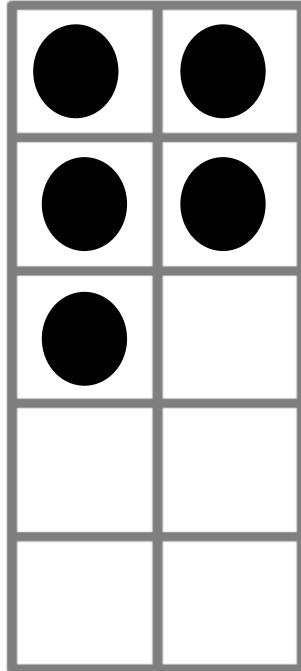
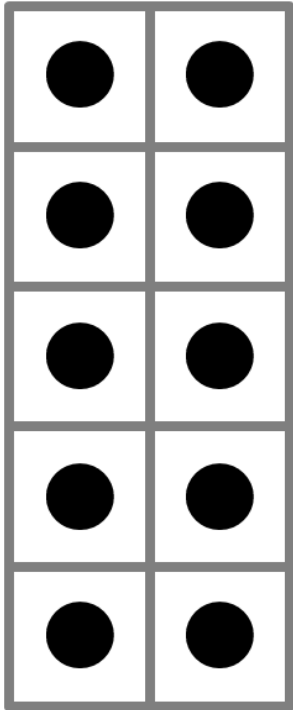


This is 15..
One group of 10 and 5
extra ones



Cubes ~ Counters ~ Tens Frames

- Use the tens frame to represent numbers in different ways.



This is 15..
One group of 10 and 5
extra ones



Hundred Square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73 </td <td>74</td> <td>75</td> <td>76</td> <td>77</td> <td>78</td> <td>79</td> <td>80</td>	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Dice

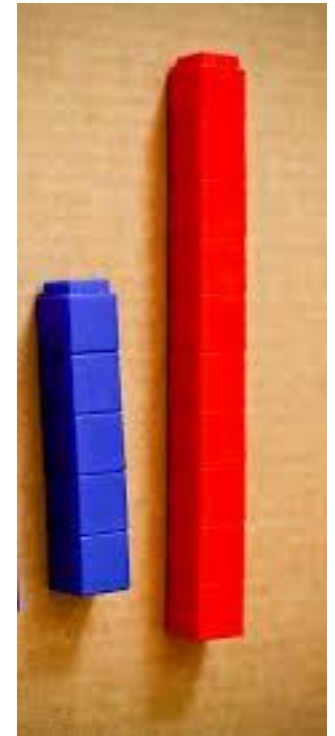
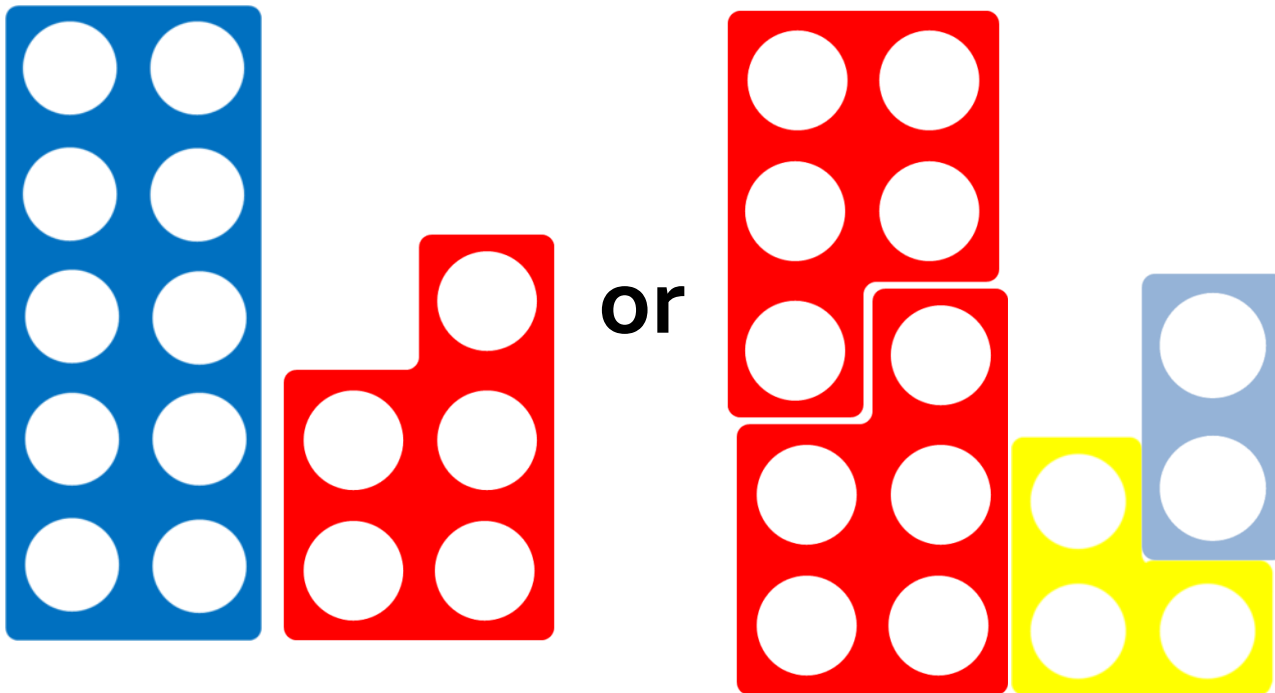


Numicon

- Great for number bonds, representing numbers, addition, subtraction, place value, shape, patterning.
- Multisensory which allows children to deepen their knowledge of fluency, reasoning and problem solving.

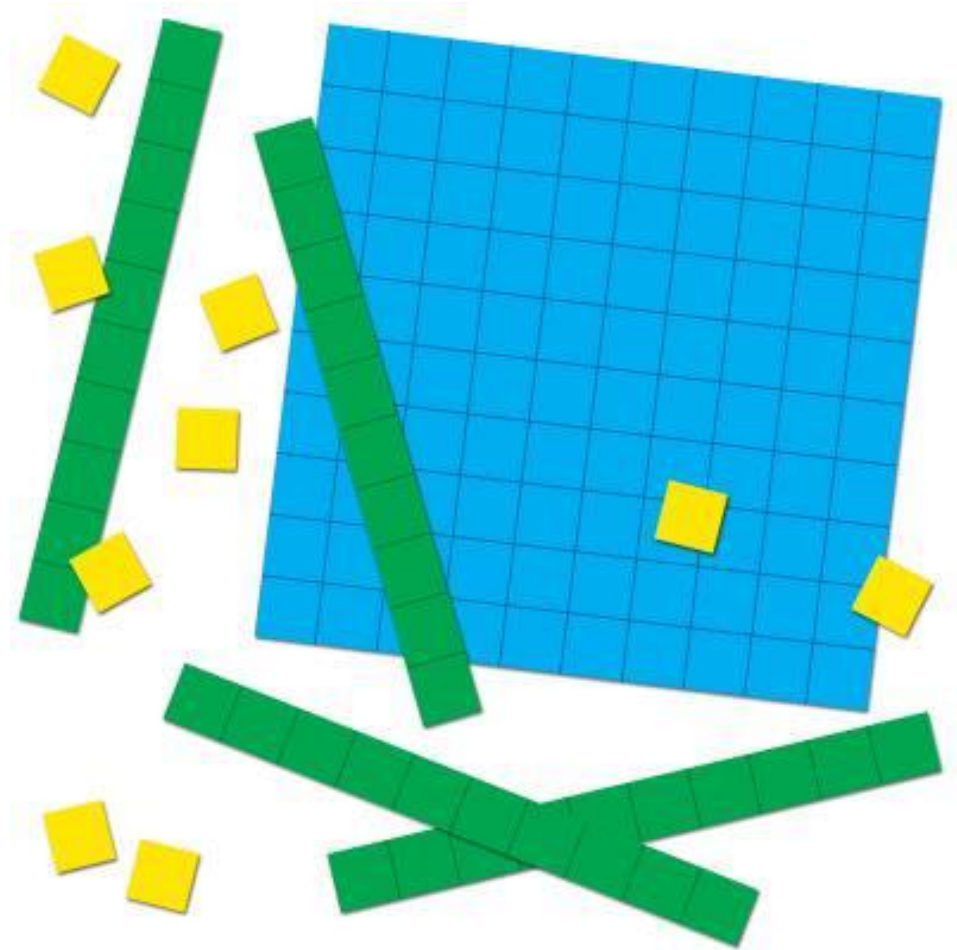


This is 15..
One group of
10 and 5 extra
ones.



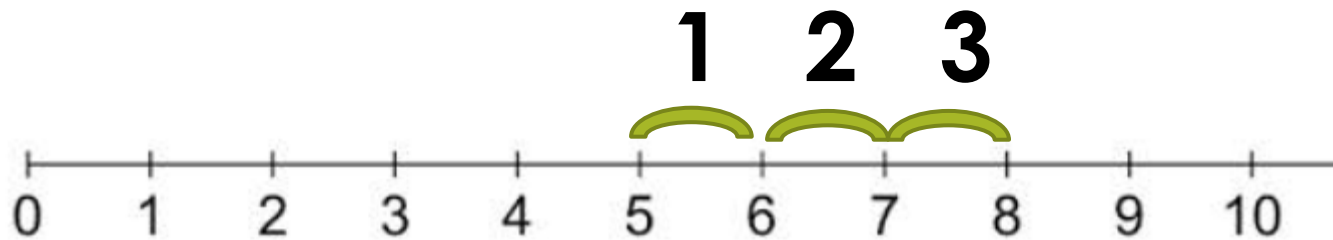
Deines- Tens and Ones

- Great for building numbers to 100
- Understanding groups of tens and 'extra ones'



Number line

- How we use it- **ADDITION**

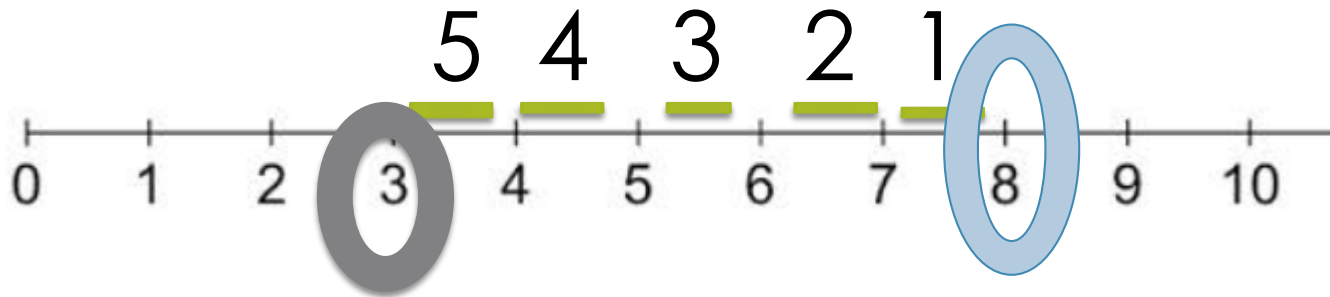


$$5 + 3 = 8$$

Jump forwards

Number line

- How we use it - SUBTRACTION



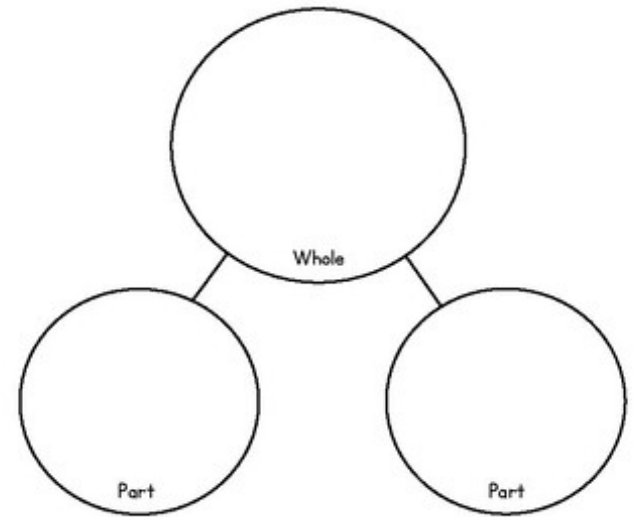
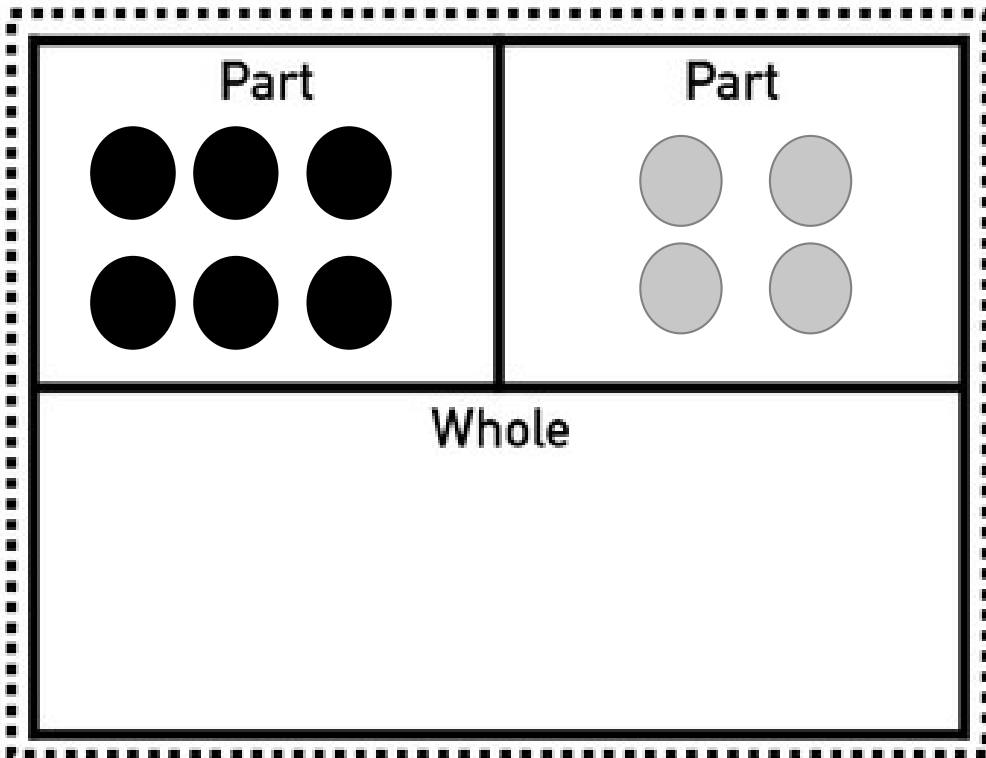
$$8 - 5 = 3$$

Slide backwards

Part-Part-Whole

• Addition

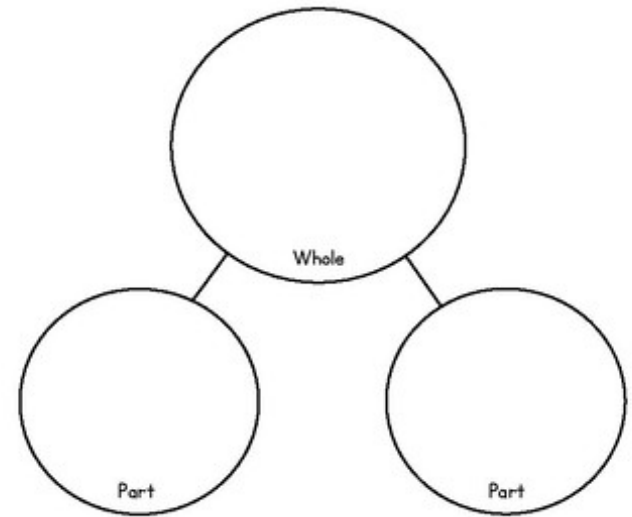
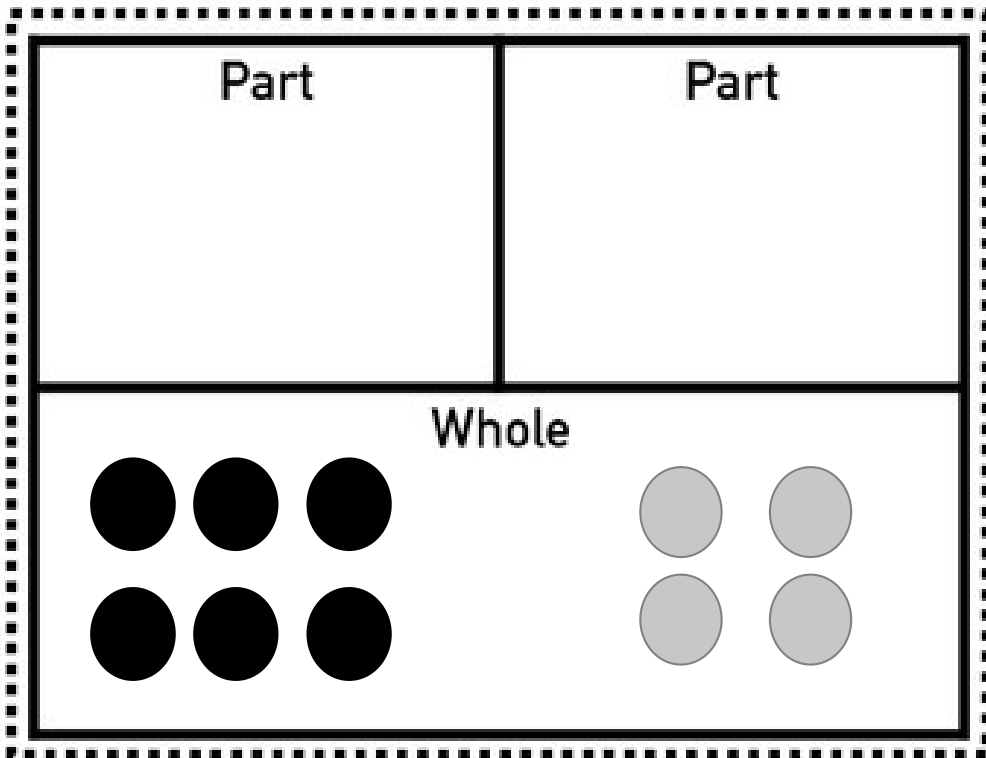
$$6 + 4 =$$



Part-Part-Whole

• Addition

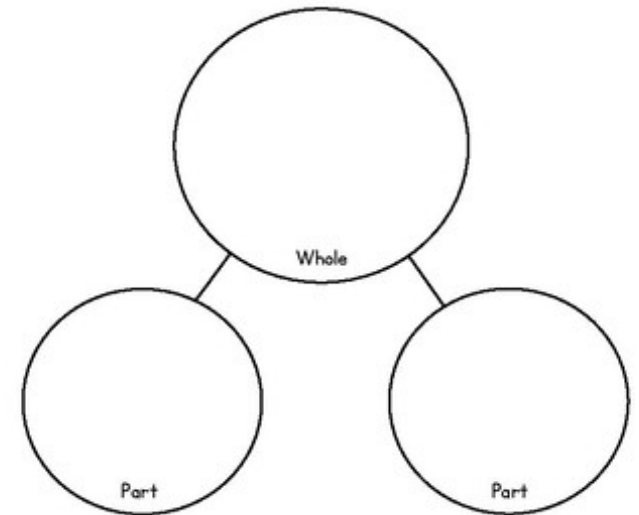
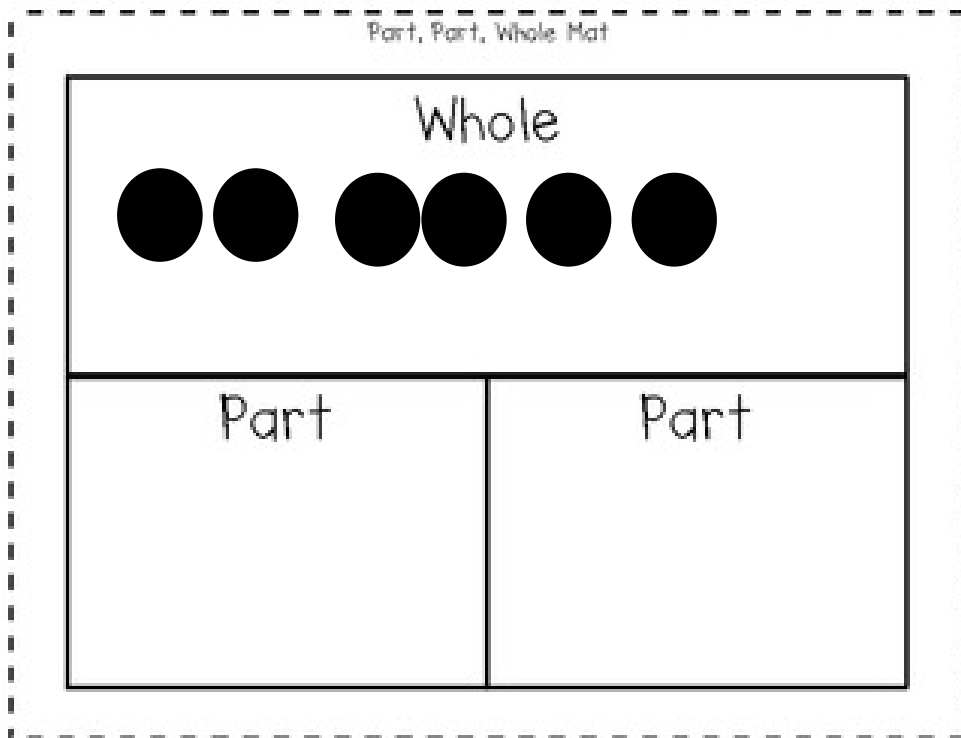
$$6 + 4 =$$



Whole-Part-Part

• Simple ways to do subtraction

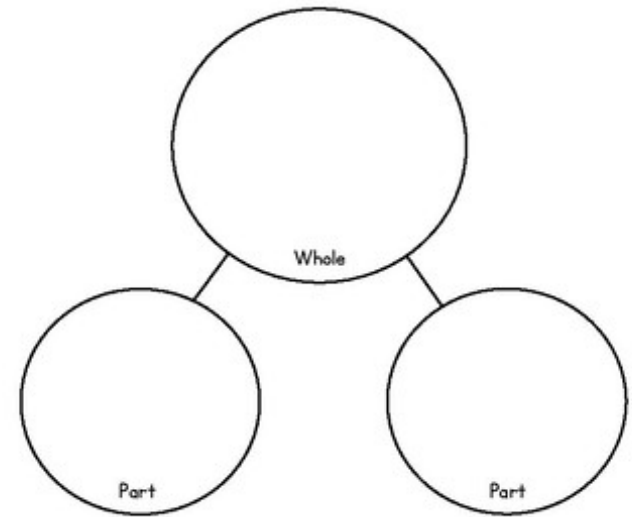
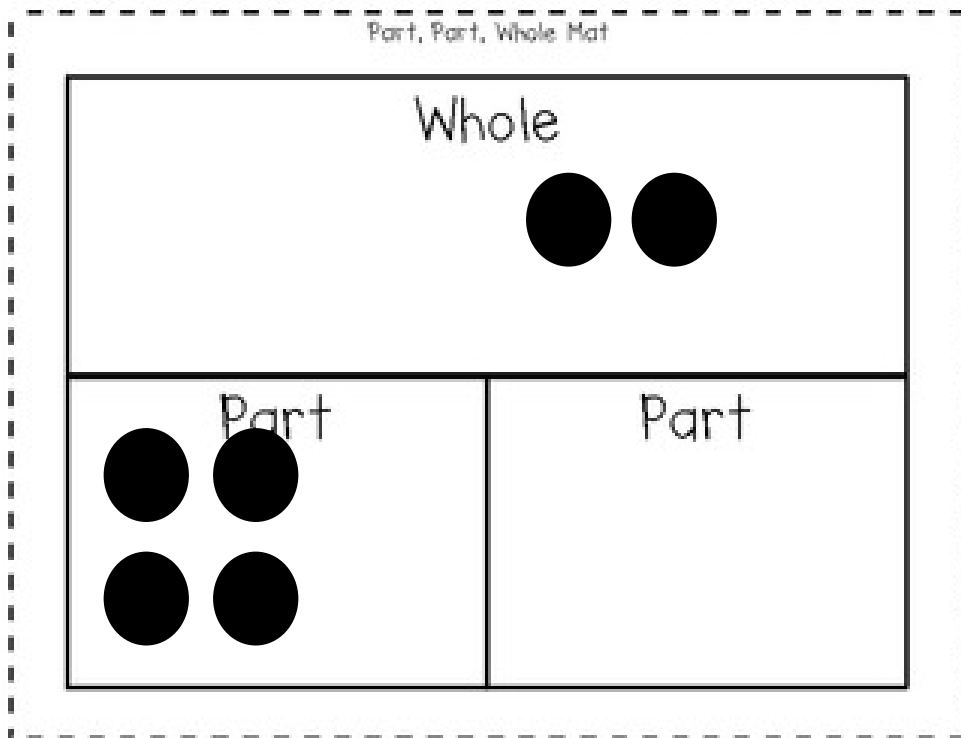
$$6 - 4 =$$



Whole- Part- Part

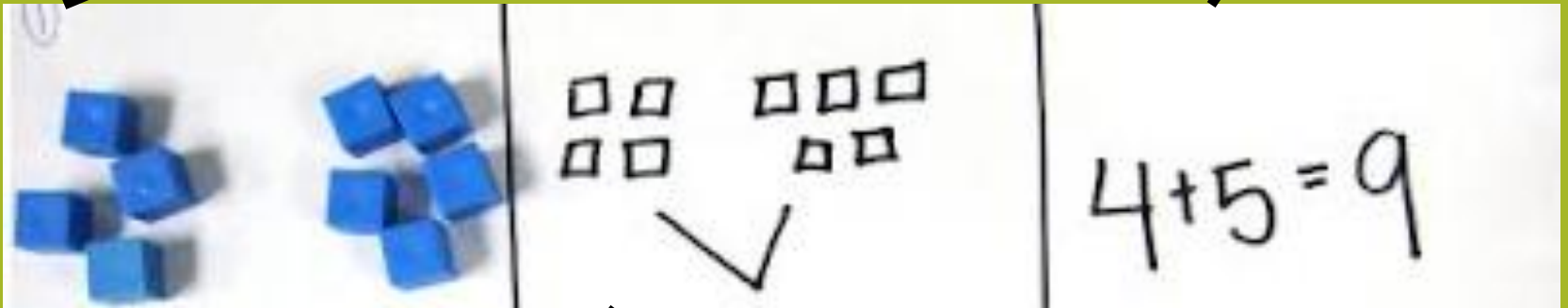
- Simple ways to do subtraction

$$6 - 4 =$$



CONCRETE

ABSTRACT



PICTORIAL

Number and Place Value

Compare Objects

Notes and Guidance

Children use the language 'equal to', 'more', 'less', 'greater than', 'fewer' and 'less than' to compare groups of objects.

Children do not need to know the difference between the groups, just that one group is greater or less than another or that the groups are equal to each other.

Mathematical Talk

Can you compare the same objects using the word 'fewer' and then using the word 'more'?

Is there more than one answer?

How many answers can you find?

What do you notice about the numbers or amounts that are less than/fewer?

How can you tell which has the least/most?

What does 'more/greater than' mean?

What does 'less/fewer than' mean?

What does 'is equal to' mean?

Varied Fluency

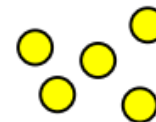
Circle the picture with more trees.



Use greater than, less than or equal to, to complete the sentences.



is _____



is _____

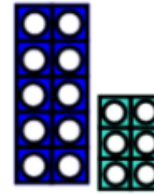
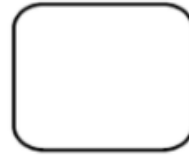
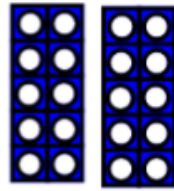


Draw counters in the box to represent the sentence.

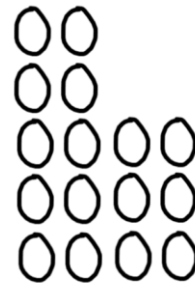
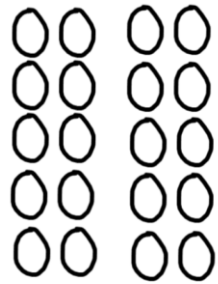
Eva has fewer counters than Tommy.



Concrete



Pictorial



Abstract 20 is greater than 16

Reasoning and Problem Solving

Whitney has this many cubes in one hand.



She has fewer cubes in the other hand.

How many cubes could she have in her other hand?

Addition and Subtraction

Part-whole Model

Notes and Guidance

Children need to understand that a number can be partitioned into two or more parts. This will help them with number bonds and addition.

They will be introduced to the part-whole model to show this concept clearly, and should get used to seeing it in different orientations.

Children should use and understand the language part, part, whole.

Mathematical Talk

What does whole mean?

What does part mean?

How can we represent the whole/parts?

Are the parts smaller or larger the more you partition them?

Why?

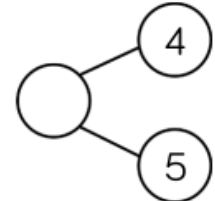
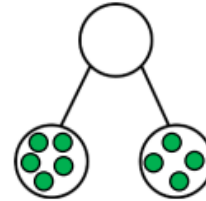
Can zero be a part?

Can the parts be swapped around?

Can the whole be swapped with a part?

Varied Fluency

- Complete the part-whole models by drawing counters and then writing the numerals.



- Here are seven pieces of fruit.

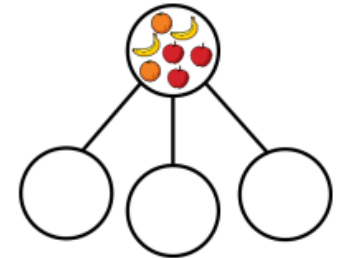


Put the fruit into a part-whole model.

Complete the sentences.

_____ is the whole.

_____ is a part, _____ is a part and _____ is a part.



- Draw the part-whole model that represents the stem sentences:

- A part is 4
- A part is 3
- The whole is 7

Reasoning and Problem Solving

4 is the whole.

How many **different** part-whole models can you draw to show this?

Use different numbers for the parts every time.

Are any the same? Why?

Multiplication and Division

Making Equal Groups

Notes and Guidance

Children begin by using stories which link to pictures and concrete manipulatives to explore making equal groups and write statements such as 'there are ___ groups of ___.' They will recognise and explain how they know when they are equal or not. Children see equal groups that are arranged differently so they understand that the groups look different but can still be equal in number.

At this stage children do not explore multiplication formally.

Mathematical Talk

How do I know that the groups are equal? What does equal mean?

How many pencils are there in each pot? How can I complete the sentence to describe the groups?

What's the same and what's different?

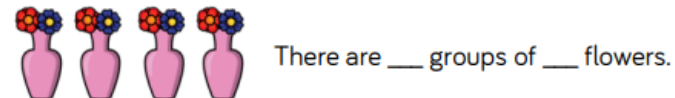
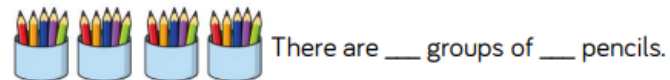
Are Josh's groups equal or unequal? How can we make them equal?

Varied Fluency

Are the groups equal or unequal? Write a label for each.



Complete the sentences

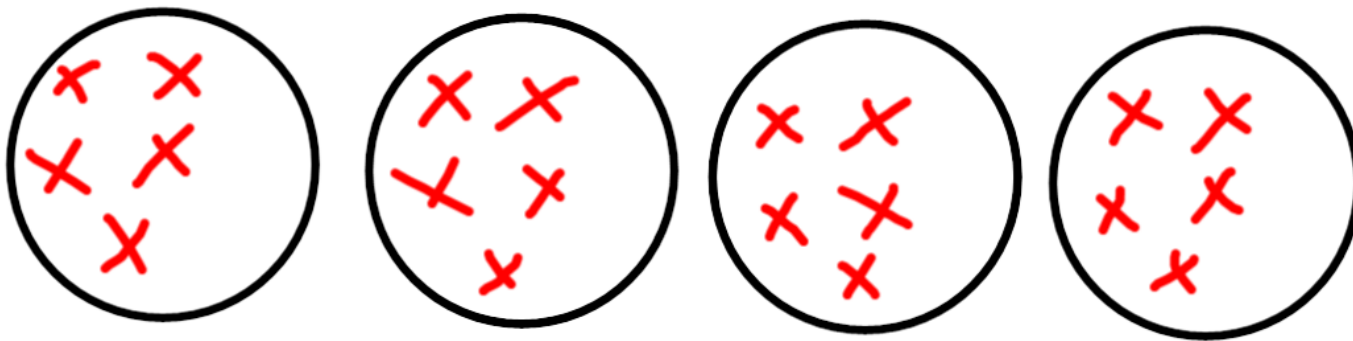


Josh is drawing equal groups of 3



Complete his drawing.

Concrete, Pictorial, Abstract



$$5+5+5+5=20$$

Reasoning and Problem Solving

Use concrete materials or pictures to complete the questions.

Alex has 4 equal groups.

Show me what Alex's groups could look like.

Whitney has 3 unequal groups.

Show me what Whitney's groups could look like.

Fractions

Find a Quarter (2)

Notes and Guidance

Children find a quarter of a small quantity through equal sharing. It is important they can show the groups clearly by drawing around quantities or by physically sharing into something. Children will use the word quarters and parts at this stage but will not use the fractional notation of $\frac{1}{4}$. They also begin to describe capacity using the terminology 'a quarter full'.

Mathematical Talk

How many sweets do I have? How can I share them equally into four groups? What is one quarter worth?

Are my containers the same or different?
Can you show me a quarter full in each container.

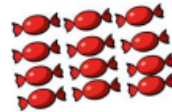
How can I quarter this amount?
If I have 2, and it is a quarter, what will the whole look like?
What will the whole be worth?

Varied Fluency

- Share each quantity into four equal groups.



There are ___ cakes.
There is ___ cake in each quarter.
A quarter of ___ is ___



There are ___ sweets.
There are ___ sweets in each quarter.
A quarter of ___ is ___



There are ___ peaches.
There are ___ peaches in each quarter.
A quarter of ___ is ___

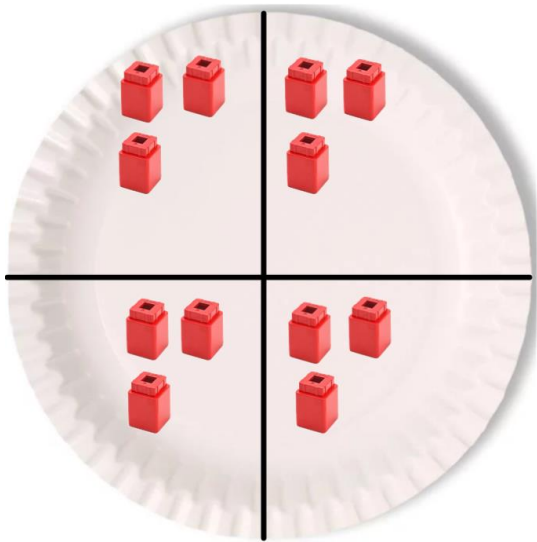
- Use a range of containers and rice/water.
Can you show me a quarter full in each container?
Do they look the same or different?

- Use counters to complete the sentences.

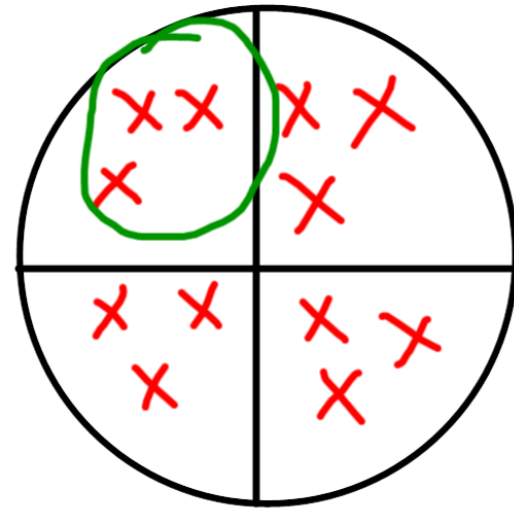
A quarter of 4 is ___ A quarter of 8 is ___

1 is one quarter of ___ 3 is one quarter of ___

Concrete



Pictorial



Abstract

A quarter of 12 is 3

Reasoning and Problem Solving

Mr. White has asked his class to put one quarter of the balls into the hoop.



Teddy

I'm going to put one ball in the hoop.

I'm going to put three balls in the hoop.



Whitney



Tommy

I'm going to put four balls into the hoop.

Who is correct? Can you explain any mistakes made?

Activities for one more & one less

Sticky notes numbers

- Write the numbers one to ten (then twenty) on sticky notes, stick them in a row, then ask your child to pick a number and quiz them on which number is one more, and one less than that number.
- Language of greater than, less than equal to

Secret number

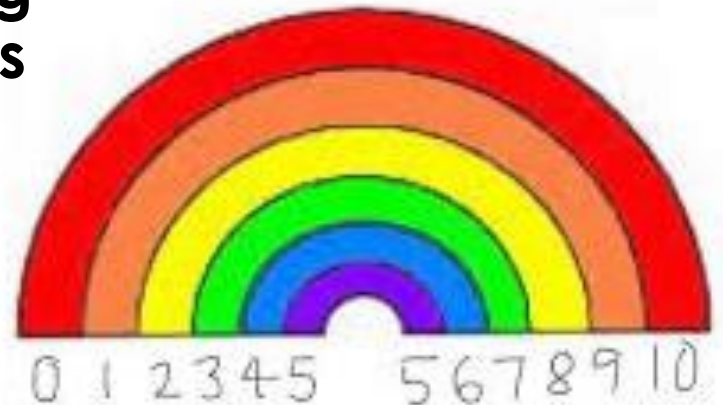
- Think of a number, then ask your child to guess your secret number. Tell them that, for example, your secret number is “one more than six” or “one less than eight”. Ask your child to come up with their own secret number too and try to find out what it is. You could play this sitting on a bus or a train and look for numbers on the bus or in the carriage – a bit like I Spy! – to start the game off.

Simple addition and subtraction

- **“One more” and “one less” leads neatly on to simple addition and subtraction, which is an important first step on the way to doing more complex sums.**
- **Remember that while you are talking and playing with your child you are always developing their language and building their real-life experiences. Talk about what you are doing. Use language such as “add”, “adding”, “add on”, “subtract” and “take away”, as this helps them to make the connection with home and school.**

Number bonds to 5, then to 10

- Number bonds are basically just pairs of numbers that add up to a given number, such as 10. For example, $5 + 5$, $6 + 4$ and $7 + 3$ are all number bonds that make 10.
- Children learn these to help them understand the relationships between numbers.
- Practising these and knowing the number bonds instantly is something we work towards this year!



Number bonds to 5, then to 10

$$0 + 5 = 5$$

$$1 + 4 = 5$$

$$2 + 3 = 5$$

$$3 + 2 = 5$$

$$4 + 1 = 5$$

$$5 + 0 = 5$$

$$0 + 10 = 10$$

$$1 + 9 = 10$$

$$2 + 8 = 10$$

$$3 + 7 = 10$$

$$4 + 6 = 10$$

$$5 + 5 = 10$$

$$6 + 4 = 10$$

$$7 + 3 = 10$$

$$8 + 2 = 10$$

$$9 + 1 = 10$$

$$10 + 0 = 10$$

Objects to count



Supporting Maths at Home



- Door Numbers – Odd & even numbers, place value
- Playing Board Games – Place value and ordering
- Baking – Weighing, capacity, understanding scales
- Clocks & Time – Encourage children to wear a watch & tell the time
- Shopping & Working Out ‘Change’ - Word problems, +, -, x, ÷
- Food for Counting & Fractions – Pasta shapes, pizza/cake fractions
- Purses & Wallets – Emptying your purse for children to count coins
- Rubik’s Cubes, Puzzles & Toys – Get presents that challenge children
- Internet Activities –
 - www.mymaths.co.uk
 - www.ictgames.com
 - www.topmarks.co.uk

Remember that while you are talking and playing with your child you are always developing their language and building their real-life experiences.

Talk about what you are doing!



Props around the house



Ideas taken from Maths for Mums and Dads Eastaway, R. and Askew, M. (2010)

- **A prominent clock-** digital and analogue is even better. Place it somewhere where you can talk about the time each day.
- **A traditional wall calendar-**Calendars help with counting days, spotting number patterns and
- **Board games that involve dice or spinners-**helps with counting and the idea of chance
- **A pack of playing cards-** Card games can be adapted in many ways to learn about number bonds, chance, adding and subtracting
- **A calculator-** A basic calculator will help with maths homework when required, there are also many calculator games you can play, too.
- **Measuring Jug-**Your child will use them in school, but seeing them used in real life is invaluable. Also useful for discussing converting from metric to imperial
- **Dried beans, Macaroni or Smarties-** for counting and estimating
- **A tape measure and a ruler-** Let your child help when measuring up for furniture, curtains etc
- **A large bar of chocolate (one divided into chunks)-** a great motivator for fractions work
- **Fridge magnets with numbers on-** can be used for a little practice of written methods
- **Indoor/outdoor Thermometer-** especially useful in winter for teaching negative numbers when the temperature drops below freezing
- **Unusual dice-** not all dice have faces 1-6, hexagonal dice, coloured dice, dice from board games all make talking about chance a little more interesting
- **A dartboard with velcro darts-** Helps with doubling, trebling, adding and subtracting.

Useful Web links

<https://www.rodeandnortonschoolfederation.co.uk/wp-content/uploads/2018/06/Dice-Games-1.pdf>

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

<https://toytheater.com/category/math-games/>

<https://www.topmarks.co.uk/>

My USO – BusyThings

QUESTIONS?