

# Welcome to HCIS Maths Evening

## Year 1



# Mathematics in the National Curriculum

The national curriculum aim for Mathematics is that all pupils:

- Become **fluent** in the fundamentals of maths.
- Can **problem solve** by applying their maths skills.
- Can **reason** mathematically by following a line of enquiry and develop justification and proof using mathematical language.

Expectations for end of Year 1 at the end of the powerpoint 😊

# What are the characteristics of a successful learner in maths?

- From the early stages onwards, children should experience success in mathematics and develop the confidence to:
  - Take risks
  - Ask questions and explore alternative solutions without fear of being right or wrong
  - Enjoy exploring and applying mathematical concepts to understand and solve problems.
  - Explain their thinking to others in a variety of ways.
  - Reason logically and creatively through discussion.

# TEACHING MATHS IN YEAR 1

Maths in Year one is very practical using lots of resources but the children are starting to record e.g.



and



$$8+1=9$$

We also focus on counting in steps of 2, 5 and 10 and number bonds. Once these are learnt they can then use these number facts to derive other maths e.g. if  $7+3=10$   $17+3=20$  or 5,10,15, 20, is  $4 \times 5=20$ . These key skills are also applied to real life problem solving e.g. money.

**If I want to buy a sweet that costs 12p, what coins could I use?**

# Development of maths lessons...

## Concrete:

Use of physical objects, bring maths to life.

## Pictorial:

Use of pictures.

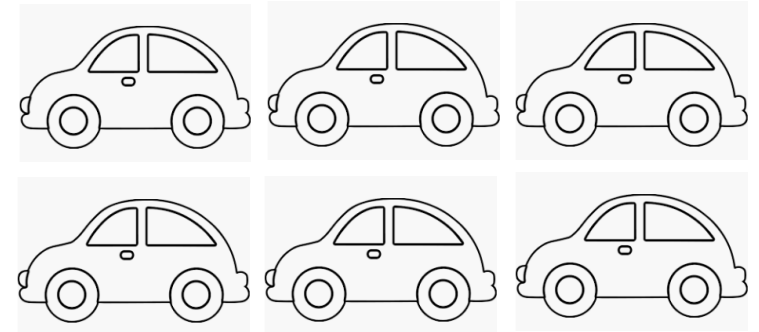
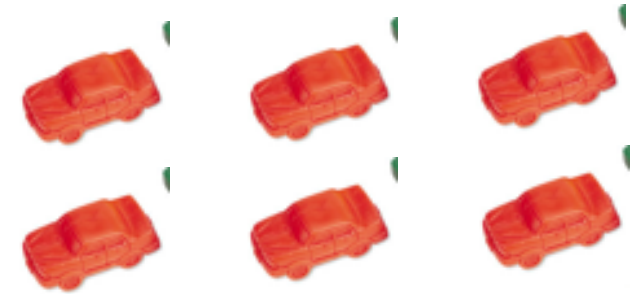
## Abstract:

Numbers and symbols.

## Using and applying:

Fluency, problem solving, reasoning, questioning, investigating ...

A car lorry can hold 3 cars on each level. There are two levels, how many cars altogether?



$$3+3= \quad 2 \times 3=$$

How many cars would there be if there were 3 lorries?

How do you know?

Could you show a friend how you worked it out?

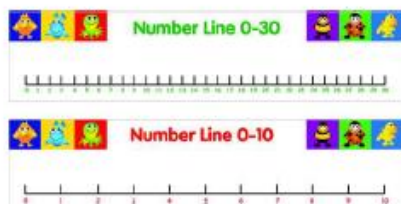




# Resources

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

- A variety of resources are used in the teaching of maths.



**RACE TO 100**

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	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

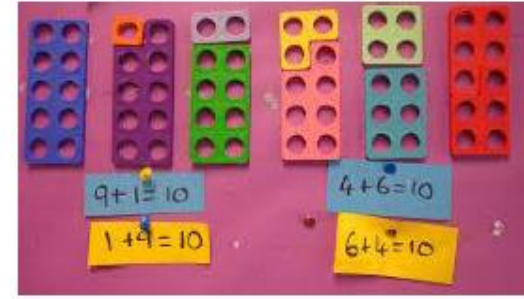
  Move on 3 squares       Move back 4 squares  
  Stay on the spot - roll a 4 or 6       You're in luck - hop another turn



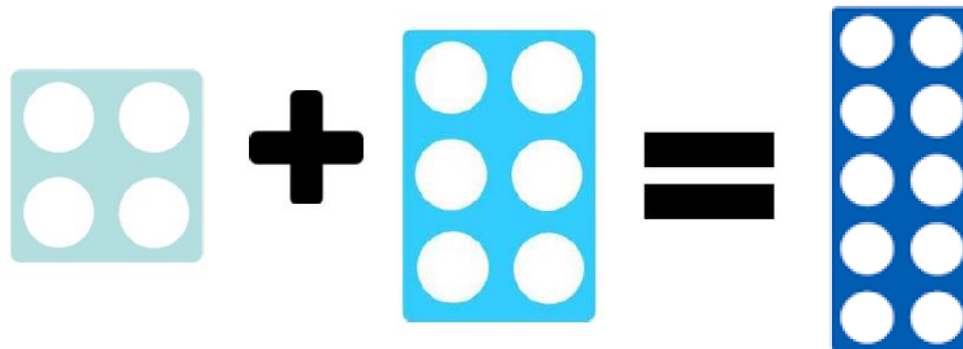
Number bonds to 10

10	0
9	1
8	2
7	3

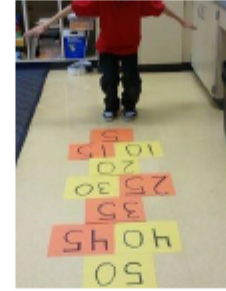
# Number Bonds



- Why are they so important?
- They are a powerful building blocks for number.  
E.g. if the children know that  $7+3=10$  then they know  $17+3=20$  and  $70+30=100$ .
- This will help them in all areas of maths.



# Step Counting



- Each child needs to be able to count on and back in 1's, 2's, 5's and 10's.
- This will help with all areas of maths.
- They need to count on from any multiple e.g.
- 4, 6, 8, or 35, 40, 45 or 100, 90, 80 etc....
- This can be practised anywhere at any time e.g. in the car, in the bath or walking to school.





# Addition

Counting on using objects

Counting on using number line / tracks

Counting on using a hundred square

Blank number line (bridging)

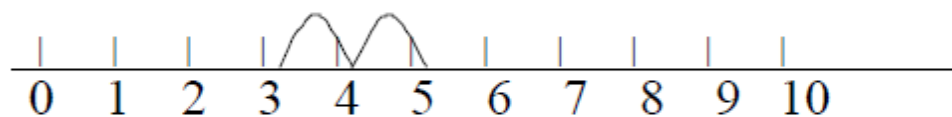
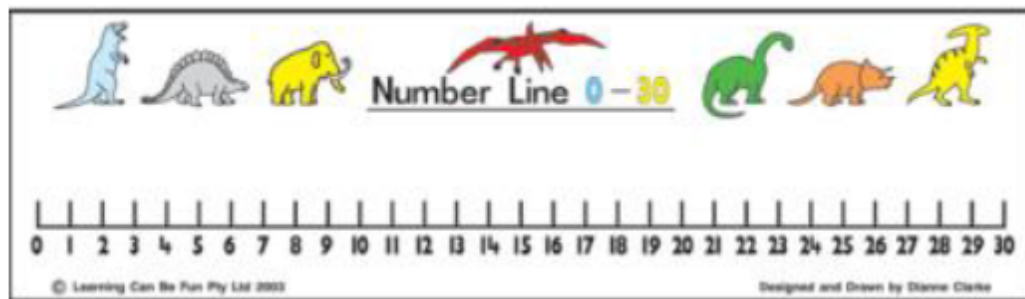
Partitioning

Column addition

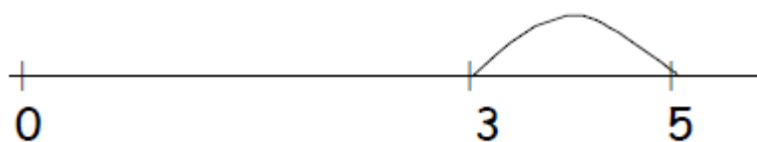


# Addition :

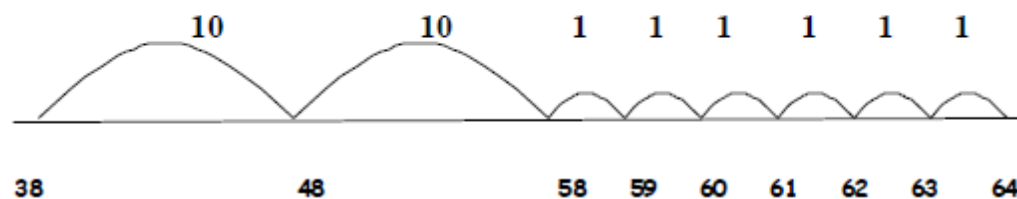
$$3 + 2 =$$



and 2 more



$$38 + 26$$

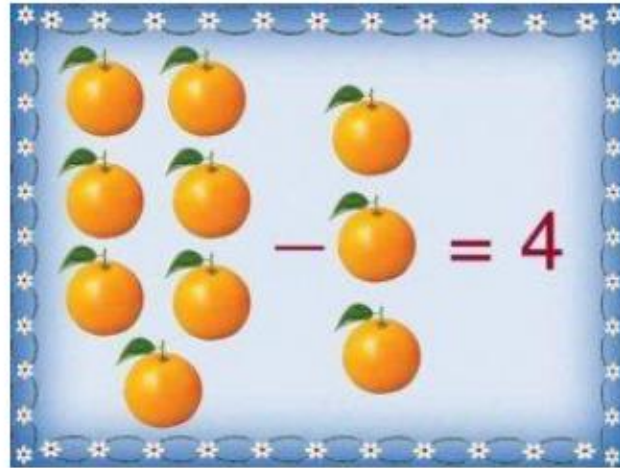


1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
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81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

# Subtraction

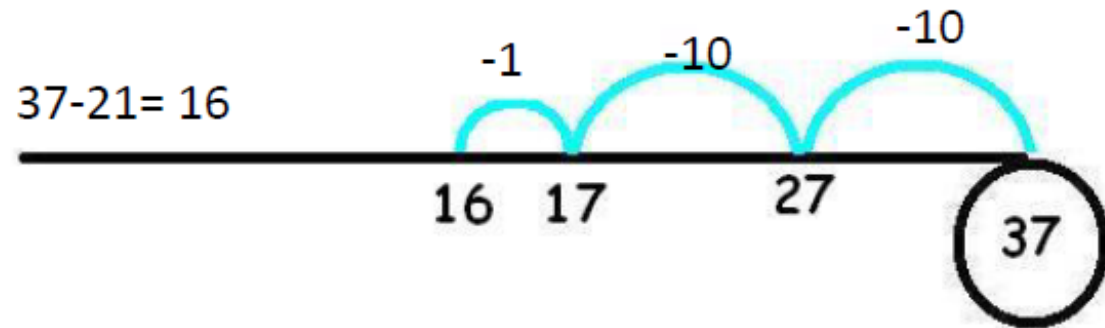
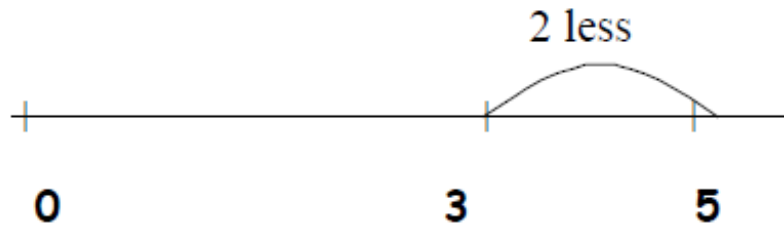
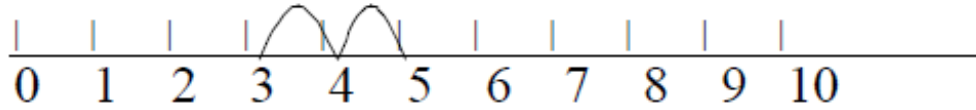


- Counting back using objects
- Counting back using a number line
- Counting back using a hundred square
- Blank number line
- Partitioning



# Subtraction: Number Lines

$$5 - 2 =$$



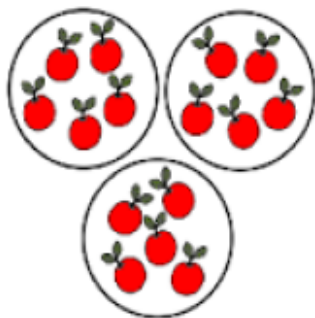
Counting back

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
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71	72	73	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

# Multiplication



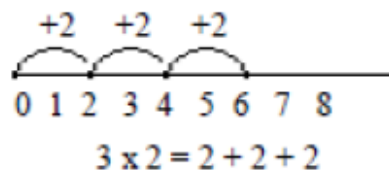
- Doubles – objects / bead string
- Counting in steps of 2,5,10
- Counting objects
- Pictures
- Number lines
- Times tables
- Arrays



There are 3 equal groups of 5.

Multiplication learned as  
repeat addition

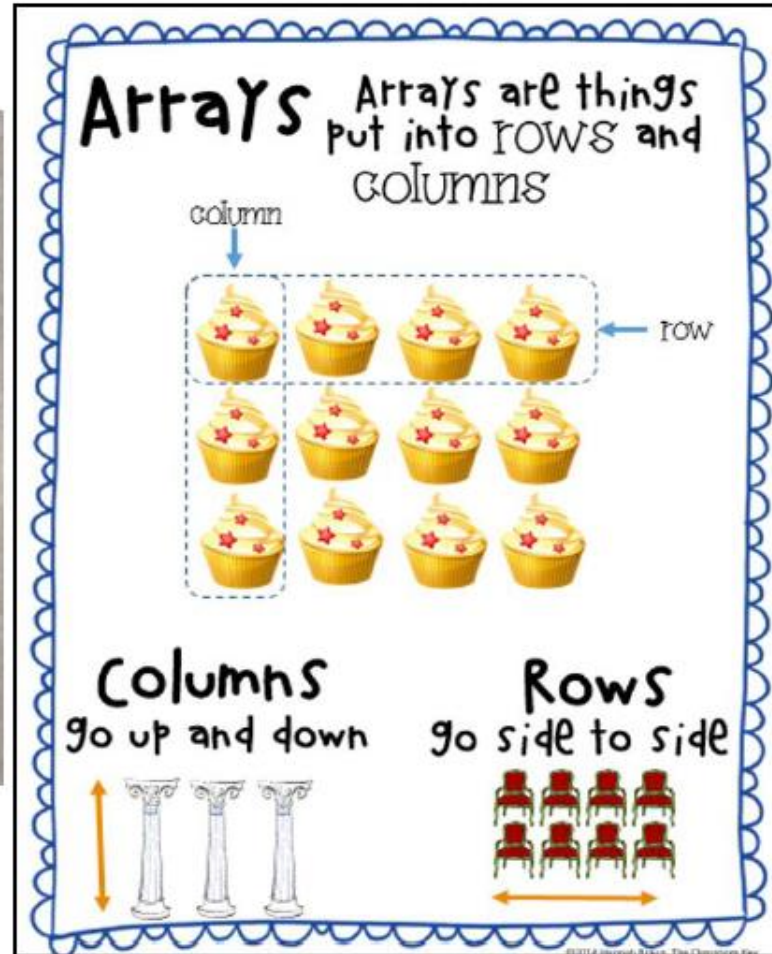
$$3 \times 2 = 2 + 2 + 2$$



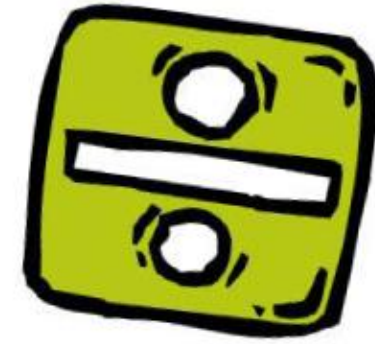
$$5 + 5 + 5 = 15 \quad \text{becomes} \quad 3 \times 5 = 15$$



# Multiplication

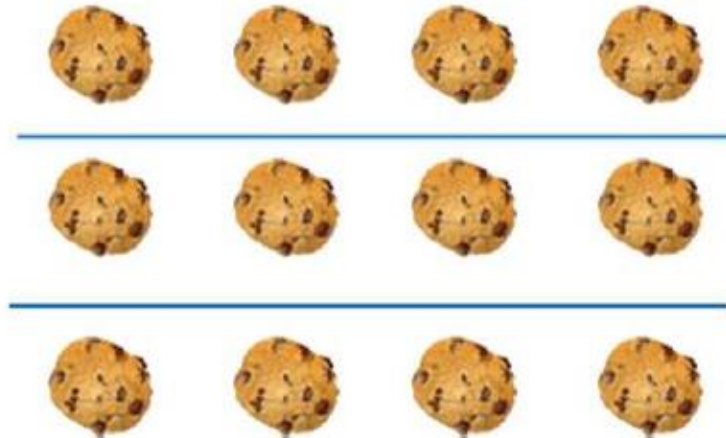


# Division

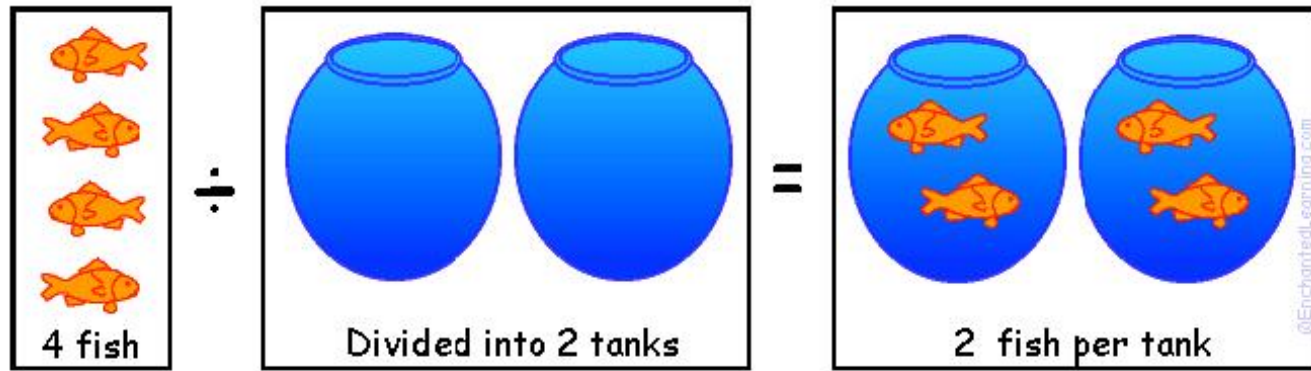
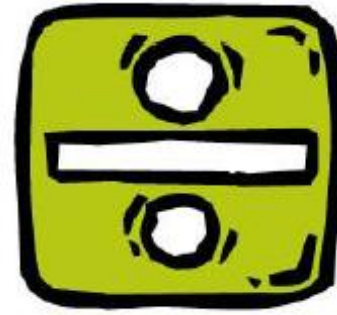


- Halving
- Sorting hoops and objects
- Pictures
- Related times tables facts

Share 12 cookies equally among 3 children.  
How many cookies will each child get?



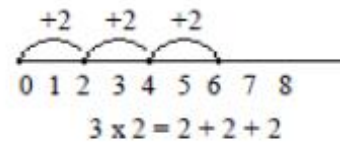
# Division



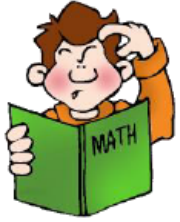
Use arrays.



Multiplication learned as  
repeat addition  
 $3 \times 2 = 2 + 2 + 2$



# Problem Solving



## Example problem


- Tom has 6 apples and 4 oranges how much fruit altogether?
1. Underline the important words.
  2. Decide on a method e.g. adding
  3.  $6+4=10$
  4. How can I check this? I know  $6+3=9$  so  $6+4=10$ .

MathsHUBS  
London South West

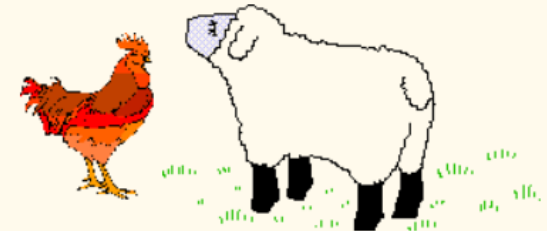
Greater Depth Challenge:

Look at the two sets of shapes.



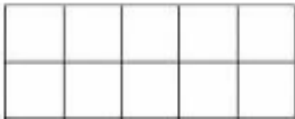
Is there the same number of shapes in each set? What is the same? What is different? How do you know?



### Heads and Feet



On a farm there were some hens and sheep.  
Altogether there were 8 heads and 22 feet.  
How many hens were there?

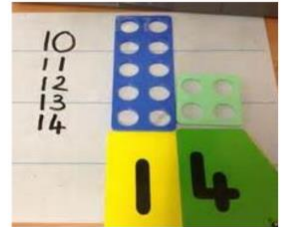
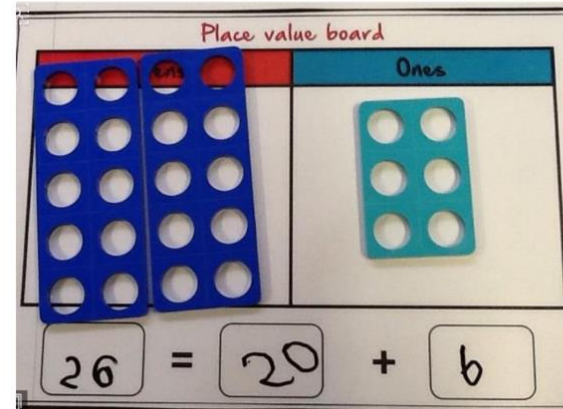
	National Curriculum Statement	All Students		
		Fluency	Reasoning	Problem Solving
Place value	Given a number, identify one more or one less.	<ul style="list-style-type: none"> <li>Fill in the missing numbers.           <div> <math>9 \longrightarrow \square</math>              Is 1 less than           </div> <div> <math>2 \longrightarrow \square</math>              Is 1 more than           </div> </li> <li>How many fingers will I have up if I put one down?   </li> <li>I roll the number that is one more. What number do I roll?   </li> </ul>	<ul style="list-style-type: none"> <li>What comes next?  <math>6+1=7</math>  <math>7+1=8</math>  <math>8+1=9</math> </li> <li>True or False?               1 more than 7 is the same as 1 less than 9.              Use the ten frame to show me.   </li> <li>Harry says:  <div>1 more is the same as adding 1 and 1 less is the same as taking away.</div>             Is he right?              Prove it.           </li> </ul>	<ul style="list-style-type: none"> <li>A number line has been cut up. Can you find the missing numbers?  <div> <math>\square \quad 5 \quad \square</math>  <math>\square \quad \square \quad 8</math>  <math>\square \quad 3 \quad \square \quad 5 \quad \square</math> </div> </li> <li>Dan says;  <div>             'I am one year older than my sister.              My sister is one year older than my brother.              My brother is 7.              How old am I?'           </div> </li> <li>Use number cards 0 -10.              How many different ways can you complete the boxes below?  <div> <math>\square \longrightarrow \square</math>              Is 1 more than           </div> </li> </ul>



# Why does Numicon work?

- It is very visual.
- It is colourful and pleasing to the eye.
- The holes are finger sized.
- It gives a concrete image of number.
- It is fun!
- It can be used for all four operations.

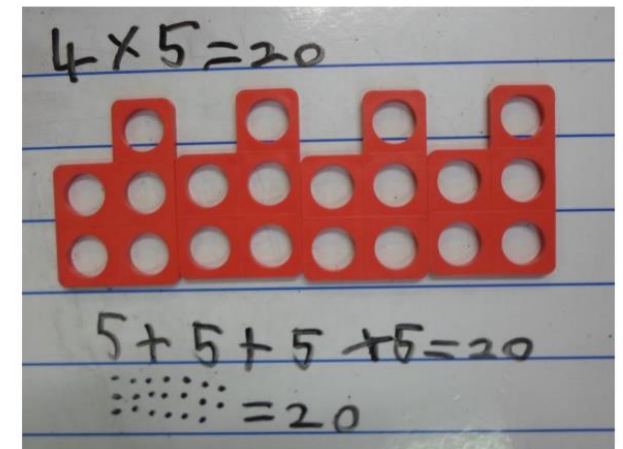
## Place Value



## Multiplying with Numicon

- Build me the problem:

$$3 \times 7 =$$



# How can I help my child?

- Practice skills from the maths objectives list, on the topic web for the term.
- Use maths in everyday life eg: shopping, laying the table...
- Play games such as snakes and ladders, dominoes, frustration...
- Questioning; how do you know that answer? How could you get to the answer a different way?
- Have a 'growth mind-set' attitude, no-one is rubbish or 'can't do' math. It's ok to make mistakes. It's ok to use resources and make jottings.

# Useful Websites

PurpleMash- The school have a subscription, the log in was sent home on a purple card 😊

<https://www.ictgames.com/>

<https://www.oxfordowl.co.uk/for-home>

<https://www.familymathstoolkit.org.uk/>

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

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



The screenshot shows the Purple Mash login interface. At the top left is the 'purple mash' logo. To its right is a text input field labeled 'Your child's name'. Below these is a login table with three rows: 'Username:' with a value of 'Your child's name', 'Password:', and 'Parent Code'. At the bottom of the form is the URL 'https://www.purplemash.com/his'.

Username:	Your child's name
Password:	
Parent Code	

<https://www.purplemash.com/his>

# Expectations by the end of Year 1

- Number and Place Value

- Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number.
- Count, read and write numbers to 100 in numerals; count in multiples of two's, five's and tens.
- Given a number count 1 more and 1 less.
- Identify and represent numbers using objects and pictures including a number line.
- Use mathematical language such as : equal to, more than, less than, most, least.

- Addition and Subtraction

- Read, write and interpret mathematical statements involving addition, subtraction and equals signs.  $+$   $-$   $=$
- Represent and use number bonds and related subtraction facts within 20
- Add and subtract one and two digit numbers to 20, including zero.
- Solve one step problems that involve addition, subtraction. These may be presented as missing number problems.



# Expectations by the end of Year 1

## Multiplication and Division

- Solve one step problems involving multiplication and division. Children may use objects, pictures or arrays to support them with this.

## Fractions

- Recognise, find and name a half as one of two equal parts of an object, shape or quantity.
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

## Measures

- Compare, describe and solve practical problems for:
- Height , length, mass, weight, capacity, volume,
- Time.
- Measure and begin to record the following:
- Lengths / height
- Mass / weight
- Capacity / volume
- Time in hours, minutes and seconds
- Recognise and know the value of different denominations of coins and notes.
- Sequence events in chronological order
- Recognise and use language relating to dates, including days of the week, weeks, months and years.
- Tell the time to the nearest hour and half past the hour.





# Expectations by the end of Year 1

## Shape

- Recognise and name 2D and 3D shapes including:
- 2D – rectangles squares, circles and triangles
- 3D – cuboids, cubes, pyramids and spheres

## Position and Direction

- Describe position , direction and movement including whole, half, quarter and three quarter turns.

