

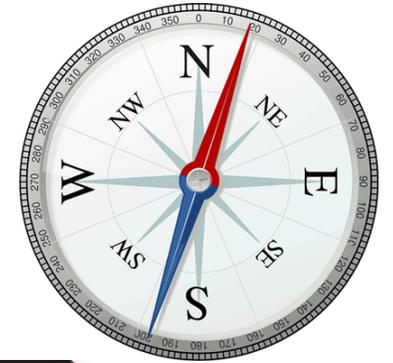


Making sense of maths Parent Café

20TH JANUARY 2026

KETRINA HILL

Maths all around us



2017 DECEMBER						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31					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



The background of the slide is a close-up, slightly blurred photograph of numerous colorful wooden letters and numbers. The colors include red, yellow, blue, and green. The letters and numbers are scattered across the frame, creating a textured and educational atmosphere. The text is overlaid on this background.

In this workshop, you will:

- ▶ Find out about some of the practical objects that we use in the classroom ... and at home!
- ▶ Find out more about our working walls
- ▶ Find out how we make maths fun and challenging
- ▶ Find out about vocabulary
- ▶ Find out about Mastering Number

How do objects help children to make sense of numbers?

Children need to handle, pick up and move practical objects when counting and calculating. This helps them to:

- see a number or problem in different ways
- make links between their learning in different areas in maths

Just as children can learn the word order of a nursery rhyme or poem, learning the order of numbers as words **one, two, three, four** is often just a memory game. Can they count out that amount of objects? Can they draw it? Can they talk about what the number means?

Objects are used by all children of all abilities at all stages of primary education.



What is a number?

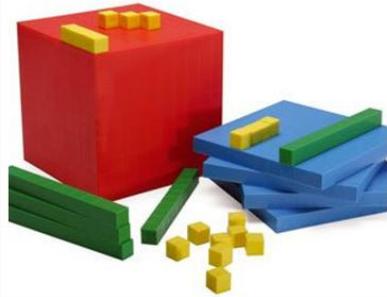
3 three

"1, 2, 3, 4"

As well as being able to say number names in the right order, read and write numbers, we want children to really understand what the number means. How many is 3? Do children see 3 objects 'in their head' when they hear the word three?



Beadstring
20 and 100



Dienes
(Also known as Base Ten)



Numicon
Tiles or plates
Pegs



Cubes
Multilink
Unifix



Counters



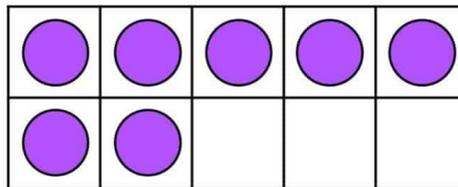
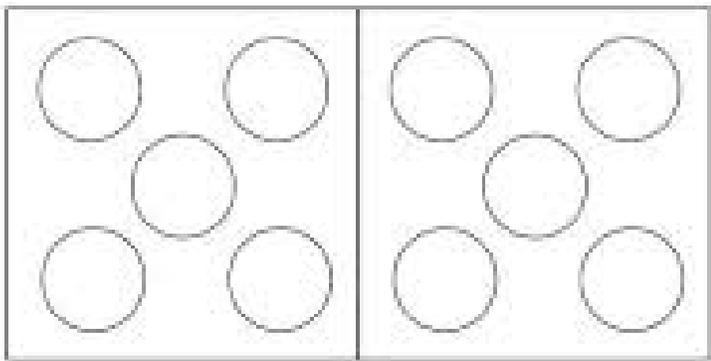
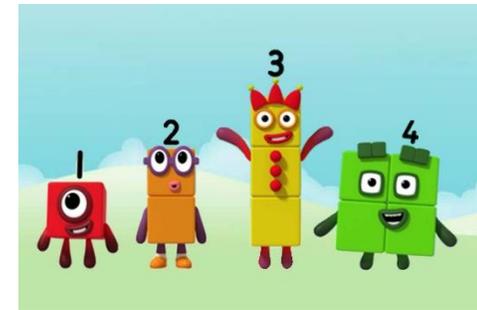
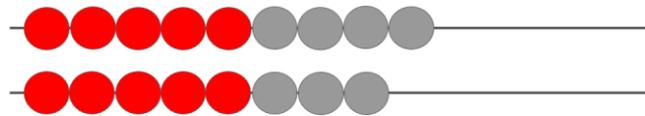
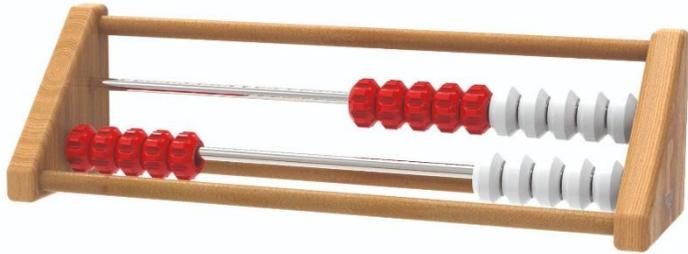
Chain links

Practical objects in the classroom

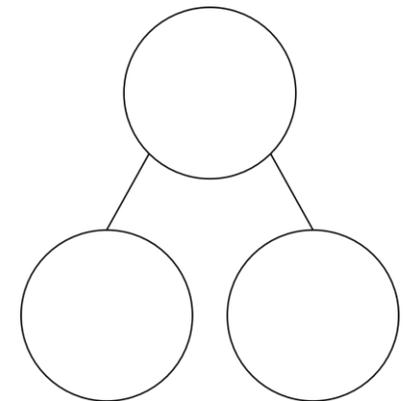
Practical objects that you could use at home



Representations

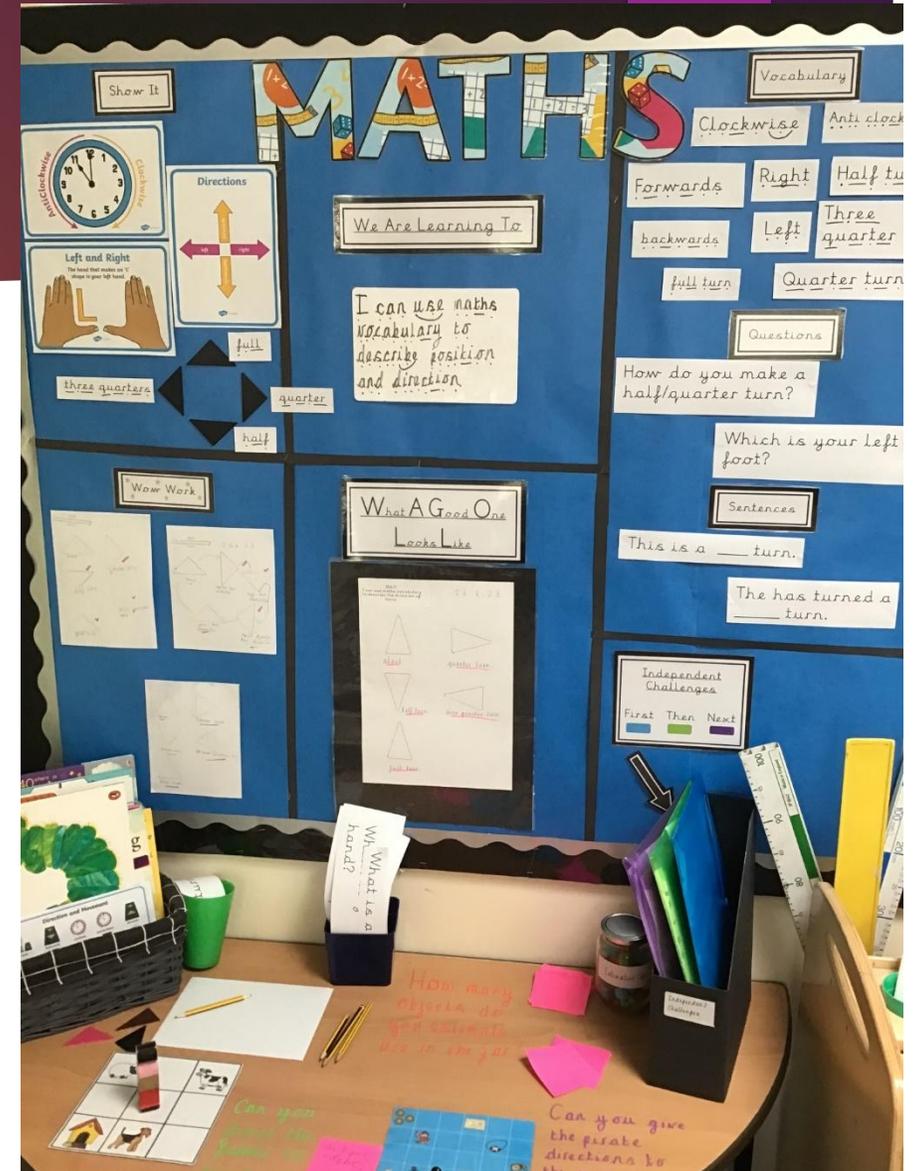


5	
3	2



Working walls

- ▶ Show it
- ▶ Vocabulary
- ▶ Questions
- ▶ Stem sentences
- ▶ Wow work



Counting and Place Value

- ▶ Place value means that children understand the worth of each digit in a number

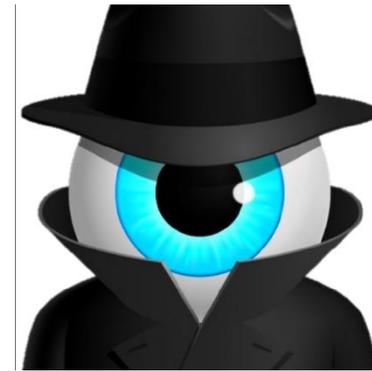
JARGON BUSTER!

Digit 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

Number (numeral) 0, 1, 2, 3, 46, 54, 105, 275689...

Number (word) zero, one, two, three, four etc.

Do children realise that the digit 3 in 13 is worth three ones? Or that the digit 3 in 31 is worth 3 tens?

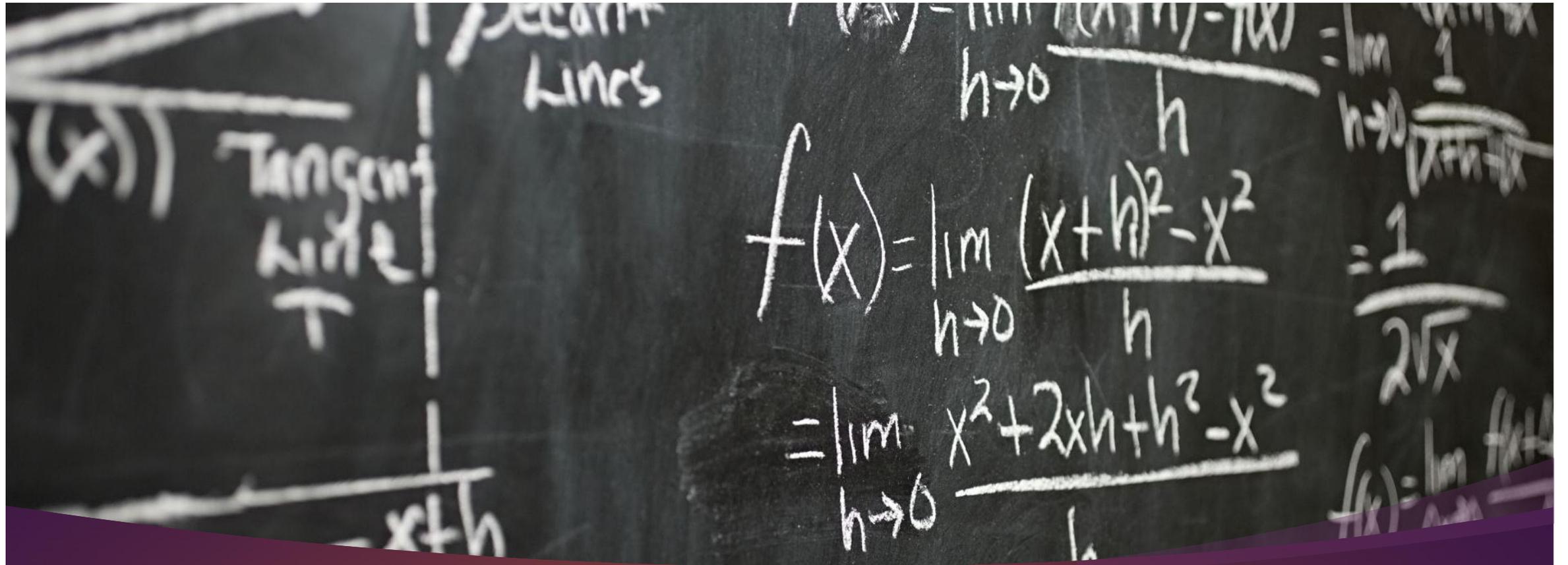


Our Maths curriculum

We follow the NCETM curriculum prioritisation documents to help implement both statutory and non-statutory guidance.

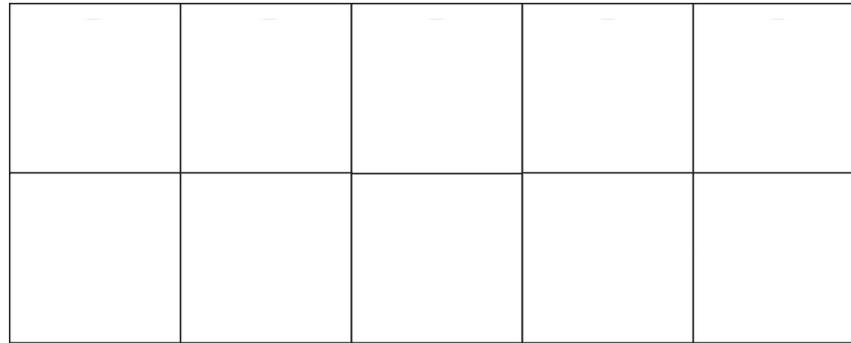
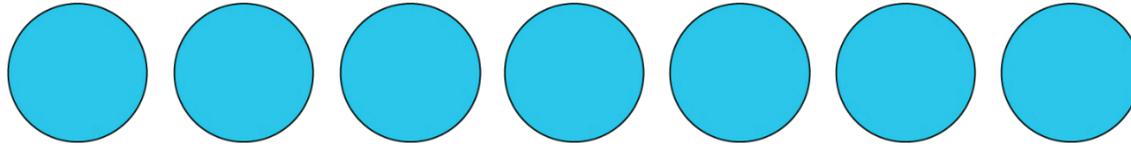
This informs our planning and long-term overview for the year.

We also implement Mastering Number sessions 4x a week for 15 minutes to help develop fluency with number.



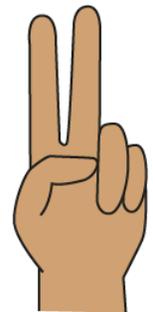
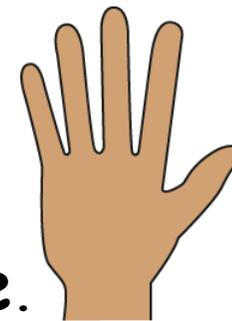
Example from Year 1 Maths lesson

Let's try it with a new amount



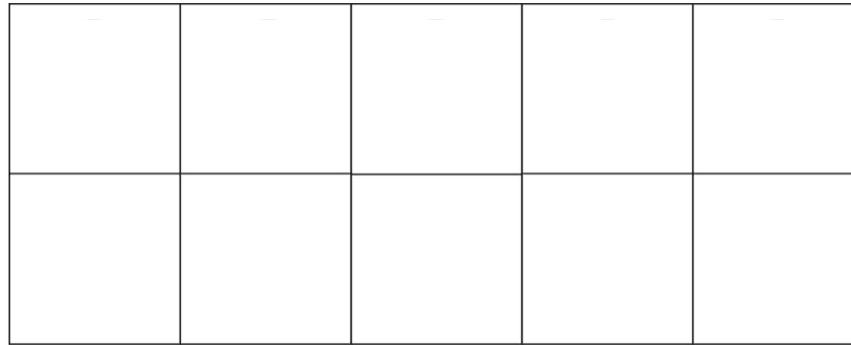
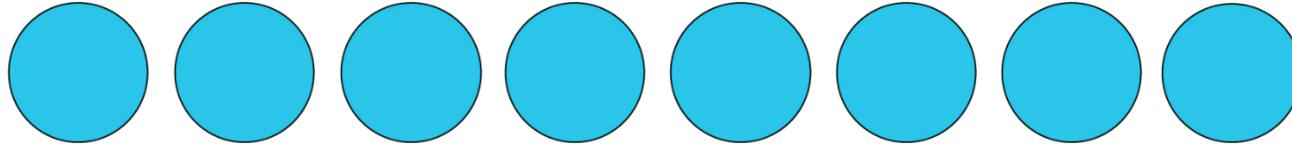
7

___ is five and ___ more.



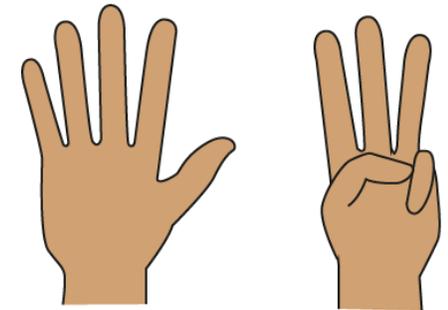
Let's grow it, show it, throw it!

Let's try it with a new amount



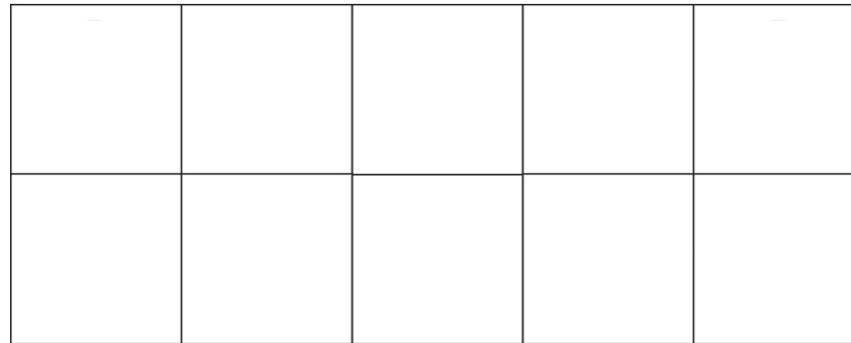
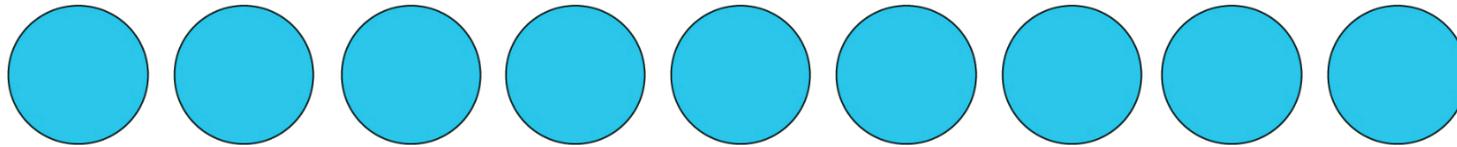
8

___ is five and ___ more.



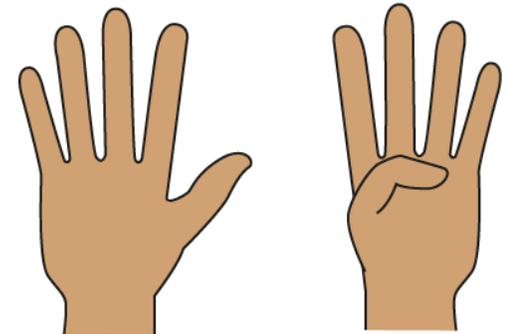
Let's grow it, show it, throw it!

Let's try it with a new amount



9

___ is five and ___ more.

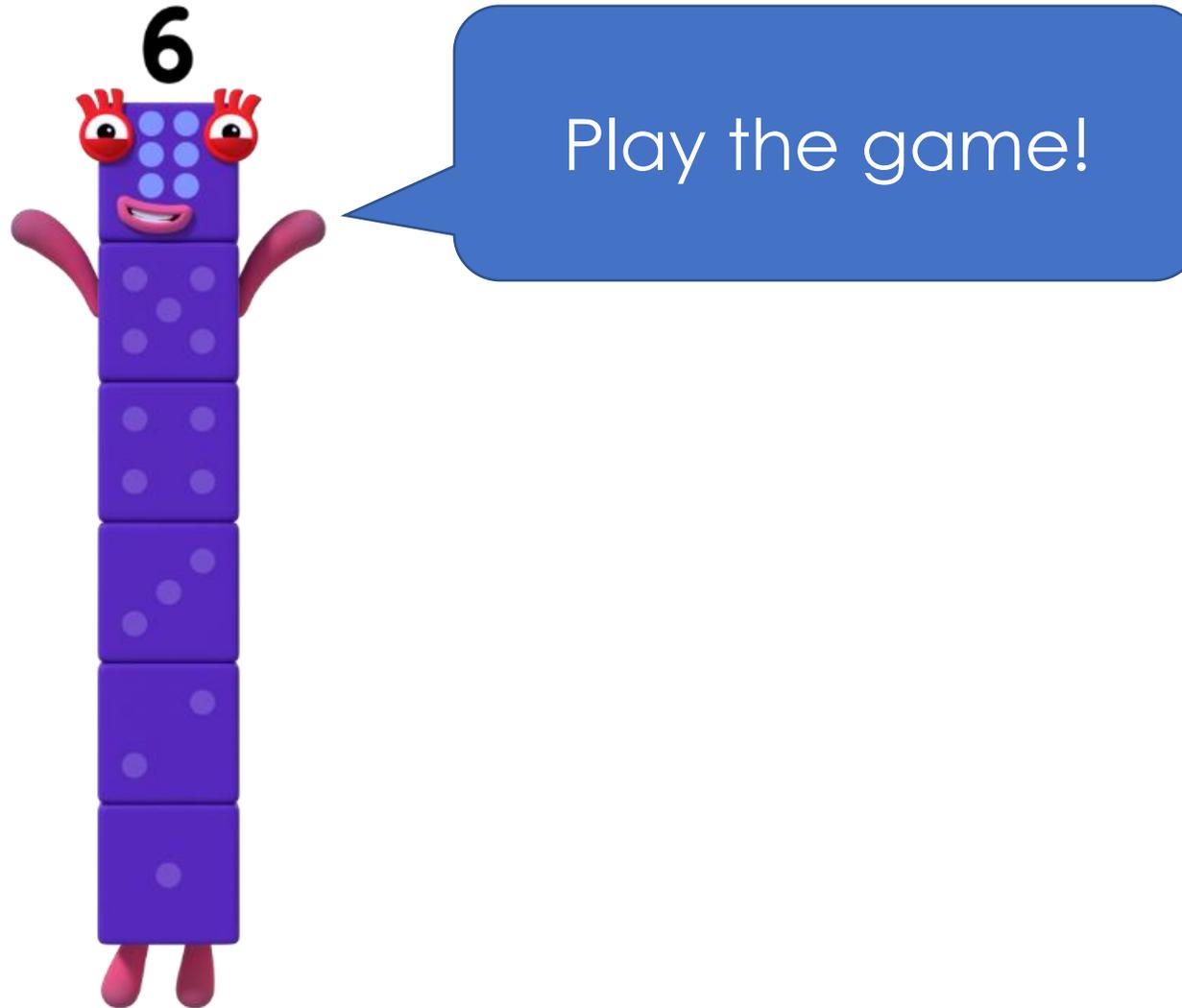


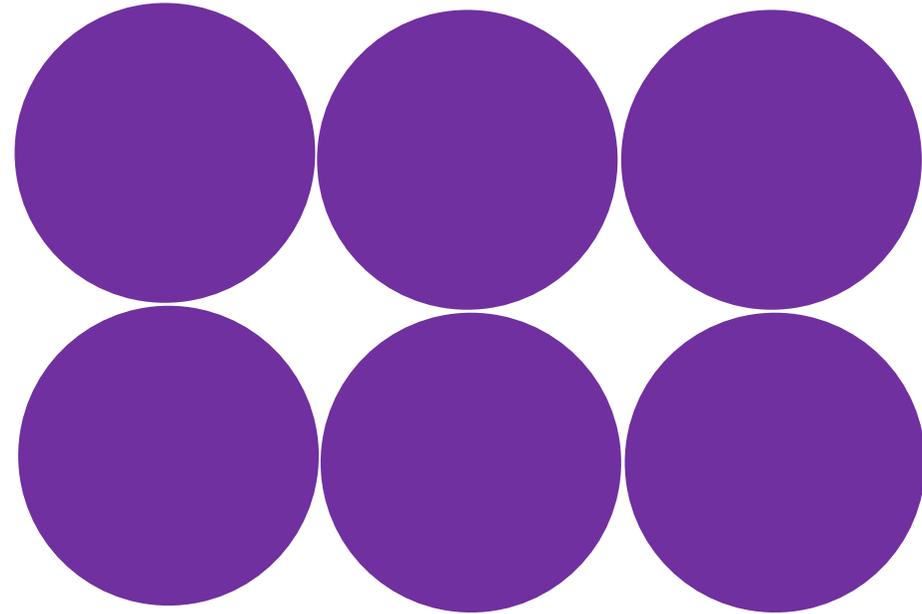
Let's grow it, show it, throw it!

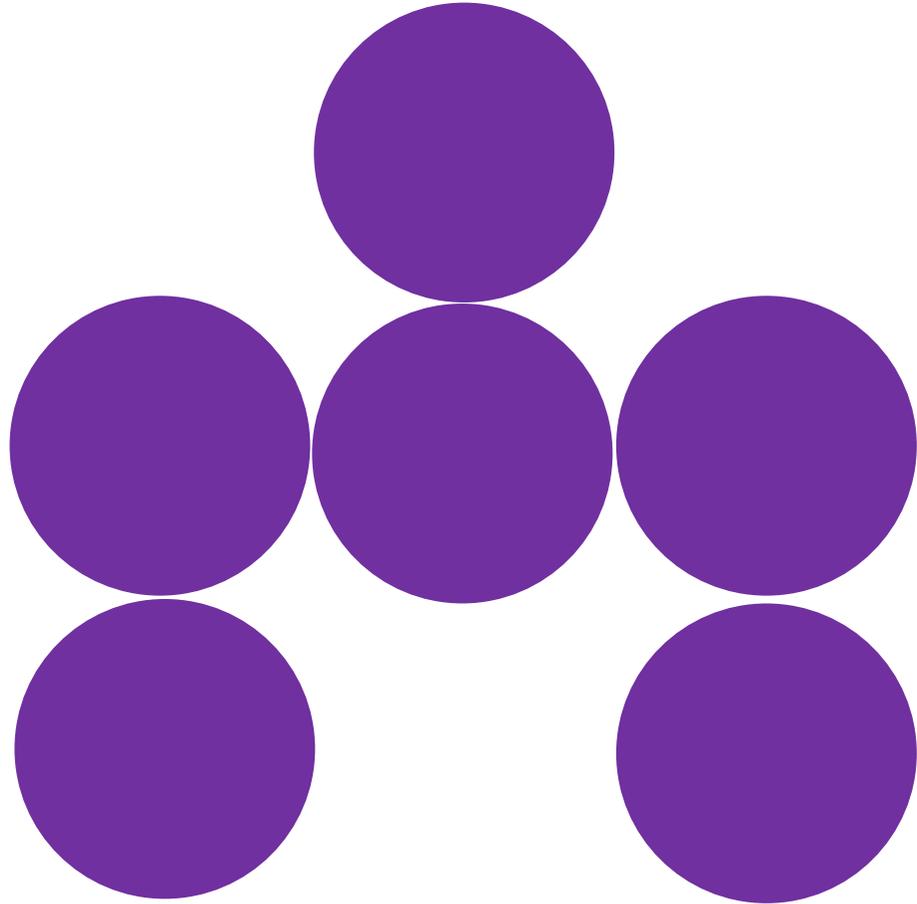
Example of mastering
number

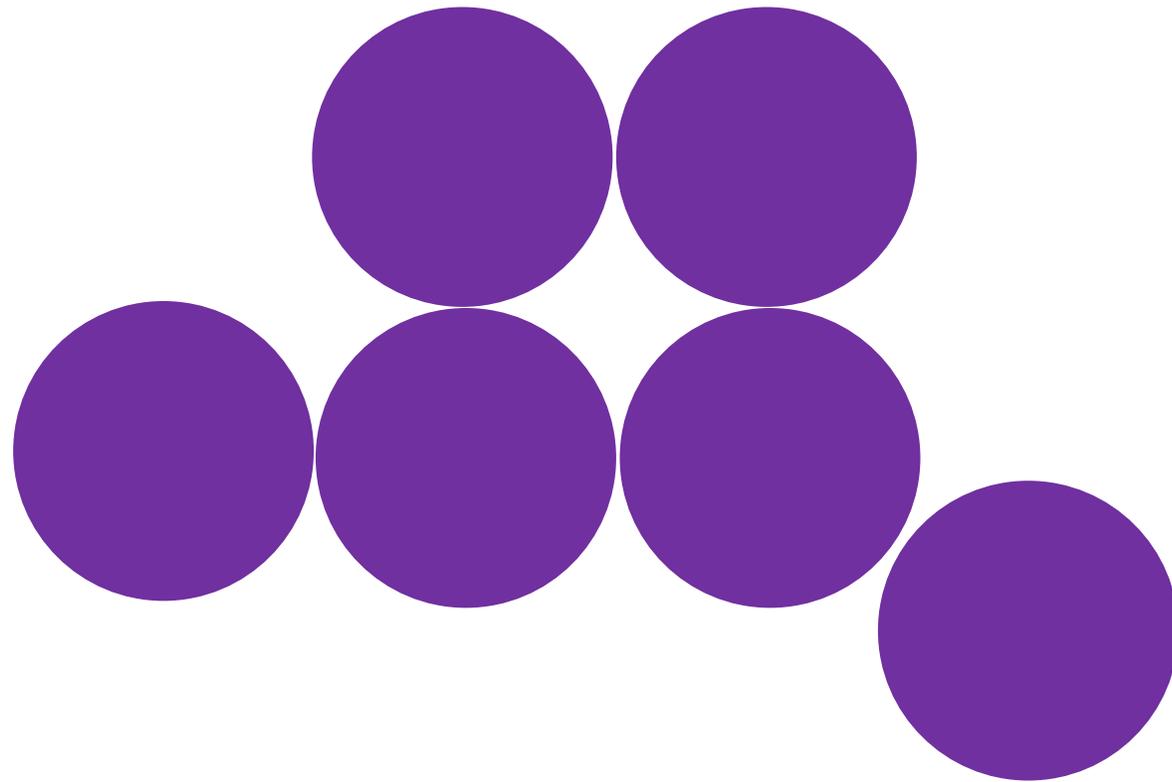
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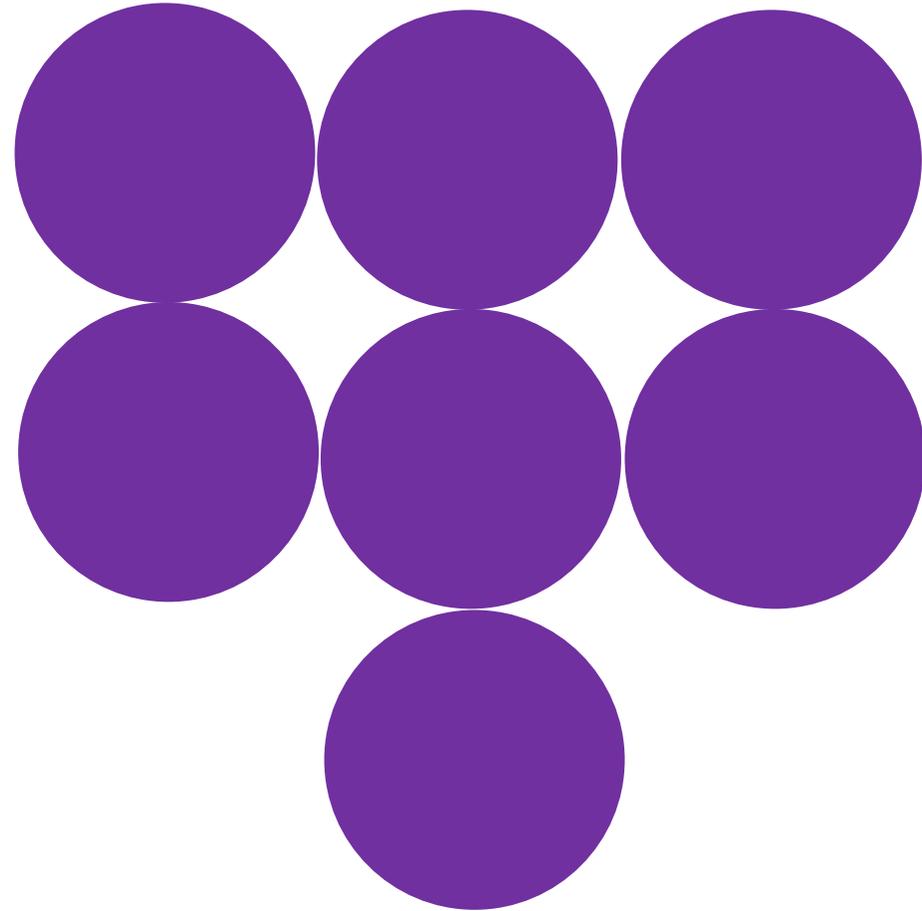
Say whether there are 6 or NOT 6.

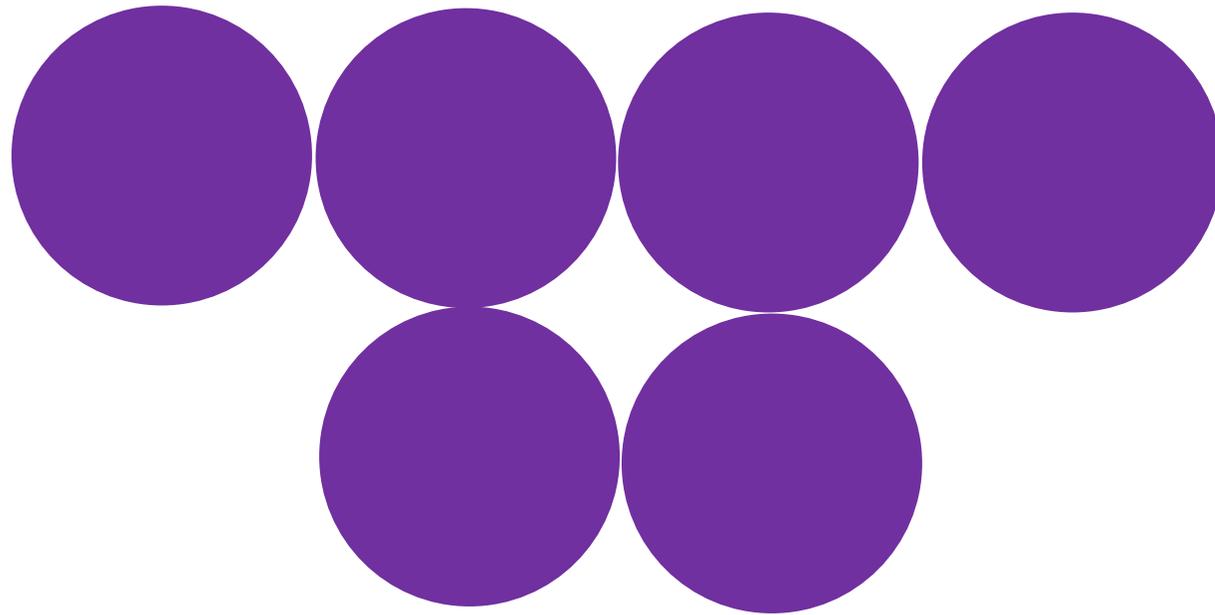


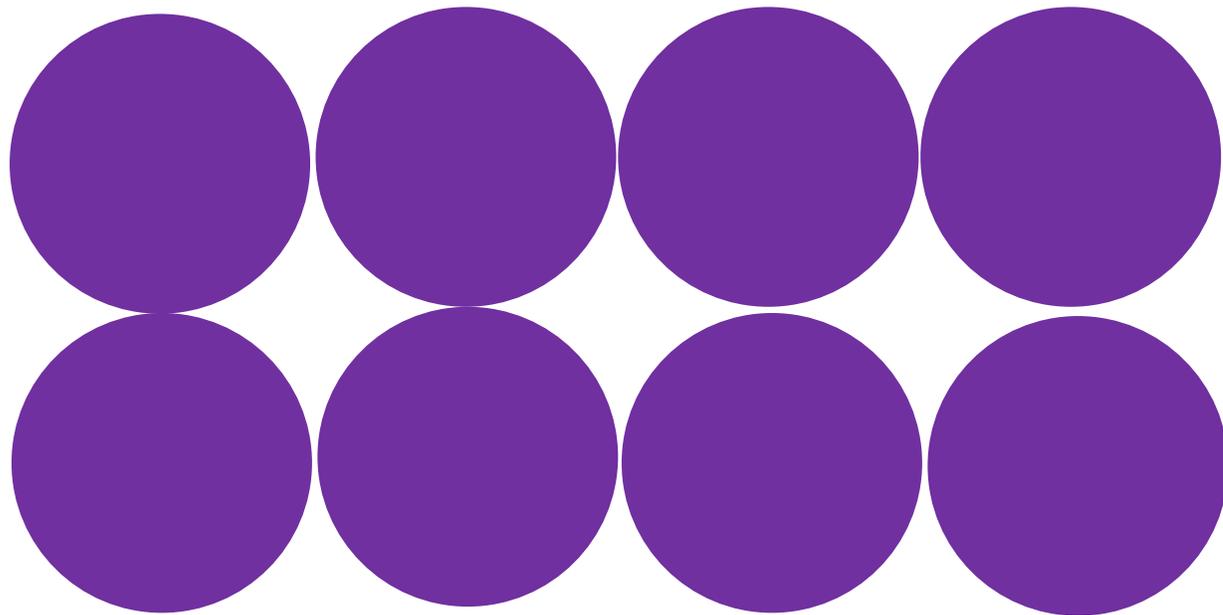


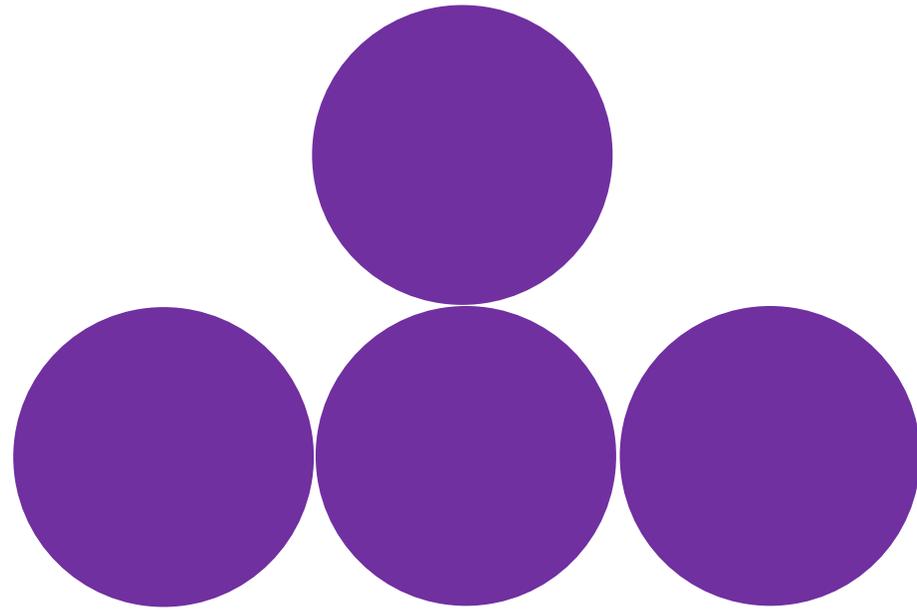


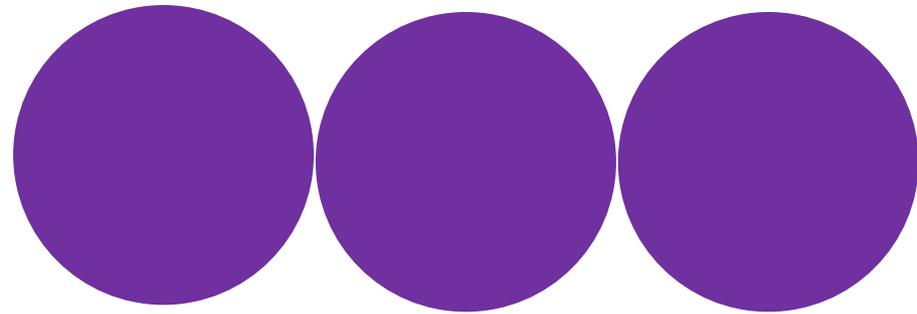


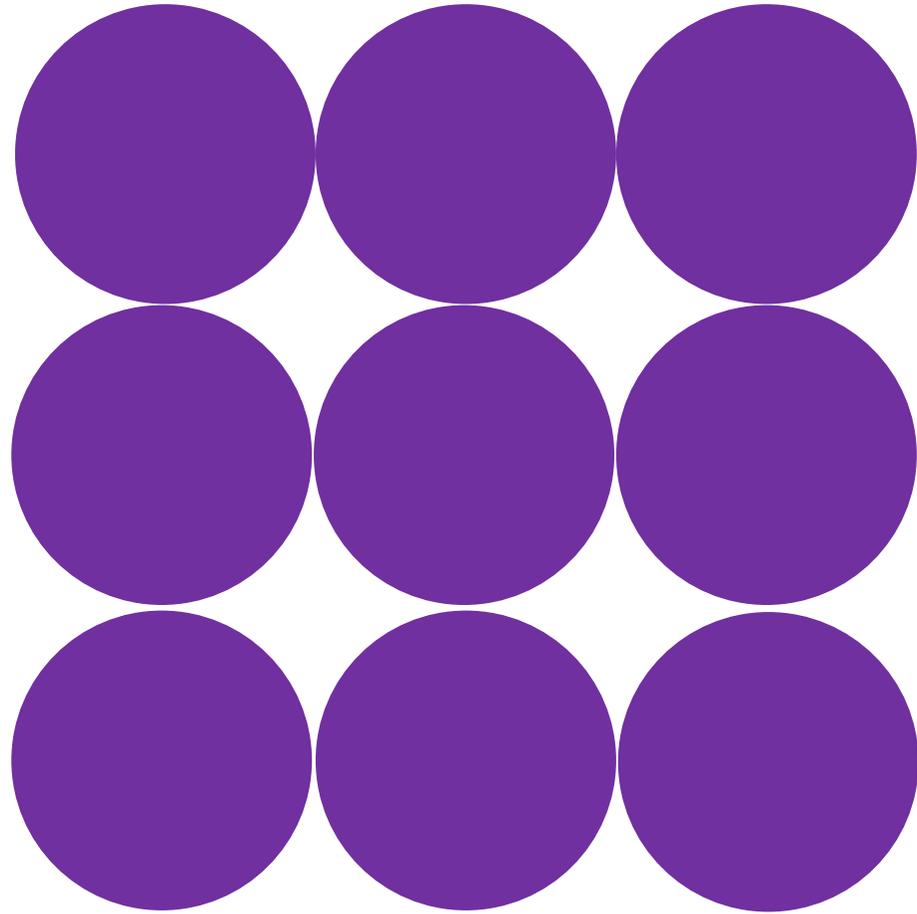




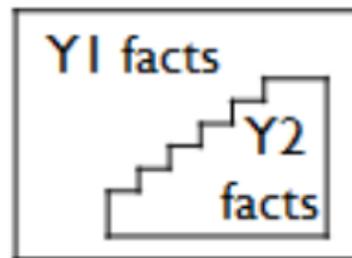






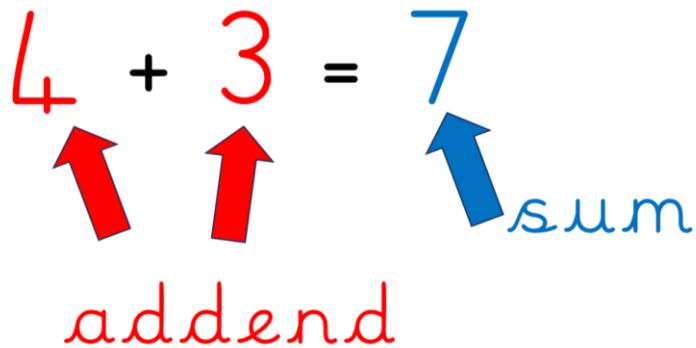


+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10



Vocabulary - addition

$$4 + 3 = 7$$

The diagram illustrates the components of an addition equation. The equation $4 + 3 = 7$ is shown. Below the number 4, a red arrow points up to it, and below the number 3, another red arrow points up to it. These two arrows are collectively labeled 'addend' in red text below them. Below the number 7, a blue arrow points up to it, labeled 'sum' in blue text to its right.

addend

addend: the number being added, or added to, in an addition calculation

sum: how many altogether after adding.

Subtraction

$$\begin{array}{c} \uparrow \\ 14 \\ \text{minuend} \end{array} - \begin{array}{c} \uparrow \\ 10 \\ \text{subtrahend} \end{array} = \begin{array}{c} \uparrow \\ 4 \\ \text{difference} \end{array}$$

minuend: the whole, the number being subtracted from.

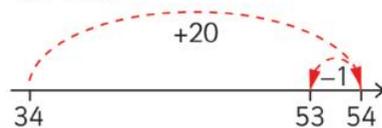
subtrahend: the number being subtracted from the minuend (or whole)

difference: the amount or quantity by which one thing is different to another

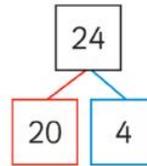
Key Mathematical vocabulary

Terms to describe strategies for mental or written calculations

compensation: a mental calculation strategy in which a number is rounded to the nearest 10 to make the calculation easier, and the amount rounded up or down is compensated for at the end, for example $34 + 19$, $(34 + 20) - 1$



partition: split a number into 2 or more parts (often into 10s and 1s)



subitise: know how many without counting



That's 4
- I don't need to count.
I just know there are 4 spots



reorder: put numbers in a different order to help with calculating

This looks quite hard.

$$32 + 56$$

$$56 + 32$$

It's much easier to re-order and start from the largest number.



Other useful mathematical vocabulary terms

Year 1 definition:

commutative: addition is commutative. It does not matter which order the addends are added in, the sum will always be the same

$$7 + 3 = 10$$

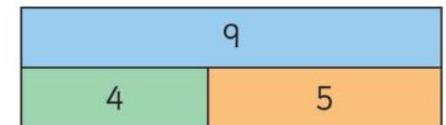
$$3 + 7 = 10$$

Year 2 definition:

commutative: law for addition and multiplication that means the numbers can be swapped around without changing the answer

$$5 + 3 = 8 \text{ is the same as } 3 + 5 = 8$$

bar model: a diagram to show how wholes are partitioned into parts



inverse: The operation which reverses another operation. Addition is the inverse of subtraction, doubling is the inverse of halving.

$$12 - 4 = 8$$

$$8 + 4 = 12$$

Addition and Subtraction

Let's try this...

$$14 + 5 =$$

Can you build it using small objects?

How would we draw it on a part-whole model?

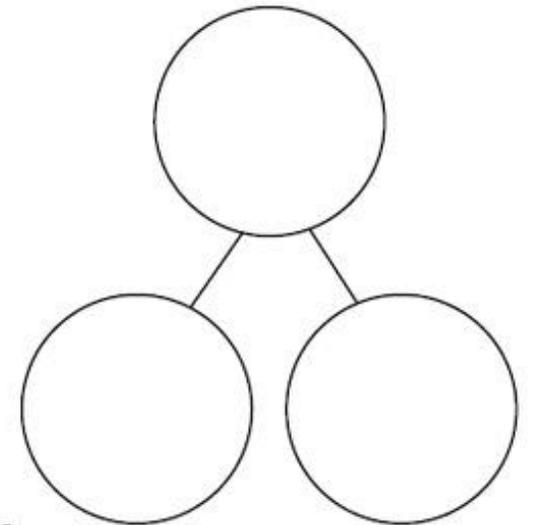
Can you say it?

Can you write it? How else can you write it?

Now you know that, what else do you know? You know that $19 - 14 = 5$

Objects help the children to check and avoid errors.

$14 + 5 = 19$ so $5 + 14 = 19$. $14 - 5 = 19$. Number sense tells you this is not possible.



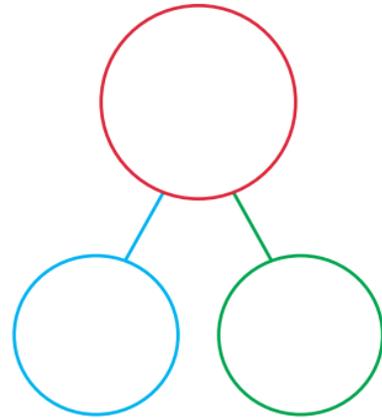
Number Sense 101

$$\square + \square = \square$$

$$\square + \square = \square$$

$$\square = \square + \square$$

$$\square = \square + \square$$



$$\square - \square = \square$$

$$\square - \square = \square$$

$$\square = \square - \square$$

$$\square = \square - \square$$

8 fact families

4 a day

- ▶ 4 quick problems everyday to recap and practice skills

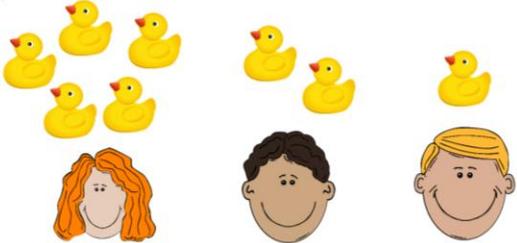
Day 1 **Four a Day** 

1) Can you see 5 bananas or 6 bananas?



I can see _____ bananas

2) Who has the most ducks?

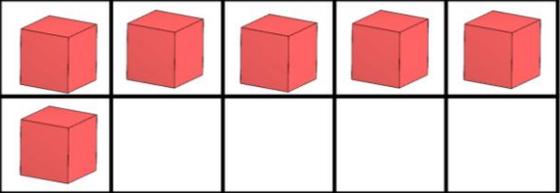


3) What is the name of the shape that is first (1st) in this sequence?



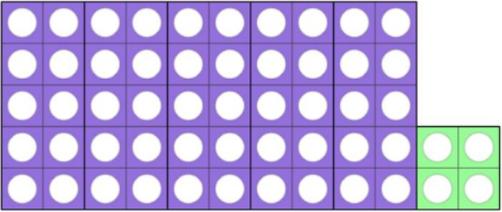
last

4) If we add one more, how many will there be?



Day 1 **Four a Day** 

1) Which number has been made below?

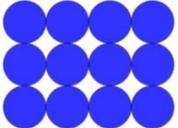


2) True or false?



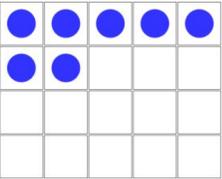
The banana is below the football.

3) What can you tell me about this array?



In one row there are ___ counters. There are ___ rows.
There are ___ counters altogether.

4) I have 7 counters. How many more do I need to have 20 in total?



The Reveal

How many balls are in the cup?



31 balls



The Reveal



The Reveal



The Reveal



PONGO

Whole

Peculiar

Ordinary

Nearly

General



What do
you
notice?

Problem solving and reasoning

- ▶ Allows children to apply and explain their skills to different situations and scenarios

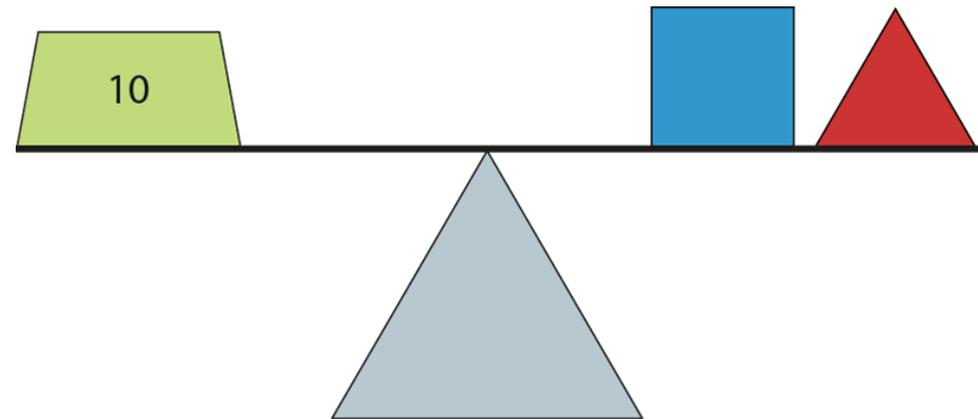
Write $<$, $>$ or $=$ to complete the number sentences.

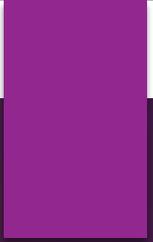


double 6 $6 + 7$

double 9 $9 + 8$

$9 + 8$ double 8





Problem solving Challenge

Challenge

Weekly Maths Challenge

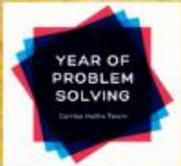
You take these five cards from a pack of playing cards and decide to practise adding the numbers on them. You can add two, three, four or five of the numbers together each time.



How many **different totals** can you make?

What is the **lowest** possible total?

What is the **highest** possible total?



Weekly Maths Challenge

How many of these totals did you find?

Two cards:

$5 + 6 = 11$ $5 + 3 = 8$ $5 + 8 = 13$ $5 + 2 = 7$

$6 + 3 = 9$ $6 + 8 = 14$ $6 + 2 = 8$

$3 + 8 = 11$ $3 + 2 = 5$

$8 + 2 = 10$

Three cards:

$5 + 6 + 3 = 14$ $5 + 6 + 8 = 19$ $5 + 6 + 2 = 13$

$5 + 3 + 8 = 16$ $5 + 3 + 2 = 10$

$5 + 8 + 2 = 15$

$6 + 3 + 8 = 17$ $6 + 3 + 2 = 11$ $6 + 8 + 2 = 16$

$3 + 8 + 2 = 13$



Weekly Maths Challenge

How many of these totals did you find?

Four cards:

$5 + 6 + 3 + 8 = 22$ $5 + 6 + 3 + 2 = 16$ $5 + 6 + 8 + 2 = 21$

$5 + 3 + 8 + 2 = 18$

$6 + 3 + 8 + 2 = 19$

Five cards:

$5 + 6 + 3 + 8 + 2 = 24$

The repeated totals are in red.

There are 16 different totals.



Solution Prompts

How did your pupils get on?

Did they work systematically?

What did they notice?

How would they approach a similar problem in the future?

What strategies did they use when adding? Did they have any ideas for further investigations?

Thank you for coming!

- National Numeracy Parent toolkit has a wealth of tips and advice for parents
<https://www.nationalnumeracy.org.uk/helping-children-maths/family-maths-toolkit>
- Oxford Owl includes a range of activities, top tips and eBooks to help your child with their maths at home
<https://home.oxfordowl.co.uk/maths/>
- Nrich. A range of maths games, problems and articles on all areas of maths
<https://nrich.maths.org/parents/primary>
- White rose one minute maths app
<https://whiterosemaths.com/resources/1-minute-maths>
- Number blocks episodes
<https://www.bbc.co.uk/iplayer/episodes/b08bzfnh/numberblocks>

Thank you for coming!

List of websites for children

<http://www.amathsdictionaryforkids.com/>

<https://www.bbc.co.uk/bitesize/subjects/zjxhfg8>

<https://ictgames.com/mobilePage/index.html>

<https://ilovemathsgames.com/>

<https://mathsisfun.com/>

<https://mathszone.co.uk/>

<https://multiplication.com/>

<https://www.primarygames.com/math/>

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