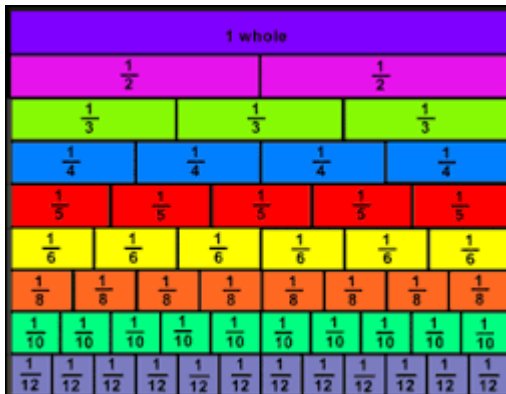
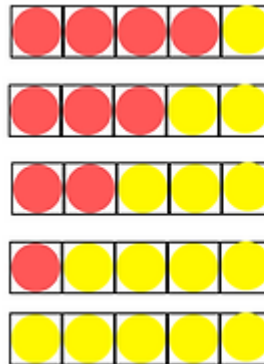




# Mathematics workshop

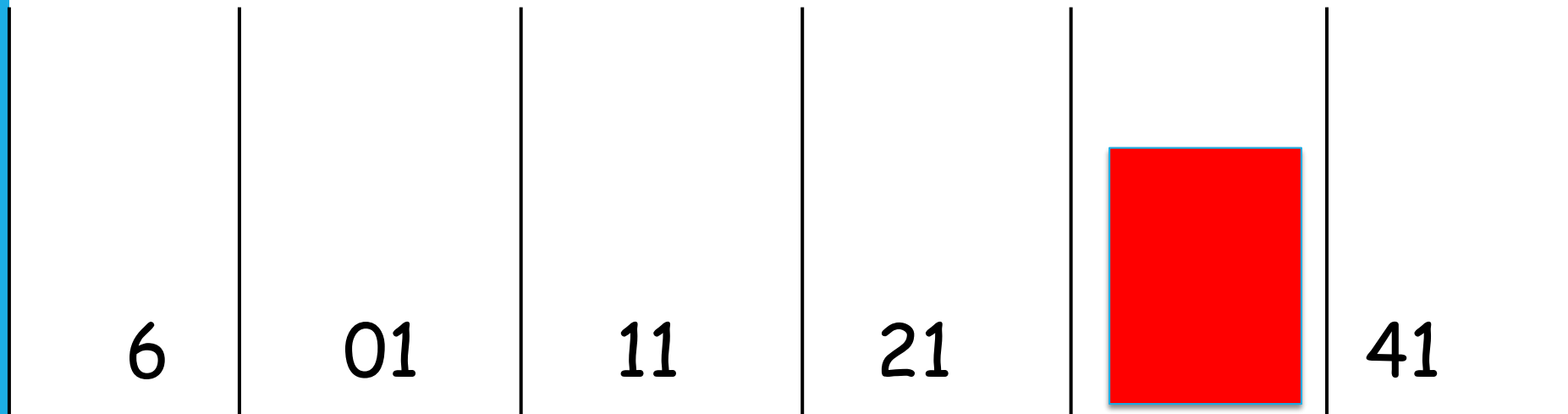


hundreds	tens	ones		tenths	hundredths
			.		
			.		
			.		

100 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	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

In what number parking spot is the red car parked?

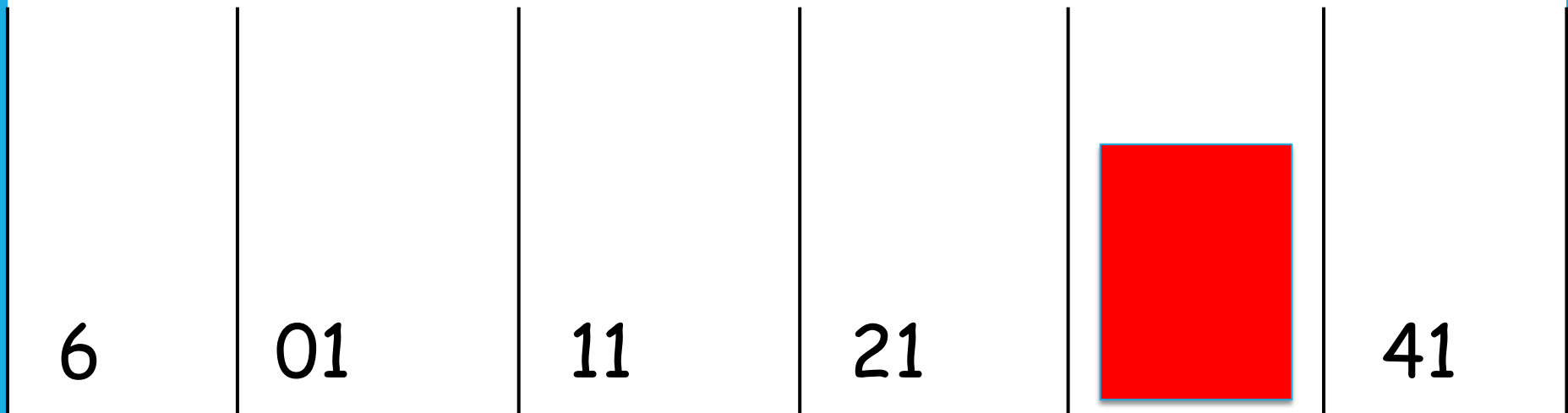


We want our children to become thinkers and collaborators.

# In what number parking spot is the red car parked?

ANSWER: 13

(The number line is backwards / upside-down)



We want our children to become thinkers and collaborators.

# Aims for the workshop today

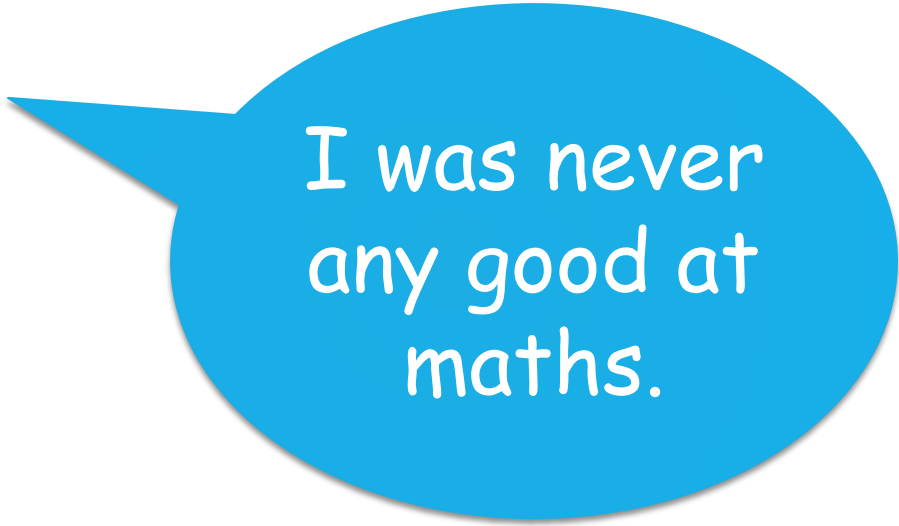
- What does maths look like in Year R and Year 1?
- How is maths taught at Cecil Road Primary School?
- How can children be supported at home?



ON A SCALE OF  
ONE TO TEN, HOW  
MUCH DO YOU  
HONESTLY ENJOY  
MATHEMATICS?

Research suggests that as many as 60% of adults would rather clean the toilet than work out a maths problem.

An even larger percentage say:



I was never  
any good at  
maths.

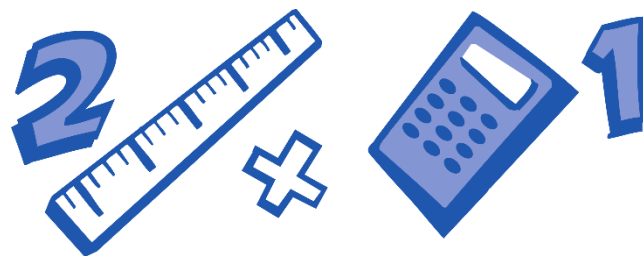
Research also suggests that adults would not openly admit to being poor at reading.

- It may come as a surprise that almost half of the working-age population (17 million) of England have numeracy skills equivalent to those expected for an 11 year-old child.
- Adults with poor numeracy skills are twice as likely to be unemployed than those who enjoy some competency in numeracy.

At Cecil Road we aim for our children:

- To be an active participant in their own learning.
- To be confident and numerate.
- To be fluent in their mathematics at the appropriate level.
- To be able to reason about their learning using the correct mathematical vocabulary.
- To be able to apply their skills and knowledge as they progress, through sustainable learning.
- To develop an appreciation that mathematics is a key skill that equips them for life.
- To enjoy mathematics

# What does Maths learning look like at Cecil Road?



Our curriculum is based on the national curriculum and White Rose Maths and other materials that support the delivery of the curriculum.

These include: NCETM, NRich- these are used across KS1 and KS2 allowing children to be exposed to a variety of different types of learning and to ensure coverage of fluency, problem solving and reasoning in different formats to ensure that our maths curriculum is rich and varied.

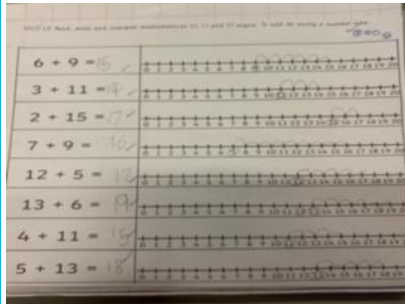
# What does Maths looks like in EYFS?



- Learning through play.
- Outdoor activities.
- Counting, counting and more counting!
- Pattern spotting
- Number recognition and ordering to 10.
- Learning numbers bond up to 10.
- Shape recognition, 2D and 3D.
- Addition and subtraction using single digit numbers.



# What does Maths look like in Year 1?



Number bonds to 10 and within 10.

To read time to O'clock and Half Past.

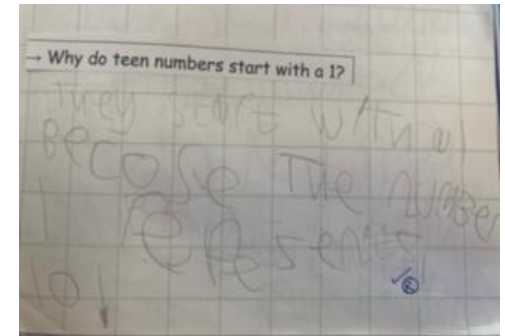


Count forwards and backwards in multiples of 2, 5 and 10.

Count within 100, forwards and backwards, starting with any number.



Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another.



Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.

To double numbers to 10.

Read, write and interpret equations containing +, - and = symbols.



MATH:

YOU SHOULD NOT *only*  
KNOW WHAT YOU  
ARE DOING. YOU  
SHOULD ALSO KNOW  
WHY & HOW

HARRY WONG

# The CPA Approach



CONCRETE -  
using physical objects  
to solve maths problems.

PICTORIAL -  
using drawings  
to solve maths problems.

ABSTRACT -  
solving maths problems  
using only numbers.

# What is CPA?

**C is for concrete.** New concepts are introduced through the use of physical objects or practical equipment. These can be physically handled, enabling children to explore different mathematical concepts. These are sometimes referred to as maths manipulatives and can include ordinary household items such as straws or dice, or specific mathematical resources such as dienes or Numicon.

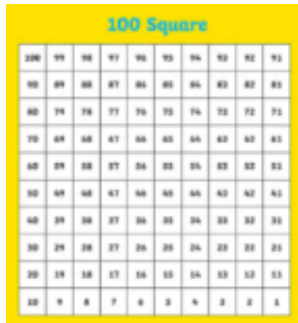
**P is for pictorial.** Once children are confident with a concept using concrete resources, they progress to pictorial representations. By doing this, they are no longer manipulating the physical resources, but still benefit from the visual support the resources provides.

**A is for abstract.** Once children have a secure understanding of the concept through the use of concrete resources and visual images, they are then able to move on to the abstract stage. Here, children are using symbols to solve problems. To be able to access this stage effectively, children need access to the previous two stages alongside it.

# Numbers

100 Square or you could use [100 square splat](#) online game

Games you could play:



**Cover Up:** Cover up one or more squares using counters. The child has to guess which numbers are hidden under the counter/s.

**Patterns:** Cover the multiples of 2, 3, 5 and 10 etc (one multiple at a time). Use the patterns to predict which numbers will be in the sequence.

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

Dice or you could use an [Online Dice](#)



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

Games you could play:

Use dice to help your child recognise numbers at speed.

**Knock Out:** Each player chooses a “knock out number” – either 6, 7, 8, or 9. More than one player can choose the same number. Players take turns throwing both dice, once each turn. Add the number of both dice for the score. If a player throws a 6, 7, 8 or 9, they are knocked out of the game until the next round.

# Addition/ Subtraction using sweets instead of Base 10



In Year 1, we use Base 10 for addition/ subtraction. Instead of tens and ones resource you could use sweets (such as Chewits). A whole pack of Chewits are the tens and individual Chewits are the ones. E.g.  $18 = 1$  tens and 8 ones

# You can use anything you have around the house

Pasta for counting



Cards for number recognition and counting



Chewits for counting



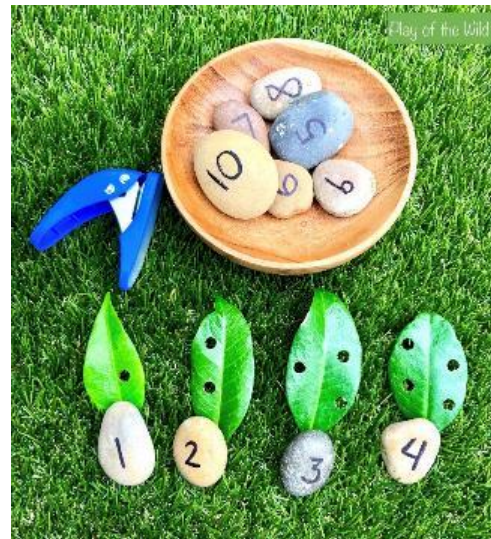
Toys to put in size order



Magnetic numbers for number recognition



## Don't Forget Outside





Numbers are all around us!



It is crucial that children can explain their thinking using the appropriate vocabulary. This not only embeds their own learning but supports the learning of others through hearing quality explanation.

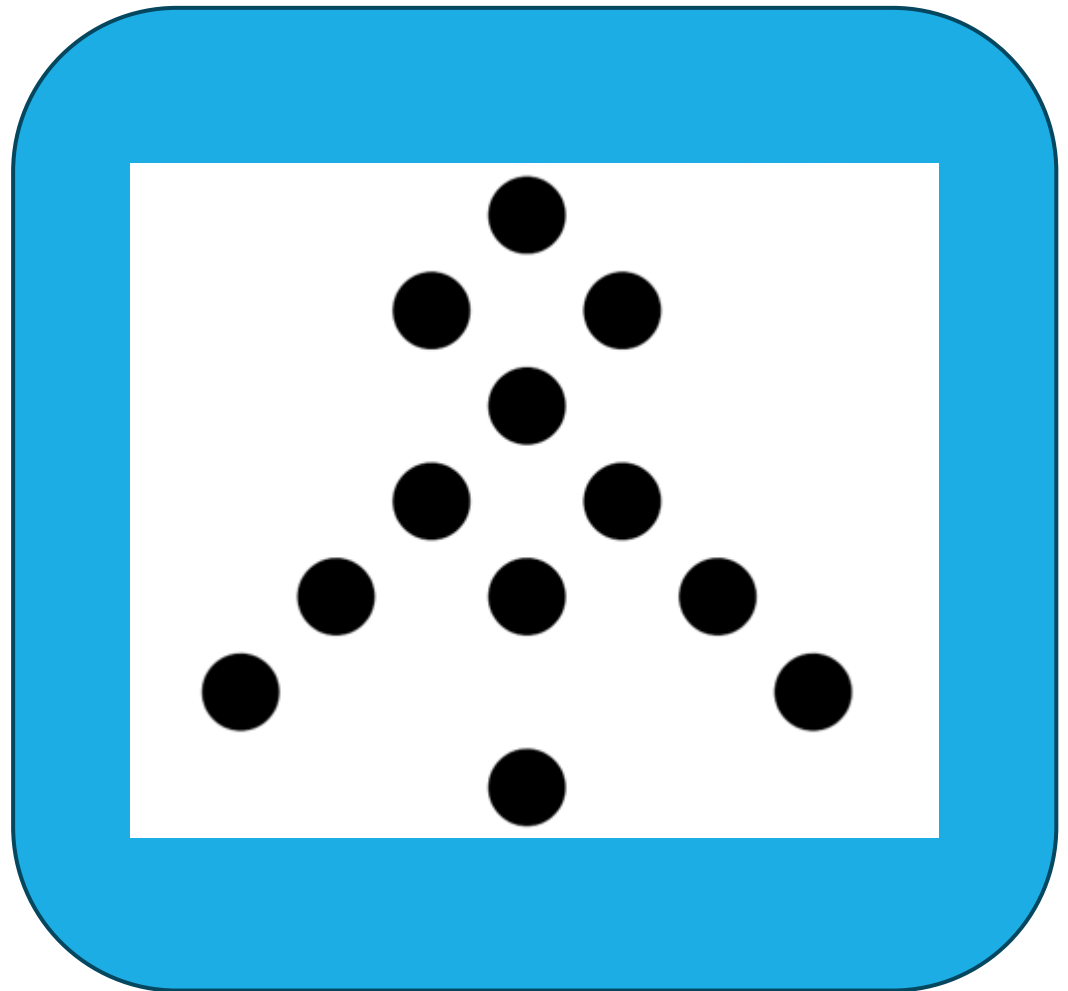


# Questioning and Talk

*‘Teachers can provide **regular** opportunities for pupils to develop **independent metacognition** through pupils explaining to themselves, teachers and other pupils how they planned, monitored, and evaluated their completion of a task.’*

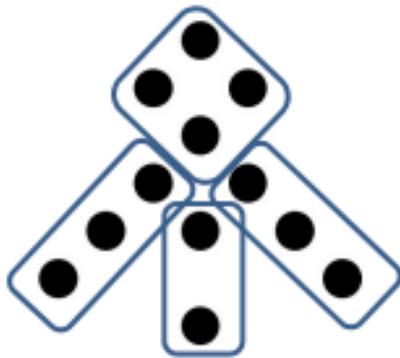


Working with  
the person  
next to you  
can you write  
a number  
sentence to go  
with the  
dotted  
formation?

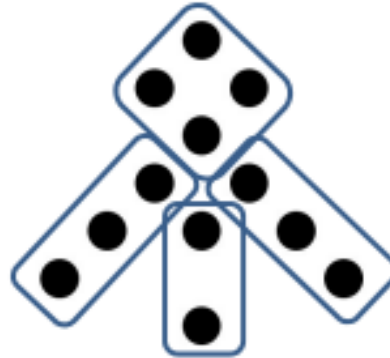


# Number Talks

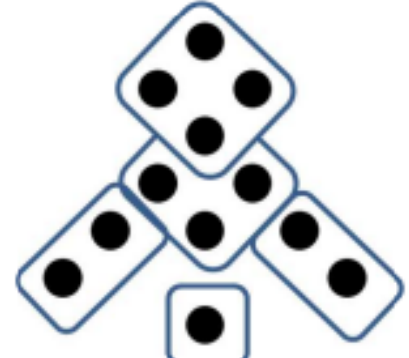
How many ways ...?



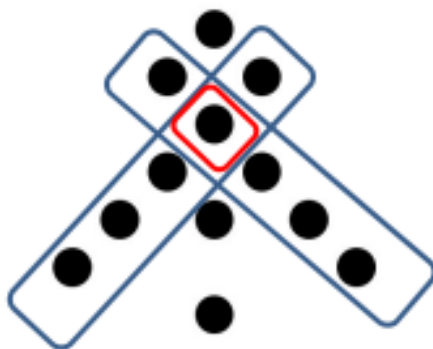
$$4 + 3 + 3 + 2 = 12$$



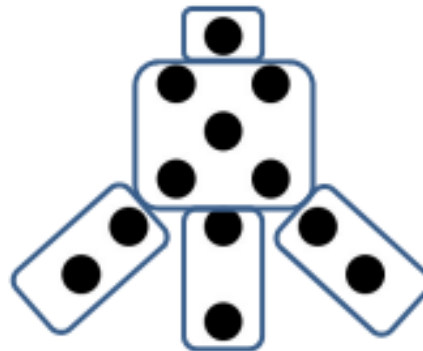
$$4 + 3 + 2 + 3 = 12$$



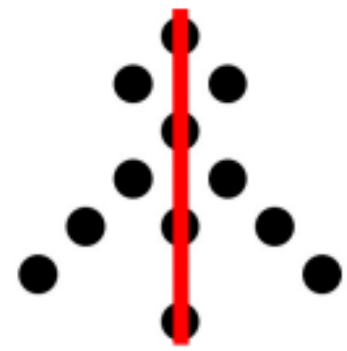
$$4 + 3 + 2 + 2 + 1 = 12$$



$$5 + 5 + 3 - 1 = 12$$



$$1 + 5 + 2 + 2 + 2 = 12$$

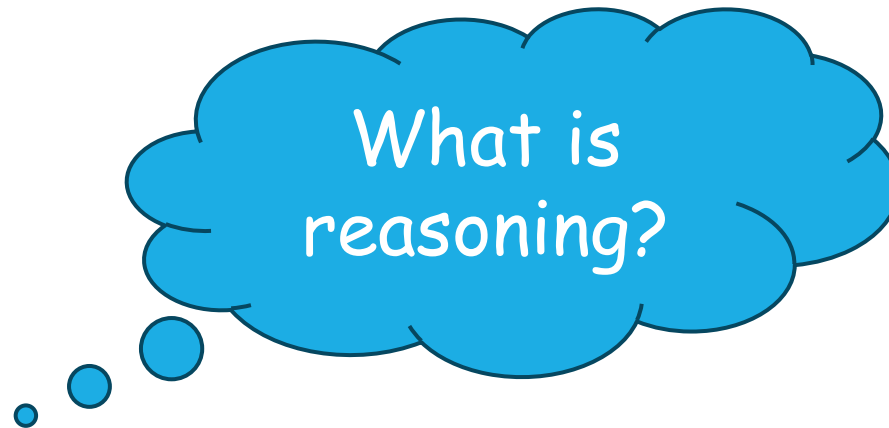


$$6 + 6 = 12$$

*'By giving our students practice in **talking with others**, we give them frames for **thinking on their own**.'*

Vygotsky, L. (1978)

# Reasoning and Problem Solving

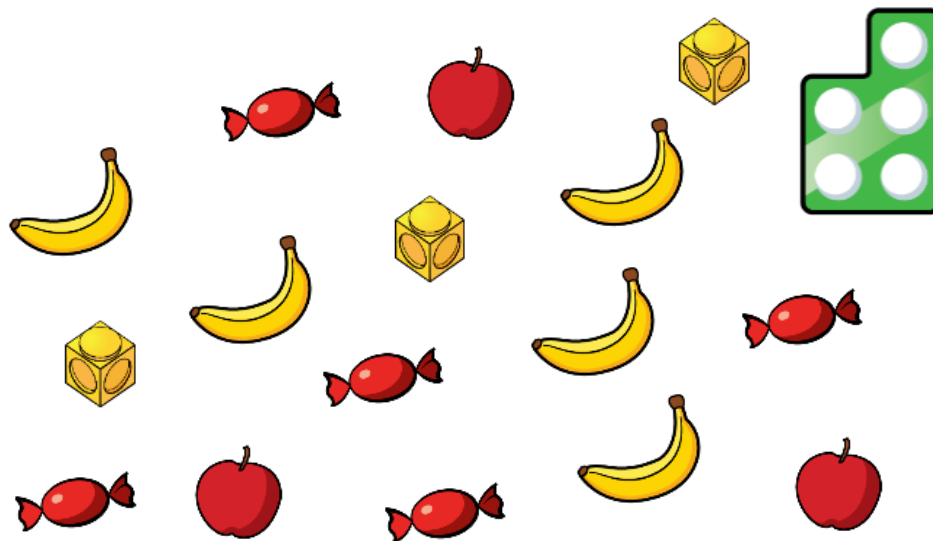


Reasoning is the action of thinking about something in a logical, sensible way.

# Progression in Reasoning

<b>Describing</b>	Simply tells what they did
<b>Explaining</b>	Offers some reasons for what they did (may or may not be correct)
<b>Convincing</b>	Confident that their chain for reasoning is right (inductive reasoning)
<b>Justifying</b>	A correct logical argument that has a complete chain of reasoning
<b>Proving</b>	A watertight argument that is mathematically sound (deductive reasoning)

How many different ways can the objects be grouped?



Adding 1

Bonds to 10

Adding 10

Bridging/  
compensating

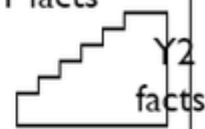
Adding 2

Adding 0

Doubles

Near doubles

Y1 facts

Y2  
facts

+	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



Another way to support your children is by using:



When it comes to times tables, speed AND accuracy are important — the more facts your child remembers, the easier it is for them to do harder calculations. Times Table Rock Stars is a fun and challenging programme designed to help students master the times tables. World Famous musicians need to practice and so do children with their tables!

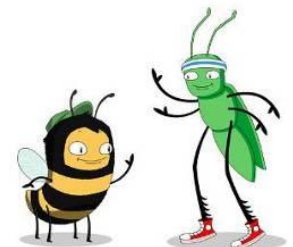




Another way to support your children is by using:



For your child to be fully motivated and for them to get the best out of the practice, they need your help - your praise, reminders and support will help your child feel confident and motivated.





# CECIL ROAD PRIMARY SCHOOL

Change School



Username \*



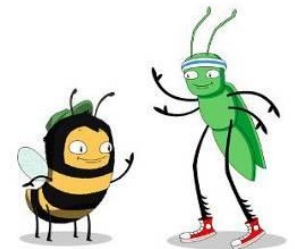
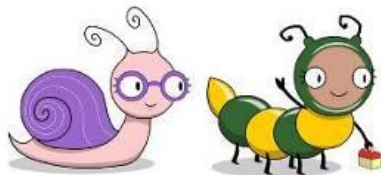
PASSWORD

or



PIN

Log In



# How can I help my child at home?

- *Create a positive view of mathematics – be a mathematician together*
- *learn number bonds together*
- *tell the time*
- Help your child to understand the importance of mathematics in everyday life
- Support your child when learning basic skills such as number bonds, counting in equal steps and tables
- Help them to see the value of learning these skills
- Value homework activities even if you think your child knows it. They must be fluent and able to apply the skills if learning is to be sustainable

Thank you for listening.  
We hope the workshop helps you  
understand how you can support  
your child at home.

