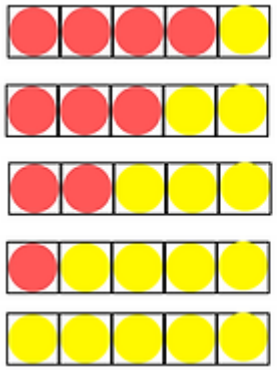
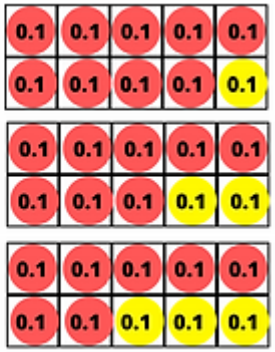
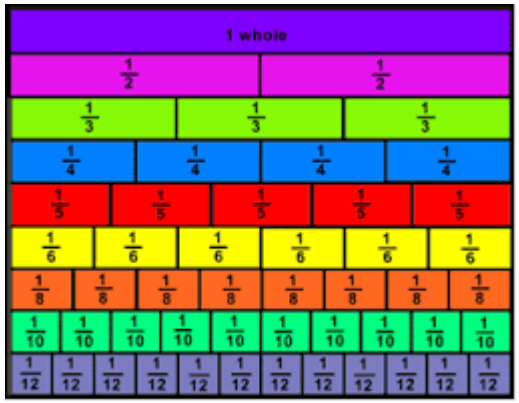
Cecil Road Primary & Nursery School

Together we achieve more

Mathematics meeting for Years 1 to 6 parents: Wednesday 20th November 2024





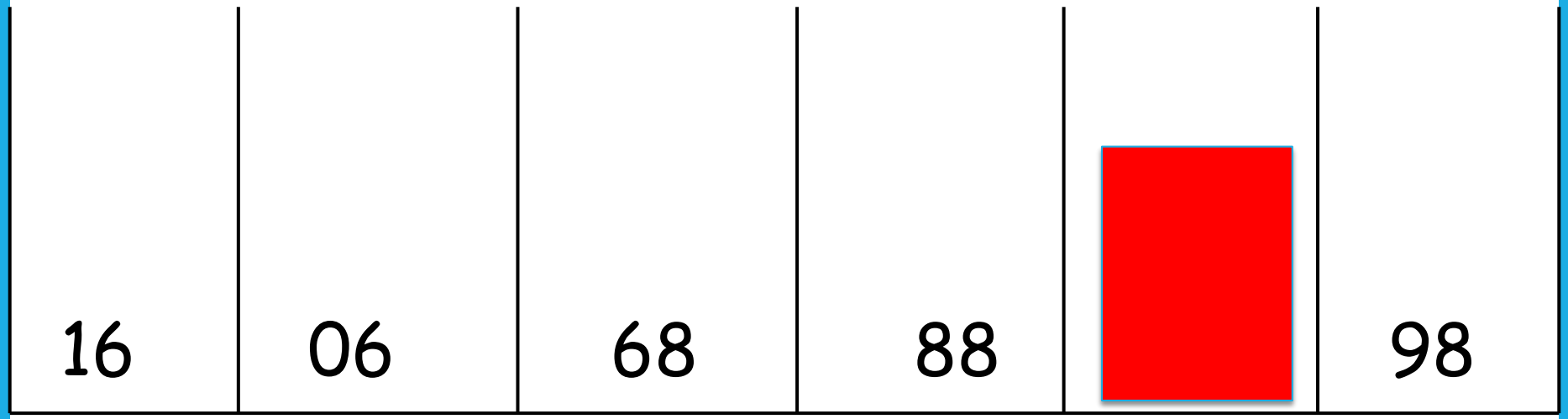


hundreds	tens	ones		tenths	hundredths
			.		
			.		
			.		

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?

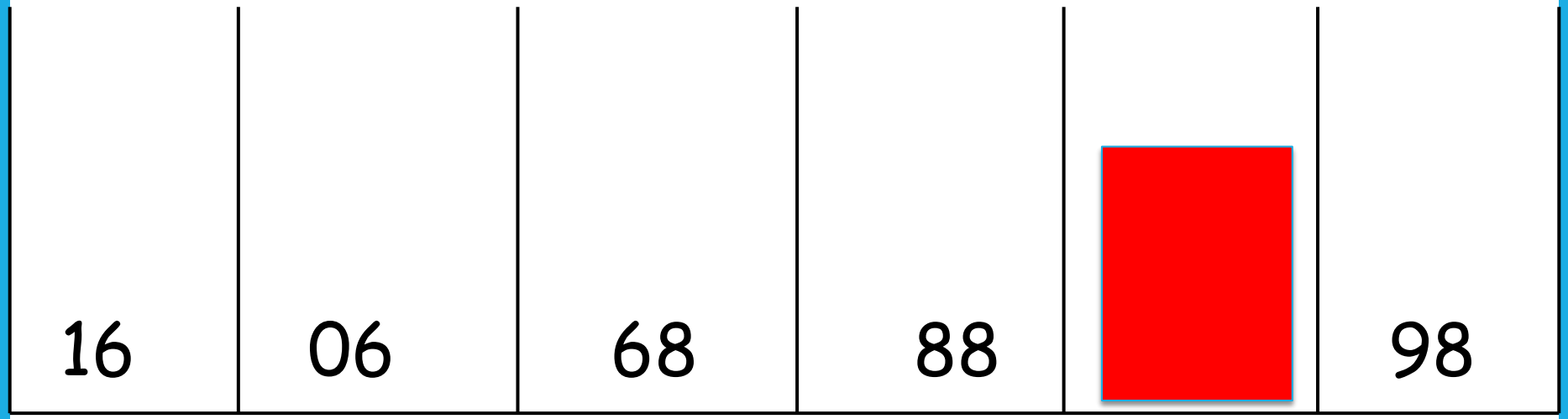


We want our children to become thinkers and collaborators.

In what number parking spot is the red car parked?

ANSWER: 87

(The number line is upside-down)



We want our children to become thinkers and collaborators.

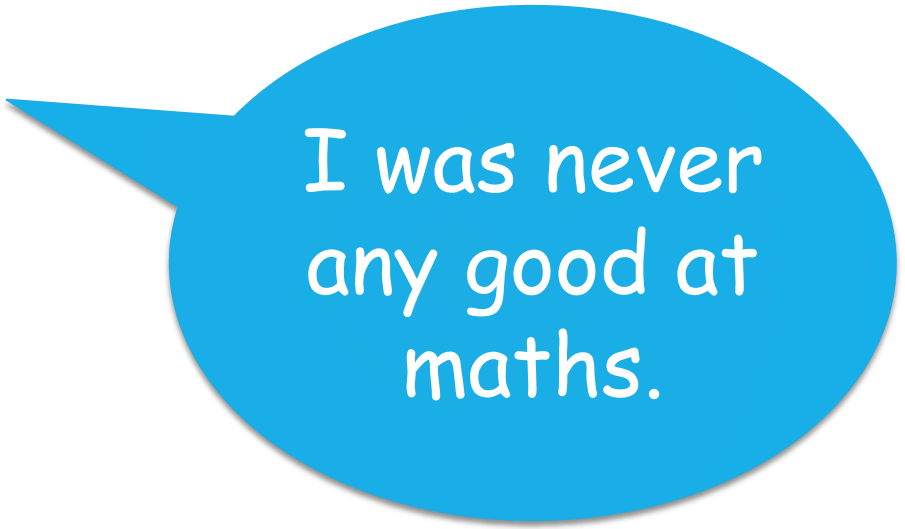
Aims for the workshop today

- What does maths look like in Year 4?
- 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:



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.

- Those adults with at least basic numeracy skills can expect to earn a quarter more than those who lack the necessary skills to solve basic mathematical problems.

- Between a third and a half of people with poor numeracy skills have a desire to improve them but less than 4% have actually attended any numeracy classes.

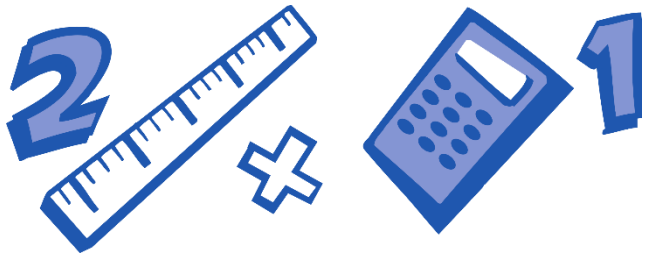
National Curriculum aims for children

- To become *fluent* in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop *conceptual understanding* and the ability to recall and apply knowledge rapidly and accurately
- *To reason* mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by *applying* their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

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 look like in Year 6?

Rapid and accurate recall of **ALL** times tables

Draw, compose and decompose shapes according to given properties, including dimensions, angles and area

Find equivalent fractions, decimals and percentages

Solve problems involving ratio relationships

Solve multi-step word problems

Algebra

Recognise the place value of each digit in numbers up to 10 million, including decimal fractions

Use common factors and multiples to simplify fractions. To securely use all four operations when calculating with fractions (+ - x ÷)

To consolidate the formal written methods and use alongside efficient mental strategies

Working with numbers beyond 6 and 7 digits

Systematic and methodical workings

Draw upon a variety of mental maths strategies to support arithmetic skills

2 What numbers are represented in the place value charts?

a)

Thousands			Ones		
H	T	O	H	T	O
●●	●● ●	●● ●● ●	●● ●● ●	●	●● ●●

b)

Thousands			Ones		
H	T	O	H	T	O
	●● ●● ●● ●	●● ●●		●	●● ●● ●● ●●

c)

Thousands			Ones		
H	T	O	H	T	O
●● ●		●● ●● ●	●●	●● ●● ●●	

d)

Thousands			Ones		
H	T	O	H	T	O
●● ●● ●					●● ●●

3 What is the same and what is different about the place value charts in questions 1 and 2?

4 Make each number in a place value chart.

a) 205,625 **b)** 305,291 **c)** 94,115 **d)** 250,904

What is the same about all the numbers you have made?

5 **a)** Which numbers have 3 in the thousands column?

345 **3,612** **24,315** **300,000** **32,382**

b) Write three more numbers that have 3 in the thousands column. Each number should have a different number of digits.

6 Write the value of the 6 in each number.

a) 654 **c)** 6,812 **e)** 245,906

b) 7,609 **d)** 605,213 **f)** 806,284

7 Complete the number sentences.

a) 630,520 = 600,000 + ☐ + 500 + ☐

b) 700,987 = ☐ + ☐ + ☐ + ☐

c) 500,000 + 4,000 + 700 + 3 = ☐

8 Tiny is thinking of a 6-digit number.

- It is an even number.
- The smallest digit has the smallest value.
- The greatest digit has the greatest value.
- The total of the first and last digits is 10
- The total of the hundreds, tens and ones digits is 10
- The two middle digits are the same.
- The digit sum is 25

What could Tiny's number be?

Write another 6-digit number and clues to go with it.

Share the clues with a partner to see if they can find your number.

What does Maths look like in Year 5 ?

Recognise the place value of each digit in numbers with up to 2 decimal places

Measure angles in degrees (°) and draw angles of a given size.

To use the formal written methods for all four operations (addition, subtraction, division and multiplication)

Secure understanding of fractions including simplifying, equivalent fractions and calculating with fractions (+ - and x by integers)

Rapid and accurate recall of **ALL** times tables and related division facts

Convert between units of measure e.g. grams to kilograms

Find non-unit fractions of quantities.

Draw upon a variety of mental maths strategies to support arithmetic skills

To solve number problems using reasoning to justify my answers and to prove and disprove.

What does Maths look like in Year 4?

Find the perimeter of regular and irregular polygons

Convert mixed numbers to improper fractions and vice versa

Begin to use expanded formal methods for addition and subtraction.

Solve addition and subtraction two-step problems deciding which operations and methods to use and why

Have a secure understanding of number: confidently identifying the value of each digit in a 4 digit number E.g. 2378 the 3 represents 300.

Recognise common groups of equivalent fractions and finding the corresponding decimal.

To confidently and securely know times tables facts, including the inverse up to 12x12

To solve practical and number problems using reasoning to justify answers.

Multiply two-digit and three-digit numbers by a one-digit number using formal written layout

What does Maths look like in Year 3?

Consistently use the correct number formation (0-9).

To recognise the place value of each digit in a three-digit number (hundreds, tens and ones).

To read and write numbers up to 1,000

To add and subtract mentally and scaling these by 10 e.g. 6 + 3 = 9, 60 + 30 = 90.

To choose strategies to help me answer questions such as partitioning, number lines, counting on, counting back, bar models and eventually formal methods such as the column method.

To identify angles greater than or less than a right angle

To recall my 2, 5, 10s, 3, 4 and 8 times tables and related division facts.

To understand the inverse relationship between add and subtract

To solve number and practical problems, including reasoning using my number knowledge.

What does Maths look like in Year 2?

Add and subtract within 100 by applying one-digit addition and subtraction facts. To add and subtract any 2 two-digit numbers.

Recognise the place value of each digit in two-digit numbers.

Practical learning using a variety of resources.

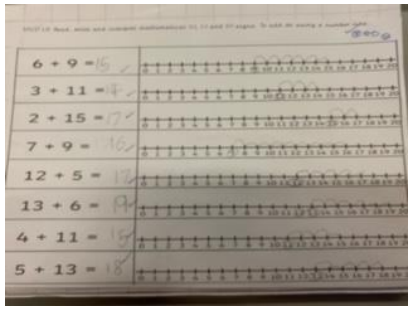
To read the time to the nearest five minutes

To describe the properties of 2D and 3D shapes and compare shapes by their properties

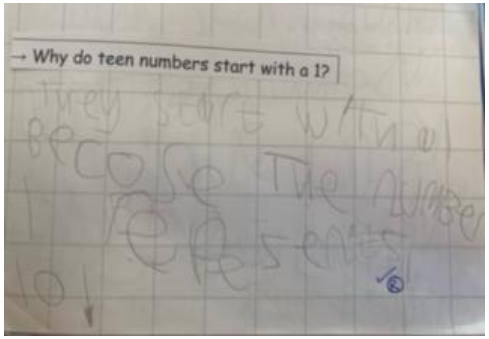
Recognise the subtraction structure of 'difference' and answer questions such as "How many more…?".

Secure fluency in addition and subtraction facts within 10.

What does Maths look like in Year 1?



Number bonds to 10 and within 10.



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.

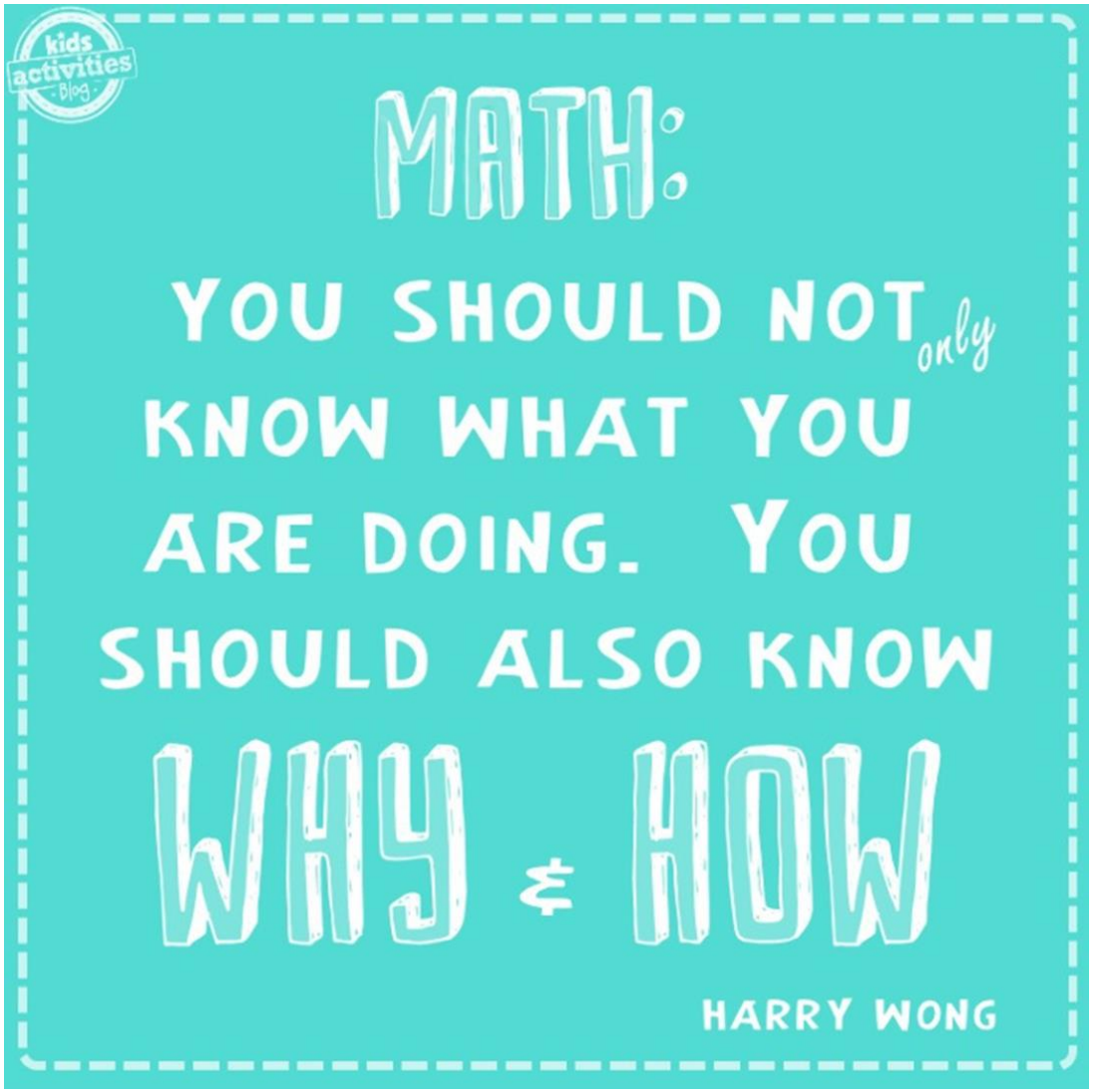
To read time to O'clock and Half Past.

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

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

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.


kids activities Blog
MATH:
YOU SHOULD NOT only KNOW WHAT YOU ARE DOING. YOU SHOULD ALSO KNOW
WHY & HOW
HARRY WONG

The CPA Approach

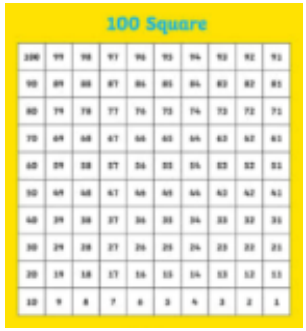
CONCRETE -
using physical objects
to solve maths problems.

PICTORIAL -
using drawings
to solve maths problems.

ABSTRACT -
solving maths problems
using only numbers.

Numbers

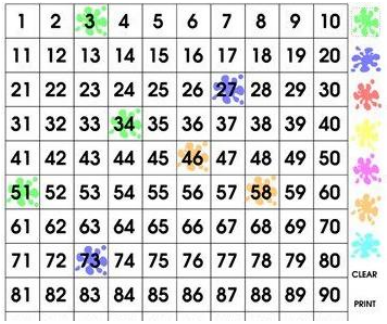
100 Square or you could use 100 square splat online game



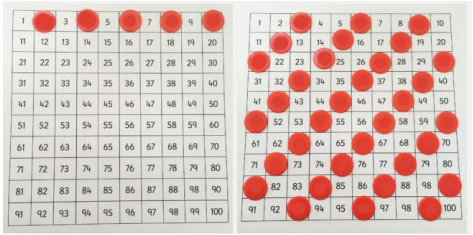
Games you could play:

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.



Dice or you could use an Online Dice



Games you could play:

Use dice to help your child recognise numbers at speed.

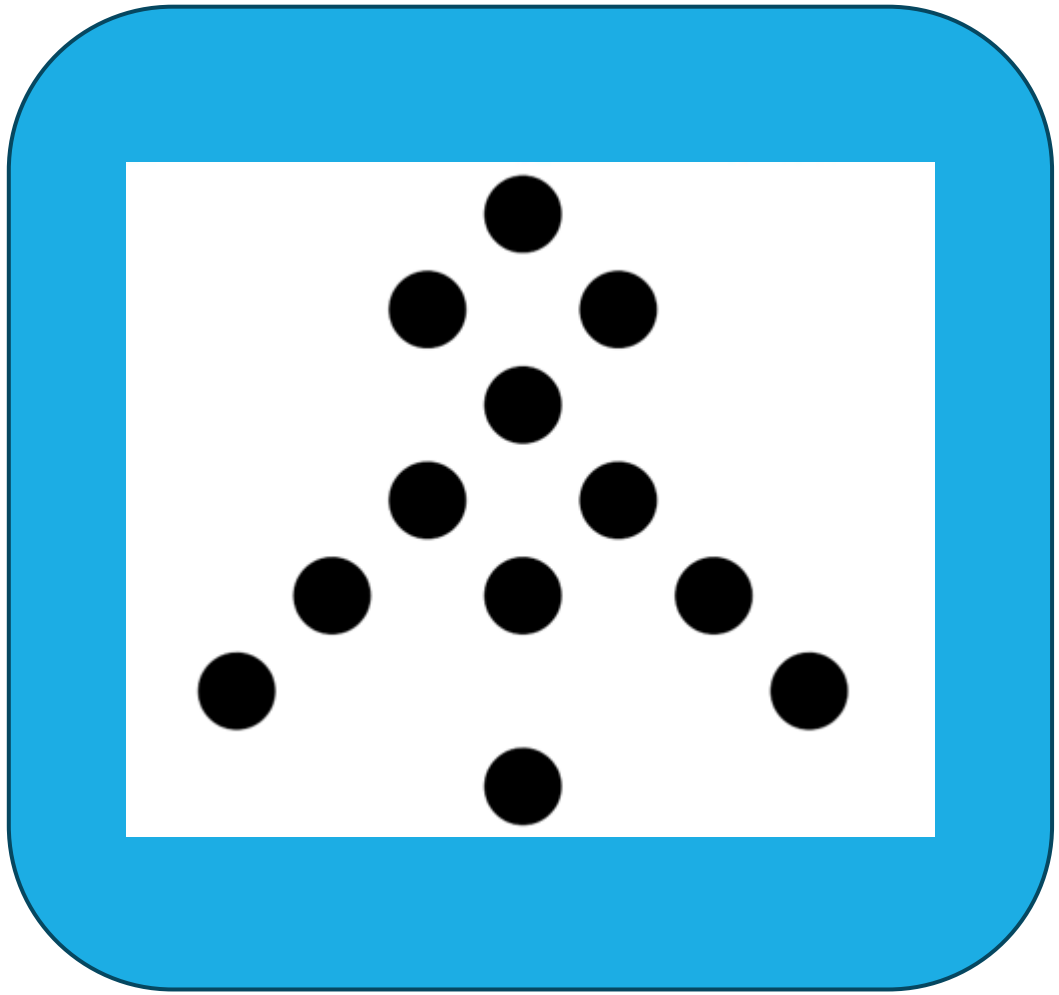
Knock Out: Each player chooses a "knock out number" – either 6, 7, 8, or 9. More than one player can choose the same number. Players take turns throwing both dice, once each turn. Add the number of both dice for the score. If a player throws a 6, 7, 8 or 9, they are knocked out of the game until the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

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

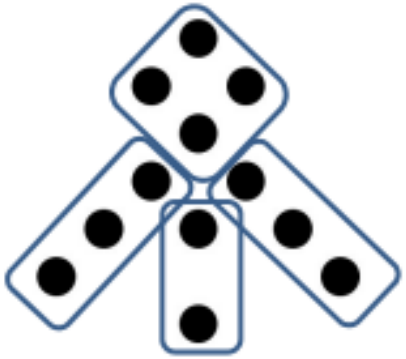
'Teachers can provide regular opportunities for pupils to develop independent metacognition through pupils explaining to themselves, teachers and other pupils how they planned, monitored, and evaluated their completion of a task.'

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

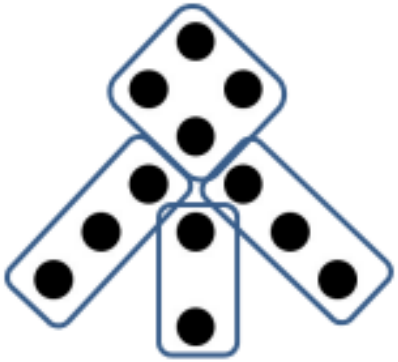


Number Talks

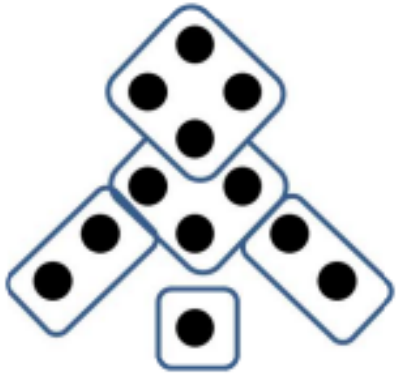
How many ways …?



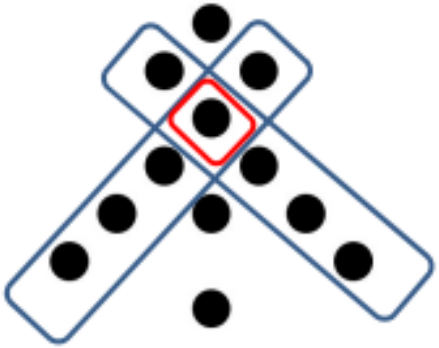
$4 + 3 + 3 + 2 = 12$



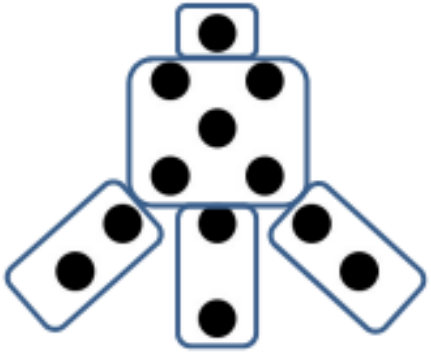
$4 + 3 + 2 + 3 = 12$



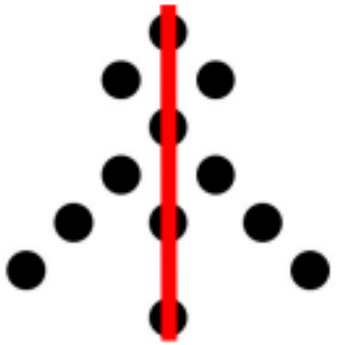
$4 + 3 + 2 + 2 + 1 = 12$



$5 + 5 + 3 - 1 = 12$



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

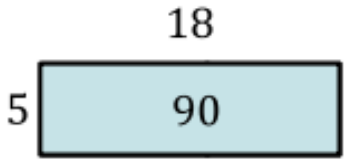


$6 + 6 = 12$

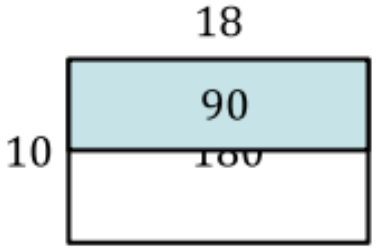
Calculate mentally:

$$18 \times 5$$

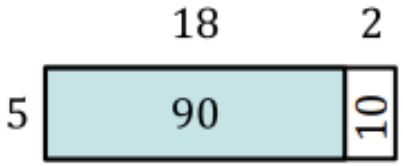
How did you do it?



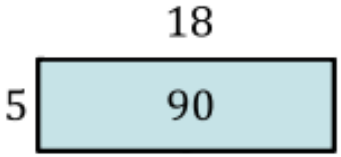
$10 \times 5 = 50$
$8 \times 5 = 40$
$50 + 40 = 90$



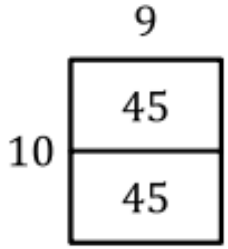
$18 \times 10 = 180$
$180 \div 2 = 90$

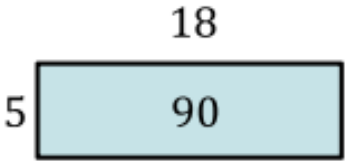


$20 \times 5 = 100$
$2 \times 5 = 10$
$100 - 10 = 90$



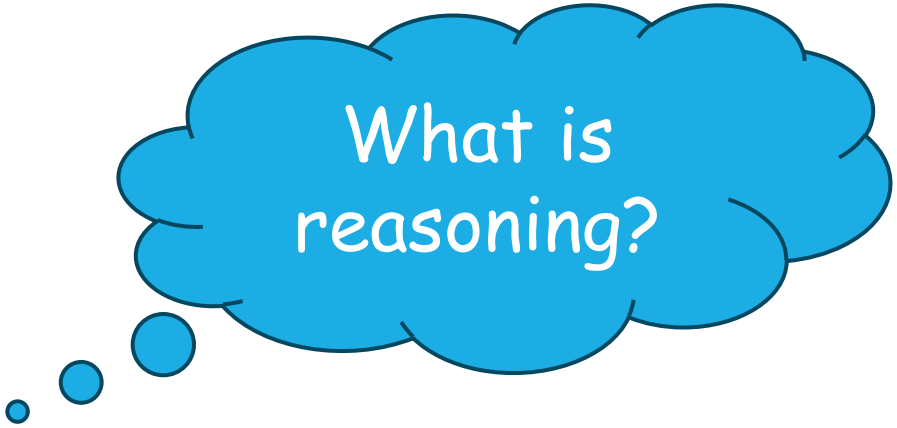
$9 \times 5 = 45$
$45 \times 2 = 90$





$9 \times 10 = 90$
$45 \times 2 = 90$

Reasoning and Problem Solving



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

Progression in Reasoning

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

NRICH (2014)

What is the same? What is different?

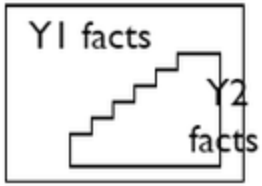
How do you know… Why do you know…

Explain why…

$$17 + 10 > 17 + 8$$

Adding 1 | Bonds to 10 | Adding 10 | Bridging/ compensating

Adding 2 | Adding 0 | Doubles | Near doubles



+	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

Multiplication

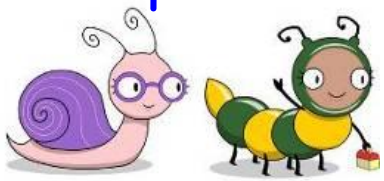
MathsHUBS

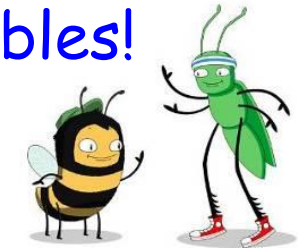
	1	2	3	4	5	6	7	8	9	10	11	12
1	1											
2	2	4										
3	3	6	9									
4	4	8	12	16								
5	5	10	15	20	25							
6	6	12	18	24	30	36						
7	7	14	21	28	35	42	49					
8	8	16	24	32	40	48	56	64				
9	9	18	27	36	45	54	63	72	81			
10	10	20	30	40	50	60	70	80	90	100		
11	11	22	33	44	55	66	77	88	99	110	121	
12	12	24	36	48	60	72	84	96	108	120	132	144

78 facts the coloured ones are 42 of them... 36 left,
nines trick.... 30 left...
elevens... 24 left...
square numbers... 17 left...

Another way to support your children is by using:

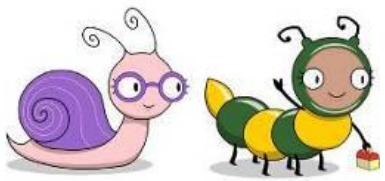
When it comes to times tables, speed AND accuracy are important — the more facts your child remembers, the easier it is for them to do harder calculations. Times Table Rock Stars is a fun and challenging programme designed to help students master the times tables. World Famous musicians need to practice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

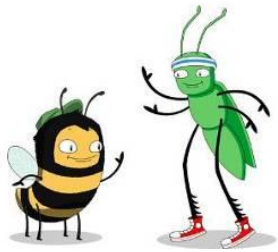




Another way to support your children is by using:

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.

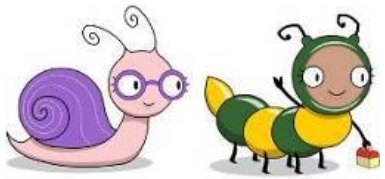


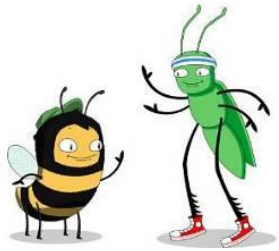


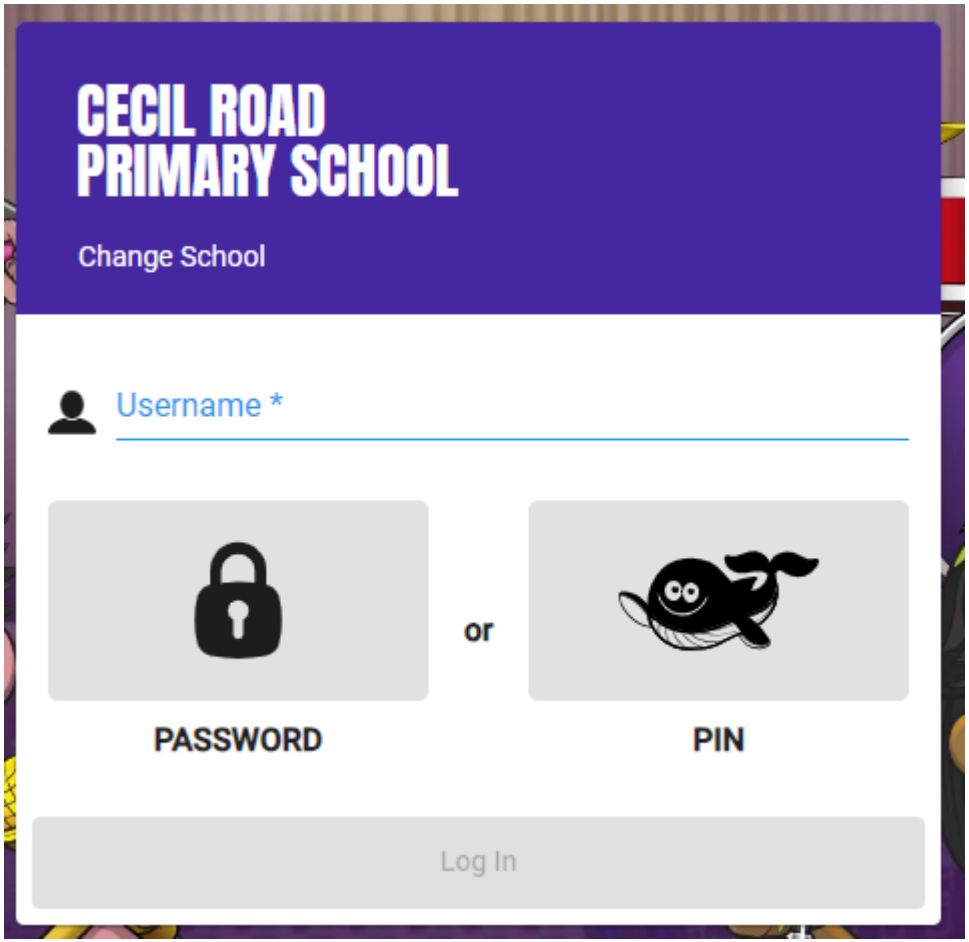
Logging in to Times Table Rockstars

1. Type **play.ttrockstars.com** into your browser's address bar.
2. Click Login! > School > Student
3. Enter the School Name.

4. Enter your child's username and password.






CECIL ROAD
PRIMARY SCHOOL
Change School
Username *
or
PASSWORD
PIN
Log In

How can I help my child at home?

- ***Create a positive view of mathematics – be a mathematician together***
- ***learn times tables 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.