

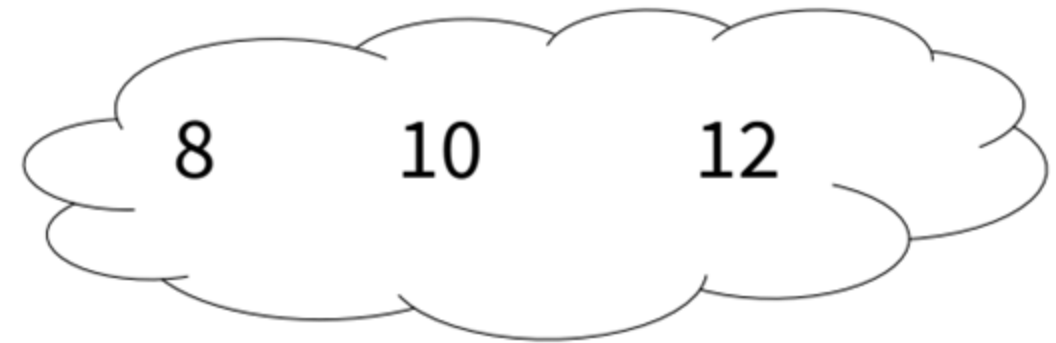
How do we teach Maths in KS1, Camp Primary ?

ADDITION
AND
SUBTRACTION

PARENTS
WORKSHOP
SPRING
2024

Do Now

Which is the odd one out and why?



Digging deeper: Is there another reason? Could you add another number in that satisfies your reasoning?

What we looked at previously:

- Discuss the 3 main areas of the National Curriculum for Maths
 - Talk about the mastery approach
 - Look closer at Year 1 and 2 Maths curriculum at Camp Primary
 - Share some resources that we use in school
 - Share some resources that you can use at home
 - Share some useful websites
 - Share some useful games/activities that you can try out at home
- *If you have questions please write them down.*
 - *At the end of session if I have not answered your questions please ask.*

What we will look at today:

- Year 1 and 2 Addition and Subtraction methods at Camp Primary

Why do we learn Maths?

- Always draw out real life links to Maths around your home
- Talk about how you use Maths in your job!
- Point out that their dream job involves Maths!
- Be positive about Maths!

Fixed vs Growth Mindset - Carol Dweck

We believe that **everyone** can get better at maths...when they put in the **effort** and work at it.

Do not praise children for being clever when they succeed at something, but instead praise them for **working hard**.

Children learn to associate **achievement with effort** (which is something they can influence themselves – by working hard), not 'cleverness' (a trait perceived as absolute and that they cannot change).

There are 3 main strands in the Maths National Curriculum

- Fluency
 - Reasoning
 - Problem solving
-
- Our lessons aim to involve all 3 skills every single lesson.
 - Maths is so much more than providing the correct answer!

Calculation Methods

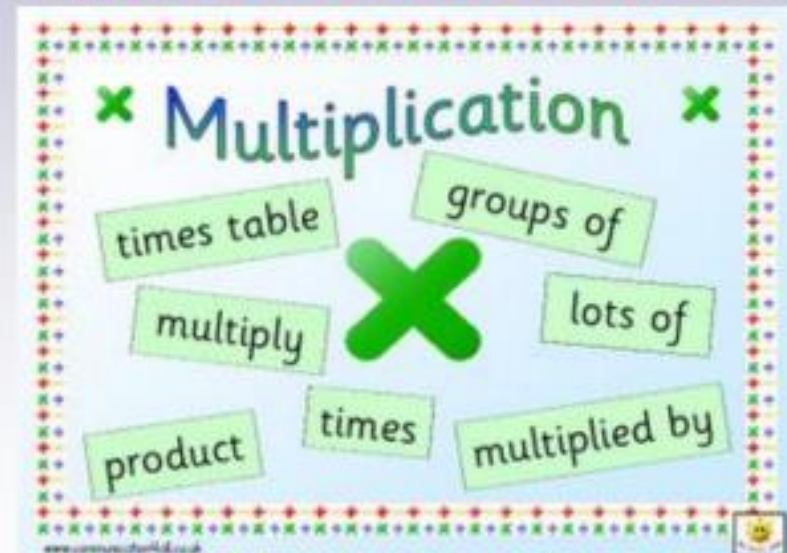
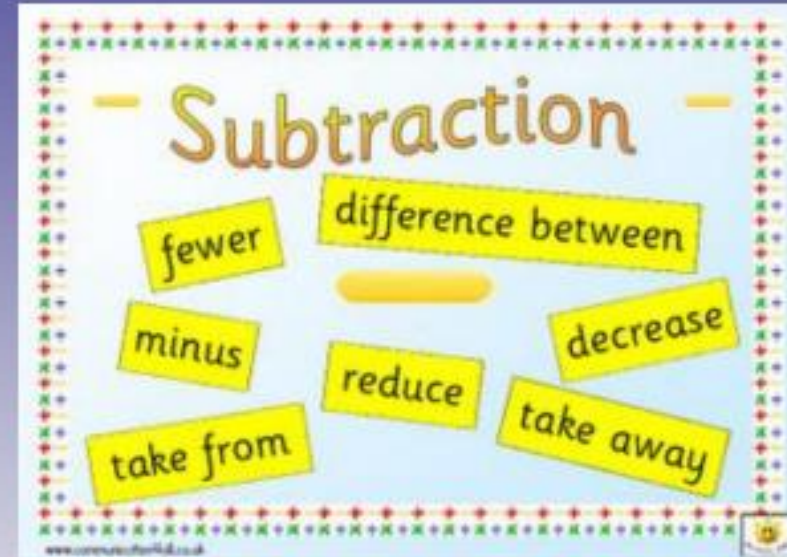
- The maths work that your child is doing in school may look different to the kind of 'sums' you remember.
- Many parents express concerns about helping at home and showing 'wrong' methods to their children.
- Our Calculation Policy outlines how maths is taught from Reception through to Year 6 (on our website)

What do we teach in KS1 Maths?

- Number bonds from 10 and 20 (ie $7+3=10$, $18+2=20$)
- Basic multiplication (2,3,5,10)
- Basic division (2)
- Fractions ($1/2$, $1/4$, $1/3$)
- **Addition and subtraction to 100**
- **Place value (units, tens and hundreds)**
- Time (o'clock, half past, quarter to, quarter past)
- Measurement (weight, length, capacity)
- Money (everyday money- calculating change)
- Problem solving
- Handling data (graphs, tables, sorting data)
- Shape and space

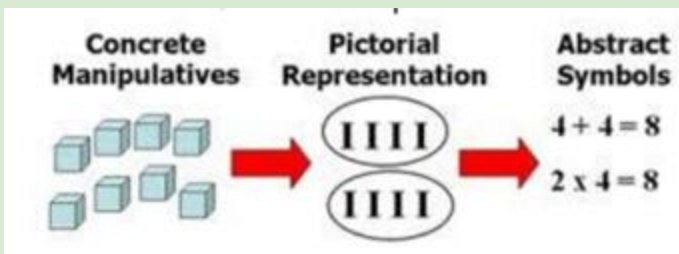
Today we will focus on the highlighted examples

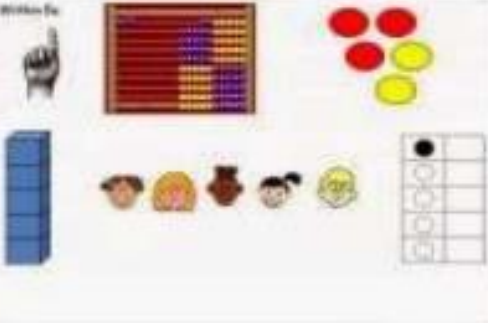
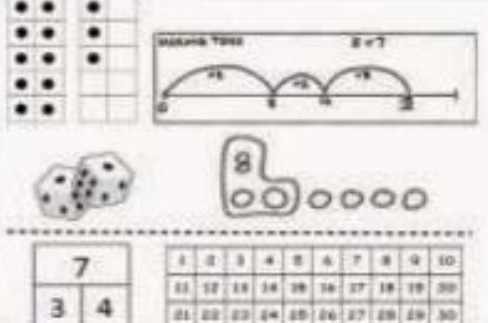
Children should know the different terminology for the same word



Across the school, we use manipulatives to model, encourage jottings and then move onto the abstract after this.

Concrete
Pictorial
Abstract



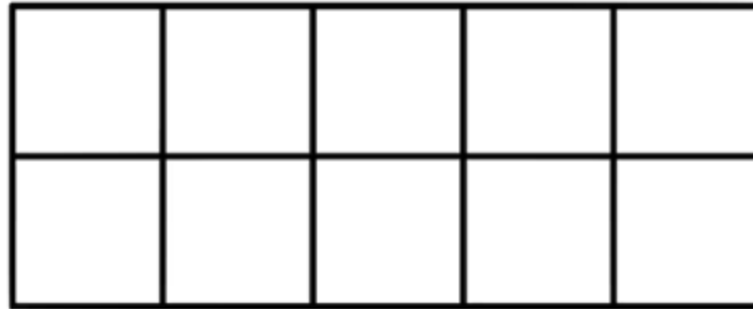
 CONCRETE	 PICTORIAL	 ABSTRACT
Students manipulate hands-on, concrete materials	Students draw and observe diagrams, or watch the teacher touching and moving hands-on materials	Numbers and mathematical symbols
		

Manipulatives we use at our school...



Counters

Tens
frames

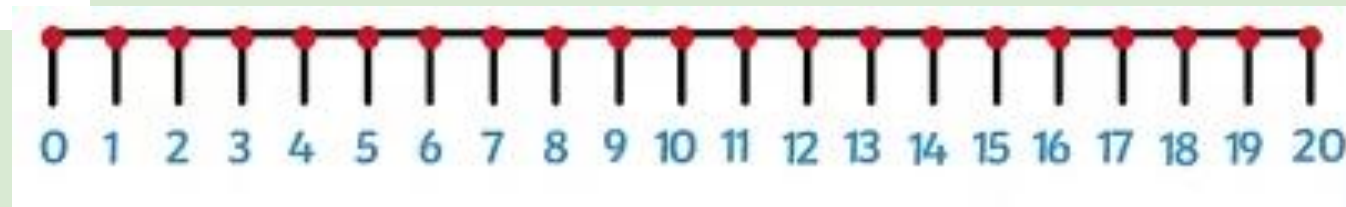


Bead strings

Hundred square grid

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

Numberline





Dienes /Base ten

Hundreds	Tens	Ones
		

Place Value Grid

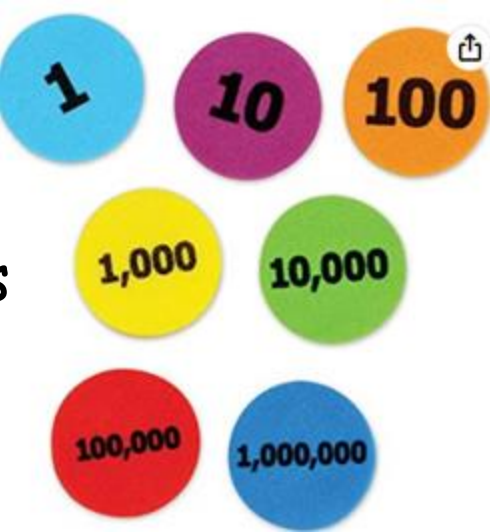
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72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

Times tables grid

Multilink



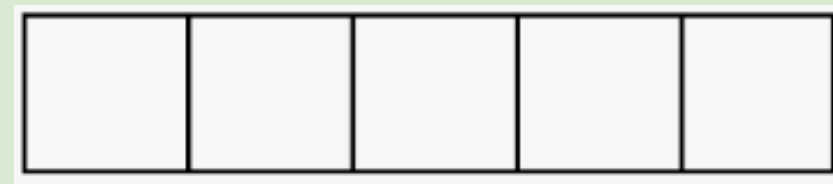
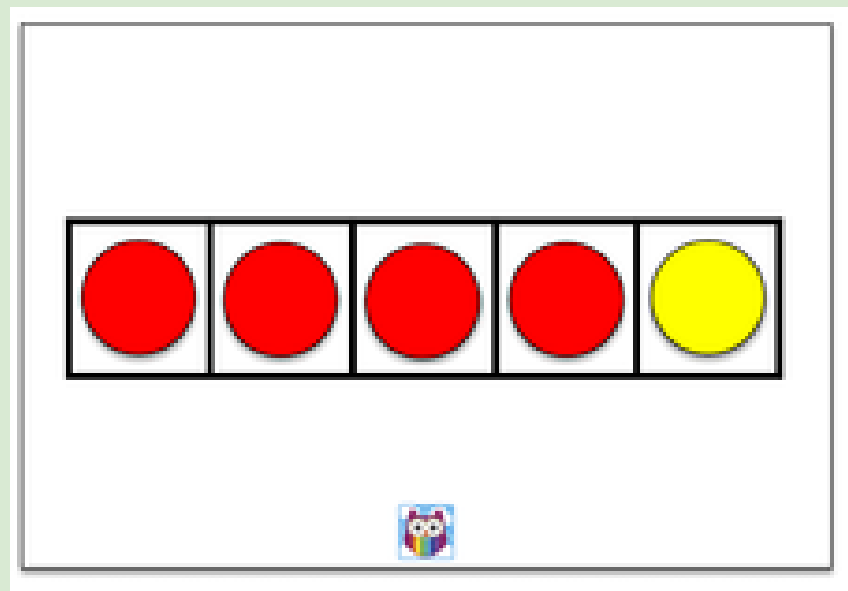
Place value counters



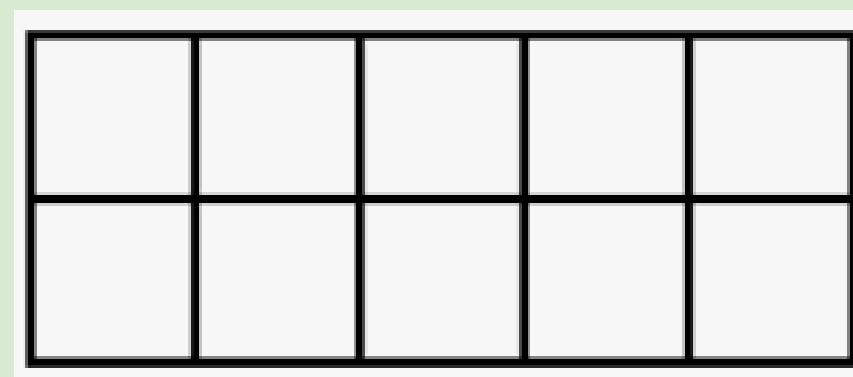
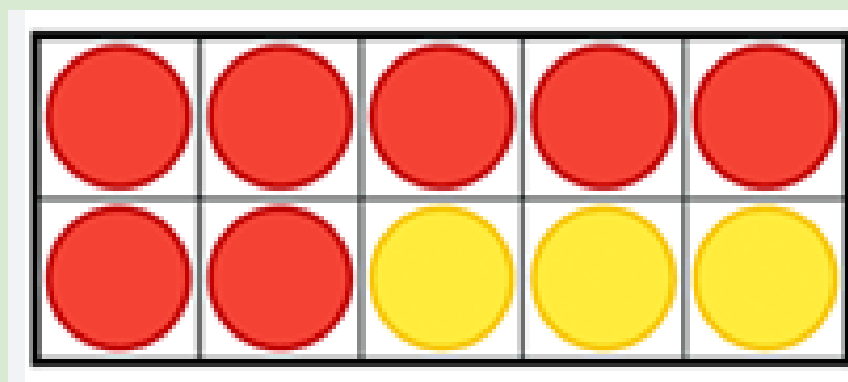
Numicon

Visuals:

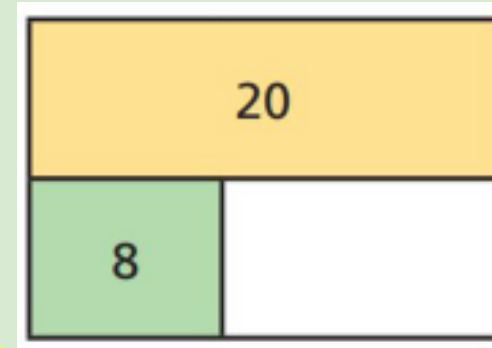
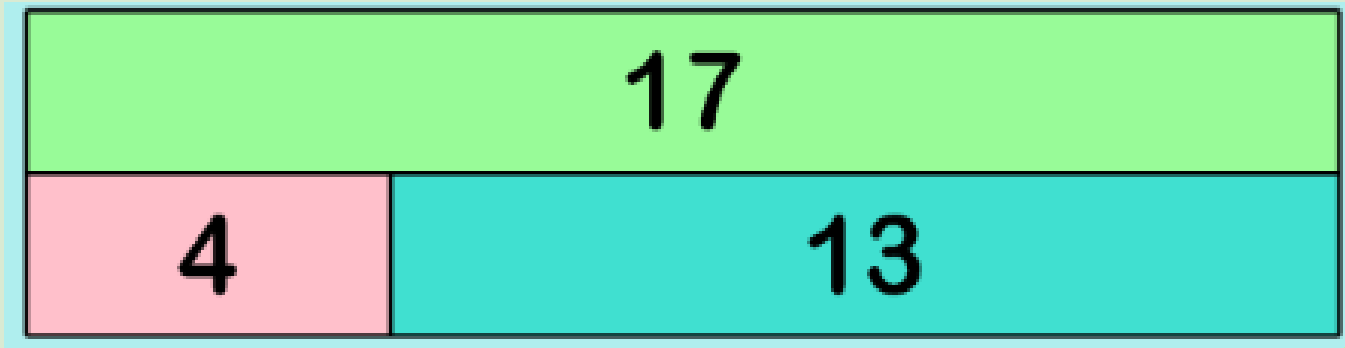
Fives frames



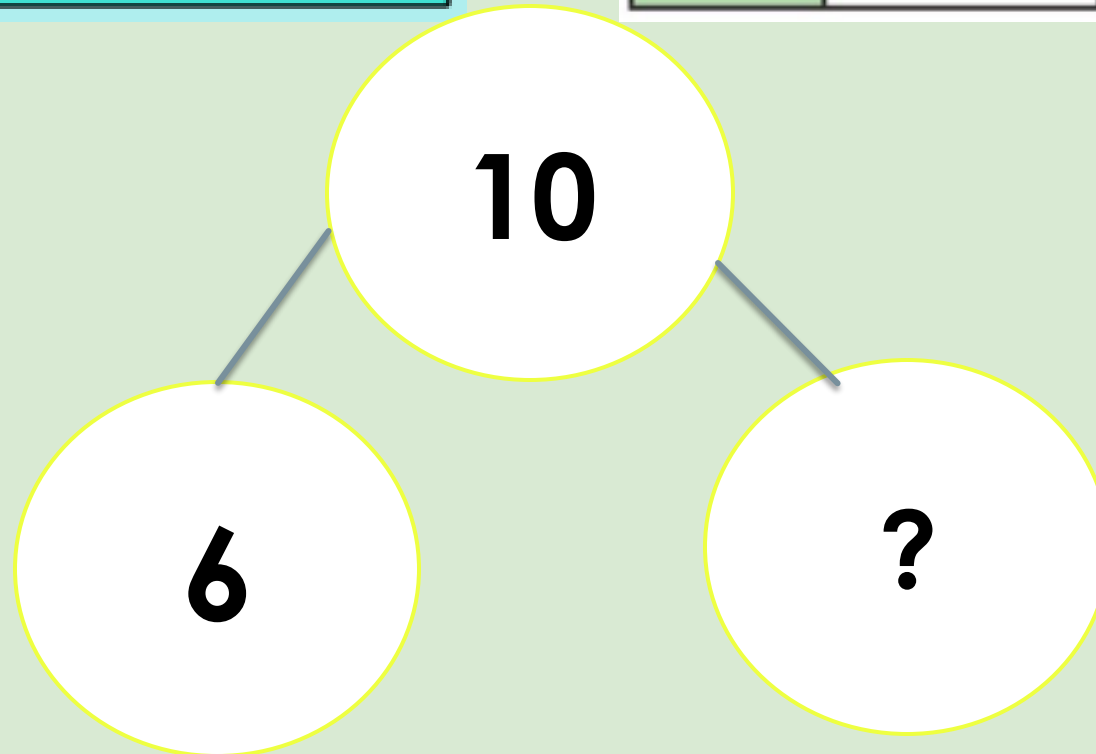
Tens frames



Bar models



**Part/ whole
models**



EYFS

- Maths is one of the seven areas of learning and development in The Early Years Framework.
- Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measure

How does it progress?

Add and subtract single-digit numbers	Addition built on experience of counting two groups. Opportunities provided for comparing quantities, using language more/less. Combining quantities in 10-frames and using Numicon encourage non-counting-in-ones strategies. Arrangement of sets counted also encourage counting on and calculation strategies. Representation of 4+3 encourages counting on from 4 Representation of 4+3 to help visualise 3+3+1
--	---

How would you solve these calculations?

$$2 + 5 =$$

$$2 + 8 =$$

$$7 + 7 =$$

$$6 + 7 =$$

$$15 + 11 =$$

$$24 + 9 =$$

$$32 + 21 =$$

$$45 + 36 =$$

$$120 + 11 =$$

Which method did you use?

What skills were you using?

Does that method work for all of these calculations?



How would you solve these calculations?

$$2 + 5 = \text{(start with the larger number \& count on)}$$

$$2 + 8 = \text{(number bonds to 10)}$$

$$7 + 7 = \text{(doubling)}$$

$$6 + 7 = \text{(near doubles; double 6, then add 1 more)}$$

$$15 + 11 = \text{(add 10, add 1)}$$

$$24 + 9 = \text{(add 10, subtract 1)}$$

$$32 + 21 = \text{(could add 20, add 1 \underline{or} add tens, add units and then total)}$$

$$45 + 36 = \text{(adding by partitioning)}$$

$$120 + 11 = \text{(add 10, add 1)}$$

Practical Addition (using objects and pictures)



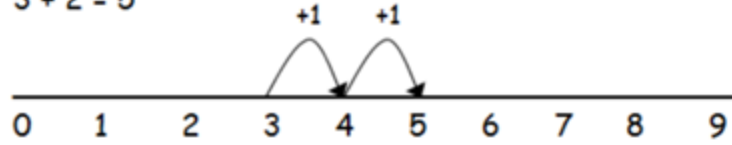
$$3 + 2 = 5$$



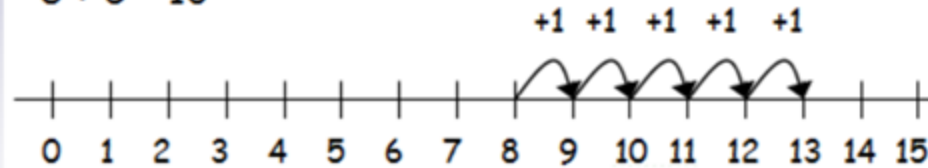
$$6 + 3 = 9$$

Addition (using a number line)

$$3 + 2 = 5$$



$$8 + 5 = 13$$



Remember the
magic empty
number line!



Marbles in a tin?

Always begin with
the larger number
in your head.
Count on chin.

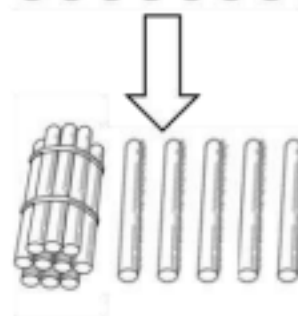
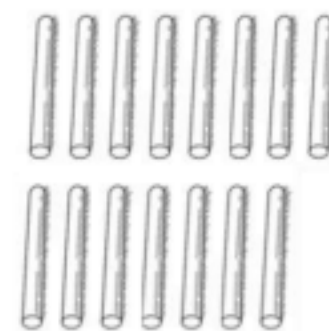
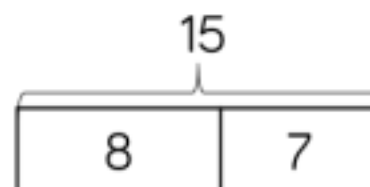
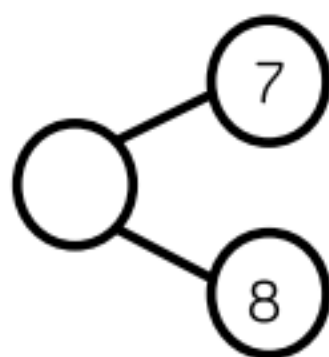
Number bonds to 10 !

Play make 10



Skill: Add 1 and 2-digit numbers to 20

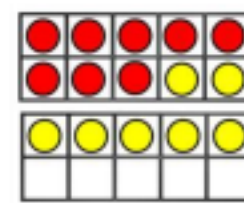
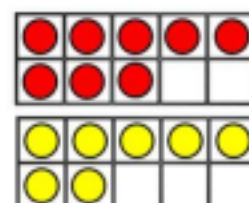
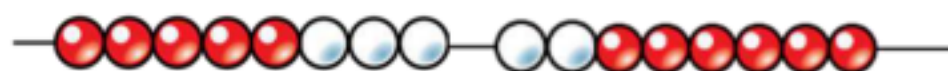
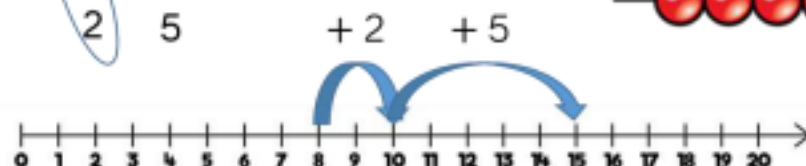
Year: 1/2



$$8 + 7 = 15$$

$$8 + 7 = 15$$

2 5



$$8 + 7 = 15$$

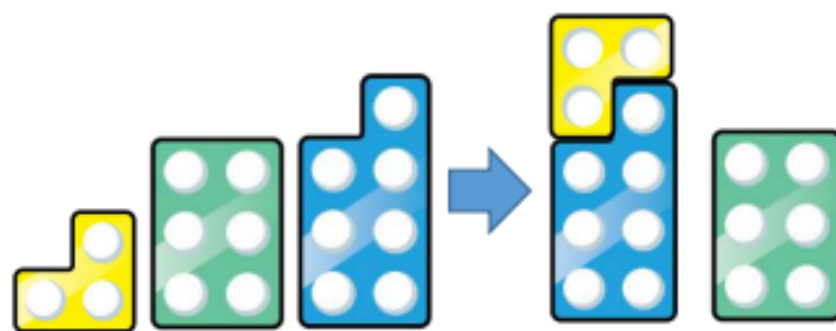
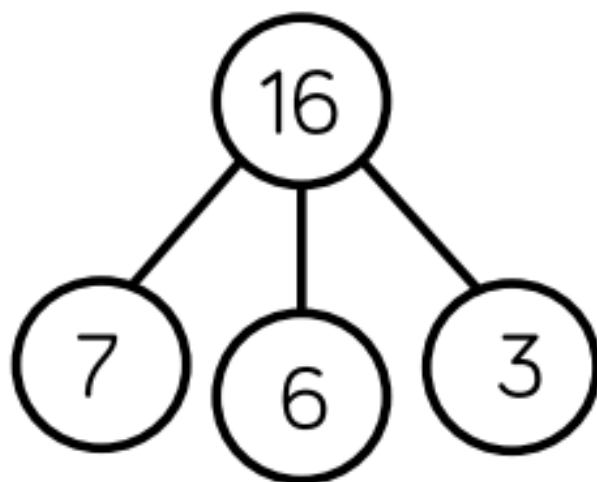
2 5

When adding one-digit numbers that cross 10, it is important to highlight the importance of ten ones equalling one ten.

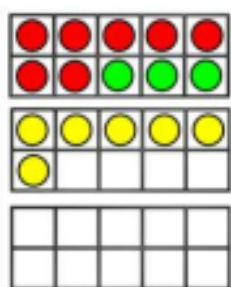
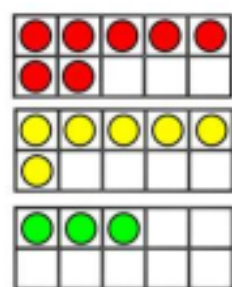
Different manipulatives can be used to represent this exchange. Use concrete resources alongside number lines to support children in understanding how to partition their jumps.

Skill: Add three 1-digit numbers

Year: 2



$$7 + 6 + 3 = 16$$



$$7 + 6 + 3 = 16$$

10



16

When adding three 1-digit numbers, children should be encouraged to look for number bonds to 10 or doubles to add the numbers more efficiently.

This supports children in their understanding of commutativity.

Manipulatives that highlight number bonds to 10 are effective when adding three 1-digit numbers.

Primary maths games: How to play Race to Twenty



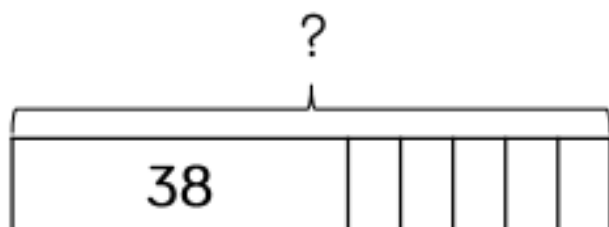
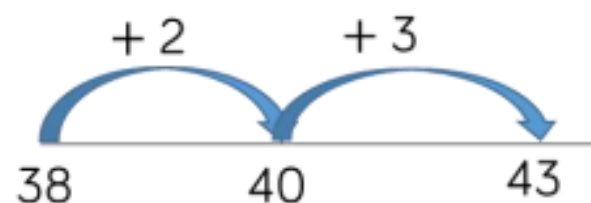
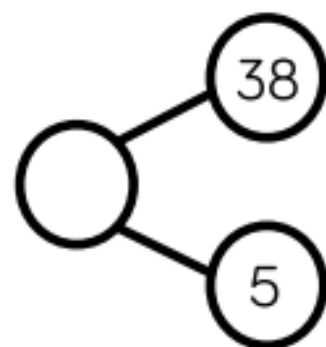
Race to twenty

Gill Shearsby-Fox

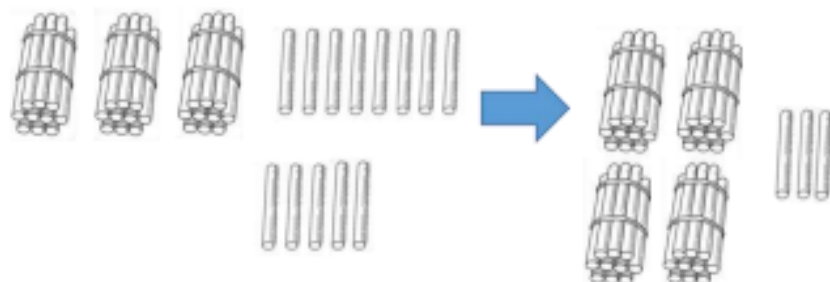
HfL Maths Teaching and Learning Adviser

Skill: Add 1-digit and 2-digit numbers to 100

Year: 2/3



$$38 + 5 = 43$$



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

When adding single digits to a two-digit number, children should be encouraged to count on from the larger number.

They should also apply their knowledge of number bonds to add more efficiently e.g. $8 + 5 = 13$ so $38 + 5 = 43$.

Hundred squares and straws can support children to find the number bond to 10.

How to play Risky

Primary maths games: How to play Risky

YouTube · Herts for Learning: ESSENTIALmaths · 22 Mar 2020



The video player shows a person's hands writing on a spiral notebook with a blue marker. The notebook has a grid of numbers and some text. A red marker is also visible on the table. The video is titled 'Primary maths games: How to play Risky' and is from the channel 'Herts for Learning: ESSENTIALmaths'. The video is 7:27 long and is currently at 4:07. The player includes a progress bar, a play button, a volume icon, a closed captions icon, a settings icon, and a full screen icon. A 'Copy link' button is also visible in the top right corner of the player.

Primary maths games: How to play Risky

Copy link

MORE VIDEOS

4:07 / 7:27 • Gameplay

CC Settings YouTube

Skill: Adding 2-digit to 2-digit numbers

Addition

(using partitioning and recombining)



$$\begin{array}{r} 40 + 30 + 8 + 6 \\ \hline 40 + 30 = 70 \\ 8 + 6 = 14 \\ 70 + 14 = 84 \end{array}$$

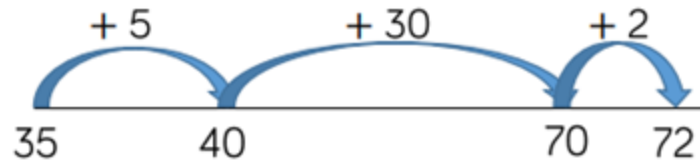
$$32 + 25 = 57$$

$$30 + 20 = 50$$

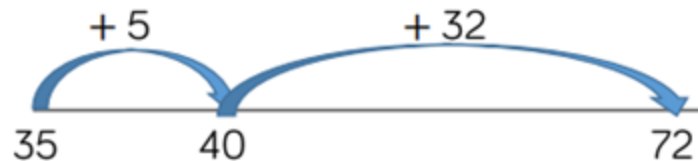
$$2 + 5 = 7$$

$$50 + 7 = 57$$

$$35 + 37 = 72$$



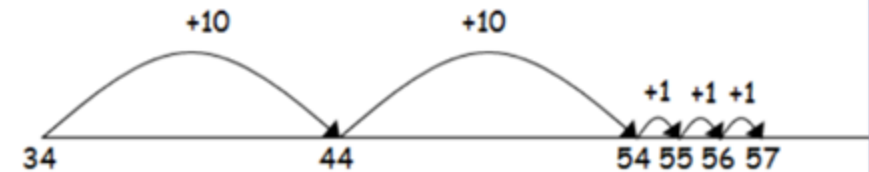
$$35 + 37 = 72$$



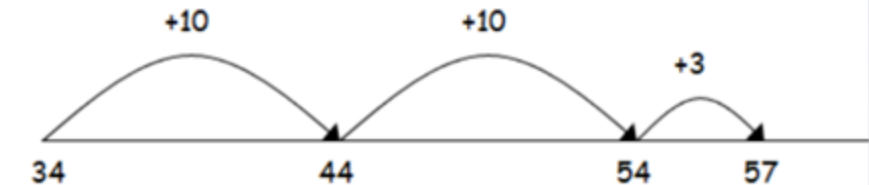
Addition

(using an 'empty' number line)

$$34 + 23 = 57$$



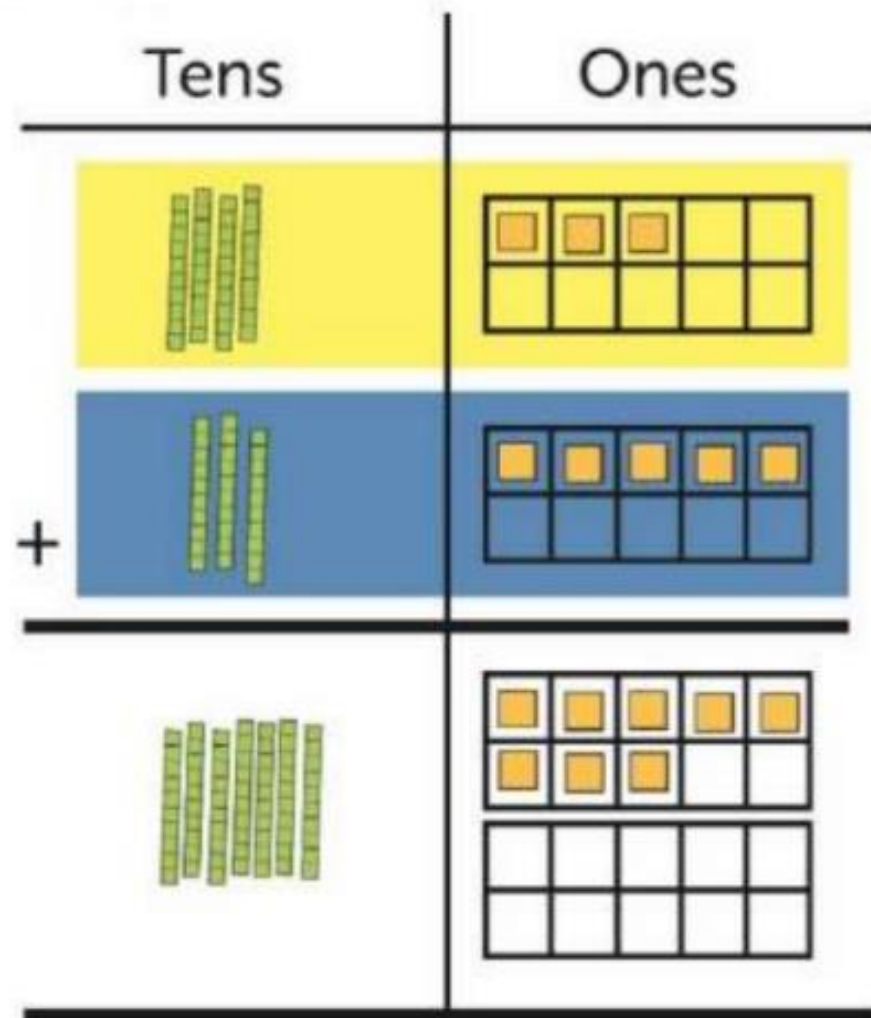
$$34 + 23 = 57$$



$$34 + 23 = 57$$



- $43 + 35$

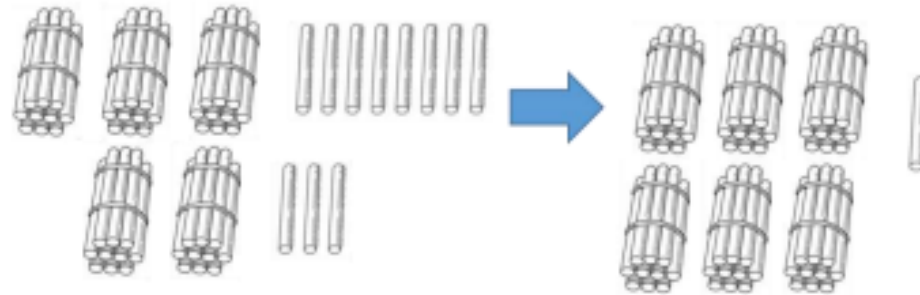
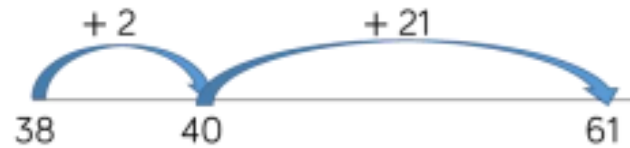
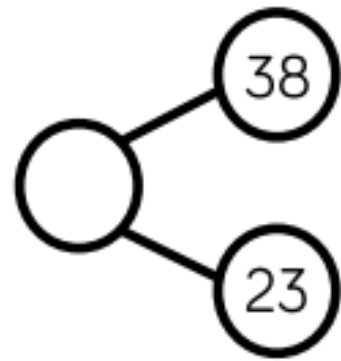


43 is a bit more than 40.
 35 is a bit more than 30.
 Therefore, I estimate that the answer is
 going to be a bit more than 70.

The sum of 3 ones and 5 ones is 8 ones.
 The sum of 4 tens and 3 tens is 7 tens.
 Therefore, $43 + 35$ is equal to 7 tens and 8
 ones, which is 78.

Skill: Add two 2-digit numbers to 100

Year: 2/3



$$38 + 23 = 61$$

?	
38	23

Tens	Ones

$$\begin{array}{r} 38 \\ + 23 \\ \hline 61 \\ 1 \end{array}$$

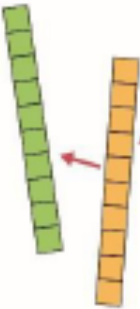
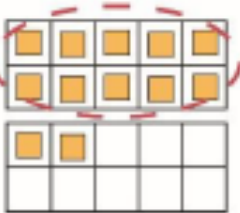
Tens	Ones

At this stage, encourage children to use the formal column method when calculating alongside straws, base 10 or place value counters. As numbers become larger, straws become less efficient.

Children can also use a blank number line to count on to find the total. Encourage them to jump to multiples of 10 to become more efficient.

Pupils play 'Make 100'

- Use handout_2LS2_step1_place_value_chart_with embedded_tensframe, base-10 equipment and a ten-sided dice.
- Roll the dice and make the total on the place value chart in the tens frame, filling the top row first from left to right, with the base-10 ones cubes.
- Roll the dice again and add the new amount rolled into the tens frame.
- Once one tens frame is full, pupils regroup ten ones for a ten rod. They use this to prove that ten ones is the same as one ten.
- Continue to roll the dice until 100 is made.

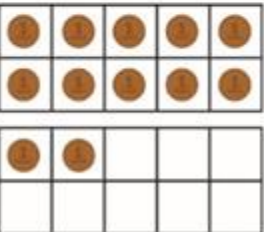
Tens	Ones
	

I have filled a tens frame so I am going to regroup ten ones for one ten.

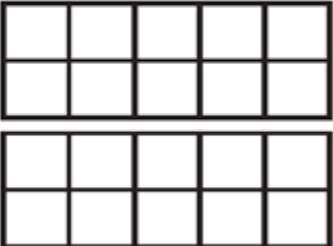
When pupils are playing the 'Make £1', challenge them to always place the lowest number of coins possible in the tens column. Encourage pupils to make use of 20p and 50p coins.

For example, they could have made 76p with 7 ten pence coins and 6 pennies. So they could swap the 7 ten pence coins for a fifty pence and twenty pence.

Ask pupils to remake what is shown below with the least number of coins.

Tens	Ones
	

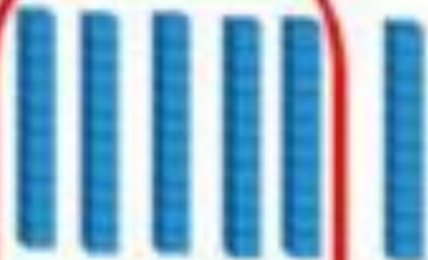
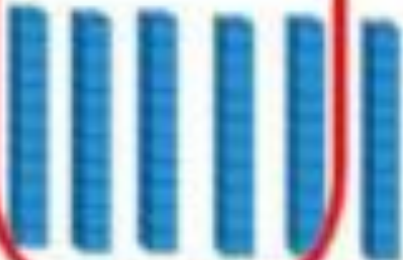
Step 1 Place Value Chart with Embedded T

Tens	Ones
	

Herts
for Learning

Race to 100

Gill Shearsby-Fox
HfL Maths Teaching and Learning Adviser

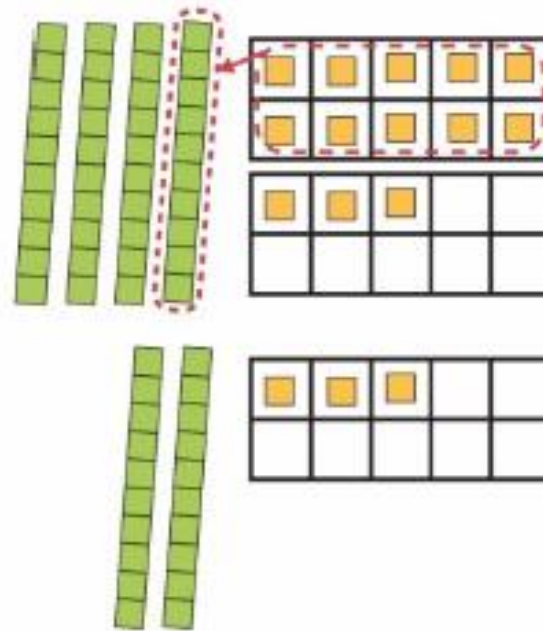
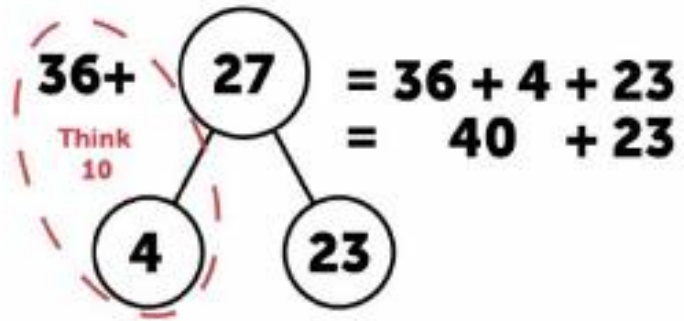
Hundreds	Tens	Ones
		
		



$$\begin{array}{r}
 265 \\
 + 164 \\
 \hline
 429 \\
 \hline
 1
 \end{array}$$

Think 10

Model the regrouping and the creation of the next ten.



38 50 14 20

$$\square + \square = 58$$

$$64 = \square + \square$$

Use each number once to make these sums correct.

Destination Questions 1 

$$\square + 6 = 10$$

2 

Total 4 and 9 using think 10

Make it, draw it, say it.

3 

Show how you could solve $7 + 6$ using think 10.

4 

$$14 + 5 = \square$$

$$5 + 14 = \square$$

What's the same?

What's different?

9

$$8 + 5 + 4 = \boxed{}$$



10

$$36 + 24 = \boxed{}$$



Write a digit in each box to make the sum correct.

$$\boxed{7}\boxed{} + \boxed{} = \boxed{8}\boxed{3}$$

Do these calculations have the same answer?

Write **yes** or **no** next to each box.

One is done for you.

yes or **no**?

$$8 + 2 \quad \text{and} \quad 2 + 8$$

yes

$$8 \times 2 \quad \text{and} \quad 2 \times 8$$

$$8 - 2 \quad \text{and} \quad 2 - 8$$

$$8 \div 2 \quad \text{and} \quad 2 \div 8$$

Practical Subtraction

(using objects and pictures)



$$5 - 3 = 2$$

$$4 - 3 = 1$$



$$8 - 2 = 6$$

Subtraction

(Find the difference)



The difference between
3 and 6 is 3

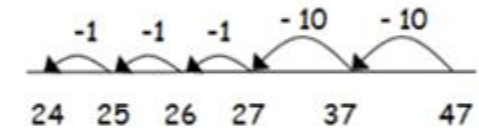
The difference between
5 and 3 is 2



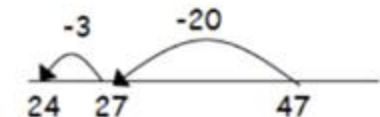
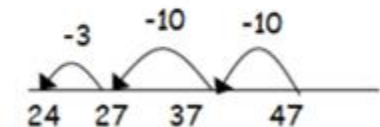
Subtraction

(using an 'empty' number line)

$$47 - 23 = 24$$



$$47 - 23 = 24$$



Subtraction

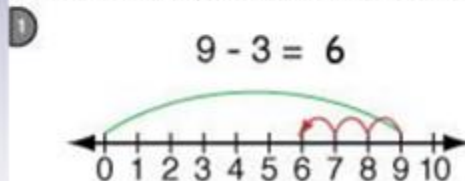
(using a number line)

A number line can also help you solve subtraction problems.



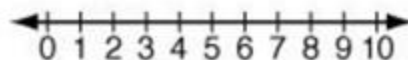
To show this problem on the number line, **go from 0 to 8** and then **count back 5**.

Show each problem on the number line and write the answer.



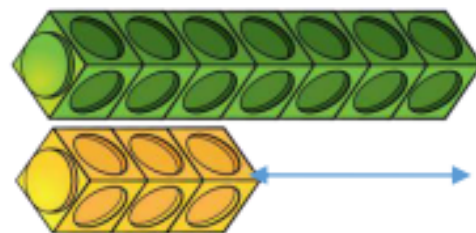
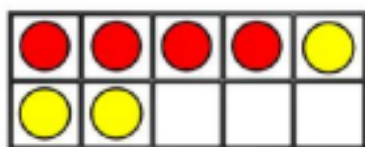
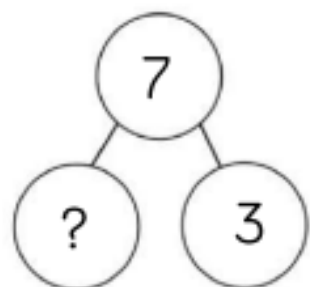
2

$$5 - 4 =$$

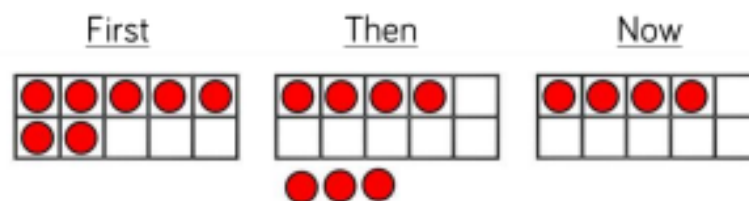
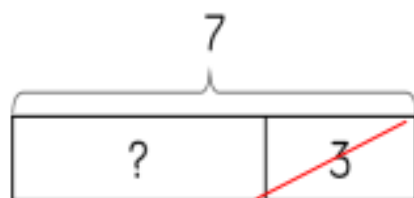
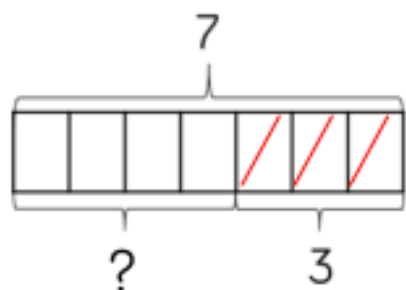


Skill: Subtract 1-digit numbers within 10

Year: 1



$$7 - 3 = 4$$



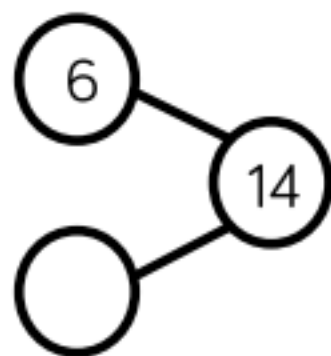
Part-whole models, bar models, ten frames and number shapes support partitioning.

Ten frames, number tracks, single bar models and bead strings support reduction.

Cubes and bar models with two bars can support finding the difference.

Skill: Subtract 1 and 2-digit numbers to 20

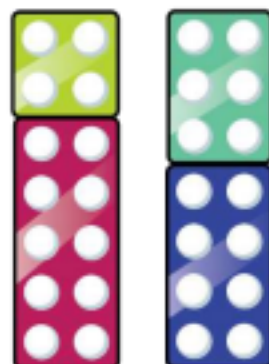
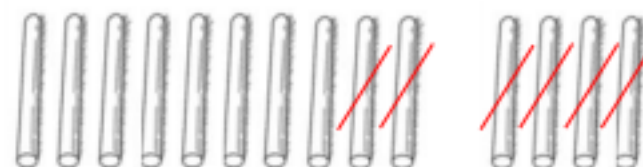
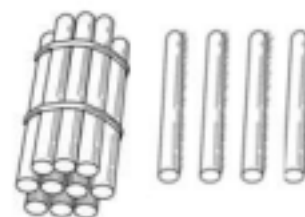
Year: 1/2



14

6

8

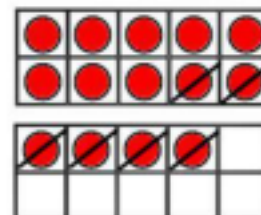
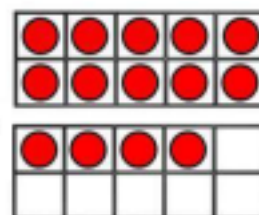
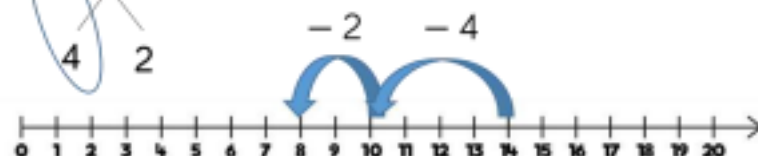


$$14 - 6 = 8$$



$$14 - 6 = 8$$

A diagram showing the number 14 with a bracket underneath it. The bracket is split into two parts: the left part is labeled 4 and the right part is labeled 2. This represents partitioning 14 into 10 and 4.



$$14 - 6 = 8$$

A diagram showing the number 14 with a bracket underneath it. The bracket is split into two parts: the left part is labeled 4 and the right part is labeled 2. This represents partitioning 14 into 10 and 4.

When subtracting one-digit numbers that cross 10, it is important to highlight the importance of ten ones equalling one ten.

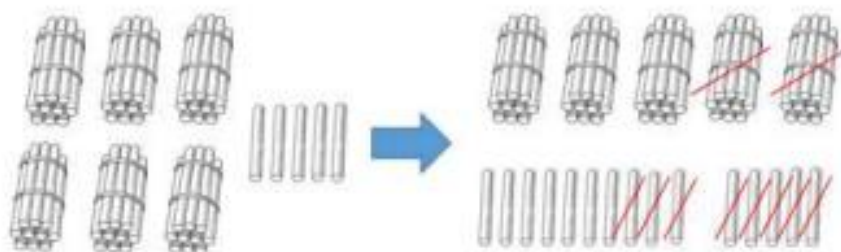
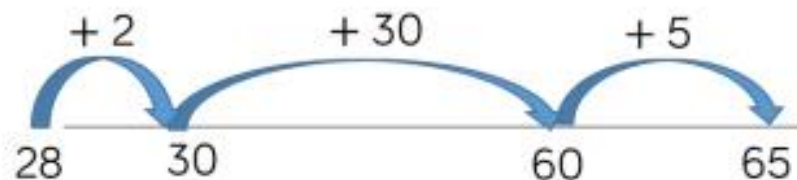
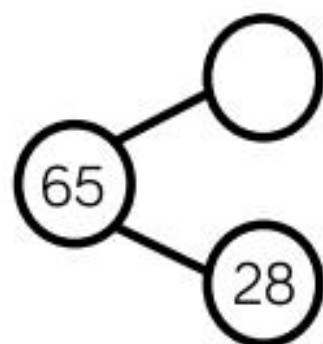
Children should be encouraged to find the number bond to 10 when partitioning the subtracted number. Ten frames, number shapes and number lines are particularly useful for this.

Play: Let's spend £100

- Use place value chart
- Dice 0-9
- Tens and ones diennes
- Timer
- Who can spend the most in 2 minutes
- Remember to exchange (regroup)

Skill: Subtract 1 and 2-digit numbers to 100

Year: 2



65	
?	28

$$65 - 28 = 37$$

Tens	Ones

$$\begin{array}{r} 5 1 \\ 65 \\ - 28 \\ \hline 37 \end{array}$$

Tens	Ones

At this stage, encourage children to use the formal column method when calculating alongside straws, base 10 or place value counters. As numbers become larger, straws become less efficient.

Children can also use a blank number line to count on to find the difference. Encourage them to jump to multiples of 10 to become more efficient.

Subtraction

Apply what you know within a game

'Four in a row' subtraction

Aim: to get four in a row before your partner!

56-24 	65-31 	89-44 	72-11 	94-33 	78-46
81-20 	60-24 	76-31 	75-32 	43-21 	79-20
68-47 	66-16 	77-41 	77-22 	86-31 	89-44
60-35 	57-22 	49-24 	56-12 	50-17 	83-41
30-13 	37-16 	29-11 	68-35 	66-33 	73-15
37-24 	49-21 	48-16 	39-13 	44-23 	40-15

Please come and see me if you have any questions!

- Feel free to email me through admin if you have any Maths related questions/queries/ Numbots/Times Table Rockstar issues.
- Thank you for coming!

How can you help your child with Maths at home?

- Take away their fear.
- Reassure and praise whenever possible. Positive mindset...
- Let them see you using Maths in your everyday routines - portioning meals between the family, chopping vegetables into halves and quarters etc.
- Play with numbers and shapes through games.
- Seeing mistakes as an opportunity to learn and using them as a discussion point.
- Recognising the **importance** and value of maths in our everyday lives e.g. managing money and telling the time.

A quick guide to everyday Maths opportunities for your child



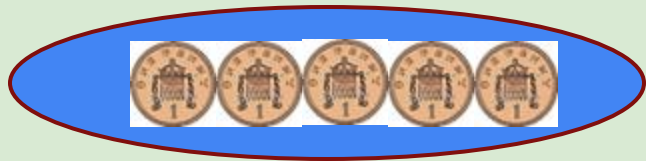
- Practise spotting and recognising numbers in the environment. Add/multiply/subtract/divide door numbers, numbers on car registration plates, road signs and at the shop.
- Flicking through the TV guide? Ask your child to calculate the length of their favourite programmes. How long is it until the next programme?
- Use food packaging to discuss 2D and 3D shapes. What are the properties of these shapes e.g. how many faces, sides, vertices? Flatten the packaging out to find the net of the 3D shape too.
- Measuring up for new furniture? Want to make sure the Christmas tree will fit in your living room? These are really good opportunities to encourage your child to see the value of careful measuring skills in everyday life.
- Practise telling the time with your child. Can they read both the digital and analogue clock? Can they readily convert between the two and use the 24 hour clock? Can they also recognise Roman Numeral representations of the time too?
- Board Games supply endless opportunities for Maths - Snakes and Ladders, Monopoly, Bingo, Connect Four, Battle Ships etc

Resources that you can use at home to support your children:

- Lego can be used as multilink.
- Group everyday items into sets to understand division, remainders, multiplication etc.



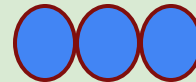
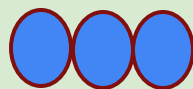
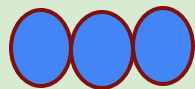
14 divided by 2 = 5r4



Encourage your child to **draw** the problem.

$\frac{1}{3}$ of 9 =

- Also, encourage them to use their fingers!



Other everyday resources that can help your child's Maths skills at home

- Board games and card games encourage your children to **reason**



- Find an analogue watch and refer to the time



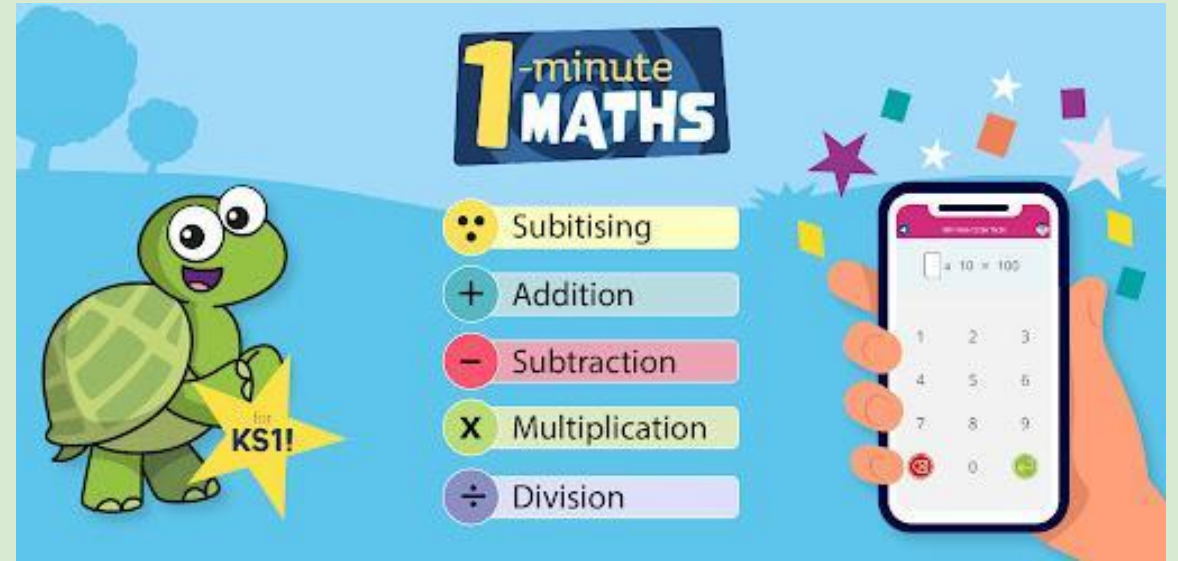
Using money:

- Allow your children to use real coins.
- Can they work out which coins they will need to buy something?
- Can they use the smallest number of coins?
- Can they calculate their change?



Useful websites you can use at home:

- Mathletics (always use a pencil and paper to make jottings) or use real life objects to help
- CBeebies
- 1 Minute Maths app
- Toy Theater (online manipulatives)
- Mathsbot (online manipulatives)
- Topmarks (different topics)
- Nrich (challenging tasks)
- Numbots
- TT Rockstars
- Hit the button
- BBC Bitesize





Numbots can be played online on a laptop or you can download it as an app (it's free!). Passwords and usernames have been given to children.

We would like pupils to be accessing their Numbots accounts on *at least a weekly basis*.



Times Table Rock Stars

Having a secure understanding of the times tables facts and related division calculations up to 12×12 aids children in their mathematical learning within a wide range of different concepts.

Times Table Rock Stars is an exciting game which helps children to learn and practise their times tables. Through a "little and often" approach, children secure their times table knowledge whilst having fun! We recommend approximately 5 minutes practice a day, 4 or 5 times a week. You can download the app from the app store or play on the Times Table Rock Stars game on their website.



Checking your child's progress

Checking your child's progress is easy:

When your child has logged in, select their avatar in the top right hand corner and then select the 'My Stats' option.

In the effort tab, you can see how many minutes the children have played.

Under fluency, you can see how quickly your child is able to answer each question and how confident they are with their individual times table knowledge.

