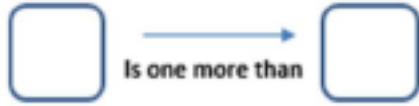


Mental Maths

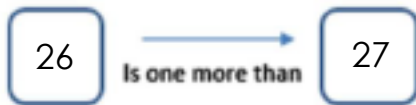
Year 2

I know the number that is 1 more or 1 less than any number up to 100

Using number cards 0 to 10, how many different ways can you make this true?



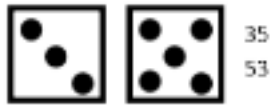
Q True or false?
Explain your answer.



Complete the more and less boxes below:



Roll 2 dice and make two 2-digit numbers.
e.g.



Work out one more and one less of each number.

Gemma thought of a number. One more than her number was 18.

Q What was her number?

Gemma thought of a number. Ten more than her number was 67.

Q What was her number?

Gemma thought of a number. Ten less than her number was 71.

Q What was her number?

Claire says:

"I am thinking of a two digit number. If I add ones to it, I will only need to change the ones digit."

Q Is she right?

Explain your answer.

One more than ____ is 1.

One less than ____ is 1.

Sam



I can use the same number to fill in the gaps.

Is he correct?

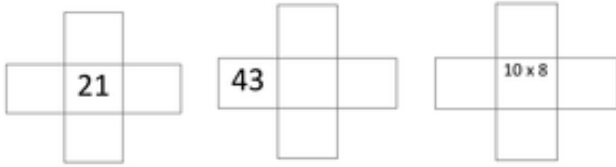
Explain how you know.

Take 3 consecutive numbers that are neighbours when you count e.g. 4, 5, 6.
Add them together.

Q What do you notice?

Choose 3 more neighbour numbers up to 10. See if there is a pattern as you add them.

Complete the grids filling in 1 more/1 less and 10 more/10 less.



Look at the grid. Choose a number and complete the second grid.

		50	
Count in 1s	49	50	51
Count in 10s	40	50	60

		?	
Count in 1s			
Count in 10s			

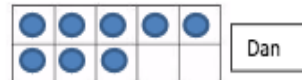
Q Can you move two of the counters so Millie has 1 more than Dan and Javid has 1 less than Millie?

Complete the sentences to describe the new frames.

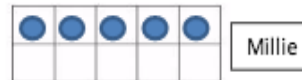
Millie has _____ Saqib.

Dan has _____ Saqib.

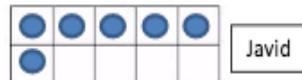
Millie has _____.



Dan



Millie



Javid

Sam starts counting at the number 50. He says 6 odd numbers and 5 even numbers.

Q What number could he finish on?

I can count forwards and backwards in multiples of 2 to 20
I know by heart all multiplication facts for 2 up to 2 x 12
I know by heart all division facts for 2 up to 24

Continue the number sequence.

- Q What do you notice?
Q Can you spot a pattern?



Use the pictures to fill in the missing numbers.



Use towers of cubes to calculate:

- $2 \times 4 =$
 $6 \times 2 =$
 $14 \div 2 =$
 $20 \div 2 =$

Circle the odd one out in the number pattern:

2, 4, 6, 8, 10, 11, 12

Can you write 4 number sentences to describe the array?



- Q How many wellington boots are there altogether?
Q Did you need to count each one?

Explain your method.



Q Which is quicker?

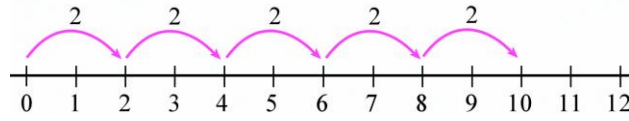
Counting up to 24 in twos, or counting to 80 in tens?

Count in 2s to complete the maze.

Start	2	4	6	5	3	1
45	28	9	8	30	15	22
38	33	49	10	12	20	28
52	20	18	16	14	58	65
62	22	24	40	41	72	73
77	71	26	19	50	55	93
94	89	28	30	32	34	93
104	101	42	40	38	36	96
103	105	44	46	48	50	Finish

Q What number sentence does this number line show?

Can you write a multiplication and an addition number sentence?



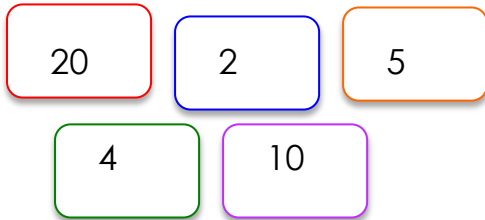
Tubes of bubbles come in packs of 2 and 5.
Holly has 22 tubes of bubbles.

Q How many of each pack could she have?

Q How many ways can you do it?

Use the number cards to make multiplication and division sentences.

Q How many can you make?



Q True or false?

You can make 51p using just 2 pence coins.

Explain why.

Sid is counting in 2s. Luke is counting in 3s. Sid says,

“If we add our numbers together as we count we can make a new pattern.”

Q What pattern do they make?

Q What happens if Sid counts in 5s and Luke counts in 10s?

I know that...

$$4 \times 2 = 8$$

so

$$2 \div 8 = 4$$

Q Do you agree with me?

**I can count forwards and backwards in multiples of 10
I know by heart all multiplication facts for 10 up to 10 x 12
I know by heart all division facts for 10 up to 120**

Continue the number sequence.

- Q What do you notice?
Q Can you spot a pattern?



Circle the odd one out in the number pattern.

0, 5, 10, 20, 30, 40

Fill in the gaps:

___ x 4 = 40

4 x ___ = 40

Circle the incorrect number sentence.

Explain your reasons.

$7 \times 10 = 70$

$10 \times 7 = 70$

$70 \div 7 = 10$

$7 \div 10 = 70$

I have five 10p coins, exactly enough to buy a chocolate bar.

I need 1 more 10p to buy a bottle of pop.



- Q How much is a bottle of pop?

Count forwards and backwards in jumps of 10 from:

- Fifty seven
- $40 + 1$

Here are some number cards. Use them to fill in each number sentence below.



___ x ___ = ___

___ = ___ x ___

___ ÷ ___ = ___

___ = ___ ÷ ___

- Q True or false?

4 five pence coins are worth more than 2 ten pence coins.

Explain why.



Captain Conjecture says:

“When I count in tens from any number the ones digit stays the same.”

Q Do you agree?

Explain your reasoning.

If

$$\triangle + \triangle + \triangle = 30$$

$$\circ + \circ + \circ + \circ = 20$$

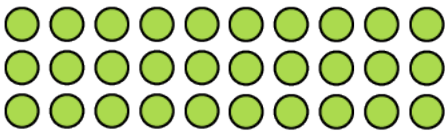
$$\hexagon + \hexagon = 4$$

Complete the addition

$$\triangle + \circ + \hexagon =$$

Look at the array.

Q What multiplication and division number sentences can you see?



Lenny starts at 94 and counts back in tens.
He thinks that he will land on the number 49.

Q Is he correct?

I can say 10 more/less than any number between 0 and 100

Q What is this number?



Q What is 10 more than this number?

Write your answer in numerals and words.

Roll a 0-9 dice twice and write down the 2 digit number you make.
Create them with Base 10.

Q What is 10 more than this number?

Q What number sentence does the number line show?

Q Can you write an addition and a subtraction?



I am going to count in 10s from 69.

Q Will I say 96?

Explain your reasoning.

Fill in the gaps:

42 is ten more than _____

_____ is ten more than 58

70 is ten less than _____

_____ is ten less than 92

There are 100 malteasers in a bag and each child in the group ate 10.

Q If there are 20 left over, how many children ate malteasers?

Q True or false?

When I am counting in tens, the ones don't change.

Explain, giving examples.

Harry is 52.

He is 1 year older than Kate, who is 10 years younger than Sally.

Q How old is Sally?

Show this on a bar model.

Play Five Steps to 50:

Roll a dice twice to establish your starting number e.g. you roll a 2 and 3 – your starting number is 23.

You can then make five jumps to get as close to 50 as possible. You can jump forwards or backwards in jumps of 1, 10 or 100.

Compare your strategy with a friend.

Q Did you jump forwards or backwards?

Q Can you land on 50 exactly?

Q How far/close were you?

Q What numbers can get you to 50? What numbers can't?

I can count forwards and backwards in multiples of 5 to 100
I know by heart all multiplication facts for 5 up to 5 x 12
I know by heart all division facts for 5 up to 60

Continue the number sequence.

- Q** What do you notice?
Q Can you spot a pattern?



Continue the sequence:

15, 20, 25, 30, _____, _____

Fill in the missing numbers on the number track.

10		20	25	30		40
-----------	--	-----------	-----------	-----------	--	-----------

Spot the mistake.

- Q** What is wrong with this sequence of numbers?

55, 50, 45, 35

Use the picture below to think of multiplication and division sentences using \times , \div and $=$



$5 \times 3 = 15$

Write a division sentence using the same numbers.

A flower has 5 petals.

- Q** How many petals do 5 flowers have?

- Q** What comes next?

$21 + 5 = 26$

$26 + 5 = 31$

$31 + 5 = 36$

I have 35p in my pocket in 5p coins.

- Q** How many coins do I have?

Draw a picture to prove your answer.

Sally buys 3 cinema tickets costing £5 each.

- Q** How much does she spend?

Write the multiplication number sentence and calculate the cost.

- Q** If Sally paid with a £20 note, how much change would she get?

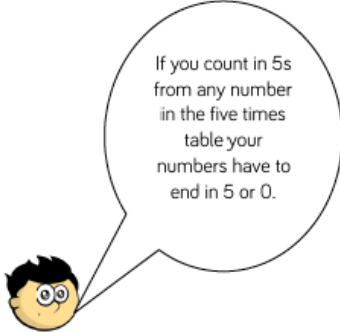
Write these addition sentences as multiplication sentences.

One has been done for you.

$$5 + 5 + 5 + 5 = 5 \times 4$$

$$2 + 2 + 2 = 10 + 10 =$$

Alfie says:



Q Do you agree with Alfie?

Prove it.

Harry has made a sequence of numbers using six number cards.

Here are three of the cards:



Q Can you think of two sequences Harry could have made?

Cassie has 4 bags with 5 sweets in each.

Rachel has 5 bags with 4 sweets in each.

Q How many do they have each?

Q Can you split the sweets into different numbers of bags so they both still have the same number?

Draw a picture to help you.

Chuckle Brothers' dinner party problem:

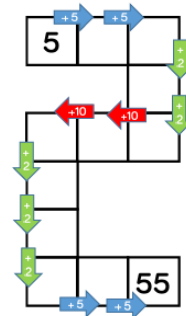
<http://www.bbc.co.uk/education/clips/zppfgk7>

A spider is climbing a 30m building. Each day it climbs 5m and slides back down 1m.

Q How many days will it take to reach the top?

Using these numbers, travel from 5 to 53 adding 2s, 5s and 10s:

10, 29, 43, 15, 17, 48, 39, 19, 41

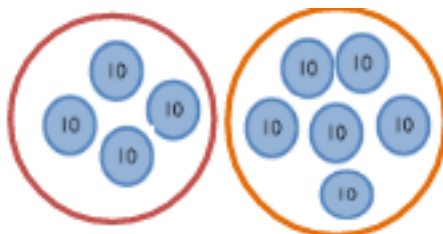


I know by heart all bonds of multiples of 10 up to 100

Here are ten tens.

Q How many ways can you split them between the two circles to make different number bonds to 100?

One has been done for you:



100 - 90 =
100 - 80 =
100 - 70 =

Continue the pattern.

Q How could your number bonds to 10 help you?

30 + 40 + ___ = 100
40 + ___ + 20 = 100
100 = ___ + 10 + 70

If each peg on the coat hanger has a value of 10, find three ways to partition the pegs to make the number sentence correct.



___ + ___ + ___ = ___
___ + ___ + ___ = ___
___ + ___ + ___ = ___

Continue the pattern.

90 = 100 - 10
80 = 100 - 20

Q How is this pattern the same or different to this one?

9 = 10 - 1
8 = 10 - 2

Here is a hundred 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

Sam colours in the numbers 1-30.
Tom colours in the numbers 31-60.

Q How many squares are not coloured in?

Kim says,

“If I know $9 + 1 = 10$, I can work out $90 + \underline{\quad} = 100$ ”

Find the missing number and explain how Kim knows.

Q Can you complete the boxes so each row and column adds up to 100?

20		50
30	40	

Alex has 90 pence.

He bought a rubber for 30 pence and wants to buy a pencil.



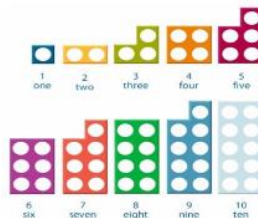
The shopkeeper will not sell him the pencil.

Q Can you explain why to Alex?

I can recognise odd and even numbers up to 100

Using manipulatives and resources, see if you can pair them up.
If you can, they are an even number, if you can't, they are an odd number.

Look at Numicon up to 10.



- Q Which numbers are odd?
- Q Which are even?
- Q What's the same about the even numbers?
- Q What's the same about the odd numbers?

Chant:

0, 2, 4, 6, 8, even numbers they are great!
1, 3, 5, 7, 9 odd numbers all the time!

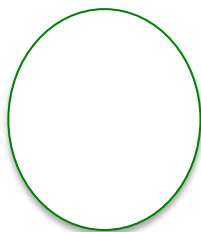
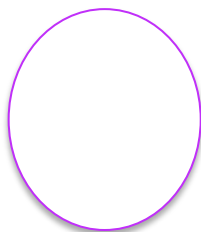
Q Odd or even?

Even

Odd

Sort the numbers.

6, 8, 9, 1, 3, 2 4



Circle the odd numbers.

12 13 17 18 21

Give out post-it notes and ask a range of questions with a numerical answer e.g.

- Q How old are you?
- Q How many siblings do you have?

Approach the board and get children to stick post-its into different columns, looking at the last digit.

odd	Even
1 31 71 91	2 12 22 92
3 43 53 73	4 34 74 84
5 15 35 55 65	6 16 46 66
7 27 57 87	8 18 68 98 108

Sally and Katie want to share sweets out equally between them.
They can buy bags of 17, 18 or 21 sweets.

- Q Which bag should they buy?
- Q What other packs of sweets could they buy?

Draw a picture to show your understanding.

Using number cards 0-9, investigate what are the largest even numbers and odd numbers you could make.

Laney says:

“30 is an odd number because it starts with a 3 and that is odd.”

Q Is she right?

Explain your reasoning.

Q True or false?

When you add two odd numbers together, you always get an even number.

Convince me.

Always, sometimes, never:

You can make £1 using an odd number of coins.

Convince me!

Amy thinks of a number. Her number:

- is an even number
- is between 20 and 25
- has two different digits

Q What is her number?

Explain your reasoning.

Captain Conjecture says,

“An odd number + an odd number + an odd number = an even number.”

Q Is this sometimes, always or never true.

Explain your reasoning.

Complete the Carroll diagram.

	Between 5 and 15	Not between 5 and 15	1	2	3
Digits add to even number			4	5	6
			7	8	9
			10	11	15
			13	14	12
Digits add to odd number			16	17	18
			19	23	21
			22	20	27
			25	26	24

Take Three Numbers:

Think of an odd number that is less than 10.

Think of another odd number that is less than 10.

Think of an even number that is less than 10.

Write them on a whiteboard and choose manipulates or resources to draw or represent your numbers.

Now add your numbers together.

Q Do you notice anything?

Keep a record of your results on your whiteboards.

Now start again, 2 odd numbers and 1 even.

See if you can find any patterns.

Find different ways to make these totals:

Write only **odd** numbers in **triangles**.

Write only **even** numbers in **circles**.

$$\bigcirc + \triangle + \triangle = 12$$

$$\triangle + \bigcirc + \bigcirc = 13$$

$$\bigcirc + \triangle + \triangle = 14$$

Q True or false:

0 is even.

Convince me!

Odd times even.

Choose any two numbers, such as 4 and 5. One must be odd and one must be even.

Try multiplying them together.

Q How could you show this? E.g. number line, cubes, counters.

Q What do you notice about the answer?

Q Can you use your one example to prove what will happen every time you multiply an even number and an odd number together?