

# **Mental Maths**

## **Year 3**

**I can recognise odd and even numbers up to 100**

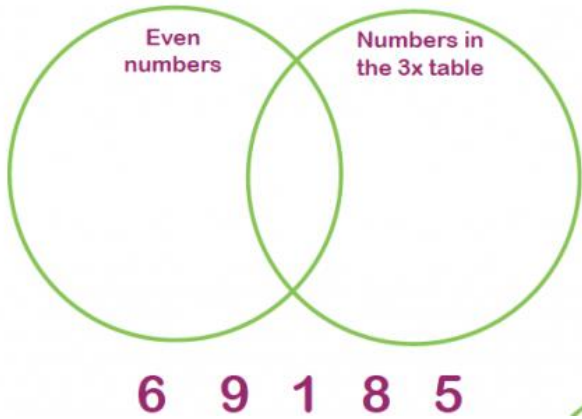
**Q** Always, sometimes, never?

If you subtract a multiple of 10 from any number the units digit of that number stays the same.  
When you add two numbers together you will get an even number

For positive integers, are the following statements always, sometimes or never true?

- The sum of 2 odd numbers is even.
- The sum of 3 odd numbers is even.
- Adding 5 to a number ending in 6 will sum to a number ending in 1.
- Adding 8 to a number ending in 2 will always sum to a multiple of 10.

Explain why in each case.



Sorting odd and even numbers with the same units:

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

**I can recognise the place value of each digit in a 2-3 digit number**

Do, then explain:

835 535 538 388 508

**Q** If you wrote these numbers in order starting with the smallest, which number would be third?

Explain how you ordered the numbers

Do, then explain:

Can you Show the value of the digit 3 in these numbers?

341 503 937

Explain how you know.

Make up an example. Create numbers where the digit sum is three.

E.g. 120, 300, 210

**Q** What is the largest/smallest number?

Captain Conjective says:

"The number in the place value grid is the largest in 3-digit number you can make using all 10 counters".

100s	10s	1s
●●●●●●●●	●	●

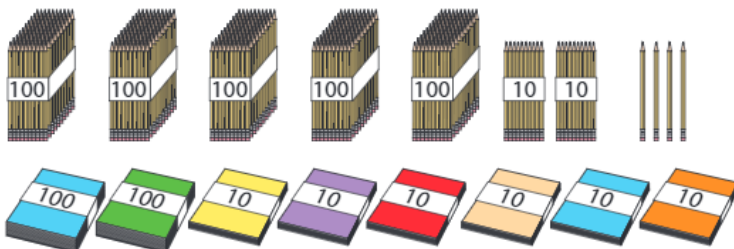


**Q** Do you agree?

Explain your reasoning.

Find the number of pencils.

Find the number of exercise books.



Guide pupils to use practical equipment to deepen their understanding of place value and apply their knowledge of place value in mental and written calculation.

Place Value Task Cards!  
Task Card - 1

What place is the underlined digit in? What is the digit's value?

**348**

Place Value Task Cards!  
Task Card - 2

What place is the underlined digit in? What is the digit's value?

**682**

Place Value Task Cards!  
Task Card - 3

What place is the underlined digit in? What is the digit's value?

**134**

Place Value Task Cards!  
Task Card - 4

What place is the underlined digit in? What is the digit's value?

**815**

8 hundreds, 3 tens and 6 ones together make \_\_\_\_.

457 is made of \_\_\_\_ hundreds, \_\_\_\_ tens and \_\_\_\_ ones.

250 is made of \_\_\_\_ hundreds, \_\_\_\_ and \_\_\_\_ tens.

**Q** What is the value of the number represented in the place value chart?

Hundreds	Tens	Ones

Write it in numerals and words.

Complete this place value chart so that it show 354.

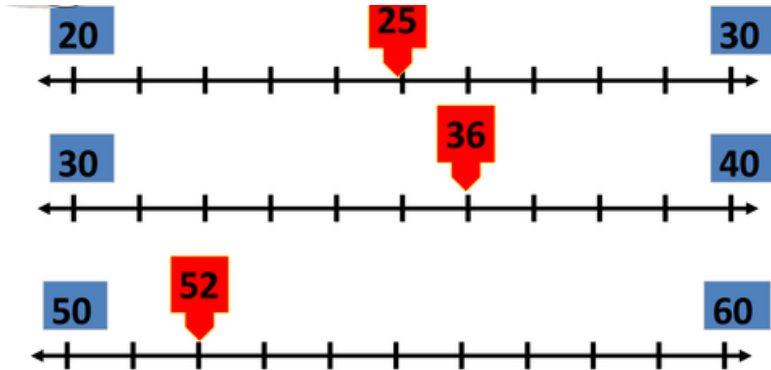
Hundreds	Tens	Ones

What number would this make?



**I can round 2 digit numbers to the nearest 10**

Use of number lines when rounding to the nearest 10:



A number rounded to the nearest ten is 40.

**Q** What is the smallest possible number it could be?

**Q** What do you notice?

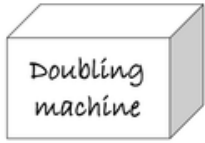
Round 96 to the nearest 10.

Round 86 to the nearest 10.

A number rounded to the nearest 10 is 150.

**Q** What is the smallest possible number it could be?

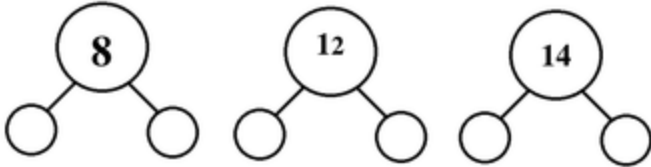
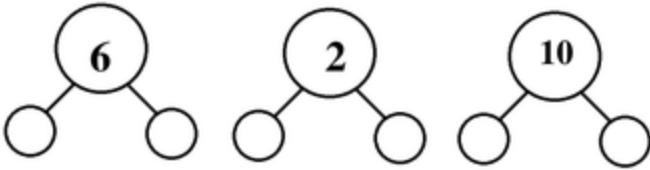
I can double and halve any number up to double 20



IN	6	3	5	8	4	10	12	15	20	24	30	32
OUT	12											



IN	4	10	8	20	16	12	18	24	14	40	44	100
OUT	2											



I can read and write numbers up to 1000 in words and numerals

<p>3 hundreds 5 tens 6 ones</p> $\begin{array}{c} 300 + 50 + 6 \\ \swarrow \quad \downarrow \quad \searrow \\ \quad \quad \underline{356} \end{array}$	<p>5 hundreds 4 tens 7 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>
<p>2 hundreds 3 tens 4 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>	<p>7 hundreds 0 tens 8 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>
<p>0 hundreds 8 tens 9 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>	<p>1 hundred 5 tens 4 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>
<p>4 hundreds 4 tens 4 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>	<p>6 hundreds 3 tens 0 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>

Place Value Task Cards!

Task Card - 1

What place is the underlined digit in? What is the digit's value?

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Place Value Task Cards!

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What place is the underlined digit in? What is the digit's value?

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Place Value Task Cards!

Task Card - 4

What place is the underlined digit in? What is the digit's value?

**815**

**I can count forwards and backwards in multiples of 25, 50, 100**

Look at the patterns:

5	10	15	20	25	30
---	----	----	----	----	----

50	100	150	200	250	300
----	-----	-----	-----	-----	-----

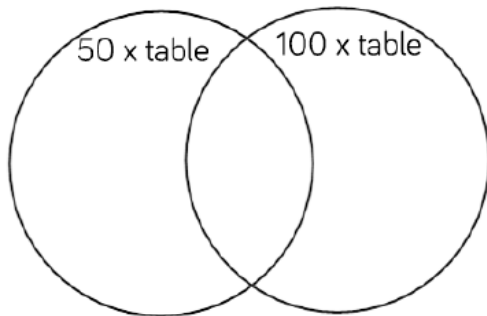
**Q** What do you notice?

Complete the number tracks:

50		150	200			350		450	
----	--	-----	-----	--	--	-----	--	-----	--

	750	700	650			500			350
--	-----	-----	-----	--	--	-----	--	--	-----

Create calculations for your friends to sort into the diagram.





**I can recall and use multiplication and division facts for 2, 3, 4, 5, 8 and 10 times tables**

Spot the mistake:

50,100,115,200

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

**Q** True or False?

38 is a multiple of 8?

**Q** What comes next?

$$936 - 10 = 926$$

$$926 - 10 = 916$$

$$916 - 10 = 906$$

**Q** What is the relationship between these calculations?

$$3 \times 4 \qquad 4 \times 8$$

$$4 \times 3 \qquad 8 \times 4$$

**Q** What do you notice about the following calculations?

$$3 \times 4 \qquad 3 \times 8$$

$$4 \times 4 \qquad 4 \times 8$$

$$3 \times 5 \qquad 8 \times 4$$

Complete the following:

$$3 \times \underline{\quad} = 12$$

$$4 \times \underline{\quad} = 20$$

$$\underline{\quad} \times 3 = 15$$

$$8 \times \underline{\quad} = 24$$

$$24 = \underline{\quad} \times \underline{\quad}$$

**Q** Which pairs of numbers could be written in the boxes?

Cards come in packs of 4.

**Q** How many packs do I need to buy to get 32 cards?

$$20 \times 3 = 60.$$

Use this fact to work out:

$$21 \times 3 = \underline{\quad}$$

$$22 \times 3 = \underline{\quad}$$

$$23 \times 3 = \underline{\quad}$$

$$24 \times 3 = \underline{\quad}$$

$$4 \times 6 = 24$$

**Q** How does this fact help you to solve these calculations?

$$40 \times 6 = \underline{\quad}$$

$$20 \times 6 = \underline{\quad}$$

$$24 \times 6 = \underline{\quad}$$

**Q** What goes in the missing box?

x	?	?
4	80	12

Prove it!

\_\_\_ \_\_\_ **x** \_\_\_

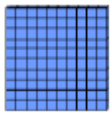
**Q** Using the digits 2, 3 and 4 in the calculations above, how close can you get to 100?

**Q** What is the largest product?

**Q** What is the smallest product?

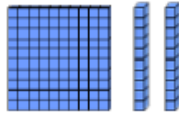
**I can find 1, 10 or 100 more or less than any given number up to 3 digits**

Put the correct number in each box.

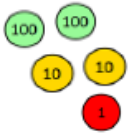


10 less

Number



10 more



100 less

Number



100 more

Show ten more and ten less than the following numbers using Base 10 and place value counters.

- 550
- 724
- 302

Complete the table:

100 less	Number	100 more

A counter has dropped off the place value chart.

Hundreds	Tens	Ones

**Q** What number could it have been?

10 more than my number is the same as 100 less than 320.

**Q** What is my number?

Explain how you know.

Write your own problem similar to describe the original number.

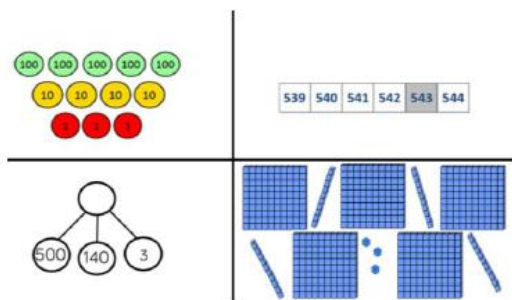
**I can partition numbers (For example,  $123 = 100 + 20 + 3$ )**

Complete the table:

100 less	Number	100 more

8 hundred, 3 tens and 6 ones together make \_\_\_\_.  
 457 is made of \_\_\_\_ hundreds, \_\_\_\_ tens and \_\_\_\_ ones.  
 250 is made of \_\_\_\_ hundreds and \_\_\_\_ tens.

**Q** Which image is the odd one out?



Explain why.

**Q** How else can you represent the number?

**Place Value Task Cards!**  
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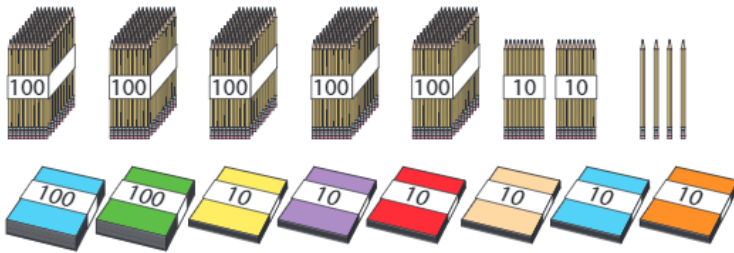
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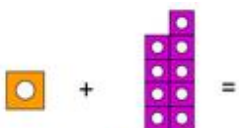
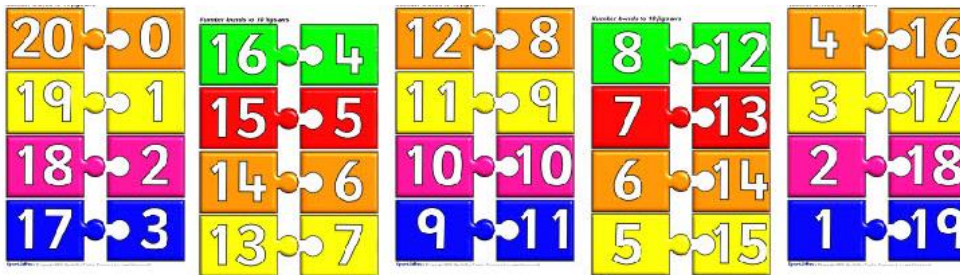
<p>3 hundreds 5 tens 6 ones</p> $\begin{array}{c} 300 + 50 + 6 \\ \swarrow \quad \downarrow \quad \searrow \\ \quad \quad 356 \end{array}$	<p>5 hundreds 4 tens 7 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>
<p>2 hundreds 3 tens 4 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>	<p>7 hundreds 0 tens 8 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>
<p>0 hundreds 8 tens 9 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>	<p>1 hundred 5 tens 4 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>
<p>4 hundreds 4 tens 4 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>	<p>6 hundreds 3 tens 0 ones</p> <p>_____ + _____ + _____</p> <p>_____</p>

Recall and use addition and subtraction facts to 20 fluently and use this derive facts to 100

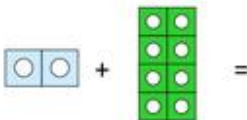
Find the number of pencils.  
Find the number of exercise books.



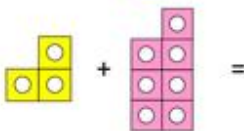
Guide pupils to use practical equipment to deepen their understanding of place value and apply their knowledge of place value in mental and written calculation.



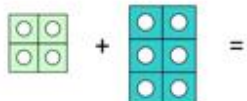
The difference between 7 and 4 =



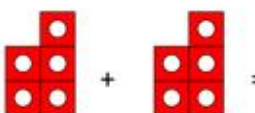
The difference between 5 and 2 =



The difference between 9 and 7 =



The difference between 10 and 2 =



The difference between 8 and 4 =

$90 = 100 - 10$

$80 = 100 - 20$

Q Can you make up a similar pattern starting with the numbers 74, 26 and 100?

$91 + \underline{\quad} = 100$

$100 - \underline{\quad} = 89$

Q What number goes in the missing box?

**I can practice a wide range of mental strategies, including number bonds, adding near multiples of 10 and near doubles**

Start with 10 Add 3 Subtract 2.	Start with 8 Double it Add 4
Start with 7 Subtract 3 Double it	Start with 6 Add 7 Subtract 3
Start with 24 subtract 4 Add 2	Start with 15 add 3 Subtract 6

<p>If you know <math>5+5=</math> __,</p> <p>then <math>5+6=</math> __.</p> <p>9.</p>	<p>If you know <math>6+6=</math> __,</p> <p>then <math>6+7=</math> __.</p> <p>10.</p>
<p>If you know <math>7+7=</math> __,</p> <p>then <math>7+8=</math> __.</p> <p>4.</p>	<p>If you know <math>8+8=</math> __,</p> <p>then <math>8+9=</math> __.</p> <p>1.</p>

## SUBTRACTION STRATEGIES



**7 - 2**

Students show the minuend using objects or fingers. Then they take away the subtrahend and count the objects that are left.

The Classroom Key

**8 - 6**

Says: 6...7, 8

Students start at the subtrahend and see how many times they have to count up to get to the minuend.

**8 - 4**      **14 - 9**

**Related Fact**  
Says: I know  $4+4=8$  so  $8-4$  must be 4

**Near 10**  
Says: I know  $14-10=4$ , to solve  $14-9$  I just add one back in, 5.

**15 - 9**

**Bridging 10**  
Break apart the subtrahend (9 in this case) so that the minuend can be taken down to 10 first. Then the rest of the subtrahend gets subtracted from 10

## ADDITON STRATEGIES



**3 + 2**

Says: 1, 2, 3, 4, 5

Students show the problem concretely (fingers, cubes, etc.) Then they count all the objects.

The Classroom Key

**3 + 2**

Says: 3...4, 5

Students start with one of the addends and count on the amount of the other addend. Counting on from the bigger addend is the fastest.

**5 + 6**      **7 + 9**

**Doubles plus 1**  
Says: I know  $5+5=10$  so  $5+6$  must be just one more, 11.

**Near 10**  
Says: I know  $7+10=17$ , so  $7+9$  must be one less, 16.

**8 + 4**      **7 + 9**

**Bridging 10**  
One addend breaks apart to make 10 with the other addend.

**In Betweens**  
If addends are 2 apart, double the number that would be in between (like moving 1 from the big addend to the small addend).



**I can add and subtract 2 digit numbers mentally and begin to add/subtract 3 digit numbers mentally**

**Q** True or false?

$$597 + 7 = 614$$

$$804 - 70 = 744$$

$$768 + 140 = 908$$

Give your reasons.

**Q** Which questions are easy / hard?

$$323 + 10 =$$

$$393 + 10 =$$

$$454 - 100 =$$

$$954 - 120 =$$

Explain why you think the hard questions are hard?

$$\_ \_ + \_ \_ + \_ \_$$

The total is 201. Each missing digit is either a 9 or a 1. Write in the missing digits.

**Q** Is there only one way of doing this or lots of ways?

Convince me

**Q** Which of these number sentences have the answer that is between 50 and 60?

$$174 - 119$$

$$333 - 276$$

$$932 - 871$$

**Q** Always, sometimes, never?

If you subtract a multiple of 10 from any number the units digit of that number stays the same.  
When you add two numbers together you will get an even number.

Write the four facts that this bar model shows.

540	
300	240

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

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

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

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

Q What do you notice?

Q Is there a relationship between the calculations?

$500 + 400 =$	$523 + 400 =$	$523 + 28 =$
$400 + 500 =$	$423 + 500 =$	$423 + 28 =$
$300 + 600 =$	$323 + 600 =$	$323 + 28 =$
$200 + 700 =$	$223 + 700 =$	$223 + 28 =$
$100 + 800 =$	$123 + 800 =$	$123 + 48 =$

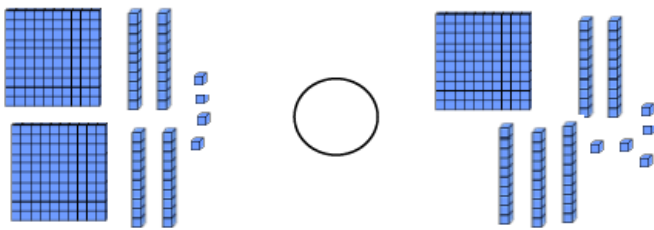
**I can read, compare and order numbers up to 100/1000**

835 535 538 388 508

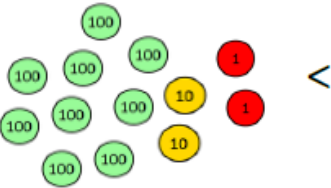
**Q** If you wrote these numbers in order starting with the smallest, which number would be third?

Explain how you ordered the numbers.

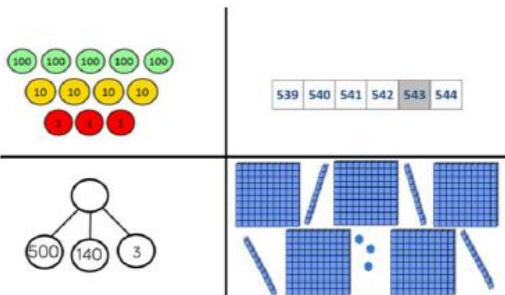
Fill in the circle with  $<$ ,  $>$  or  $=$



Draw objects to make the statement true.



**Q** Which image is the odd one out?



Explain why.

**Q** How else can you represent the number?

Circle the greatest amount in each case:

Nine hundred and two                      920

500 and 63                                      568

7 hundreds and 6 ones                      76 tens

Complete the statements:

