

Walter Infant School and Nursery



Maths Support Booklet for Parents and Carers

Year 2

National Curriculum Expectations (by the end of year 2):

<p style="text-align: center;">Number and Place Value</p> <p>Count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward.</p> <p>Recognise the place value of each digit in a two-digit number (10s, 1s).</p> <p>Identify, represent and estimate numbers using different representations, including the number line.</p> <p>Compare and order numbers from 0 up to 100; use <, > and = signs.</p> <p>Read and write numbers to at least 100 in numerals and in words.</p> <p>Use place value and number facts to solve problems.</p>	<p style="text-align: center;">Multiplication and Division</p> <p>Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.</p> <p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs.</p> <p>Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot.</p> <p>Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p>
<p style="text-align: center;">Addition and Subtraction</p> <p>Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures.</p> <p>Applying their increasing knowledge of mental and written methods.</p> <p>Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.</p> <p>Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and 1s, a two-digit number and 10s, 2 two-digit numbers, adding 3 one-digit numbers.</p> <p>Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot.</p> <p>Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p>	<p style="text-align: center;">Measurement</p> <p>Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.</p> <p>Compare and order lengths, mass, volume/capacity and record the results using >, < and =.</p> <p>Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.</p> <p>Find different combinations of coins that equal the same amounts of money.</p> <p>Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.</p> <p>Compare and sequence intervals of time tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.</p> <p>Know the number of minutes in an hour and the number of hours in a day.</p>
<p style="text-align: center;">Geometry – Properties of Shape</p> <p>Identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line.</p> <p>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.</p> <p>Identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid].</p> <p>Compare and sort common 2-D and 3-D shapes and everyday objects.</p> <p style="text-align: center;">Geometry – Position and Direction</p> <p>Order and arrange combinations of mathematical objects in patterns and sequences.</p> <p>Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).</p>	<p style="text-align: center;">Fractions</p> <p>Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity.</p> <p>Write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.</p> <p style="text-align: center;">Statistics</p> <p>Interpret and construct simple pictograms, tally charts, block diagrams and tables.</p> <p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.</p> <p>Ask-and-answer questions about totalling and comparing categorical data.</p>

1. Count in steps of 2,3, 5 and 10

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

Start from 0.
Use the 100 square to help you.

0 2 4 6 8 10 12 14 16 18 20
0 3 6 9 12 15 18 21 24 27 30
0 5 10 15 20 25 30 35 40 45 50
0 10 20 30 40 50 60 70 80 90 100

2. Count in 10s from any number (forwards and backwards)

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

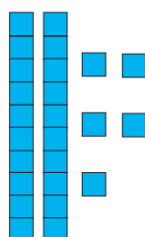
Choose any number to start on and count on 10 more each time.

e.g starting on 27

3. Recognise the place value of each digit in a 2 digit number

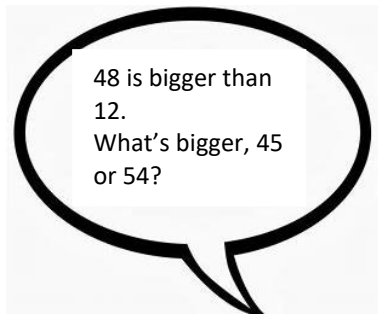
25 is made up of 2 tens and 5 ones.

$25 = 20 + 5$



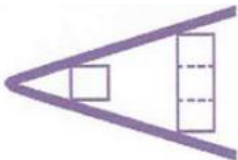
Choose a 2 digit number and partition it into tens and ones.
Can you write a number sentence to represent it?

4. Compare and order numbers up to 100

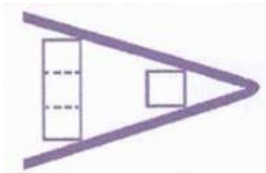


Choose a number, who's is bigger?
How do you know?

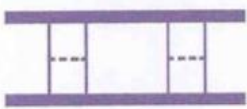
5. Use <, > and = signs



$$1 < 3$$



$$3 > 1$$



$$2 = 2$$

Choose 2 numbers, which is bigger? Represent it using these signs.

6. Read and write numbers to 100 in numerals and words

Choose any number from 0-100.
Can you write it in numerals (numbers)? What about in words?
Did you spell it right? Use colours and different pens to make it more exciting.

7. Addition

Addition Vocabulary

- add
- more
- plus
- make
- sum
- total
- altogether



Counting on using fingers

$$14 + 5 = 19$$

Start from the first number in the calculation and count on using fingers. We might say to the children to put 14 in their head and count on 5 using fingers.



Combining groups of objects

$$14 + 5 = 19$$



Counting on using a 100 square

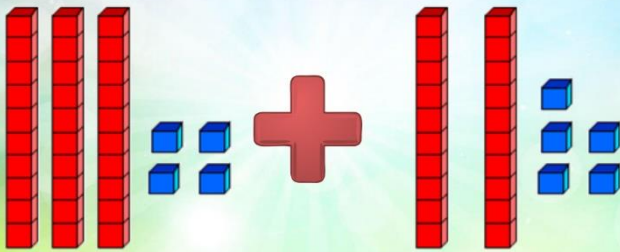
$$28 + 9 = 37$$

Find the first number in the calculation and count on the second number. For example, start on 28 and count on 9 equals 37.

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

Adding with Dienes

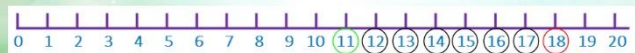
$$34 + 25 =$$



Dienes are a physical resource that we use in school. They are made up of little cubes that represent 1 and rods that represent 10.

Counting on using a number track

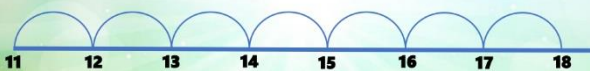
$$11 + 7 = 18$$



Start on the first number in the calculation. Count on the second number as 'jumps'. For example, find 11 and count on 7 jumps equals 18.

Counting on using an empty number line

$$11 + 7 = 18$$

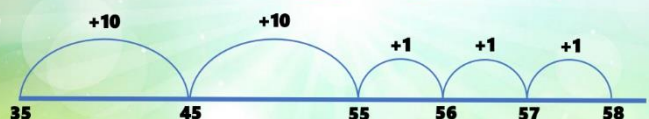


Start on the first number in the calculation. Count on the second number as 'jumps'. For example, write 11 on the left end of the line and count on 7 jumps equals 18.

Jumps of 10 using an empty number line

$$35 + 23 =$$

$$35 + 20 + 3 = 58$$



Start on the first number in the calculation. Partition the second number into tens and ones. Add the tens in jumps of ten, then add the ones in jumps of one.

Bubble and Partition

$$30 + 20 = 50$$

$$\begin{array}{c} \text{---} \\ | \\ \text{35} + \text{23} = 58 \\ | \\ \text{---} \end{array}$$

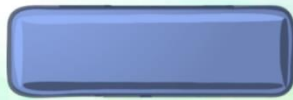
$$5 + 3 = 8$$

Draw a bubble around the two numbers with lines. Partition the numbers, record the tens numbers at the top and the ones numbers down the bottom. Find the total for the tens and the ones and add these together.

8. Subtraction

Subtraction Vocabulary

- subtract
- minus
- leave
- less
- take away
- difference between



$$19 - 5 = 14$$

Start from the first number in the calculation and count back using fingers. We might say to the children to put 19 in their head and count backwards 5 using fingers.

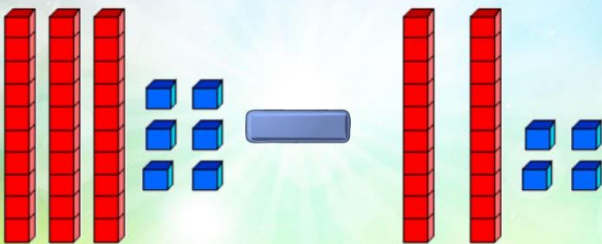


$$14 - 5 = 9$$



Subtracting with Dienes

$$36 - 24 =$$



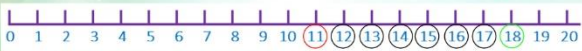
Dienes are a physical resource that we use in school. They are made up of little cubes that represent 1 and rods that represent 10.

$$37 - 9 = 28$$

Find the first number in the calculation and count back the second number. For example, start on 37 and count back 9 equals 28.

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

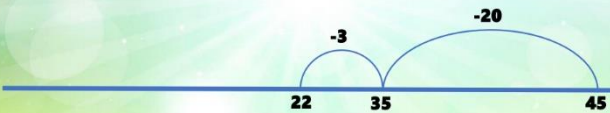
$$18 - 7 = 11$$



Start on the first number in the calculation. Count back the second number as 'jumps'. For example, find 18 and count back 7 jumps equals 11.

$$45 - 23 =$$

$$45 - 20 - 3 = 22$$



Start on the first number in the calculation. Partition the second number into tens and ones. We take away the tens number (20) and then take away the ones number (3).

Counting back using an empty number line

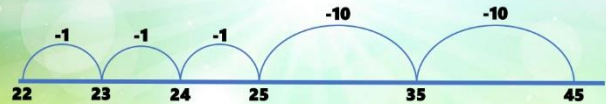
$$18 - 7 = 11$$



Start on the first number in the calculation. Count back the second number as 'jumps'. For example, write 18 on the right end of the line and count back 7 jumps equals 11.

$$45 - 23 =$$

$$45 - 20 - 3 = 22$$



Start on the first number in the calculation. Partition the second number into tens and ones. Take away the tens in jumps of ten, then take away the ones in jumps of one.

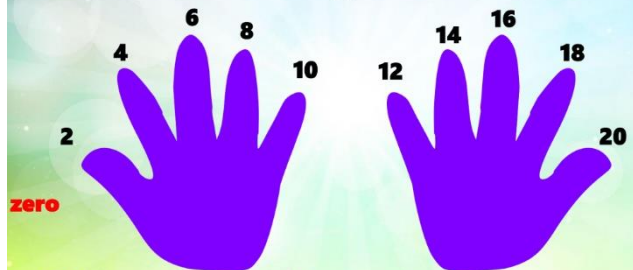
9. Multiplication

Multiplication Vocabulary

- lots of
- times
- multiply
- groups of
- product
- multiplied by
- multiple of
- repeated addition
- array



Counting patterns using fingers



We count in 2s, 3s, 5s and 10s using our fingers forwards and backwards (we always start with zero).

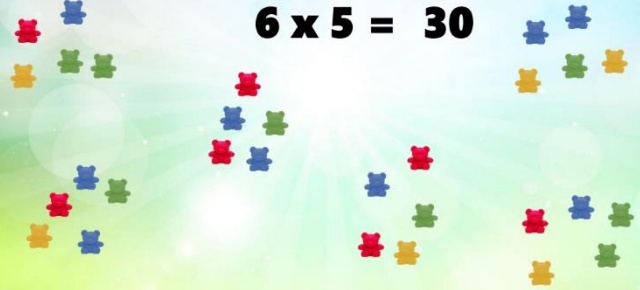
Counting coins



We might count coins using the counting patterns.

Counting objects in groups

$$6 \times 5 = 30$$



We group objects in groups of 2, 3, 5 or 10.

Sorting objects into arrays

$$6 \times 5 = 30$$

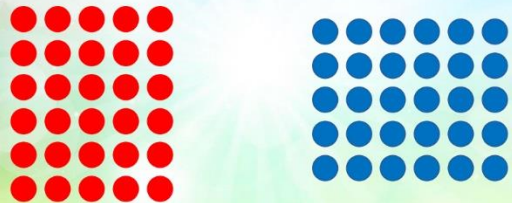


5 columns

We group objects in a more structured way. This is called an array.

Drawing arrays

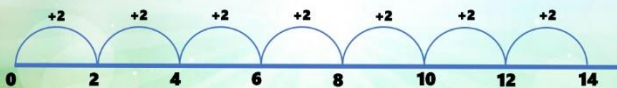
$$6 \times 5 = 30$$



We draw the arrays in our books. These can be done either way (6×5 or 5×6)

Repeated addition using a number line

$$7 \times 2 = 14$$

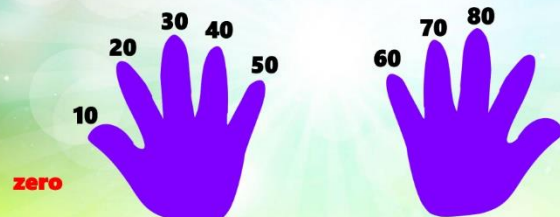


Draw an empty number line starting from 0 (zero). Make jumps for the known counting pattern (2, 3, 5 or 10). In the example above there are 7 jumps or +2 repeated.

Multiplying using fingers

$$8 \times 10 = 80$$

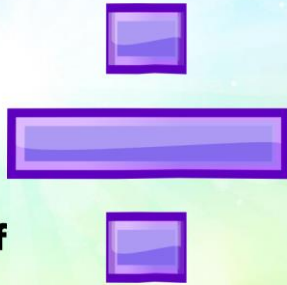
$$10 \times 8 = 80$$



Using fingers count in the known counting pattern (2, 3, 5 or 10) up to the other number in the calculation.

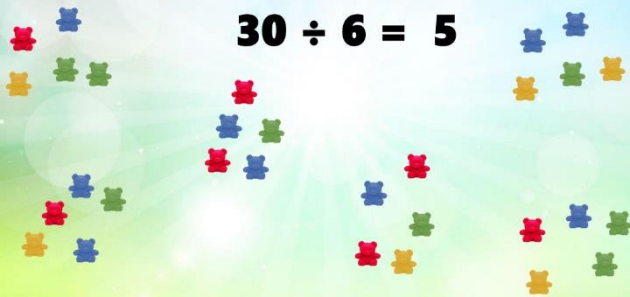
Division Vocabulary

- divide
- divided by
- divided into
- share
- share equally
- groups of
- equal groups of



Counting objects in groups

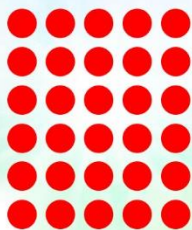
$$30 \div 6 = 5$$



We share and group objects for division.

Drawing arrays

$$30 \div 5 = 6$$



We draw the arrays in our books. The first number (30) tells us how many we need altogether and the second number tells us how many need to be in each row (5). Count the number of columns (6).

Counting coins



$$12p \div 2p = 6$$



$$35p \div 5p = 7$$



$$40p \div 10p = 4$$

We might divide and count using coins. How many 2 pence coins make 12p?

Sorting objects into arrays

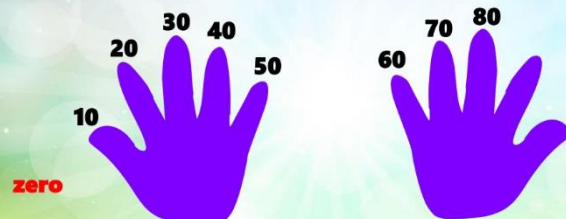
$$30 \div 5 = 6$$



We group objects in a more structured way. The first number (30) tells us how many we need altogether and the second number tells us how many need to be in each row (5). Count the number of columns (6).

Dividing using fingers

$$80 \div 10 = 8$$



Using fingers count to the first number in the calculation (80), the second number tells you the counting pattern (10s) and the number of fingers up is the answer (8).


11. Fractions

Year 2 learn the following fractions:

$\frac{1}{2}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{3}{4}$
1	1	2	1	2	3
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
2	3	3	4	4	4
a half	one third	two thirds	one quarter	two quarters	three quarters


The children find a fraction of a shape, length, set of objects or quantity.

Grouping physical objects

$$\frac{1}{2} \text{ of } 18 = 9$$


The bottom number, or denominator, tells us how many groups to share into. The top number, or numerator, tells us how many groups to count. To find a half we sort into two groups and count one of the groups.

$$\frac{1}{3} \text{ of } 15 = 5$$

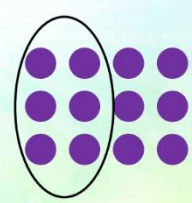
$$\frac{2}{3} \text{ of } 15 = 10$$


Arrays

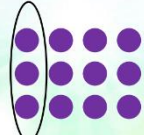
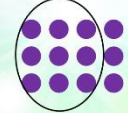
$$\frac{2}{4} \text{ of } 12 = 6$$

2 The top number tells us how many columns to count.

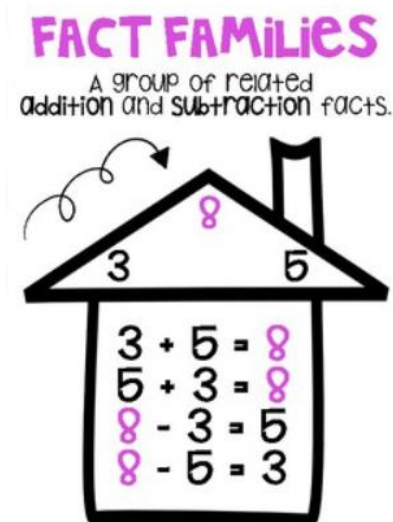
4 The bottom number tells us how many dots need to be in each row.



We can use arrays to find any fraction of a whole number.

$$\frac{1}{4} \text{ of } 12 = 3$$

$$\frac{3}{4} \text{ of } 12 = 9$$


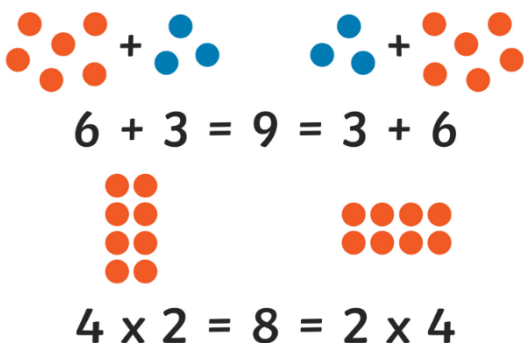
12. Recognise and use the inverse



Use opposite operations to solve calculations. If you know that $3+5=8$ then you know that $8-5=3$.

Give a question with a missing number
e.g. $10 - \underline{\quad} = 7$. What would you add to 7 to get 10? Use addition knowledge to solve it.

13. Understand commutativity

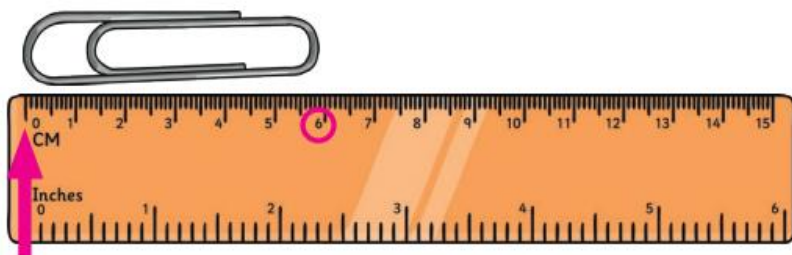


Know that the order of numbers in addition and multiplication doesn't matter. The answer will still be the same.

Important:
This is not the case for subtraction and division.

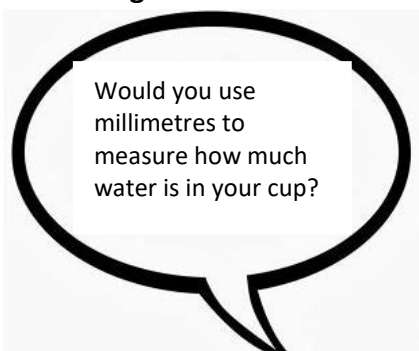
14. Measure using a ruler

Remember to use the unit of centimetres (or millimetres).



What can you measure around your house? Can you find something that is 10cm long? What about 30cm?

15. Discuss the most appropriate unit to measure different things in.



E.g. Would you use cm or kilometres to measure the distance from your house to Reading?

16. Recognise and use the symbol for pounds (£) and pence (p)



Can you recognise all the notes and coins in your house? Can you write them down? Remember to use £ and p.

17. Combine coins to make a specified amount of money

Can you make £2? How many different ways can you do it?

e.g.

$£1 + £1$

$£1 + 50p + 50p$

$£1 + 50p + 20p + 10p + 10p + 5p + 2p + 2p + 1p$

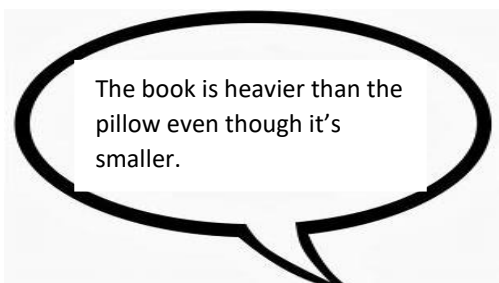
How many 10ps would you need?

How many 5ps?

Use money when paying for things in the shops. Can you combine coins in order to do so?

Extension – how much change will you get if you can't make the right amount?

18. Explore mass/weight



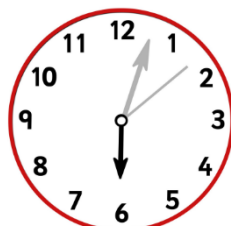
What can you find at home? Which item is heavier? Do you have a set of scales you can weigh things on?

Do some cooking, making sure to weigh out the ingredients.

19. Time



There are **60 minutes** in an hour.

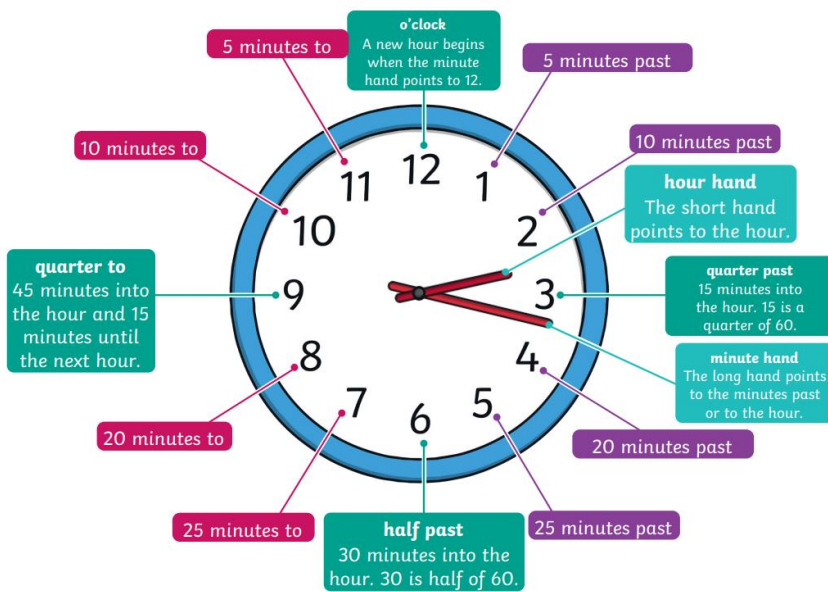


There are **24 hours** in a day

How many minutes in an hour?
How many hours in a day?

20. Tell and write the time to o'clock, half past, quarter past and quarter to

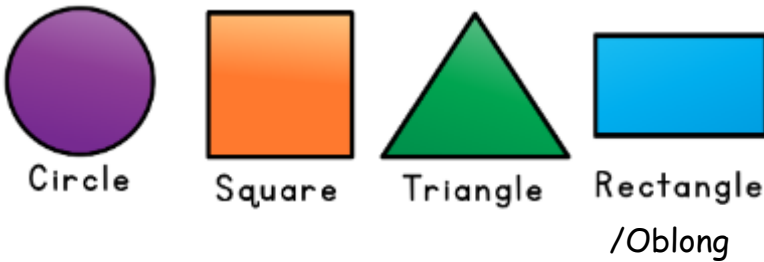
21. Tell and write the time to 5 minute intervals



Can you draw the time on a blank clock?

Look at the clock at different points during the day. What time is it?

22. 2D shapes

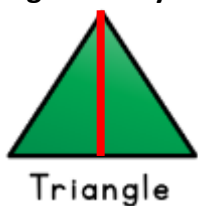


How many sides does it have?
How many corners does it have?
Can you draw it?

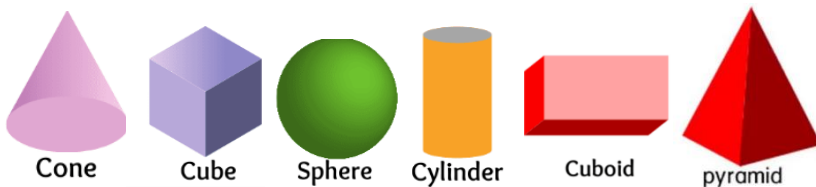
Does it have a line of symmetry?
Can you draw it? Does it have more than one?

A side is the edge of a 2D shape.
A corner is where two sides meet.

e.g line of symmetry:



23. 3D shapes



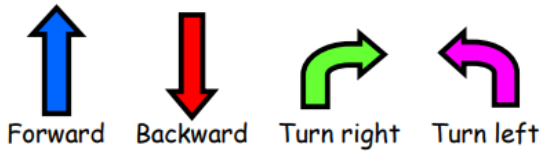
How many faces does it have?
How many edges does it have?
How many vertices does it have?
Does it have a point?

What 2D shapes can you spot on the faces of the 3D shapes?

A face is a surface of a 3D shape.
An edge is where two faces meet.
A vertices is where the edges meet.
A cone has a point at the top.

A cube has 6 square shaped faces.

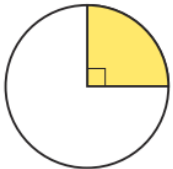
24. Use positional and directional language



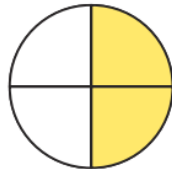
ANTICLOCKWISE



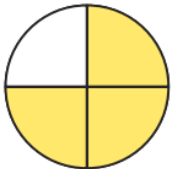
CLOCKWISE



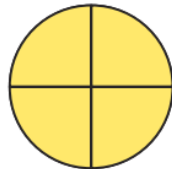
quarter turn



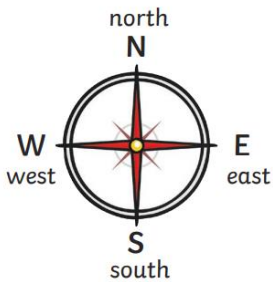
half turn



three-quarter turn



full turn



Imagine you are a robot. Ask your family to give you instructions to move around your house.

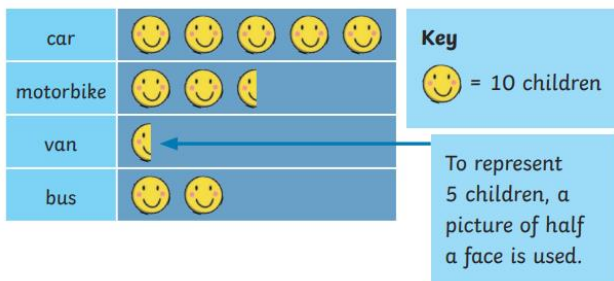
Swap jobs and have a go at giving the instructions.

Talk about the relationship between a quarter turn and a right angle.

25. Statistics

Pictograms:

Ways of Travelling to School



Tally charts:



The fifth mark goes across diagonally, like a gate.

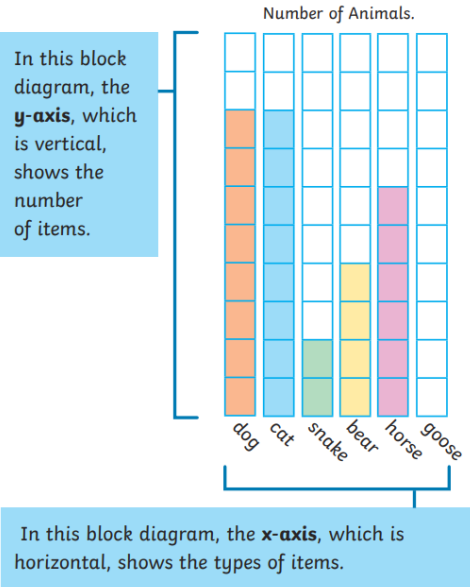
Can you collect data from your family or around your house?

Go for a walk and tally how many trees, cars, people and dogs you see. Convert this into a pictogram.

Eye Colour	Tally	Total
brown		6
blue		8
green		3
grey		4
hazel		5

Ask your friends their favourite ice cream flavour. Convert this into a pictogram.

Block diagrams:



And most importantly, help your children learn that...

