Number Bonds to 20 'Learn by Heart' Facts

Children should know the following facts for all number bonds to 20. The aim is for them to recall the facts instantly:

2 + 9 = 11
3 + 8 = 11
4 + 7 = 11
5 + 6 = 11

3 + 9 = 12
4 + 8 = 12
5 + 7 = 12
6 + 6 = 12

4 + 9 = 13
5 + 8 = 13
6 + 7 = 13

5 + 9 = 14
6 + 8 = 14
7 + 7 = 14

6 + 9 = 15
7 + 8 = 15

7 + 9 = 16
8 + 8 = 16

8 + 9 = 17

9 + 9 = 18

Example of a fact family:
6 + 9 = 15
9 + 6 = 15
15 – 9 = 6
15 – 6 = 9

This list includes the most challenging facts but children will need to learn all number bonds for each number to 20 (e.g. 15 + 2 = 17). This includes related subtraction facts (e.g.17 – 2 = 15). This may take a number of weeks for children to master – it is not expected that children learn these facts in one week! We will continue to work on the facts throughout the following weeks.

Number Bonds to 20 'Learn by Heart' Facts

Children should know the following facts for all number bonds to 20. The aim is for them to recall the facts instantly:

2 + 9 = 11
3 + 8 = 11
4 + 7 = 11
5 + 6 = 11

3 + 9 = 12
4 + 8 = 12
5 + 7 = 12
6 + 6 = 12

4 + 9 = 13
5 + 8 = 13
6 + 7 = 13

5 + 9 = 14
6 + 8 = 14
7 + 7 = 14

6 + 9 = 15
7 + 8 = 15

7 + 9 = 16
8 + 8 = 16

8 + 9 = 17

9 + 9 = 18

Example of a fact family:
6 + 9 = 15
9 + 6 = 15
15 – 9 = 6
15 – 6 = 9

This list includes the most challenging facts but children will need to learn all number bonds for each number to 20 (e.g. 15 + 2 = 17). This includes related subtraction facts (e.g.17 – 2 = 15). This may take a number of weeks for children to master – it is not expected that children learn these facts in one week! We will continue to work on the facts throughout the following weeks.

Multiplication Facts for the 3 Times Table 'Learn by Heart'

Children should know the following facts for the 3 times table. The aim is for them to recall these facts instantly.

Examples:

- Multiply 3 by 8
- What is the PRODUCT of 4 and 3?
- Count in 3's from 0 to 33
- Count back in 3's from 33
- If 3 x 7 = 21, what is 21 divided by 7?

1 × 3 = 3	3 x 1 = 3
2 × 3 = 6	3 x 2 = 6
3 × 3 = 9	3 x 3 = 9
4 × 3 = 12	3 x 4 = 12
5 × 3 = 15	3 x 5 = 15
6 × 3 = 18	3 x 6 = 18
7 × 3 = 21	3 x 7 = 21
8 × 3 = 24	3 x 8 = 24
9 × 3 = 27	3 x 9 = 27
10 × 3 = 30	3 x 10 = 30
11 × 3 = 33	3 x 11 = 33
12 × 3 = 36	3 x 12 = 36

They should be able to answer these questions in any order, including missing number questions e.g. 3 × ○ = 18

Multiplication Facts for the 3 Times Table 'Learn by Heart'

Children should know the following facts for the 3 times table. The aim is for them to recall these facts instantly.

Examples:

- Multiply 3 by 8
- What is the PRODUCT of 4 and 3?
- Count in 3's from 0 to 33
- Count back in 3's from 33
- If 3 x 7 = 21, what is 21 divided by 7?

1 × 3 = 3	3 x 1 = 3
2 × 3 = 6	3 x 2 = 6
3 × 3 = 9	3 x 3 = 9
4 × 3 = 12	3 x 4 = 12
5 × 3 = 15	3 x 5 = 15
6 × 3 = 18	3 x 6 = 18
7 × 3 = 21	3 x 7 = 21
8 × 3 = 24	3 x 8 = 24
9 × 3 = 27	3 x 9 = 27
10 × 3 = 30	3 x 10 = 30
11 × 3 = 33	3 x 11 = 33
12 × 3 = 36	3 x 12 = 36

They should be able to answer these questions in any order, including missing number questions e.g. 3 × ○ = 18

Division Facts for the 3 Times Table 'Learn by Heart'

Children should know the following division facts for the 3 times table. The aim is for them to recall these facts instantly.

3 ÷ 3 = 1	3 ÷ 1 = 3
6 ÷ 3 = 2	6 ÷ 2 = 3
9 ÷ 3 = 3	9 ÷ 3 = 3
12 ÷ 3 = 4	12 ÷ 4 = 3
15 ÷ 3 = 5	15 ÷ 5 = 3
18 ÷ 3 = 6	18 ÷ 6 = 3
21 ÷ 3 = 7	21 ÷ 7 = 3
24 ÷ 3 = 8	24 ÷ 8 = 3
27 ÷ 3 = 9	27 ÷ 9 = 3
30 ÷ 3 = 10	30 ÷ 10 = 3
33 ÷ 3 = 11	33 ÷ 11 = 3
36 ÷ 3 = 12	36 ÷ 12 = 3

They should be able to answer these questions in any order, including missing number questions.

Division Facts for the 3 Times Table 'Learn by Heart'

Children should know the following division facts for the 3 times table. The aim is for them to recall these facts instantly.

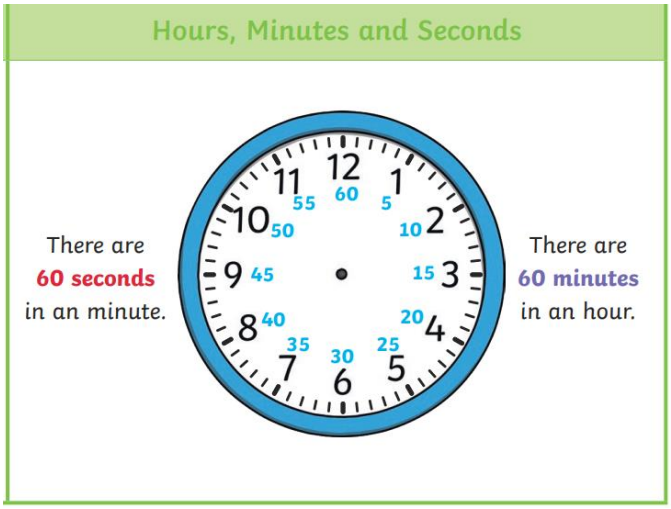
3 ÷ 3 = 1	3 ÷ 1 = 3
6 ÷ 3 = 2	6 ÷ 2 = 3
9 ÷ 3 = 3	9 ÷ 3 = 3
12 ÷ 3 = 4	12 ÷ 4 = 3
15 ÷ 3 = 5	15 ÷ 5 = 3
18 ÷ 3 = 6	18 ÷ 6 = 3
21 ÷ 3 = 7	21 ÷ 7 = 3
24 ÷ 3 = 8	24 ÷ 8 = 3
27 ÷ 3 = 9	27 ÷ 9 = 3
30 ÷ 3 = 10	30 ÷ 10 = 3
33 ÷ 3 = 11	33 ÷ 11 = 3
36 ÷ 3 = 12	36 ÷ 12 = 3

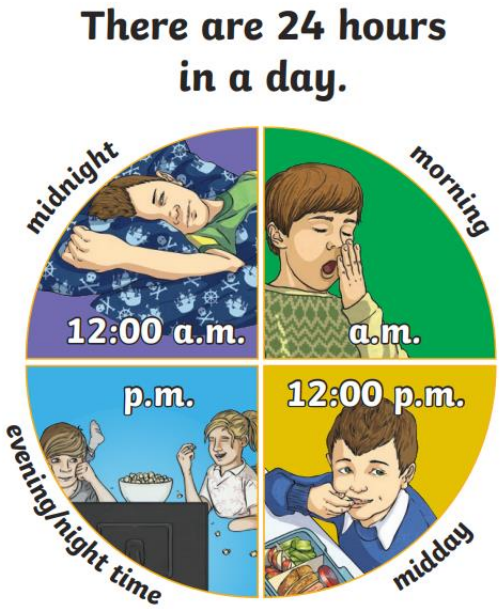
They should be able to answer these questions in any order, including missing number questions.

Duration of Time 'Learn by Heart' Facts

Children should know the following facts about durations of time. The aim is for them to recall these facts instantly.

There are 60 seconds in a minute.
There are 60 minutes in an hour.
There are 24 hours in a day.
There are 7 days in a week.
There are 12 months in a year.
There are 365 days in a year.
There are 366 days in a leap year.





Duration of Time (MONTHS) 'Learn by Heart' Facts

Children should be able to order the months of the year:

January
February
March
April
May
June
July
August
September
October
November
December

Duration of Time (MONTHS) 'Learn by Heart' Facts

Children should be able to order the months of the year:

January
February
March
April
May
June
July
August
September
October
November
December

Duration of Time (DAYS IN EACH MONTH) 'Learn by Heart' Facts

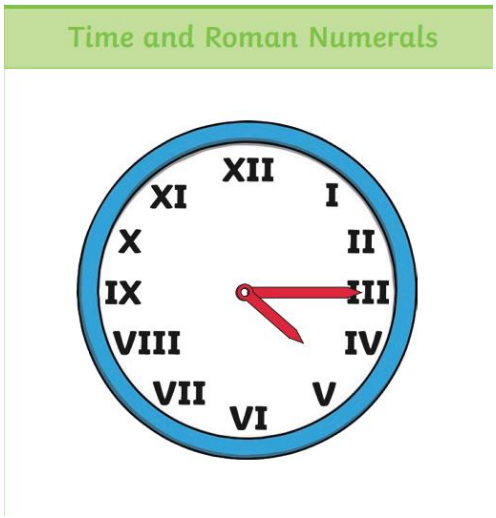
January = 31 Days
February = 28/29 Days
March = 31 Days
April = 30 Days
May = 31 Days
June = 30 Days
July = 31 Days
August = 31 Days
September = 30 Days
October = 31 Days
November = 30 Days
December = 31 Days

Duration of Time (DAYS IN EACH MONTH) 'Learn by Heart' Facts

January = 31 Days
February = 28/29 Days
March = 31 Days
April = 30 Days
May = 31 Days
June = 30 Days
July = 31 Days
August = 31 Days
September = 30 Days
October = 31 Days
November = 30 Days
December = 31 Days

Roman Numerals from 1 – 12 'Learn by Heart'

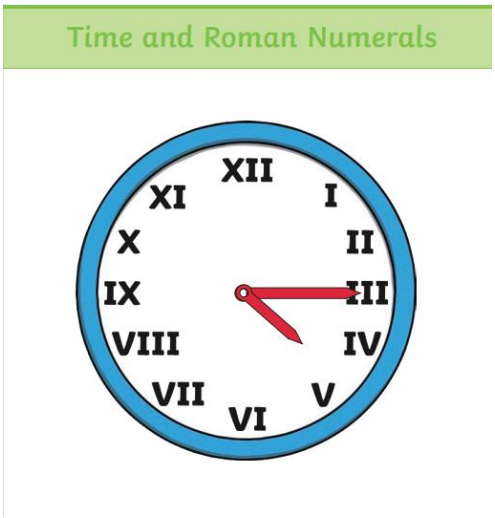
Some clocks have Roman Numerals on them! You need to be able to read the numbers on these clocks by learning the Roman numeral 1 – 12 by heart:



1 = I
2 = II
3 = III
4 = IV
5 = V
6 = VI
7 = VII
8 = VIII
9 = IX
10 = X
11 = XI
12 = XII

Roman Numerals from 1 – 12 'Learn by Heart'

Some clocks have Roman Numerals on them! You need to be able to read the numbers on these clocks by learning the Roman numeral 1 – 12 by heart:



1 = I
2 = II
3 = III
4 = IV
5 = V
6 = VI
7 = VII
8 = VIII
9 = IX
10 = X
11 = XI
12 = XII

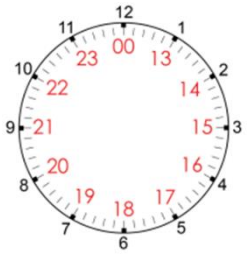
Telling the Time 'Learn by Heart'

Children should be able to tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks:

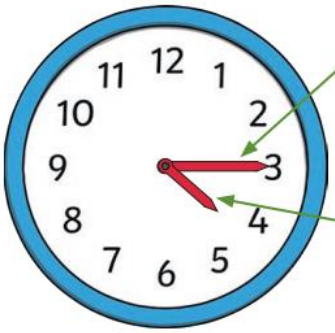
Roman Numerals:

12 Hour Clock:

24 Hour Clock:



	13:00	1 p.m.	1 o'clock	
	14:00	2 p.m.	2 o'clock	
	15:00	3 p.m.	3 o'clock	
	16:00	4 p.m.	4 o'clock	
	17:00	5 p.m.	5 o'clock	
	18:00	6 p.m.	6 o'clock	
	19:00	7 p.m.	7 o'clock	
	20:00	8 p.m.	8 o'clock	
	21:00	9 p.m.	9 o'clock	
	22:00	10 p.m.	10 o'clock	
	23:00	11 p.m.	11 o'clock	
	00:00	12 a.m.	12 o'clock	

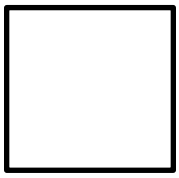
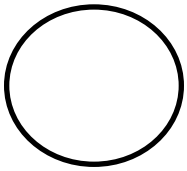
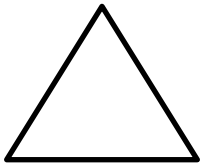
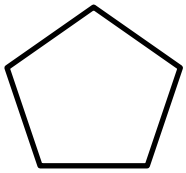
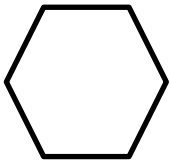
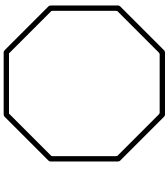


Minute Hand
The long hand points to the minutes past or the minutes to the hour.

Hour Hand
The short hand points to the hour. If this hand is pointing between hours, it is either past the earlier hour or to the later hour.

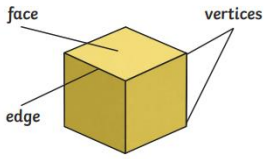
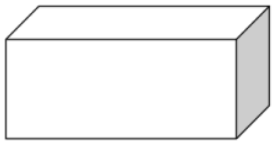
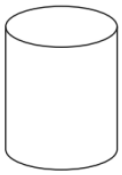
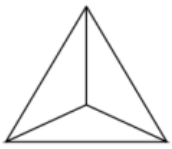
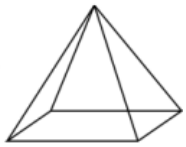
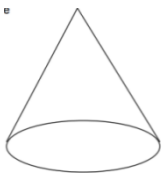
2D Shape 'Learn by Heart' Facts

Children can name and recognize the following 2D shapes and know their properties. They can also recognize the shapes within their environment.

Shape		Sides	Corners (Vertices)
Square		4	4
Rectangle		4	4
Circle		1	0
Triangle		3	3
Pentagon		5	5
Hexagon		6	6
Octogon		8	8

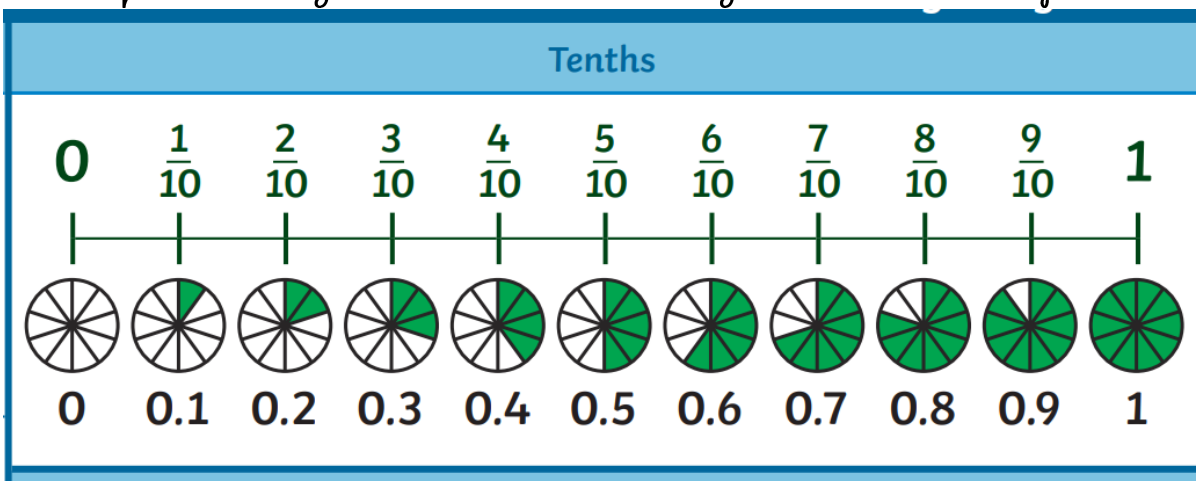
3D Shape 'Learn by Heart' Facts

Children can name and recognise the following 3D shapes and give their properties (number of faces, edges and vertices (corners). They are also able to recognise these shapes in the environment (e.g. a tin of baked beans and a tin of tuna are both cylinders).

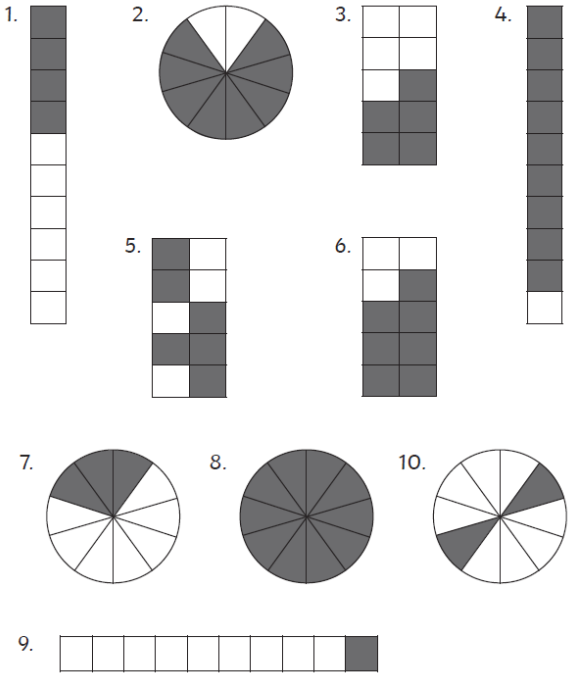
Shape		Faces	Edges	Vertices
Cube		6	12	8
Cuboid		6	12	8
Cylinder		3	2	0
Triangular based pyramid		4	6	4
Square based pyramid		5	8	5
Sphere		1	0	0
Cone		2	1	1

Counting up and down in Tenths 'Learn by Heart'

Children need to be able to count up and down in tenths; recognising that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. Children should try to memorise the facts below.



What fraction of each of the shapes below is shaded?



Multiplication Facts for the 4 Times Table 'Learn by Heart'

Children should know the following facts for the 4 times table. The aim is for them to recall these facts instantly.

1 × 4 = 4	4 x 1 = 4
2 × 4 = 8	4 x 2 = 8
3 × 4 = 12	4 x 3 = 12
4 × 4 = 16	4 x 4 = 16
5 × 4 = 20	4 x 5 = 20
6 × 4 = 24	4 x 6 = 24
7 × 4 = 28	4 x 7 = 28
8 × 4 = 32	4 x 8 = 32
9 × 4 = 36	4 x 9 = 36
10 × 4 = 40	4 x 10 = 40
11 × 4 = 44	4 x 11 = 44
12 × 4 = 48	4 x 12 = 48

They should be able to answer these questions in any order, including missing number questions e.g. 4 × ○ = 16

Multiplication Facts for the 4 Times Table 'Learn by Heart'

Children should know the following facts for the 4 times table. The aim is for them to recall these facts instantly.

1 × 4 = 4	4 x 1 = 4
2 × 4 = 8	4 x 2 = 8
3 × 4 = 12	4 x 3 = 12
4 × 4 = 16	4 x 4 = 16
5 × 4 = 20	4 x 5 = 20
6 × 4 = 24	4 x 6 = 24
7 × 4 = 28	4 x 7 = 28
8 × 4 = 32	4 x 8 = 32
9 × 4 = 36	4 x 9 = 36
10 × 4 = 40	4 x 10 = 40
11 × 4 = 44	4 x 11 = 44
12 × 4 = 48	4 x 12 = 48

They should be able to answer these questions in any order, including missing number questions e.g. 4 × ○ = 16

Division Facts for the 4 Times Table 'Learn by Heart'

Children should know the following Division facts for the 4 times table. The aim is for them to recall these facts instantly.

4 ÷ 4 = 1	4 ÷ 1 = 4
8 ÷ 4 = 2	8 ÷ 2 = 4
12 ÷ 4 = 3	12 ÷ 3 = 4
16 ÷ 4 = 4	16 ÷ 4 = 4
20 ÷ 4 = 5	20 ÷ 5 = 4
24 ÷ 4 = 6	24 ÷ 6 = 4
28 ÷ 4 = 7	28 ÷ 7 = 4
32 ÷ 4 = 8	32 ÷ 8 = 4
36 ÷ 4 = 9	36 ÷ 9 = 4
40 ÷ 4 = 10	40 ÷ 10 = 4
44 ÷ 4 = 11	44 ÷ 11 = 4
48 ÷ 4 = 12	48 ÷ 12 = 4

Division Facts for the 4 Times Table 'Learn by Heart'

Children should know the following Division facts for the 4 times table. The aim is for them to recall these facts instantly.

4 ÷ 4 = 1	4 ÷ 1 = 4
8 ÷ 4 = 2	8 ÷ 2 = 4
12 ÷ 4 = 3	12 ÷ 3 = 4
16 ÷ 4 = 4	16 ÷ 4 = 4
20 ÷ 4 = 5	20 ÷ 5 = 4
24 ÷ 4 = 6	24 ÷ 6 = 4
28 ÷ 4 = 7	28 ÷ 7 = 4
32 ÷ 4 = 8	32 ÷ 8 = 4
36 ÷ 4 = 9	36 ÷ 9 = 4
40 ÷ 4 = 10	40 ÷ 10 = 4
44 ÷ 4 = 11	44 ÷ 11 = 4
48 ÷ 4 = 12	48 ÷ 12 = 4

Multiplication Facts for the 8 Times Table 'Learn by Heart'

Children should know the following facts for the 8 times table. The aim is for them to recall these facts instantly.

1 × 8 = 8	**8 x 1 = 8**
2 × 8 = 16	**8 x 2 = 16**
3 × 8 = 24	**8 x 3 = 24**
4 × 8 = 32	**8 x 4 = 32**
5 × 8 = 40	**8 x 5 = 40**
6 × 8 = 48	**8 x 6 = 48**
7 × 8 = 56	**8 x 7 = 56**
8 × 8 = 64	**8 x 8 = 64**
9 × 8 = 72	**8 x 9 =72**
10 × 8 = 80	**8 x 10 = 80**
11 × 8 = 88	**8 x 11 = 88**
12 × 8 = 96	**8 x 12 = 96**

Multiplication Facts for the 8 Times Table 'Learn by Heart'

Children should know the following facts for the 8 times table. The aim is for them to recall these facts instantly.

1 × 8 = 8	**8 x 1 = 8**
2 × 8 = 16	**8 x 2 = 16**
3 × 8 = 24	**8 x 3 = 24**
4 × 8 = 32	**8 x 4 = 32**
5 × 8 = 40	**8 x 5 = 40**
6 × 8 = 48	**8 x 6 = 48**
7 × 8 = 56	**8 x 7 = 56**
8 × 8 = 64	**8 x 8 = 64**
9 × 8 = 72	**8 x 9 =72**
10 × 8 = 80	**8 x 10 = 80**
11 × 8 = 88	**8 x 11 = 88**
12 × 8 = 96	**8 x 12 = 96**

Division Facts for the 8 Times Table 'Learn by Heart'

Children should know the following division facts for the 8 times table. The aim is for them to recall these facts instantly.

8 ÷ 8 = 1	8 ÷ 1 = 8
16 ÷ 8 = 2	16 ÷ 2 = 8
24 ÷ 8 = 3	24 ÷ 3 = 8
32 ÷ 8 = 4	32 ÷ 4 = 8
40 ÷ 8 = 5	40 ÷ 5 = 8
48 ÷ 8 = 6	48 ÷ 6 = 8
56 ÷ 8 = 7	56 ÷ 7 = 8
64 ÷ 8 = 8	64 ÷ 8 = 8
72 ÷ 8 = 9	72 ÷ 9 = 8
80 ÷ 8 = 10	80 ÷ 10 = 8
88 ÷ 8 = 11	88 ÷ 11 = 8
96 ÷ 8 = 12	96 ÷ 12 = 8

Division Facts for the 8 Times Table 'Learn by Heart'

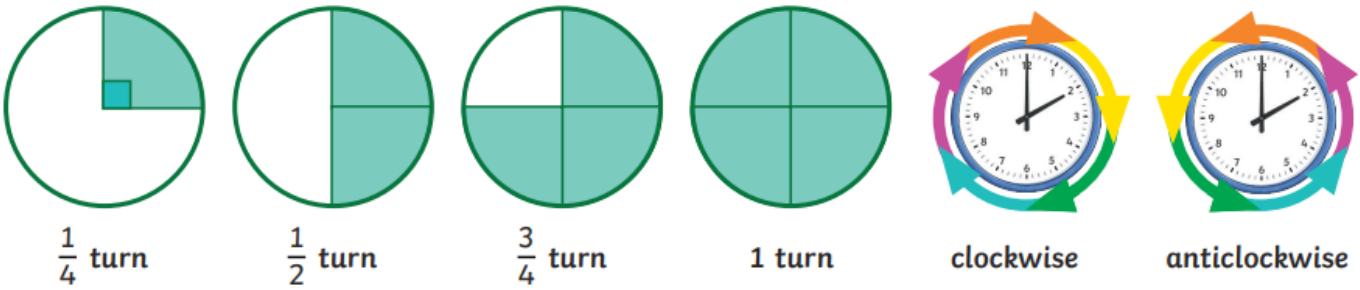
Children should know the following division facts for the 8 times table. The aim is for them to recall these facts instantly.

8 ÷ 8 = 1	8 ÷ 1 = 8
16 ÷ 8 = 2	16 ÷ 2 = 8
24 ÷ 8 = 3	24 ÷ 3 = 8
32 ÷ 8 = 4	32 ÷ 4 = 8
40 ÷ 8 = 5	40 ÷ 5 = 8
48 ÷ 8 = 6	48 ÷ 6 = 8
56 ÷ 8 = 7	56 ÷ 7 = 8
64 ÷ 8 = 8	64 ÷ 8 = 8
72 ÷ 8 = 9	72 ÷ 9 = 8
80 ÷ 8 = 10	80 ÷ 10 = 8
88 ÷ 8 = 11	88 ÷ 11 = 8
96 ÷ 8 = 12	96 ÷ 12 = 8

Angles 'Learn by Heart' Facts

Children in Year 3 need to know that an angle is a turn. They need to understand that an angle is created when two straight lines meet at a point. They need to be able to recognise and name the three angles below and know the associated degrees fact. Can your child name each angle in the images below?

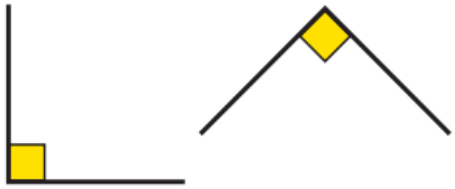
Angles can be used as a description of a turn.



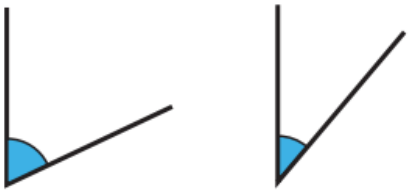
$\frac{1}{4}$ turn | $\frac{1}{2}$ turn | $\frac{3}{4}$ turn | 1 turn | clockwise | anticlockwise

An angle is created when two straight lines meet at a point or intersect.

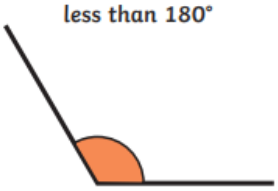
Right Angle



Acute Angle
Less than 90°



Obtuse Angle
Greater than 90° and less than 180°



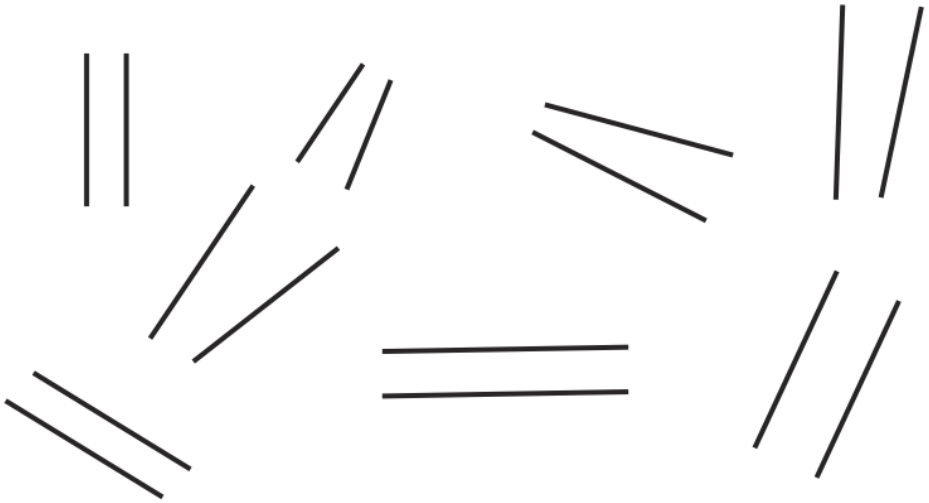
Types of Lines 'Learn by Heart' Facts

Children in Year 3 are taught how to regognise and name types of lines.

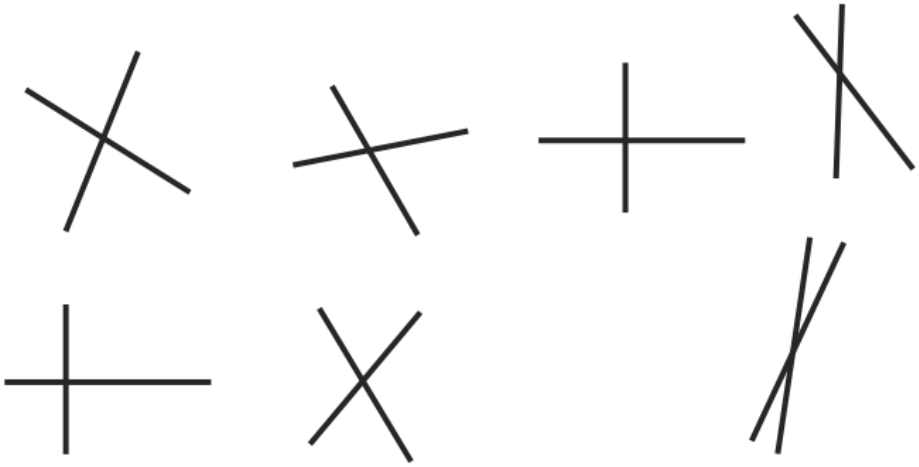
Type of Lines			
horizontal	vertical	parallel	perpendicular

Can you child tell you what type of line is in each of the images below? Parallel lines never meet but remain the same distance apart. Perpendicular lines are those that cross at a perfect right angle.

Can you circle the pairs of parallel lines?



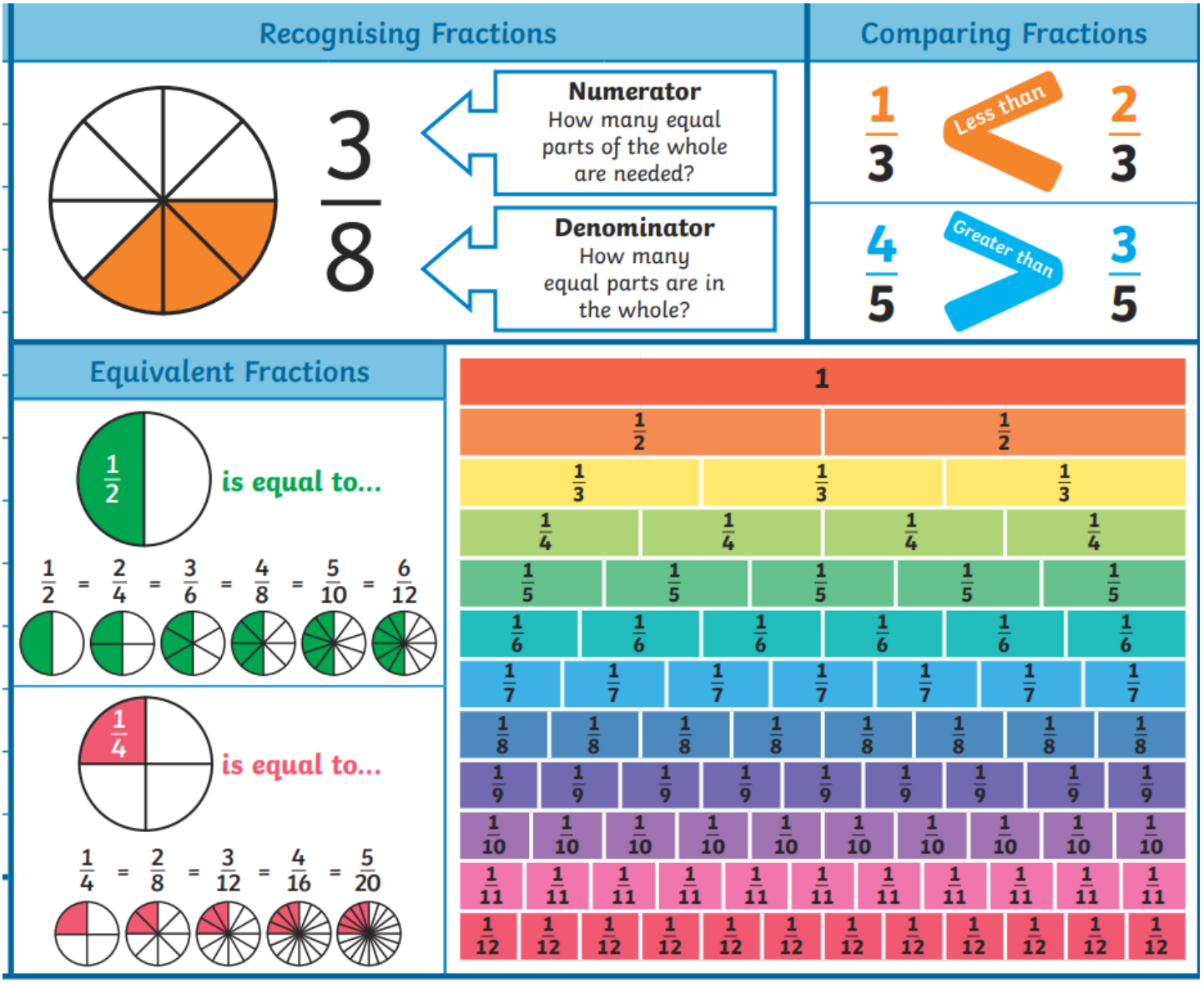
Can you circle the pairs of perpendicular lines?



Equivalent Fractions 'Learn by Heart' Facts

In Year 2, your child learn how to recognise the following fractions: 1/4, 1/2 and 3/4. Some children may have even learn about 1/3 as a fraction. In Year 3, children build on this knowledge by identifying equivalent fractions (fractions that are the same size as each other). They will use a fraction wall to support them with this.

For the facts for the next two weeks, we would like your child to learn equivalent fractions of 1/4 , 1/2, 1/5 and 1/6. Your child will understand how to use the fraction wall below to support them. For example, 1/4 = 2/8.



Money' Learn by Heart' Facts

In Year 3, children need to be able to recognise notes and coins. They should be able to make given amounts using a combination of different coins/notes. You could ask your child to make amounts using any coins/notes you may have at home. If not, they could simply use the image below to support the recognition of each coin/note.

UK Coins

1p one penny coin
2p two pence coin
5p five pence coin
10p ten pence coin
20p twenty pence coin
50p fifty pence coin
£1 one pound coin
£2 two pound coin

UK Notes

£5 five pound note
£10 ten pound note
£20 twenty pound note
£50 fifty pound note

Pounds and Pence

£3 and 25 pence

£52 and 13 pence

Convert Pounds and Pence

120 pence
100 pence is £1
120 pence is £1 and 20 pence.

Mass 'Learn by Heart' Facts

Children in Year 3 need to know that:

1000grams (g) = 1 kilogram (kg)

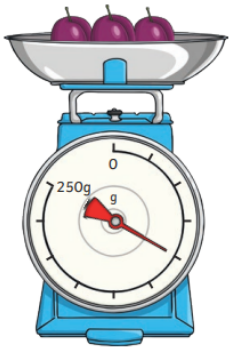
They need to be able to reach scales that show amounts in grams and kilograms. If you have any scales at home, ask your child to weigh out given amounts in grams/kilograms!

Measure and Compare Mass

Scales can be used to measure grams.

A gram is a unit of measurement that is used to measure the mass of something.

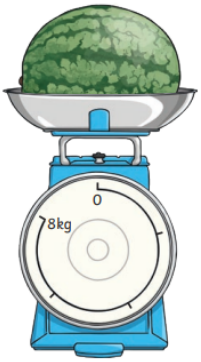
Grams can be written as **g**.



Scales can be used to measure kilograms.

A kilogram is a unit of measurement that is greater than a gram. It is also used to measure the mass of something.

Kilograms can be written as **kg**.

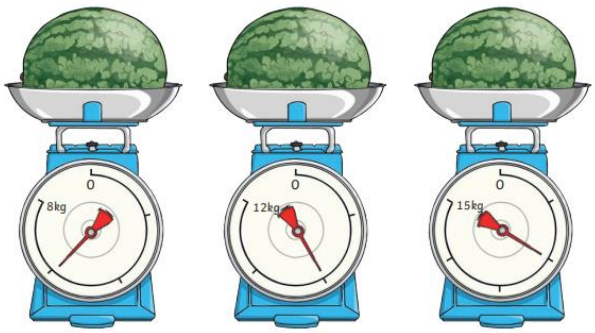


1000g = 1kg

To compare mass, we can use the words 'heavier' and 'lighter'.

Mass

Each of the melons has a mass of 6kg but the arrows are all pointing at different points on the scales. This is because each of the measuring scales have different increments marked on them.

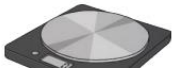


Always look carefully at how the numbers on the scales increase when reading a measurement.

Add and Subtract Mass

600g + 500g = 1100g = **1kg 100g**

1kg - 300g = 1000g - 300g = **700g**



Children also need to be able to add and subtract using grams and kilograms.

Capacity 'Learn by Heart' Facts

Children in Year 3 need to know and use the language of capacity (see image below) and add and subtract using these measures. They also need to know the following facts:

1000 millilitres (ml) = 1 litre

Measure and Compare Capacity

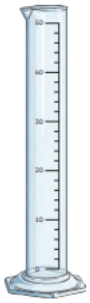
Capacity is the amount of liquid a container can hold.

Volume is how much liquid is in the container.

Measuring cylinders can be used to measure smaller volumes.

Smaller volumes are measured in millilitres.

Millilitres can be written as ml.



Measuring jugs can be used to measure larger volumes.

Greater volumes are measured in litres.

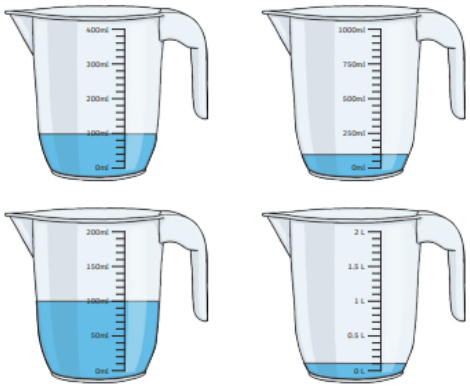
Litres can be written as l.

1000ml = 1l

To compare capacities, we can use the word 'full'.

Capacity

Measuring containers all have different capacities.



Each of these containers contain the same volume of 100 millilitres but have different capacities and scales. Always look carefully at how the numbers on the scales increase when reading a measurement.

Add and Subtract Capacities

800ml + 400ml = 1200ml = **1l 200ml**

1l 300ml − 200ml = **1l 100ml**

Length 'Learn by Heart' Facts

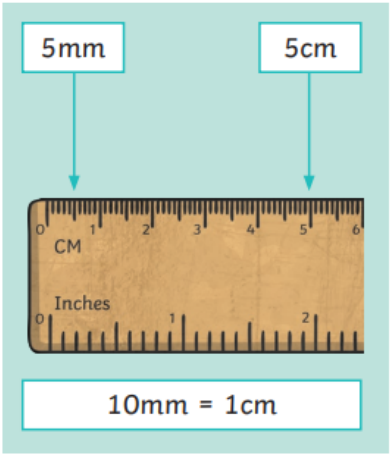
Children in Year 3 need to be able to measure and convert between centimetres (cm), millimetres (mm) and metres (m).

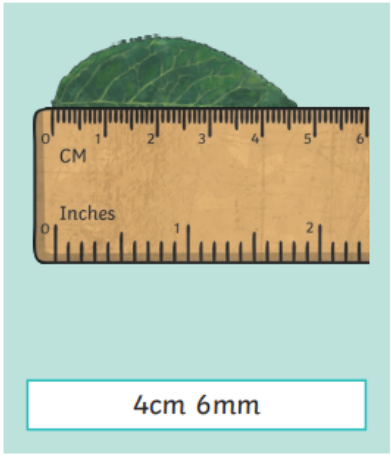
1cm = 10mm

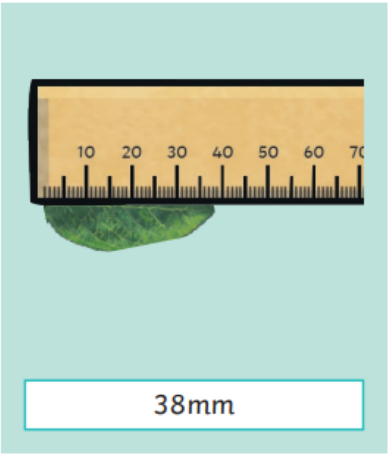
100cm = 1m

They need to know the rules of how to convert between the different units of measure (see image below).

Measure Length



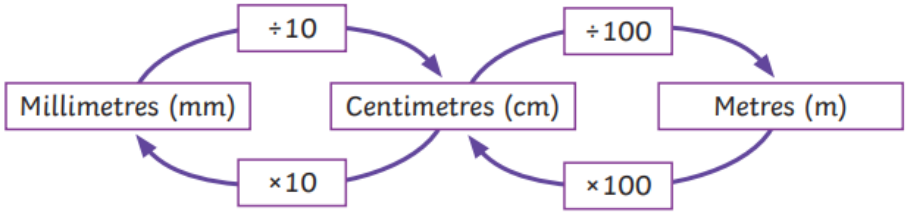




Equivalent Length

100 centimetres = 1 metre

10 millimetres = 1 centimetre



317cm	
300cm	17cm
3m	17cm
3m 17cm	

Ask the following types of questions to support your child's understanding:

How many millimetres are there in 4cm?

How do you convert from millimetres to centimetres?