




# Year 2 Maths Knowledge Organisers

## Autumn



Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Half term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<u>Place value</u> and <u>number bonds</u>				<u>+</u> and <u>=</u>	<u>X</u> and <u>÷</u>	<u>+</u> and <u>=</u>	<u>X</u> and <u>÷</u>		<u>+</u> and <u>-</u>	4 OPS	Problem solving	Assessment	Consolidation		



Click on a maths area 



## Vocabulary

- Ones
- Tens
- Greater than
- Less than
- Equal
- Counting
- Fewer
- More than

## Counting in 2s, 5s and 10s

2s

[https://youtu.be/HtxNe5yAF\\_E](https://youtu.be/HtxNe5yAF_E)

5s

<https://youtu.be/SFaBDaOmly>

10s

<https://youtu.be/W8CEOIAOGa>

s

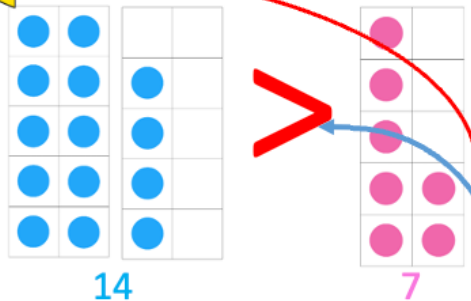
## Counting forwards and backwards across 100

1. Practice chanting the numbers forwards and backwards
2. Spot the link with counting up to 10 and backwards.
3. Children go to the next line counting forwards (the last line counting back)

E.g. counting from 27 to 32, move to 31 after 30.

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

## Comparing numbers to 20



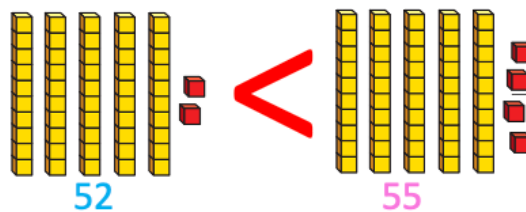
1. Use egg boxes/ten frames to represent the numbers (organised accordingly).
2. Become familiar with  $>$   $<$  and  $=$  (Think of the hungry crocodile that wants to eat the larger value – see above).

## Place Value

Y1/2



## Comparing numbers to 100

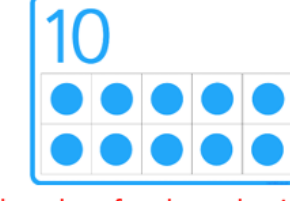
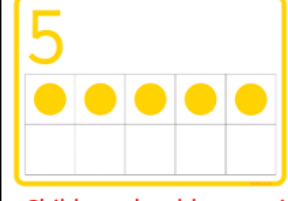
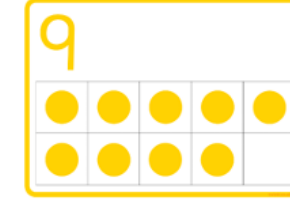
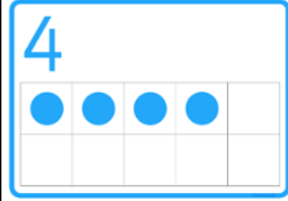
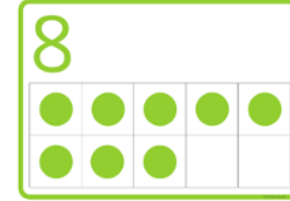
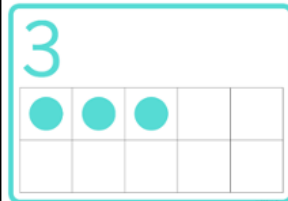
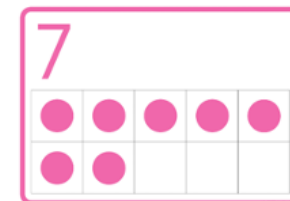
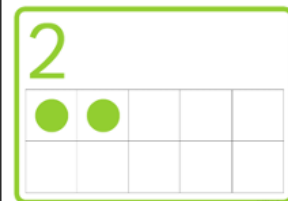
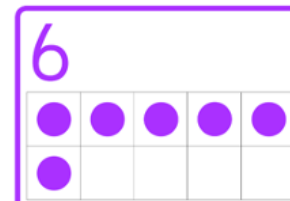
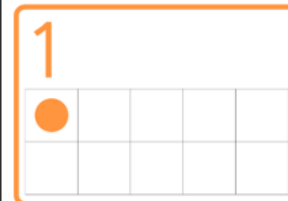


Children introduced to base 10 and organise the numbers the same way (in fives).

- Y2 – they can recognise the digit in each number. E.g. 52 has 5 tens and 2 ones. They will prove this with resources.
- Y2 – they would also order more than 2 numbers.

## Representing numbers using ten frame/egg boxes (reinforce from Reception then move onto representing numbers to 20)

Always place the objects in a line until you reach the number 5! Children identify one more and less.



Children should recognise the value of each number in this formation instantly. They should recognise 5 and see 8 as 3 more and compare these numbers.

[Click here to return to selection page](#)

## Vocabulary

- Add
- Subtract
- Take away
- Difference between
- Partition (split a number)
- Number bonds
- Bar model
- Ten frame/egg box

### Number bond songs to support **instant recall**

9s –

<https://www.loom.com/share/a17d1126171c426bae4debb3f7bb9c24b>

8s –

<https://www.loom.com/share/0260942d28ef4181a084422eea337d0b>

7s –

<https://www.loom.com/share/8559d767dc5542ec911784d5e8289853>

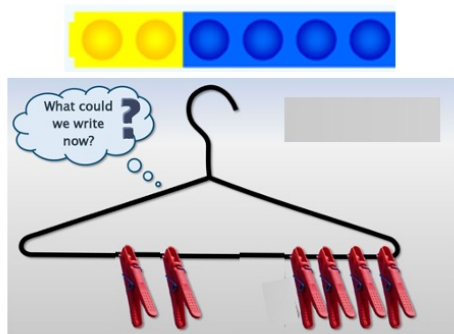
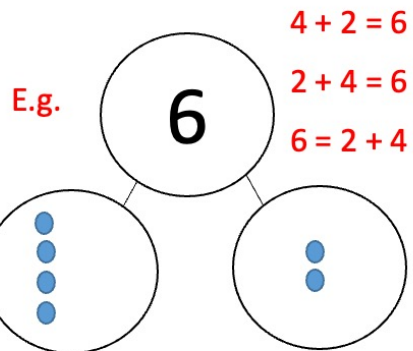
6s –

<https://www.loom.com/share/d18b2b05f37f4b72ad8e70a357788426>

## Number bonds – knowing what they are.

Number bonds are simply different ways to make a number.

1. Use objects and the part-whole to partition (split) a number in different ways.

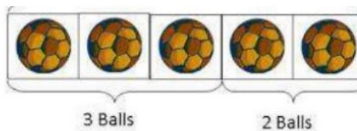


### Application of number bonds to 10 for bonds to 20

If I know number bonds for 7, I can use them for 17.

- $1 + 6 \rightarrow 1 + 16$   
 $2 + 5 \rightarrow 2 + 15$   
 $3 + 4 \rightarrow 3 + 14$   
 $4 + 3 \rightarrow 4 + 13$

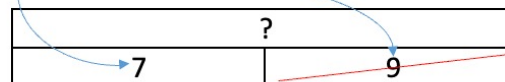
## Add and subtract using bar models



Use pictures to add two numbers together as a group or in a bar.



$7 = \_ - 9$



Add back to 7 (use resources to help)

## Addition & Subtraction

Y1/2



### Application of number bonds to 10 for 100

If I know number bonds for 7, I can use them for 70.

- $1 + 6 \rightarrow 10 + 60$   
 $2 + 5 \rightarrow 20 + 50$   
 $3 + 4 \rightarrow 30 + 40$   
 $4 + 3 \rightarrow 40 + 30$

### Number bonds for 100

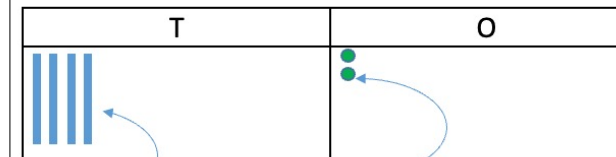
Use an abacus to demonstrate link.

$20 + 80 = 100$



## Y2 Adding tens and ones (progressing onto mentally)

$42 + 25$



$40 + 20 = 60$

Draw links with column addition/subtraction

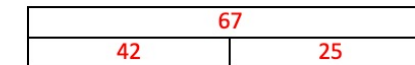
T O

4 2

+ 2 5

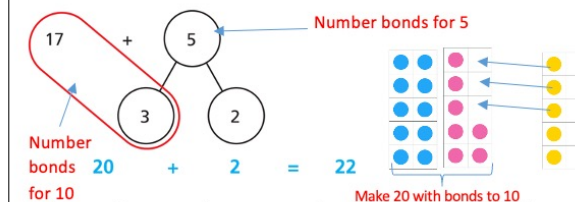
6 7

Children should also draw base ten and show calculations as a bar model.

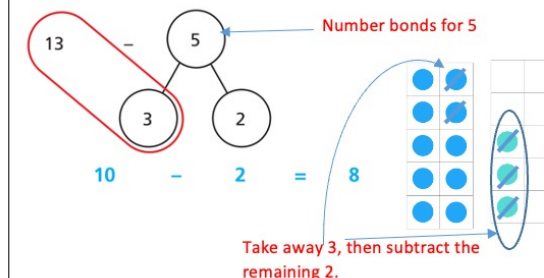


### Apply number bonds in addition & subtraction

Addition – get to the next 10 using number bonds to 10 (7+3) and then add the rest. Imagine an egg box to help



Subtraction – subtract to the last ten then subtract the rest.



Take away 3, then subtract the remaining 2.

Click here to return to selection page

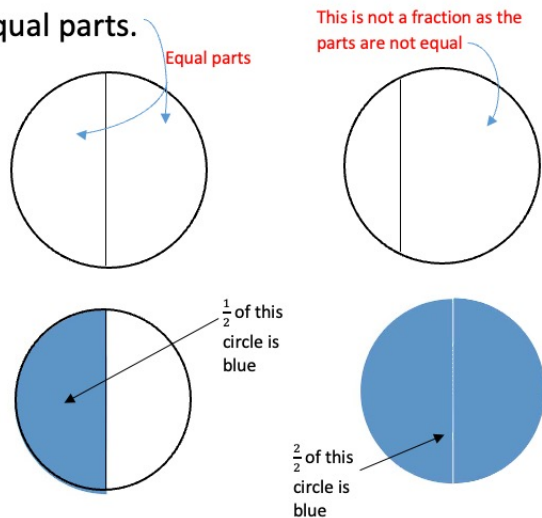


## Vocabulary

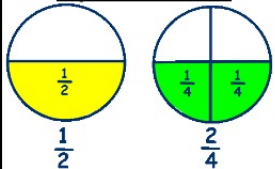
- Fractions
- Half |
- Quarter
- Bar model
- Shape
- Divide
- Equal

## What is a fraction?

A fraction is when something is split into equal parts.

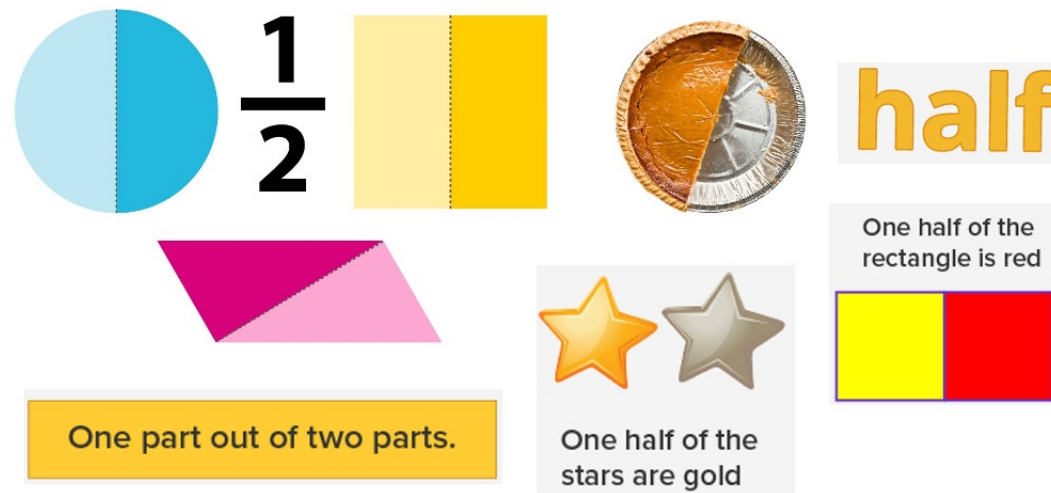


## Equivalent - Y2



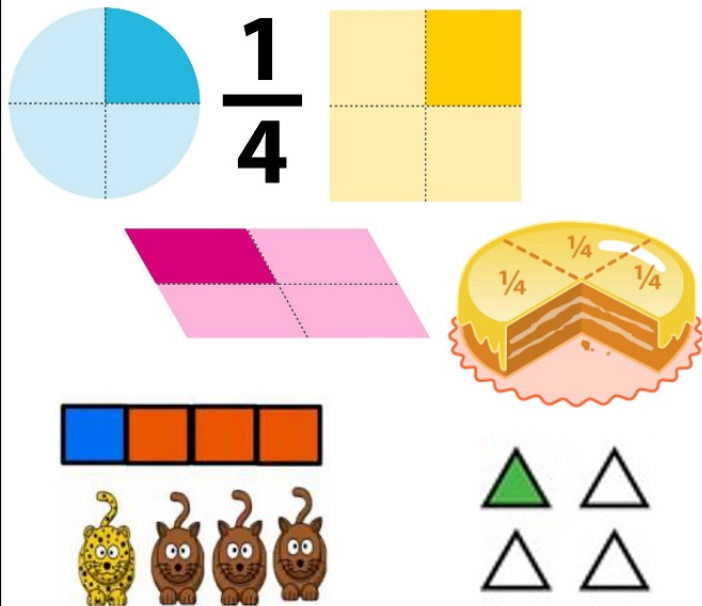
## Halves

A half is when something is split into 2 equal groups.



## Quarters

A quarter is when something is split into 4 equal groups.



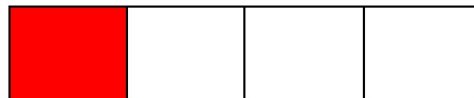
## Fractions Y1/2



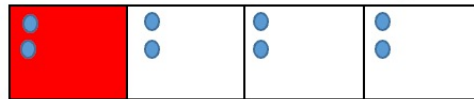
### Fractions of an amount

$$\frac{1}{4} \text{ of } 8 = ?$$

1. Draw the fraction.



2. Share 8 items into all of the parts.



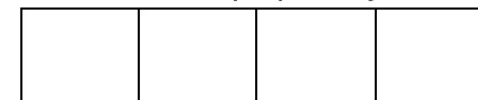
3. Count the number in the fraction that is coloured.

$$\frac{1}{4} \text{ of } 8 = 2$$

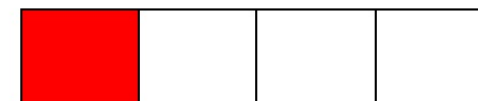
## Drawing fractions (bar model)

$$\frac{1}{4}$$

1. Look at the denominator to see how many parts there are.
2. Draw that many squares joined together (4)



3. Colour in 1 of the parts as the numerator is 1.



## Fractions of an amount #2

$$\frac{3}{4} \text{ of } 8 = ?$$

$$6$$

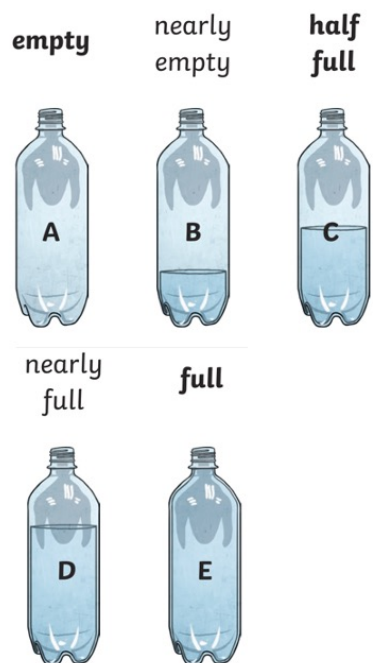


[Click here to return to selection page](#)

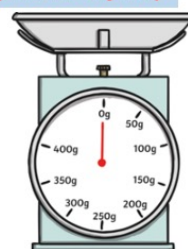
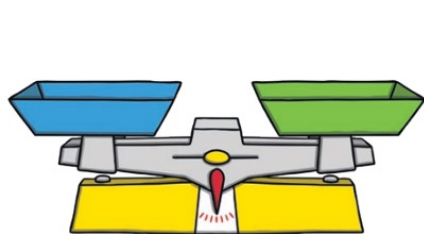
## Vocabulary

- Weight
- Volume
- Scale
- Measure
- Compare
- Heavier
- Lighter
- Equal
- More than
- Less than
- Half
- Empty
- Full

## Estimating volume



## How can you measure weight?

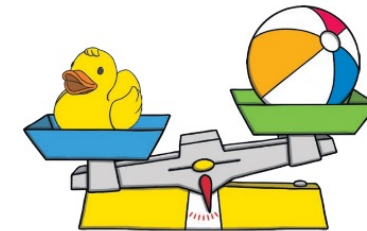


Grams = g (lighter objects)

Kilograms = kg (heavier objects)

Children to explore using different scales. Children in Y2 can explain which resource is better for heavier objects.

## Comparing weight



The is heavier than the .

Or the is lighter than the .

Y2 use > and < to compare.



Remember the crocodile wants to eat the greater value.



## The most appropriate scale



Children learn which resource is better to weigh different things. Y2 know kg is better for heavier things.

## Measurement #1

Y1/2



## Equal weight means the same



## Superlatives in measurement (-est)

When comparing more than 2 things, superlatives are used. E.g.

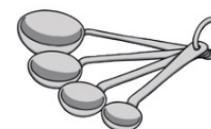
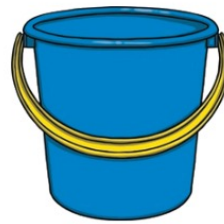
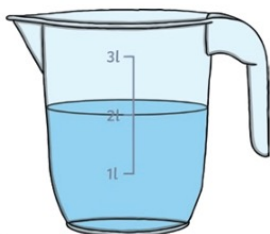
Lightest



Heaviest



## How can you measure weight?



Millilitres = ml (less volume)

Litres = l (more volume)

Children to explore using different scales. Children in Y2 can explain which resource is better for more liquid.

## How can you measure length?

Tape measure



## length?



30cm ruler



Metre ruler (100cm)

Children learn which is resource is most appropriate to measure different lengths (e.g. a 30cm ruler is not good to measure the length of the playground).



Trundle wheel

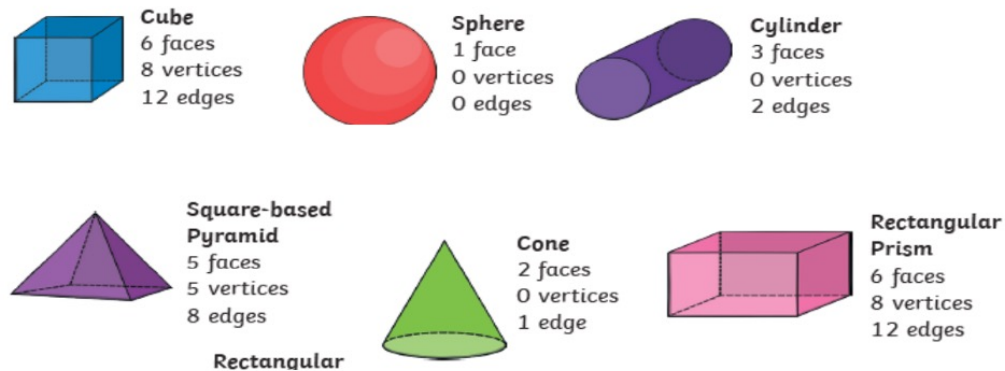
[Click here to return to selection page](#)



## Vocabulary

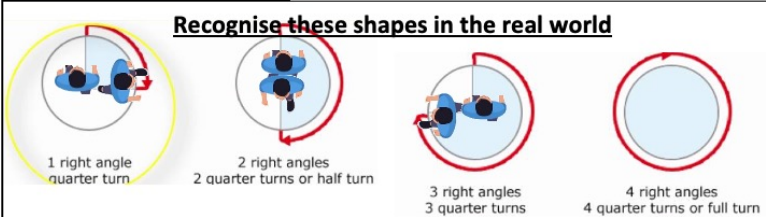
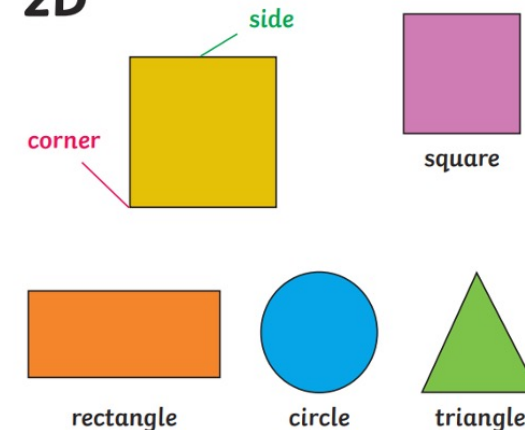
- Circle
- Square
- Rectangle
- Triangle
- Cube
- Cuboid
- Sphere
- Cone
- Cylinder
- Pyramid

## Y2 – exploring properties of 2D shapes



## Y1 – 2D Shapes naming

2D



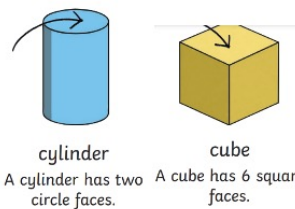
## Geometry Y1/2



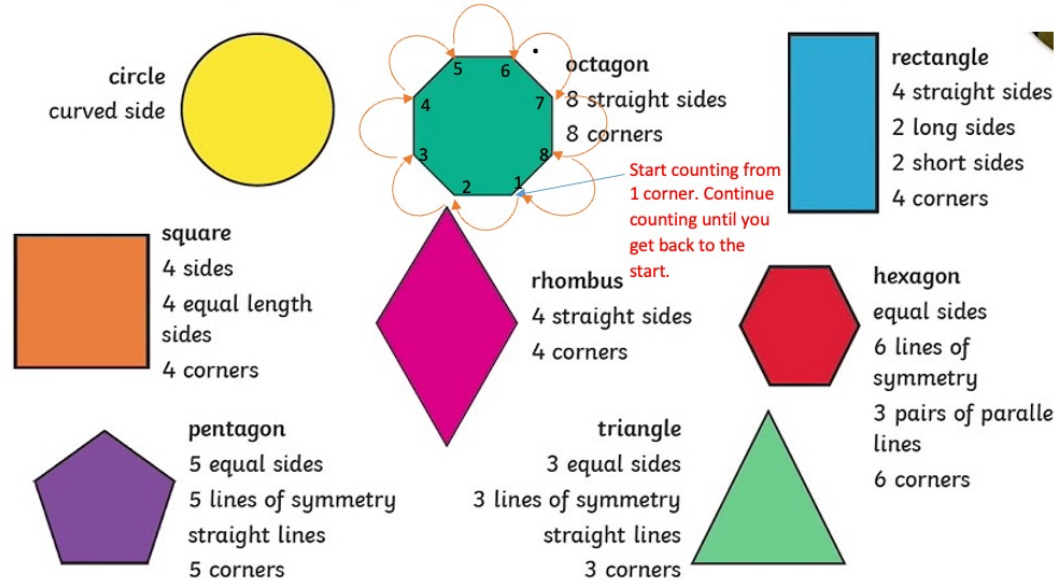
## Recognise these shapes in the real world



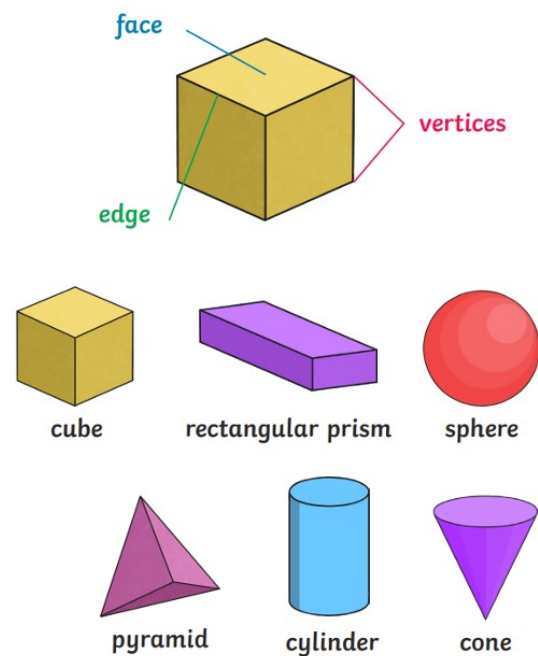
## Recognise faces on 3D shapes



## Y2 – exploring properties of 2D shapes



## Y1 - 3D Shapes naming



[Click here to return to selection page](#)

## Vocabulary

- Money
- Pence/penny
- Pound (£)
- Value
- Time
- Seconds
- Minutes
- Hours
- Day
- Week
- Month
- Year
- January
- February
- March
- April
- May
- June July August
- September
- October
- November
- December

## Writing the pound sign £

- 1.
- 2.
- 3.
- 4.

**Top tip!** Think of a walking stick for the start of the symbol.

[Click here to return to selection page](#)

## Value of coins



## Adding coins

**5p**

$1p + 1p + 1p + 1p + 1p = 5p$

Children physically use coins to add.

**£20**

## Measurement #2

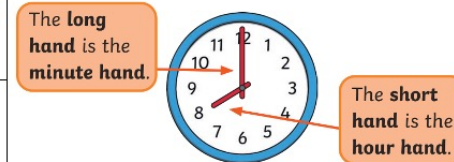
Y1/2



## Value of notes

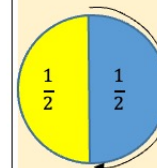


## Telling the time - o'clock

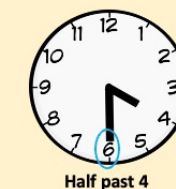
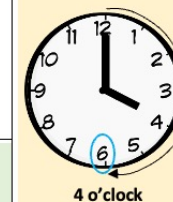


The time is 8 o'clock.

## Half past



Half past is when the minute hand is half way around the clock, so it points to the number 6.



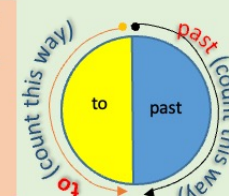
## Sequencing

This also occurs through daily discussions.

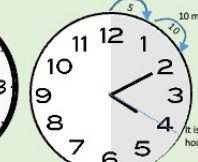


## Past and to (5 minute intervals)

When the minute hour is on this side, you count to see how many minutes it is until the next hour (count this way from 12)



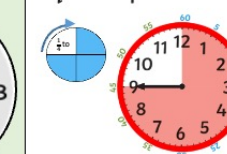
When the minute hour is on this side, you count to see how many minutes it is past the last hour (count in 5s this way from 12)



## Quarter past and to



quarter past



quarter to



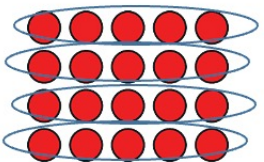
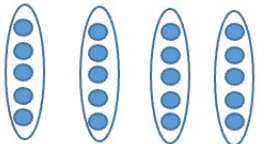
## Vocabulary

- Multiplication
- Repeated addition
- Groups of
- Times
- Division
- Divide
- Equal

## Different representations

$5 \times 4 = 20$

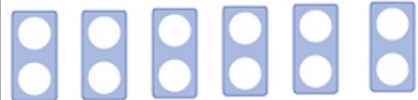
20			
5	5	5	5



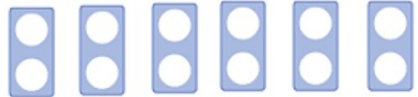
## Multiplication

Multiplication is adding the same number one or more times.

2    4    6    8    10    12



14    16    18    20    22    24



<https://youtu.be/HtxNe5yAF E>

5    10    15    20    25



30    35    40    45    50



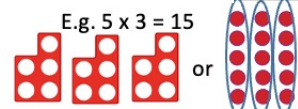
55    60



<https://youtu.be/5FaBDqOmiyl>

## Multiplication calculation meaning

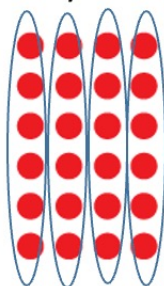
The first number is the times table. The second number is how many times the number is added.



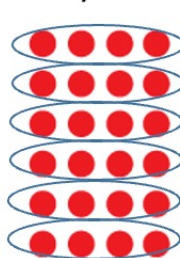
## Multiplication and the Commutative Law

Multiplication can be done in any order. When 2 numbers are swapped, the grouping of the number changes but the answer remains the same.

This array shows  $6 \times 4$



This array shows  $4 \times 6$



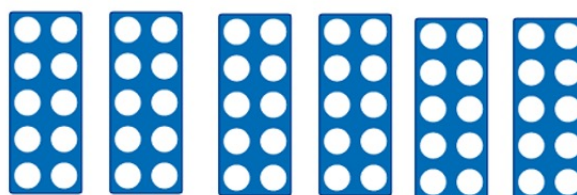
## Multiplication & Division Y1/2



10    20    30    40    50    60

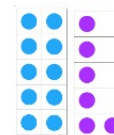


70    80    90    100    110    120



<https://youtu.be/W8CEOIAOGas>

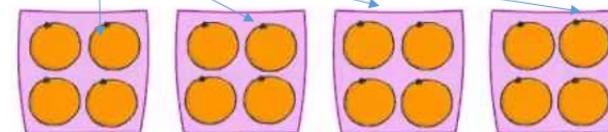
## Division by sharing



$16 \div 4$

Total

share into 4 groups



1. Create the total (first number).
2. Use some bags or something similar for the number of groups.
3. Share the total into the groups.
4. Count how many is in each group.

## Division by grouping

Division by grouping is when numbers are sorted into groups as opposed to being shared. It is the most efficient method of division as you can use times tables to calculate it mentally.

$10 \div 5$

Division by grouping

Division by sharing



Count in groups of 5. How many groups are there? (2)

Share the total (10) into 5 groups. How many are in each group? (2)

## Division is not commutative

$10 \div 5 = 2$  (as shown above)

$5 \div 10$  you cannot share into all the groups and you cannot group the number 5 into a 10.

[Click here to return to selection page](#)