Year 3 Mathematics Parents Information Support Booklet

'be kind, be honest and have courage to live life in all its fullness' John 10:10

Autumn Knowledge Organisers– Year 3

Block 1– Place Value within 1,000

Number and Place Value — Knowledge Organiser

Key Vocabulary

- hundreds
- tens
- ones
- zero
- place value
- greater than
- less than
- order
- more
- less
- partition
- digit

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3-Digit Numbers

256

two hundred	fifty	six
200	50	6

Counting in 4s and 8s

0	4	8	12	16	20	24	28	32	36	40

0	8	16	24	32	40	48	56	64	72	80

10 and 100 More or Less

Ten Less		Ten More
120	130	140

One Hundred Less		One Hundred More
212	312	412

Counting in 50s and 100s

0	50	100	150	200	250	300	350	400	450	500

0	100	200	300	400	500	600	700	800	900	1000

Number and Place Value — Knowledge Organiser

Compare and Order

100s	10s	1s

324 > 243

greater than

100s	10s	1s

79 < 126

less than

smallest

greatest

497 508 512 521 602

500 600

Represent Numbers to 1000

587

five hundred and eighty-seven

Hundreds	Tens	Ones

500 + 80 + 7

587 → 500, 80, 7

Hundreds	Tens	Ones

Numerals and Words to 1000

0	100	200	300	400	500	600	700	800	900	1000
zero	one hundred	two hundred	three hundred	four hundred	five hundred	six hundred	seven hundred	eight hundred	nine hundred	one thousand

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Vocabulary and home learning Blocks 1 & 2 Place Value

How many?

Count on/back

Which number comes after ….

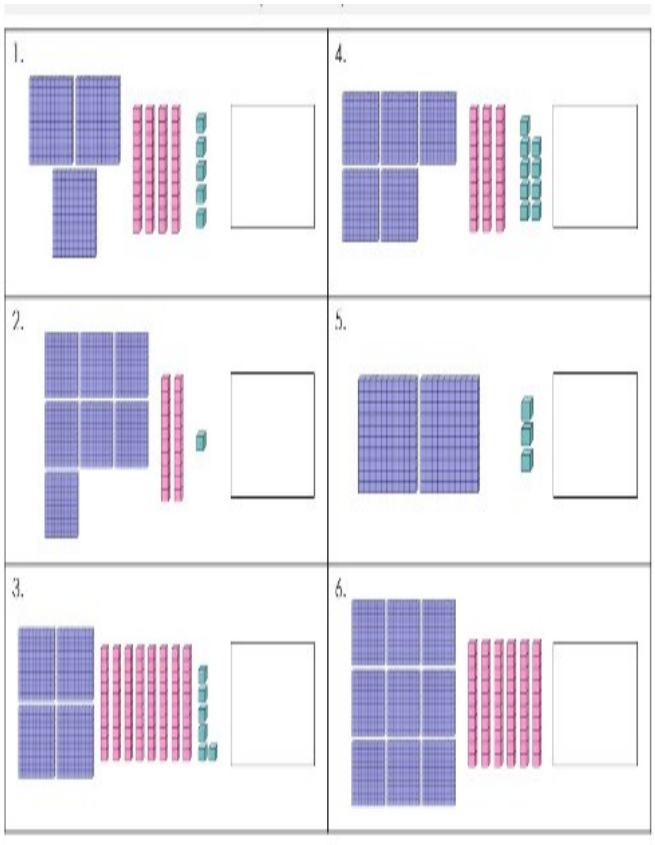
Greater than/less than

Practise dictation of numbers up to 1,000

Practise writing in figures and words

Make a place value grid and practise making a number with counters or Cheerios. Make me a number which has a 2 in the hundreds.

Use a part -part whole number to partition a number. (see the circular part part whole 'cherry' image in on the previous page).



Hundreds 100	Tens 10	Ones 1

Block 2– Addition and Subtraction within 1,000

Addition and Subtraction — Knowledge Organiser

Key Vocabulary

- add
- total
- plus
- sum
- more
- altogether
- difference
- subtract
- less
- minus
- take away
- column addition
- column subtraction
- exchange
- estimate
- inverse operation
- solve problems
- number facts
- place value

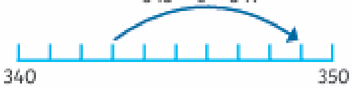
Addition and Subtraction Methods

3-digit and 1-digit numbers

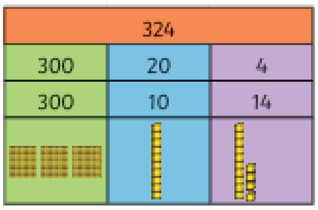
Not crossing 10s

268 – 4 = 264

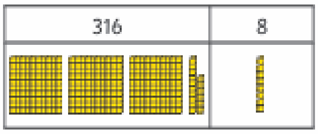
343 + 6 = 349



Crossing 10s (Exchanging)



316 + 8 = 324



324 - 8 = 316

3-digit and 2-digit numbers

Add and subtract tens

451 + 3 tens = 481 (5 + 3 = 8)

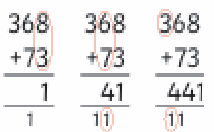
451 – 4 tens = 411 (5 – 4 = 1)

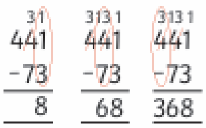
Crossing 10s (Exchanging)

258 + 80 = 338

- Column method
- Count in 10s mentally
- Add 100, subtract 20

Crossing 10 and 100



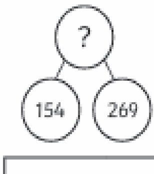


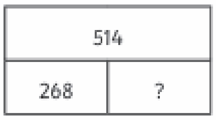
3-digit numbers

Not crossing

679 – 351 = 328

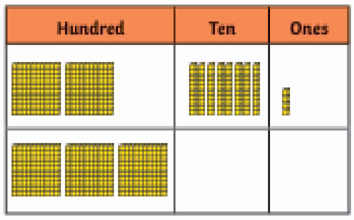
Crossing 10s (Exchanging)





Add and Subtract 100s

284 + 300 = 584

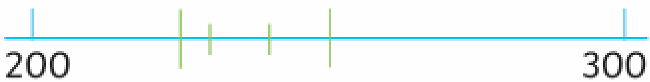


Addition and Subtraction — Knowledge Organiser

Estimate

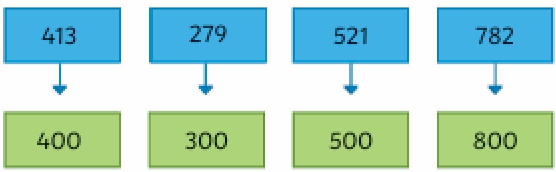
Estimate by dividing the hundred into 250 and 225.

Estimate 10s (330, 340) between 325 and 350.



Estimate 167 – 89
Use near numbers 170 – 90 = 80

Near numbers:

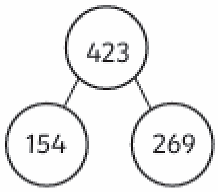


Check Answers

347 – 74 = 273 can be checked using

273 + 74 = 347

This part whole shows the inverse calculations using these three numbers.



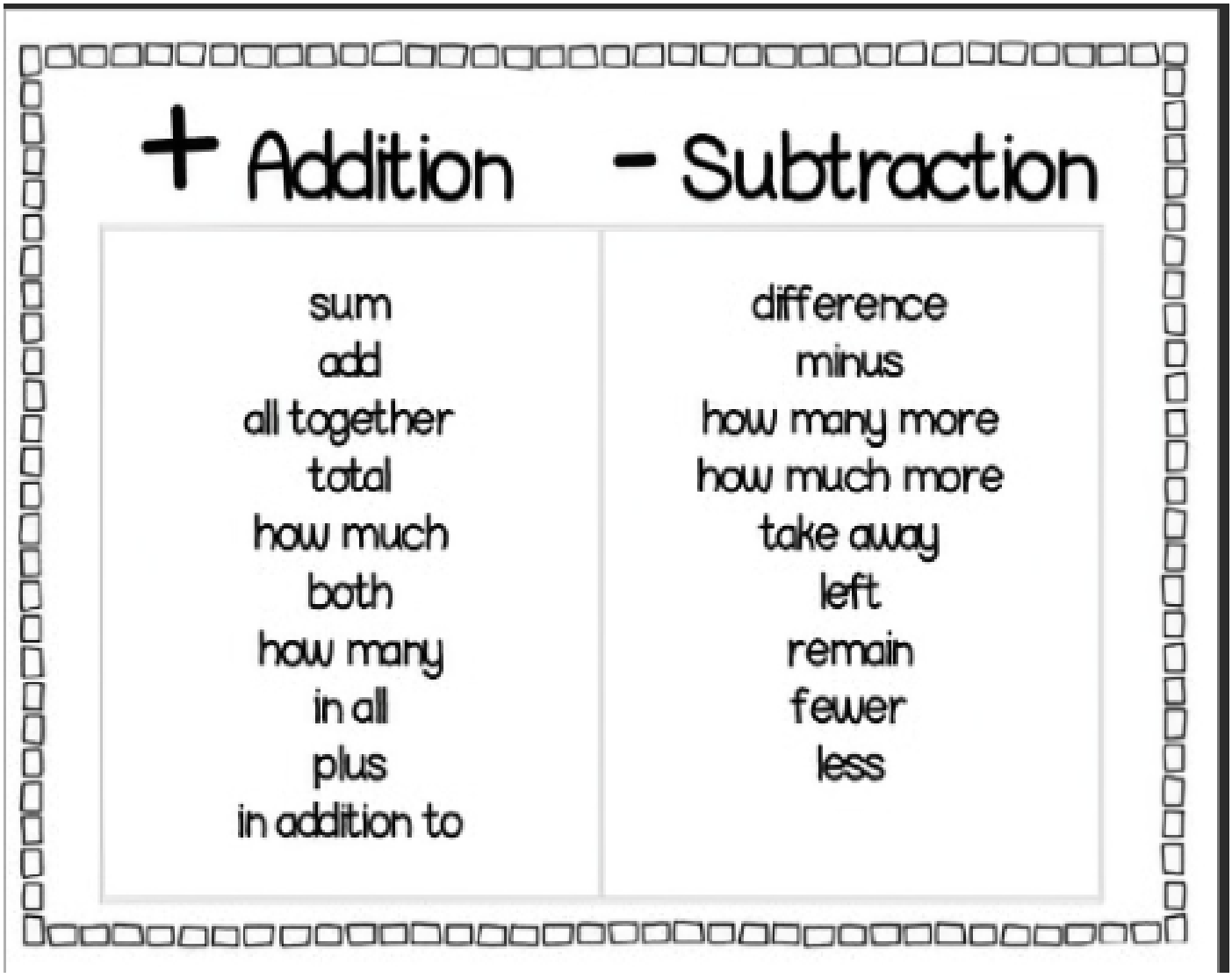
154 + 269 = 423	269 + 154 = 423
423 – 154 = 269	423 – 269 = 154

Vocabulary and home learning—Addition and Subtraction

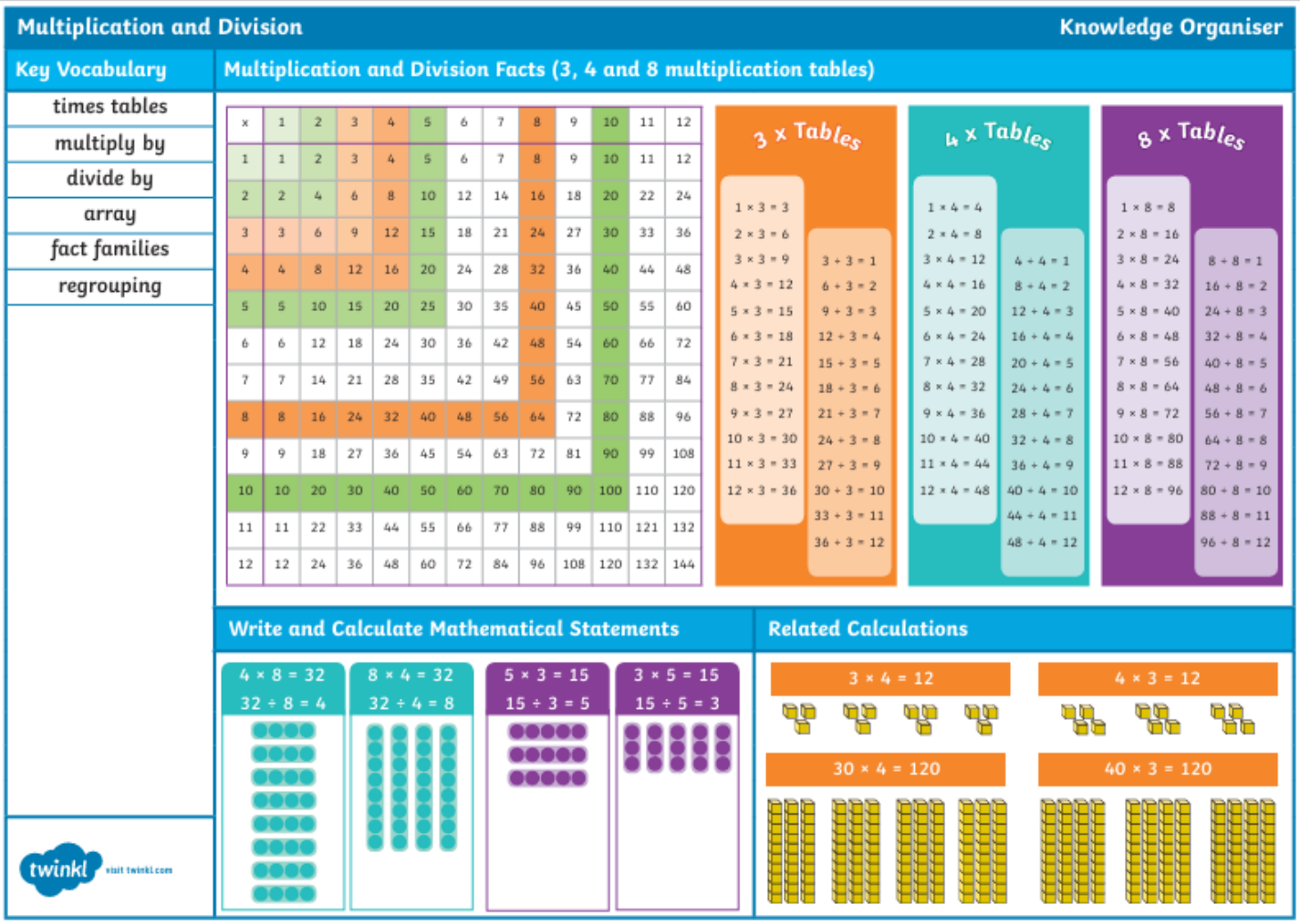
Use place value grids, number lines and column method to practise addition and subtraction calculations. Be tidy with the layout.

Keep the digits below 5 if your child is new to column addition.

Practise using the vocabulary of addition and subtractions.



Block 3– Multiplication and Division A and Spring Block1



Practise counting in groups using pictures of groups of number.

Colour the multiples of a number on hundred squares looking for patterns.

Play TT Rockstars or Hit The Button to practise tables fluency.

Collect a fact family: 2 multiplications and 2 division facts for each times table product.

Ask your child to show you some skip counting.

Make a book mark showing each of your times tables.

Make up some multiplication story problems. I bought 15 flowers and I put 3 in each of my vases. How many vases did I have? Draw what this would look like.

Spring Block 2 Length and Perimeter

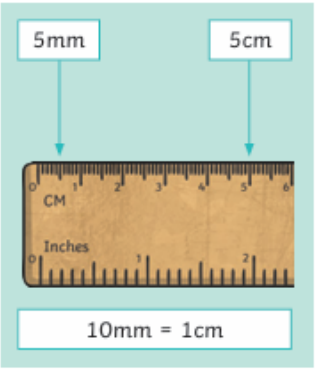
Length and Perimeter — Knowledge Organiser

Key Vocabulary

metre (m)
centimetre (cm)
millimetre (mm)
height
length
width
perimeter
further/furthest
higher/highest
longer/longest
shorter/shortest
taller/tallest

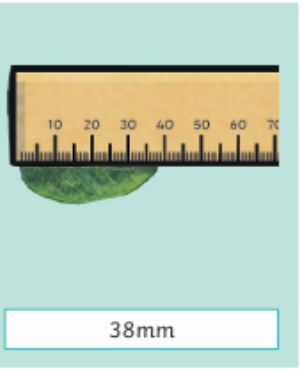
Practise estimating and measuring in cms and mms. Use your 10x table to convert cm to mm. E.g. How many mm are there in 3cm? 3 x 10 = 30 mm

Measure Length



10mm = 1cm

4cm 6mm

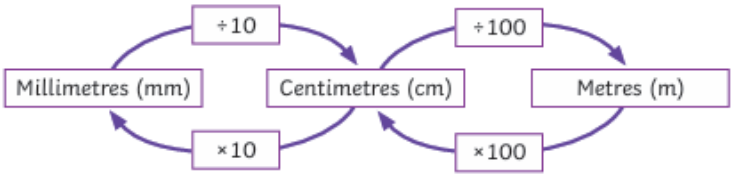


38mm

Equivalent Length

100 centimetres = 1 metre

10 millimetres = 1 centimetre



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

Length and Perimeter — Knowledge Organiser

Compare Lengths

6mm < 6cm
6cm = 60mm
6mm is shorter than 6cm

320cm > 2m 60cm
320cm > 200cm + 60cm
320cm is longer than 2m 60cm

98mm < 12cm 3mm
98mm < 120mm + 3mm
98mm is shorter than 12cm 3mm

Add and Subtract Lengths

14cm + 19cm = 33cm
8cm 2mm + 16mm =
98mm or 9cm 8mm

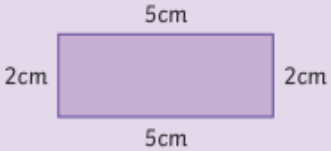
?	
8cm 2mm	16mm
82mm	16mm

6m – 2m 28cm
6m – 2m = 4m
4m – 28cm = 3m 72cm

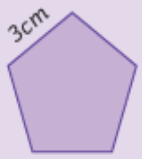
6m	
2m 28cm	?

Perimeter

..... = perimeter

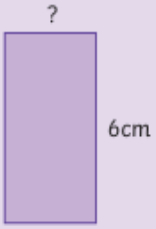


5cm + 2cm + 5cm + 2cm = 14cm

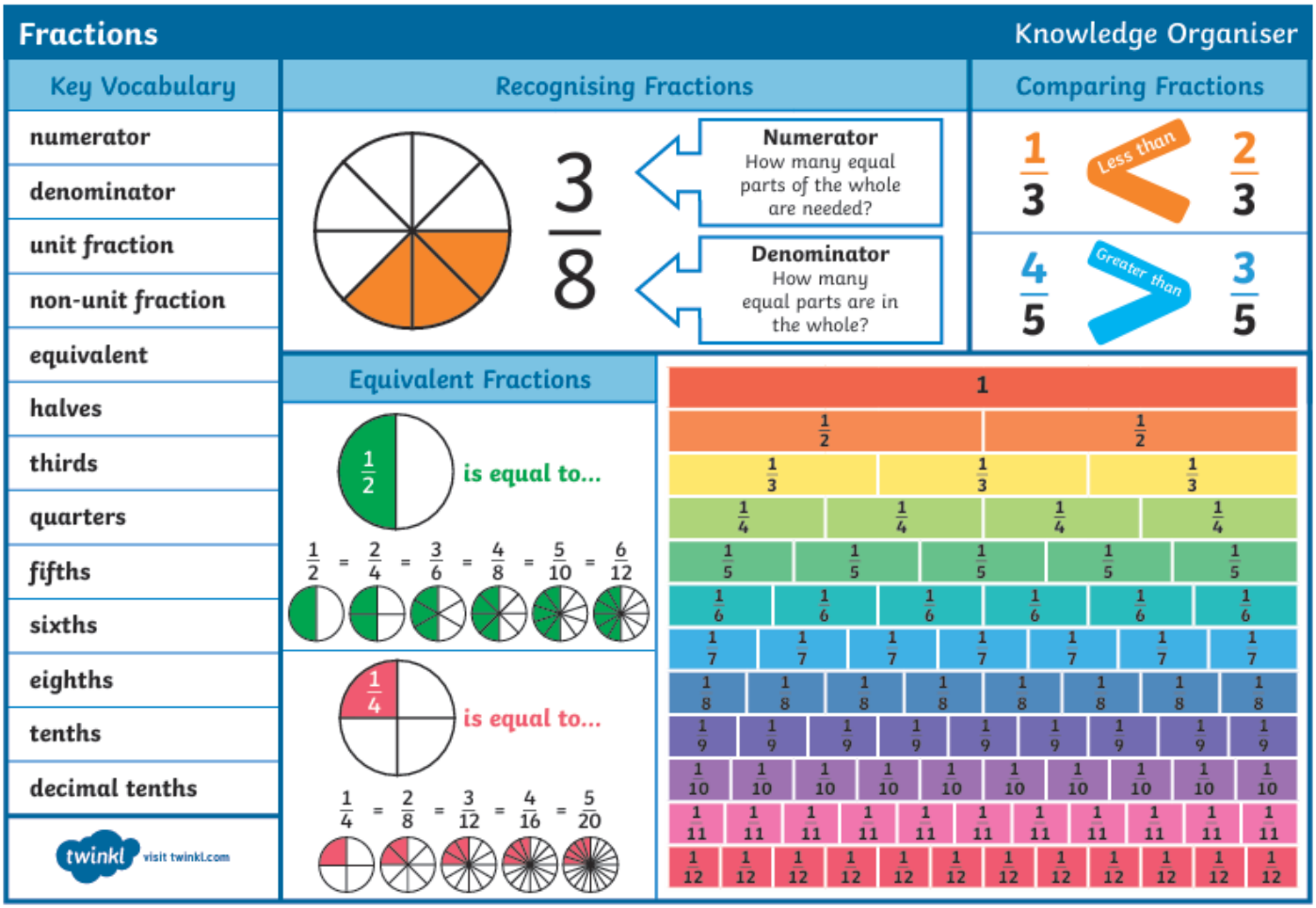


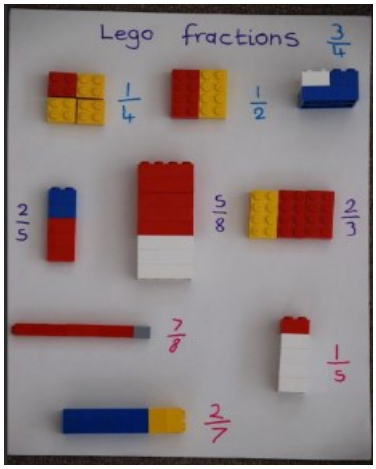
3cm + 3cm + 3cm + 3cm
3cm = 15cm

perimeter = 20cm
6cm + 6cm = 12cm
20cm – 12cm = 8cm
8cm ÷ 2 = 4cm



Spring Block 3 Fractions A





Reinforce concept of equal parts.

Practise making fractions using lego and coloured smarties.

Play some of the fraction games on the Purple Mash learning platform.

Practise the vocabulary of fractions denominator (bottom), numerator (top)

Use the fraction wall to compare two fractions. Which is the larger fraction, which is smaller?

Spring Block 4 Mass and Capacity

Mass and Capacity — Knowledge Organiser

Key Vocabulary

- mass
- gram
- kilogram
- capacity
- volume
- millilitre
- litre
- lighter
- heavier

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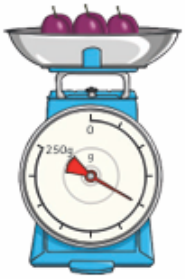
Measure and Compare Mass

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'.

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.

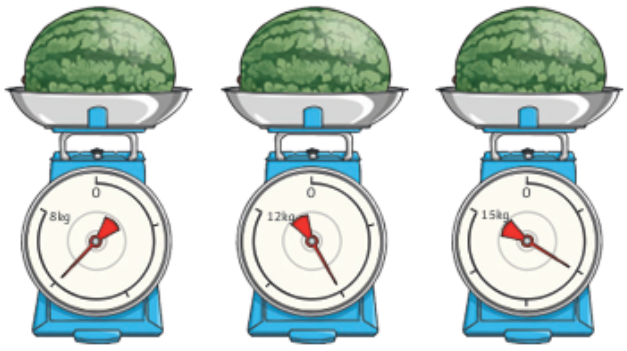
1000ml = 1l

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

Reading Scales — Knowledge Organiser

Mass

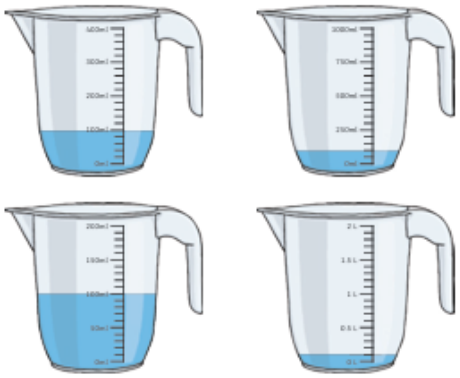
Each of the melons has a mass of 6kg but the arrows are all pointing at different points on the scales. This is because each of the measuring scales have different increments marked on them.



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

Capacity

Measuring containers all have different capacities.

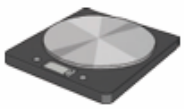


Each of these containers contain the same volume of 100 millilitres but have different capacities and scales. Always look carefully at how the numbers on the scales increase when reading a measurement.

Add and Subtract Mass

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

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



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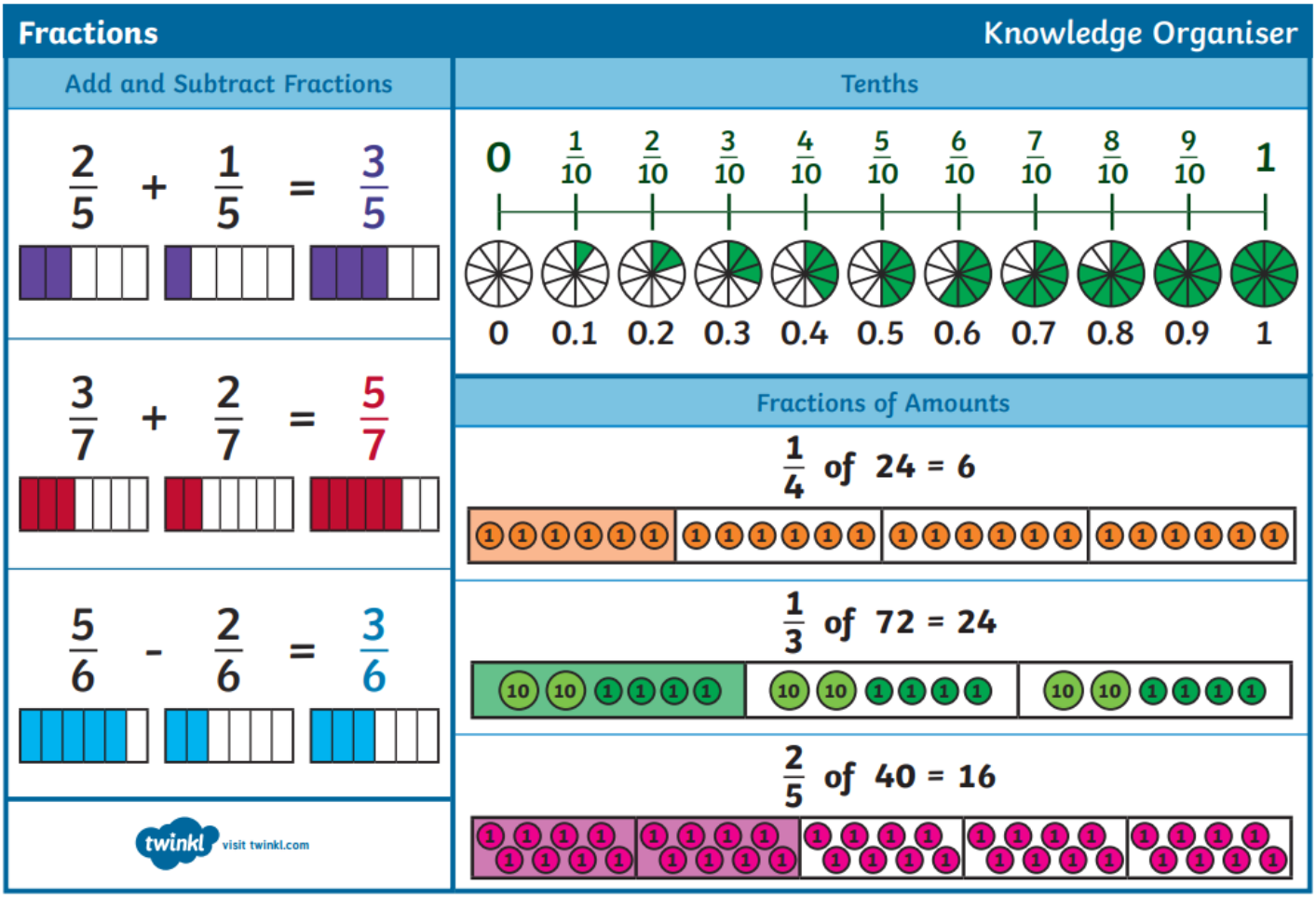
Add and Subtract Capacities

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

1l 300ml – 200ml = **1l 100ml**

Summer Block 1 Fractions B



Practise drawing images of the fractions to support adding fractions with the same denominator. It is better to draw rectangle strips than wonky circles that are not equal in portion.

Fractions of amounts—try and link to division tables facts. Show your child the denominator is the divisor so 1/4 of 24 is actually the same as 24÷4.

Keep linking fractions with tables knowledge. "What is 1/2 of 10?

Ah I know 10÷2 is 5 from my 2 times table knowledge."

Summer Block 2 Money

Money — Knowledge Organiser

Key Vocabulary

- amount
- change
- coin
- combinations
- convert
- note
- pence
- penny
- pounds
- value

UK Coins

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

UK Notes

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

Money — Knowledge Organiser

Adding Amounts

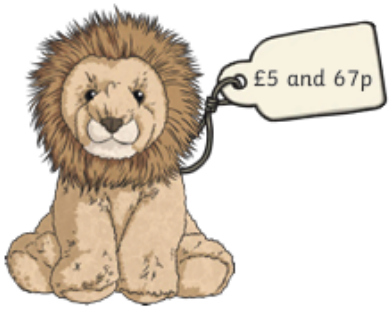
?	
£1 and 60p	

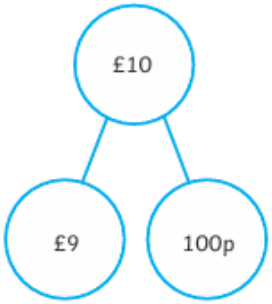
£1 and 60p + £1 and 52p
There is £2 and 112p.
112p is £1 and 12p
Altogether there is £3 and 12p.

Subtracting Amounts

£2 and 35p - £1 and 80p

Giving Change





£9 - £5 = £4
100p – 67p = 33p
£4 and 33p change

Practise adding and subtracting amounts using coins but also using numbelines, and part –whole models. Counting reliably is a valuable skill to practise.

Refer to units of time during your daily routine whenever possible to build a sense of units of time. E.g. let's brush our teeth for 2 minutes.

We will do reading for 15 minutes, that's a quarter of an hour.

Buy a cheap watch and keep practising. It is a tricky skill that takes time!

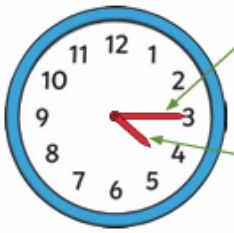
Summer Block 3 Time

Time — Knowledge Organiser

Key Vocabulary

- 12-hour time
- 24-hour time
- Roman numerals
- analogue
- digital
- hours
- minutes
- seconds
- o'clock
- half past
- quarter past
- quarter to
- midday
- midnight
- noon

Analogue and Digital Clocks



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.

twelve o'clock

quarter past twelve

half past twelve

quarter to one

Time and Roman Numerals

Hours, Minutes and Seconds

There are **60 seconds** in an minute.

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

Time — Knowledge Organiser

24-Hour Time

There are 24 hours in a day.

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	

Calculate Durations of Time

20 minutes has passed.

Compare Durations of Time

Compare the time using the vocabulary 'longer' and 'shorter'.

180 seconds	**is the same as**	3 minutes.
90 minutes	**is shorter than**	2 hours.
48 hours	**is longer than**	1 day.

Summer Block 4 Shape

Practise the shape vocabulary.

Look at some modern art e.g. Kandinsky. Can you see any shapes?

Where in everyday life can you see parallel or perpendicular lines?

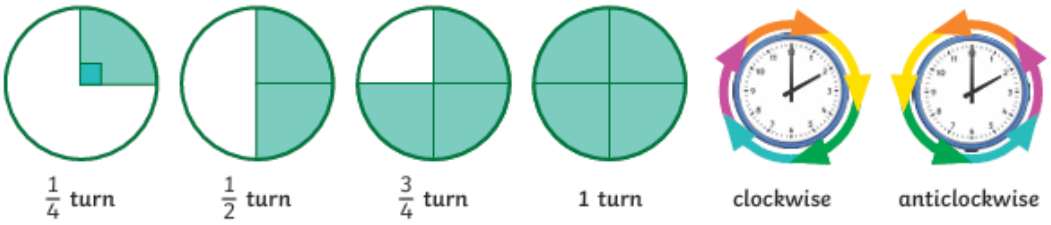
Properties of Shapes — Knowledge Organiser

Key Vocabulary

- quarter turn
- half turn
- three-quarter turn
- angle
- right angle
- acute
- obtuse
- horizontal
- vertical
- parallel
- perpendicular
- polygon
- two-dimensional
- three-dimensional
- flat face
- curved surface
- edge
- curved edge
- vertex
- vertices
- apex

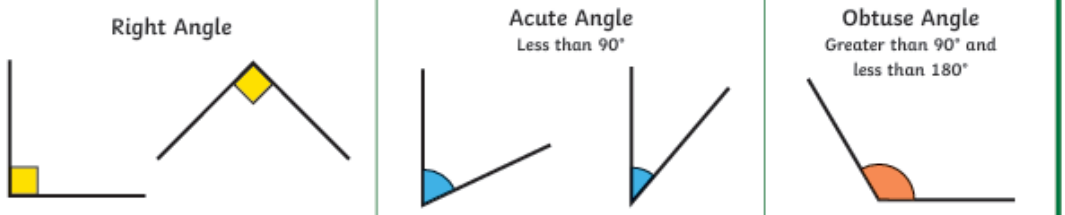
Turns and Angles

Angles can be used as a description of a turn.

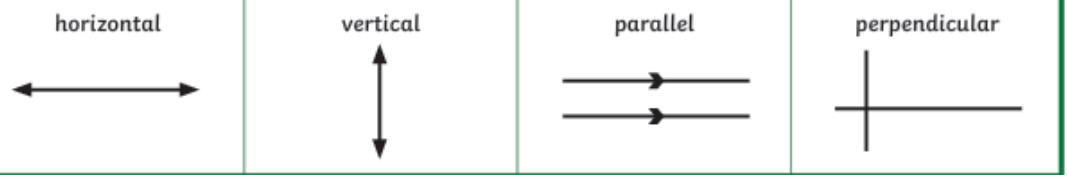


$\frac{1}{4}$ turn | $\frac{1}{2}$ turn | $\frac{3}{4}$ turn | 1 turn | clockwise | anticlockwise

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

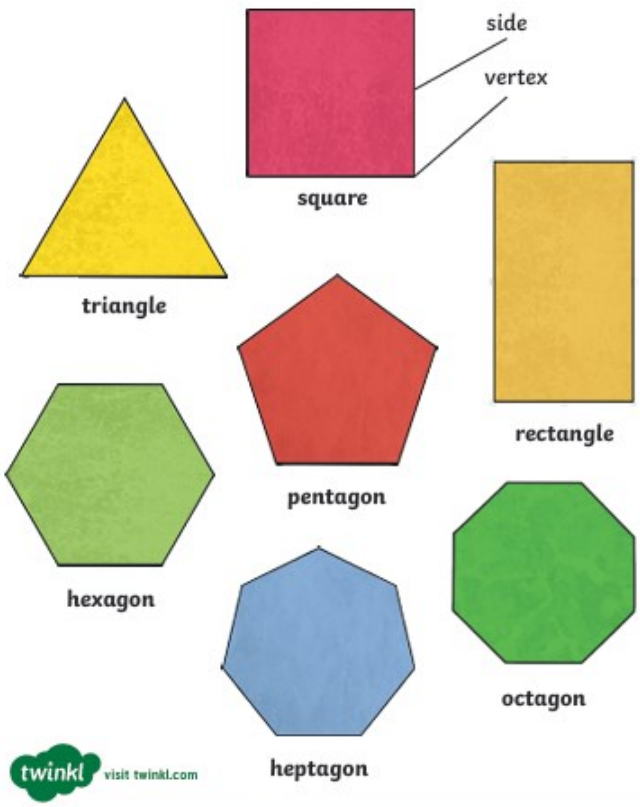


Type of Lines

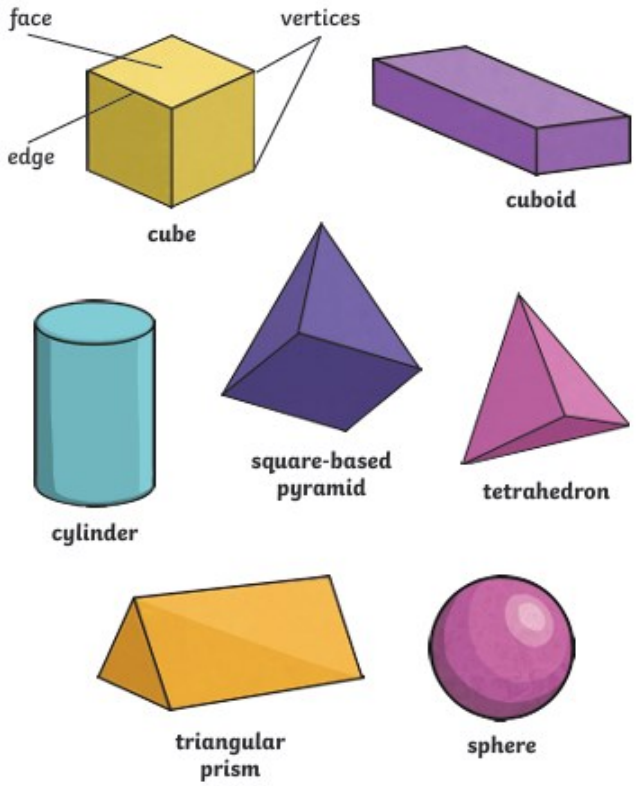


Properties of Shapes — Knowledge Organiser

Recognise and Describe 2D Shapes



Recognise and Describe 3D Shapes



Summer Block 5 Statistics

Practise reading simple graphs and tables on Purple Mash.

Can you make a simple graph using data such as number of children in my class with pets? Look at the statistics challenges on Purple Mash.

Statistics — Knowledge Organiser

Key Vocabulary

- data
- pictogram
- symbol
- bar chart
- horizontal axis
- vertical axis
- axes
- scale
- intervals
- table
- interpret

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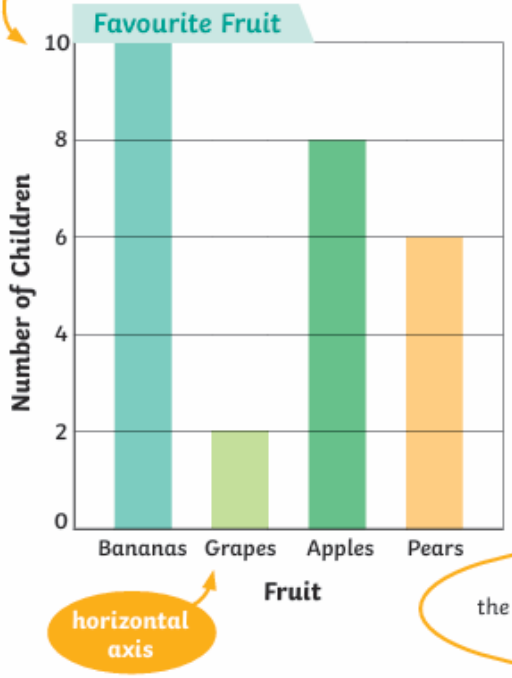
Bar Charts

Bars are used to show the data in each category. There must be a gap between each bar. Bar charts can have different scales.

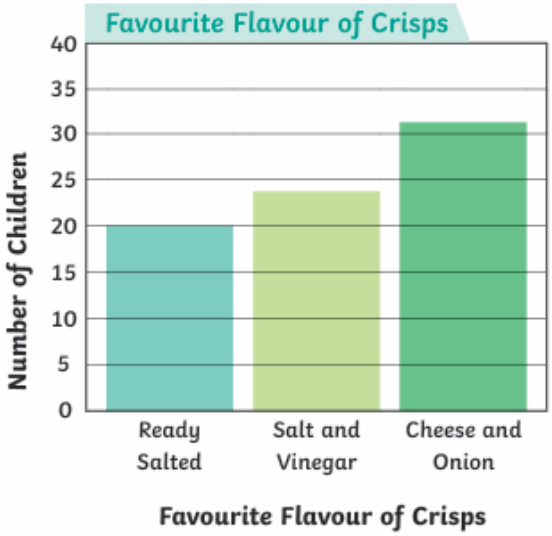
vertical axis

The scale on this bar chart counts in twos.



horizontal axis

The scale on this bar chart counts in fives.



The scale on the bar chart depends on the range of the data.

Statistics — Knowledge Organiser

Tables

In order to understand the data presented in a table, you must read the table's title and the headings. Remember to always look at the heading above each piece of information.

title

Table to Show Ticket Prices at a Local Cinema

heading

Ticket Type	Weekday Price	Weekend Price
Adult	£6	£7.50
Child	£4	£4.50
Student	£5.50	£6

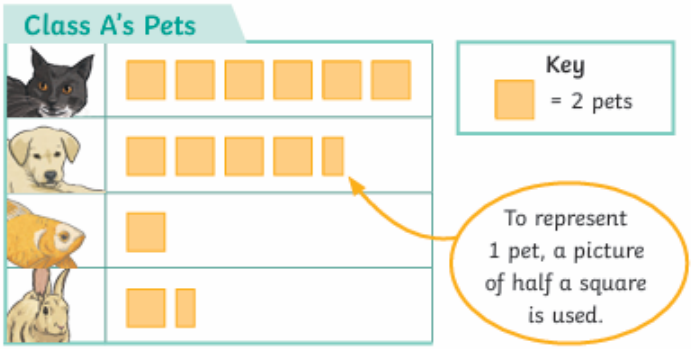
information

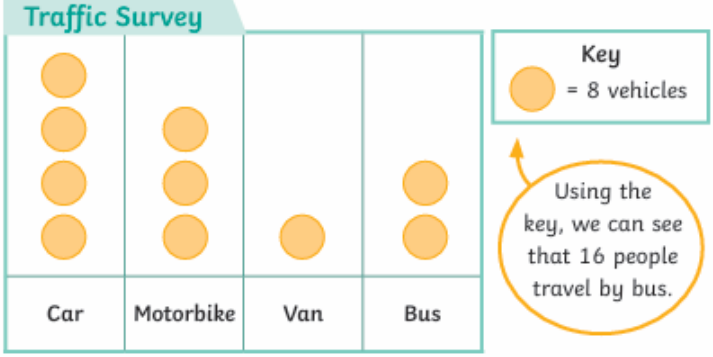
Using the table, we can see the cost of an adult and a child visiting the cinema on a Monday would be £10.

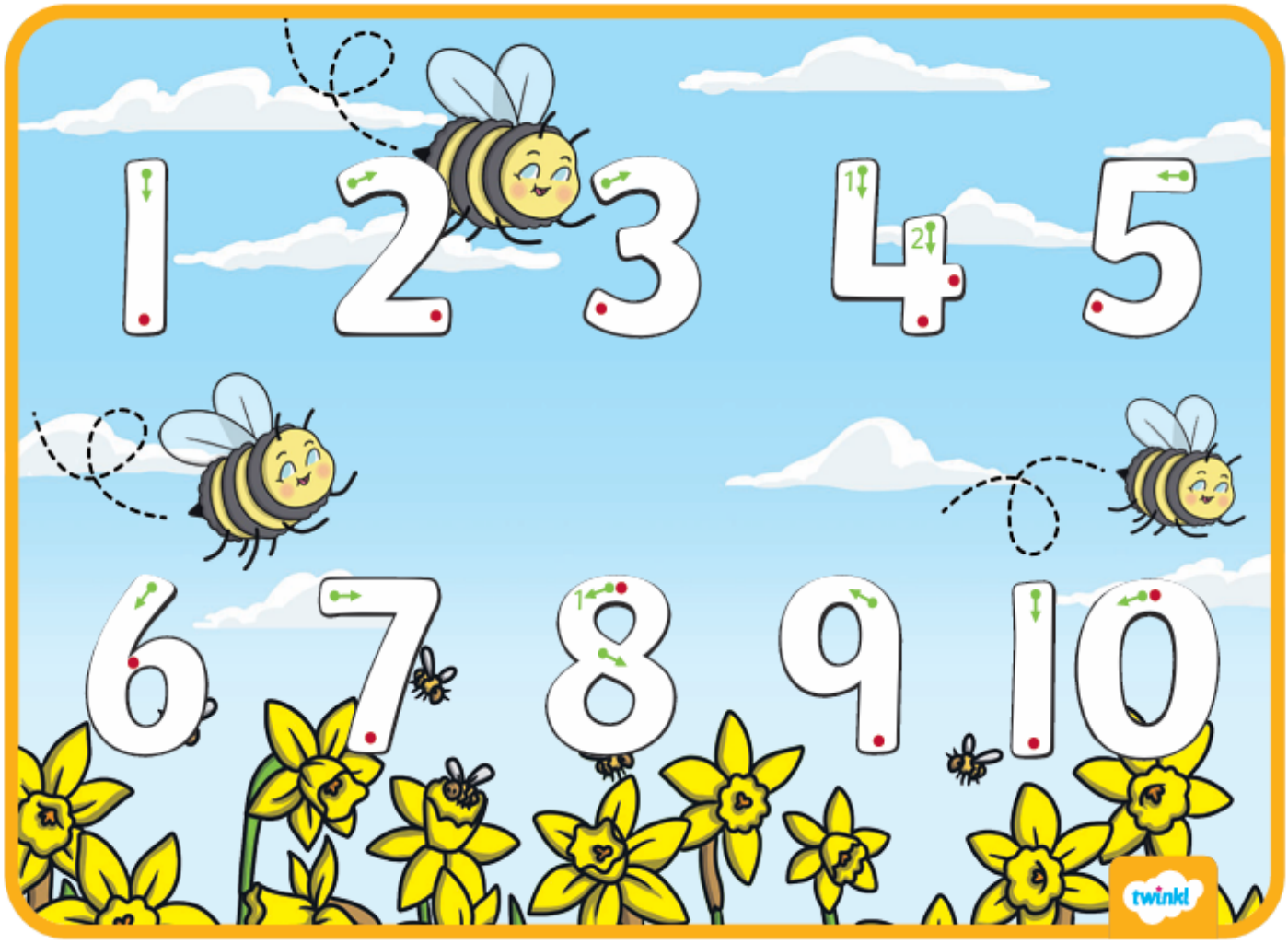
twinkl visit twinkl.com

Pictograms

Pictograms use pictures or symbols to represent data. The key shows what each symbol represents. This pictogram uses 1 symbol to represent 2 pets.







Real Life Maths!

Encourage your child to see Maths as skills essential to life, not just a lesson. Look at all these examples!

Real Life Maths Involve your child in as many problem-solving activities as possible.

- **shopping** — counting, estimating, rounding, budgeting, percentages giving change, adding, subtracting, multiplying, dividing, comparing,
- **Playing games** — counting, estimating comparing, subitising, sequencing
- **Planning an outing** — estimating, rounding, budgeting, timing using timetables, distance, journey time, dividing adding subtracting dividing multiplying, working out change and cost.
- **Cooking a meal** — Proportion and ratio, measuring, estimating timing, ordering dividing multiplying adding.
- **Using a TV guide** — Reading tables, data handling/ interpretation, time estimation, rounding, telling the time.

My 1-100 Hundred Square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Revise and recap bonds to 10 and 20

Practise bonds to 100 in multiples of 10 and 5

Recap bonds to 100 using any 2 numbers. Can you see any patterns or make any rules?

Practise adding 9,19,29 to a number by rounding to the nearest 10 then adjusting by subtracting 1.

https://komodomath.com/blog/the-38-challenge-make-times-tables-easy

There are many different ways to say the tables and they're all correct .

We try and ask the same question in lots of different ways to practise vocabulary.

Three times eight is…

Three multiplied by eight…

Three eights are…

Three lots of eight…

The product of the factors 3 and 8 are….