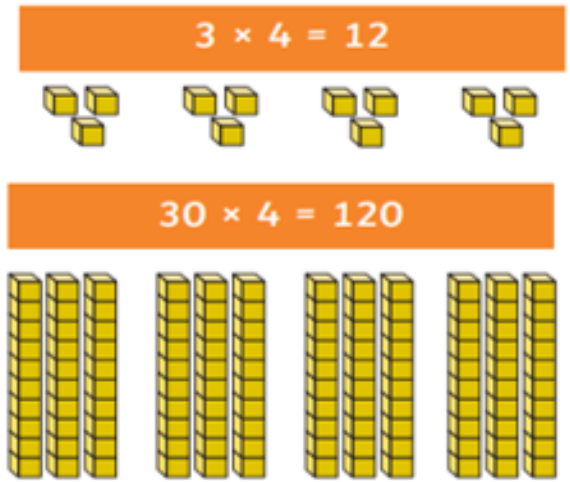
Year 3 /4 Spring Knowledge Organisers

Year 3 – Spring- Multiplication and Division

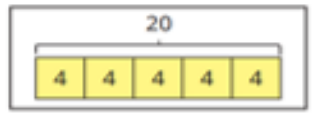
Multiplication is combining multiple groups of a number. Division is the process of breaking a number up into equal parts,



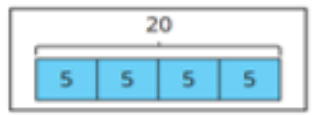
How many different arrays can you make with 12 counters?

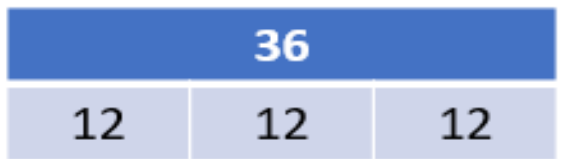
1 × 12
12 × 1
2 × 6
6 × 2
3 × 4
4 × 3

20 pencils are shared equally between 5 people.



20 pencils are grouped into packs of 5





36 ÷ 12 = 3

Tiny uses the place value chart to work out 54 ÷ 3

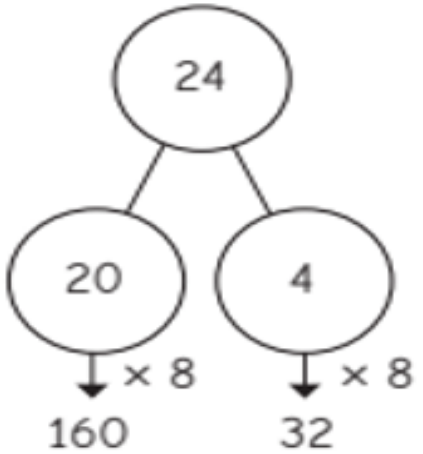
Tens	Ones
10 10	1 1
10 10	1
10	1

Vocabulary

represents	equal
equivalent	altogether
multiple	group
greater	array
sharing	columns
total	divided
partition	rows
product	times

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

Mo uses a part-whole model to work out 24 × 8



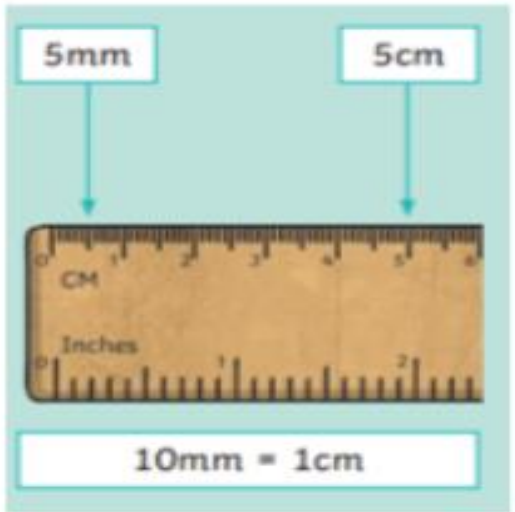
160 + 32 = 192
24 × 8 = 192

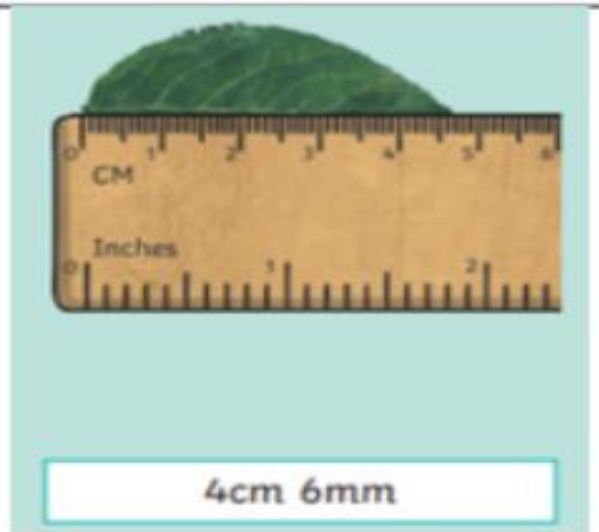
How do you know this?

I think this because …
The strategy I used was …
I agree with the answer because …
I disagree with the answer because …

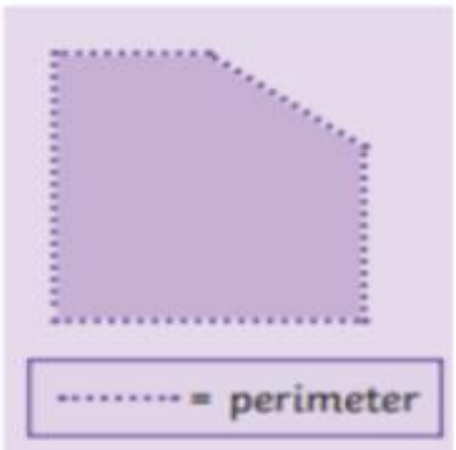
___ has been shared equally into ___ equal groups
The question is sharing/grouping because…

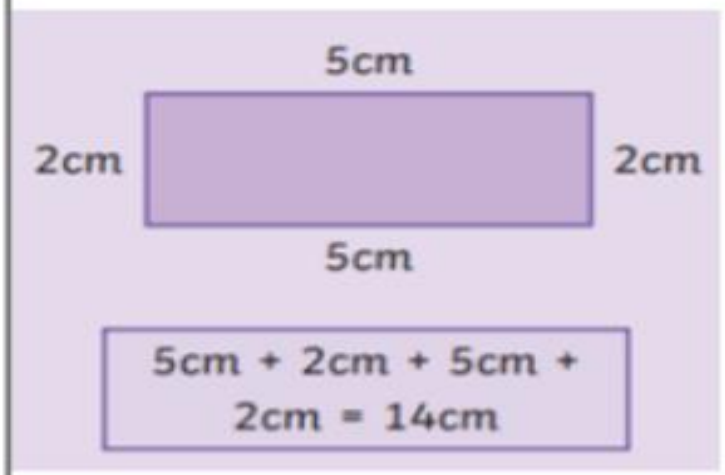
Year 3 – Spring- Length and Perimeter





Perimeter





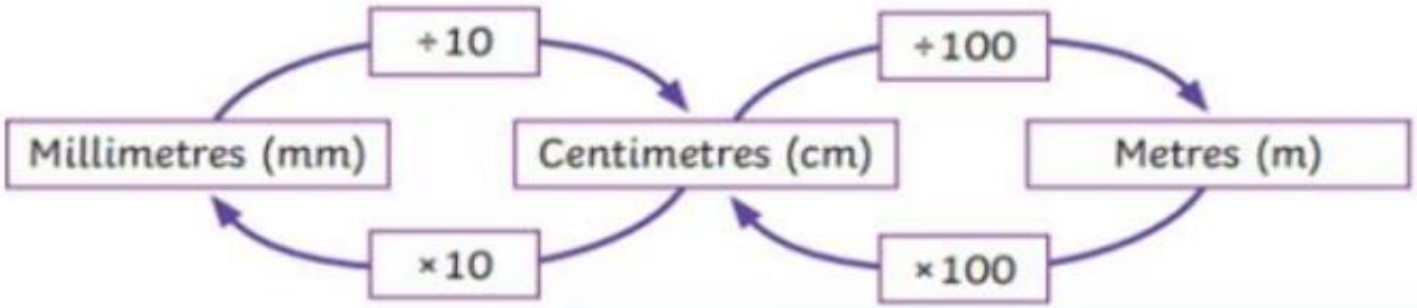
Vocabulary

numerator	equal
denominator	measure
equivalent	calculate
millimetres	centimetres
horizontal	vertical
interval	share
lengths	units
compare	comparisons

Equivalent Length

100 centimetres = 1 metre

10 millimetres = 1 centimetre



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

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	?

How do you know this?

I think this because …
The strategy I used was …
I agree with the answer because …
I disagree with the answer because …

___ has been shared equally into ___ equal groups
The question is sharing/grouping because…

Year 3 – Fractions

$\frac{3}{8}$

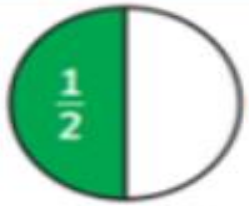
Numerator
How many equal parts of the whole are needed?

Denominator
How many equal parts are in the whole?

$\frac{1}{3} < \frac{2}{3}$ (Less than)

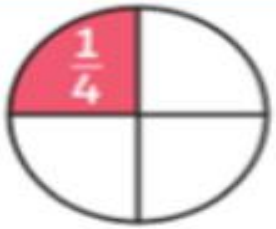
$\frac{4}{5} > \frac{3}{5}$ (Greater than)

Equivalent Fractions



is equal to...

$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12}$



is equal to...

$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20}$

Vocabulary

numerator	denominator
equivalent	unit
Non-unit	scales
order	equal
ascending	descending
quarters	halves
diagram	diagonal

Year 3 – Spring- Mass and capacity

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**.

1000g = 1kg

1000ml = 1l

Capacity is the amount of liquid a container can hold.

Volume is how much liquid is in the container.

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

Vocabulary

equal	equivalent
measure	mass
volume	compare
capacity	volume
value	interval
comparison	kilograms
grams	group

Add and Subtract Mass

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

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

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**.

Add and Subtract Capacities

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

1l 300ml – 200ml = **1l 100ml**

How do you know this?

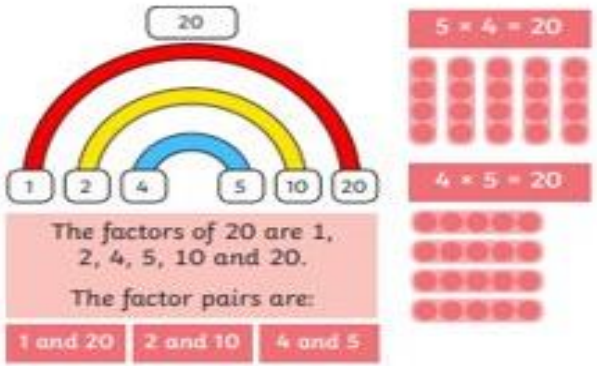
I think this because …
The strategy I used was …
I agree with the answer because …
I disagree with the answer because …

___ has been shared equally into ___ equal groups
The question is sharing/grouping because…

Year 4 – Autumn and Spring Term

Multiplication and Division (A and B)

Factor Pairs

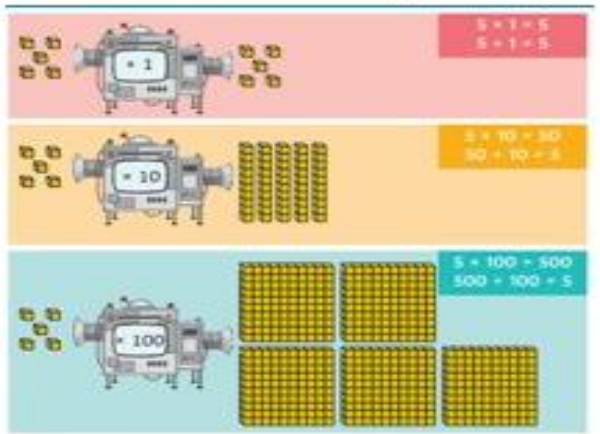


The factors of 20 are 1, 2, 4, 5, 10 and 20.

The factor pairs are:

1 and 20 | 2 and 10 | 4 and 5

Using Place Value to Multiply and Divide Mentally



Formal Multiplication Method

Th	H	T	O	
	5	4	3	
×			4	
		1	2	(4 × 3)
	1	6	0	(4 × 40)
2	0	0	0	(4 × 500)
2	1	7	2	

Th	H	T	O
	5	4	3
×			4
2	1	7	2
	1	1	

Remember to move any regrouped numbers into the next column. After the next multiplication, add the regrouped number to the answer.

Vocabulary

multiply	divide
groups of	lots of
times	share
remainder	factor
multiple	product

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

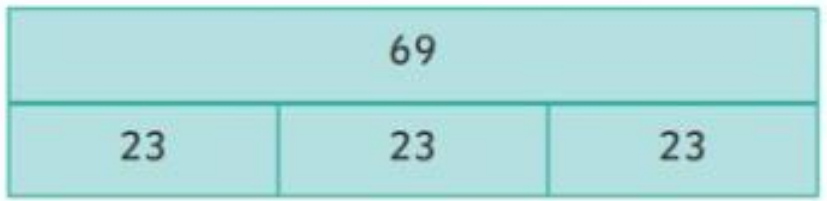
How do you know this?

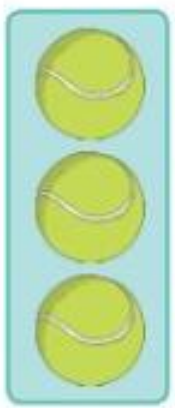
I think this because …
The strategy I used was …
I agree with the answer because …
I disagree with the answer because …
I can prove it by …
I can model it by …
If the numbers were larger then …
I decided on this strategy because …

Short Division

$69 \div 3 = 23$

$$3 \overline{)\,69}$$
$$23$$

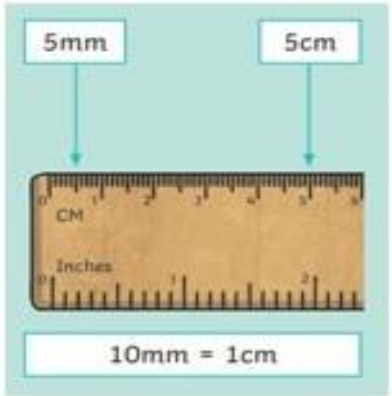




Year 4 – Spring Term

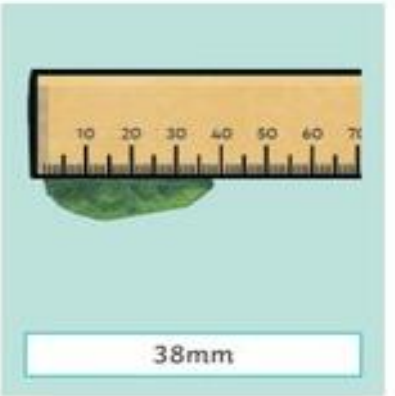
Length and Perimeter

Measure Lengths



10mm = 1cm

4cm 6mm

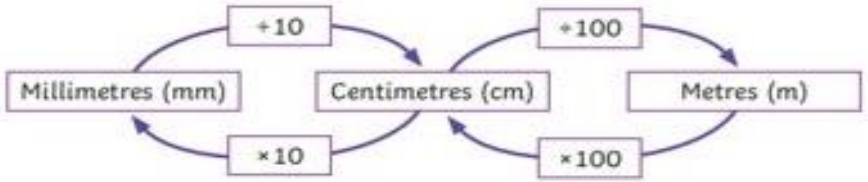


38mm

Equivalent Lengths

100 centimetres = 1 metre

10 millimetres = 1 centimetre



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

Vocabulary

meter (m)	centimetre (cm)
millimetre (mm)	height
length	width
perimeter	

Comparing Lengths

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

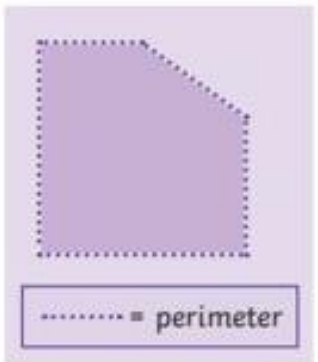
320cm > 2m 6cm
320cm > 200cm + 60cm
320cm is longer than 2m 60cm

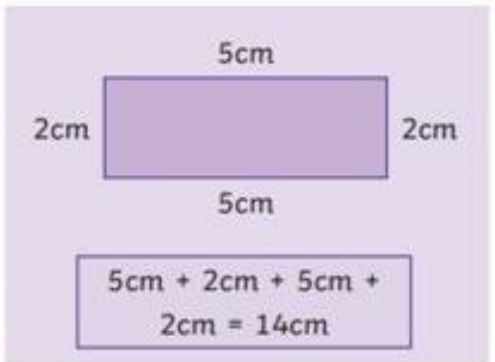
98mm < 12cm 3mm
98mm < 120mm + 3mm
98mm is shorter than 12cm 3mm

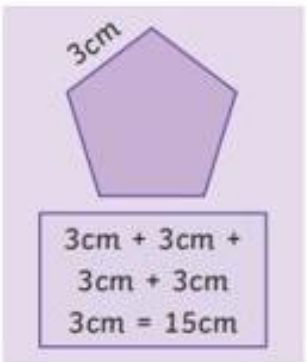
How do you know this?

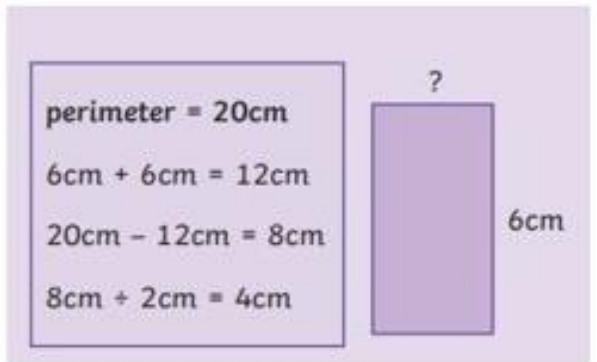
I think this because …
The strategy I used was …
I agree with the answer because …
I disagree with the answer because …
I can prove it by …
I can model it by …
If the numbers were larger then …
I decided on this strategy because …

Perimeter





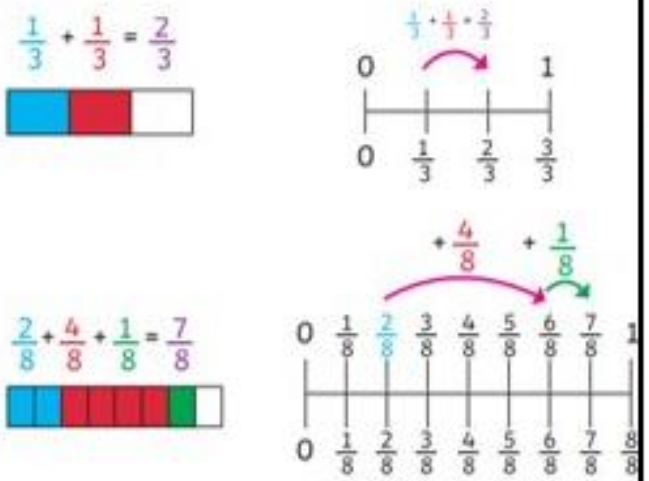




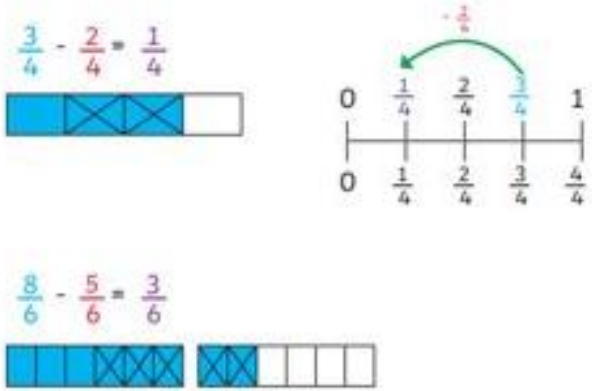
Year 4 – Spring Term

Number: Fractions

Fractions can be added when the denominators are the same

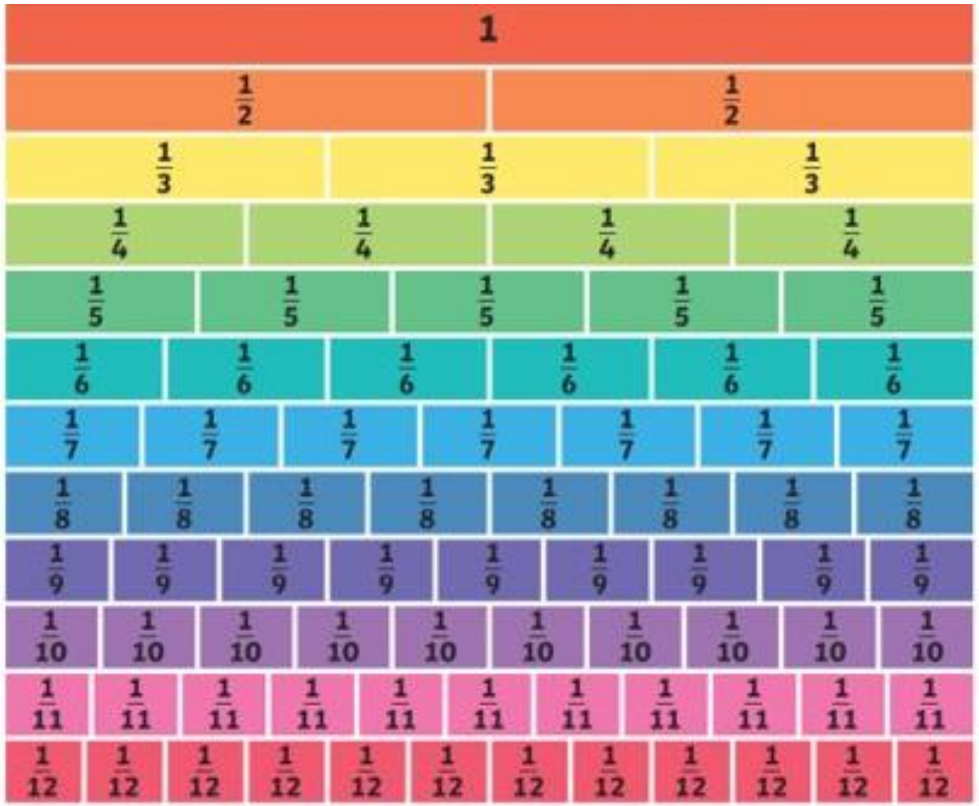


Fractions can be subtracted when the denominators are the same



Vocabulary

numerator	denominator
Unit fraction	Non-unit fraction
equivalent	Part
whole	Half
Third	Quarter
Fifths	Sixths
Eighths	Tenth

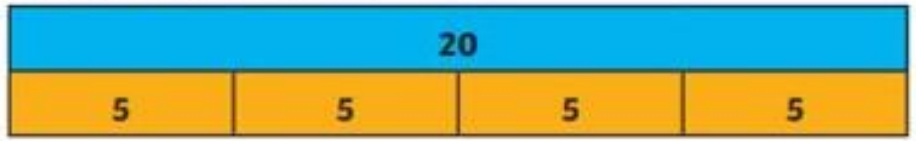


How do you know this?

I think this because …
The strategy I used was …
I agree with the answer because …
I disagree with the answer because …
I can prove it by …
I can model it by …
If the numbers were larger then …
I decided on this strategy because …

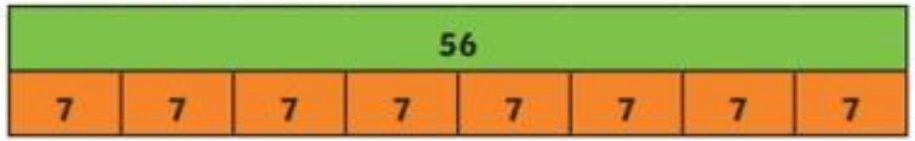
To find a fraction of a number, divide by the denominator and multiply by numerator.

To find quarters of 20:



$\frac{1}{4}$ of 20 = 5 $\frac{2}{4}$ of 20 = 10 $\frac{3}{4}$ of 20 = 15 $\frac{4}{4}$ of 20 = 20

To find eighths of 56:



$\frac{1}{8}$ of 56 = 7 $\frac{2}{8}$ of 56 = 14 $\frac{3}{8}$ of 56 = 21 $\frac{4}{8}$ of 56 = 28

$\frac{5}{8}$ of 56 = 35 $\frac{6}{8}$ of 56 = 42 $\frac{7}{8}$ of 56 = 49 $\frac{8}{8}$ of 56 = 56

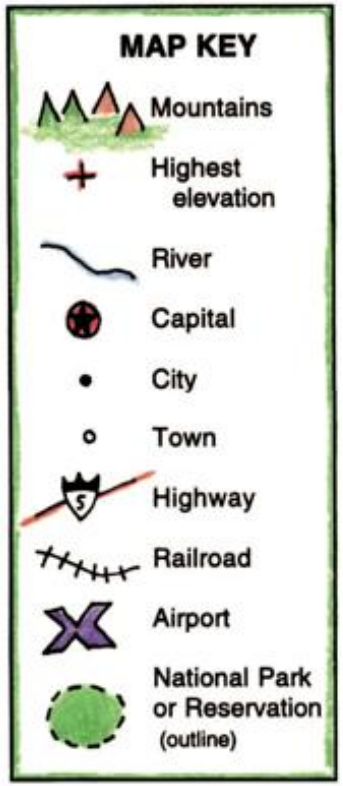
Year 3 / 4 – What can we discover about Europe

	Country	Capital city
1	Turkey	Ankara
2	Albania	Tirana
3	Ukraine	Kiev
4	Romania	Bucharest
5	Hungary	Budapest
6	Wales	Cardiff
7	Portugal	Lisbon
8	Poland	Warsaw
9	Slovakia	Bratislava
10	Czech Republic	Prague
11	Russia	Moscow
12	Iceland	Reykjavik
13	Croatia	Zagreb
14	Spain	Madrid
15	Germany	Berlin
16	Belgium	Brussels
17	Northern Ireland	Belfast
18	Republic of Ireland	Dublin
19	Austria	Vienna
20	Italy	Rome
21	Sweden	Stockholm
22	Switzerland	Bern
23	France	Paris
24	England	London

Tundra

Taiga

Temperate Climate



Biome	settlement	country	Europe	continent	river	vegetation
earthquake	volcano	fjord	dense	sparse	population	trade
Natural resource	city	landmark				

Knowledge Organiser – Stop! – Year 4, Unit 3

charanga MUSICAL SCHOOL

1 – Listen & Appraise: Stop! (Grime)

Structure: Intro and 6 rapped verses, each with a sung chorus.

Instruments/voices you can hear: Digital/electronic sounds, turntables, synthesisers, drums.

Can you find the pulse as you are listening? Dance, clap, sway, march, be an animal or a pop star.

2 – Musical Activities using glocks and/or recorders

Warm-up games play and copy back using up to 2 notes – C + D.
Bronze: no notes | Silver: C, sometimes D | Gold: C + D challenge.
Which challenge did you get to?

Singing and rapping in unison and in parts.

Compose your own rapped lyrics about bullying or another topic or theme that you decide.

3 — Perform & Share

Decide how your class will introduce the performance. Perhaps add some choreography? Tell your audience how you learnt this song and why. Record the performance and talk about it afterwards.

The performance will include one or more of the following:
Improvisations • Compositions • Rapped lyrics that you composed

About this Unit

Theme: Grime and other styles of music.

Facts/info: Stop! is a song/rap written in a Grime style for you to compose your own lyrics.

Listen to 5 pieces of music in different styles:

- Gotta Be Me performed by Secret Agent 23 Skidoo (Hip Hop)
- Radetzky March by Strauss (Classical)
- Can't Stop The Feeling! by Justin Timberlake (Pop with Soul, Funk and Disco influence)
- Libertango by Astor Piazzolla (Tango)
- Mas Que Nada performed by Sergio Mendes and the Black Eyed Peas (Bossa Nova and Hip Hop)

Vocabulary: Musical style, rapping, lyrics, choreography, digital/electronic sounds, turntables, synthesisers, drums, unison, pulse, rhythm, pitch, tempo, dynamics, texture structure, compose, improvise, hook, riff, melody, solo

Reflection

What did you like best about this Unit? Why? Was there anything you didn't enjoy about it? Why?

Did you have any strong feelings about it? Were you proud of yourself, happy or annoyed?

LKS2 Online Safety

What should I already know about privacy?

- Remember: we **never** share our full name with anyone online.
- Things like where we live or where we go to school should **never** be shared with strangers.
- Never share your passwords with other people.

What should I already know about age restrictions?

Privacy: Stay Safe. Be SMART!

- Be careful. Information you put online may be seen and used by others.
- Rather than use your name, use an alias (maybe your favourite cartoon character) for public profiles.
- Be careful. Never share your home address. This is because people online may not be who they say they are.
- Ask a trusted adult to ensure your privacy settings are on so your location and profile are not public.
- NEVER meet up with someone you've be in contact with online

Has Lola been SMART and stayed safe? What advice would you give and why?

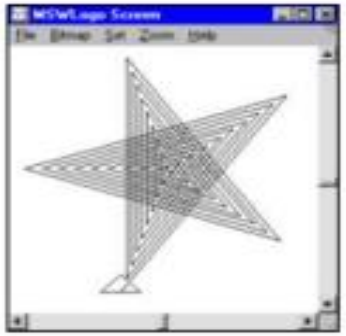
Be SMART: make sure you're safe with privacy settings ON and tell a trusted adult if you are worried..

COMPUTING: PROGRAMMING

Year 4 Spring

KNOWLEDGE ORGANISER

Overview



Repetition in Shapes

- Programming is when we make a set of instructions for computers to follow.

-Logo is a text-based program that we can use in order to create shapes and patterns.

-We use algorithms (a set of instructions to perform a task) which we can plan, model and test, in order to create accurate and imaginative shapes and patterns.

The Basics of FMS Logo

-What is FMS Logo? Logo is a text-based programming language, where we can type commands which are then drawn on the screen.
-Logo helps us to learn how to use programming language, whilst also being creative and using problem-solving skills.

The Display:

Basic Commands:

-FD: Forwards. Always followed by a space and the number of steps, e.g. FD 50
-BK: Backwards. As above, e.g. BK 50
-LT: Left turn. Always followed by a space and then the degrees to turn, e.g. LT 90
-RT: Right turn. As above, e.g. RT 90
-CS: Clears any pen marks on your screen and gets the turtle back to the centre.
-PU: Stops turtle from leaving a pen trail.
-PD: Makes turtle leave a pen trail again.

Programming Patterns

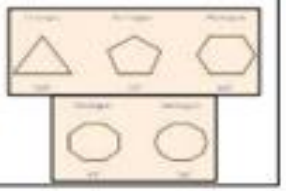
-Patterns: Patterns are things that repeat in a logical way. In everyday life, patterns are everywhere!

-Patterns in Logo: Instead of typing in the code to create each individual shape, we can save time by repeating a sequence of instructions. We use the 'repeat' function.

-Repeat: Type the command 'repeat' — this repeats commands a set number of times. The number following repeat is the number of times to repeat the code, and the code to be repeated is in square brackets, e.g. repeat 4 [FD 100 LT 90]

The above code will repeat FD 100 LT 90 four times.

-Creating Shapes and Loops: To make shapes, we need to know the angles of corners of different shapes (see right). Using the repeat function with shapes can help us to make spirals.



Sequencing and Algorithms

-A **sequence** is a pattern or process in which one thing follows another.

-We design **algorithms** (sets of instructions for performing a task) to help us program the sequence that we require to achieve our desired outcomes.

-Programming is the process of keying in the code recognized by the computer (using your algorithm).

Trialling and Debugging

-Programmers do not put their computer programs straight to work. They **trial** them first to find any errors.

-Sequence errors: An instruction in the sequence is wrong or in the wrong place.
-Keying errors: Typing in the wrong code.
-Logical errors: Mistakes in plan/thinking.

-If your algorithm does not work correctly the first time, remember to **debug** it.

Important Vocabulary

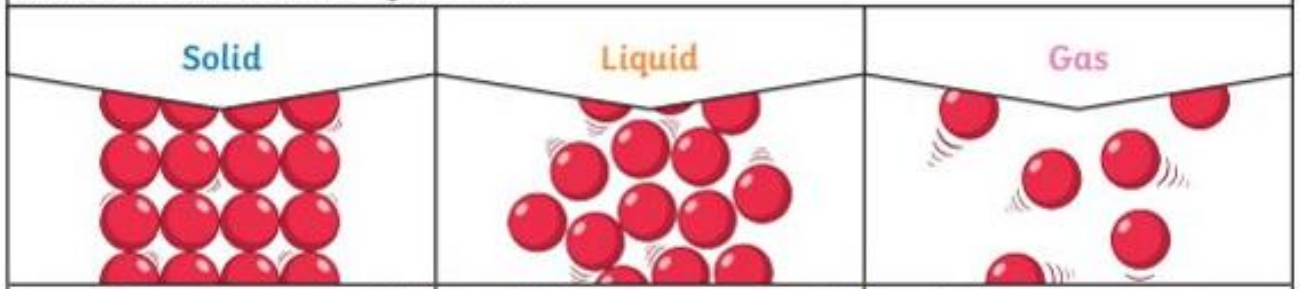
Programming	Logo	Turtle	Commands	Code	Cursor	Algorithm	Pattern	Sequence	Debugging

Year 4 Science Knowledge Organiser
Chemistry - States of Matter

Key Vocabulary	
states of matter	Materials can be one of three states: solids, liquids or gases. Some materials can change from one state to another and back again.
solids	These are materials that keep their shape unless a force is applied to them. They can be hard, soft or even squashy. Solids take up the same amount of space no matter what has happened to them.
liquids	Liquids take the shape of their container. They can change shape but do not change the amount of space they take up. They can flow or be poured.
gases	Gases can spread out to completely fill the container or room they are in. They do not have any fixed shape but they do have a mass.
water vapour	This is water that takes the form of a gas. When water is boiled, it evaporates into a water vapour.

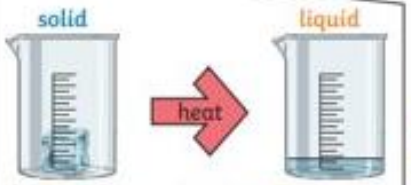
Key Knowledge

There are three states of matter.



Solid	Liquid	Gas
Particles in a solid are close together and cannot move. They can only vibrate.	Particles in a liquid are close together but can move around each other easily.	Particles in a gas are spread out and can move around very quickly in all directions.

When water and other liquids reach a certain temperature, they change state into a solid or a gas. The temperatures that these changes happen at are called the boiling, melting or freezing point.



If a solid is heated to its melting point, it melts and changes to a liquid. This is because the particles start to move faster and faster until they are able to move over and around each other.

When freezing occurs, the particles in the liquid begin to slow down as they get colder and colder. They can then only move gently on the spot, giving them a solid structure.

Key Vocabulary	
melt	This is when a solid changes to a liquid.
freeze	Liquid turns to a solid during the freezing process.
evaporate	Turn a liquid into a gas.
condense	Turn a gas into a liquid.
precipitation	Liquid or solid particles that fall from a cloud as rain, sleet, hail or snow.

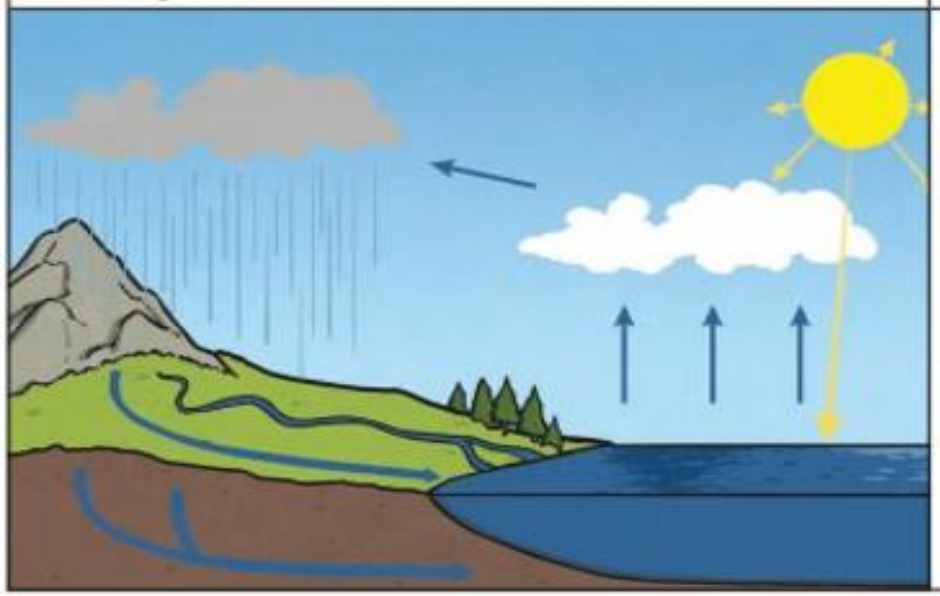
Evaporation

Evaporation occurs when water turns into water vapour. This happens very quickly when the water is hot, like in a kettle, but it can also happen slowly, like a puddle evaporating in the warm air.

Condensation

Condensation is when water vapour is cooled down and turns into water. You can see this when droplets of water form on a window. The water vapour in the air cools when it touches the cold surface.

Condensation and evaporation occur within the water cycle.



1. Water from lakes, puddles, rivers and seas is evaporated by the sun's heat, turning it into water vapour.
2. This water vapour rises, then cools down to form water droplets in clouds (condensation).
3. When the droplets get too heavy, they fall back to the earth as rain, sleet, hail or snow (precipitation).

The Indus Valley

The largest of the Bronze Age civilisations, the Indus Valley or Harappa civilisation dates from around 3300 BCE to 1700 BCE. There is still much to be learned about this civilisation.

Unlike the Egyptians or ancient Sumerians the people of the Indus Valley left behind no temples, palaces or statues. We cannot read their written script.

No one knows why the civilisation came to an end.

Key Words

- Civilisation
- Bronze Age
- BC (Before Christ)
- BCE (Before Common Era)
- AD (Anno Domini)
- CE (Common Era)
- Archaeology
- Excavation

Year 3 - Health and wellbeing

Alone	Being by yourself.
Balance	A variety of different things.
Barriers	Obstacles that stop us from reaching our goals.
Belonging	Feeling comfortable and at home in a certain situation or place.
Barriers	Obstacles that stop us from reaching our goals.
Diet	The food that we eat.
Healthy	Being well, both physically and mentally.
Identity	Who someone is, how they define themselves.
Lonely	Feeling sad because you are alone.
Relax	To rest or take a break.
Resilience	A willingness to keep trying even when things become very hard.
Stretch	Loosening and extending the muscles.

Health tips

Keeping a diary can help us have a healthy lifestyle.

Eat **five** portions of fruit and vegetables every day.

Brush your teeth at least twice a day.

Getting help

If you are worried about anything, talk to an adult you trust at home or at school.

Key facts

Relaxation helps keep our body and mind healthy.

Stretches are one way to relax.

Lots of things make up our identity, including the groups we belong to.

We all have different strengths and we can use these to help others.

Breaking problems down can help us to solve them.

Belonging can help us to feel happy.

We need foods from different groups to keep us healthy.

Year 4 - Health and wellbeing

Fluoride	A chemical found in toothpaste that helps keep our teeth strong and healthy.
Healthy	Being well, both physically and mentally.
Mental health	Our emotional wellbeing.
Negative emotions	Emotions which make us feel sad or angry.
Positive emotions	Emotions which make us and others around us feel happy.
Relaxation	Doing calming activities such as having a bath or reading a book
Resilience	A willingness to keep trying even when things become very hard.
Skill	The ability to do something well.
Visualise	To create an image of something in the mind.

Health tips

Visit a dentist regularly to make sure your teeth are healthy.

Keep a diary of things which happen to you and how they make you feel.

Your physical and mental health are equally important and there are things you can do to look after them both.

Getting help

Talk to an adult you trust either at school or at home.

Contact: Childline
www.childline.org | 0800 1111
Calls DO NOT show on the phone bill

Key facts

There are number of things we can do to keep our teeth healthy including: brushing twice a day, visiting the dentist, avoiding sugary food and drinks and using a fluoride toothpaste.

Visualising a special place can help us to relax and deal with problems.

We can learn from our mistakes.

We can all learn new skills.

Different things make different people happy.

Emotions can be positive and negative and we need to learn to deal with both.

Sometimes, people have problems with their mental health. If they do, there are people who can help them.