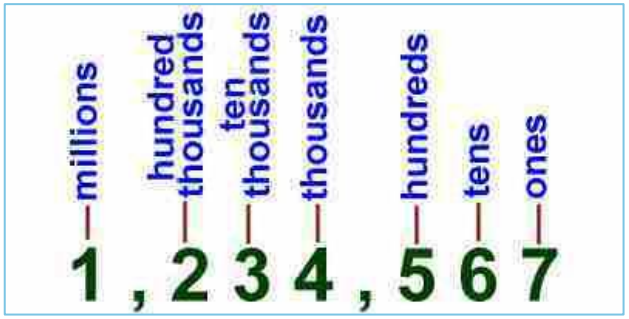
Autumn Term – Year 5 Maths – Number and Place Value

Previously learned Vocabulary	
Thousand (y3)	Derive (y4)
Round (y4)	Negative (y4)
Roman numerals (y4)	

New Vocabulary	
million(s)	power(s)
linear sequence	equivalence

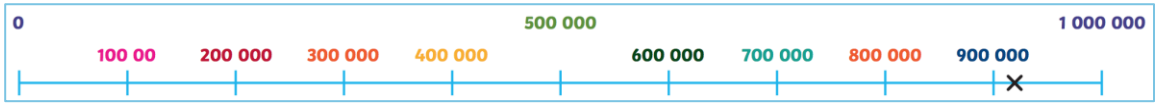
Identify 7 digit numbers and the place value of each digit



I	1	XXX	30
II	2	XL	40
III	3	L	50
IV	4	LX	60
V	5	LXX	70
VI	6	LXXX	80
VII	7	XC	90
VIII	8	C	100
IX	9	D	500
X	10	M	1,000
XX	20	MD	1,500

Read roman numerals to 1000 (M) and recognise years written in Roman numerals.

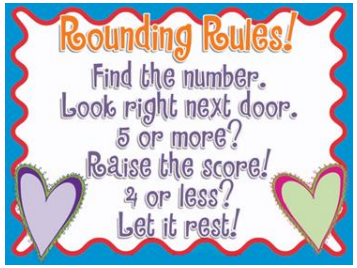
Counting in 100,000s to get to 1,000,000 (a million)



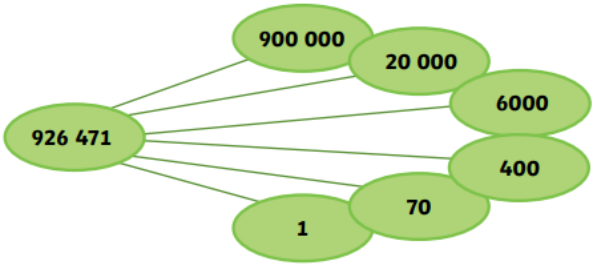
Order and compare 7 digit numbers

equals	greater than	less than
26 + 38 = 8 × 8	23 873 > 8256	901 198 < 1 091 098
Both calculations have the value 64.	The number on the left has 2 ten thousands and the number on the right has 0 ten thousands.	The number on the right has 1 million and the number on the left has 0 millions.

Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000



Partition 7 digit numbers



Read and write numbers to at least 1 000 000

Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000

Example: $10^3 = 10 \times 10 \times 10 = 1{,}000$

- In words: 10^3 could be called "10 to the third power", "10 to the power 3"

Autumn term - Year 5 Maths – Addition and Subtraction

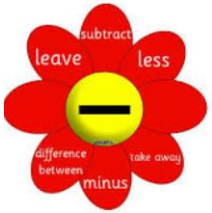
Previously learned Vocabulary
Thousands (Y4)
Operation (Y4)
Associative (Y4)
Derive (Y4)
Inverse (Y3)
New Vocabulary
million(s)
equivalence

Use inverse operations

143 + ___ = 200

so

200- 143 = 57

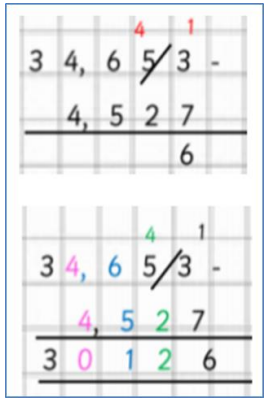


Add numbers with more than 4 digits using formal written methods – column addition

	4	5	8	6	4
+	2	3	4	9	7
	6	9	3	6	1
		1	1	1	

Starting with the ones, add each column in turn. Regroup tens, hundreds, thousands, ten thousands as required.

Subtract numbers with more than 4 digits using formal written methods – column subtraction



Starting with the ones, subtract each column in turn. Exchange tens, hundreds, thousands and/or ten thousands as required.

Use rounding to check answers to calculations with increasing accuracy

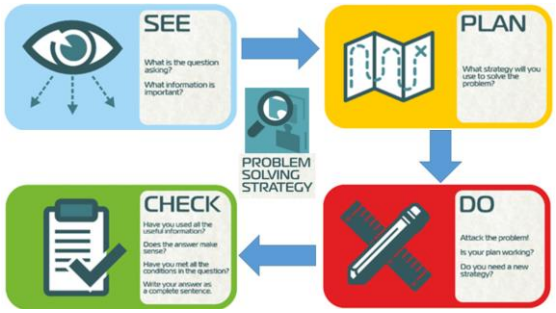
456 + 122

460 + 120 = 580

456
+ 122
578

Solve addition and subtraction multi-step problems, deciding which operations to use and why

Step 1: Understand the problem.
Step 2: Devise a plan (translate).
Step 3: Carry out the plan (solve).
Step 4: Look back (check and interpret).



Add and subtract numbers mentally with increasingly large numbers

<u>Use of rounding</u>

2001 – 1999 =

2001 – 2000 = 1

1 +1 = 2

Add the 1 back on as you took an extra 1 away

<u>Partitioning</u>

2500 + 1500 =

2500 + 1000 = 3500

3500 + 500 = 4000

Autumn Term – Year 5 Maths – Multiplication and Division A

Previously learned vocabulary	
Factor (y4)	factor pairs (y4)
array	Multiples (y3)
commutative (y2)	
New Vocabulary	
composite	
prime factor	
square(d) ^{2}	
cube(d) ^{3}	

Establish prime numbers up to 100 and re-call prime numbers up to 19.

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43

A composite number has factors other than 1 and itself.

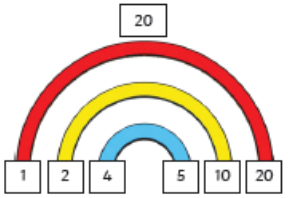
Multiply and divide whole numbers by 10, 100 and 1000.

			3	.	0	2	
		3	0	.	2		← x 10
			3	.	0	2	
	3	0	2	.			← x 100
			3	.	0	2	
3	0	2	0	.			← x 1000

	3	0	2	0	.	0	
÷ 10 →		3	0	2	.		
	3	0	2	0	.	0	
÷ 100 →			3	0	.	2	
	3	0	2	0	.	0	
÷ 1000 →				3	.	0	2

Identify all multiples and factors. Including factor pairs and common factors.

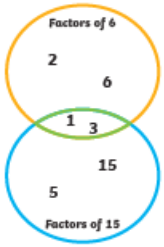
A factor is a number that divides into another number exactly, without leaving a remainder.



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

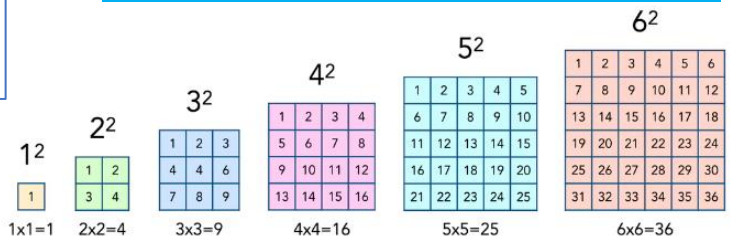
A common factor is a factor of 2 or more numbers.



Multiply by powers of 10

8 × 9 = 72 80 × 9 = 720	9 × 8 = 72 90 × 8 = 720
72 ÷ 9 = 8 720 ÷ 9 = 80	72 ÷ 8 = 9 720 ÷ 8 = 90

Identify and calculate square and cube numbers.



Square numbers result from a number being multiplied by itself (e.g. 5 × 5 = 25):

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Cube numbers result from a number being multiplied by itself twice (2 × 2 × 2 = 8):
1, 8, 27, 64, 125

2 × 2 × 2 = 8

$2^3 = 8$

3 × 3 × 3 = 27

$3^3 = 27$

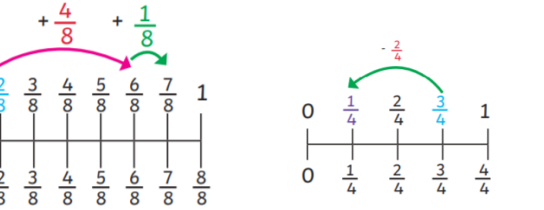
Autumn term- Year 5 Maths –**Fractions A**

Previously learned vocabulary	
Numerator (y2)	**Denominator (y2)**
unit fraction (y3)	**non-unit fraction (y3)**
common denominator (y3)	**Equivalent (y2)**
Tenths (y3)	**Hundredths (y4)**
New vocabulary	
mixed number	**thousandths**
improper fraction	**simplest form**

Adding and subtracting fractions

When the denominators are the same fractions (sometimes called **like fractions)** can be easily added or subtracted. The denominator stays the same and you just add or subtract the numerator

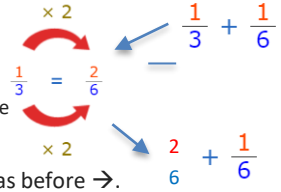
$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$ $\quad \frac{8}{6} - \frac{5}{6} = \frac{3}{6}$



Adding and subtracting fractions (when denominators are related multiples)

If the denominators are NOT the same (sometimes called **unlike fractions)** we first have to convert one or both so the denominators are the same

Convert so the denominators are the same.
To get from /3 to /6 we x by 2

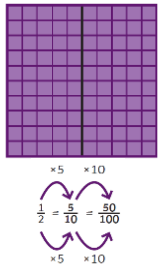


Now we can add as before →.

This also applies for subtracting fractions with different denominators

Equivalent Fractions

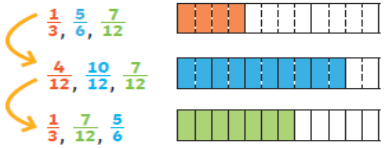
To find equivalent fractions, we multiply or divide the numerator and denominator by the same number



Order and compare fractions (when denominators are related multiples)

Similar to +/-

1. Make the denominators the same by converting
2. Compare or order the fractions
3. Write back as original fraction

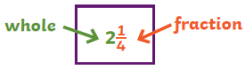


Top Tips for Adding and subtracting fractions

1. Make the denominator the same (by converting). Do the same to the numerator & the denominator
2. Add or subtract the numerators
3. Simplify if needed

Mixed numbers and improper fractions

Mixed numbers – Contain a whole number and a fraction

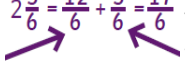


Improper fractions - Numerator is greater than the denominator

$\frac{5}{3}$

Convert mixed number to improper fraction

Multiply the whole part by the denominator to make an improper fraction



Then add the two fractions together

Convert improper fractions to mixed numbers

$\frac{9}{4}$

$9 \div 4 = 2r1$ → $2\frac{1}{4}$

Divide the numerator by the denominator

This shows you the whole number and the fraction

Autumn Term – Y6 Maths – Number and Place Value

Previously Learned Vocabulary	
Millions (y5)	Round/ rounding (y4)
Negative (y4)	Integers (y3)
Equivalence (y5)	
New Vocabulary	
Ten million	Interval

Read and write numbers up to ten million

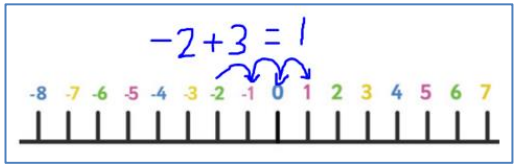
3 926 471

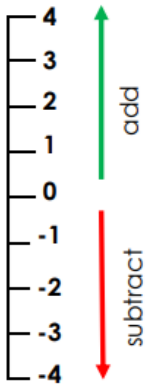
three million, nine hundred and twenty-six thousand, four hundred and seventy-one

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
3	9	2	6	4	7	1

3 926 471	
3 926 000	471

Negative numbers in context





When we add a positive number to a negative number, we count upwards towards zero.

-2 + 5 = 3

When we subtract a positive number from a negative, we count down away from zero.

-1 – 3 = -4

Compare and order numbers up to ten million

equals	greater than	less than
26 + 38 = 8 × 8	223 873 > 98 256	901 198 < 1 091 098
Both calculations have the value 64.	The number on the left has 2 hundred thousands and the number on the right has 0 hundred thousands.	The number on the right has 1 million and the number on the left has 0 millions.

Round any whole number to a required degree of accuracy

Rounding to the nearest 1000

2000 ←	2499	2500 →	3000
round down		round up	

Rounding to the nearest 100 000

200 000 ←	249 999	250 000 →	300 000
round down		round up	

Rounding to the nearest 10 000

20 000 ←	24 999	25 000 →	30 000
round down		round up	

Rounding to the nearest 1 000 000

2 000 000 ←	2 499 999	2 500 000 →	3 000 000
round down		round up	

Autumn term - Year 6 Maths – Addition and Subtraction

Previously Learned Vocabulary	
Millions (y5)	Round/ rounding (y4)
Equivalence (y5)	Integers (y3)
New Vocabulary	
Reason from known facts	

Use inverse operations

143 + ___ = 200

so

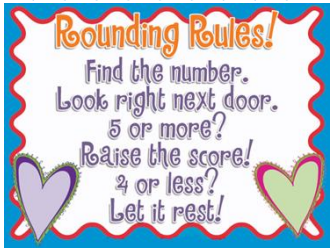
200- 143 = 57

Use rounding to check answers to calculations with increasing accuracy

456 + 122

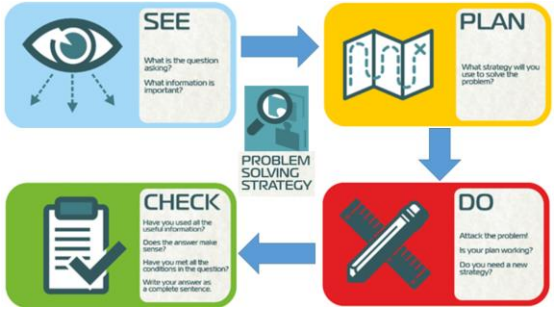
460 + 120 = 580

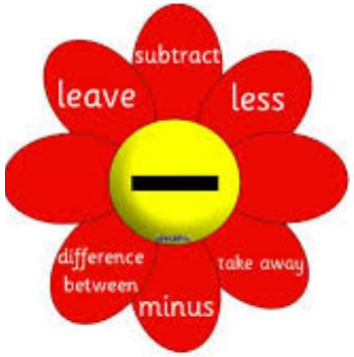
456
+ 122
578



Solve addition and subtraction multi-step problems, deciding which operations to use and why

Step 1: Understand the problem.
Step 2: Devise a plan (translate).
Step 3: Carry out the plan (solve).
Step 4: Look back (check and interpret).





Add and subtract integers

Column Method

	4	5	8	6	4
+	2	3	4	9	7
	6	9	3	6	1
		1	1	1	

Starting with the ones, add each column in turn. Regroup tens, hundreds, thousands, ten thousands as required.

	3	5	6 7	13 4	1 2
-		3	4	7	6
	3	2	2	6	6

Starting with the ones, subtract each column in turn. Exchange tens, hundreds, thousands and/or ten thousands as required.

Add and subtract numbers mentally with increasingly large numbers

Use of rounding

2001 – 1999 =

2001 – 2000 = 1

1 +1 = 2

Add the 1 back on as you took an extra 1 away

Partitioning

2500 + 1500 =

2500 + 1000 = 3500

3500 + 500 = 4000

Autumn Term – Y6 Maths – Multiplication and Division A

Previously Learned Vocabulary	
Product (y3)	Factor (y4)
Multiple (y3)	Prime (y5)
Remainder (y4)	Short division (y3)
Millions (y5)	Round/ rounding (y4)
Equivalence (y5)	Integers (y3)
New Vocabulary	
Common factors	Common multiples

Prime Numbers 1 to 100

2 3 5 7 11 13 17 19
23 29 31 37 41 43 47
53 59 61 67 71 73 79
83 89 97

Multiply and divide whole numbers by 10, 100 and 1000.

			3	.	0	2
		3	0	.	2	

x 10

			3	.	0	2
	3	0	2	.		

x 100

			3	.	0	2
3	0	2	0	.		

x 1000

	3	0	2	0	.	0
÷ 10 →		3	0	2	.	

	3	0	2	0	.	0
÷ 100 →			3	0	.	2

	3	0	2	0	.	0
÷ 1000 →				3	.	0 2

Divisibility Rules

A number is divisible if it can be divided evenly with no remainder.

10	if	The number ends in a 0.
9	if	When you add all the digits this number can be divided by 9.
8	if	The last 3 digits form a number that can be divided by 8.
7	if	For 3 digit numbers, double the last digit and subtract it from the first two digits. The total can be divided by 7.
6	if	The last number can be divided by 2 and the total of the digits can be divided by 3.
5	if	The last digit is a 5 or a 0.
4	if	The last two digits are a number that is divisible by 4.
3	if	The sum of the digits can be divided by 3.
2	if	The final digit is an even number .

Common factors

Factors of 48

1	2	3	4	6	8	12	16	24	48

Factors of 30

1	2	3	5	6	10	15	30

Common factors: 1, 2, 3, 6

Common multiples

Multiples of 3

3	...	18	21	24	...	39	42

Multiples of 7

7	14	21	28	35	42

Common multiples: 21, 42...

Primes

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 33, 37, 41, 43

A composite number has factors other than 1 and itself.

Squares and Cubes

Square numbers result from a number being multiplied by itself (e.g. 5 × 5 = 25):

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Cube numbers result from a number being multiplied by itself twice (2 × 2 × 2 = 8):

1, 8, 27, 64, 125

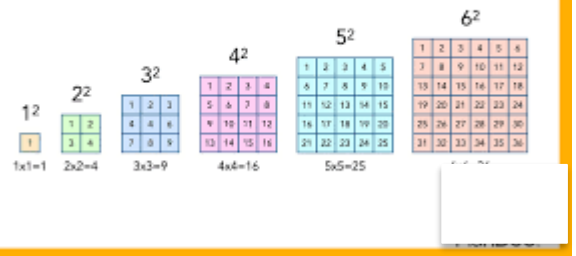
$1^3 = 1 \times 1 \times 1 = 1$

$2^3 = 2 \times 2 \times 2 = 8$

$3^3 = 3 \times 3 \times 3 = 27$

$4^3 = 4 \times 4 \times 4 = 64$

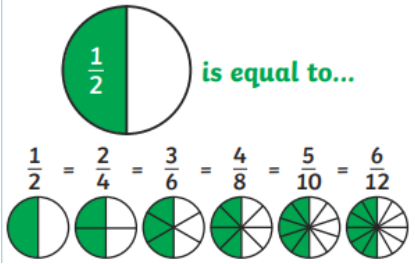
Square Numbers



Autumn Term – Y6 Maths – **Fractions A**

Previously Learned Vocabulary	
Mixed number (y5)	Thousandths (y5)
Simplify (y5)	Improper fraction (y5)
Decimal equivalents (y4)	

Equivalent fractions



You can find equivalent fractions by multiplying or dividing the numerator and denominator by the same number

Adding and subtracting fractions

1. Make the denominator the same
2. Add or subtract the numerators
3. Simplify if needed

Same Denominators

$\frac{4}{7}+\frac{2}{7}=\frac{6}{7}$

$\frac{8}{11}-\frac{3}{11}=\frac{5}{11}$

Different Denominators

$\frac{2}{7}+\frac{3}{5}$

Multiples of 7: 7, 14, 21, 28, **35**
Multiples of 5: 5, 10, 15, 20, 25, 30, **35**

$\frac{2}{7}=\frac{10}{35}, \frac{3}{5}=\frac{21}{35}$

$\frac{10}{35}+\frac{21}{35}=\frac{31}{35}$

$\frac{9}{10}-\frac{1}{4}$

Multiples of 10: 10, **20**
Multiples of 4: 4, 8, 12, 16, **20**

$\frac{9}{10}=\frac{18}{20}, \frac{1}{4}=\frac{5}{20}$

$\frac{18}{20}-\frac{5}{20}=\frac{13}{20}$

Add or subtract the whole numbers and fractions separately.

$2\frac{2}{5}+1\frac{3}{10}$

$2+1=3$

$\frac{2}{5}+\frac{3}{10}=\frac{4}{10}+\frac{3}{10}=\frac{7}{10}$

$3+\frac{7}{10}=3\frac{7}{10}$

$2\frac{1}{2}-1\frac{1}{4}$

$2-1=1$

$\frac{1}{2}-\frac{1}{4}=\frac{2}{4}-\frac{1}{4}=\frac{1}{4}$

$1+\frac{1}{4}=1\frac{1}{4}$

Convert the mixed numbers to improper fractions.

$2\frac{2}{5}+1\frac{3}{10}$

$2\frac{2}{5}=\frac{12}{5}$ $\quad 1\frac{3}{10}=\frac{13}{10}$

$\frac{12}{5}+\frac{13}{10}=\frac{24}{10}+\frac{13}{10}=\frac{37}{10}$

$\frac{37}{10}=3\frac{7}{10}$

$2\frac{1}{2}-1\frac{1}{4}$

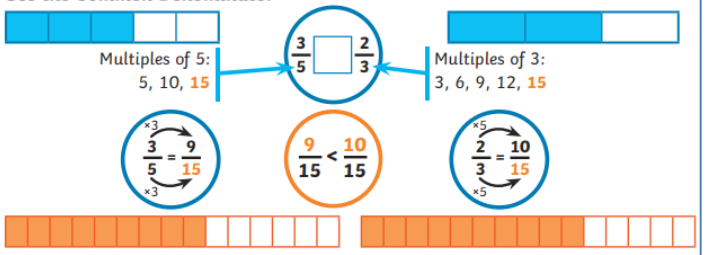
$2\frac{1}{2}=\frac{5}{2}$ $\quad 1\frac{1}{4}=\frac{5}{4}$

$\frac{5}{2}-\frac{5}{4}=\frac{10}{4}-\frac{5}{4}=\frac{5}{4}$

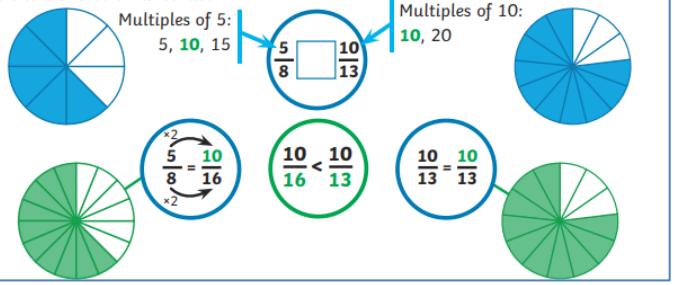
$\frac{5}{4}=1\frac{1}{4}$

Order and compare fractions

Use the Common Denominator

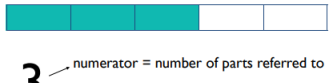


Use the Common Numerator



Proper fractions

A fraction is a part of a whole.



$\frac{3}{5}$ — numerator = number of parts referred to; fractions bar = divided by / out of; denominator = number of parts in whole

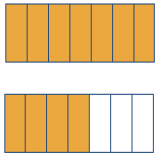
Fractions are divisions yet to be done...

$\frac{1}{8} = 1 \div 8 = 0.125$

Improper fractions and mixed numbers

Improper fractions and mixed numbers show fractions more than a whole.

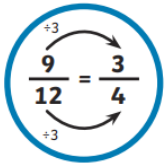
$\frac{11}{7} = 1\frac{4}{7}$



Simplify fractions

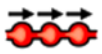
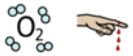
Factors of 9:
1, 3, 9

Factors of 12:
1, 2, 3, 4, 6, 12



Science Unit – Animals including humans Oak Class – Heptonstall School

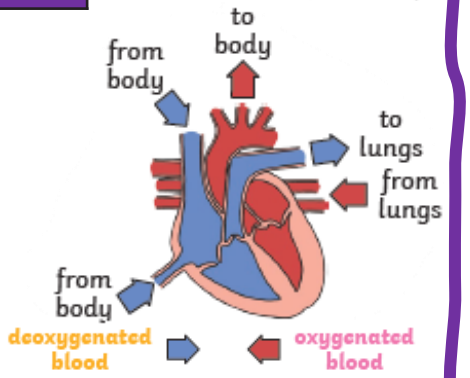
Key Vocabulary

Arteries 	muscular-walled tubes that transport blood from the heart to other parts of the body.
Blood Vessels 	a tubular structure carrying blood through the tissues and organs.
Deoxygenated Blood 	Dark coloured blood travelling to the heart to be resupplied with oxygen.
Circulatory System 	the system that circulates blood through the body, including the heart, blood vessels and blood.
Heart 	A hollow muscular organ that pumps the blood through the circulatory system.
Lungs 	Pair of organs situated within the ribcage where oxygen can pass into the blood and carbon dioxide be removed.
Oxygenated Blood 	Bright red coloured blood travelling away from the heart to different arteries of the body,
Respiration 	The action of breathing in oxygen and breathing out carbon dioxide.
Valve	The valves control the flow of blood through the heart by opening and closing during the contractions of the heart.
Veins 	Tubes forming part of the blood circulation system of the body, carrying mainly oxygen-depleted blood towards the heart.

Key Information I will learn...

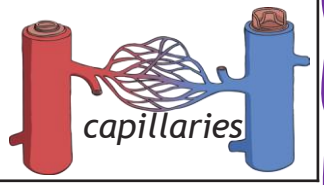
The heart

- The heart pumps blood to the lungs to get oxygen.
- It then pumps this oxygenated blood around the body.
- Mammals have hearts with four chambers.
- The blood that comes from the body is deoxygenated.
- The blood that comes from the lungs is oxygenated.



Capillaries, arteries and veins

- Capillaries are the smallest blood vessels in the body and it is here that the exchange of water, nutrients, oxygen and carbon dioxide takes place.
- Arteries carry oxygenated blood away from the heart.
- Veins carry deoxygenated blood towards the heart.



Keeping healthy

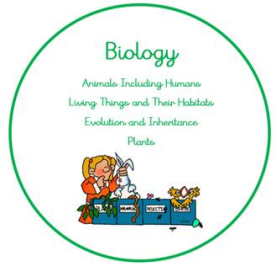
Regular exercise

- strengthens muscles including the heart muscle
- improves circulation
- increases the amount of oxygen around the body
- releases brain chemicals which help you feel calm and relaxed
- helps you sleep more easily
- strengthens bones.
- It can even help to stop us from getting ill.

Keeping healthy

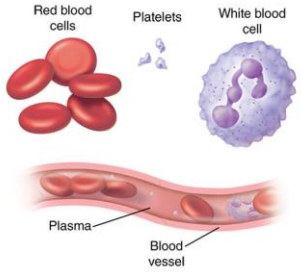
- Drugs, alcohol and smoking have negative effects on the body.
- A healthy diet involves eating the right types of nutrients in the right amounts.





What's in my blood?

- Plasma – is a liquid
- Red blood cells – these carry oxygen through our body
- Platelets – help us to stop bleeding when we get hurt
- White blood cells – these fight infection when we're sick.

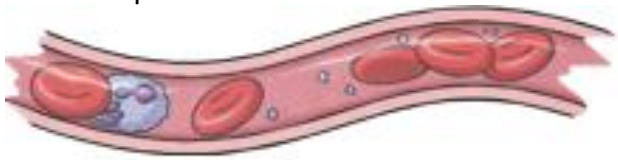


Transporting blood and water

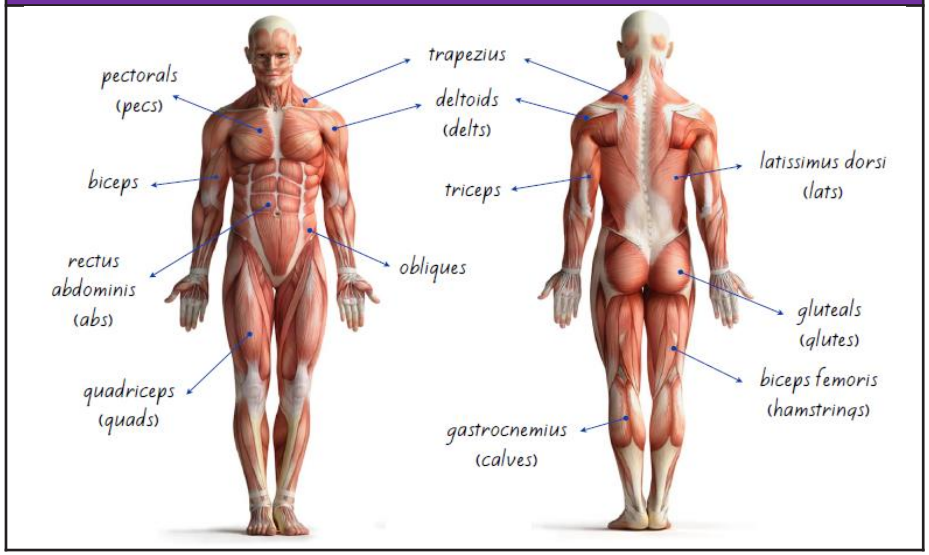
The liquid part of blood contains water and protein. This is called plasma.

Blood transports:

- Gases (mostly oxygen and carbon dioxide)
- Nutrients (including water)
- Waste products



Muscles



Key Questions

What is difference oxygenated and deoxygenated blood?

What does the circulatory system transport?

How do you take your own pulse rate?

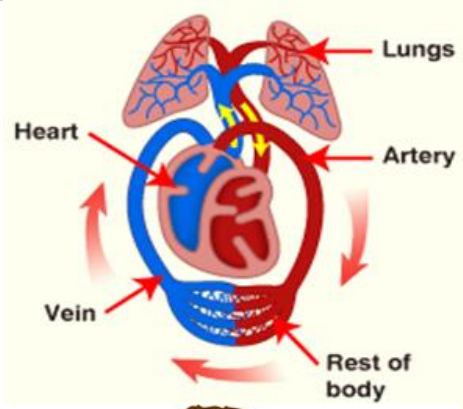
What happens to our heart when we exercise?

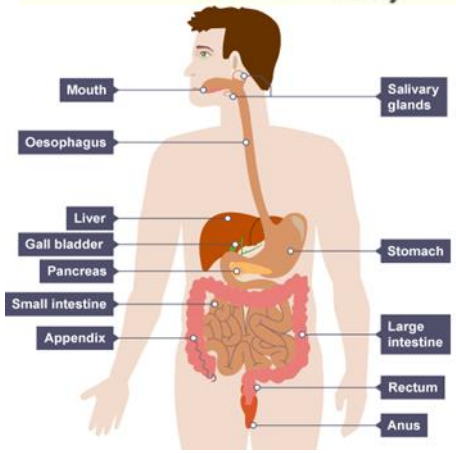
What happens to your pulse rate when you exercise?

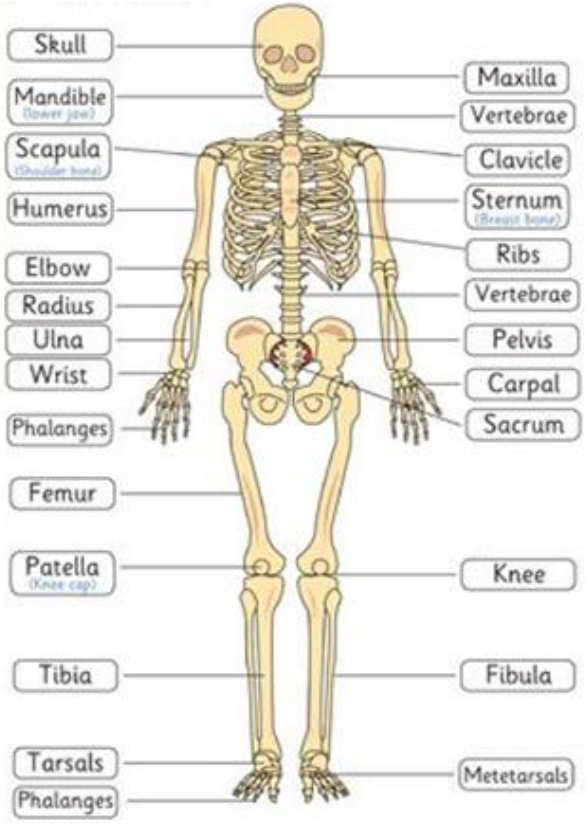
What are some of the negative effects drugs, tobacco and alcohol on the body?

Why is exercise important?

What harmful effects can drugs have?







End Goals

- Can identify, label and draw parts of the circulatory system e.g. heart, blood vessels, capillaries, arteries, blood. Understand the function of the different parts. Understand how nutrients are transported around the body within animals and humans.
- Know the impact of a balanced diet, exercise and lifestyle on the way their body's function.
- Recognise the impact on all body systems learned so far.

Must Knows

Animals including humans – circulatory system

Key Facts:

- The circulatory system moves blood around the body. It is made up of the heart, blood vessels and blood
- The blood vessels that move blood towards the heart are called veins.
- The blood vessels that move blood away from the heart are called arteries.
- Capillaries are small blood vessels that link veins and arteries together.
- Blood transports nutrients and oxygen to all parts of the
- body, and takes waste, such as carbon dioxide, away.
- Nutrients are carried in the plasma to provide the nourishment cells need to repair themselves and grow.
- Oxygen is carried in red blood cells from the lungs to all cells in our body.
- White blood cells help to fight bacteria and viruses in our body to prevent illness.
- Oxygenated blood is blood that carries lots of oxygen.
- Deoxygenated blood is blood that has little oxygen in it.
- Oxygenated blood mostly travels from the heart through the arteries.
- Deoxygenated blood mostly travels from the parts of the body back to the heart, through veins.
- The heart is part of the circulatory system.
- The heart is a muscle which beats regularly. As the heart beats, it pumps blood around the body. The heart is split into four chambers. It has two atria and two ventricles. The left ventricle is thicker than the right ventricle because moving blood around the whole body requires more force than moving blood to the lungs.
- Veins carry blood towards the heart. They have valves to stop the blood flowing in the wrong direction. Blood then flows through the right atrium, then out of the right ventricle to the lungs. Blood from the lungs then flows into the left atrium and out of the left ventricle towards the rest of the body.
- When you exercise, your heart rate increases. This is to pump more blood around the body to increase oxygen and nutrients getting to the organs.
- A balanced diet is made up of the right amounts of carbohydrates, fats, proteins, vitamins, minerals, fibre and water.
- Fats can be classified as unsaturated, saturated or trans fats.
- Unsaturated fats provide the body with energy and allow humans to absorb some vitamins.
- Saturated and trans fats can cause weight gain and heart disease.
- A drug is a chemical that can change the way your body or brain functions.
- Painkillers help the body to dull pain.
- Stimulants make a person feel more alert and awake.
- Depressants make the body feel calm and drowsy.
- Some drugs are legal and some are illegal.
- Cigarettes contain tar, nicotine and other harmful substances.
- Tar is a sticky, brown substance which can cause cancer. Nicotine is highly addictive. Carbon monoxide is a poisonous gas that stops the blood carrying as much oxygen.
- Smoking can damage the body and cause breathing problems. It also increases the risks of heart and lung disease.

Geography – Extreme Earth Oak Class – Heptonstall School

active volcano	A volcano that has had at least one eruption during the past 10,000 years.
aftershock	A smaller earthquake that follows a larger earthquake in the same area.
conduit	The pipe that carries magma from the magma chamber, up through the volcano until it reaches the vent
cone	A triangle-shaped hill formed as material from volcanic eruptions piles up around the volcanic vent.
crust	The outermost solid shell of the Earth.
dormant volcano	An active volcano that is not erupting, but is expected to erupt again.
extinct volcano	A volcano which has not erupted in the past 10,000 years and considered by scientists unlikely to erupt again. (Also. no longer near an active geologic hot spot).
lava	Hot molten or semi-fluid rock erupted from a volcano or fissure, or solid rock resulting from cooling of this.
lava flow	Streams of molten rock that pour or ooze from an erupting vent. Lava is erupted during either nonexplosive activity or explosive lava fountains.
magma	Hot fluid or semi-fluid material below or within the Earth's crust from which lava is formed.
mantle	The layer of rock inside the Earth between the core and crust (the thickest layer of the earth).
mountain range	A series of mountains or hills ranged in a line and connected by high ground.
peak/summit	The highest point of a hill or mountain.
pyroclastic flow	A fast-moving current of solidified lava, pumice, ash and volcanic gases, including sulphur.
vent	An opening in the Earth's surface that allows volcanic material to erupt from within.

Key Information I will learn...

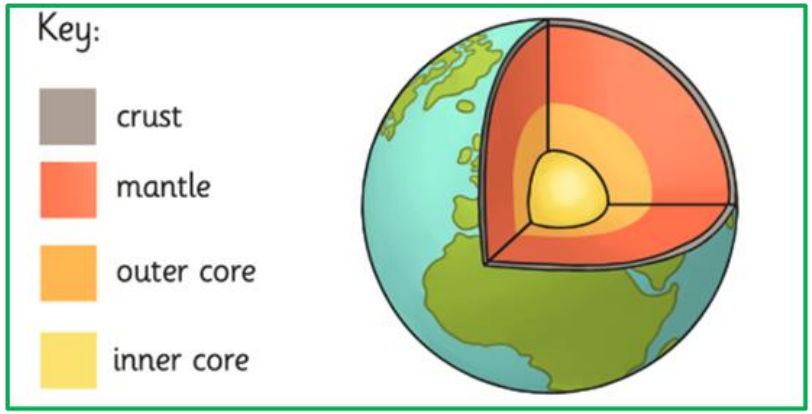
This is a Geography topic.
We will be working as Geographers.

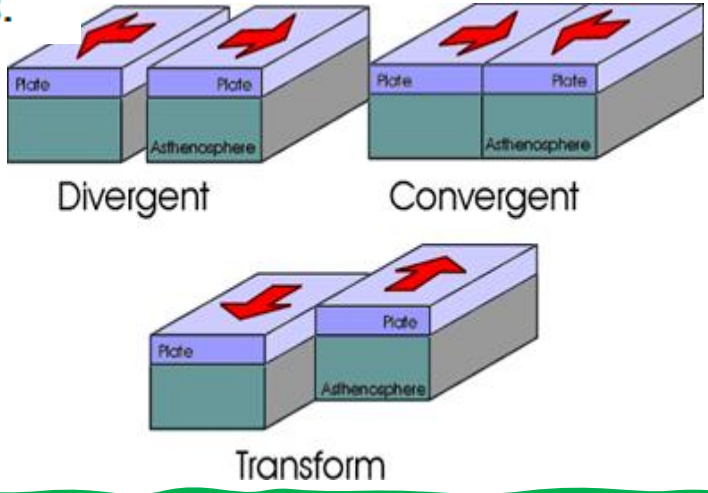
tectonic plates

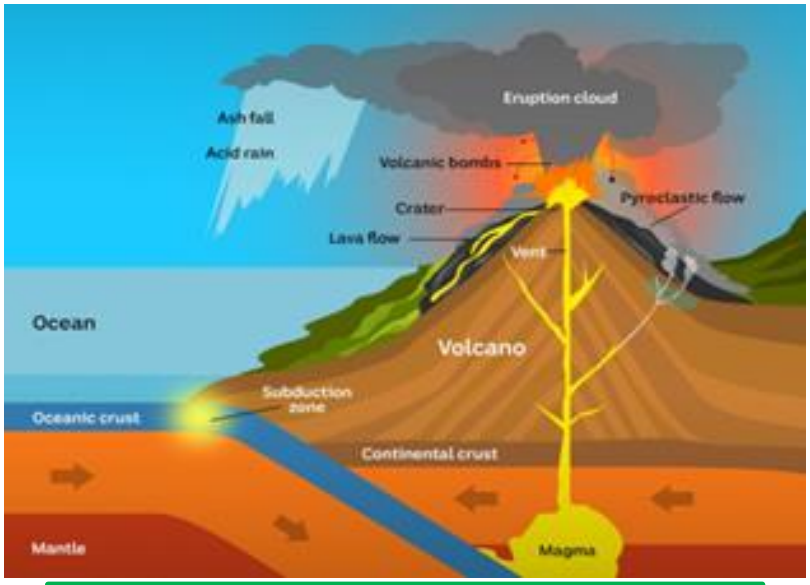
The Earth is made up of layers. The outer layer (crust) is made of large slabs of rock called tectonic plates.

Tectonic plates move as the hot mantle flows beneath them.
The movement of the plates can cause earthquakes, the formation of mountains and volcanic eruptions.

The Earth has four layers.







Cross section of an erupting volcano

The World's Seven Summits (the highest peaks on each continent)

Mount Everest is in the Himalayas

3 states of volcano

Active Dormant Extinct

Mount Vesuvius is a volcano in Italy

Key Questions

How many layers does the Earth have?

What are tectonic plates?

How are mountains formed?

Name 3 different types of mountains and how they are formed?

Which is the tallest mountain in the world?

What do the 3 states of a volcano mean?

End Goals

- Name and locate different types of UK mountains employing the use of the eight points of a compass, maps, symbols and keys
- Describe and understand key aspects of mountain formation
- Use the eight points of a compass, six figure grid references, paper maps, Google maps and Google Earth, symbols and keys (including Ordnance Survey maps) to locate and describe human and geographical features studied including extinct UK volcanoes, mountains and mountain ranges.
- Name and locate major volcanoes of the world employing the use of the eight points of a compass, maps, symbols and keys
- Locate key earthquake zones of the world, including an earthquake location study
- Describe and understand key aspects of volcano formation, the process of volcanic eruptions, the different types of volcanoes and their physical effects on the environment
- Describe and understand key aspects of mountain formation
- Describe and understand the causes, processes and effects of Earthquakes, the different types of Earthquakes and their physical effects on the environment, including a focus study on a particular earthquake
- Describe and understand the effects of volcanoes on settlements and land use

Topic Must Knows
Extreme Earth

Key Facts

- Mountains are formed when two continental plates collide.
- Some of the well-known mountains in the UK include Snowdon, Scafell Pike, Helvellyn and Ben Nevis.
- For a landform to be considered a mountain in the UK, it must be 600 metres above sea level at its summit.
- The tallest mountain in the UK is Ben Nevis in Scotland.
- The highest mountain in the world is Mount Everest in The Himalayas.
- A volcano is an opening in the Earth's crust that allows magma, hot ash and gases to escape.
- There are three types of volcano, shield, composite and cinder cone.
- The three states of volcanoes are active, dormant and extinct.
- The main parts of a volcano are mantle, crust, magma chamber, conduit, cone, vent and crater.
- The Earth is made up of layers: the crust (the outer layer where life exists), the mantle, the outer core and the inner core.
- The Earth's crust consists of large slabs of rock, called tectonic plates.
- Tectonic plates move as the hot mantle flows beneath them.
- The movement of the plates can cause earthquakes, the formation of mountains and volcanic eruptions.
- Divergent plates move apart, convergent plates move towards each other and transform plates move past each other.

Must know quiz score:.....

Art - 2D drawing to 3D making Oak Class – Heptonstall School

Key Vocabulary

2D	Two dimensional
3D	Three dimensional
Collage	a piece of art made by sticking various different materials such as photographs and pieces of paper or fabric on to a backing
Sculpture	the art of making three-dimensional representative or abstract forms
Packaging	materials used to wrap or protect goods.

Key questions

How do artists create 3D objects from 2D drawings & paintings?
How can you add both texture and form to a simple outline shape?
How can you transform a 2D drawing to a 3D object?

Claire Harrup

Claire Harrup is a successful Illustrator and Printmaker based in the UK.

Key Information I will learn...

Lubaina Himid

Born in Zanzibar in 1954, Lubaina Himid is a British painter. Himid creates paintings, drawings, prints and installations.

End points

Children can
Understand that there is often a close relationship between drawing and making. Understand that we can transform 2d drawings into 3d objects.
Understand that graphic designers use typography and image to create packaging which we aspire to use.
Understand that there are technical processes we can use to help us see, draw and scale up our work.
Explore using negative and positive space to "see" and draw a simple element/object.
Use the grid system to scale up the image above, transferring the image onto card.
Use collage to add tonal marks to the "flat image".
Practise seeing negative and positive shapes.
Using the grid method to scale up an image.
Develop Mark Making
Make visual notes to capture, consolidate and reflect upon the artists studied.

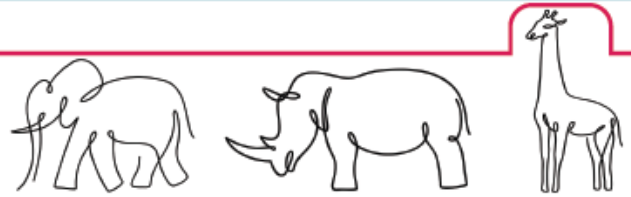
DT Unit – Steady hand game — Oak Class – Heptonstall School

Electrical Systems - Steady hand game

Backboard	A background designed for the steady hand game.
Battery	A cell or connected group of cells which store electrical energy.
Bulb	A component which gives light when electricity passes through it.
Buzzer	A component which makes a loud noise as electricity passes through.
Circuit	A collection of components which make an electrical system.
Conductor	A material that allows electricity to flow through it. e.g. metal.
Copper	A metal material that is one of the best conductors of heat and electricity. It is often used to make wires and pipes.
Function	How an object or product operates or works.
Insulator	A material that does not allow electricity to flow through it. e.g. plastic.
LED	A light emitting diode which lights up as electricity passes through.
Magnetic field	The area around a magnet where there is magnetic force.
Net	A 2D flat shape, that can become a 3D shape once assembled.
Pliers	A metal tool used for holding, twisting or cutting wire.
Prototype	A simple model that lets you test out your idea, how it will look and work.
Series circuit	A closed circuit where the current only follows one path.
Side view drawing	An engineering diagram which shows the dimensions (width, depth, length) of the side (left or right) of a product.
Switch	A component which opens and closes to turn the circuit on or off.
Side view drawing	An engineering diagram which shows the dimensions (width, depth, length) of the side (left or right) of a product.
Test	To find out whether something works as it should.
Top view drawing	An engineering diagram which shows the dimensions (width, depth, length) of the top of a product.

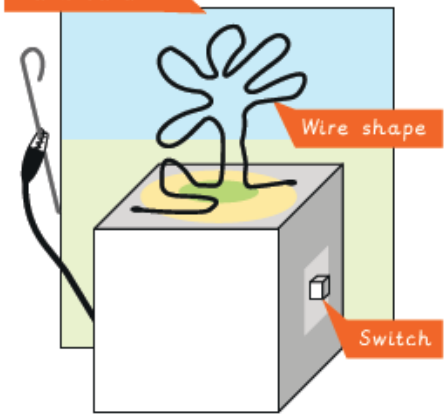
Check it out!

Check out continuous line drawings, such as Picasso's single-line animals for inspiration!

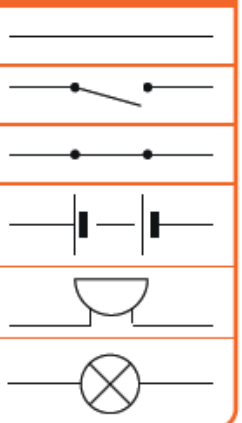


Key facts

The more complex your wire shape, the harder your steady hand game will be, especially if the bends are close together.



Circuit symbols:

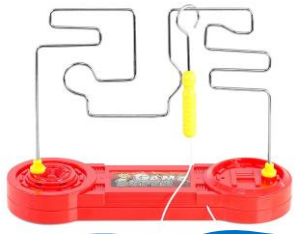


Key Questions

What components are needed to make a circuit?

What does form and function mean?

How could you make the game easier or harder?



End Goals

Children can;
Designing a steady hand game - identifying and naming the components required.
Drawing a design from three different perspectives.
Generating ideas through sketching and discussion.
Modelling ideas through prototypes.
Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.
Constructing a stable base for a game.
Accurately cutting, folding and assembling a net.
Decorating the base of the game to a high-quality finish.
Making and testing a circuit.
Incorporating a circuit into a base.
Testing own and others finished games, identifying what went well and making suggestions for improvement.
Gathering images and information about existing children's toys.
Analysing a selection of existing children's toys.

RE Unit 6.1 How do Sikhs show commitment? Oak Class – Heptonstall School

Key Vocabulary

Guru Gobind Singh - is the last of the ten Gurus. He is the one who transformed the Sikh faith.

Guru Granth Sahib - is the name of the Sikh holy book.

Khalsa - the Khalsa is the collective body of all initiated Sikhs.

Amrit – is the ceremony where a Sikh person becomes a part of the Khalsa

Sewa – means 'selfless service'. It involves acting selflessly and helping others in a variety of ways, without any reward or personal gain.

Langar - is a community kitchen and, as part of it, free vegetarian food is served in the kitchens of a Gurdwara (a Sikh temple) every day.

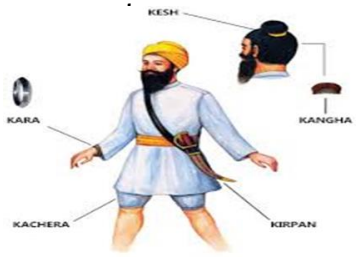
The 5Ks

Kesh – uncut hair	Kangha - comb	Kara - wristband	Kachera – short trousers	Kirpan -sword

Khandra symbol - is the symbol of the Sikh faith

Key Information I will learn...

The Five K's are the markers of Sikh identity, and they consist of: uncut hair, a short sword or knife, a steel wristband, a wooden comb, and shorts worn as



Amrit is the ceremony where a Sikh person becomes a part of the Khalsa.

The Khalsa wear the 5ks as a sign of commitment.

Initiated Sikhs carry a kirpan and it symbolises how they should be willing to die for their faith

Sikhism teaches about Sewa. It means 'selfless service' and involves helping others without any reward or personal gain.

Key questions

How do Sikhs show commitment to their faith through religious practice?

What symbols are important to Sikhs?

How do Sikhs show commitment to their faith through rites of passage?

How do Sikhs show commitment by putting faith into action?

What can we learn from Sikh beliefs and ways of life?

Values are things that we believe are important and show this by the way we act.

Sikhs demonstrate commitment through daily religious observance.

End Goals

Children will

- Discuss and compare a range of important values
- Summarise and give reasons for Sikh daily practice
- Reflect on personal values and make links with Sikh beliefs
- Identify and explain Sikh symbols, including the 5Ks
- Summarise and explain how Sikh teachings and stories influence Sikh practice.
- Weigh up different points of view about the Kirpan
- Identify and explain the main features of the Amrit ceremony
- Compare and contrast Sikh practices with other forms of commitment
- Identify and explain Sewa and make connections with other forms of service.
- Suggest reasons why the langar is an important part of the Gurdwara.
- Identify and explain key features of Sikh practice.
- Consider and discuss the impact of being a Sikh on daily life.
- Make links and applications to their own experiences and ideas

netball

Netball is fast-paced and requires fitness, speed and accuracy. Most junior games have 5 players per team, but senior teams have 7 players. Points are scored by shooting the ball into the opposite team's net. Players must not travel with the ball and must stay in particular areas of the court, therefore teamwork is important.

aim

technique

shoot

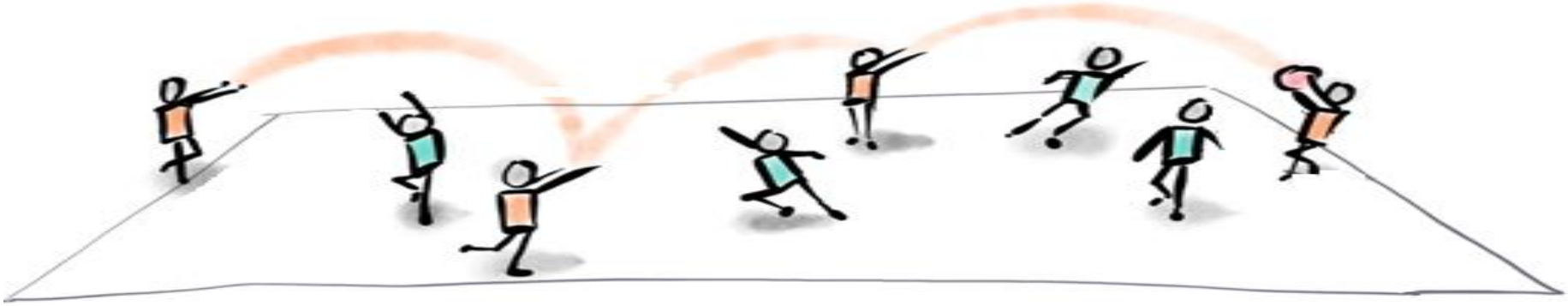
control

teamwork

speed

chest pass

bounce pass

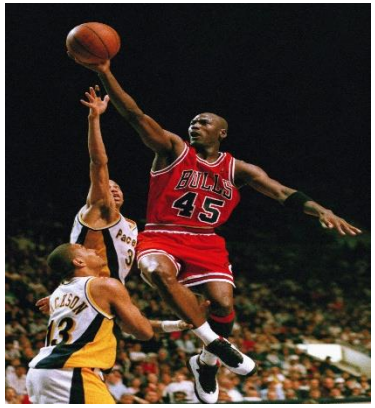


STEPS TO SUCCESS

These are the skills I need to achieve success in UKS2 Netball:

- To pass the ball in a variety of ways with confidence and control.
- To move with the ball at speed.
- To mark, track and cover when defending.
- To keep possession of the ball when faced with opponents.
- To work together as a team, showing good awareness of others.
- To apply attacking and defending skills in game situations.

Basketball is a fast-paced team sport played on a rectangular court. Two teams of 5 players use their hands to dribble (bouncing the ball while moving) and pass the ball to each other with the aim of shooting the ball through their opponent's hoop to score.



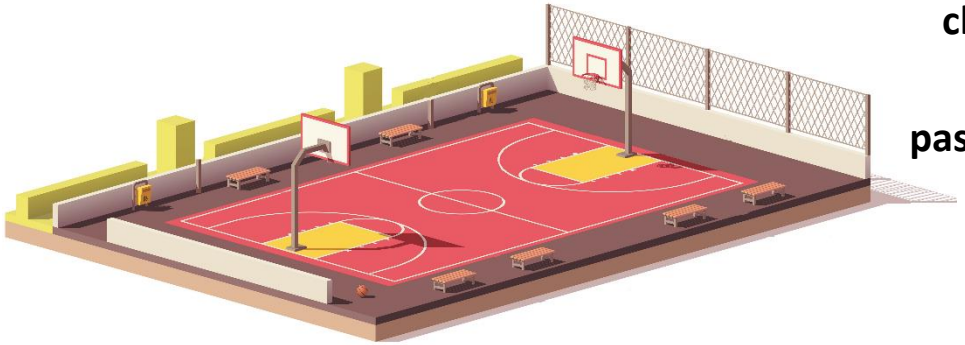
Michael Jordan

Club: Chicago Bulls

National Team: USA

Position: Shooting guard

Fact: Jordan won 6 NBA championships in 15 seasons.



chest pass **possession**

passing **dribbling** **shoot**

score **space**

STEPS TO SUCCESS

These are the skills I need to achieve success in UKS2 Basketball:

To pass the ball in different ways with confidence and control.

To move with the ball at speed.

To mark, track and cover when defending.

To keep possession of the ball when faced with opponents.

To work together as a team, showing good awareness of others.

Apply basic principles for attacking and defending in game situations.

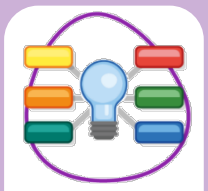
Purple Mash Computing Scheme: Knowledge Organiser

Year 6
Networks

Key Learning

- To understand what a computer network is and identify examples of networks at home, school and in the wider world.
- To understand the difference between the internet and the World Wide Web and explore the services they provide.
- To explore how the internet can be used for communication and collaboration, and how to do this safely and respectfully.
- To explore who is in charge of the internet and how rules and website blocking can affect people, society and online platforms.

Key Resources



2Connect

2Quiz

Key Vocabulary

Email
A method of sending messages over the internet.

Network
A group of connected computers and devices that can share information.

Web Browser
A program used to look at websites.

Internet
A global WAN that connects millions of computers and networks around the world.

Router
A device that connects networks together to allows them to communicate.

Website
A collection of pages of information on the Web.

Internet Chat
Instant messaging in real-time.

Video Call
Seeing and hearing someone live on your screen.

Wi-Fi
A wireless way to connect devices to a network.

LAN (Local Area Network)
A network in a small area like a home, school, or office.

WAN (Wide Area Network)
A network that covers a large area, like the internet.

World Wide Web (WWW)
A service on the internet that includes websites and web pages.

Purple Mash Computing Scheme: Knowledge Organiser

Year 6
Networks

Key Images


Local Area Network


Wide Area Network


Router


Chrome


Safari


Firefox


Edge

Key Questions

What is the difference between a LAN and a WAN?

A LAN (Local Area Network) connects computers and devices in a small area like one building, such as a school, office or home.

A WAN (Wide Area Network) connects computers across large areas, like different cities or countries, often using the internet to link them together.

What is the difference between the internet and the World Wide Web?

The internet is the global network that connects computers together.

The World Wide Web (WWW) is part of the internet and is made up of websites and web pages you can visit.

Why does a school network filter out access to some websites?

A school network filters some websites to keep children safe online.

It blocks harmful, distracting, or inappropriate content, helping students focus on learning and protecting them from dangers like scams or viruses.

Purple Mash Computing Scheme: Knowledge Organiser

Year 5
Databases

Key Learning

- To understand what a database is.
- To design and create a database.
- To build queries to find information.
- To solve problems using a database.

Key Resources

2Investigate

Key Vocabulary

Condition
A condition is a rule you give to a database to help it find the right information.

Data
A set of facts or information that help us learn something or make decisions.

Database
A set of data that can be held in a computer in a format that can be searched and sorted for information.

Edit
To change, add or remove data from a record.

Field
A heading in a database record against which data is entered.

Filter
Filtering what information is shown according to any filter rules applied.

Group
Putting similar pieces of information together in a database so it is easy to read and understand.

Linked Tables
A database can contain more than one table which can be linked together so a query can include information from the linked tables.

Operator
An operator tells a database what to do with data when someone is making a query. Such as: Find everyone whose score 'is equal to' 10.

Query
A user will run a query to find specific information in a database.

Record
A collection of related data or information that is stored together as a single unit.

Sort
Organising data by a rule such as alphabetical or numerical.

Validation
A field can have specific data types such as numbers, letters, dates and times which helps minimise input errors.

Purple Mash Computing Scheme: Knowledge Organiser

Year 5
Databases

Key Images

Add record


Edit record


View mode

Create query


Database Design

Report

Key Questions

What do databases help us do?

Databases help organise data into one place. Data can be added, stored and retrieved by more than one person. When data is retrieved it can be combined to form information that someone might wish to find out. It is much quicker, more convenient and can be used by many people.

What is a query?

A query is the word used instead of question when using databases. Someone will create a query to find the answer to something they want to know.

What does a record contain?

A record contains fields of data that form information about something or someone. A database will contain lots of records. For example, a database record could be a record on one child at a school that has fields: name, age and class.

What does the AND operator help someone do?

The AND operator joins rules (conditions) together. Using AND means all the conditions have to be met. AND helps someone find specific information (records).

How can errors be kept to a minimum when entering data into a database?

Fields can have the data types entered into them set. Additionally, constraints such as always required or has options can be used.

Why might a database need more than one table?

It can get very messy and confusing for users of a database if all data is kept in one table. For example, a vet surgery might need a table on the pets and a separate table on the customers.

Let's Visit a French Town

Who Lives Where?

Où habites-tu ? Where do you live?
J'habite à... I live in...

j'habite I live	**tu habites** you live (informal, singular)	**il/elle habite** he/she/it lives
nous habitons we live	**vous habitez** you live (plural/ singular formal)	**ils/elles habitent** they live (m/f)

Where is...?

la banque (f)

la mairie (f)

la patinoire (f)

l'office du tourisme (m)

le restaurant (m)

la boucherie (f)

la bibliothèque (f)

à côté de
next to

en face de
opposite

I Go to School to Learn

Je vais à... I go to...

l'école (f)

la gare (f)

l'église (f)

le cinéma (m)

la piscine (f)

le parc (m)

la mosquée (f)

la librairie (f)

pour... to/for...

apprendre to learn	**acheter un livre** to buy a book	**prier** to pray	**nager** to swim

regarder un film to watch a film	**prendre le train** to catch the train	**faire une promenade** to go for a walk

Key Knowledge and Grammar

Remember that **à** and **de** both change depending on the noun that follows:

masculine **(le)**	**au**	**du**
feminine **(la)**	**à la**	**de la**
in front of a vowel **(l')**	**à l'**	**de l'**

Ordinal Numbers

premier (m)/ première (f) first	**deuxième** second	**troisième** third	**quatrième** fourth
cinquième fifth	**sixième** sixth	**septième** seventh	**dernier (m)/ dernière (f)** last

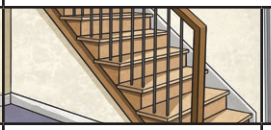
Key Knowledge and Grammar

- Ordinal numbers indicate the order in a list or collection, e.g. first, second, third.
- Only **premier/première** and **dernier/dernière** have a masculine and feminine form. For all other ordinal numbers, you usually add the ending **ième** to the number.
- Numbers ending in **f** also change their spelling to **v**, e.g. neuf (nine), neuvième (ninth).
- If the number ends in **e**, e.g. **douze** (twelve), remove the **e** before adding **ième**, e.g. **douzième** (twelfth).

Quantities

plus grand(e) que bigger than	**plus petit(e) que/moins grand(e) que** smaller than	**de plus que** more than	**de moins que** less than

Welcome to My Home!

une maison (f)		un appartement (m)	
			
l'entrée (f)	le salon (m)	l'escalier (m)	le garage (m)
			
le sous-sol (m)	le bureau (m)	la salle à manger (f)	la cuisine (f)
			
la salle de bain (f)	le grenier (m)	le jardin (m)	la chambre (f)
l'armoire (f) wardrobe	**le tapis (m)** rug	**la télévision (f)** television	**le canapé (m)** sofa
le fauteuil (m) armchair	**le four (m)** oven	**la table (f)** table	**la chaise (f)** chair