Year 7

Cycle 2 Assessments

Revision Support

In this booklet, you will find **tips for parents**, **knowledge organisers** and **'what I need to know'** checklists for each subject.

Use these to support your preparation for assessments. These begin on **Monday 11th February 2019** and will take place in lesson time.

Five simple revision tips for parents

Exam season is fast approaching and you're probably feeling the pressure of trying to help your child prepare. We've compiled some revision tips to help you banish the stress of exam prep.

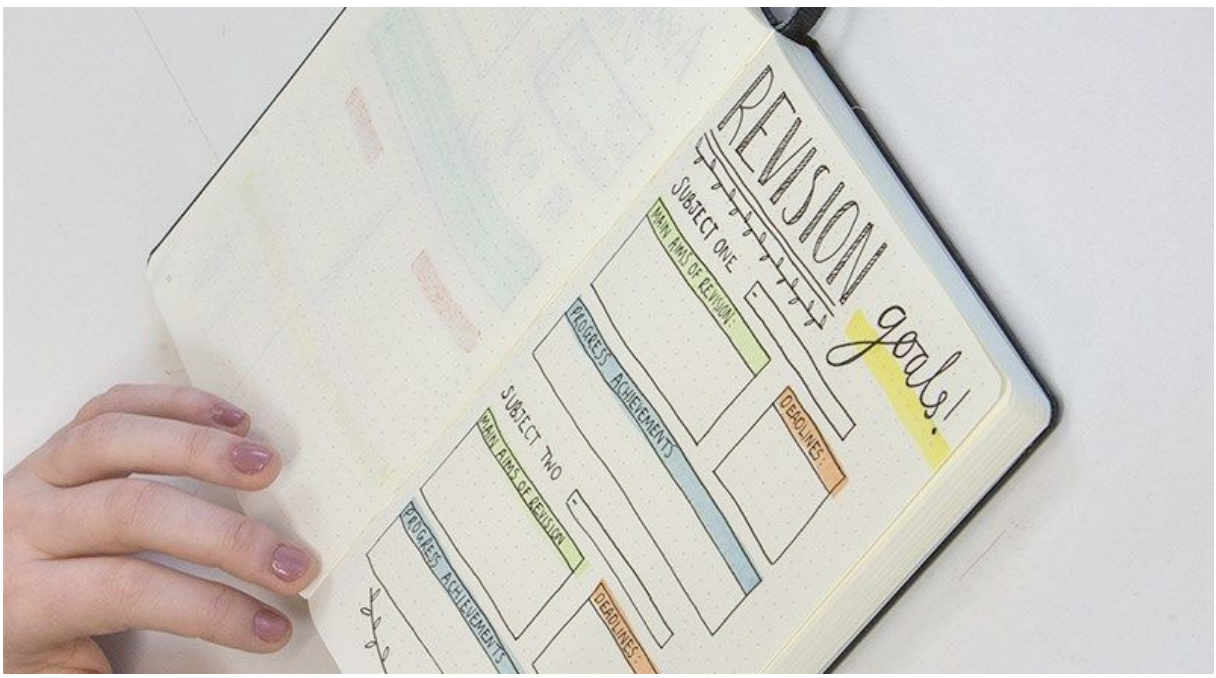
1- Establish effective study habits

Help your child create a study plan early on (this will make you aware of their exam dates too), making sure it is realistic and achievable to avoid de-motivation. Planning in advance will also help avoid ineffective cramming sessions further down the line. Encourage them to use a weekly planner so they are accountable for their work. Don't micro-manage. Provide extra support if they need or ask for it.

2- Take a break!

Don't try and force them to work for hours at a time. Their concentration span is limited and it will hinder the success of their revision if they are trying to do mammoth sessions. Suggest the use of a timer as well as regularly changing revision subject, to avoid getting stuck in a rut. Check out our Pomodoro video as it's a really simple way for students to manage their time effectively:

https://youtu.be/RlidoiSrpB0



Parent Tips

3- Practise past papers

Past papers encourage your child to think contextually, rather than just trying to memorise an entire text book. You can help by creating a realistic, timed, exam scenario when they are completing practice papers .This will encourage them to get used to working under pressure and develop exam strategies, helping them feel less anxious on the day.

4- Watch for signs of frustration

It's important that your child is in the right frame of mind for revising. If they are struggling over something in particular, it may be best to park it for the night, reassess the next day and break it down into manageable chunks. Look out for stress and worry over exams that have been and gone. Be sure to ask them how their exam went, then shift their focus to what's coming up next and encourage them to say in a positive mind-set. It is important to remember the role of a healthy diet, plenty of water and exercise in keeping a healthy outlook on exams.

5- Ask for help

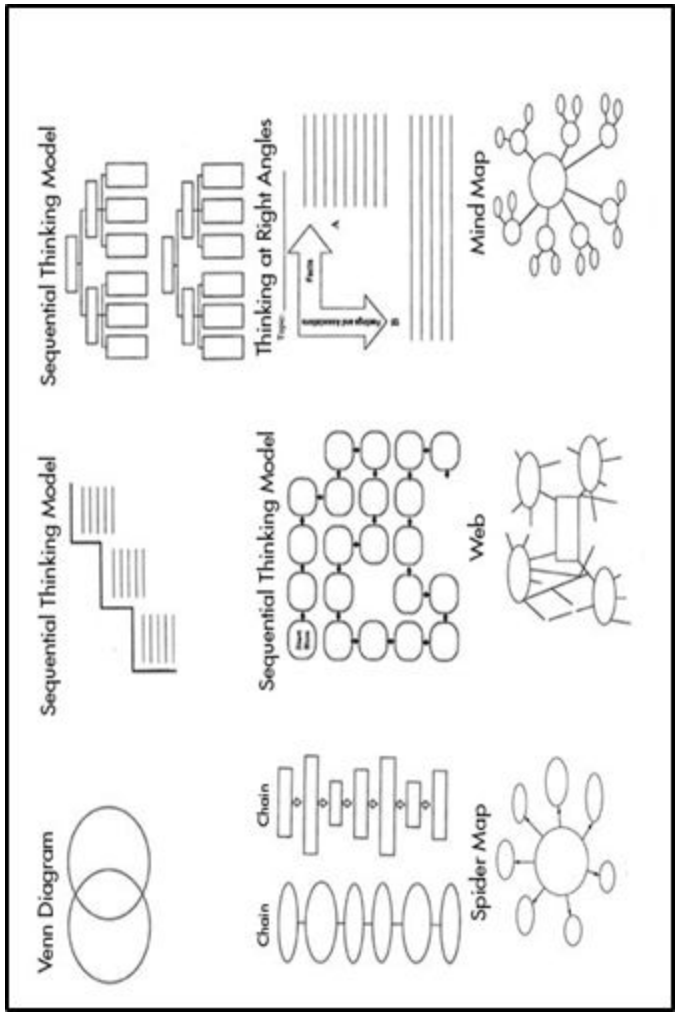
If you are working closely with your child to help them study, but feel the work is beyond your own skill set, it may be worth seeing if there is another family member who can assist. Or, if you feel this may be a long term issue and your child needs extra support, it may be worth hiring a private tutor to help improve your child's understanding of the subject. Alternatively there is lots of free support online, offering revision help for a huge range of subjects. Don't forget- teachers are just at the end of a phonecall and are ALWAYS happy to help!

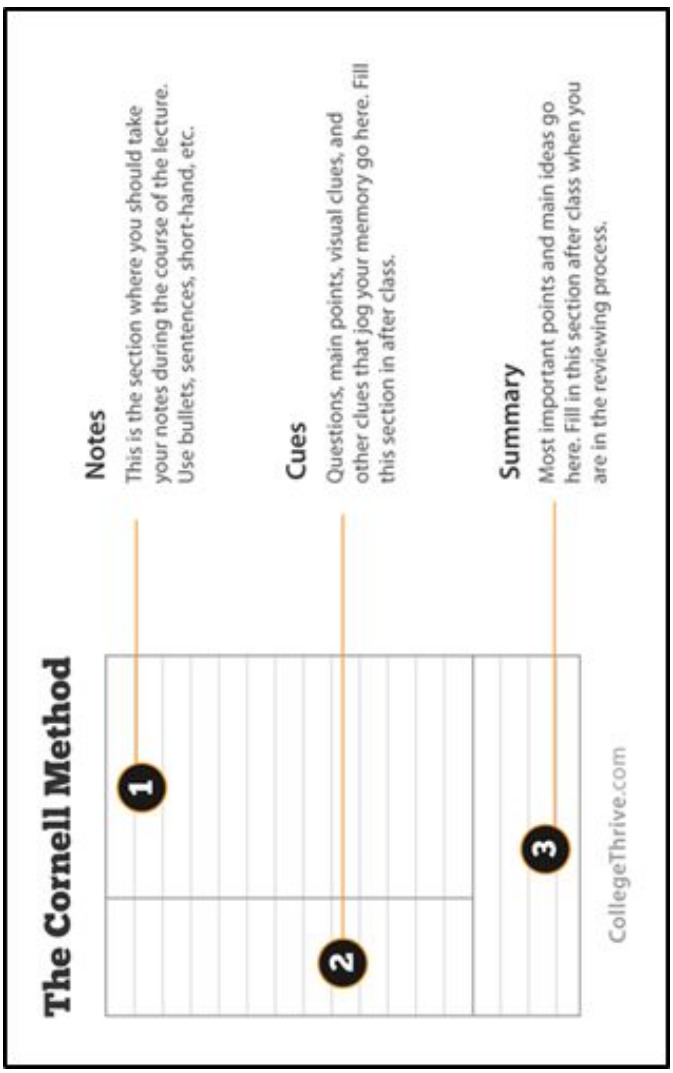
TOP TIPS

Use these knowledge organisers to revise for your assessment. Try:

- practice questions;
- getting someone to quiz you;
- making flashcards to use when quizzing;
- graphic organisers (see right);
- the Cornell method (see right);
- talk for a minute on the given term/topic – no pauses, no hesitations. Slips or repetitions or micro pauses lose a ‘life’ – three strikes and you’re out!

- Ask someone at home to use the ‘what I need to know’ checklists to test you on what you have learned.





Weekly Revision Timetable

Name: _____

Day	9:00 – 10:00	10:00 – 11:00	11:00 – 12:00	12:00 – 1:00	1:00 – 2:00	2:00 – 3:00	3:00 – 4:00	4:00- 5:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	9:00 – 10:00
Monday													
Tuesday													
Wednesday													
Thursday													
Friday													
Saturday													
Sunday													

School Day

***Remember: make sure you give yourself breaks and allow time to relax and do the things your want to do and enjoy doing.*

Year 7

English

Year 7 English Revision

What I Must Know			
I understand the plot of the novel.			
I understand the characters in the novel.			
I understand the main themes of the novel.			
I understand the context of the novel.			
I can recall key quotes and understand how they demonstrate my understanding of character, theme and context.			
I know and understand key vocabulary			

Useful sentence stems:

Stevenson uses...to describe…

The use of the…

Perhaps Stevenson wants the reader to feel…

This suggests…

Stevenson successfully presents...

Year 7
Treasure Island
Knowledge Organiser

Characters

Jim Hawkins	A teenager who narrates most of the story.
Mrs. Hawkins	Jim's mother.
Dr. Livesey	Town Doctor. A smart man. Narrates Part IV.
Squire Trelawney	Local landowner that talks too much.
Captain Smollett	Captain of the Hispaniola. An honest man.
Ben Gunn	Ex pirate. Marooned and has gone crazy.
Long John Silver	Pirate ringleader. Cook on the ship.
Israel Hands	Pirate, eventually defeated by: Jim, George and Morgan (pirates).
Billy Bones	Old pirate who likes rum, hunted for a map.
Black Dog	Old pirate who is looking for a treasure map.
Blond Pew	Very evil, blind pirate.
John Anderson	Pirate. Forces Long John Silver to start the munity early.
Redruth	Works for the Squire.
Abraham Gray	Pirate who turns good guy.
Flint	Deceased pirate with a terrifying reputation.

Context

Piracy:
1700's tradition of seafaring. Britain a maritime nation.
A time of exploration – ships exploring the east/America etc.
The golden age of pirates – 1650-1680. Often in the Caribbean and Pacific Oceans. There were many real life pirates e.g. Blackbeard, a notorious pirate probably born in Bristol and died in battle Colonial powers (Britain, France, Spain) were trying to expand their colonies by sailing around the world and trading valuables. As a result of this, they engaged in several battles with pirates who were after the same.

Bristol:
An important sea port famous for designing and building docks and harbours.
Also famous for its ship-building skill which started the famous saying 'ship shape in Bristol Fashion'—meaning 'well-built craftsmanship'

Adventure stories:
Victorian children's books were written as moral lessons first and entertainment second. Treasure Island has a moral purpose, Jim learns about responsibility and courage, but Stevenson was mostly interested in writing an exciting tale.

Themes

Conflict	**Duty**
Friendships	**Loyalty**
Adventure	**Savagery Vs Civilization**
Quests	**Good Vs Evil**
Growing up	**Death**
Fathers and father figures	**Piracy**
Greed	

Key Subject Terminology

Onomatopoeia	
Noun	A name of a person, place, object, emotion.
Adjective	A word that describes a noun.
Verb	An action word.
Adverb	A word that describes how a verb is being done.
Simile	A comparison using as or like.
Metaphor	A direct comparisons stating something is something else.
Personification	Giving a non human object human qualities.
Alliteration	Repetition of a letter or sound.
Narrator	The person telling the story.

Key Maritime/Seafaring Terminology

Maritime	Connected to the sea, especially in relation to seaborne trade or naval matters
Quay/harbour/dock	A place on the coast where ships may moor in shelter.
Starboard	The side of a ship that is on the right when facing forward.
Scuppers	A hole in the side of a ship to carry water overboard from the deck.
Mast	A tall upright pole that carries a ships sails.
Bow/Stern	The most forward part of the hull on a ship.
Schooner	A sailing ship with two or more masts.
Berth	A ships allot place at a dock. It can also be the sleeping arrangements on a ship.
Coxswain	The person who steers the ship.
Fore-sail	The principle sail on a ship.

Key Quotations

Long John Silver	"He was very tall and strong, with a face as big as a ham — plain and pale, but intelligent and smiling hopping about upon it like a bird" "and I thought I knew what a buccaneer was like — a very different creature," "Yes, my lad," said he; "such is my name, to be sure. And who may you be?"
Ben Gunn	"What it was, whether bear or man or monkey, I could in no wise tell" "From trunk to trunk the creature flitted like a deer, running manlike on two legs, but unlike any man that I had ever seen His skin, wherever it was exposed, was burnt by the sun; even his lips were black, and his fair eyes looked quite startling" "Clothed with tatters of old ship's canvas and old sea-cloth, and this extraordinary patchwork was all held together by a system of the most various and incongruous fastenings, brass buttons, bits of stick, and loops of tarry gaskin"

Year 7

Mathematics

Year 7 Maths Revision

What I Must Know			
Understand the order of operations.			
Calculate and solve problems involving area of rectangles, triangles and parallelograms. Calculate the mean average.			
Introduce prime numbers, factors, common factors and highest common factor. Find the prime factor decomposition of a number.			
Identify and use equivalent fractions. Compare and order fractions using all inequality symbols. Simplify fractions.			
Express one quantity as a fraction of another. Represent fractions using diagrams and on a number line. Find a fraction of an amount.			
Convert between fractions and decimals (associate fractions with division to convert any fraction to a decimal).			
Convert between mixed numbers and improper fractions.			
Add and subtract any fraction with any denominator. Use vocab - multiples and LCM.			

YEAR 7 MATHS REVISION

Knowledge Organiser
Unit – Fractions

Key Facts

Fractions can be a whole shape or whole number

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

Keywords

Denominator	Improper fraction
Equivalent	Simplest Form
Mixed number	Highest Common Factor
Denominator	Reciprocal

MathsWatch References and Worksheet Links

25	Equivalent fractions
26	Simplifying fractions
71	Adding and subtracting fractions
72	Finding a fraction of an amount
73	Multiplying fractions
74	Dividing fractions

Convert Fractions, Decimals and Percentages

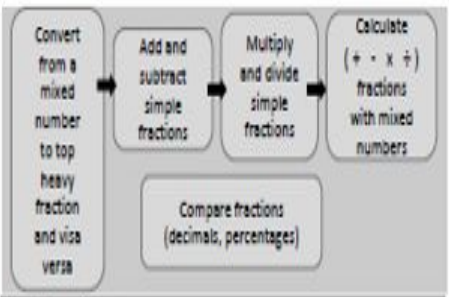
Fractions	Decimals	Percentages
$\frac{1}{5}$	0.2	20%
$\frac{3}{4}$	0.75	75%
$\frac{1}{8}$	0.125	12.5%
$\frac{1}{2}$	0.5	50%

Exam Tip – Dividing Fractions

When dividing, use the KFC method.

Keep	the first fraction 'as is'
Flip	the second fraction
Change	the sign to multiply

Curriculum Flowchart



Exam Questions

a) Give an equivalent fraction of $\frac{5}{6}$

b) Calculate $\frac{2}{3} + \frac{3}{5}$

c) Calculate $2\frac{4}{7} - \frac{3}{5}$

d) Calculate $2\frac{3}{8} \times \frac{2}{7}$

e) Calculate $1\frac{5}{8} \div 3$

f) Change to top heavy $3\frac{3}{7}$

g) Change to mixed number $\frac{17}{4}$

Key Facts – How to...

Add

$\frac{1}{2} + \frac{1}{3} = \frac{1\times3}{2\times3} + \frac{1\times2}{3\times2} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

6 is the lowest common denominator for 2 and 3

Subtract

$\frac{7}{8} - \frac{1}{3} = \frac{7\times3}{8\times3} - \frac{1\times8}{3\times8} = \frac{21}{24} - \frac{8}{24} = \frac{13}{24}$

24 is the lowest common denominator for 8 and 3

Multiply

$\frac{3}{4} \times \frac{1}{3} = \frac{3}{12} = \frac{1}{4}$

Simplify where possible

Divide (KFC)

$\frac{1}{2} \div \frac{1}{3} = \frac{1}{2} \times \frac{3}{1} = \frac{3}{2} = 1\frac{1}{2}$

KFC method

Top heavy to mixed number & visa versa

$\frac{14}{3}$ How many 'whole' 3's fit into 14? $4\frac{2}{3}$

$7\frac{2}{5}$ $(5 \times 7) + 2 =$ $\frac{37}{5}$

cteacher2007@gmail.com ©

2 is the only even prime number

Knowledge Organiser

Unit – Number

Key Facts

Prime numbers:
Only divisible by 1 and itself. Only two factors

Square numbers:
Multiply by itself 2 x 2. Written as 2^2

Cube numbers:
Multiply by itself three times 2 x 2 x 2. Written as 2^3

Factors:
Numbers which divide into another number with no remainder

Multiples:
Times tables of a number

MathsWatch References and Worksheet Links

28	Factors, Multiples & Primes
75	BODMAS/BIDMAS

Keywords

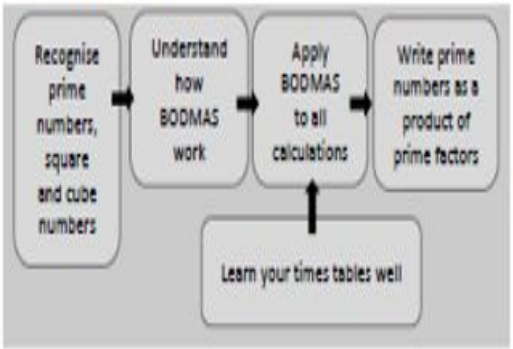
Prime	Square
Cube	Factor
Multiple	BIDMAS/BODMAS
Factor pair	Order

Did You Know

The RSA encryption algorithm which is commonly used in secure commerce web sites, is based on the fact that it is easy to take two (very large) prime numbers and multiply them, while it is extremely hard to do the opposite

983 x 709 = 696 947

Curriculum Flowchart



Key Facts

Prime Numbers under 50	2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47
Square Numbers to 15^2	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225
Cube Numbers to 10^3	1, 8, 27, 64, 125, 216, 343, 512, 729, 1 000
Factors of 24	1, 24, 2, 12 3, 8, 4, 6
Multiples of 24	24, 48, 72, 96, 120

BODMAS/BIDMAS – the order of operations

B	Brackets	$10 \times (4+2) = 10 \times 6 = 60$
O/I	Other/Indices	$5 + 2^3 = 5 + 8 = 13$
D	Division	$10 + 6 \div 2 = 10 + 3 = 13$
M	Multiplication	$10 - 4 \times 2 = 10 - 8 = 2$
A	Addition	$10 \times 4 + 5 = 40 + 5 = 45$
S	Subtraction	$10 \times 7 - 8 = 70 - 8 = 62$

Exam Questions

Here is a list of numbers

2 5 8 10 13 14 16 18 64

a) From the list write down

i. An odd number

ii. A multiple of 6

iii. A square number

iv. A cube number

v. Both a cube and square number

vi. A prime number

vii. A multiple of 7

b) Monty says that 8 is a prime number.

Explain why he is wrong.

c) Mo say $20 - 5 \times 3 = 45$

Monty says $20 - 5 \times 3 = 5$

Who is right? Give a reason for your answer

Work out:

a) $3 \times 4 + 5$

b) $4 + 8 \times 3^2$

c) $(5+2)^2 \times 2$

d) $12 - 15 + 7$

e) $5 \times 21 \div 3$

f) $(4+2) \div (10-7)$

g) $17 \times 3 - 11$

MATHS JOKE

Question

Why is 6 afraid of 7?

Answer:

Because 7 8 (ate) 9

Year 7

Science

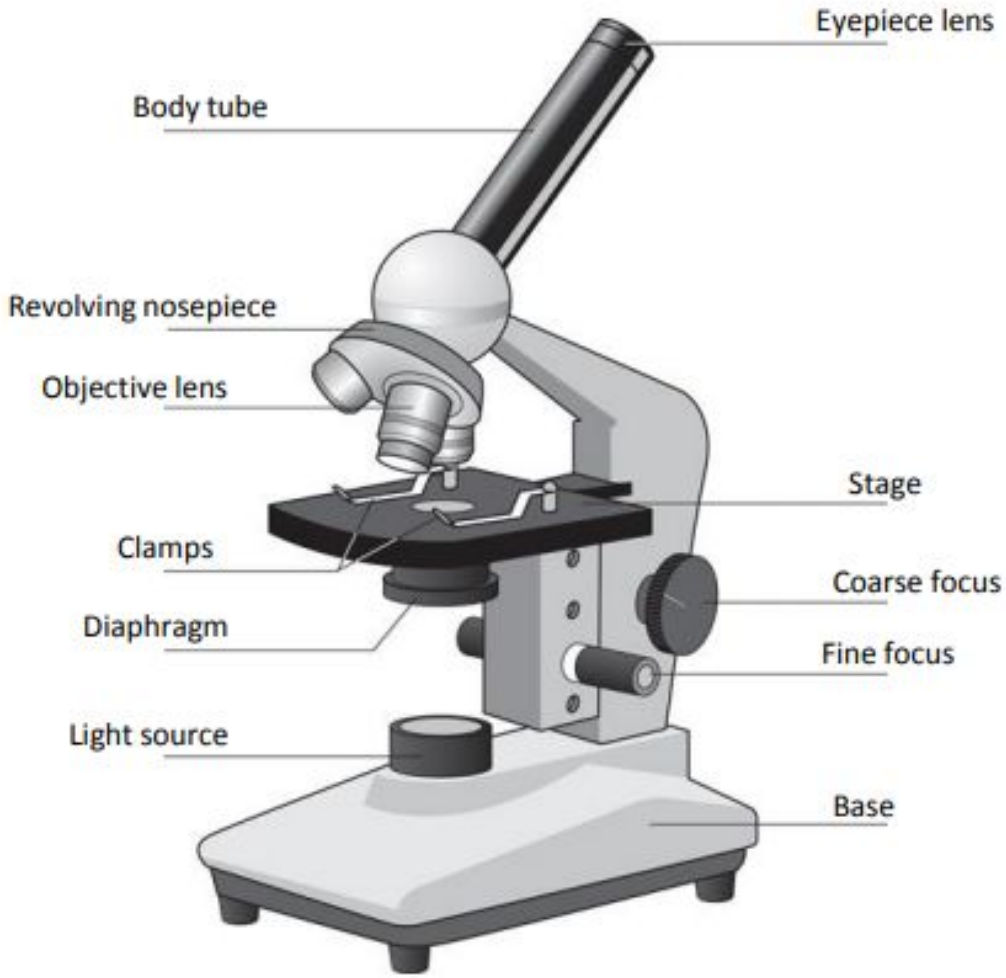
Year 7 Science Revision

What I Must Know- Biology			
Describe: Producer and consumer.			
Describe: Seed dispersal in plants.			
Identify: Predators and prey animals from a food web.			
Explain: Bioaccumulation.			
Explain: Fertilisation in plants.			
Define: Interdependence.			
Calculate: Predator-prey relationship graphs.			
Label: Flowering plants.			
State: Germination.			

Year 7 Biology Knowledge Organiser
Topic 3: Cells

KPI 1: Use a microscope to produce an image of a cell in focus.

Parts of a microscope



Key Terms	Function
Stage	Area where specimen is placed
Clamps	Hold the specimen still whilst it is being viewed
Light source	Illuminates the specimen
Objective lens	Magnifies the image of the specimen
Eyepiece lens	Magnifies the image of the specimen
Course/fine focus	Used to focus the specimen so it can be seen clearly
Revolving nosepiece	Holds 2 or more objective lenses

Magnification

We can use the following equation to calculate the magnification of an object viewed through a microscope:

$$magnification = \frac{image\ size}{actual\ size}$$

Using a microscope

To view an object down the microscope we can use the following steps:

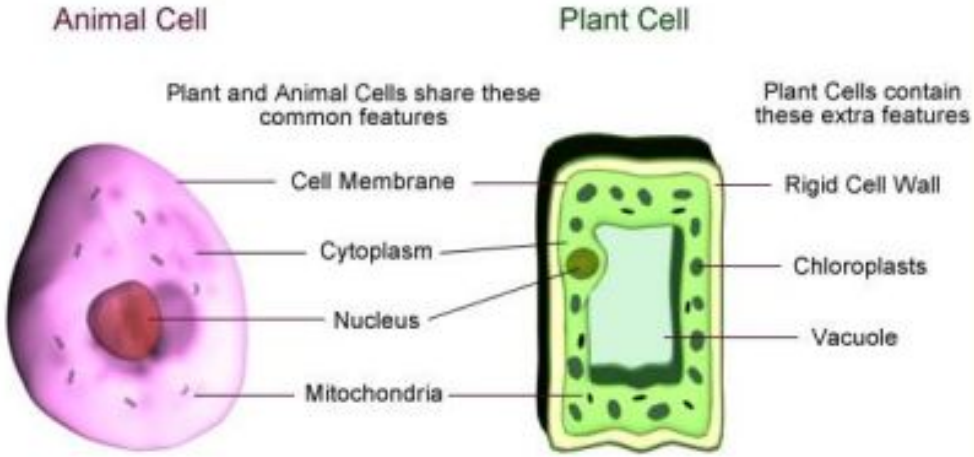
1. Plug in the microscope and turn on the power
2. Rotate the objectives and select the lowest power (shortest) one
3. Place the specimen to be viewed on the stage and clamp in place
4. Adjust the course focus until the specimen comes into view
5. Adjust the fine focus until the specimen becomes clear
6. To view the specimen in more detail repeat the process using a higher power objective

Year 7 Biology Knowledge Organiser
Topic 3: Cells

KPI 2: Label plant and animal cells; state the function of the organelles and compare plant and animal cells.

Cells

Cells are the building blocks of all living organisms



Preparing a microscope slide

To prepare a slide to view onion cells we can use the following steps:

1. cut open an onion
2. use forceps to peel a thin layer of cells from the inside
3. spread out the layer on a microscope slide
4. add a drop of iodine solution to the cells
5. carefully place a cover slip over the cells

Key Terms	Definition
Cell wall	Made of cellulose, which supports the cell
Cell membrane	Controls movement of substances into and out of the cell
Cytoplasm	Jelly-like substance, where chemical reactions happen
Nucleus	Contains genetic information and controls what happens inside the cell
Vacuole	Contains a liquid called cell sap, which keeps the cell firm
Mitochondria	Where most respiration reactions happen
Chloroplast	Where photosynthesis happens

Specialised cells

Specialised cells are found in multicellular organisms. Each specialised cell has a particular function within the organism.

	Type of cell	Function	Special features
Animal cells	 Red blood cells	To carry oxygen	• Large surface area, for oxygen to pass through • Contains haemoglobin, which joins with oxygen • Contains no nucleus
	 Nerve cells	To carry nerve impulses to different parts of the body	• Long • Connections at each end • Can carry electrical signals
	 Male reproductive cell (sperm cell)	To reach female cell, and join with it	• Long tail for swimming • Head for getting into the female cell
Plant cells	 Root hair cell	To absorb water and minerals	• Large surface area
	 Leaf cell	To absorb sunlight for photosynthesis	• Large surface area • Lots of chloroplasts

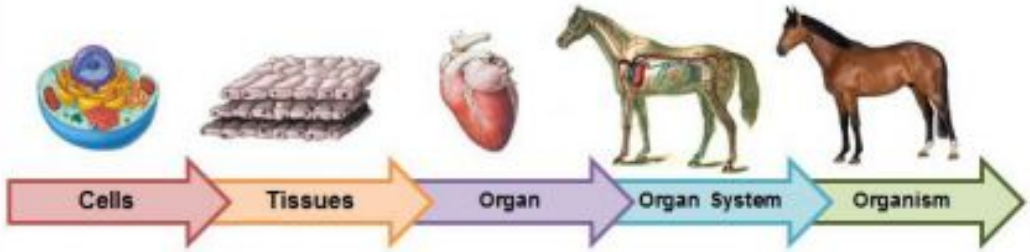
Year 7 Biology Knowledge Organiser
Topic 4: Structure and function

KPI 1: Describe the relationship between cells, tissues and organs; and describe the function of the main organ systems

Hierarchical Organisation

Cells are the building blocks of life. In multicellular organisms, cells rarely work alone.

- A collection of similar cells that perform a specific function is known as a tissue e.g. muscle tissue
- When a group of different types of tissue work together, they form an organ e.g. the heart
- When a group of organs work together it is known as an organ systems e.g. circulatory system
- When a group of organ systems work together an organism is formed e.g. a horse



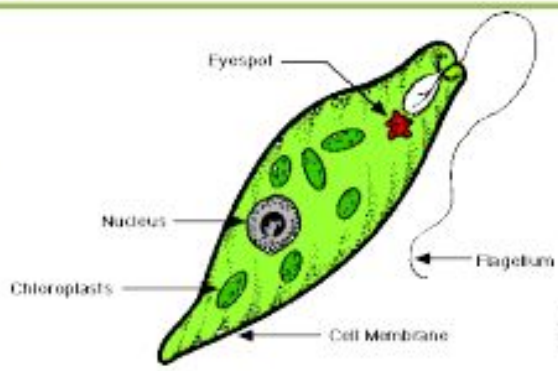
Key Terms	Definitions
Cell	The building block of life and the smallest structural unit of an organism
Tissue	A group of cells working together to perform a particular function
Organ	A group of tissues working together to perform a particular function
Organ system	A group of organs working together to perform a particular function
Organism	An individual life form, can be multicellular or unicellular
Multicellular	Consisting of many cells
Unicellular	Consisting of just one cell

Unicellular Organisms

Some organisms are only made of a single cell, these are called unicellular organisms. All the processes needed for the organism to survive happen in that one, single cell. There are no tissues, organs or organ systems. Unicellular organisms often have structural adaptations to help them survive.

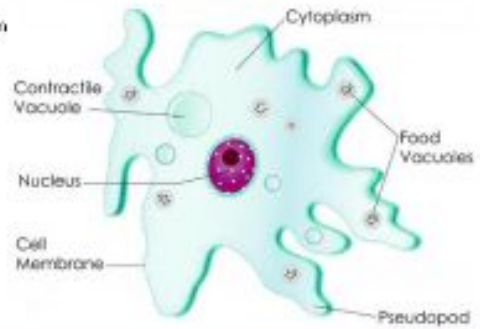
Euglena are a unicellular organism. They have a flagellum (tail) to help them move and chloroplasts so they can make their own food.

Amoeba are also unicellular organisms. They form pseudopods (false feet) that let them move about and can surround food so that the cell can take it in.



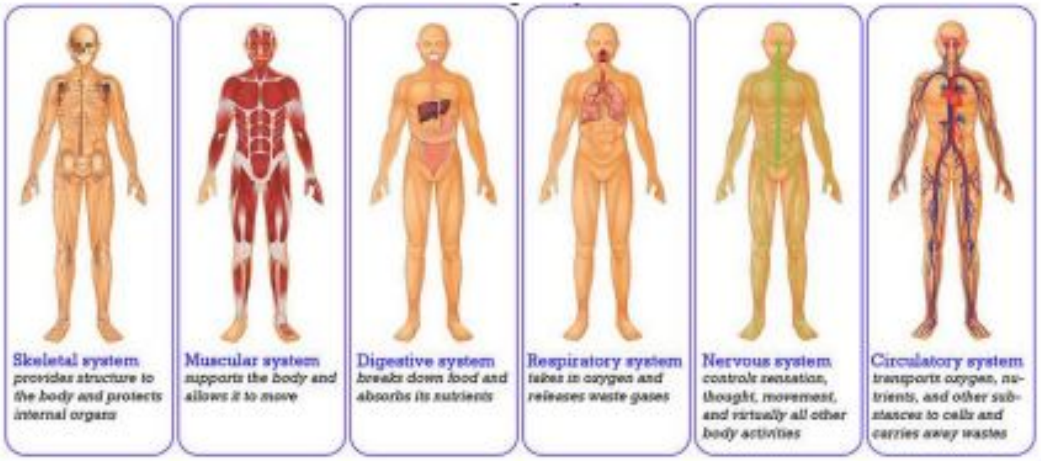
Euglena

Amoeba



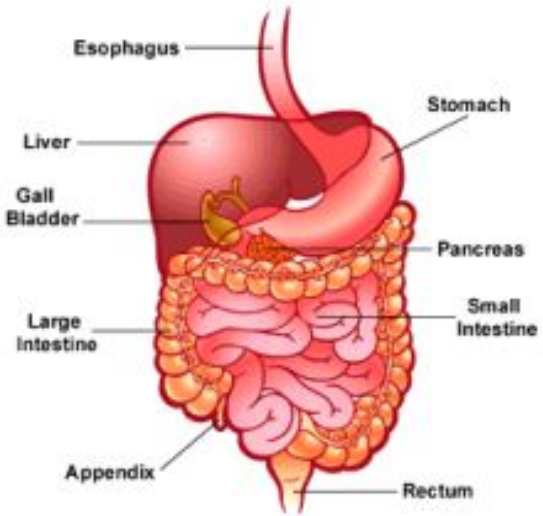
Year 7 Biology Knowledge Organiser
Topic 4: Structure and function

Human Organ Systems



The Digestive System

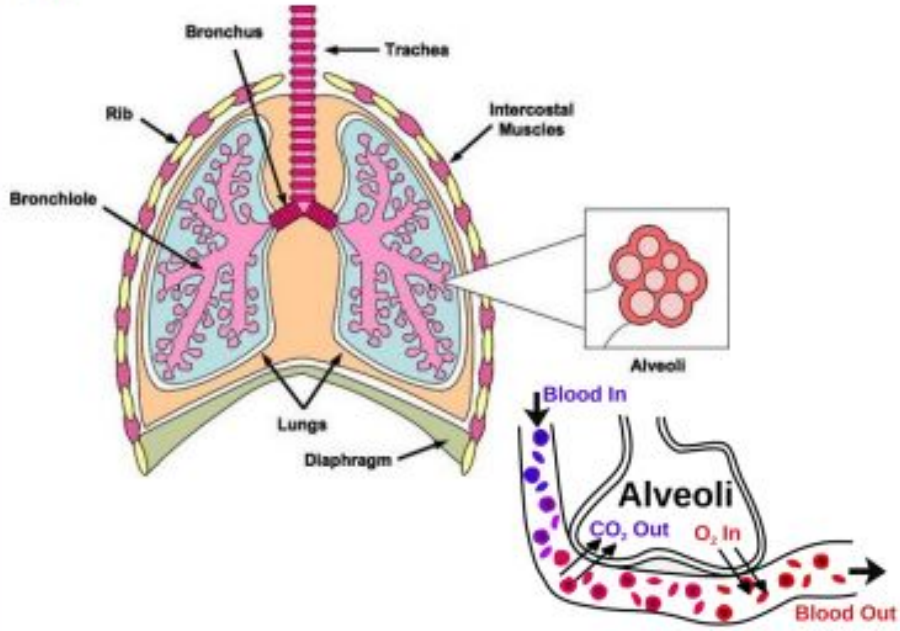
Digestion is the breaking down of large insoluble molecules into smaller soluble ones that can pass through the gut wall and into the blood. Breakdown starts in the mouth where the teeth chew the food and enzymes start to break it down. The stomach contains acid which kills microbes and provides the correct pH for proteins to be digested. More digestion takes place in the small intestine, enzymes from the pancreas and small intestine help break down the food further.



The products of digestion are absorbed in the small intestine. The small intestine is designed for absorbing food because It has a huge surface area (villi), a rich blood supply, is moist (so food can move in solution) and the walls are thin so the digested food does not have far to move.
The large intestine absorbs water from what is now waste which is stored in the rectum ready to leave the body.

The Respiratory System

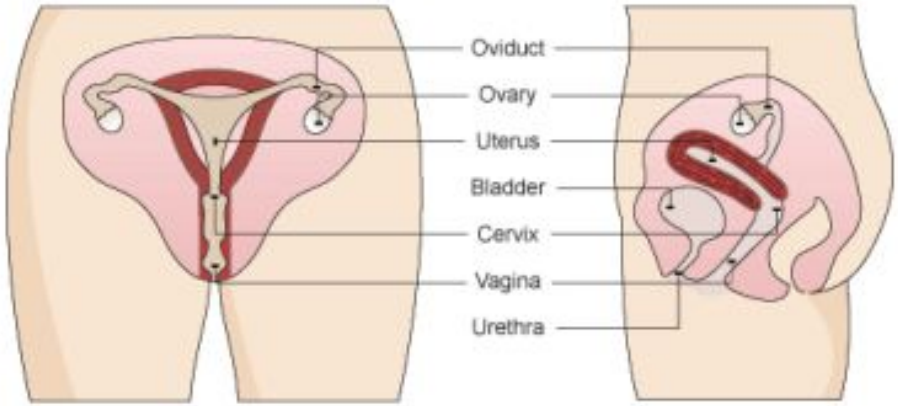
The respiratory system is responsible for taking in oxygen and expelling carbon dioxide. The lungs are the organ where this gas exchange occurs. They are made up of many fine air tubes called bronchioles, which terminate in alveoli. Here Oxygen diffuses into the bloodstream and carbon dioxide diffuses out.
Lungs are designed for absorbing oxygen as they have a huge surface area (alveoli), a rich blood supply, are moist (gases move in solution), and alveoli walls are thin so the gases do not have far to diffuse.



Year 7 Biology Knowledge Organiser
Topic 6: Reproduction

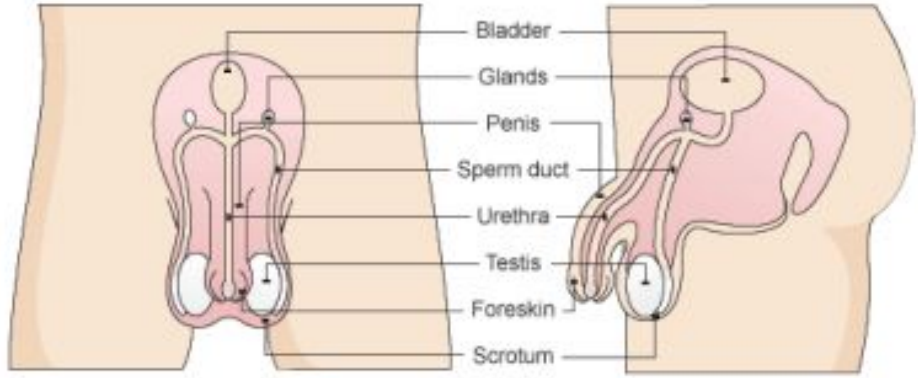
KPI 1: label the parts of the structure of the male and female reproductive system, and describe their function

Female reproductive system



Parts of Female Reproductive System	Functions of the part
Ovary	The organ where eggs (ova) are produced and where they mature ready for release each month
Oviduct	The small tube leading from each ovary to the uterus – the egg travels along here and fertilisation happens here
Uterus	The organ where an embryo grows into a foetus and eventually a baby
Uterus lining	The wall of the uterus
Cervix	A ring of tissue between the uterus and vagina; this helps keep a foetus in place in the uterus during pregnancy
Vagina	The organ that is entered by the penis during sexual intercourse; this is also part of the birth canal

Male reproductive system



Parts of Male Reproductive System	Functions of the part
Testes	The organ where sperm cells are made
Scrotum	The skin that holds the testes
Sperm ducts	The tubes that carry sperm from the testes to the urethra
Glands	These add liquids, including nutrients for the sperm, to the sperm cells from the testes to make semen
Urethra	The tube that carries either urine or semen out of the body through the penis
Penis	The organ that enters the vagina during sexual intercourse
Foreskin	The skin that protects the end of the penis

Year 7 Biology Knowledge Organiser
Topic 6: Reproduction

KPI 2: describe the processes of menstruation and fertilisation, and identify the stages of gestation and birth

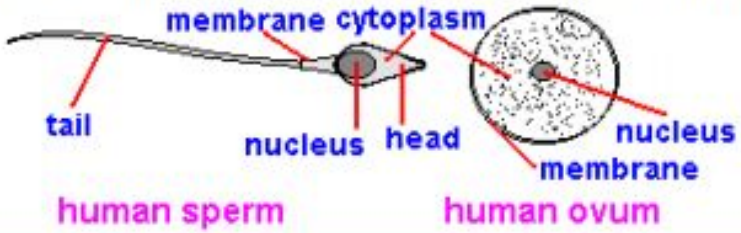
The menstrual cycle

The menstrual cycle prepares the female body for pregnancy by causing eggs (ova) to mature and be released. It lasts for 28 days.

- **Days 1-5**: 'period' happens (menstruation), where uterus lining breaks down.
- **Days 6-13**: Uterus lining builds up (thickens) to prepare for pregnancy. The egg (ovum) matures in the ovary
- **Day 14**: Egg (ovum) released from the ovary and travels down the oviduct
- **Days 15-28**: Uterus lining stays thick, in case the egg is fertilised

Fertilisation

Fertilisation is when a sperm cell and an ovum fuse. Sperm cells are released into the female reproductive system during sexual intercourse (ejaculation). Only one sperm cell breaks through the cell membrane and enters the ovum, and only the head enters. The nuclei fuse together, putting the mother and father's genetic information together. The fertilised ovum is now an embryo.



Key Terms	Definition
Fertilisation	When the sperm and the egg fuse
Gestation	The time it takes for the baby to develop in the womb. This is 40 weeks in humans.
Birth	When the baby leaves the womb.
Menstrual cycle	A series of events that prepares the female body for pregnancy.
Menstruation	When the lining of the uterus is removed from the body. Also known as the period.
Foetus	The name given to the baby developing in the womb.

Gestation

After fertilisation of an ovum, a woman is pregnant. The embryo grows as cells divide and travels to the uterus. Ciliated cells in the oviduct help it to move to the uterus.

The embryo implants into the uterus wall, where is gets oxygen and nutrients from the mother's blood. As it grows bigger and cells become specialised, we call it a foetus. It grows a placenta and umbilical cord.

At the placenta, the foetus gets oxygen and nutrients from the mother's blood (but their blood does NOT mix). The foetus gets rid of waste like carbon dioxide into the mother's blood too.

Birth

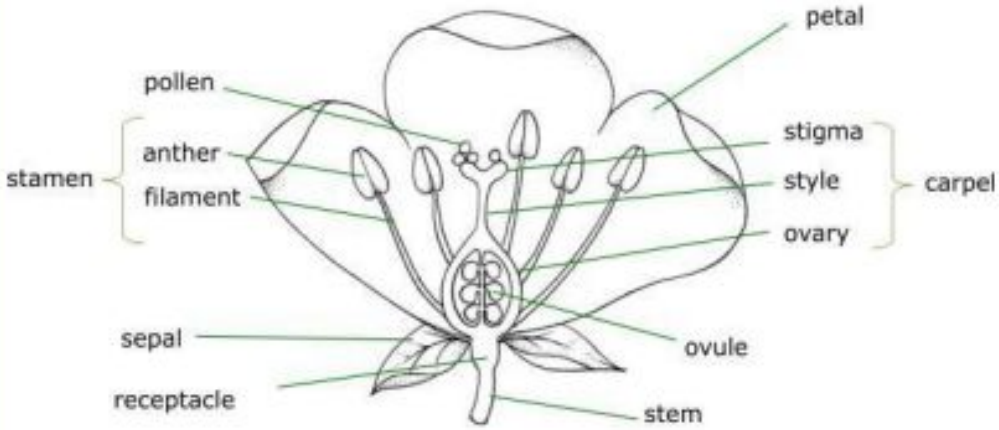
After about 40 weeks of pregnancy (for humans), the foetus is ready to be born.

- The muscles in the wall of the uterus contract (contractions)
- These contractions get stronger and faster – this is 'labour'
- After some time of labour, the amniotic sac breaks, which releases the fluid (the 'waters break')
- Contractions push the baby headfirst through the birth canal – through the cervix and out through the vagina

Year 7 Biology Knowledge Organiser
Topic 6: Reproduction

KPI 3: describe the function of each part of the flower, and explain how pollination occurs

Plant reproductive system



Parts of plant Reproductive System	Functions of the part
Pollen	The male gamete (sex cell)
Stigma	Structure that the pollen sticks to
Style	Connects the stigma to the ovary
Ovary	Produces and stores ovules
Ovule	The female gamete (sex cell)
Anther	Produces the pollen
Filament	Holds the anther to the edge of the flower

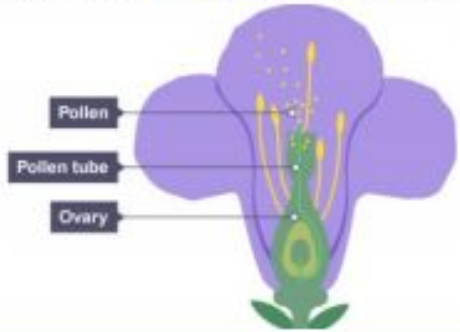
Pollination

Pollination is the transfer of pollen from the anthers of one flower to the stigma of another flower (of the same species).

- In **wind pollination**, the wind carries the pollen from the anthers of one flower to the stigma of another
- In **insect pollination**, insects carry the pollen from anthers to stigmas. They go to flowers to get nectar for food (e.g. bees), and the pollen sticks to them so they carry it onwards.

Fertilisation

After pollination the pollen makes a pollen tube down the style to the ovary. The nucleus of the pollen cell travels down the tube to get to the ovum (egg cell) – when the cells join, this is fertilisation. The cell made when the pollen and ovum fuse will become a seed, which can become a new plant. Plants then form fruits, often from the ovary walls.



KPI 4: evaluate different seed dispersal techniques in plants

Seed dispersal

The plant spreads the seeds out – this is called seed dispersal – so their offspring don't compete with them for light or soil nutrients. Seeds can be dispersed in many ways:

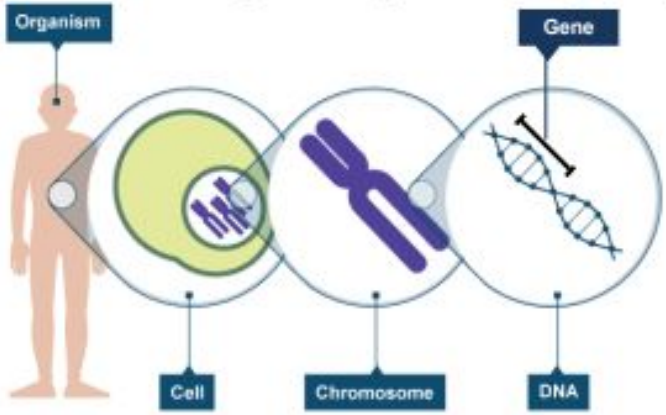
- Animals – they eat the fruit and release the seeds in their waste
- Wind – for example sycamore seeds
- Water – for example coconuts

Year 7 Biology Knowledge Organiser
Topic 9: Variation

KPI 1: Identify variation between individuals of a species and state the differences between species, describing the difference between continuous and discontinuous variation.

DNA

- All the instructions to make organisms are kept in coded form on a very long molecule called DNA
- DNA is kept in the nucleus of every cell
- The molecule is so long it is twisted and folded into tiny structures called chromosomes so it can fit inside the nucleus
- It has a ladder like structure and is a double helix
- A short length of chromosome which codes for a characteristic is called a gene
- You have thousands of genes they are like recipes for proteins



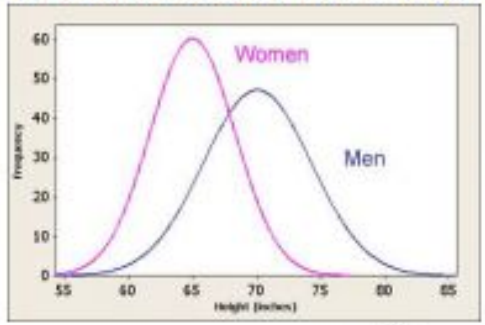
Variation

- The differences between living things of the same species is known as variation.
- Variation can be caused by differences in genes or differences in the environment.
- Some variation is caused by a mixture of both genes and environment.

Key Terms	Definition
DNA	Molecule that carries all the instructions needed for an organism
Gene	A short length of DNA that has the information for a characteristic
Chromosome	A structure containing DNA found inside the nucleus of a cell
Variation	Differences between living organisms of the same species
Continuous variation	Differences that can take any value, e.g. height
Discontinuous variation	Differences that can only take set values, e.g. blood groups

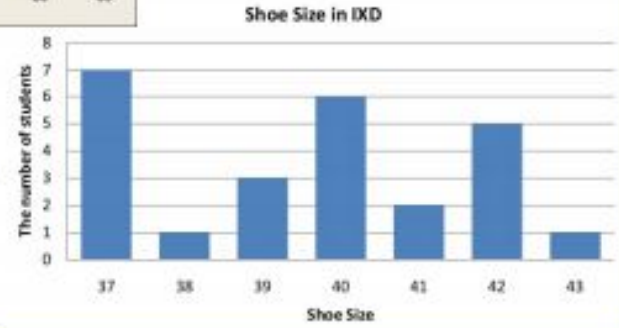
Measuring variation

- Continuous variation is variation that can take any value (e.g. height or weight)
- Continuous variation should always be shown on a line graph
- Discontinuous variation is variation that can only take set values (e.g. shoe size or blood group)
- Discontinuous variation should always be shown on a bar chart



Continuous variation ←

Discontinuous variation →



Year 7 Biology Knowledge Organiser
Topic 9: Variation

Key Terms	Definition
Adaptation	Something which helps an organism to survive in their environment, e.g, humps for storing water
Habitat	The environment that an organism lives in

Adaptation

- Every animal has evolved gradually over millions of years to become well suited, or adapted, to its habitat.
- These adaptations are specific to the environment of the animal and are essential for survival.
- An animal must be able to find food, breed and navigate its way around its habitat if it is to survive.

Examples of adaptations

Animal		Habitat	Adaptations
	Snow leopard	Cold mountains	- Big paws to evenly spread weight and help with walking through snow - Thick fur for insulation - Sharp teeth for killing and eating prey
	Siamang gibbon	Tropical rainforest	- Long arms and fingers for swinging through trees and gripping branches - Forward facing eyes for judging distances - Inflatable throat sac so their calls can travel long distances through the dense rainforest
	Bactrian camel	Desert	- Two humps to store fat which can be converted to water - Wide feet to even spread weight and prevent sinking into the sand - Long eyelashes to keep sand out of their eyes
	Humboldt penguin	Coastal; cold water	- Streamlined bodies to help with swimming - Serrated beaks to help with catching and swallowing slippery fish - Countershading (black backs and white bellies) to help avoid detection by prey and predators

Year 7 Science Revision

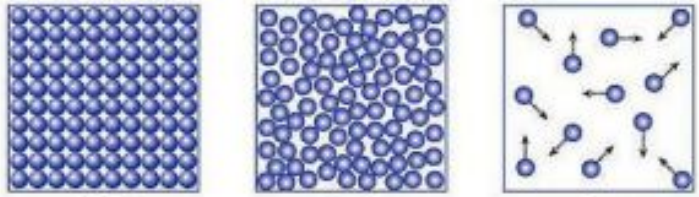
What I Must Know- Chemistry			
Describe: An indicator.			
Identify: Salts by reacting acids with metal oxides.			
Explain: The difference between a weak and a strong acid.			
Define: Chemical reactions and physical changes.			
Calculate: Calculate neutralisation point.			
Label: pH scale.			
State: Which acids are dilute and which acids are concentrated.			

Year 7 Chemistry Knowledge Organiser
Topic 1: Particles

KPI 1: Describe the arrangement of particles in a solid, liquid and gas, and link this to their properties.

Particle Theory

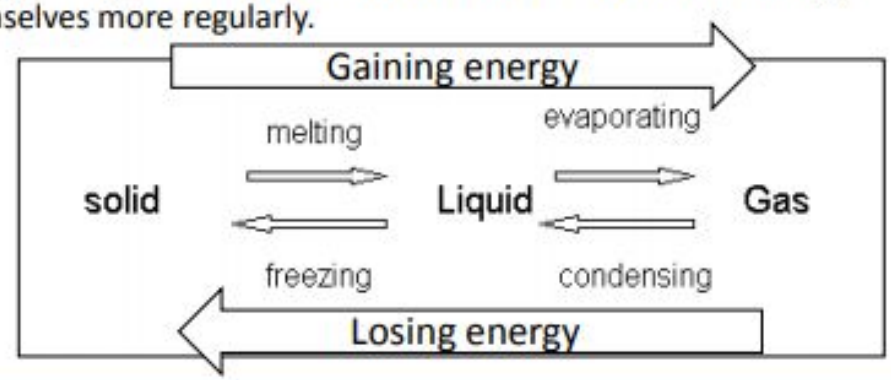
All matter is made up of particles. Particles are found in all 3 states of matter. Particles in the 3 states behave differently.



In **solids**, particles are arranged in a **regular pattern** and they can only **vibrate** in a fixed position. Particles in solids are not free to move.
In **liquids**, particles can **slide pass** each other. They are **arranged randomly**.
In **gases**, particles carry a lot of energy and they **move in all directions** in a high speed. Particles are **far apart** and are **arranged randomly**.

Change of State

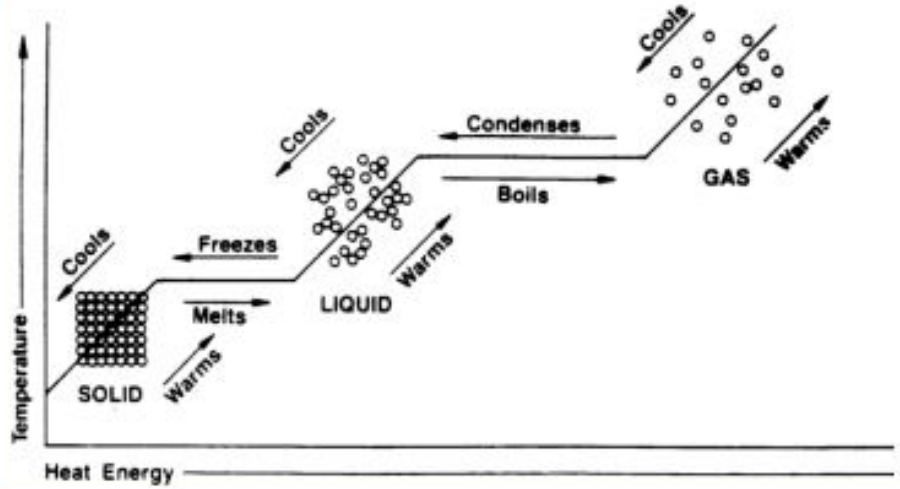
Changes of state take place when the particles gain or lose energy. When energy is applied, particles gain energy and move further apart. When energy is lost, particles become closer to each other and arrange themselves more regularly.



Key Terms	Definitions
State of matter	Matter is divided into three states: solid, liquid, and gas.
Melting	Change of state from solid to liquid.
Freezing	Change of state from liquid to solid
Evaporation	Change of state from liquid to gas.
Condensation	Change of state from gas to liquid.
Diffusion	Particles spread from a region of higher concentration to a region of lower concentration.
Rate	How fast an event, e.g. diffusion, is happening.
Concentration	The number of particles in a known volume.
Particles	All matter is made up of tiny particles.
Pressure	Pressure is formed when particles collide with the walls of containers.

Interpreting the Energy-Temperature Graph

During the change of state, **the temperature will stay the same until the change of state has been completed**, i.e. all liquid has turned into gas, all liquid has frozen into solid, etc.

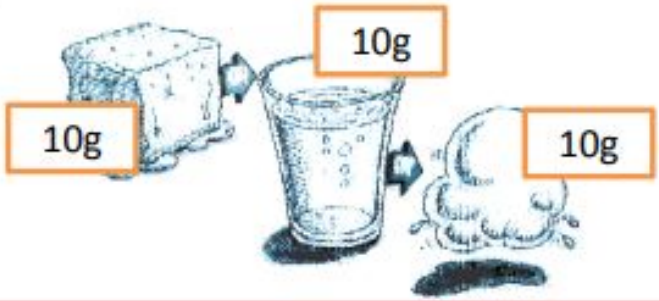


Year 7 Chemistry Knowledge Organiser
Topic 1: Particles

KPI 2: Explain changes of state in terms of the particle model.

Conservation of Mass

Mass stays the same before and after a change of state. For example, 10g of ice melts into 10g of water, and 10g of water evaporates into 10g of water vapour. The same applies to other substances.



Diffusion and Factors Affecting Diffusion

Diffusion is the **movement of particles from a higher concentration to a lower concentration. Diffusion will stop when particles spread themselves evenly.** Diffusion occurs in liquids and gases but not in solids, because particles in a solid are not free to move.

Examples of diffusion include:

1. Oxygen diffusing into cells.
2. Carbon dioxide diffusing out of cells.

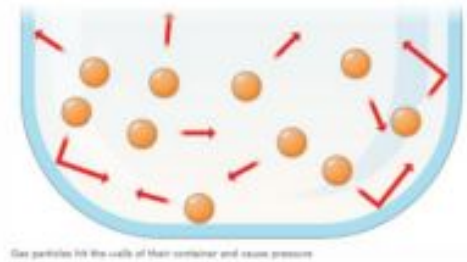
Diffusion

There are **2 factors** affecting the rate of diffusion:

1. **Temperature**: When temperature increases, particles gain more energy. They can then move and spread out at a higher rate.
2. **Concentration**: When concentration increases, the rate of diffusion increases.

Gas Pressure

Gas pressure is **caused by gas particles colliding with the walls of the container.** A container also experiences pressure on the outside. Air particles on the outside collide with the outside wall. **An imbalance between the pressure on the inside and outside can cause the container to change its shape.**



There are **3 factors** affecting gas pressure:

1. Number of particles:

The more gas particles inside the container, the more often collisions will occur, creating a higher pressure.

2. Temperature:

If gas particles are heated up, they move with a higher speed and collide more often with the walls of the container, causing a higher pressure.

3. Volume:

If the same amount of gas particles are put into a container of a smaller volume, pressure will increase because particles will collide more frequently with the walls when they have less space.

(a) Low pressure (b) High pressure

Year 7 Chemistry Knowledge Organiser
Topic 5: Separation

KPI 1: classify substances as pure and impure, and describe techniques to separate mixtures.

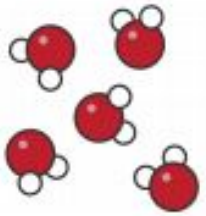
Pure Substances

If you could see the particles in pure water, you would only see water particles. There would be no other particles. Examples of pure substances include gold, oxygen and pure water.

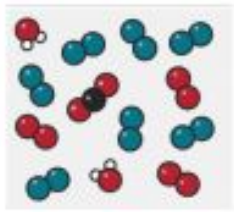
Impure Substances

Impure materials may be mixtures of elements, mixtures of compounds, or mixtures of elements and compounds. For example, even the most pure water will contain dissolved gases from the air. Impurities in a substance will affect its properties. For example, they may change its boiling point.

Pure Substances



Impure Substances



Mixtures

A mixture contains different substances that are not chemically joined to each other. For example, a packet of sweets may contain a mixture of different coloured sweets. The sweets are not joined to each other, so they can be picked out and put into separate piles.

Key Terms	Definitions
Pure	A material that is composed of only one type of particle.
Impure	A material that is composed of more than one type of particle.
Evaporation	A change of state involving a liquid changing to a gas
Distillation	A process for separating the parts of a liquid solution. The solvent is heated and the gas is collected and cooled.
Filtration	The act of pouring a mixture through a mesh, in attempts to separate the components of the mixture.
Mixture	A material made up of at least two different pure substances.
Chromatography	A technique used to separate mixtures of coloured compounds.

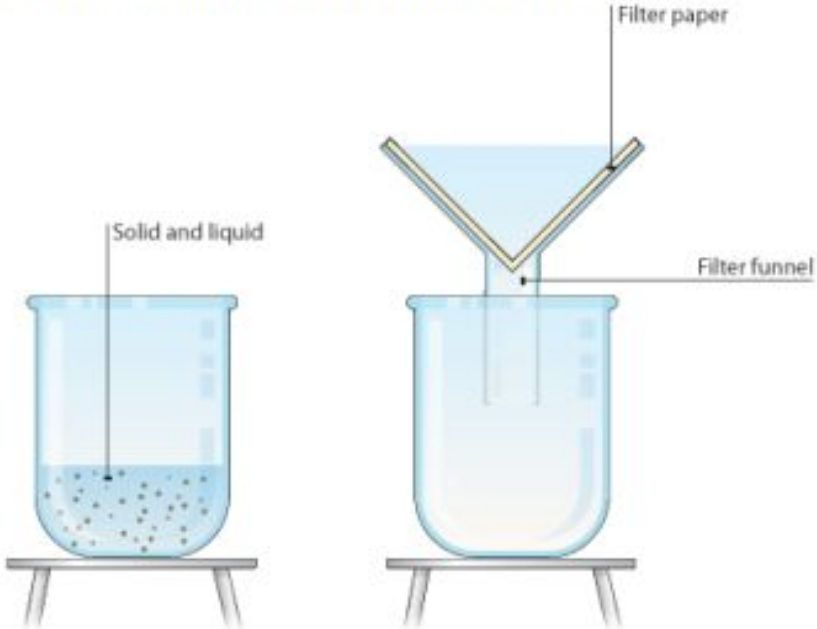
Evaporation

This is good for separating a soluble solid from a liquid (a soluble substance dissolves, to form a solution). For example copper sulphate crystals can be separated from copper sulphate solution using evaporation. Remember that it is the water that evaporates away, not the solution.

Year 7 Chemistry Knowledge Organiser
Topic 5: Separation

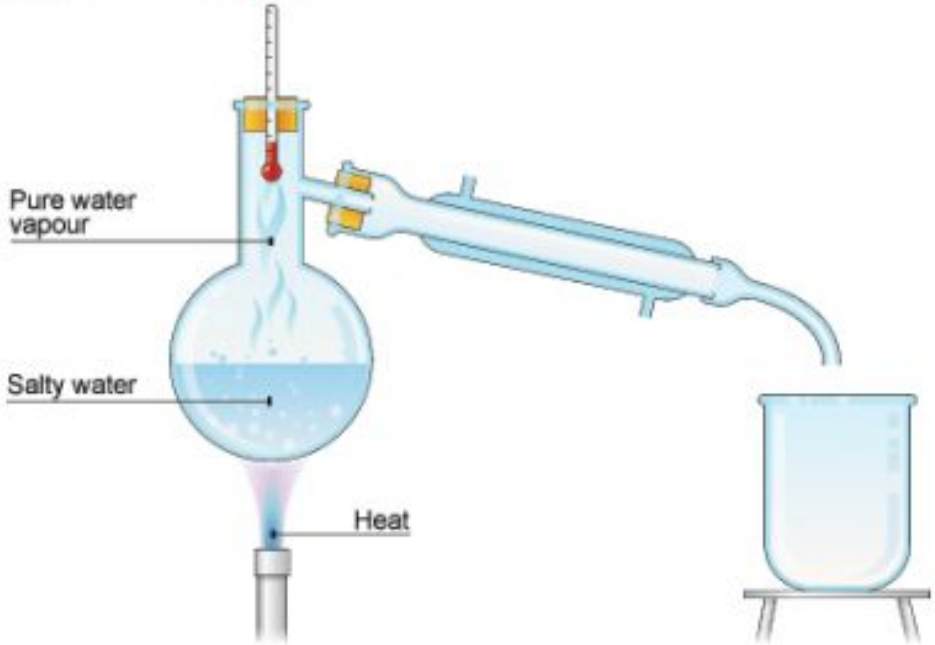
Filtration

This is good for separating an insoluble solid from a liquid. (An insoluble substance is one that does not dissolve). Sand, for example, can be separated from a mixture of sand and water using filtration. That's because sand does not dissolve in water.



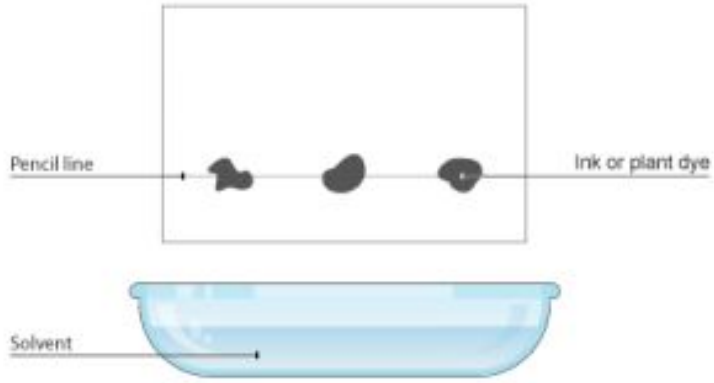
Distillation

This is good for separating a liquid from a solution. For example, water can be separated from salty water by simple distillation. This method works because the water evaporates from the solution, but is then cooled and condensed into a separate container. The salt does not evaporate and so it stays behind. Distillation can also be used to separate two liquids that have different boiling points.



Chromatography

Simple chromatography is carried out on paper. A spot of the mixture is placed near the bottom of a piece of chromatography paper and the paper is then placed upright in a suitable solvent, e.g. water. As the solvent soaks up the paper, it carries the mixtures with it. Different components of the mixture will move at different rates. This separates the mixture out.

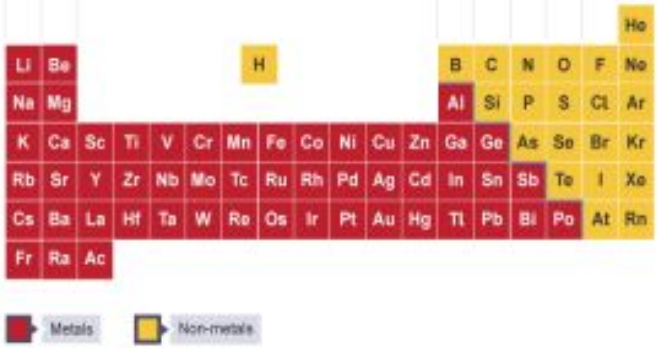


Year 7 Chemistry Knowledge Organiser
Fundamental Chemistry

KPI 1: Describe the arrangement of elements in the periodic table.

The periodic Table

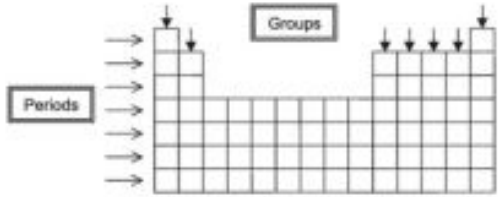
All the different elements are arranged on the periodic table. The elements are arranged in order of increasing atomic number.
On the periodic table, we can see the metal elements and non metal elements.



The section in the middle of the periodic table is known as the transition metals.

Groups and Periods

Elements are arranged on the periodic table in groups and periods. Horizontal rows are called periods and vertical columns are called groups.

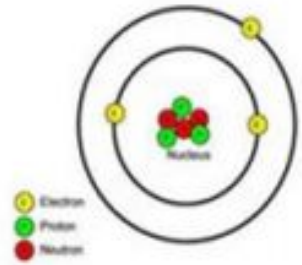


Groups are labelled 1-7 from left to right, with last group being called either group 8 or 0. Elements in the same group have similar properties, because of this we can make predictions about trends.

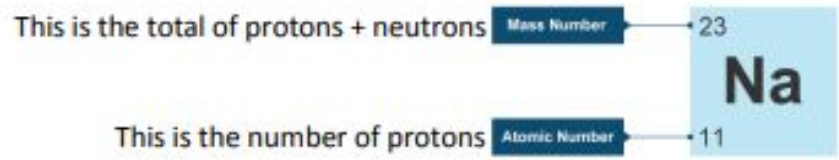
Key Terms	Definitions
Atom	Contains protons neutrons and electrons, and makes up all elements
Proton	A sub atomic particle with a positive charge
Electron	A sub atomic particle with a negative charge
Neutron	A sub atomic particle with a neutral charge
Atomic number	The number of protons in an atom

Structure of the Atom

- An atom is made up of three subatomic particles: protons, electrons and neutrons.
- Protons and neutrons are found in the nucleus of the atom (in the centre).
- Electrons are found orbiting the nucleus in shells (also known as *energy levels*).
- Protons have a positive charge.
- Electrons have a negative charge.
- Neutrons have a no charge.



Atomic Number and Mass Number



Therefore sodium has 11 protons, 11 electrons and 23-11=12 neutrons.

Year 7 Chemistry Knowledge Organiser
Fundamental Chemistry

Elements

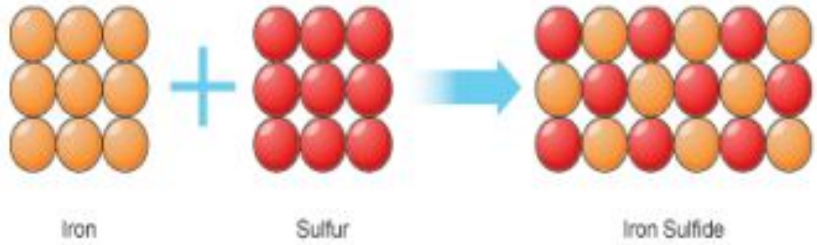
- An ***element*** contains only one type of atom
- They are found on the ***Periodic Table*** of elements which contains all 116 elements.
- All elements are given **a symbol**
- Symbols to learn:

Symbol	Element
Mg	Magnesium
Cl	Chlorine
Ar	Argon
Au	Gold
Ag	Silver
Cu	Copper
Pb	Lead

Symbol	Element
H	Hydrogen
O	Oxygen
N	Nitrogen
He	Helium
Fe	Iron
S	Sulphur
Na	Sodium

Compounds

- A ***compound*** contains *two or more* different types of atom which are *chemically bonded* together.
- Compounds form in chemical reactions.
- For example if iron and sulphur are heated up, they form a compound *iron sulphide*
- Compounds have a symbol for example H_2O means 2 hydrogens and 1 oxygen
- Other examples of compounds include, water, carbon dioxide and methane
- Compounds are very hard to separate because chemical bonds are strong
- Compounds have different properties to the elements that started, for example iron *is magnetic* , iron sulphide is not.



Mixtures

- A mixture is **two or more different atoms** which are *not chemically bonded*
- Examples are, air, salt water and petrol
- These can be *easily separated* using different techniques, for example distillation, chromatography and evaporation

Chemical Reactions

- In a chemical reaction we start with *reactants* and we make *products*. We represent this using a word or symbol equation.
- For example Sodium + Chlorine → Sodium Chloride
  Reactants Products
- We can also represent this reaction using a symbol equation
- $2Na + Cl_2 \rightarrow 2NaCl$

Year 7 Chemistry Knowledge Organiser
Topic 7: Acids and Alkalis

KPI 1: Identify substances as acid, alkali or neutral based on observations with indicators and the pH scale

Acids

- **Acids** are a family of chemicals, examples are lemon juice, vinegar and Coca Cola. There is also acid in our stomach.
- Acids contain H^+ ions.
- **Strong acids** like hydrochloric acid are very corrosive this means they destroy skin cells and cause burns
- **Weak acids** like vinegar are safe to eat but are still irritant to sensitive parts of the body.

Alkalis

- **Alkalis,** are a family of chemicals that have a soapy feel, they are also corrosive, examples of these are toothpaste, soap and oven cleaner.
- Alkalis contain OH^- ions.
- Alkalis **are bases** that dissolve in water. Therefore not all bases are alkalis. See the example below. Copper oxide is a base but not an alkali. Sodium hydroxide is a base and an alkali.

	Copper oxide	Sodium hydroxide
Can it neutralise acids?	Yes	Yes
Is it a base?	Yes	Yes
Can it dissolve in water?	No	Yes
Is it an alkali?	No	Yes

Indicators

- **Indicators** are chemicals that show whether a substance is an **acid or an alkali**
- There are many examples of indicators for example **litmus paper and universal indicator**
- There are also natural indicators like **red cabbage**

Key Terms	Definitions
Acid	A substance which forms H^+ ions.
Alkali	A soluble base that contains OH^- ions
Base	A substance that will neutralise an acid
The pH scale	A scale which measures how acidic a substance is
Indicator	A chemical which will change colour depending on the acidity of the substance

Safety

- When handling acids and alkalis in the lab we need to take many **safety precautions** for example wearing goggles.
- If an acid is dilute (lots of water has been added) it will be irritant and cause redness or blistering of the skin.
- If an acid is concentrated it will destroy skin cells.

Hazard Symbol for irritant

Hazard Symbol for Corrosive

The pH Scale

- The pH scale measures how **strong an acid or alkali is**
- The pH scale runs from 0-14
- The pH scale measures the **concentration of H^+ ions**, the lower the number the higher the concentration.
- Acids have a pH between 0 and 6, pH 1-3 are strong acids, 4-6 are weak acids
- Alkalis have a pH between 8 and 14, 8-10 weak alkalis, 11-14 strong alkalis
- Anything with a **pH of 7 is neutral**, for example water

Year 7 Chemistry Knowledge Organiser
Topic 7: Acids and Alkalis

KPI 2: Describe neutralisation in terms of acids and alkalis reacting

Key Terms	Definitions
Neutralisation	A reaction where an acid and an alkali make a salt and water
Reactant	What you start with in a chemical reaction
Product	What is made in a chemical reaction
Soluble	Will dissolve in water
Insoluble	Does not dissolve in water

Neutralisation

- When an acid reacts with an alkali a **neutralisation reaction occurs, this means what you make has a pH of 7.**
- When a neutralisation reaction happens the **products are a salt and water. (See below for how to name a salt)**
- There are many examples of neutralisation reactions, for example a wasp sting is alkali so we add vinegar (an acid) to it to neutralise it.
- Farmers also spread alkalis onto fields to **neutralise the acid in the soil.**
- Another example is indigestion when there is to much acid in our stomach, we neutralise this with alkali tablets

Salts

- When a neutralisation reaction happens a **salt is made**
- To name a salt you need to use the alkali to form the first part of the name and the acid to form the second part of the name
- Hydrochloric acid makes **"chlorides"**
- Nitric acid make **"nitrates"**
- Sulphuric acid makes **"sulphates"**

Alkali	Acid	Salt?
Calcium hydroxide	Hydrochloric acid	Calcium Chloride
Magnesium oxide	Nitric acid	Magnesium Nitrate
Calcium carbonate	Sulphuric acid	Calcium Sulphate
Aluminium hydroxide	Nitric acid	Aluminum Nitrate
Potassium hydroxide	Sulphuric acid	Potassium Sulphate

Chemical Reactions

- In chemical reactions, what we start with is know as the reactants and what we make is known as the products.
- We can show reactants and products in a word equation

Acid +Alkali → Salt + Water

Reactants Products

Salts

- There are two types of salt that could be made in a neutralisation reaction, soluble or insoluble salt
- Insoluble salts can be separated using filtration
- Soluble salts dissolve in water and can be separated using evaporation

Examples of neutralisation reactions

Reaction	General equation	Example
Acid and Alkali	Acid +Alkali → Salt + Water	Sodium Hydroxide + Sulphuric Acid → Sodium Sulphate + Water
Acid and Metal Carbonate	Acid + Metal Carbonate→ Salt + Water +Carbon Dioxide	Hydrochloric acid + Magnesium Carbonate → Magnesium Chloride + Carbon Dioxide + Water
Acid and metal Oxide	Acid + Metal Oxide → Salt +Water	Sulphuric acid +Calcium Oxide → Calcium Sulphate + Water

Year 7 Science Revision

What I Must Know- Physics			
Describe: Fossil fuels.			
Identify: Renewable and non-renewable energy sources.			
Explain: The process involved in generating electricity.			
Define: The word 'dissipated'.			
Calculate: Energy efficiency.			
Label: A diagram of a coal fired power station.			
State: Different energy values in different types of food.			

Equations to learn:

Acid + Metal Oxide → Salt + Water

Metal + Oxygen → Metal Oxide

Power = Energy/Time

Energy efficiency = Useful energy output/Energy input

Year 7 Physics Knowledge Organiser
Topic 2: Forces

KPI 1: Use diagrams with correctly labelled force arrows to display a range of forces in different situations.

A force can be a **push or a pull,** for example when you open a door you can either push it or pull it. You can not see forces, you can only see what they do.

When a force is applied to an object it can lead to a change in the objects

- **Speed**
- **Direction of movement**
- **Shape (think about a rubber band)**

Forces can also be divided into 2 types, contact forces and non contact forces.

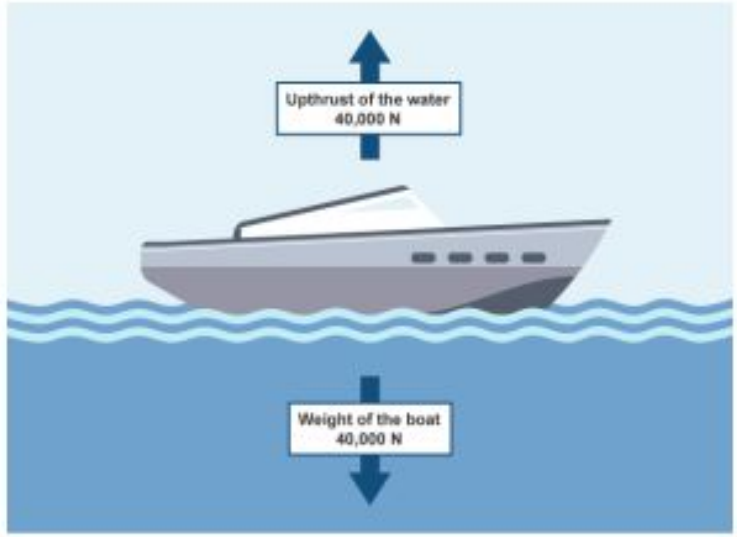
1. Contact forces for example friction, are caused when two objects are in contact.
2. Other forces for example gravity, are non contact forces. The two objects do not need to be in contact for the force to occur.

The unit of force is the **Newton (N),** this is named after Sir Isaac Newton, who came up with many theories including those to do with gravity and the three laws of motion. We measure force using a piece of equipment called a Newton metre. See the picture below.

Key Terms	Definitions
Newton	The unit of force
Newton meter	A piece of equipment that can be used to measure the size of the force
Contact Force	A force caused by the contact between two objects
Non Contact Force	A force between two bodies that are not in contact for example gravity
Free body force diagram	A diagram which shows all the forces acting on an object

Force Diagrams

To show the forces acting on a body we use a free body force diagram. A **free body force diagram** shows all of the forces that are acting on the body. It has arrows that show the direction the force acts, the larger the arrow, the larger the force. A free body fore diagram should always have labelled arrows.



Year 7 Physics Knowledge Organiser
Topic 2: Forces

Types of force

In the table below different forces are summarised:

Name of Force	What causes it?	Example
Friction	When two objects rub together	Car tyres moving on a road.
Air resistance	When an object rubs against air particles	A sky diver falling through the air
Reaction	A force that acts in the opposite direction	A book on a desk, the force acting up is a reaction force
Weight	The force an object exerts on the ground due to gravity	You will exert a force on the ground, that is your weight
Thrust	The force that drives on objects with an engine	Thrust moves a plane forwards

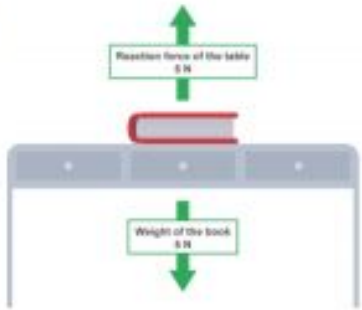
KPI 2: Interpret force diagrams to determine the motion of an object.

Free Body Force Diagrams

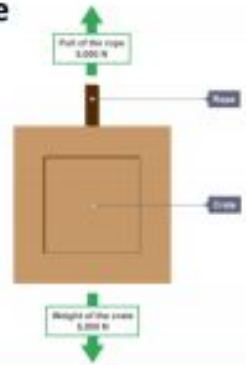
Here are some examples of free body force diagrams

A boat floating

A book on a desk



A crate held up by a rope



Balanced Forces

When we talk about the total force acting on object we call this the **resultant force.** When the forces acting in opposite directions are the same size we say the forces are **balanced**. This means one of two things:

1. The object is stationary (not moving)
2. The object is moving at a constant speed

This is known as Newton's first law.

For example, the resultant force acting on this object is 5N-5N=0N

Year 7 Physics Knowledge Organiser
Topic 2: Forces

Key Terms	Definitions
Resultant force	The total force acting on an object
Balanced force	When the resultant force on an object is 0
Unbalanced forces	When the resultant force on an object is more or less than 0

Unbalanced Forces

If the forces are unbalanced on an object there are two things that could happen:

1. If the object is stationary then it will move in the direction of the resultant force
2. If the object is moving, then the object will speed up or slow down in the direction of the resultant force.

For example, what is the resultant force on the lorry below?

100N-60N= 40N (to the right)

Remember the resultant force does not tell you what direction the lorry is moving in.

- If the resultant force is in the same direction as the movement of the lorry then the lorry will speed up
- If it is in the opposite direction the lorry will slow down

The larger the resultant force the larger the change in movement.

Measuring the size of forces

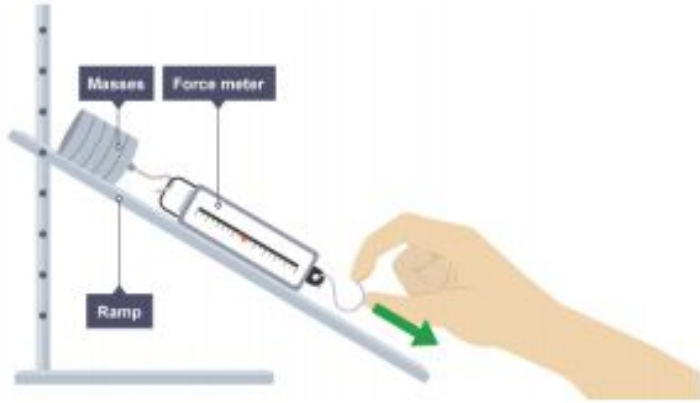
To measure the size of frictional forces on different surfaces you can drag some masses along the different surfaces and record how much force is required.

For this experiment :

Independent variable: Surface

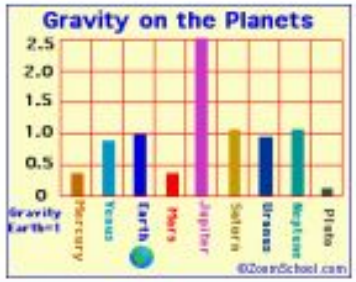
Dependent variable: Force

Control variable: Mass



Weight on different Planets

As planets have different masses a person's weight would be different depending which planet they were on. For example, a person's mass on Earth is 1000N. If that same person was on Jupiter their mass would be 2500N.



Year 7 Physics Knowledge Organiser
Topic 8: Energy

KPI 1: describe examples of energy transfers
***KPI 3*:** apply the law of conservation of energy to situations involving energy transfers

Energy Stores

Energy can be stored in objects, or when objects are doing something. It is a quantity measured in joules (J). Examples to know:

- Energy is stored in fuels as **chemical potential energy**
- Energy is stored in anything elastic when it is stretched, as **elastic potential energy**
- Energy is stored in any object that has been lifted up, because the object stores **gravitational potential energy**
- Energy is stored in moving objects as **kinetic energy**.
- Energy is stored in any object as **heat energy**. (Obviously, if it is cold, it doesn't store much heat energy!) This is also known as *thermal energy*.

Energy Transfer

An energy transfer is when energy changes from one store to another. VERY IMPORTANTLY, the **total amount of energy does not change**. Energy cannot be created or destroyed. All that can be changed is how it is stored. This ideas is called **the law of conservation of energy.**

Energy is transferred, so it changes store, in loads of situations. Examples to know:

- When a fuel is burned, the chemical potential energy in the fuel ends up stored as thermal energy in the surroundings;
- When an object falls off a shelf, the gravitational potential energy it stores is transferred (changed) to kinetic energy while it is falling.
- When the object hits the floor, all the gravitational potential energy it had to start with ends up stored as thermal energy in the surroundings.
- When a spring that's been stretched is released, the elastic potential energy it stored is transferred to kinetic energy then to thermal energy.

Key Terms	Definitions
Energy	Energy is a quantity that is stored in many objects and situations. Anything storing energy can do **work**.
Work	Work is done when energy changes from one store to another.
Potential energy	Potential energy is energy stored in objects that don't seem to be doing anything. See the examples.
Chemical potential energy	Energy stored in fuels (like wood, or the gas we run Bunsen burners on) is called chemical potential energy.
Elastic potential energy	Elastic objects, like springs or rubber bands, store elastic potential energy when they are stretched.
Gravitational potential energy	Any object that is not on the ground has gravitational potential energy. This is because they are lifted up in a gravitational field, and could fall down!
Kinetic energy	Movement energy. Any moving object stores kinetic energy.
Thermal energy	Also known as heat energy. All objects store some thermal energy, because the particles are moving. The higher the temperature of an object, the more thermal energy it stores.
Conservation of energy	The law that says energy cannot be created or destroyed. It can only change how it is stored.

This shows how energy changes where it is stored twice while you use a light bulb (lamp):
From chemical potential energy to electrical energy to heat (thermal) energy in the surroundings.

Year 7 Physics Knowledge Organiser
Topic 8: Energy

KPI 2: describe how thermal energy transfers from one place to another

Temperature and Heat

Temperature and heat are linked, but are not the same thing. The heat of a material depends on the **potential energy** of the particles AND the **kinetic energy** of the particles is it made from. What this does mean is that the more heat (thermal energy) a substance stores, the higher its temperature will be. You can increase the heat stored in a substance without increasing its temperature though: just get more of it. This means you have more particles, so there is more thermal energy all together in the substance.

But do not get confused, a cup of tea at 80°C has a higher temperature than a swimming pool at 30°C but because there are many more water particles in the swimming pool so the energy is higher.

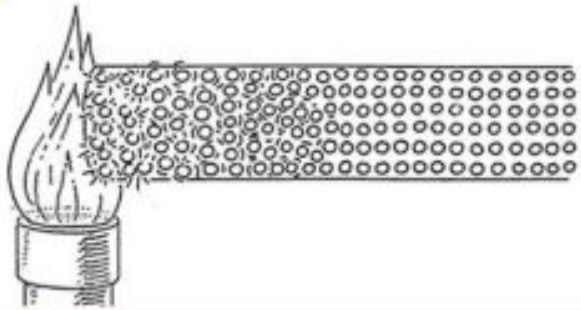
Key Terms	Definitions
Temperature	The measure of the average amount of kinetic energy of all the particles in a substance.
Heat	The energy stored in substances thanks to the energy of their particles. Also called thermal energy.
Conduction	One way that thermal energy can be transferred. Objects that are touching can transfer thermal energy, from the hotter object to the cooler one.
Radiation	Another way that thermal energy can be transferred. All objects give out **infra red radiation**. Hotter objects give out (emit) infra red radiation that is absorbed by cooler objects.
Infra red radiation	A form of light that we cannot see; infra red radiation transfers thermal energy from one object to other objects or the surroundings.
Emit	To give out.
Absorb	To take in.

Thermal energy transfer

Thermal energy will always be transferred from hotter objects to cooler objects. This includes hot objects transferring thermal energy to the surroundings (the air, nearby surfaces and so on). You can reduce the amount of thermal energy transferred by **insulating** the hot object.

Thermal energy transfer by conduction

Hot materials can transfer thermal energy to other materials that they are touching. This is called **conduction** of thermal energy. As the diagram shows, the particles that are heated increase in kinetic energy when they are heated. They bump into neighbouring particles and pass on (transfer) thermal energy. This is why a table feels warm after a hot cup of tea is lifted from it, and the reason why thermal energy can pass through the bottom of a saucepan to cook your dinner.



Thermal energy transfer by radiation

All objects give out some infra red radiation, but the hotter they are the more radiation they give out. All objects can also absorb infra red radiation: when they do, they heat up. Radiation can travel through empty space – so this is how the Sun heats up the Earth. The objects don't have to be touching, unlike in conduction, and there are no particles involved. .

Year 7 Physics Knowledge Organiser
Topic 10: Motion

KPI 1: Calculate pressure, weight and average speed using appropriate equations

Weight

Mass is the measure of the number of particles in an object, weight is the force the mass exerts on the ground.

For example a person has a **mass of 65 kg.** The weight of this person can be calculated by multiplying the weight by the gravitational field strength of the Earth, which is 10 N/Kg.

Therefore this person has a **weight of 65 x 10 = 650 N**

Mass is constant no matter where you are in the Universe.

Weight depends on the gravitational field strength, for example the Moon has a weaker gravitational field than the Earth, therefore weight would be lower on the Jupiter.

Pressure on Surfaces

Objects exert pressure on the surface that they are on. The size of the pressure depends on the force applied by the object and the surface area of the object.

The equation for pressure is **pressure = force ÷ area.**

Some objects look to increase pressure for example drawing pins have a very low surface area, **so exert a high pressure.**

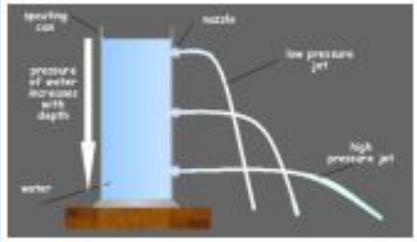
Snow shoes have a very large surface area so exert a **very low pressure,** stopping people sinking into the snow.

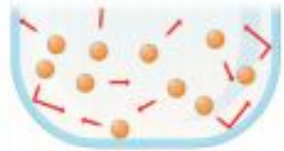
Key Terms	Definitions
Mass	The amount of particles in a substance
Weight	The force exerted by a mass
Pressure	The force exerted over a given area
Fluids	A substance that can flow
Pascals	The unit for pressure which can also be written as (N/m^2)

Equation	Meanings of terms in equation
$s = \frac{d}{t}$	*s = speed* (m/s) *d = distance* (m) *t = time* (s)
$W = m\,g$	*W = weight (newtons,* N*)* *m = mass (kilograms,* kg*)* *g = gravitational field strength (newtons per kilogram, N/kg) – on Earth, this is about 10* N/kg
$P = \frac{F}{A}$	*P =Pressure* Pa *F =Force* N *A = Area* m^2

Pressure in fluids

Fluids (liquids or gases) exert pressure at 90° to the surface. In a gas particles are constantly colliding with objects, this exerts a pressure. In a liquid like water the deeper you go the **higher the pressure.**





Year 7 Physics Knowledge Organiser
Topic 10: Motion

KPI 2: Relate the description of a journey to a distance-time graph

Speed

The speed of an object tells you how long it takes an object to cover a distance. **The unit for speed is m/s** (metres per second).

Speed is calculated by **dividing distance by the time** (see equation in the box).

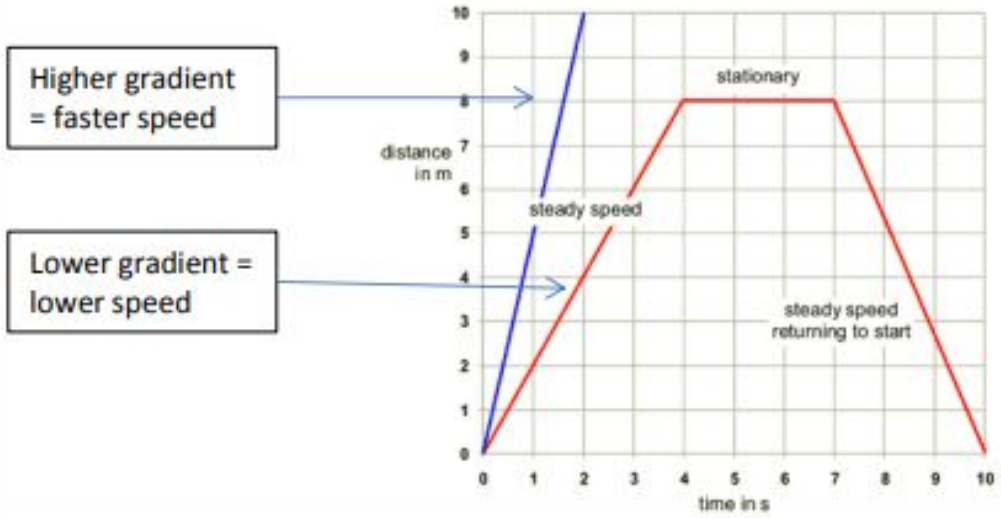
If the speed of an object is increasing, then it is **accelerating.** If the speed is decreasing it is **decelerating.**

Key Terms	Definitions
Gradient	How steep the line on a graph is.
Stationary	Not moving
x axis	The horizontal axis on a graph
y axis	The vertical axis graph
Acceleration	Speed of an object is increasing
Deceleration	Speed of an object is decreasing

Equation	Meanings of terms in equation
$s = \frac{d}{t}$	*s = speed* (m/s) *d = distance* (m) *t = time* (s)

Distance Time Graphs

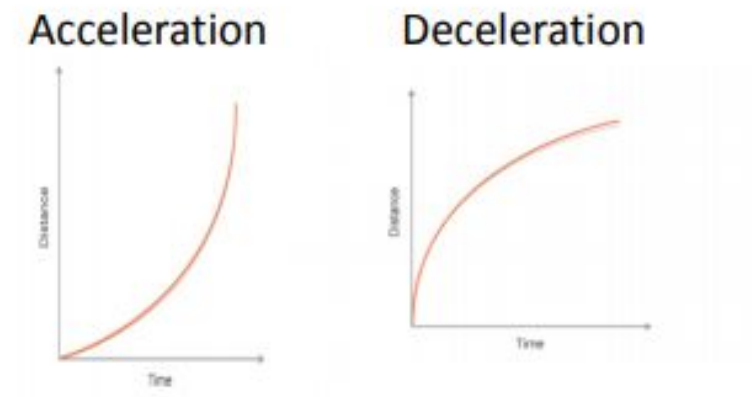
A distance time graph has the time on the x axis and the distance on the y axis. If an object is stationary (not moving) the line **will be horizontal.** If the line is diagonal the object is moving at a constant speed. If the line has a larger gradient (steeper), it means it is moving faster. If the line is going back towards the x axis it is **returning to its starting point**.



Acceleration and Deceleration

When an object is accelerating, the distance time graph will **curve upwards.**

When an object is slowing down an object will **curve towards the horizontal.**



Year 7 Physics Knowledge Organiser
Topic 11: Power and Resources

KPI 1 distinguish between power and energy
KPI 2 compare values of energy and power using appropriate SI values
KPI 3 compare different fuels and energy resources

Energy and power

Energy can be stored in objects or transferred between them. The **speed**, or **rate**, at which energy is transferred is called the **power**. Divide the amount of energy transferred by the time it took to transfer it to find the power (see equation).

This means that is the same amount of energy is transferred in half the time, the power is twice as much.

Fuels as Energy Resources

Fuels store chemical potential energy. Many fuels are used a great deal by humans, including fossil fuels:

- Oil – used to make petrol/diesel/aircraft fuel especially
- Coal – burned in power stations to generate electricity
- Natural gas – used as a fuel for heating homes and for cooking.

These are all very useful fuels, but the problem is that they are **non-renewable** and when they are burned, carbon dioxide is produced. Carbon dioxide contributes to climate change because it is a greenhouse gas.

Other Energy Resources

We don't have to use fossil fuels for the uses given above. There are many other energy resources on Earth, including many **renewable resources**. E.g.

- Sunlight, which we can use to generate electricity with solar cells
- Wind, which can be used to generate electricity using wind turbines
- The tides, which can be used to generate electricity
- Waves in the sea, which can be used to generate electricity.

Key Terms	Definitions
Power	Power is the **rate** (or speed) of energy transfer. $power(W) = \frac{energy\ transferred\ (J)}{time\ (s)}$
Joule (J)	The unit for energy
Watt (W)	The unit for power
Kilowatt (kW)	1000 watts
Renewable	Renewable resources are replenished (replaced) as they are used.
Non-renewable	Non-renewable resources, like fossil fuels, are NOT replenished (replaced) as they are used.
Environmental impact	The effects of something on the environment.

Choosing energy resources

Many things should be considered to choose an energy resource:

- The **reliability** of the energy resource
- The usefulness of the energy resource
- How long the resource lasts, and if it is **renewable**
- The **environmental impact** of the energy resource.

FOR EXAMPLE:
Tidal energy is very reliable, as there are two tides per day. Tidal energy is useful for generating electricity, but you couldn't use it to run your car! Tidal energy is renewable, which is an advantage, because it cannot be used up. Using tidal energy does not produce polluting gases like carbon dioxide, but building the generators in the sea can damage the habitats of wildlife near the coast.

Year 7

History

What I Must Know			
Define different types of war: total, civil, guerrilla, world, atomic, Cold,			
Describe the different causes of war			
Describe causes, methods and consequences of the Anglo-Saxon invasions			
Describe the causes, methods and consequences of the Viking invasions			
Describe the methods of Norman rule using castles			
Describe the key features of Norman castles			
Explain the causes and consequences of Anglo-Saxon conquest			
Explain the causes and consequences of Viking conquest			
Explain why Norman methods of warfare were successful			
Explain the causes for the development of castles as warfare			
Describe the leadership, plans and tactics used during the Spanish Armada of 1588			
Explain why and how the Spanish Armada was defeated in 1588			
Describe the trench warfare used in the First World War			

Year 7 History Revision War and Warfare 600-present day

Year 7 History Revision War and Warfare 600-present day

What I Must Know			
Describe the weapons used in the First World War			
Label a Medieval and a First World War trench			
Explain reasons for trench warfare			
Explain how weapons were used and developed in the First World War			
Explain which weapons were most deadly and why			
Describe the key weapons of World War 2			
Describe the key features of warfare in World War 2			
Describe differences and similarities between features of warfare from different time periods studied			

What I Must Know			
Explain how warfare differed/similar between different time periods			
Judge how far you agree or disagree with a statement giving a viewpoint			
Be able to retell a series of events in chronological order and link the events together			
Identify inference from a source			
Select details from the source to support an inference comment			
Analyse the usefulness of the content of a source			
Evaluate the usefulness of the source: POND – Purpose (why the source was made/intended audience, Origin: author, Nature: source type…speech, portrait), Date: when it was made, put the source in context. For Y7 focus on two areas.			

Year 7 History Revision War and Warfare 600-present day

Year 7 History Revision War and Warfare 600-present day

Writing frames to learn in this topic:

Describe 2 key features

One key feature of …….. was…….

Explain two consequences of (PEAL)

One cause/consequence of ……
was…… . This meant that……..which led to…….. . This then……..
Therefore……..

Explain one way warfare changed from…… to ……..

One way warfare changed was…….. In …… warfare was …… In contrast in……. it ……..

How useful is Sources B for an enquiry into…?

Source B is useful …. *(explain what the content shows us- then say how that would help an enquiry into and link in your own knowledge)*

Source B is useful as it is from……. This makes it useful as……. The nature of the source is…….. which is useful for an enquiry as…….

It's purpose is to……which makes it more/less useful because…….

Statement: How far do you agree with this statement?

I agree/ disagree with the statement to a limited extent / to an extent/ to a large extent. I would argue that ……..

The statement can be agreed with as…….

However, the statement can be challenged and disagreed with as……

In conclusion, I would therefore agree/disagree with statement as I would argue that…….. was the most important…… as

Measuring phrases

To an extent…

Totally different…

To a limited degree…

To a large extent…

Assess phrases

Without this… then…

In the long term…

For the short term…

If this hadn't happened…

This is more/less important…

Explaining phrases

This meant that…

This shows that…

This led to…

As a result…

If this hadn't happened…

Connectives

However…

Consequently…

Also…

Moreover…

Furthermore…

KO Y7 – Warfare through Time 600-1918

PERIOD: Britain 600-the First World War

1	The development of war, causes of war, warfare and the effects of war on Britain, the people, land, politics and technology.

Key Events

2	**410AD**- Saxons invade as England: Saxon rule in England lasts until 1066.
3	**850AD**- Saxon kingdoms established
4	**787 AD**- First Viking attacks
5	**793 AD** Attack on Lindisfarne and then 856AD ongoing Viking invasion and from last 9th century to early 11th century Danelaw established
6	**1066AD**- The Battle of Hastings: Norman invade and conquer England.
7	**1067-1400sAD** Development of castles by the Normans as a method for control, defence and attack
8	**1588AD** The Spanish Armada, Philip II of Spain launched 130 ships to conquer England. It was defeated.
9	**1642-1649AD** The English Civil War. King Charles I and Parliament went to war over power in the country.
10	**1914-1918** The First World War, trench warfare and development of weapons.

11 Causes of war	LAND/TERRITORY, RESOURCES, TRADE, INDEPENDENCE, POWER STRUGGLE, PERSONAL GLORY, REVENGE, MORAL REASONS, RELIGION

Key Concepts

12 War	This is the name given to the act of fighting or violent conflict between two or more groups, nations or countries. Wars consists of a long series of battles using the latest weapons and fought by specially trained soldiers, sailors or airmen. However, in a war civilians usually become involved too.
13 Warfare	This is the tactics, strategies, methods and science involved in fighting the enemy.

Key Words

14	**Battle**	A battle is fighting between two opposing forces which may last hours, days, weeks or even years. .
15	**Civil War**	A war fought between different groups in the same country. The English Civil War took place 1642-1649. Civil wars are devastating to a country in a different way to an external war.
16	**World Wars**	Wars where countries from all over the world form alliances and fight each other.
17	**Cause**	The reason why something happens
18	**consequence**	The result of a cause: positive or negative
19	**chronology**	Placing measured time in the order that events happened is called placing things in chronological order. It goes from the earliest date to the most recent. This helps us to understand why things happened.

KO Y7 – Warfare through Time 600-1918

Key Words

20	**fyrd**	local bands of men made up England's part-time army in Anglo-Saxon period, the more land you had the more men you raised.
21	**Danelaw**	Area of England ruled by Vikings
22	**monasteries**	A place where monks live, pray and worship
23	**Motte and Bailey castle**	First castles on a motte (raised earthwork) and with a bailey (an enclosed courtyard) below
24	**Palisade**	Wooden fence around the castle
25	**Keep**	Wooden and later stone structure, most secure part of a castle for the Lord and his family
26	**Siege**	To surround a castle and cut off supplies to force surrender, whilst attacking the castle
27	**Siege engine**	Weapons used to siege a castle: catapult, battering ram, belfry
28	moat	Ditch around a castle: may have water in
29	**armada**	Fleet of Spanish ships sent to attack England
30	**fireships**	Tactic used to break the Armada's crescent formation
31	**Roundhead**	A solider for Parliament's side during the English Civil War
32	**Cavalier**	A soldier for the King's side during the English Civil War
33	**Pikeman**	Men who use pikes in battle that were between twelve and eighteen feet long
34	**cavalry**	Soldiers who fought on horseback
35	**Musketeer**	Solider who fired a matchlock (gun)

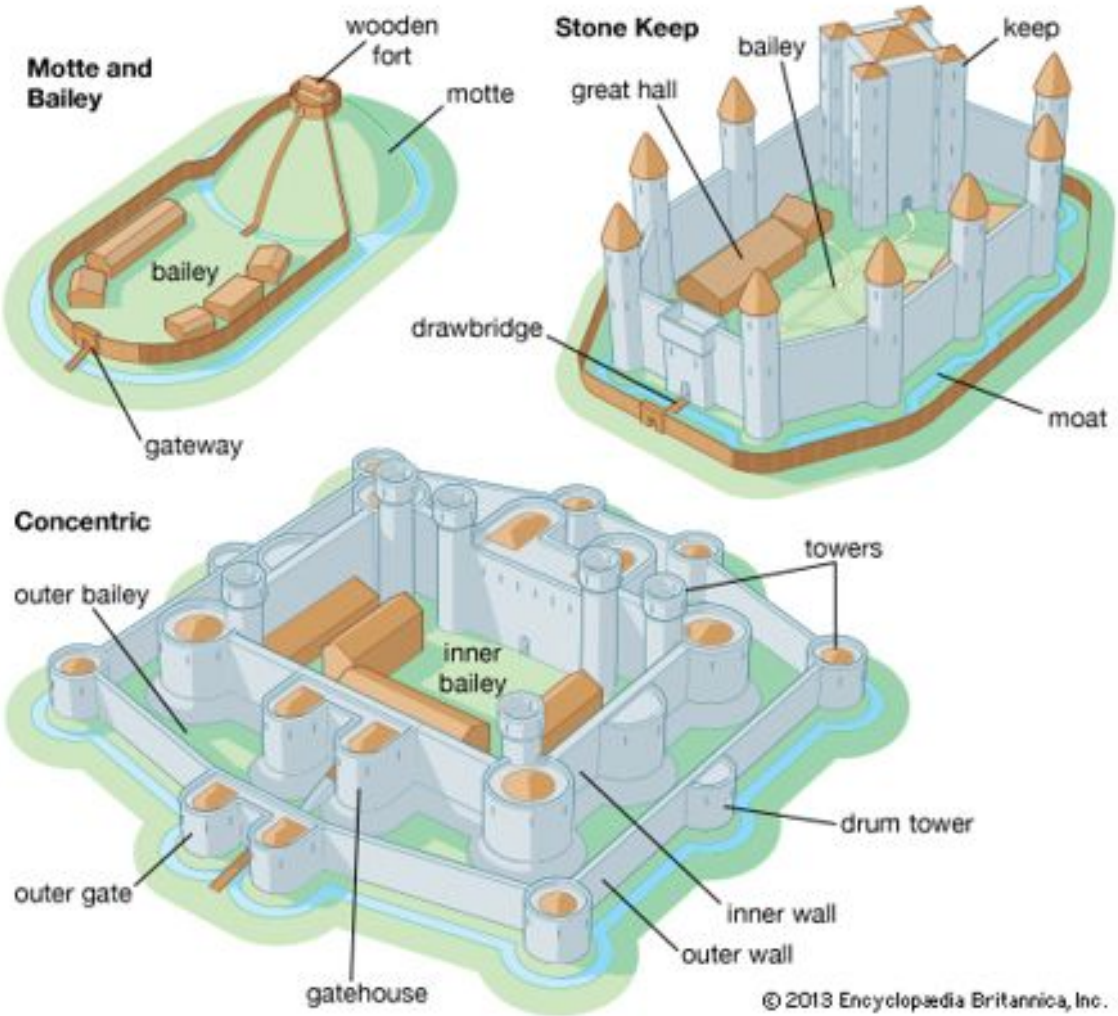
36	**infantry**	Soldiers who fought on foot
37	**New Model Army**	Parliament's newly trained, well armed and well disciplined army
38	**Ironsides**	Parliament's newly trained cavalry from 1644
39	**assassination**	Targeted murder of someone for political reasons
40	**alliance**	2 or more countries joined together for protection/attack
41	**grenade**	a small bomb thrown by hand or launched mechanically
42	**trench**	Ditch dug in the ground for protection
43	**Trench warfare**	System of trenches built on the Western Front where solider defended and attacked from
44	**duckboards**	Wooden boards placed over the sump in trench
45	**Dug out**	Area cut out of side of a trench of shelter
46	**frontline**	Tactic used to break the Armada's crescent formation
47	**No Man's Land**	Areas between two lines of enemy trenches that was crossed to go to battle
48	**sump**	Ditch drain water in a trench
49	**Machine guns**	Most feared weapon in war
50	**gas**	Poison gas used to attack the enemy
51	**bayonet**	Sharp blade attached to a gun to attack the enemy with

KO Y7 – Warfare through Time 600-1918

Key Peoples and Battles

52	**Saxons**	Invaded a weak England and settled. Smaller settlements grew. Initially destroyed Christianity and then converted. Set up Saxon law (fines: wergild) and hierarchy of freemen and slaves. Fought with small armies -only a few hundred men. The soldiers had spears, axes, swords and bows and arrows. They wore helmets on their heads and carried wooden shields. Everyone fought on foot during a battle. Weapons: battle axe, sword, spear (freemen only). The 'warrior-code' of the Anglo-Saxons taught that a warrior must fight and die for his leader. Anglo-Saxon kingdoms 
53	**Vikings**	Invaded using longships as Anglo-Saxons were vulnerable to naval invasion. Surprise attacks and took an Anglo Saxon kingdom at a time. All free men were expected to own weapons, and magnates were expected to provide them for their men. The main offensive weapons were the spear, sword and battle-axe, although bows and arrows and other missiles were also used. Weapons for battle and owners' status and wealth. Vikings did not wear much armour, though some chieftains wore mail coats. Most relied on a round wooden shield for protection. A domed iron boss was fitted over the hole to protect the hand. Viking shields were probably leather covered, with a rim binding also of leather, or metal in some cases. On their heads, they wore helmets made of leather or iron The Vikings had no professional standing army, and tactics and discipline seem to have been fairly basic. They did not fight in regular formations, although the bonds of loyalty between men and their lords would have given their armies some unity. Weapons training began in youth in hunting, sports and raiding. In battle, the Vikings were seen as vicious and relentless. Their use of berserkers instilled fear in the enemy. The Vikings considered it an honour to die on the battlefield.

KO Y7 – Warfare through Time 600-1918



54	**Normans**	Normans needed to control the land.. Their cavalry was superior. They used castles to control, defend and attack. They were built in strategic places: by adjoined rivers, overlooking towns, on high ground. Castles were at first wooden, flat-packed and could be built in 7-10 days. In times of peace, castles were rebuilt with stone and improved with murder holes, portcullises and towers.

KO Y7 – Warfare through Time 600-1918

More detailed events.. Cause-Event-Consequence

55	**Spanish Armada 1588**	**Causes**: religion, Philip II wanted to make England RC, wealth, New World, Francis Drake and theft from Spain, Genoese Loan, Elizabeth helping Dutch Protestant rebels, marriage refusal, use of England as a port **Plan**: **Spanish** Led by Medina Sedonia 130 Spanish ships sail in a crescent formation with 8000 sailors and 18,000 soldiers to Flanders, collect 30, 000 soldiers and then invade England, remove Elizabeth and conquer it. **English** had 80 ships led by Drake and Howard, beacons lit to warn of approaching Armada, aim to cut of ports to Spanish and break formation before soldiers could board in Flanders **Why was it defeated?** **Poor Spanish planning and mistakes**: lack of gunners, no plan B, inexperience of Medina Sedonia, ships too slow/big, not enough sailors, food rots and water stale, no port to harbour in Flanders, did not attack English when stuck in port, communication failed so no soldiers in Flanders to collect, **English leadership**: Drake and Howard experienced, loyalty from their men, Elizabeth I gave them freedom to adapt and all 3 inspired their men **English ships:** agile, smaller **English tactics:** kept distance from Spanish canons and grappling hooks, Line-A-Stern, **FIRESHIPS**: 8 ships set alight and sent towards Spanish, they cut anchors and broke formation which meant the English could go in and attack them! **Consequences**: English win, Spanish caught in storms and destroyed. World super power lost= beginning of Spain's decline

Year 7

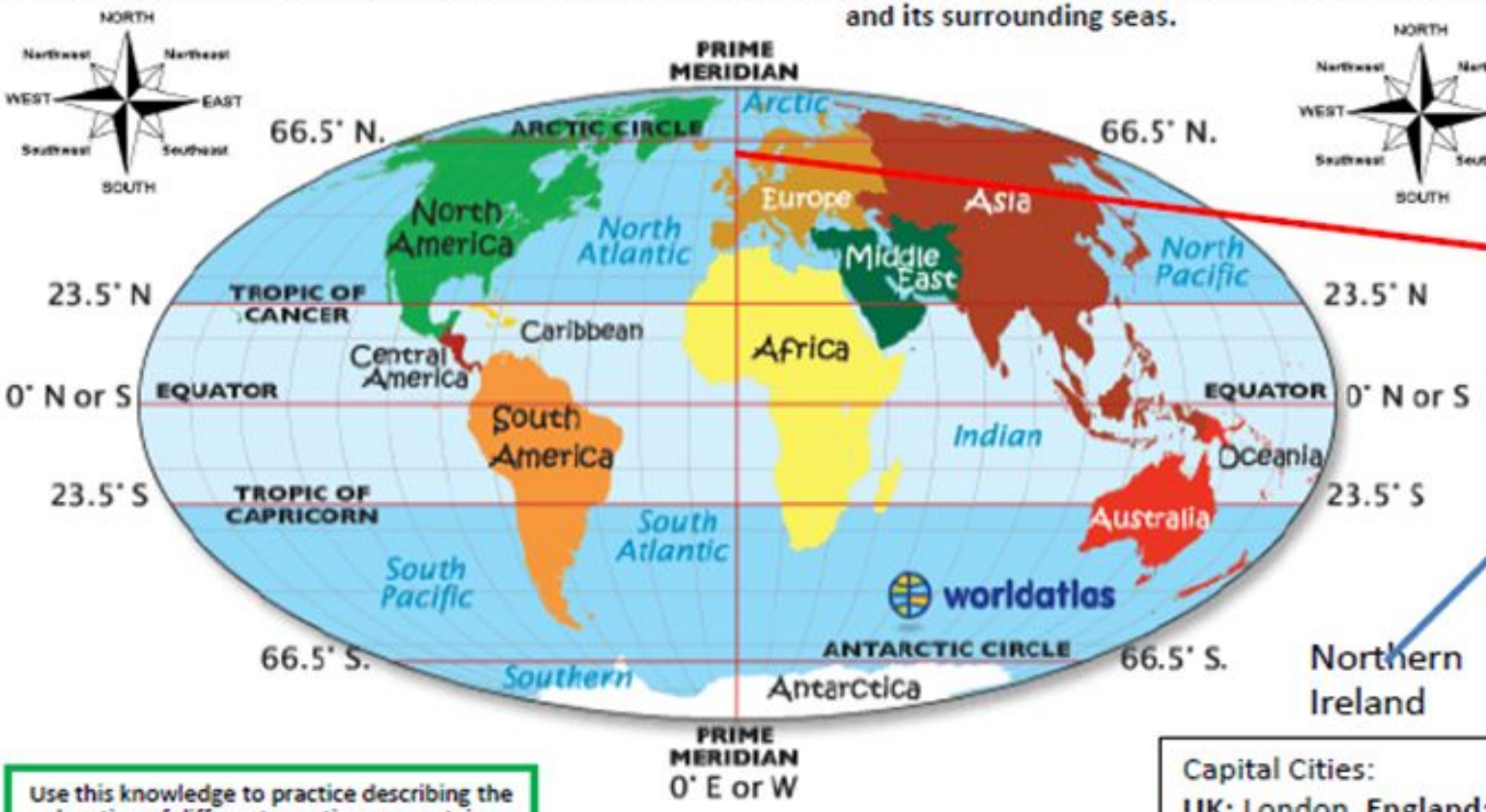
Geography

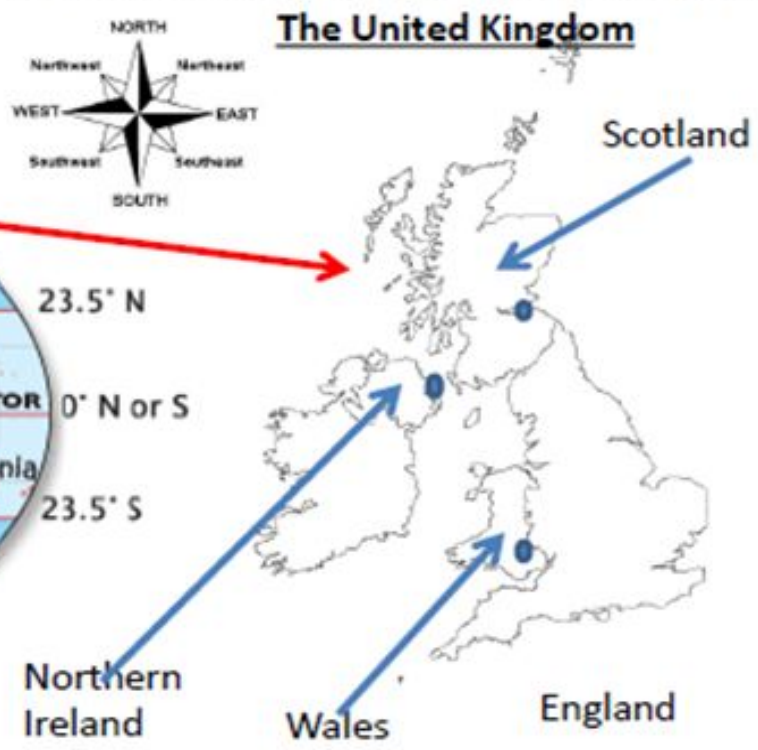
Year 7 Geography Revision

What I must know			
Location of world continents/countries			
UK counties			
Latitude and longitude			
Distance			
Height, direction and relief			
Map symbols			
Four and six figure grid reference			
Mode, Median, Range and interquartile range			
Four spheres			
Types of rocks			
Tropical rainforests – layers			
Hydrosphere – water management in UK			

Geography Knowledge Organiser: What is a Geographer?

KPI 7.1.1 Locate and name the continents and oceans of the world, identify characteristics of the four countries and capital cities of the United Kingdom and its surrounding seas.





Use this knowledge to practice describing the location of different courtiers, mountain ranges. Top Tips to do this on the next sheet

Capital Cities:
UK: London, **England:** London, **Wales:** Cardiff, **Scotland:** Edinburgh, **Northern Ireland:** Belfast

KPI 7.1.2: Describe the position and significance of latitude, longitude, Equator, Northern Hemisphere, Southern Hemisphere, the Tropics of Cancer and Capricorn, Arctic and Antarctic Circle, the Prime/Greenwich Meridian and time zones (including day and night).

- Lines of latitude and longitude are used to locate places accurately on the Earth's surface.
- Latitude is horizontal lines, which measure the degree from the equator (0°)
- Longitude is vertical lines and run from the top of the Earth to the bottom. They are not parallel as lines of latitude are – they meet at a point at the north and south poles and are called meridians.
- They divide the Earth into segments, like an orange. The Earth is then divided into 180° east and 180° west.
- The line which runs through Greenwich in London is called the Greenwich Meridian or Prime Meridian. The Prime Meridian is 0° longitude.
- The index of an atlas gives shows where places can be found, eg Birmingham, UK - 52° north 1° west. This means that Birmingham is located at approximately latitude 52 north and longitude 1 west.

Geography Knowledge Organiser: What is a Geographer?

Checklist to describe places

- I have used compass points
- Where possible, I have referred to imaginary lines of latitude (Equator, Tropic of Cancer, Capricorn)
- I have mentioned any major seas and oceans that are located near or border a country or place
- I have said where a place is in relation to other places that are very close to it
- I have referred to continents or regions

KPI 7.1.4 Describe the geography of a place and be able to record and present the human and physical features.

Physical Geography is the study of the natural processes that shape the surface of the Earth. *E.g. Mountains*

Human Geography is the study of the people who live on earth. Where and how people live.

Environmental Geography is a How people effect the earth and how the earth effects the people who live there

Urban is an area in a town or city

Rural is an area in the countryside

Sparsely Populated is an area with not many people in an area

Densely Populated is an area with lots of people in an area

KPI 7.1.3 Demonstrate use of Ordnance Survey map skills, including 4 and 6 figure grid references, eight points of the compass, scale, measure distances, map symbols, representation of height including contour patterns, draw cross-sections, to investigate places.

- A map is a two-dimensional drawing of an area. Maps help us to understand what places are like and how to plot routes.
- Geographers have traditionally used maps as a source of information about places. We can now use a range of technology to help us find places, eg GPS and GIS on our computers or mobile phones.
- The most common paper map is an Ordnance Survey Map.
- Maps should have a: **title, scale, north arrow, key**

Key and Symbols

Symbols help us to include lots of detail on maps that are drawn to scale. They include simple images, letters and abbreviations. Here are some examples

Campsite

Viewpoint

Train Station

Sch

School

Parking

Telephone

Information Centre

Nature Reserve

Direction

Try to remember the main compass points by using a mnemonic,
e.g. Never Eat Shredded Wheat
- North East South West

Scale

Most maps have a scale. These help us to work out distances on maps. This is given by the scale statement (eg 1:25,000) and/or by showing a scale bar.
The scale shows how much bigger the real world is than the map. If the scale is 1:50,000 it means that the map is 50,000 times smaller than the real world. For example, every 1 cm on the map represents 50,000 cm in the real world.

Geography Knowledge Organiser: What is a Geographer?

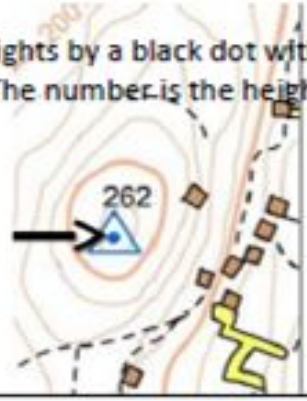
Height/Relief :Maps show height in a number of different ways:

Contours

These are lines drawn on maps that join places of the same height. They are usually an orange or brown colour. Some contour lines have their height above or below sea level written on them. It is possible to use them to see the shape of the land - if contour lines are close together the slope is steep, if they are far apart the slope is gentle.

Spot heights

Shows the exact heights by a black dot with a number next to it. The number is the height above sea level in metres.



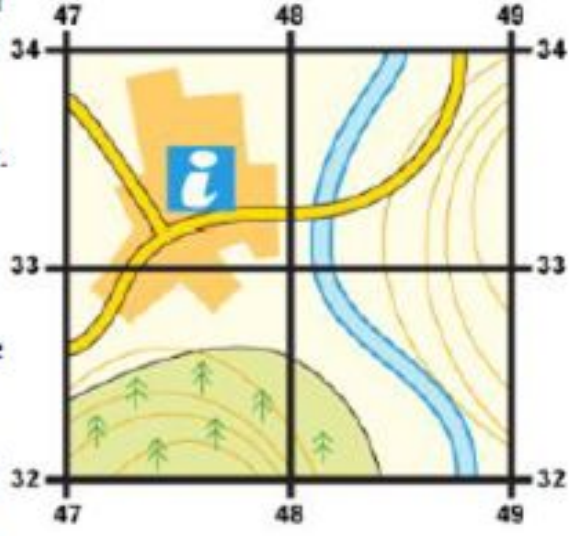
Grid References

A grid of squares helps the map-reader to locate a place. On an OS map each grid square is 1 km x 1 km or 1 sq km. On an OS map each grid square is 1 km x 1 km or 1 sq km. When you give a grid reference, always give the easting first: "Along the corridor and up the stairs".

To find a Four-figure grid references

1. Start at the left-hand side of the map and go east until you get to the easting crossing through the bottom left-hand corner of the square you want. Write this number down.

2.Move north until you get to the northing crossing the bottom left hand corner of the square you want. Look at the number of this grid line and add it to the two digit number you already Have. This is your four figure grid reference. In this case, the Tourist information office is in grid reference 4733.

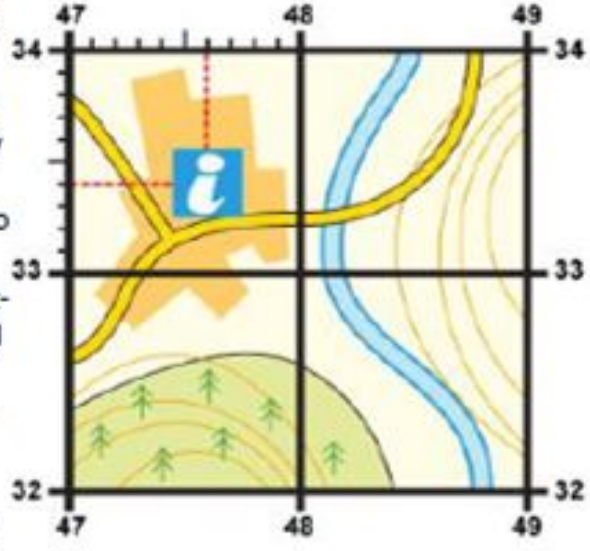


To find a Six-figure grid references

To be even more accurate., imagine that each grid is divided into tenths.

1.Find the four-figure grid reference but leave a space after the first two digits. When you get to the easting at the left-hand side of the grid square you want, keep moving east and estimate or measure how many tenths across your symbol lies. Write this number after the first two digits.

2. Move north from the bottom-left-hand corner of your grid square and estimate how many tenths your symbol is from this point. Put them together to create a six figure grid reference. In this instance, the tourist information office is located at 476334



Year 7

Design and Technology

Year 7 DT Revision

What I Must Know			
Know the terms boil, simmer, bake			
Recognise and understand the use of a range of cooking equipment			
Health and safety in the food room			
Know the terms appliques, embellishment, tie-dyes			
Understand the stages in making textiles			
Understand where natural and synthetic fibres come from			

Knowledge Organiser– KS3 Textiles—Bacteria Toy Project

Here is a list of commonly incorrectly spelt words and grammar rule errors in this project:

Choking (to stop breathing, or breathe with great difficulty, because of a blockage in or restriction of the throat)

Hazard (something that is potentially very dangerous)

Scissors (an instrument used for cutting cloth, paper, and other material)

Sewing (the act or work of using a needle and thread to join or repair material)

Sequins (a small round flat piece of shiny metal or plastic that is sewn onto clothing as a decoration, usually in large numbers)

Use capitals for proper nouns. In other words, capitalise the names of people, specific places, and things. For example: We don't capitalise the word "bridge" unless it starts a sentence, but we must capitalise London Bridge because it is the name of a specific bridge.

Appliqué: stitching one piece of fabric onto another using hand or machine stitching.

Embellishment: different techniques that are applied to the surface of a fabric to decorate it and give it a 3-D textured effect.

Tie-Dye: produce patterns in fabric by tying parts of it to shield it from the dye

Components	What it is used for	Image
Buttons	To fasten an opening or can be used for a decorative effect.	
Beads	To embellish the fabric and add a decorative effect.	
Pompoms	To embellish the fabric and add a decorative effect.	
Fabric Pens/ Crayons	To add colour and patterns to fabric.	
Ribbons	To tie something together or for a decorative effect.	

Textile materials are made in three stages:

1. **spinning:** fibres are spun into yarns
2. **weaving or knitting:** yarns become fabrics
3. **finishing:** fabrics are finished to make them more useful

Natural fibres

Natural fibres come from plants, animals and minerals. They usually have short fibres, called **staple fibres.** The exception to this rule is silk, a natural fibre whose continuous filaments are up to one kilometre in length!

Sources of natural fibres

- **Cotton** from the cotton plant.
- **Linen** from the flax plant.
- **Wool** from sheep.
- **Silk** from silkworms.

Synthetic fibres

Synthetic fibres are **man-made**, usually from chemical sources. They are continuous filament fibres, which means the fibres are long and do not always have to be spun into yarn.

Sources of synthetic fibres

- **Viscose** comes from pine trees or petrochemicals.
- **Acrylic, nylon** and **polyester** come from oil and coal.

Product Analysis:

Aesthetics
Cost
Customer
Environment
Size
Shape
Function
Materials

Year 7 Food Technology Knowledge Organiser

Boil/boiling	A method of cooking in deep liquid at 100 degrees – large rapid big bubbles
Simmer	A method of cooking in deep water just below boiling point- small bubbles
Bake/baking	Cooking food in an oven using a dry heat.

Use this knowledge organiser to revise for your assessment. Try:

- practice questions;
- getting someone to quiz you;
- making flashcards to use when quizzing;
- graphic organisers
- talk for a minute on the given term/topic – no pauses, no hesitations. Slips or repetitions or micro pauses lose a 'life' – three strikes and you're out!

Always remember to think about detail, why do things happen the way they do? Why are you following a certain process?

	**Sieve :** For separating lumps from powdered material e.g. flour. It has a mesh bottom, through which the material is shaken		**Grater:** A utensil which has a rough surface that you use for cutting food into very small pieces. E.g. cheese, raw carrots.
	**A wooden spoon:** A spoon that is used for stirring sauces and for mixing ingredients in cooking. It is made of wood and has a long handle.		**Chopping Boards.** Colour coded chopping boards. Used to protect the work surface when chopping ingredients. The colour coding can help us to prevent cross contamination.
	**Measuring Spoon:** a spoon on which certain quantities are marked, used to measure ingredients e.g. spices, herbs,		**Vegetable Knife** A small in size knife, designed to cut up vegetables e.g. carrots, peppers, cucumber
	**Weighing scales:** Used to accurately weigh larger quantities of usually dry ingredients. Weighs in increments of 1g.		**Colander:** A colander is a container in the shape of a bowl with holes in it which you wash or drain food in, e.g. drain pasta, wash lettuce.
	**Measuring jug:** A graduated jug used in cooking to measure liquid ingredients e.g. water, milk		**Mixing bowl:** A mixing bowl is a large bowl used for mixing ingredients e.g. cake mixture. They are often made from metal, glass or plastic.

Year 7

Art

Year 7 Art Revision

What I must know			
What are the 3 Primary Colours?			
What are the 3 Secondary Colours?			
Which colours do you need to mix to make the Secondary Colours?			
What are the 7 Formal Elements of Art & Design?			
Name 3 interesting facts about the work of Jason Vincent Scarpace			
How to apply different gradients of tone to a drawing			
What is a Mono print?			
Name the materials and tools needed to produce a Mono print			

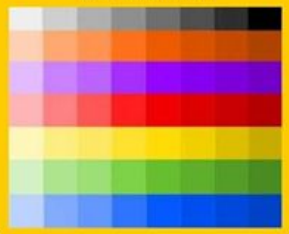
FORMAL ELEMENTS

LINE

A Line is the path left by a moving point, e.g. a pencil or a brush dipped in paint. A line can take many forms, e.g. horizontal, diagonal or curved. A Line can be used to show Contours, Movements , Feelings and Expressions.

TONE

Tone means the lightness or darkness of something. This could be a shade or how dark or light a colour appears



SHAPE & FORM

A shape is an area enclosed by a line. It could be just an outline or it could be shaded in.

Form is a three dimensional shape such as a sphere, cube or a cone.

Sculpture and 3D design are about creating forms

KEY WORDS & TERMS

Line
Tone
Shape
Form
Texture
Colour
Pattern
Shade
Light
Dark
Pressure
Natural Pattern
Manmade Pattern
Geometric Shape
Organic Shape
Actual Texture
Visual Texture
Design
3D Design
2D Design
Primary Colours
Secondary Colours
Mix
Blend

TEXTURE

Texture is the surface quality of something, the way something feels or looks like it feels. There are two types of texture: Actual Texture and Visual Texture.

Actual Texture– really exists so you can feel it or touch it

Visual Texture– created using different marks to represent actual texture.

Actual Texture Visual Texture

COLOUR

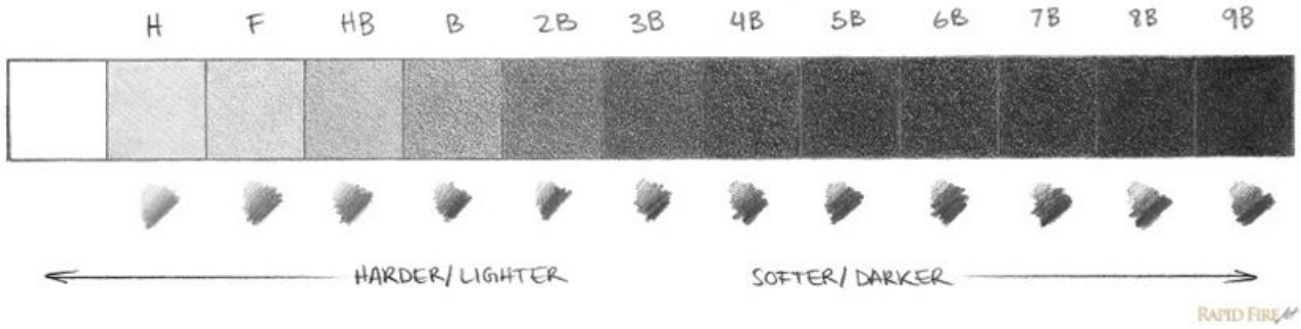
There are 3 Primary Colours: RED, YELLOW and BLUE.

By mixing any two Primary Colours together we get a Secondary Colour; ORANGE, GREEN and PURPLE

PATTERN

A pattern is a design that is created by repeating lines, shapes, tones or colours.

Patterns can be manmade, like a design on fabric, or natural, such as the markings on animal fur.



Analysing Art

Content – looking at the subject of the work

What is it? What exactly can you see? What is happening? What does the work represent?
What does the artist call the work?
Does the title change the way we see the work?
What is the theme of the work?

landscape, portrait, journey, moment, memory, event, surreal, fantasy, abstract, message, energy

Form – looking at the formal elements

What colours does the artist use? Why? How is the colour organised?
What kind of shapes can you find?
What kind of lines and marks does the artist use?
What is the surface like?
What kind of textures can you see?
What kind of patterns can you see?
How big is the work?

light, delicate, layered, strong, rough, dark, peaceful, dripped, textured, scale, vivid, bright

Process – how the work has been developed and made

What materials and tools have been used?
What is the evidence and clues for how it has been made?

painted, woven, printed, drawn, cast, stitched, layered, assimilated, collage

Mood – looking at the communication of moods and feelings

How does the work make you feel?
Why do you feel like this?
Does the colour, texture, form or theme of the work affect your mood?

quiet, contemplative, thoughtful, hopeful, peaceful, elated, joyful, celebratory, reflective

Interpretation and Justification – looking at the meaning of the work

After analysing the context, form, process and mood:

What do you think the artist is saying? Why?
What message is the work/artist trying to communicate? Why?

Year 7

French

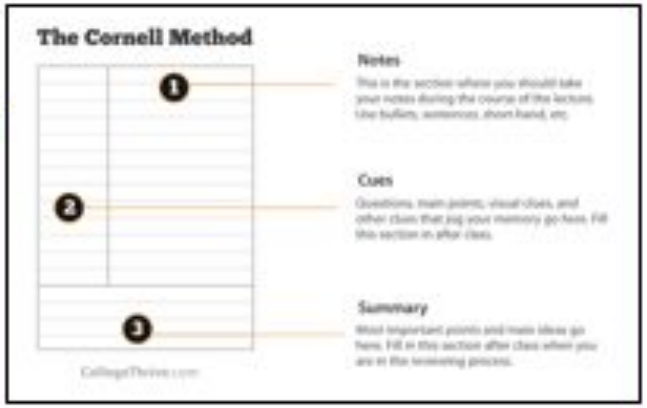
YEAR 7 FRENCH REVISION

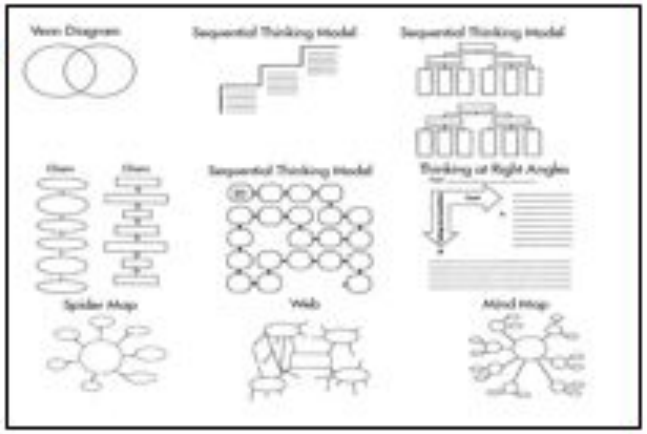
What I must know or be able to ...			
Write your name, age and birthday			
Describe where you live			
Describe who is in your family including your pets			
Describe what you look like (your height, built, eye colour, hair colour & style, personality)			
Describe a third person using il (he) or elle (she) including his / her personality			
Position and agree your adjectives correctly.			
The verbs avoir (to have) and être (to be)			
Give simple opinions			
Ask questions in French			

YEAR 7 – FRENCH – REVISION

Use this knowledge organiser to revise for your assessment. Try:

- practice questions;
- getting someone to quiz you;
- making flashcards to use when quizzing;
- graphic organisers (see right);
- the Cornell method (see right);
- talk for a minute on the given term/topic – no pauses, no hesitations. Slips or repetitions or micro pauses lose a 'life' – three strikes and you're out!





Key questions:

1- Comment t'appelles-tu ? What's your name?
2- Où habites-tu ? Where do you live?
3- Quel âge as-tu ? How old are you?
4- Quelle date de ton anniversaire ? –When is your birthday ?
5- As-tu des frères et sœurs ? Do you have any brothers or sisters?
6- Tu as un animal? Do you have a pet?
7- Comment es-tu ? What are you like?
8- Décris une personne dans ta famille.

Read this model answer:

« Je m'appelle Anna. Ça s'écrit AA-EN-EN-AA. J'habite à Stanley, près de Newcastle, dans le nord-est de l'Angleterre, avec ma famille. J'ai douze ans. Mon anniversaire est le treize octobre. J'ai un frère qui s'appelle Max. Je n'ai pas d'animal mais je voudrais un chien ou un chat. Je suis assez petite et mince. J'ai les yeux bleus et les cheveux marron et longs. Je suis assez sportive et intelligente mais je suis très bavarde. J'adore les jeux-vidéo car c'est amusant mais je déteste le collège. Mon frère a seize ans. Il est de taille moyenne. Il a les yeux verts et les cheveux noirs. Il est sympa mais pas travailleur. Il aime le football. J'aime mon frère car il est généreux avec moi. »

KEY VERBS - Present tense

AVOIR _ - TO HAVE

J'ai - I have
Tu as - he has
Il/elle a - he/she has
On a - we have
Nous avons - We have
Vous avez - You have (plural or polite)
Ils/Elles ont - They have

ËTRE _ TO BE

Je suis- I am
Tu es - you are
Il/elle est - he/she is
On est - We are
Nous sommes - We are
Vous êtes - You are (plural or polite)
Ils/Elles sont - They are

DETESTER (to hate)

Je déteste - I hate
Tu détestes - you hate
Il/elle déteste - he/she hates
On déteste - we hate
Nous détestons - we hate
Vous détestez - you hate (plural or polite form)
Ils/elles détestent - they hate

ADORER (to love)

J'adore - I love
Tu adores - you love
Il/elle adore - he/she loves
On adore - we love
Nous adorons - we love
Vous adorez - you love (plural or polite form)
Ils/elles adorent - they love

PETS

J'ai un chien - I have a dog
un chat - a cat
un poisson rouge - a gold fish
un lapin - a rabbit
un hamster - a hamster
un cochon d'inde - a guinea-pig
un perroquet - a parrot
un serpent -a snake
un cheval - a horse
une perruche - a budgie
une souris - a mouse
une tortue - a tortoise
des poissons - several fish
des chevaux - horses
Je n'ai pas d'animal - I don't have a pet
mais ie voudrais... - but I would like ...

FAMILY

mon père - my dad
mon beau - père - my step-dad
mon frère - my brother
mon grand-père - my grand-father
mon cousin - my cousin (boy)
mon copain - my friend (boy)
mon ami - my friend (boy)
ma famille - my family
ma mère - my mother
ma belle- mère - my step-mother
ma sœur - my sister
ma grand-mère - my grand-mother
ma cousine - my cousin (girl)
ma copine/ mon amie - my friend (girl)
mes parents - my parents
mes grands-parents - my grand-parents
mes cousins - my cousins
mes copains/mes amis - my friends

BROTHERS/SISTERS

J'ai - I have
un frère - a brother
une soeur - a sister
deux frères - two brothers
trois sœurs - three sisters
un demi-frère - a step-brother
une demi-sœur - a step-sister
un frère jumeau - a twin brother
une sœur jumelle - a twin sister
Je n'ai pas de frère et sœur - I don't have any brothers or sisters
Je suis fille unique - I am an only child (girl)
Je suis fils unique - I am an only child (boy)
J'ai un frère qui s'appelle... - I have a brother who is called...
J'ai une sœur qui s'appelle ...- I have a sister who is called...
J'ai un frère et une sœur qui s'appellent...- I have a brother and a brother and a sister who are called..

NUMBERS - les numéros

1 un	2 deux	3 trois	4 quatre	5 cinq
6 six	7 sept	8 huit	9 neuf	10 dix
11 onze	12 douze	13 treize	14 quatorze	15 quinze
16 seize	17 dix-sept	18 dix-huit	19 dix-neuf	20 vingt
21 vingt-et-un	22 vingt-deux	23 vingt-trois	24 vingt-quatre	25 vingt-cinq
26 vingt-six	27 vingt-sept	28 vingt-huit	29 vingt-neuf	30 trente
31 trente-et-un				
40 quarante	50 cinquante	60 soixante		

Tu es comment ?	Watch the word order !	
What do you look like ? J'ai - I have Il a - he has Elle a - she has	les yeux - eyes 	bleus - blue verts - green marron / bruns - brown noisette - hazel
	les cheveux - hair	blonds - blond noirs - black marron / bruns - brown roux/auburn - red châtain - light brown
Je / il / elle porte - I/ he / she wear(s)	 des lunettes - glasses	longs - long courts - short mi-longs - mid-length frisés / bouclés - curly en brosse - spiky raides - straight

CONNECTIVES

et - and
ou - or
mais - but
qui - who
car- because

INTENSIFIERS

assez - quite
très - quite

WHAT DO YOU LOOK LIKE ?

Comment es-tu ? What are you like?
Comment êtes-vous ? What are you like?
Je suis - I am
Il/ elle est - He/she is
grand(e) - tall
petit(e) - small
gros - fat (m)
mince - slim
énorme - enormous
minuscule - tiny
de taille moyenne - of average height/build

AJECTIVES OF PERSONALITY

Masculine	feminine	English
intelligent	intelligente	clever
violent	violente	violent
marrant	marrante	funny
patient	patiente	patient
bavard	bavarde	chatty
sérieux	sérieuse	serious
courageux	courageuse	brave
généreux	généreuse	generous
paresseux	paresseuse	lazy
travailleur	travailleuse	hard-working
sportif	sportive	sporty
sympa	sympa	nice
calme	calme	calm
timide	timide	shy

Year 7

ICT

Year 7 ICT Revision (E-Safety, DTP, Microbits and Data Reliability)

What I must know			
Define a variable			
Define a constant			
Define a algorithm			
Identify components from an algorithm			
Identify microbit components			
Label an *IF / Else IF* statement			
Label a *Forever loop*			
Label a *Repeat until loop*			
Explain how people can stay safe on-line			
Explain the implications of not keeping data safe/secure on-line			
Explain the term cyberbullying			
Identify where you can report on-line abuse to			
Explain the term data reliability			
Identify different domain extensions (e.g .org / .co.uk / .com)			
Explain the term podcast			
Identify tools of Audacity			

YEAR 7 COMPUTER SCIENCE REVISION

Use this knowledge organiser to revise for your assessment. Try:practice questions (use your white book);

- using ***Craig and Dave / The computer science tutor*** on YouTube to revisit topics;
- getting someone to quiz you;
- making flashcards to use when quizzing;
- graphic organisers (e.g Mind maps)

INPUT DEVICE	STORAGE DEVICE	OUTPUT DEVICE
Keyboard	Optical - CD / DVD	Monitor
Mouse	Magnetic	Speakers
Touch Screen	Hard Drive	Headphones
Barcode Scanner	Solid State	Printer
OMR (Lottery / Multiple choice)		
Joystick		
Microphone		
Sensors		

WHAT ARE THE DIFFERENCES BETWEEN HARDWARE AND SOFTWARE?

Hardware is the physical components such as monitor, keyboard, mouse, printer.

Software is the non-physical components – programs and applications

WHAT IS E-SAFETY?

E-Safety is keeping safe whilst on-line. For example:

Ensuring all social media is locked down and private
Do not post private / personal data (such as your address) on-line
Only have on-line friends with people you know in real life
Do not meet up with strangers you meet on-line (if you do take an adult)
Report Cyberbullying and trolling (CEOP is the police service for this if needed)
Only play on-line games with people you know in real life
Ensure you know how to report and block abuse whilst on-line gaming
Do not download from un-known links (risk of viruses / malware)

WHAT IS CYBERBULLYING

When someone uses electronic communication to bully a person typically or a intimidating or threatening nature

WHAT IS TROLLING

It's the deliberate act of inciting an argument by leaving intentionally annoying messages on the internet.

MICROBIT & PROGRAMMING

WHAT IS A VARIABLE?

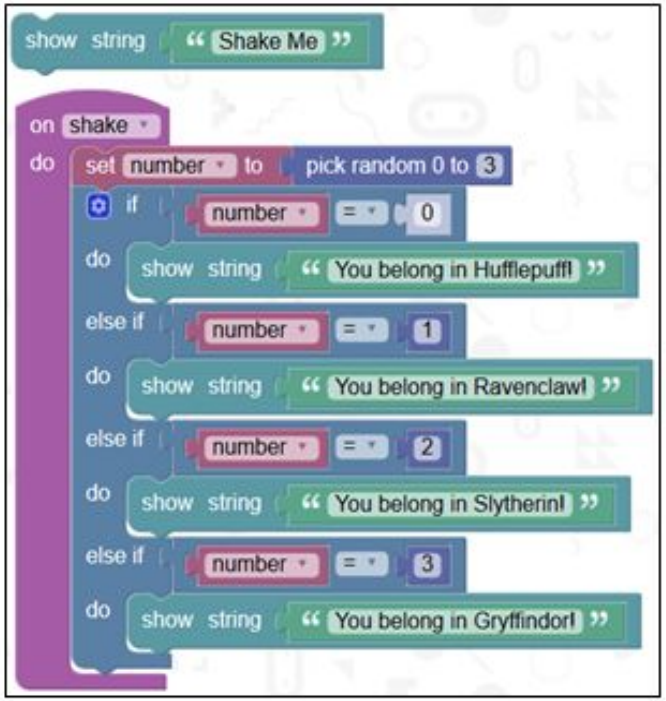
A value stored in the program that can change

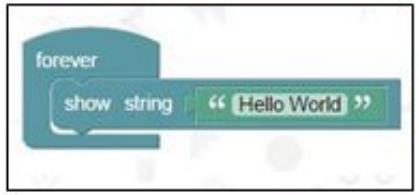
WHAT IS A CONSTANT

A value stored in the program that can NOT change

WHAT IS A LOOP?

A piece of code that is repeated

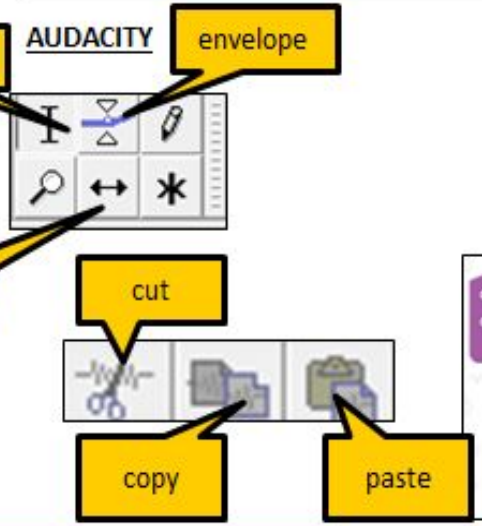


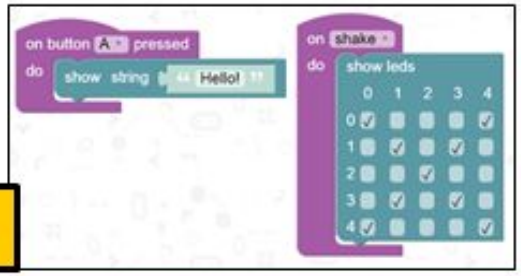


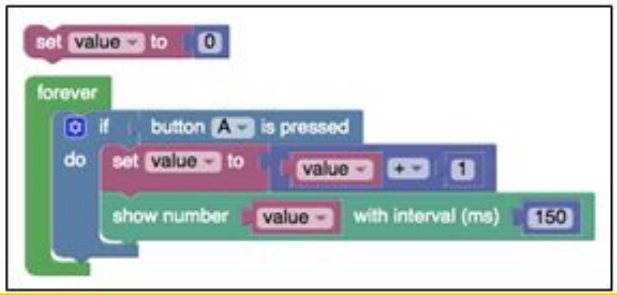
THE INTERNET & RELIABILITY

Country Code Domain Extensions
.au (Australia)
.br (Brazil)
.ca (Canada)
.cn (China)
.de (Germany)
.fr (France)
.in (India)
.nl (Netherlands)
.jp (Japan)
.ru (Russia)
.us (United States)
.uk (United Kingdom)
etc...

AUDACITY







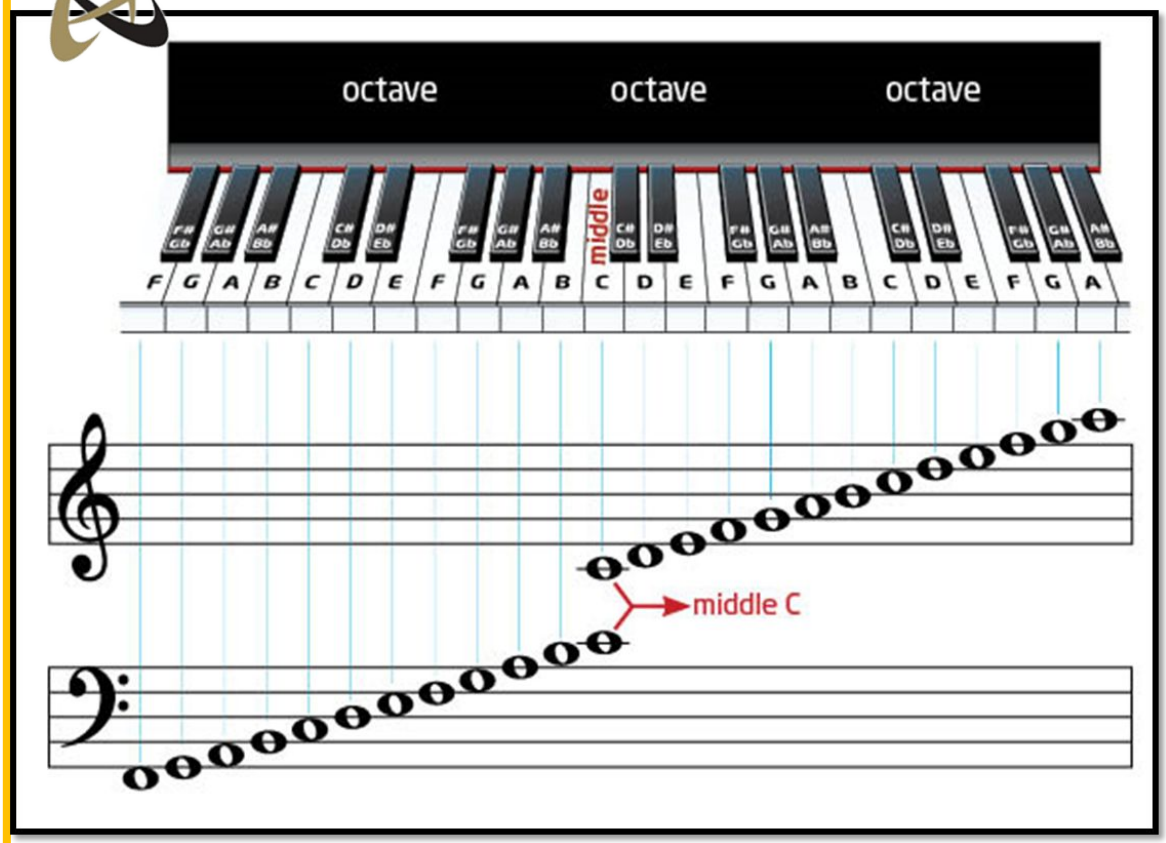
Year 7

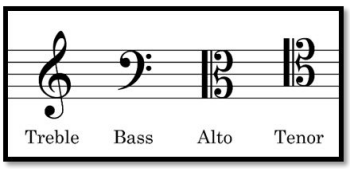
Music

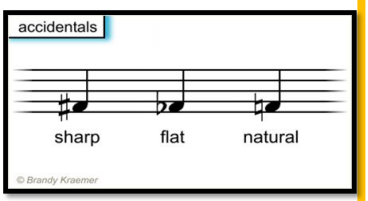
Year 7 Music Revision (Pitch)

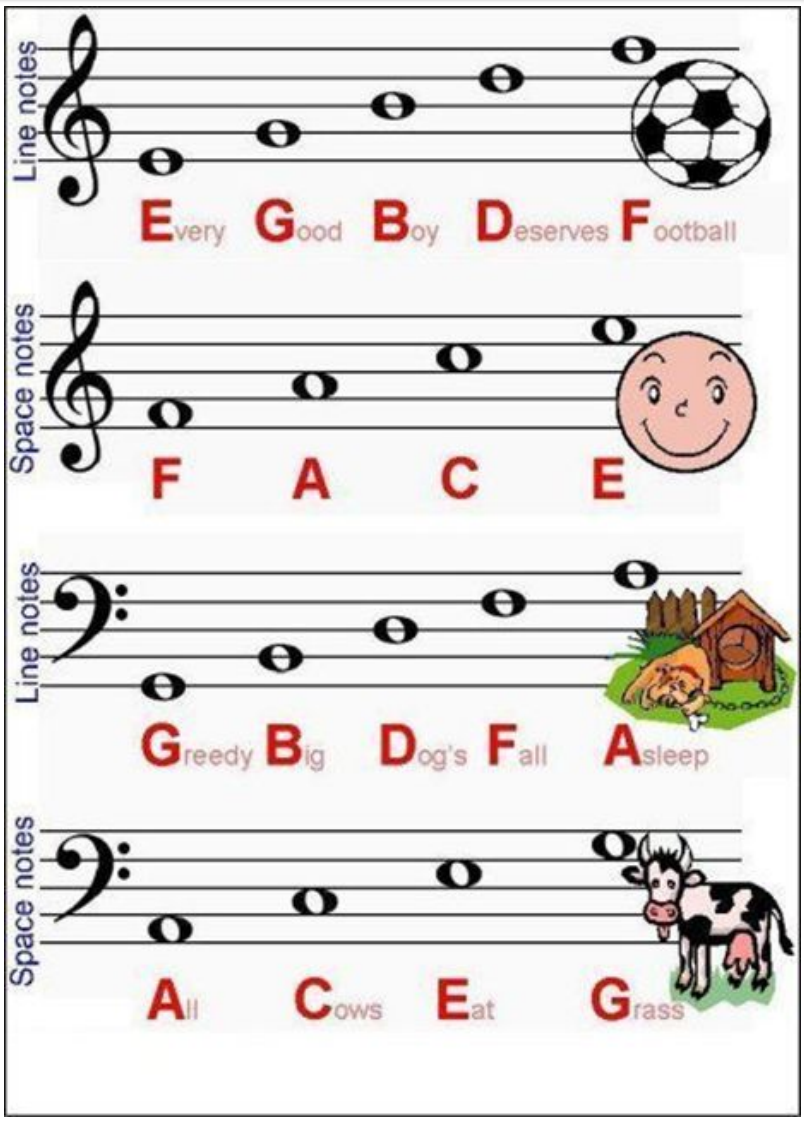
What I must know			
Identify notes on the LINES of the TREBLE CLEF STAVE			
Identify notes on the SPACES of the TREBLE CLEF STAVE			
Identify notes on the LINES of the BASS CLEF STAVE			
Identify notes on the SPACES of the BASS CLEF STAVE			
Describe the effect a SHARP has on a note			
Describe the effect a FLAT has on a note			
Describe the effect a NATURAL has on a note			
Explain the purpose of a TREBLE CLEF			
Explain the purpose of a BASS CLEF			
Explain the use of treble and bass clef in piano music			

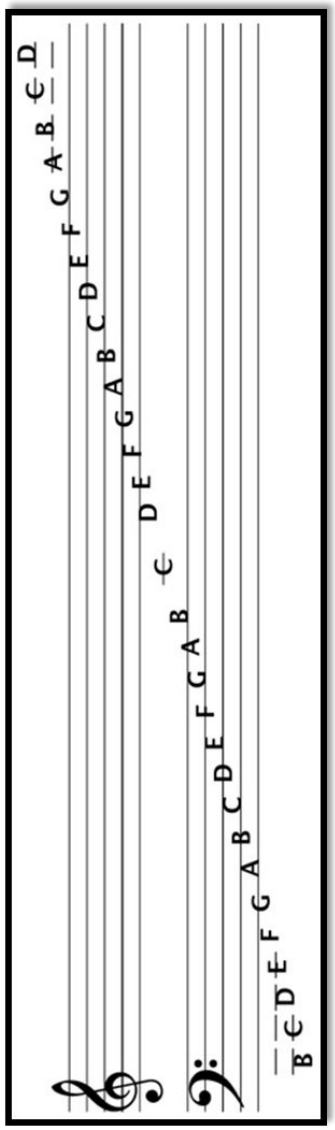
Year 7 Music Revision: Pitch











Year 7

P. E.

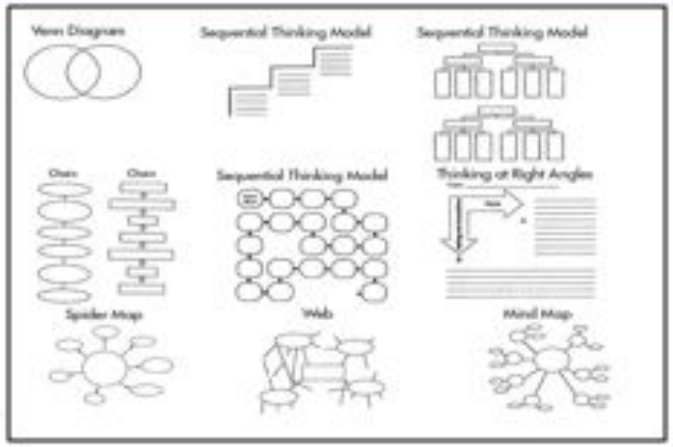
Year 7 PE Revision

What I Must Know			
Know the rules of various sporting activities			
Know what equipment is used in various sporting activities			
Know what playing area is used for various sporting activities			
Identify extrinsic injury risk factors for a variety of sports			
Identify intrinsic injury risk factors for a variety of sports			
Identify risk factors on a diagram (a picture of a sporting activity)			
Describe how an extrinsic risk factor can cause injury to a performer			
Describe how an intrinsic risk factor can cause injury to a performer			
Explain how a performer can reduce their extrinsic injury risk factor			
Explain how a performer can reduce their intrinsic injury risk factor			

KS3 PE REVISION – INJURY RISK FACTORS

Use this knowledge organiser to revise for your assessment. Try:

- practice questions;
- getting someone to quiz you;
- making flashcards to use when quizzing;
- graphic organisers (see right);
- the Cornell method (see right);
- talk for a minute on the given term/topic – no pauses, no hesitations. Slips or repetitions or micro pauses lose a 'life' – three strikes and you're out!



How to score top marks

Quizlet will help you gain the basic knowledge and your teacher will explain information to you in practical lessons. However, to score top marks on your test you will not only need to be able to list the knowledge below, you will need to be able to provide sporting examples (see right).

Sporting example

The weather is an extrinsic injury risk factor for football. For example, the playing surface could be slippery due to it having rained heavily before the match. A player could reduce their risk of injury by wearing studded football boots in order to gain more grip to the surface. This does not mean they would never slip or fall down but it does significantly reduce the risk factor.

Extrinsic factors

Environmental factors

Weather

Playing surface/performance area

Other participants

Type of activity

Some sports have a higher risk and present different injury risks.

E.g. contact to non-contact sports

Coaching/Supervision

Poor/incorrect techniques

Ineffective communication

Importance of rules and regulations

Equipment

Protective equipment (shin pads, gum shield)

Performance equipment (e.g. hockey stick, cricket bat)

Suitability of clothing/footwear

Safety hazards

Risk assessments – identify things that may cause harm, identify who could be harmed, identify steps to prevent harm

Safety checks – weather, surface/floor, equipment, clothing/footwear, jewellery removed, hair tied back

Emergency action plan (3 components-emergency personnel, emergency communication, emergency equipment)

Intrinsic factors

Physical Preparation

Training

Warm up

Cool down

Fitness levels

Overuse

Muscle imbalance

Individual variables

Flexibility-women are more flexible than men

Age-Young children and old people have lower levels of fitness, compared to young people

Nutrition-we need enough calories for energy to do sport

Sleep-fatigue can increase injury risk as we may miss things

Gender-men are stronger than women

Previous/reoccurring injuries-higher risk of injuring these again

Exam tip

Make sure you cannot only differentiate between an extrinsic and intrinsic injury risk factor, but that you can also group the different extrinsic and intrinsic injury risk factors into categories. For example, **flexibility** is an **individual variable**.

Remember if you are unsure about anything on this document come and ask your teacher – we are here to help!

Year 7

R. E.

Year 7 RE Revision

What I Must Know			
Key Terms			
Details of the Christian/Jewish creation stories in Genesis. Including a source of authority			
How the creation story in Genesis shows God's omnipotence			
Christian beliefs that stem from the Genesis creation story			
Christian practices that stem from the Genesis creation story			
Details of the Hindu creation myths			
Details of the Buddhist creation myths			
Details of the Sikh creation myths			
a, b and c question structures			

KS3 Ethics and Belief Cycle 2 Revision Knowledge Organiser

The Christian and Jewish Creation Story in Genesis

✔ God creates everything from nothing (ex nihilo)
✔ God creates the world in 6 days
✔ God rests on the 7th day (**Shabbat**)
✔ God created humans in his own likeness: **"Let us make man in our own image and let them have dominion over all living creatures"**.
✔ Humans are given **dominion** (control) over the earth and all living things.
✔ The first human, Adam, is lonely, so God makes Eve from his rib.
✔ The serpent (devil) tempts Adam and Eve to eat the fruit of the Tree of the Knowledge of Good and Evil, which God told them not to eat
✔ Adam and Eve's sin is punished by God. They are banished from the Garden of Eden and doomed to die.

God's omnipotence in the Genesis creation story

✔ God creates the world out of nothing (ex nihilo)
✔ God creates all living creatures
✔ God creates humanity
✔ God makes Eve from the rib of Adam

How the Genesis creation story influences Christian beliefs

✔ Humans are made in the image of God but are **sinful** and need God's forgiveness.
✔ The purpose of humankind is to have **dominion** over the earth which is shown through **stewardship** on God's behalf.

How the Genesis creation story influences Christian actions

✔ Christians perform their duty as **stewards** of the earth looking after God's creations for the next generation.
✔ Christians pray for forgiveness and confess their sins to a priest to be forgiven.

Creation in Hinduism

✔ Brahma is the creator god
✔ Brahma works with Vishnu and Shiva to maintain a cycle of universes.
✔ Time is not a straight line but eternal cycles with no beginning and no end.

Creation in Buddhism

✔ The Buddha (founder of Buddhism) refused to answer questions about creation
✔ Buddhists believe that worlds follow a cycle of decay, death and rebirth (similar to Hindus)

Creation in Sikhism

✔ The universe was made by Waheguru (god)
✔ Waheguru created the earth and all forms of life on it.
✔ Before the creation there was no earth, no sky, no sun and no life.
✔ Waheguru created everything by a single word.

Key Terms

Abrahamic Religions: Judaism, Christianity and Islam
Agnostic: a person who is not sure if God exists
Atheist: a person who does not believe in God
Dominion: control over something, e.g. the natural world
Indian Religions: Hinduism, Buddhism and Sikhism
Omnibenevolent: all-loving
Omnipotent: all-powerful
Shabbat: the 7th day of the week observed as a day of rest by Jews
Stewardship: the responsibility of humanity to manage the world and animals for the next generation
Theist: a person who believes in a God
Genesis: 1st book of the Bible that contains the Christian and Jewish creation story
Sin: an act of doing something against God's will.

KS3 Ethics and Belief Practice Questions, Model Answers and Structures

Question Structures	Model Answers	Practice Questions
Section 1 Complete the 10 different sentences using your knowledge of the **Key Terms** **Section 2** **(a) Outline 3 ways_____ [3 marks]** *Firstly…* *Secondly…* *Finally...* **(b) Describe 2 ways_ is different to_ [4 marks]** *Firstly..., whereas...* *Secondly..., whereas...* **(c) Explain 2 ways_____ [5 marks]** **You must support your reasons with evidence from the Bible.** *Firstly…, because…* *Therefore/For example…* *Secondly…, because…* *Therefore/For example…* *This is supported by…, because/therefore/this means…*	**Section 2** **(a) Outline 3 ways that participate in the Genesis creation story [3 marks]** *Firstly, God gives humanity dominion over all creatures and the earth.* *Secondly, humanity has a duty to be stewards over the earth by taking care of it for the next generations.* *Finally, woman is created using the rib of the man Adam.* **(b) Describe 2 ways that the Genesis creation story is different to scientific theories [4 marks]** *Firstly, the Genesis creation story describes the world being created in 6 days, whereas the theory of evolution shows us that the universe was formed over 13.8 billion years.* *Secondly, the genesis creation story describes God making all living creatures, whereas the theory of evolution suggests that all living creatures evolved from more simple life forms.* **(c) Explain 2 reasons why Christians believe Jesus saves them from their sins [5 marks]** **You must support your reasons with evidence from the Bible.** *Firstly, Christians believe Jesus saves them from their sins, because in life people can separate themselves from God. Therefore, they need God's forgiveness which is given to them through Jesus' death on the cross.* *Secondly, Christians believe Jesus saves them from their sins, because they believe all people are born with original sin. This means that they share in the first sin of Adam and Eve. This is supported by the book of Genesis which states that "God banished them from the Garden of Eden"* *Because of their original sin. Therefore all their descendants are born outside of Eden.*	**Section 2** (a) Outline 3 ways God created the world in the book of Genesis [3 marks] (a) Outline 3 ways the Genesis creation story shows God's omnipotence. [3 marks] (a) Outline 3 ways the Sikh creation story is similar to the Genesis creation story [3 marks] (b) Describe 2 ways the Sikh creation story is different to the Hindu creation story [4 marks] (b) Describe 2 ways the Genesis creation story is different to the Hindu ideas of creation. [4 marks] (b) Describe 2 ways the Genesis creation story is different to the theory of evolution [4 marks] (c) Explain 2 ways a Christian's beliefs and actions are influenced by the Genesis creation story. [5 marks] You must support your reasons with evidence from the Bible.