HERMITAGE
ACADEMY

YEAR 8

KNOWLEDGE ORGANISER

Year 8 Topic 6 Equations Student Knowledge Organiser

Key words and definitions

Equation – a statement linking two expressions as equal

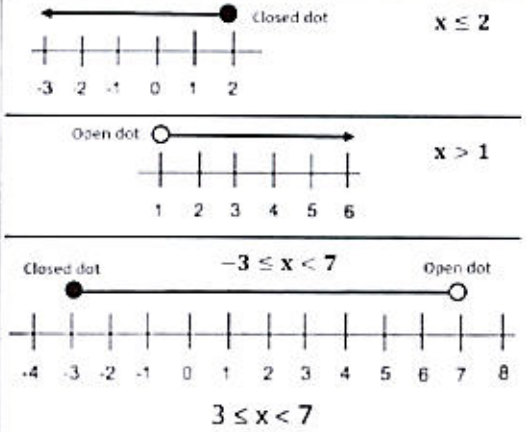
Variable – a symbol that may take any value

Constant – a value that does not change

Coefficient – a constant attached to the front of a variable

Formula – a statemnt, often written as an equation, that shows the exact relationship beyween different variables e.g. y=mx+c.

Inequalities on number lines



$3 \leq x < 7$

This is asking what values would represent x. They are 3, 4, 5, and 6. This is because ≤ includes the 3 but < does not include the 7

North East Learning Trust

Simple equations

$y + 7 = 10$

$y = 3$

10-7 = 3

$2y - 3 = 9$

$2y = 12$

$y = 6$

To solve the question, we use the inverse operation to get the variable (letter) on its own

Equations with brackets

$2(4p + 1) = 18$ (Use Distributive Law)

$8p + 2 = 18$ (Subtract 2 from both sides)

$8p + 2 - 2 = 18 - 2$

$8p = 16$ (Divide both sides by 8)

$\frac{8p}{8} = \frac{16}{8}$

$p = 2$

Rearranging formulae

Rearrange the formula to make a the subject

This means we want to rearrange the formula so it says a =

$b = 5a + 21$

$-21 \quad -21$

$b - 21 = 5a$

$\div 5 \quad \div 5$

$\frac{b - 21}{5} = a$

Our answer should say ... $a = \frac{b - 21}{5}$

Unknown on both sides

$5y - 8 = 2y + 7$

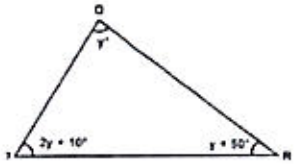
$3y - 8 = 7$

$3x = 15$

$y = 5$

Forming and solving equations

PQR is a triangle. Form and solve an equation to find the value of y.



What do the angles in a triangle add up to?

180

How can we write an equation for this?

2y + 10 + y + y + 50 = 180

Can we collect like terms?

4y + 60 = 180

4y = 120

y = 30

Hegarty Maths Links

Inequalities – 265, 266, 267, 268, 269

Solving – 178, 179, 180, 181, 182, 183, 184, 185, 186, 187

Forming and solving – 176, 188

Rearranging formulae- 280, 281, 282, 283, 284, 285

Year 8 Topic 6 Student Knowledge Organiser

Solving

1) $x + 4 = 11$

2) $w - 6 = 23$

3) $5d = 70$

4) $\frac{k}{4} = 7$

5) $2x + 6 = 12$

1) $6(x - 2) = 24$

2) $5(4y + 2) = 70$

3) $2x + 4 = 5x - 8$

4) $4x - 3 = 2x + 2$

5) $3(x + 6) = 4(x + 5)$

Inequalities

List the integers which satisfy these inequalities and display on a number line

$2 < x < 7$

$1 < x < 3$

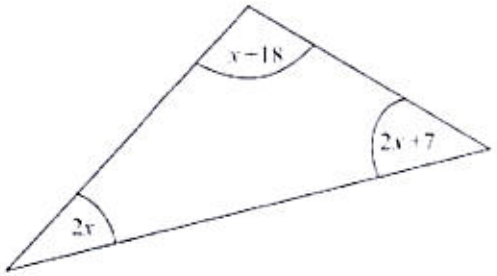
$-3 \leq x < 3$

$-1 \leq x \leq 1$

$27 \leq x \leq 33$

$55 < x \leq 59$

Forming and solving



The sizes of the angles, in degrees, of the triangle are

$2x + 7$
$2x$
$x + 18$

(a) Use this information to write down an equation in terms of x.

.....

(b) Use your answer to part (a) to work out the value of x.

North East Learning Trust

Year 8 Topic 7 Shapes and Angles Student Knowledge Organiser

Key words and definitions

Polygon - A **polygon** is any 2-dimensional shape formed with straight lines. The name tells you how many sides the shape has. For example, a triangle has three sides, and a quadrilateral has four sides.

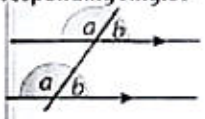
Parallel lines – lines which never meet, they stay the same distance apart

Plan view – looking down on an object from above

Elevation – view from the front or side of an object

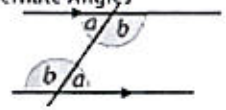
Angles in parallel lines

Corresponding Angles



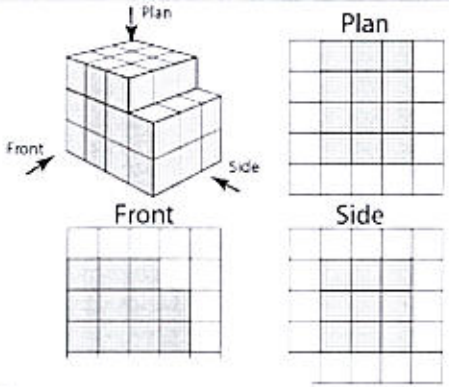
Corresponding angles are equal. They can be found in F shapes.

Alternate Angles



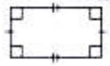
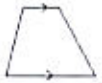
Alternate angles are equal. They can be found in Z shapes.

Plans and elevations

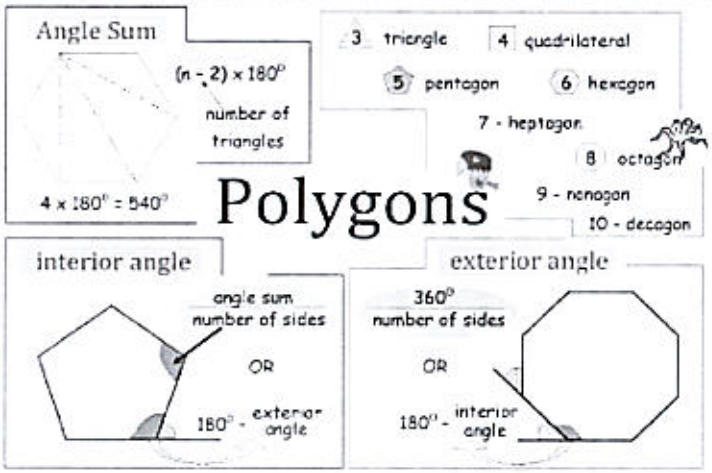


North East Learning Trust

Types of special quadrilaterals

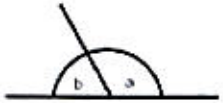
Quadrilateral	*Properties*	
Rectangle	4 right angles and opposite sides equal	
Square	4 right angles and 4 equal sides	
Parallelogram	Two pairs of parallel sides and opposite sides equal	
Rhombus	Parallelogram with 4 equal sides	
Trapezium	Two sides are parallel	
Kite	Two pairs of adjacent sides of the same length	

Angles in polgons



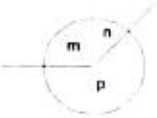
Angle facts

The angles on a straight line add up to 180°.
a + b = 180°



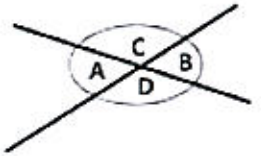
The angles in a triangle add up to 180°.
a + b + c = 180°

The angles at a point add up to 360°.
m + n + p = 360°



The angles in a quadrilateral up to 360°.
w + x + y + z = 360°

Vertically opposite angles are equal.
A = B
D = C



Hegarty Maths Links

Properties of quadrilaterals and triangles – 823, 824, 825, 826

Basic angle facts – 477, 478, 479, 585, 486, 487

Angles in parallel lines – 481, 483

Angles in polygons – 561, 562, 563, 564

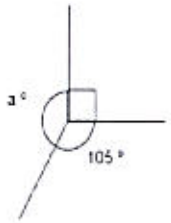
Plans and elevations – 837, 838, 839, 840, 841, 842, 843, 844

Year 8 Topic 7 Shapes and Angles Knowledge Organiser

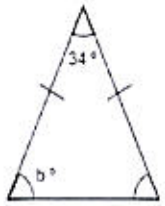
Angles

Calculate the missing angles in each of these diagrams and give reasons for your answers.

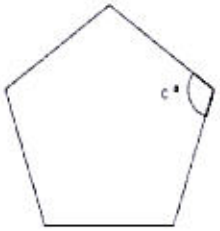
1)



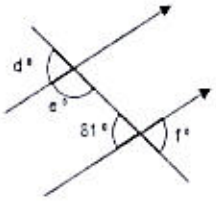
2)



3) Diagram shows a regular pentagon



4)



Plans and elevations

Draw the front, side and plan view.

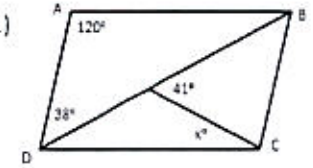
Front

Side

Plan

Apply your knowledge

1)



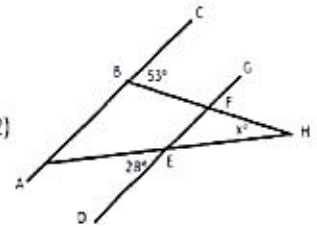
ABCD is a parallelogram

Angle ADB = 38°
Angle BEC = 41°
Angle DAB = 120°

Calculate the size of angle x
You must give reasons for your answer.

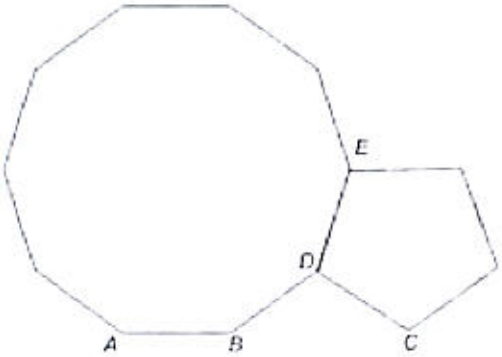
Diagrams NOT accurately drawn

2)



ABC and DEFG are parallel.
AEH and BFH are straight lines.
Work out the size of the angle marked x°

A regular decagon and a regular pentagon have sides the same length. They are joined as shown



Prove that ABC is a straight line

North East Learning Trust

Year 8 Topic 8 Ratio Student Knowledge Organiser

Key words and definitions

Ratio – A **ratio** shows the relative sizes of two or more values.

Direct proportion – There is a **direct proportion** between two values when one is a multiple of the other.

Inverse Proportion – a relation between two quantities such that one increases in proportion as the other decreases.

Simplify – To **simplify** a **ratio** means to reduce it to its simplest form. In order to do this you need to find the highest common factor for both terms in the **ratio.**

Highest common factor – the highest number that can be divided exactly into each of two or more numbers.
"6 is the highest common factor of 12 and 18"

Simplify ratio

Ratios can be fully **simplified** just like fractions.

To simplify a ratio, divide all of the numbers in the ratio by the same number (**highest common factor**) until they cannot be divided any more.

Simplify: 6 : 12

Divide both by 6

1 : 2

Write in the form 1:n

When asked to write a ratio in the format 1 : n, you need to **divide BOTH sides** by the ratio where the **1** is.

Write 7 : 21 in the ratio 1: n

7 : 21 divide both sides by 7

1 : 3

North East Learning Trust

Share in a given ratio

Monty and Mosaurus get A TOTAL of £72 pocket money.

They share it in the ratio 5 : 3

How much do they each get?

- **Add the ratios: 3 + 5 = 8**
- **Divide 72 by 8 (72 ÷ 8 = 9)**
  Each ONE portion is worth £9

Monty has 5 portions

5 x 9 = £45

Mosaurus has 3 portions

3 x 9 = £27

In a school the ratio of boys to girls is 9 : 4.

There are 270 boys in the school.

How many students are there in the school altogether?

Divide the total number of boys by the boy's ratio

270 ÷ 9 = 30

This gives the number for 1 'portion'

Girls

4 x 30 = 120

Total = 270 + 120 = 390

Recipes

A recipe for 6 people uses 900g of mince. How much mince is needed for

a 12 people

F : M

6 : 900g

12 : 1800g

×2 ×2

b 3 people

F : M

6 : 900g

3 : 450g

÷2 ÷2

c 9 people?

6 people + 3 people = 9 people

900 + 450 = 1350g

Exchange rates

The exchange rate is:

£1 buys $2.12

Find how many dollars ($) can be bought for £1500

£1 = $2.12

×1500 ×1500

£1500 =

$ .....

Maps and scales

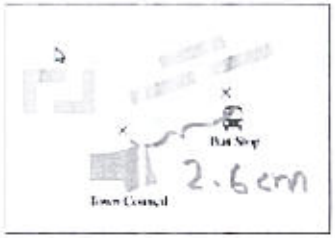
6. Each diagram is part of a map. Find the actual distance between the two places for each map. Give your answers in metres.

(a) Scale 1 : 12 500

1 cm : 12 500cm

2.6 cm : 32 500 cm

32 500cm is 325 m



Inverse proportion

Best seen with an example .... usually builders!

If it takes 2 builders 10 days to dig a hole, how long will it take 1 builder?

B D

2 : 10 ×2

÷2 1 : 20

Hegarty Maths Links

Simplify ratio - 329

Write in the form 1:n - 331

Share in a given ratio – 332, 333, 334

Recipies – 739, 740, 741, 742

Exchange rates – 707, 708

Maps and scales – 864, 865, 866, 867, 868

Inverse proportion - 342

Year 8 Topic 8 Ratio Student Knowledge Organiser

Simplify ratio

1) Simplify 16 : 8
2) Simplify 11 : 22
3) Simplify 24 : 12
4) Simplify 50p : £2.50
5) Simplify 4 : 8 : 12
6) There are 32 pupils in a class. 20 of them are girls. What is the ratio of boys to girls in its simplest form?

Write in the for 1:n

The ratio 20 minutes to 1 hour can be written in the form 1 : n.

Find the value of n.

The scale 1 cm represents 25 m can be written in the form 1 : k.

Find the value of k.

Ratio – sharing

1) Paul is making grey paint. He mixes black and white paint in the ratio 1: 3. He makes 35 litres of grey paint. How much white paint does he use?
2) The ratio of adults to children in the sports club is 5 : 2. There are 120 adults in the club. How many children are there?
3) Tim, Shula and Carol share the running costs of the car in the ratio 1 : 2 : 3. Last year it cost £1860 to run the car. How much did Carol pay?

Proportion - recipes

Here is a list of ingredients for making **10** Flapjacks.

Ingredients for 10 Flapjacks
80 g rolled oats
60 g butter
30 ml golden syrup
36 g light brown sugar

Work out the amount of each ingredient needed to make **15** Flapjacks.

Proportion - inverse

A farmer has enough food for 200 chickens for 20 days. He buys 50 more chickens. How long will the food now last?

Apply your knowledge

400 g of raspberries and 300 g of strawberries cost a total of £7.46
500 g of strawberries cost £4.10

Work out the total cost of 200 g of raspberries and 200 g of strawberries.

Colin, Dave and Emma share some money.

Colin gets $\frac{1}{10}$ of the money.

Emma and Dave share the rest of the money in the ratio 3 : 2

What is Dave's share of the money?

North East Learning Trust

Pacifism: the belief of people who refuse to take part in war and any other form of violence.
Peacemaker: a person who works to establish peace in the world or in a certain part of it.
Peacemaking: the action of trying to establish peace.

Reasons why someone might become a **pacifist**:
- Religion
- Politics
- Anti- Government

The United Nations is an international organization founded in 1945. It is currently made up of 193 Member States. The mission and work of the United Nations is to **work towards a better future for everyone** around the world, ensuring human rights are upheld. They also focus on economy, culture and health. Countries will gather to discuss these matters.

Jihad is a concept within Islam, and Jihad means 'to struggle/strive'. The Jihad is split into the **Greater Jihad which refers to the personal struggles** that Muslims go through in their lives (to be a good person, and ignore temptation). Then there is the **Lesser Jihad, which means to strive to resist evil in the world and defend Islam** (to fight against injustices and stand up for Islam in times when the religion is under threat). The media often uses the term 'jihad' incorrectly.

Politics
Money/Economy
Causes of conflict
Power imbalance
Religion
Lack of resources

Do religions bring conflict or harmony?

Human rights are the **basic rights and freedoms that belong to every person in the world**, from birth until death. They apply regardless of where you are from, what you believe or how you choose to live your life.

Nuclear weapons: weapons that work by a nuclear reaction, they devastate huge areas and kill large numbers of people.
Weapons of mass destruction: weapons that can kill large numbers of people and/or cause great damage.
Chemical weapons: weapons that use chemicals to poison, burn or paralyse humans and destroy the natural environment.
Biological weapons: weapons that have living organisms or infective material that can lead to disease or death.

The Just War Theory is a Christian theory that states when it is morally okay to go to war. There are 6 different conditions that must be met in order for it to be justified that a country goes to war. The Just War Theory understands that ending a human life is wrong, but that countries have a right to defend citizens. Sometimes, both of those ideals contradict each other...

Conditions
The just war must have a cause or moral reason like defending a nation under attack or a war against terror.
There must be a reasonable chance of success – the good must outweigh the bad.
The war must be fought with the intention to establish good or correct evil.
A just war should be controlled by a legal recognised authority, such as government.
In a just war only sufficient force must be used and civilians must not be involved.
The war must be a the last resort (after negotiations have been tried and failed).

What does it mean to live as a Sikh in Britain today?

Commitment through the Khalsa.

The Khalsa was started by Guru Gobind Singh and mebers of the khalsa are called upon to fight injustice. Part of this commitment is wearing the 5Ks, including the turban. Sikhs within the Khalsa wear their turban as a symbol of their religion and are proud to do so. Sikhs support those who are oppressed and are encouraged to selflessly serve others as part of Sewa.

What diversity is there within Sikhism?

Mainstream Sikh's believe that authority comes from the Guru Granth Sahib (their holy book). Nirankari Sikhs accept authority from a living guru.

'Sikhi' is an accurate name for the beliefs and life of Sikh people - the word 'Sikhism' was coined by the British Raj.

Sikhs rejected the caste system in India that came from Hindu's, which meant that the caste you were born into dictated what opportunities you had.

What is Sewa?

Sewa is selflessly serving others. This means helping others without expecting anything in return. An example of Sewa would be the Langar meal – donating to; preparing food or serving food.

What is Sangat?

Sangat refers to the Sikh community. This could be when people gather to sing the praise of the Lord, or to talk about Him. Sangat helps Sikhs to achieve liberation.

Cybersecurity – Year 8 Student Knowledge Organiser

What is Cyber Security?

Protecting networks, computers, programs and data from attack, damage or unauthorised access through the use of technologies, processes and practices.

Keywords

Hacking – Accessing information not owned without permission of the owner.

Data – Raw facts and figures.

Information – Data that has been processed and given meaning.

Malware – Malicious software. A program that has been downloaded onto a device without consent.

Social Engineering - Manipulating individuals so they give away personal information.

Network – A group of two or more computers that are connected via the internet.

Cybercrime - Also known as computer crime – a crime committed using an internet device.

Laws

Computer Misuse Act – Protects personal data held by organisations from unauthorised access including hacking.
Data Protection Act – Law in place to prevent people or organisations from holding and using inaccurate information about people.

Social Engineering

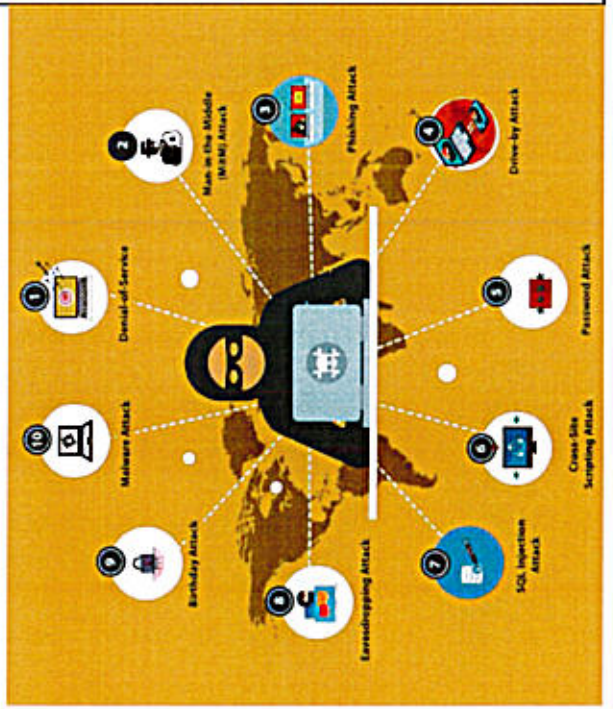
Blagging – inventing a scenario to target someone into giving out information.
Phishing – sending emails pretending to be from legit companies to get information of an individual.
Shouldering – observing a person's private info over their shoulder. For example, at an ATM.
Name Generator attacks - an attack in which the victim is asked in an app or social media post to combine a few pieces of information or complete a short quiz to produce a name. Attackers do this to find out key pieces of information that can help them to answer the security questions that protect people's accounts.

Methods to detect and prevent cyber attacks

Penetration testing – used to find security weaknesses by attempting to access resources without knowledge of usernames, passwords etc.
Firewalls – device used to monitor incoming and outgoing traffic and decides whether to block it.
Anti-malware software – prevents malware from entering.
User authentication – users must be verified before they connect to a network.
CAPTCHA – are you a robot?
Password systems – ensures passwords are strong.
Biometric measures – For example, using your fingerprint to access a smartphone.

Cyber Attacks

Brute force attack - A brute force attack tries every combination of letters, numbers and symbols until it identifies the password.
Denial of Service (DDoS) – Floods a server with so many requests that it cannot process them and breaks them down.
Botnet - A large collection of malware-infected devices used to perform an attack or to exploit known weaknesses in a system.
Malware:
Virus – installed on your computer without your permission with the intention to do harm. Spread through email attachments or file downloads.
Trojan – Pretends to be harmless but attacks your computer. It is spread by emails.
Spyware – Gathers information about a user without them knowing.
Ransomware – Software that is designed to block access to a computer until money is paid.



Knowledge Organiser Forces – Forces

1. Key Words!

Equilibrium: State of an object when opposing forces are balanced.
Deformation: Changing shape due to a force.
Linear relationship: When two variables are graphed and show a straight line which goes through the origin, and they can be called directly proportional.
Newton: Unit for measuring forces (N).
Resultant force: Single force which can replace all the forces acting on an object and have the same effect.
Friction: Force opposing motion which is caused by the interaction of surfaces moving over one another. It is called 'drag' if one is a fluid.
Tension: Force extending or pulling apart.
Compression: Force squashing or pushing together.
Contact force: One that acts by direct contact
Fluid: A substance with no fixed shape, a gas or a liquid.
Pressure: The ratio of force to surface area, in N/ m2, and how it causes stresses in solids.
Upthrust: The upward force that a liquid or gas exerts on a body floating in it.
Atmospheric pressure: The pressure caused by the weight of the air above a surface.

2. Forces

Contact forces are forces that act between two objects that are physically touching each other. Examples of contact forces include: reaction forces, tension, friction and air resistance.

Non-contact forces are forces that act between two objects that are not physically touching each other. Examples of non-contact forces include: magnetic, electrostatic and gravitational forces.

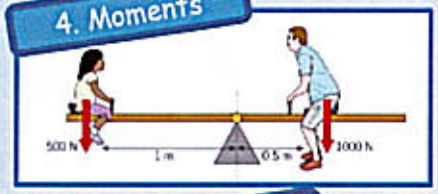
When two or more forces act on an object, the resultant force can be found by adding up the individual forces in opposite direction.

In the example below there is 60N left and 100N right.
We calculate the resultant force by 100-60 = 40 to the right

3. Friction

Friction is a **contact force** and it vcan be useful or unhelpful. For example friction between tyres and the ground stops us skidding but ff you do not lubricate your bike regularly with oil, the friction in the chain and axles increases. Your bike will be noisy and difficult to pedal. Friction always works to slow something down. It can also be known as drag, water resistance (when in water) or air resistance (when in air).

4. Moments



The turning effect of a force is called a **moment**
Force x distance on the right (1000N x 0.5m = 500Nm)
Force x distance on the left (500N x 1m = 500Nm)
The forces are equal, so the see-saw is balanced

5. Pressure and stress on a surface

Fluid pressure (N/m2) = Force (N) / Area (m2)

Example: A force of 20 N acts over an area of 4 m^2. Calculate the pressure. 20 N ÷ 4 m^2 = 5 N/m^2
Notice that the unit of pressure here is N/m^2 (newtons per square metre). Sometimes you will see another unit being used. This is called the **pascal** and it has the symbol Pa.

If you walk through snow, you usually sink into it. This is because your shoes have a small surface area. Your weight is only spread out over a small area, so the pressure on the snow is high. However, you will not sink so far into the snow if you are on skis. This is because your weight is spread out over a greater surface area, so the pressure on the snow is low.

6. Pressure in liquids and gases

A fluid is a substance with no fixed shape – a gas or a liquid.
Liquid pressure acts in **all directions** – liquids are **incompressible.**
Upthurst acts on objects that are floating or submerged. If the force hitting the bottom of an object in water is more than the air above the object, then it will float due to the resultant force.

You increase the pressure of a gas by **reducing the area** it is in, therefore squashing the particles closer together. **Heating** a gas will also increase the pressure.

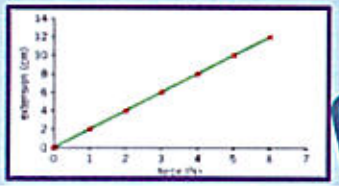
Atmospheric pressure is pushing down on you all the time, but your body is pushing gases and liquids out which balances it and therefore you don't feel it.

Atmospheric pressure decreases with height, and liquid pressure increases with depth.

7. Hooke's law

The amount an object is stretches is called **extension.** A bungee cord will stretch when the person falls and bring them back up when it has reached its **limit.**

An object obeys **Hooks law** when the force and extension are **directly proportional** – this means when one **doubles** the other **doubles**



Further Reading

Friction	https://www.youtube.com/watch?v=n2gQs1mcZHA
Moments	https://www.youtube.com/watch?v=22VGQM1jCn8
Pressure, Liquids and Gases	https://www.youtube.com/watch?v=yP9usmMpQeQ
Hooke's Law	https://www.youtube.com/watch?v=zJs27xNdKOM

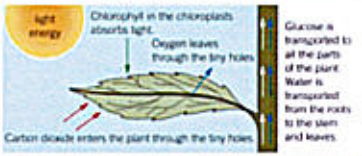
Knowledge Organiser - Year 8 - Science - Photosynthesis

1. Key Words

Fertilisers: Chemicals containing minerals that plants need to build new tissues.
Photosynthesis: A process where plants and algae turn carbon dioxide and water into glucose and release oxygen.
Chlorophyll: Green pigment in plants and algae which absorbs light energy.
Stomata: Pores in the bottom of a leaf which open and close to let gases in and out.
Iodine: A chemical used to test for the presence of starch.

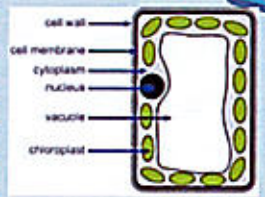
2. Photosynthesis

Plants make food using photosynthesis. This needs light, carbon dioxide and water. It produces glucose, and oxygen as a by-product. Leaves are adapted to carry out photosynthesis. The glucose produced can be used for: plant energy storage, building new plant material or producing other types of food e.g. proteins or fats.



3. Leaves

Structure of a leaf
Green (chlorophyll to absorb sunlight)
Thin (allow gases to diffuse in and out easily)
Large surface area (absorb as much sunlight as possible)
Veins (phloem and xylem)

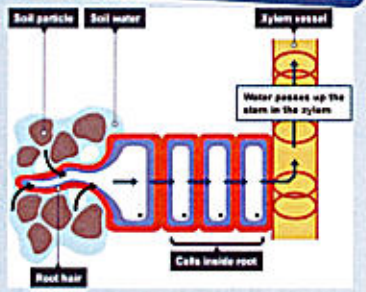


Adaptation	Function
Thin	Provides a short distance for carbon dioxide to move by diffusion into the leaf
Contains chlorophyll	Absorbs light
Stomata	Allows carbon dioxide to move by diffusion into the leaf
Guard cells	To open and close the stomata depending on the conditions
Network of tubes (xylem and phloem)	To transport water (xylem) and food (phloem)

4. Plant roots and minerals

A plant's roots sit below the soil and the stem grows above it.
The roots of a plant take up water and nutrients from the soil. They also anchor the plant to the ground and keep it steady. The structure of the root helps with this.

The root hairs are where most water absorption happens. They are long and thin so they can penetrate between soil particles and they have a large surface area for absorption of water.



Magnesium ions and nitrate ions are needed by plants. A plant will not grow well if it cannot get enough of these ions, and it will show symptoms of **mineral deficiency**.

Nitrates (contain nitrogen) - for healthy growth
Phosphates (contain phosphorus) - for healthy roots
Potassium - for healthy leaves and flowers
Magnesium - for making chlorophyll

5. Testing for starch and oxygen


Testing leaves for starch

You can collect the gas produced by a plant and test it with a glowing splint. If the splint relights, the gas is oxygen.

1. Heat a plant leaf in boiling water for 30 seconds (this stops its chemical reactions)
2. Heat it in boiling **ethanol** for a few minutes (this removes most of its colour)
3. Wash with water and spread onto a white tile
4. Add iodine solution from a dropping pipette
5. If starch is present, iodine turns a blue black colour

Further Reading

Photosynthesis	https://www.bbc.co.uk/bitesize/articles/zn4sv9q
Structure of a leaf	https://www.bbc.co.uk/bitesize/articles/z6btng8
Investigating photosynthesis	https://www.bbc.co.uk/bitesize/articles/z6btng8

Knowledge Organiser – Year 8 – Science – Energy and Reactions

1. Key Words!

Catalysts: Substances that speed up chemical reactions but are unchanged at the end.
Exothermic reaction: One in which energy is given out, usually as heat or light.
Endothermic reaction: One in which energy is taken in, usually as heat.
Chemical bond: Force that holds atoms together in molecules.
Fuel: Stores energy in a chemical store which it can release as heat.
Chemical reaction: A change in which a new substance is formed.
Physical change: One that changes the physical properties of a substance, but no new substance is formed.
Reactants: Substances that react together, shown before the arrow in an equation.
Products: Substances formed in a chemical reaction, shown after the reaction arrow in an equation.
Conserved: When the quantity of something does not change after a process takes place.

2. Thermal Decomposition

Some chemical reactions need energy to start them off. This energy can be in the form of heat, light or electricity. When you use energy to split up compounds they are **decomposed**. Some compounds break down when heated, forming two or more products from one reactant. This type of reaction is called **thermal decomposition**. For example, copper carbonate breaks down easily when it is heated:

copper carbonate → copper oxide + carbon dioxide

$CuCO_3 \rightarrow CuO + CO_2$

3. Fire Triangle

If one of the sides of the fire triangle is removed, a fire will not start, and a fire that is already burning will go out. Fire-fighting relies on this principle. The fire will go out when the fuel runs out, but it is often unsafe to leave a fire that long

Heat: A source of heat is required in order for ignition to occur, and different materials have different 'flash points'
Fuels: A fire cannot begin if there is no material to burn. Homes and businesses are full of flammable materials, such as paper, oil, wood and fabrics.
To sustain the combustion reaction, oxygen is needed, as it reacts with the burning fuel to release heat and CO2. Earth's atmosphere consists of 21% oxygen, so there is plenty available to trigger a fire if the other two components are present.

4. Combustion

Complete Combustion:
Hydrocarbon fuels are made from the elements carbon and hydrogen.
When hydrocarbons burn they use oxygen and form carbon dioxide and water, and release heat energy. We can show the reaction using a word equation.

methane + oxygen → carbon dioxide + water

If there is plenty of air, **complete combustion** happens:
the hydrogen atoms combine with oxygen to make water vapour, H2O
the carbon atoms combine with oxygen to make carbon dioxide, CO2
the maximum amount of energy is released

Incomplete Combustion:
If there is not enough oxygen available, carbon monoxide or even soot is produced during **incomplete combustion**.

5. Endothermic Reactions

Endothermic reactions take in energy from the surroundings. The energy is usually transferred as heat energy, causing the reaction mixture and its surroundings to get colder. The temperature decrease can also be detected using a thermometer.
Some examples of endothermic reactions are:

Thermal decomposition

Cooking an egg

FUN FACT!
Endothermic reactions can be used for everyday purposes. For example, certain sports injury cold packs use endothermic

6. Exothermic Reactions

Exothermic reactions transfer energy to the surroundings. The energy is usually transferred as heat energy, causing the reaction mixture and its surroundings to become hotter. The energy level decreases in an exothermic reaction. This is because energy is given out to the surroundings.

Some examples of exothermic reactions are:

Making an ice cube.
Snow forming in clouds.
Burning of a candle.
Rusting of iron.
Burning of sugar.

7. Law of Conservation of Mass

In a chemical reaction, the mass of the reactants is always the same as the mass of the products. This is because atoms are not created or destroyed in chemical reactions; they are just rearranged into different compounds.

8. Further Reading

Fire Triangle	https://www.youtube.com/watch?v=URIyms6XGGk
Physical and Chemical Changes	https://www.youtube.com/watch?v=x49BtB5dOwg
Combustion	https://www.youtube.com/watch?v=cRnpKjHpFyg
Decomposition	https://www.youtube.com/watch?v=o9ArhzJrQNY
Endothermic and Exothermic Reactions	https://www.youtube.com/watch?v=eJXL0IrbtqE

Year 8 - Knowledge Organiser - Light Waves

1. Key Words!

Incident ray: The incoming ray.
Reflected ray: The outgoing ray.
Normal line: From which angles are measured, at right angles to the surface.
Angle of reflection: Between the normal and reflected ray.
Angle of incidence: Between the normal and incident ray.
Refraction: Change in the direction of light going from one material into another.
Absorption: When energy is transferred from light to a material.
Scattering: When light bounces off an object in all directions.
Transparent: A material that allows all light to pass through it.
Translucent: A material that allows some light to pass through it.
Opaque: A material that allows no light to pass through it.
Retina: Layer at the back of the eye with light detecting cells and where an image is formed.

Light travels as transverse waves and faster than sound. It can be reflected, refracted and dispersed. Ray diagrams show what happens to light in mirrors and lenses. Eyes and cameras detect light. When drawing ray diagrams, light travels in STRAIGHT LINES so should always be drawn with a SHARP PENCIL and a RULER!!!

2. Reflection

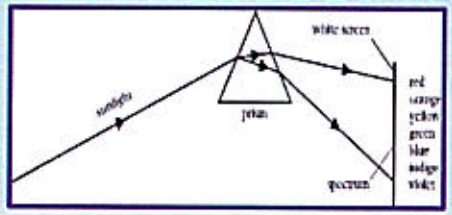
The LAW of REFLECTION!
Angle of incidence = Angle of Reflection

Good reflectors are...
Light colours flat plane shiny

Light waves change speed when they pass across the boundary between two substances with a different **density**, such as air and glass. This causes them to change direction, an effect called **refraction**.

3. Refraction

As light enters a more dense medium it slows down and bends TOWARDS the normal. As light leaves a more dense medium it speeds up and bends AWAY from the normal.

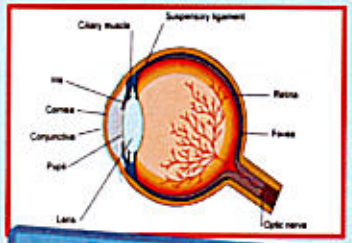


4. Colours

White light consists of seven colours (ROYGBIV)
We see colour as 6/7 are absorbed and one is reflected.

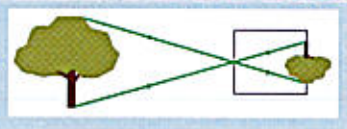
Filters only allow certain wavelength (colours) through. The others are absorbed.
Two different filters in front of each other = Black as all light absorbed

5. The Eye



The organ we use for seeing!

We see objects because light reflects from an object INTO the pupil.
Coloured part = IRIS
PUPIL = black middle bit
LENS focusses light onto the RETINA.
Retina consists of RODS (Shades) and CONES (Colours)

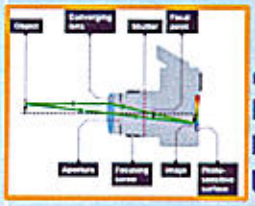


A pinhole camera consists of a box or tube with a translucent screen at one end and a tiny hole (the pinhole) made in the other end. Light enters the box through the pinhole and is focused by the pinhole onto the translucent screen. The image is upside down and smaller than the object.

6. Vision Problems

Times people may suffer from damage to their eyes and/or sight. Sometimes people are born with these problems and sometimes these problems can develop. Some common eye related problems are: blurred vision (which can be corrected using glasses with lenses, contact lenses or laser eye surgery), age related sight loss, cataracts, colour blindness.
Lots of these conditions are treatable, but it is important to remember to protect your eyes where possible for example, not looking directly at bright lights and wear ng sunglasses.

7. The camera



Cameras are devices that focus light from an object onto a **photo-sensitive material** using a lens. In an old-fashioned camera, the photo-sensitive material was camera film. When the film absorbed light, a chemical change produced an image in the film, called the 'negative'. This was used to produce a photograph on photo-sensitive paper.

In a modern camera or the camera in a mobile phone, the photo-sensitive material produces electrical impulses, which are used to produce an image file. This can be viewed on the screen, or its information sent to a printer.

8. Further Reading

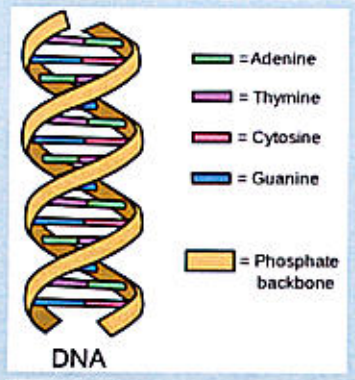
Colour Spectrum	https://www.youtube.com/watch?v=Gf33ueRXMzQ
Reflection and Refraction	https://www.youtube.com/watch?v=BL2MtP7j-xk
The Eye	https://www.youtube.com/watch?v=syaQgmxb5i0

Knowledge Organiser – Year 8 – Genes

1. Key Words!

Population: Group of organisms of the same kind living in the same place.
Natural selection: Process by which species change over time in response to environmental changes and competition for resources.
Extinct: When no more individuals of a species remain.
Biodiversity: The variety of living things. It is measured as the differences between individuals of the same species, or the number of different species in an ecosystem.
Competition: When two or more living things struggle against each other to get the same resource.
Evolution: Theory that the animal and plant species living today descended from species that existed in the past.
Inherited characteristics: Features that are passed from parents to their offspring.
DNA: A molecule found in the nucleus of cells that contains genetic information.
Chromosomes: Thread-like structures containing tightly coiled DNA.
Gene: A section of DNA that determines an inherited characteris

2. DNA



DNA: A molecule found in the nucleus of cells that contains genetic information.
It stands for deoxyribonucleic acid.
It is a chemical made up of two strands. The strands are twisted into a spiral shape called a double helix.
The strands are held together by bonds between base pairs.

The structure of DNA was discovered using the work of several scientists.

Rosalind Franklin used x-rays to make images of DNA.

Watson and Crick used information from one of these images to describe the structure of DNA. Wilkins supported their model.

3. Competiton and adaptations

In order to survive, plants and animals compete for different things...

Living organisms have special features known as adaptations. These are features which help them to survive in a particular environment, even when the conditions are extreme.

Small ears- prevents heat loss

Camouflage – helps them hide from prey

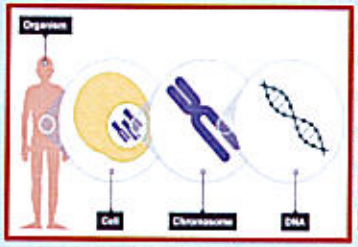
Thick fur and layer of blubber – provides insulation

Sharp claws- helps grip onto ice and catch prey

Large, flat feet – prevents sinking in the snow

4. Inheritance

Chromosomes are long strands of coiled DNA. They are found in the nucleus of cells. A section of a chromosomes that codes for a characteristics such as eye colour is called a gene. One copy of each of your genes is called your genome.

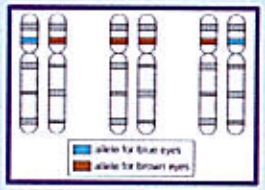


During sexual reproduction gametes fuse. In human sperm and egg cells each carry 23 chromosomes. When they fuse a fertilised egg cell is created with 23 pairs of chromosomes.

Each pair contains a chromosome from each parent which is why offspring may look similar but never identical to their parents.

5. Genetics

For each characteristic you have two genes, one from your mother and one from your father. Each gene has a different form.
These are called alleles.
Alleles can be dominant or recessive.
The combination of these alleles determines your characteristic.



The dominant allele for eye colour is brown.
To have brown eyes you need to have at least one dominant allele.
To have blue eyes you must have two recessive alleles

If we know the genotype (the alleles) that parents have, we can predict the inheritance of their offspring using a Punnett square.

Mother \ Father	B	b
b	Bb	bb
b	Bb	bb

This shows that 50% of the offspring would have brown eyes and 50% blue.

6. Further Reading

https://www.youtube.com/watch?v=vnktXHBvE8s
https://www.youtube.com/watch?v=sjeSEngKGrg
https://www.youtube.com/watch?v=GK_vRtHJZu4
https://www.youtube.com/watch?v=jphrpR9ffKA
https://www.youtube.com/watch?v=zwibgNGe4aY

Knowledge Organiser - Year 8 - Genes

7. Charles Darwin

Darwin went on an expedition around the Galapagos islands. Darwin noticed that on different islands the birds had different shaped beaks. He suggested this was because of the food they had available on each island was different and so the finches had adapted to their surroundings.

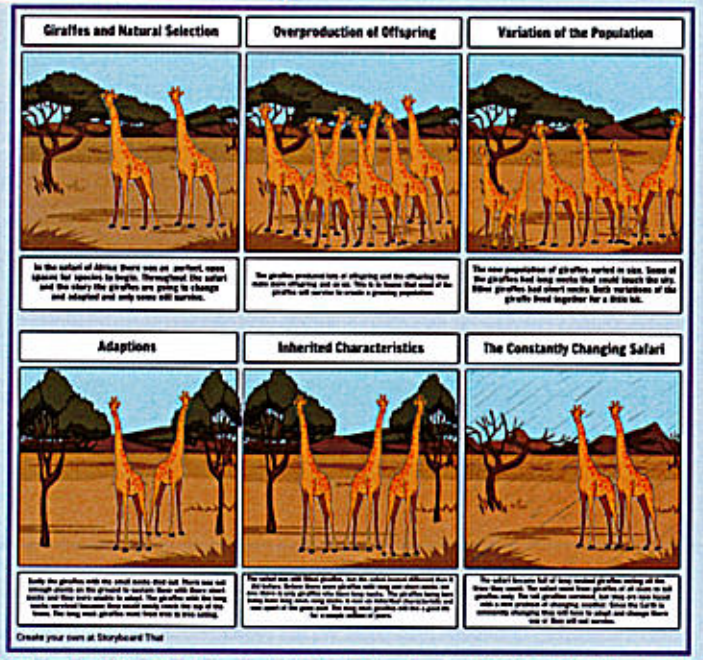
Darwin developed the theory of Natural Selection based upon his findings. At the same time a scientist called Alfred Wallace was developing his theory of evolution at the same time. They read each others work. Checking another scientist's work like this is called peer review.

Darwin's theory went against the idea that God created all organisms and was very controversial. His theory is now accepted by most due to evidence in the form of fossils, extinction of animals and antibiotic resistant bacteria.

8. Natural Selection

Natural selection is a process by which a species changes over time in response to changes in the environment, or competition between organisms, in order for the species to survive.

The members of the species with the most desirable characteristics are able to survive and reproduce to produce the **best-adapted** offspring. If a species is unable to adapt then it is at risk of becoming extinct.



9. Biodiversity

Biodiversity means having as wide a range of different species in an ecosystem as possible. It is important to conserve the variety of living organisms on Earth. Not only do we have moral and cultural reasons for conserving endangered species, but conservation:

- maintains the future possibility that plant species might be identified for medicines
- keeps damage to food chains and food webs to a minimum
- protects our future food supply

Conservation measures

Some species in Britain are endangered, including the skylark, red squirrel and grass snake. They could be helped by conservation measures such as:

- education programmes
- captive breeding programmes
- legal protection and protection of their habitats
- making artificial ecosystems for them to live in

10. Extinction

If a species is unable to adapt quickly enough to its environment, then it is at risk of becoming extinct.
This can happen for many reasons:

These are the key points of evolution by natural selection:

- Individuals in a species show a wide range of variation.
- Inherited variation is due to differences in their genes.
- Individuals with the features that are best suited to the environment are more likely to survive and reproduce.
- The genes that allow these individuals to be successful are passed to their offspring.
- Individuals that are poorly adapted to their environment are less likely to survive and reproduce. This means that their genes are less likely to be passed to the next generation.
- Over many generations these small differences add up to the new evolution of species.

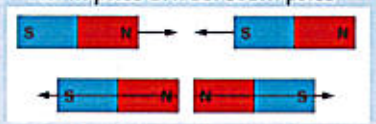
Knowledge Organiser – Year 8 – Magnetism

1. Key Words!

Electromagnet: A non-permanent magnet turned on and off by controlling the current through it.
Solenoid: Wire wound into a tight coil, part of an electromagnet.
Core: Soft iron metal which the solenoid is wrapped around.
Magnetic force: Non-contact force from a magnet on a magnetic material.
Permanent magnet: An object that is magnetic all of the time.
Magnetic poles: The ends of a magnetic field, called north-seeking (N) and south-seeking poles (S).

2. Magnetic materials

Magnets
A magnet has two magnetic poles, a north seeking pole and a south seeking pole.
- North poles repel north poles
- South poles repel south poles
- North poles attract south poles

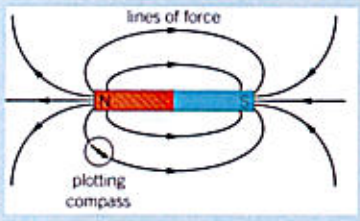


Not all metals are magnetic
There are four magnetic materials they are:
- Iron
- Steel
- Nickel
- Cobalt

I.CO.N.S

3. Magnetic fields

In a magnetic field there is a force on a magnet or a magnetic field. You can find a magnetic field using a plotting compass or iron fillings.
The force experienced depends on:
1. How strong the magnet is
2. How far away from the magnet the object is (the further away the weaker the force).



The arrow shows the direction on the magnetic field. It points out of the north and into the south. The field lines are closest together at the poles as this is where the magnetic field is the strongest.

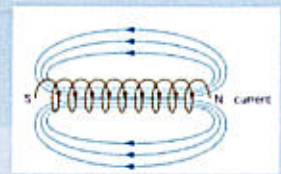
Permanent and induced magnets
A permanent magnet has it's own magnetic field and can attract and repel. Induced magnets experiences a force when in the magnetic field of a permanent magnet and will only attract.

4. The Earth

The Earth
The Earth has a magnetic field, it behaves as if there is a huge bar magnet inside it. People have used compasses to navigate for thousands of years. The needle on a compass is a magnetic material which points to the north pole.

5. Electromagnets

A wire with an electric current flowing through it has a magnetic field around it. The magnetic field around a single loop of wire isn't very strong. You can wind lots of loops together to make a coil, this is called an solenoid. If a current flows through a wire it is an electromagnet.

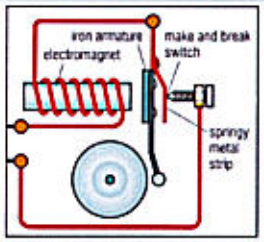


How to increase the strength of an electromagnet:
1. Increase the number of coils
2. Increase the current flowing
3. The core! A magnetic material for the core will make the electromagnet stronger

Remember the 3 Cs
Coil
Core
Current

Electromagnets are used in day to day life, they are used in circuit breakers, ringing bells, loud speakers and microphones to name a few.

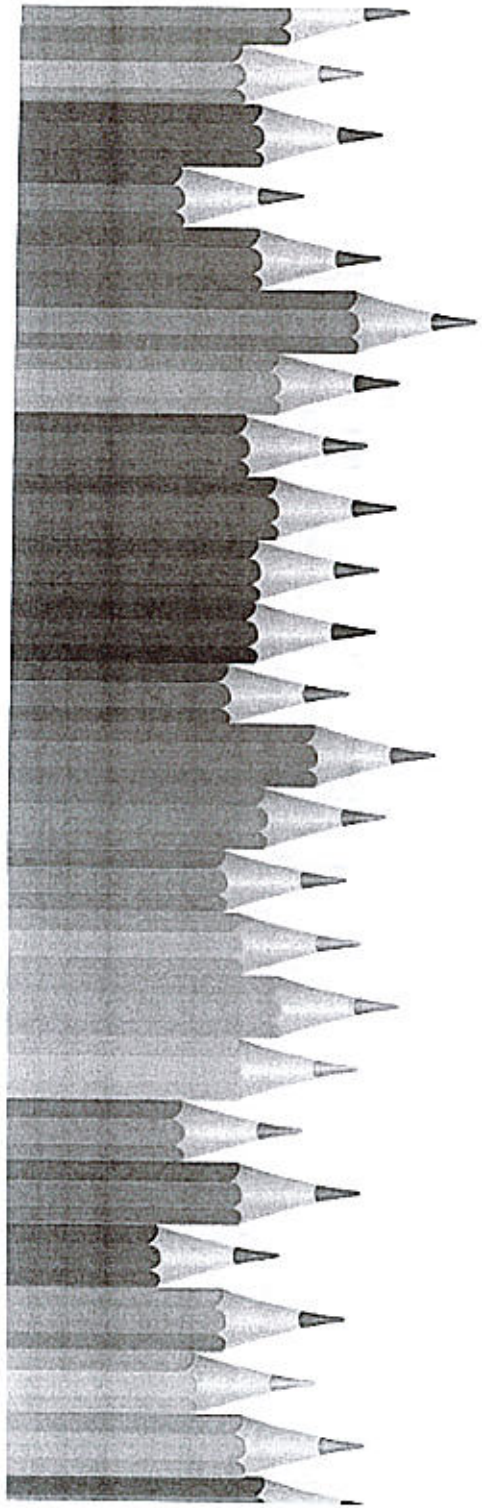
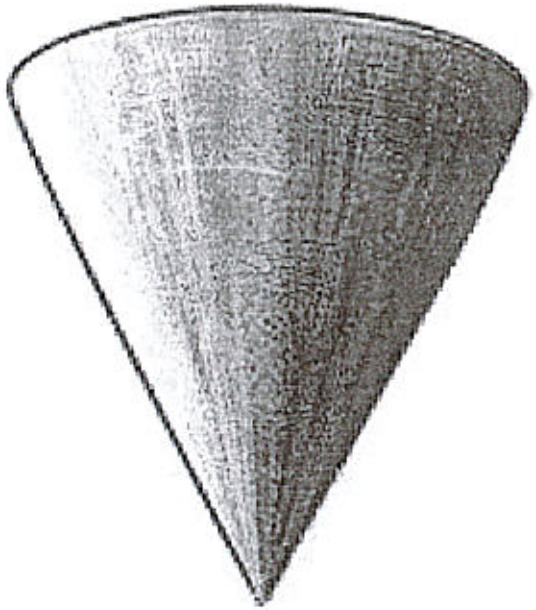
6. Using electromagnets

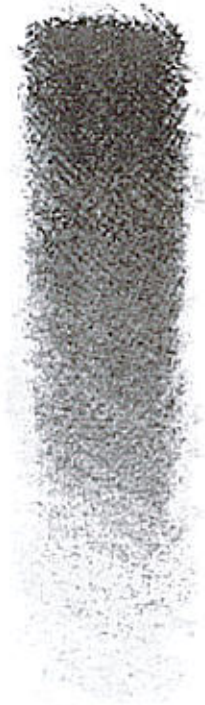
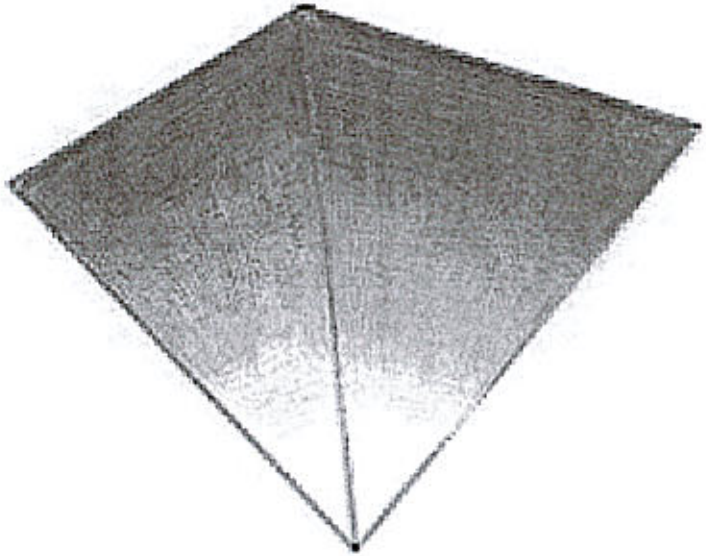
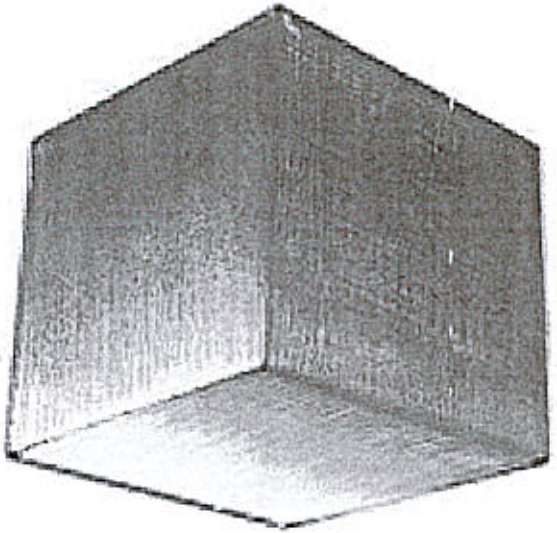
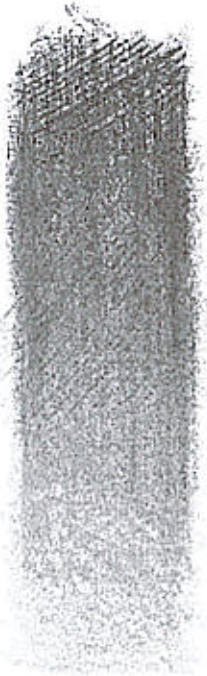


When the doorbell is pressed a switch is closed and current can flow through the wire.
The electromagnet attracts the iron armature.
The armature moves and breaks the circuit and no current flows. As the coil and core are no longer magnetic the springy metal strip returns to its original position and the bell rings once.
Now the circuit is complete again and the armature moves again.

7. Further Reading

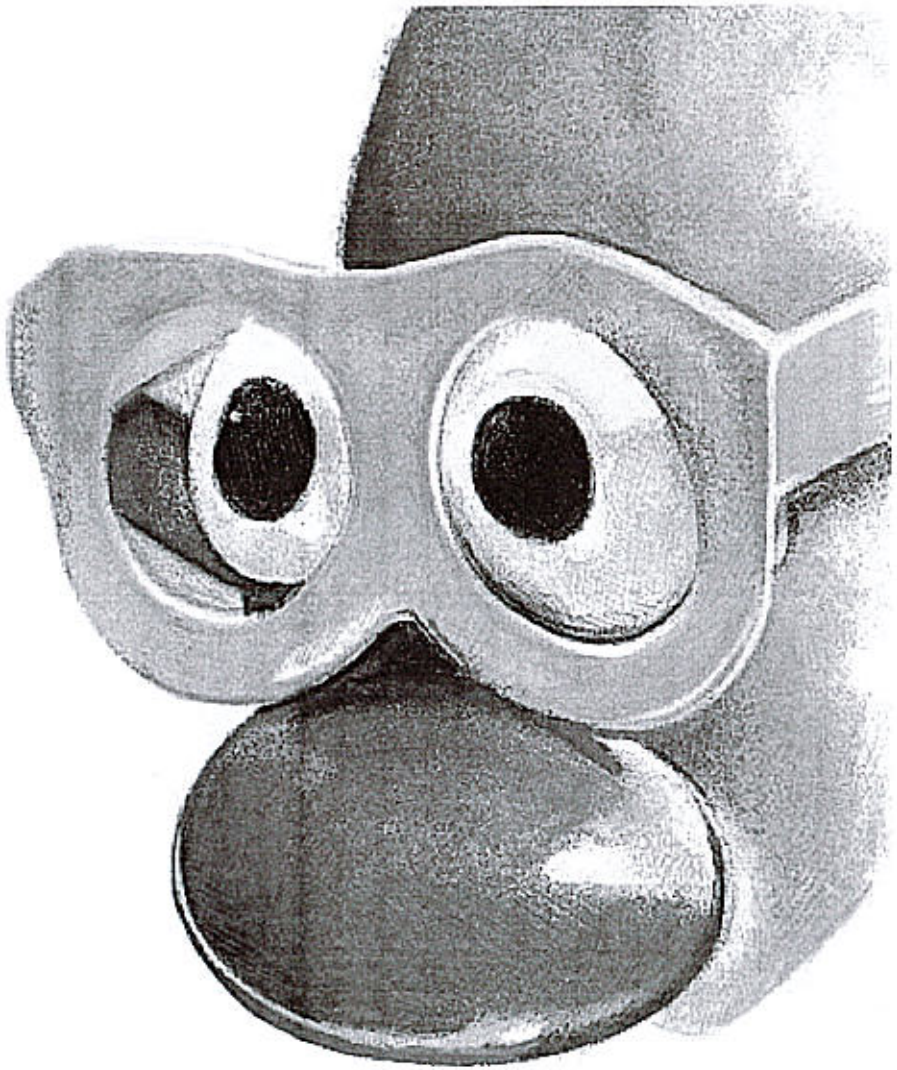
Electromagnets	
Electromagnetism and magnetism	https://www.bbc.co.uk/bitesize/guides/z3q8d2p/revision/1
Electromagnets and transformers	https://www.bbc.co.uk/bitesize/guides/zg43y4j/revision/1
Current and magnetic fields	https://www.youtube.com/watch?v=oEEYMhPY5tY
Brainiac electric fence	https://www.youtube.com/watch?v=-n1pSHzdahc
Magnets	https://www.youtube.com/watch?v=yXCeuSiTOug

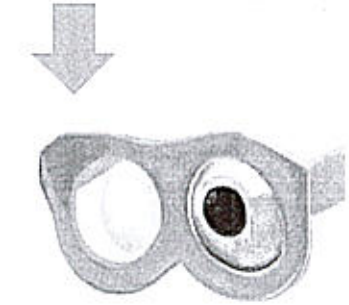



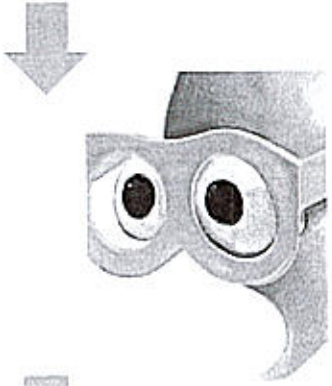





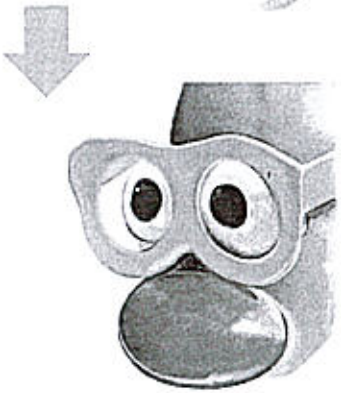
Art Design

TOYS
Year 8









Step 1 – Light pencil outline

To begin with, you will need to sketch out the shape of your object. You will need to make sure that you use light pencil to sketch outlines and basic shapes. You may want to use the grid method to help you draw your shapes accurately.

Step 2 – Building tonal values

Next, you will need to start applying tone. Start by applying light tonal values and gradually build these up using layering and different pressures with your pencil. Remember to use the correct line direction in order to show the shape of the object.

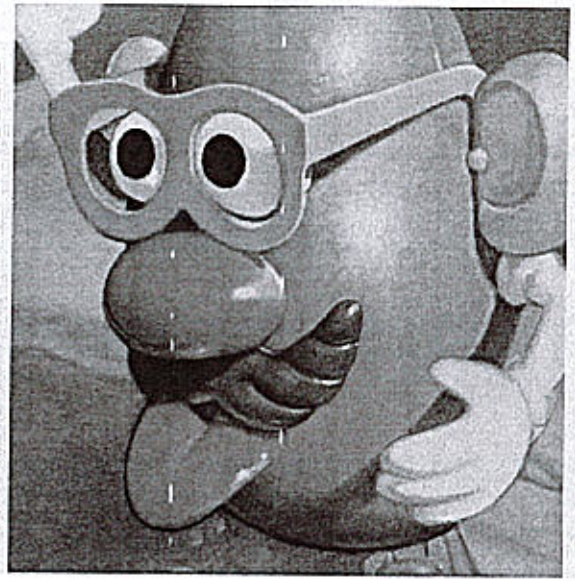
Step 3 – Mark-making & layering

To add texture and surface quality to your work you will need to combine and apply layers of mark-making types. Think very carefully about the line types you use and make sure that they follow the shape of the object

Step 4 – Shadows & highlights

Finally, you will need to think carefully about fine details. Using a rubber and an extra sharp pencil, add the small highlights and shadows to your drawing to make it look more realistic

Allan Innman



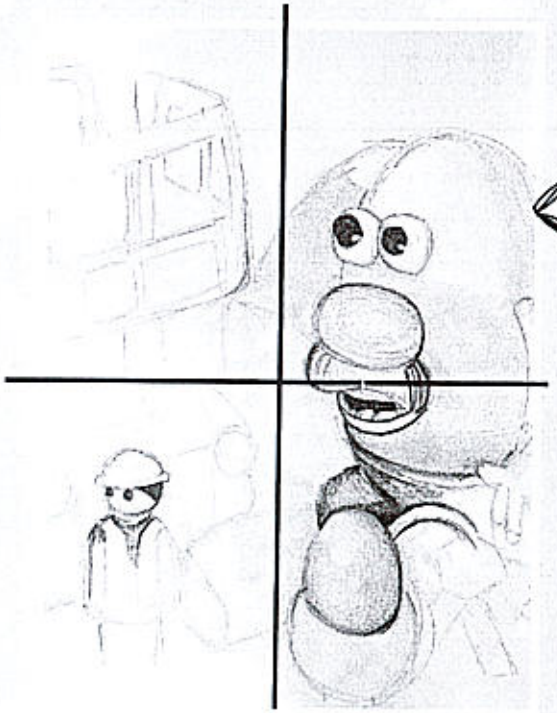
In my recent body of paintings, *Flights of Fancy*, I'm interested in conjuring moments of **make-believe and fantasy**, telling **whimsical** and **mysterious stories** derived from **ancient myths** and **comic book adventure stories**. In the paintings, **toys and figurines** are the main characters of the stories. They provide the action and tell the **narratives** central to the paintings. These **normally inanimate objects** spring to life in the paintings, just as they would in the mind of someone imagining a fantasy. The process of composing a painting begins with a particular toy or figurine and building a story around it. In essence I am **"playing"** with these objects again. Handling them and allowing them to interact with other characters and backgrounds evokes certain **nostalgia** of playing with my own toys as if I were still a child.

Allan Innman

Click me!

HERMITAGE STUDENT POD

Sound like an expert



SHAPE TONE TEXTURE DETAIL

Remember to follow the drawing stages to make sure that your drawing is as accurate as possible!

Use these sentence starters to sound like an expert and have a postcard sent home!

What is the subject of the work?
- The subject of the work is.....
- [Artist name] produces [media] based on the subject of.....

How is the work produced?
- The work is produced by....
- [Artist's name] produces their work by...

Why has the artist chosen to use these materials, techniques or processes?
- The artist has chosen to use these materials because...
- [Artist's name] has chosen to use these techniques and processes in order to...

Art Design TOYS Year 8

What will you learn?

Dive into the world of toys and character design. Develop your drawing skills by recording from observation using the drawing stages and grid method. Inspired by the exciting work of artist Allan Inman you will develop your knowledge of colour theory, looking closely at warm and cool colours. You will have the opportunity to apply your knowledge of drawing skills by experimenting with layering and blending techniques with coloured pencil in order to create your own creative outcomes

Click the links to read the stories

Reading
- TOY STORY READ ALONG.url

Education
- Illustration & Design - Sunderland University.url
- Textiles & Surface Design - Northern School of Art.url
- Comic & Concept Art - Leeds Arts University.url
- Fine Art - Northumbria University.url

Click the link to discover careers linked to this topic

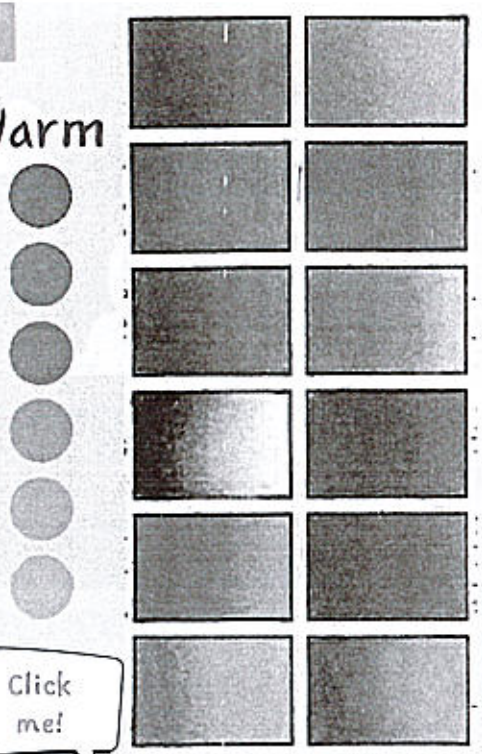
Careers http://www.creativejourneyuk.com
- **Illustrator**
- **Character design**
- **Textile design**
- **Printmaker**
- **Surface pattern designer**

Key Words
- Value
- Shape
- Scale
- Proportion
- Composition
- Overlap
- Light
- Dark
- Gradient
- Gradual
- Pressure
- Value
- Line direction
- 3 Dimensional
- Layer
- Blend
- Shadows
- Highlights
- Mark-making

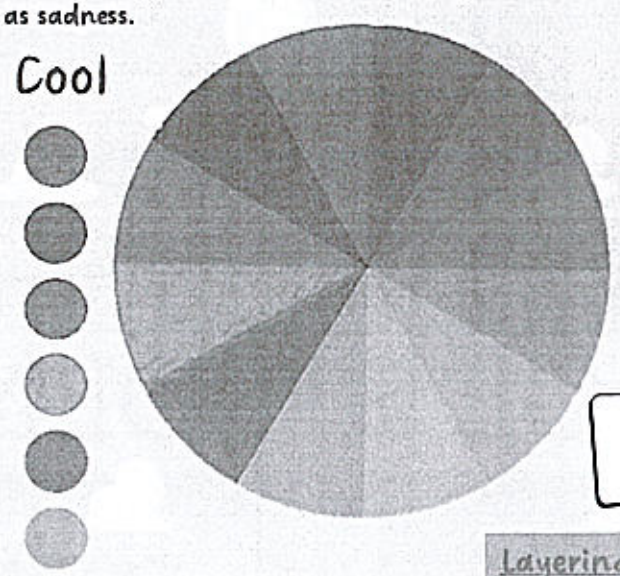
Colour theory - warm & cool colours.url

Warm colours include reds, oranges, yellows and browns and evoke a range of feelings from warmth and joy to anger and hostility. Cool colours are blues, greens, violets and greys and evoke feelings of calmness and serenity, as well as sadness.

Warm



Cool



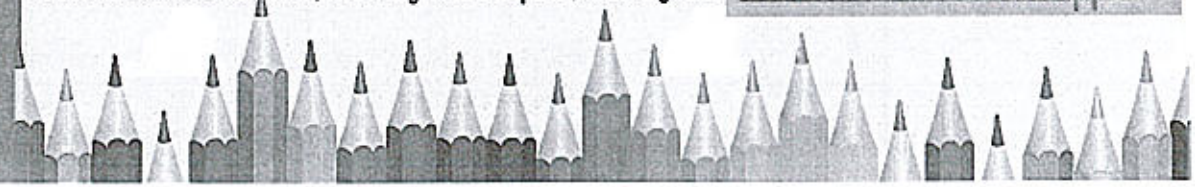
Click me!

Layering & blending coloured pencil.url

You can create a range of tones by using different pressure or layering with your pencil. Make sure that you start with your lightest tones first and work your way towards the darker tones. Remember to use the correct line direction, following the shape of the object.

Click me!

DRAWING RULES SKO.pptx



Music Through Time

The Baroque Era (1600-1750)

Baroque sounds FANCY, DECORATED and EXTRAVAGANT

- ORNAMENTS – decorations added to the melodies
- TERRACED DYNAMICS – either loud or soft
- INSTRUMENTS – mainly strings, simple woodwind (recorders) and trumpets and timpani for dramatic moments.
- HARPSICHORD ('tinkling' sound) plays the (BASSO) CONTINUO with cello to provide an accompaniment and support harmonies.

QUICK FACTS

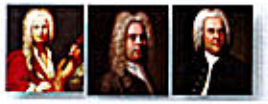
Dates : 1600-1750

Features of the music:

- Highly decorated melodies
- Harpsichord (an instrument used before the piano was invented)
- Dynamics mainly 'Forte' (loud) or 'Piano' (soft) – no in between or gradual changes
- Mainly string orchestras

Composers:

- Vivaldi, Handel and Bach



The Classical Era (1750-1810)

Classical music sounds BALANCED, ELEGANT, CHIC and ORGANISED

- BALANCED REGULAR PHRASES (4 and 8 bars)
- VARIETY IN DYNAMICS – wider range and use of *crescendo* and *diminuendo*
- INSTRUMENTS – bigger orchestra – clarinets added, piano invented (replaced harpsichord)

Dates:

- 1750-1810

Features:

- Chic, organised musical forms
- Piano
- Dynamics started to have crescendos etc.
- Strings, some woodwind, brass and percussion used

Composers:

- Mozart and Haydn

The Romantic Era (1810-1910)

Romantic music sounds EMOTIONAL, DRAMATIC and DESCRIPTIVE

- THEMES – much music based on an emotion, place, dreams, the supernatural or stories
- LEITMOTIFS – short melodies linked to a character or emotions
- BIG RANGE OF DYNAMICS - Very soft to very loud
- NATIONAL INFLUENCES – music influenced by folk music and national pride
- INSTRUMENTS – huge increase in size and range of orchestral instruments, e.g. Harps, Tuba, Piccolo, Bass Clarinet, with large range of percussion.
- Piano popular – solo piano pieces

Dates:

- 1810-1900

Features (what the music was like):

- All about feelings: dramatic, emotional, magical, mysterious
- Music was inspired by nature/art/books/poems/mythology
- Full range of **dynamics** (very soft to very loud) used
- Massive orchestras used
- Lots of percussion, piano still used lots
- Music was technically challenging (more difficult) to play (virtuoso)

Composers:

- Ludwig Van Beethoven (early)
- Frederic Chopin
- Franz Liszt
- Richard Wagner
- Guiseppe Verdi
- Pyotr Il'yich Tchaikovsky

+ many more!!!

The 20th Century 1900-

20th Century music has more VARETY and UNUSAL COMBINATIONS of moods, styles, textures, keys and harmonies.

- MINIMALISM – music which uses a lot of repetition, a limited range of musical ideas.
- DYNAMICS- may be extreme or subtle but often very detailed.
- TEXTURES – various, sometimes simple, sometimes complex
- MELODY may be clear or may be just fragments. TONALITY may be tonal or atonal (no key, weird).
- HARMONY – there may be clashing chords (dissonance) or notes which sound a bit "odd " to start with
- TEMPO may vary a lot or stay same
- TIMBRE & SONORITY – huge increase in size and extreme range of orchestral instruments.

Structures

Binary- **A B** (2 sections of music)

Ternary -**A B A1** (3 sections of music)

Rondo - **A B A C A** (many sections/always returns to section A)

General Music Terminology – Knowledge Organiser

Melody - the main tune

Ascending	Descending	Range	Conjunct	Disjunct
				
Going up in pitch.	Going down in pitch.	The difference between the highest and lowest note - wide or narrow	Moves up or down by step.	Moves in big leaps.

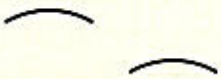
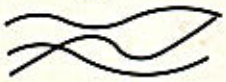
Articulation - how the notes are played

Legato	Staccato
	
Smooth and flowing.	Detached, spiky.

Dynamics - how loud or soft the music is played

Piano	Forte	Diminuendo	Crescendo
			
Quiet	Loud	Getting quieter	Getting louder

Texture - the layers of sound and how they fit together

Unison	Imitation	Monophonic	Polyphonic	Melody and Accompaniment
				
All doing the same thing at the same time	When one part copies another	A single voice or instrument	Different parts that interweave together	A main melody with all other parts in the background

Structure - the sections and how they are ordered

Intro	Contrasting section	Repeated section	Coda
The beginning section	A section that has new ideas in it	A section where you hear the same music again	The end section

Harmony - the chords used in a piece

Chord	Major	Minor
	Music which sounds 'bright'	Music which sounds 'dark'
Two or more notes played together	joyful, heroic, brave, excited	serious, sinister, angry, upset

Instrumentation - the instruments used

Orchestra	Rock Band	Vocal	String	Brass	Woodwind	Percussion
						Timpani Snare Drum Cymbal Tambourine Triangle Bass Drum
Strings, brass, woodwind and percussion instruments	Vocals, electric guitar, bass guitar, drum kit	Male and/or female singer	Violin, viola, cello, double bass	Trumpet, french horn, trombone, tuba	Flute, oboe, clarinet, bassoon, saxophone	

Rhythm - the pattern of notes against the beat

Beat	Note value	Time Signature
		
Steady pulse of the music	How long a note lasts	How many beats in a bar

Tempo - the speed of the music

Presto	Allegro	Andante	Adagio	Largo
				
Very quick	Quick	Walking pace	Leisurely	Slow and stately

Student Knowledge Organiser 8.3 – A comer

Adjective Agreement

Masculine Singular	Feminine Singular	Masculine Plural	Feminine Plural
delicioso	deliciosa	deliciosos	deliciosas
azul	azul	azules	azules
fuerte	fuerte	fuertes	fuertes
marrón	marrón	marrónes	marrónes
optimista	optimista	optimistas	optimistas

Irregular verbs

tener – to have		querer – to want	
tengo	I have	quiero	I want
tienes	you have	quieres	you want
tiene	he/she has	quiere	he/she wants
tenemos	we have	queremos	we want
tenéis	you have(pl)	queréis	you want (pl)
tienen	they have	quieren	they want

Making nouns plural

For most nouns, you just add 's'.
Nouns which end in a consonant, will need 'es'

Some nouns are irregular.
e.g. el pez – los peces

Using multiple tenses: Comer – to eat

Preterite	Present	Future
comí – I ate	como – I eat	voy a comer – I'm going to eat
comiste – you ate	comes – you eat	vas a comer - you are going to eat
comió – he/she ate	come – he/she eat	va a comer - he/she is going to eat
comimos – we ate	comemos - we eat	vamos a comer - we are going to eat
comistéis – you ate	coméis – you eat	vais a comer – you are going to eat
comieron – they ate	comen – they eat	van a comer – they are going to eat

Many words in Spanish have stress on the penultimate (second-last) syllable. If the word ends in a vowel or '_n_' or '_s_', no accent is needed on the stressed vowel.

lunes jueves joven examen abren

If a word with penultimate syllable stress ends in **any other consonant**, there is an accent on the stressed vowel:

fútbol difícil fácil útil árbol

Model Text

Normalmente desayuno a las ocho.	Normally I eat breakfast at 8am.
Como pan y bebo té con leche.	I eat bread and drink tea with milk.
Nunca bebo café. Pienso que es asqueroso.	I never drink coffee. I think that it's disgusting.
En el insti, como con mis amigos – la comida es bastante buena.	I eat lunch at school with my friends – it's quite good.
Ceno en casa con mi familia.	I eat dinner at home with my family.
Generalmente, mi madre prepara la comida, pero la ayuda a veces.	Usually, my mum prepares the meals, but I help her sometimes.
No como nada después de las ocho porque pienso que es malsano.	I eat nothing after 8pm because I think that it's unhealthy.
Me encantan comer verduras y beber agua.	I love vegetables and water
Bebo agua frecuentemente porque es sano.	I drink water regularly because it's healthy.
Odio el queso. En mi opinión es demasiado fuerte y muy mal.	I hate cheese. In my opinion it's too strong and it's really bad.
Ayer fui a un restaurante donde comí pizza. Fue deliciosa.	Yesterday I went to a restaurant where I ate a pizza. It was delicious.
En el futuro, me gustaría probar la comida española porque me encanta el pescado.	In the future I would like to try Spanish food because I love fish.

Sound like an expert

North East Learning Trust

Student Knowledge Organiser 8.3 – A comer

Key Questions	
¿Qué te gusta comer?	What do you like to eat?
¿Que no te gusta comer?	What don't you like to eat?
¿Por qué?	Why?
¿Qué comiste ayer?	What did you eat yesterday?
¿Qué vas a comer mañana?	What are you going to eat tomorrow?

Al restaurante español	At the Spanish restaurant
quiero	I want ...
la carta de bebidas	the drinks menu
la carta de dulces	the dessert menu
un batido de fresa	a strawberry milkshake
una cola	a coke
tapas	small plates of food
una ración de	a portion of
calamares	squid
croquetas	croquettes
gambas	prawns
jamón	ham
pan con tomate	tomato bread
patatas bravas	spicy potatoes
tortilla	Spanish omelette
Cuánto es, por favor?	How much is it, please?

Comida	Food
el aceite	oil
el agua	water
el almuerzo	lunch
el arroz	rice
el azúcar	sugar
el bocadillo	sandwich
el café	coffee
el caramelo	sweet
el desayuno	breakfast
el huevo	egg
el jamón	ham
el pan	bread
el pescado	fish
el pollo	chicken
la fruta	fruit
la hamburguesa	burger
la leche	milk
la manzana	apple
la naranja	orange
la paella	paella
la sal	salt
la uva	grape
la verdura	vegetable
las patatas fritas	chips

¿Cómo es?	What's it like?
asqueroso	disgusting
delicioso	delicious
dulce	sweet
equilibrado	balanced
fuerte	strong
malsano	unhealthy
rico	tasty
salado	salty
sano	healthy
vegano	vegan
vegetariano	vegetarian

Verbos	Verbs
beber	to drink
cenar	to have tea
cocinar	to cook
comer	to eat
querer	to want
tener hambre	to be hungry
tener sed	to be thirsty

Los numéros		Numbers	
uno	1	veinte	20
dos	2	veintiuno	21
très	3	treinta	30
cuatro	4	cuarenta	40
cinco	5	cincuenta	50
seis	6	sesenta	60
siete	7	setenta	70
ocho	8	ochenta	80
nueve	9	noventa	90
diez	10	cien	100
once	11	doscientos	200
doce	12	trescientos	300
trece	13	cuatrocientos	400
catorce	14	quinientos	500
quince	15	seiscientos	600
dieciséis	16	setecientos	700
diecisiete	17	ochocientos	800
dieciocho	18	novecientos	900
diecinueve	19	mil	1000

Year 8 - Black and British

Key Vocab	Definitions
Empire	A group of countries under a single authority; for example the Queen.
Triangular Trade	A trading system which operated from the late 16th to early 19th centuries, operating in a triangle. (see image)
The Middle Passage	The Middle Passage was the part of the trade where Africans, were packed onto ships and transported across the Atlantic to the West Indies.
Slave Auction	This was an event where Slave families often were separated and sold to slaveholders in distant states.
Plantation	An estate where crops are grown on a large scale, usually where slaves work.
Underground Rail Road	A network of people and safe houses which slaves used to escape to the north of the United States; it was not run by anyone person or group; it relied on the generosity and support of many people.
Emancipation	When a slave is legally freed from his/her owner.
Abolition	When a government law is passed to officially stop or end something; slavery.
Civil Rights	The rights that people have in a society to equal treatment and equal opportunities, whatever their race, sex, or religion
Discrimination	The unjust or prejudicial treatment of different categories of people, especially on the grounds of ethnicity, age, sex, or disability.

Harriett Tubman

Harriett was a Black, American slave who escaped slavery. She then helped free many others using the Underground Railroad and worked to abolish slavery. She was known as a 'conductor'. During a ten-year span she made 19 trips into the South and escorted over 300 slaves to freedom. And, as she once proudly pointed out in all of her journeys she "never lost a single passenger."

Granville Sharp

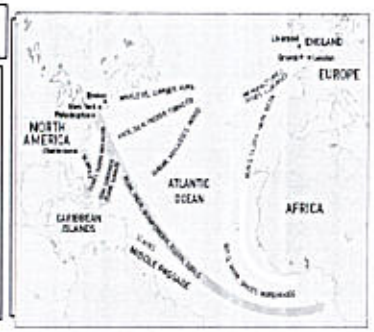
Granville Sharp was born on 10 November 1735 in Durham.

His interest in slavery began in 1765 after he befriended Jonathan Strong, a slave who had been badly beaten by his master. When Strong's former owner attempted to sell him back into slavery in the Caribbean, Sharp took a successful case to the lord mayor and Strong was freed. Sharp then devoted his time to forcing a definitive legal ruling on the question of whether a slave could be compelled to leave Britain. He was involved in securing the famous 1772 ruling by Lord Chief Justice William Mansfield, which reluctantly concluded that slave owners could not legally force slaves to return to the colonies once they were in Britain. This was regarded by many as effectively abolishing slavery within Britain.

Key Questions

How did the Slave Trade benefit Britain?

Traders grew rich, as did ports such as Bristol, Liverpool, Glasgow and London. The raw cotton from the Americas helped to feed the growing number of cotton mills (as part of Britain's Industrial Revolution) British landowners also owned plantations in the West Indies which benefitted from cheap supply of Labour. The profits from the slave trade were invested in Britain's industries.



What were conditions like on the Middle Passage?

Slaves were chained together in the ships hold. Diseases quickly spread; if a slave died, the body would remain still chained to their other slaves for hours. The slaves were often unable to digest the food given to them. Sick slaves would be denied food and left to die. Slaves developed sores where their chains rubbed against their skin. Many slaves tried to kill themselves by refusing to eat or by jumping overboard. Once a day slaves were taken up from the hold to dance on the deck to keep them fit.

How was abolition achieved?

Abolition did not just occur over night but was a long process that came from the plantations itself. Through resistance, slave rebellions sent shockwaves through Britain and made people aware of the horrors trade. Incidents, such as the Jonathan Strong, the Somerset Case and the Zong Massacre further enlightened the people of Britain to the wrongdoings of slavery and public opinion started to change. With public opinion changing, politicians, such as William Wilberforce, and reformers, like Thomas Clarkson, campaigned hard for abolition. In turn, the British Parliament abolished the trade, including the banning of British being involved in the transportation of slaves. Furthermore, in 1833 slavery was abolished throughout the colonies. The British fleet would then be used to shut down the trading of slaves throughout the Atlantic.

What was the Civil Rights movement like in Britain?

Racism did not end following abolition and many black Britons faced discrimination in their own country. Following WW1, many black soldiers were treated poorly by the government and the public which turned into riots in 1919. Following WW2, Britain needed a workforce and the Windrush arrived with many immigrants from the West Indies. With the influx of more black Britons, tensions would increase leading to incidents like the Notting Hill race riots. In 1993, a black teen, called Stephen Lawrence, was murdered in a racist attack. These events led to a changing view in Britain, and each would have an impact on laws preventing discrimination and prejudice.

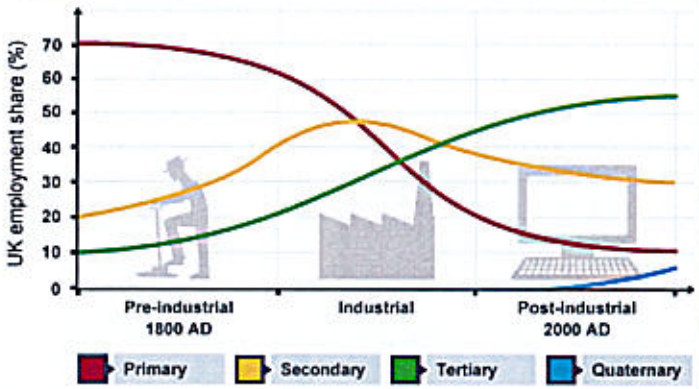
1672-1807
Britain sold 2.8 Million Slaves.

Timeline of Key Events

- 1554 - Triangular Trade began
- 1619- 1st Ship full of Slaves is sold in America.
- 1672- Britain becomes leading slave trade nation
- 1760- First and biggest protest against the Slave Trade
- 1772 - The Somerset Case
- 1807- British Parliament abolished the slave trade. They banned British ships being involved in the transportation or sale of slaves
- 1833 -British Parliament abolished slavery throughout its colonies.
- 1945- The British empire behins to disintegrate.
- 1993 - The Stephen Lawrence murder

Sectors of Industry

Primary = The extraction of raw materials (farming/ mining)
Secondary = The manufacturing (making) of a product using raw materials (factories)
Tertiary = Providing a service (retail, teaching)
Quaternary = ICT and research and development (computing, pharmaceuticals)



In the UK during Pre-Industrial times, less than 10% of the population worked in the tertiary sector, whereas the **Primary** sector was the highest at 75%. By the middle of the industrial period, the **Tertiary** sector had the most rapid growth. In the Post-Industrial period, the secondary sector fell below **30** % and we had the new emergence of the **quaternary** Sector.

Causes of Primary Sector decline

Mechanisation – The use of machines on farms meant that fewer workers were required.
Depletion of resources – As resources were used up, there were less jobs in mining. Resources also became cheaper to import from abroad.
Less desirable 'dirty jobs' – As wealth increased, there was a social change, with less desire to complete labour intensive, hard and dangerous work.

Causes of Secondary Sector Decline

Deindustrialisation = the decline of secondary (manufacturing) industry.

-This occurred in the UK due to **Globalisation** – Where items could be manufactured cheaper abroad, where labour costs are lower.
-Machines continued to replace many people, for example in car production.
-Lack of investment, high labour costs and outdated machinery made UK products too expensive.

Effects of Secondary Sector Decline

Loss of jobs – With many people having to re-train
Abandoned factories – leading to vandalism/ pollution.

Year 8 HT4 ECONOMIC ACTIVITY KNOWLEDGE ORGANISER

Rise of the Tertiary Sector

Changes in technology has meant that new jobs have been created that never existed 100 years ago. An **increase in wealth** and **better working conditions** (holiday pay) has also meant that there is a demand for more services, particularly in leisure and tourism, which has created a significant increase in tertiary sector jobs.

Location of Secondary Industry

-Nearby to cities to provide a labour source
-Good transport links – to move materials and goods
-Close to raw materials

North-South Divide

The North-South divide is the real or imagined cultural and social differences between the South and North of England/Wales.

Causes

-North were the first to thrive from primary and secondary industries – i.e. coal mining, steel making and ship building. These industries have now gone into decline.
-Mechanisation meant fewer people were required to work in primary and secondary industries.
-The north is further from the capital which has meant that businesses have preferred to invest in the south.

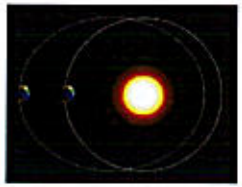
Effects

-Higher wages in the south
-More work in the tertiary sector in the south
-Higher unemployment in the north
-Lower health care in the north
-Cheaper housing in the north
-The south is now a world renowned financial centre,
-attracting lots of foreign investment.

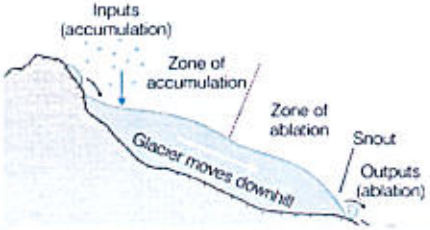
Solutions

-Improving transport connections between the north and south
- Investments in northern ports, to increase trade and attract foreign investment
- Development of northern towns to increase tourism

The last ice age to occur was in the Quaternary period (which began 2.6 million years ago). It started around 30,000 years ago and peaked **23,000 years ago (glacial maximum)**, when ice in Britain reached as far south as Bristol and London. It ended between 12,000 and 10,000 years ago. This has left many distinctive landforms in areas such as **The Lake District**. The Earth however has had many glacial periods, with one occurring at least every 100,000 years. This in part is due to **Earth's orbital changes (eccentricity)**, which sees Earth move further away from the sun in an oval shaped orbit.



A **glacier** is a large mass of ice often shaped like a river that flows very slowly, under the force of gravity. They are made from snow, that over many years, compresses into large, thickened ice masses,
Most of the world's glaciers exist in the **Polar Regions**, in areas like Greenland (Arctic) and Antarctica.



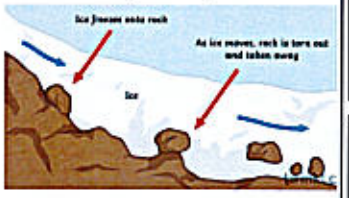
Glaciers also can be found closer to the **Equator in some mountain regions**. The Andes Mountain range in South America contains some of the world's largest tropical glaciers. About 2 percent of all the water on Earth is frozen in glaciers.

Weathering is the breaking down of rock in its place (in situ)
Erosion is the breaking down of rock by wind, water or ice, which is then moved.

Freeze Thaw Weathering - Water fills cracks, joints and hollows in the rock. When the temperature reaches freezing point, the water inside the cracks freezes, expands and

causes the cracks to widen. When the temperature rises, the water thaws and contracts. This eventually causes rocks to break up as they become weaker over time.

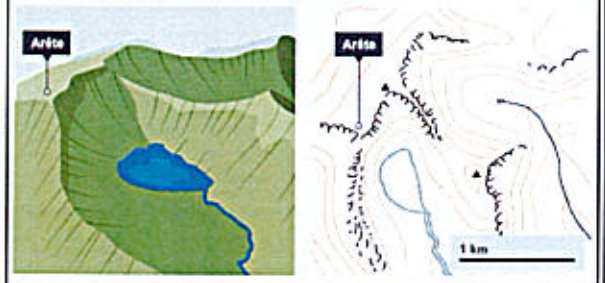
Plucking (Erosion) - An obstacle at the base of the glacier causes pressure to build up, which causes the ice to melt. The water flows into the cracks and joints in the rock. As the glacier moves over the obstacle, the water refreezes and attaches back the glacier, pulling the rock with it as it moves downhill.



Abrasion (Erosion) – Rocks **under** the glacier scrape away at the land.

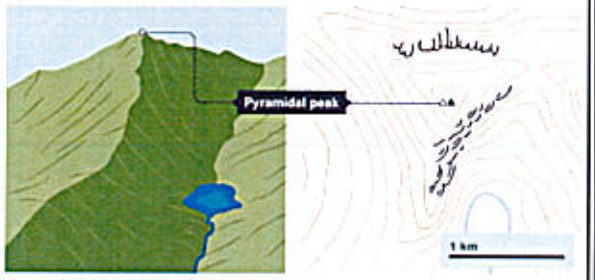
Corrie and Tarn

Arête

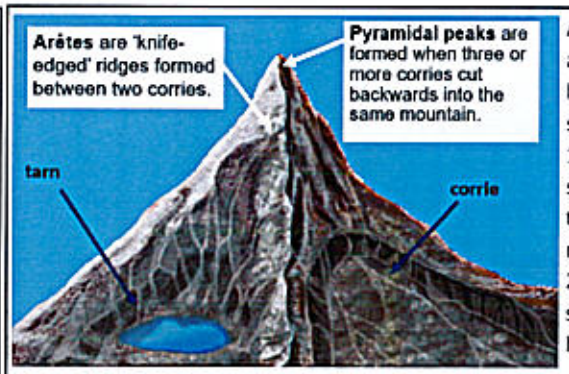


Year 8 HT 3 GLACIATION KNOWLEDGE ORGANISER

Pyramidal Peak



U Shaped Valley with a Ribbon Lake



A **corrie** is an armchair-shaped hollow found on the side of a mountain.
1) Snow collects in a sheltered hollow on the side of a mountain.
2) Every winter, more snow collects in the hollow. This becomes compacted and the air is squeezed out leaving ice.
3) The back wall of the corrie gets steeper due to freeze-thaw weathering and plucking. The base of the corrie becomes deeper due to abrasion.
4) As the glacier gets heavier it moves downhill. The glacier moves out of the hollow in a circular motion called rotational slip.
5) After the glacier has melted a lake forms in the hollow. This is called a corrie lake or tarn.

Many glaciated areas, such as **The Lake District**, are upland spaces. They are home to many different types of human activities. Some of these activities are economic and make money, which is a fantastic opportunity. There are also many challenges with those human activities however.

Hydroelectric Power
+ Dams can provide a renewable energy source that does not produce greenhouse gases. They also provide a water supply.
- Flooding valleys results in a loss of land and habitats (55 dams)

Forestry
+ 75,000 tonnes of timber is produced each year, mainly for fire wood and construction. Provides significant employment.
- Reduces biodiversity and increases the risk of flooding.

Quarrying
+ Quarrying for rocks such as granite, sandstone and slate is easily accessible and provides lots of jobs.
- Produces noise, heavy traffic, dust and is an eyesore.

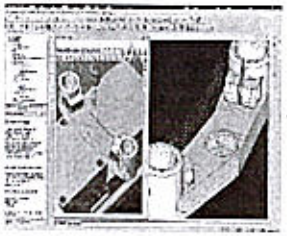
Tourism
+ Nearly 16 million visit each year and is the biggest source of income. Lots of recreational activities for people on land/ lakes.
- More waste, pollution and congestion. Increased house prices.

Humans are causing the Earth to heat up. This is through our activities, mainly burning fossil fuels for energy and transport, deforestation and agriculture, which adds additional CO_2 and Methane to our atmosphere. As the temperatures warm, the ice on our planet is melting at a faster rate than ever before. Researchers studying world Glaciers have found that they have lost almost 270 billion tonnes of ice a year, every year, over the last 20 years.

Student Knowledge Organiser

CAD – Computer Aided Design

Computer programmes are used to make complex models in 2D or 3D and these can be run through simulators or spun about 360deg to see what the design looks like.



CAM – Computer Aided Manufacture

Machines such as laser cutters and 3D printers follow instructions from a 3D model drawn in CAD and make the item. A 3D printer prints with softened plastic, building up layers. A laser cutter cuts material such as boards of plywood.

The advantages of using CAD/CAM include:

- Fast and accurate process,
- Manufactures identical and repeatable products – compared to making it by hand
- CAD can be used to test ideas before making prototypes. This saves time and money.
- Changes and modifications can be made very quickly

Symbols for 3 examples of CAD packages are shown below:

Adode Photoshop

2D Design

Google SketchUp

The disadvantages of using CAD/CAM include:

- Machinery can break down and the manufacturing of products has to stop
- Expensive set up costs for machinery
- Training is required to use machinery correctly
- Jobs can be lost by machinery completing manufacturing tasks

3D Printing

How does a 3D Printer work?

The **CAD drawing is firstly converted** within the 3d printing software into multiple layers before the manufacturing stage.

- The 3D Printer then prints the CAD drawing ***one layer at a time***
- The plastic filament is softened and forced through a heated extruder which builds up the 3D model one layer at a time.
- The printing software then determines how the ***3D printer head moves and deposits*** (leaves) the softened plastic.
- ***The 3D printing process can take hours depending on complexity of the CAD design***

Two common materials which are used for the 3D Printing manufacturing are:

PLA

ABS

What are the social and moral issues surrounding 3D printing?

<u>Negatives:</u>

- ***Dangerous products*** such as weapons can be printed and will be undetectable when metal detectors are used
- ***Copyright issues*** – people can print CAD models at home without permission. This causes manufactures to lose money and employees to lose their jobs
- Traditional manufacturing ***jobs will be threatened*** with advances in 3d printing
- Domestic 3d printers enable users to print unnecessary products which ***wastes energy and materials resources***

<u>Positives:</u>

- Users will eventually be able to ***customize products*** with greater ease leading to more bespoke and unique products
- Advances in 3d printing will enable manufactures to ***use less materials and create less waste*** compared to more traditional manufacturing methods

Possible hazards on the 3D Printer can include:

- The nozzle/head ***overheating*** during 3D printing
- The ***bed of the 3D printer*** can over heat
- ***Moving parts*** during the 3D printing process

You can minimise the risk of hazards during 3D printing by:

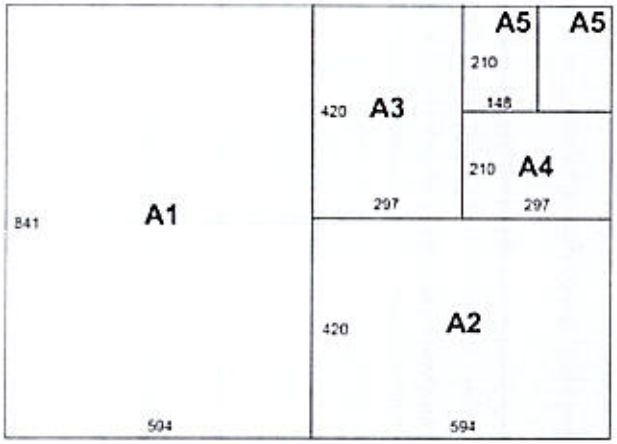
- Making sure the ***enclosure/guard*** is closed or in place
- ***Do not touch*** the heated nozzle or bed at any time
- Keep your ***fingers away*** from all moving parts

Student Knowledge Organiser

Papers and Boards

Papers and Boards are commonly made from cellulose fibres found in wood pulp and produced in a Paper Mill. Other varieties of Papers and Boards come from sources such as cotton, which produces extremely high-quality paper which lasts hundreds of years. Paper is weighed in grams per square meter (GSM). Anything over 200 GSM is generally considered to be a board.

Paper sizes are shown below:



The majority of paper is made from wood pulp. However, paper can also be made from the following materials:

- Bamboo
- Cotton,
- Hemp,
- Jute, and a wide range of other plant materials

Papers

Paper is something we use on a daily basis. It is a particularly useful medium for designers as it can be drawn on, written on and can be folded to make small scale models. Paper is made in a Paper Mill from cellulose fibres most commonly from wood pulp. Paper can be made from both deciduous and coniferous trees however, the latter is preferred as it is fast growing and more sustainable. Spruce and Fir trees are the most common source of the wood pulp used for papers.

Tissue Paper

Properties: Lightweight, Soft, Absorbent, 10-35 GSM.
Common Uses: Packaging for gifts, arts and crafts and toilet/kitchen roll.

Newspaper

Properties: Off white colour, lightweight, low cost, unfinished, mainly made from recycled paper, 45-55 GSM.
Common Uses: Newspapers and low cost leaflets.

Boards

Any paper based material weighing over 200 GSM is considered to be a board. Board is also measured by it's thickness. The measurement used is microns. 1 micron = 1/1000th of a millimetre. A board that is 500 microns thick measures 0.5mm. Board is generally more rigid and durable than paper and is more suitable for items such as packaging, food containers and presentations.

Carton Board

Properties: Thick, can be coated/foil lined for food, easy to print on, 200-500 GSM.
Common Uses: Food and drink, POS, packaging

Card

Properties: Stiff, easily cut and creased, 200-500 GSM
Common Uses: Greetings cards, packaging, advertising.

FSC

You need to learn the following definitions:

Biodegradable: Materials rot down by bacteria and decompose. Nutrients then return to the soil.

Durable:
Hard wearing, able to withstand wear, pressure or damage.

Non-Finite:
Unlimited and the material or energy resource will not run out. The material/energy resource can be replaced and renewed.

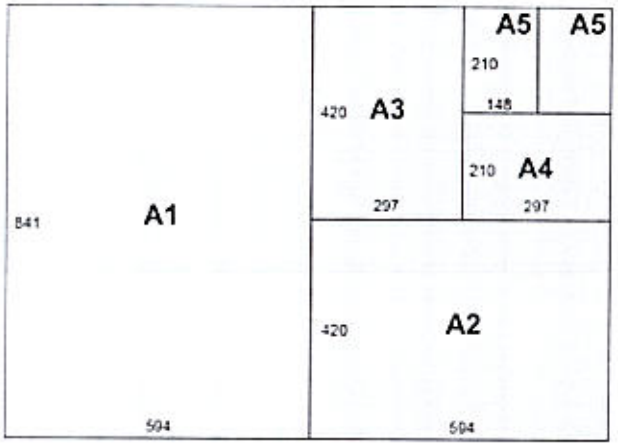
Sustainable:
Materials or energy resources are replaced at the same rate or more as they are being used and therefore will not run out.

Student Knowledge Organiser

Papers and Boards

Papers and Boards are commonly made from cellulose fibres found in wood pulp and produced in a Paper Mill. Other varieties of Papers and Boards come from sources such as cotton, which produces extremely high-quality paper which lasts hundreds of years. Paper is weighed in grams per square meter (GSM). Anything over 200 GSM is generally considered to be a board.

Paper sizes are shown below:



The majority of paper is made from wood pulp. However, paper can also be made from the following materials:

- Bamboo
- Cotton,
- Hemp,
- Jute, and a wide range of other plant materials

Papers

Paper is something we use on a daily basis. It is a particularly useful medium for designers as it can be drawn on, written on and can be folded to make small scale models. Paper is made in a Paper Mill from cellulose fibres most commonly from wood pulp. Paper can be made from both deciduous and coniferous trees however, the latter is preferred as it is fast growing and more sustainable. Spruce and Fir trees are the most common source of the wood pulp used for papers.

Tissue Paper

Properties: Lightweight, Soft, Absorbent, 10-35 GSM.
Common Uses: Packaging for gifts, arts and crafts and toilet/kitchen roll.

Newspaper

Properties: Off white colour, lightweight, low cost, unfinished, mainly made from recycled paper, 45-55 GSM.
Common Uses: Newspapers and low cost leaflets.

Boards

Any paper based material weighing over 200 GSM is considered to be a board. Board is also measured by it's thickness. The measurement used is microns. 1 micron = 1/1000th of a millimetre. A board that is 500 microns thick measures 0.5mm. Board is generally more rigid and durable than paper and is more suitable for items such as packaging, food containers and presentations.

Carton Board

Properties: Thick, can be coated/foil lined for food, easy to print on, 200-500 GSM.
Common Uses: Food and drink, POS, packaging

Card

Properties: Stiff, easily cut and creased, 200-500 GSM
Common Uses: Greetings cards, packaging, advertising.

FSC

You need to learn the following definitions:

Biodegradable: Materials rot down by bacteria and decompose. Nutrients then return to the soil.

Durable:
Hard wearing, able to withstand wear, pressure or damage.

Non-Finite:
Unlimited and the material or energy resource will not run out. The material/energy resource can be replaced and renewed.

Sustainable:
Materials or energy resources are replaced at the same rate or more as they are being used and therefore will not run out.

Student Knowledge Organiser

Polymers (Plastics)

What is the difference between a thermoforming plastics and a thermosetting plastics?

Thermoforming polymers can be *reheated and remoulded* due to their molecular structure.

Thermosetting polymers can only *be moulded once* and therefore can't be recycled. They are therefore less environmentally friendly.

The source for most synthetic polymers (most plastics) is ***Crude oil***.

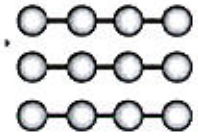
The Sustainability of Plastic Products

Most plastics are made from Crude Oil (see above). Crude Oil is a Non-renewable/finite resource which means that we will eventually run out of it. End of life considerations are also important for plastic products as most plastics take so long to decompose. Many responsible companies produce a Product Life Cycle Assessment which informs them of the environmental impact there products will have. The information they gather helps them decide how best to source, manufacture and dispose of their products to limit their environmental impact. Extracting Crude Oil uses extremely high levels of energy which is created by burning fossil fuels. These fossil fuels release high amounts of CO_2 into the earths atmosphere which contributes to Global Warming.

The situation is similar when manufacturing plastic products. The polymers need to be heated to high temperatures in order to mould them. This is again achieved by burning fossil fuels, which releases more CO_2 and contributes to Global Warming.
At the end of a plastic product's life there are several options to consider. Firstly, plastic products can be reused as they're typically easy to repair and maintain which means they can survive longer than wooden or metal based products.

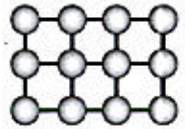
Most plastics are also recyclable, this means the material can be melted down and then put back into production to become a new product. This saves the material from ending up in landfill and also prevents us from sourcing more plastics from crude oil.
The final option is to throw the product into Landfill. This causes significant environmental issues as plastics take hundreds of years to decompose and since the material hasn't been recycled, we must then create new plastic products using more crude oil, putting even more strain on the planet's non-renewable resources.

Thermoforming plastics



Thermoplastics are the most common types of plastics we see on a daily basis. They are generally the most flexible, especially when heated. This is due to their physical structure. Their polymer chains (see below) are loose which means they can slide past each other when heated. This allows them to be reformed multiple times.
Thermoplastics are usually very easy to recycle due to the fact they can be remoulded multiple times.

Thermosetting plastics



Thermosets are more rigid and once they have been formed and set once, they are stuck in that shape forever. The polymer chains in thermosets have more 'cross links' between them which stops the plastic moving when heated. As a result, thermosets are more brittle and harder than thermoplastics. Thermosets have good resistance to heat and make good electrical insulators. They are however difficult to recycle as they burn rather
than melt.

Examples of Thermoplastics

HIPS

High Impact Polystyrene
Properties: Flexible, Impact resistant, Lightweight, Food safe.
Common Uses: Food containers, Household Electronic casings.

HDPE

High Density Polyethylene
Properties: Lightweight, Rip and Chemical resistant.
Common Uses: Milk bottles, Pipes,
Buckets, Bins, Household Bottles.

ACRYLIC/PERSPEX

Properties: Tough but Brittle.
Common Uses: Commonly used in Schools, Display Stands, Car Lights and Modern baths.

Examples of Thermosetting plastics

Urea Formaldehyde

Properties: Heat resistant, Good electrical insulator, Hard, Brittle.
Common Uses: Electrical fittings, casings, buttons and handles.

Polyester Resin

Properties: Strong, Heat resistant, Good electrical Insulator.
Common Uses: Waterproof coatings,
Flooring, Fibreglass lamination

Melamine Formaldehyde

Properties: Lightweight, Hard, Brittle, Food Safe.
Common Uses: Kitchenware, Heat Resistant surfaces, Furniture.

English Year 8 Of Mice and Men

Language Subject Terminology

1. Word Classes

Noun	Identifies a person (girl), thing (wall), idea (luckiness) or state (anger).
Verb	Describes an action (jump), event (happen), situation (be) or change (evolve).
Adjective	Describes a noun (**happy** girl, **grey** wall).
Adverb	Gives information about a verb (jump **quickly**), adjective (**very** pretty) or adverb (**very quickly**).
Preposition	Describes the location of something, e.g. the pen was found **under** the table.

2. Sentence Structures

Simple	A sentence with one independent clause. *"She went to the shop."*
Compound	A sentence with multiple independent clauses. *"She went to the shop and bought a banana"*
Complex	A sentence with one independent clause and at least one dependent clause. *"Sometimes, when she goes to the shop, she likes to buy a banana."*

3. Language Techniques

Simile	Something is presented as like something else.
Metaphor	Something is presented as something else.
Imagery	When the writer provides mental "pictures".
Personification	Giving human traits to something non-human.
Alliteration	The occurrence of the same sound/letter at the beginning of words
Repetition	Repeating something to emphasises or reinforce.
Emotive Language	Words/phrases which appeal to the emotions.
Three Rule	Three words/phrases grouped together for effect.
Oxymoron	a figure of speech in which apparently contradictory terms appear in conjunction .
Juxtaposition	the fact of two things being seen or placed close together with contrasting effect.
Pathetic Fallacy	Giving human feelings and responses to inanimate things or animals.

4. Tier 2 Vocab

Juncture	A place where two or more things come together
Recumbent	Lying down, in a position of comfort or rest
Lumber	Move heavily or clumsily
Brusquely	In a blunt direct manner
Fraternal	Relating to brothers, or being friendly like brothers
Elaborate	Intricate or rich in detail
Pugnacious	Ready and able to resort to force or violence
Gingerly	In a careful or cautious manner.
Apprehensive	Uneasy and worried
Disengage	Uneasy and worried
Profound	Release from something that holds fast or entangles.
Complacently	Showing intellectual penetration or emotional depth
Poised	Marked by balance or equilibrium.
Cower	To crouch or curl up
Marginalisation	The act of treating someone or something as if they are not important.
Aloof	Emotionally distant.
Meagre	Deficient in amount or quality
Crestfallen	Brought low in spirit.
Console	Give moral or emotional strength to.

5. The Author—John Steinbeck

- He wrote the book ' Of Mice and Men' in 1936
- He came from Salinas, California
- Like 'Of Mice and Men' many of his books deal with the lives and problems of working people.
- Many of his characters in his books are immigrants
- who went to California looking for work or a better life.

Of Mice and Men

6. Characters

George	Small and quick, dark of face, with restless eyes and sharp, strong features"
Lennie	"A huge man, shapeless of face, with large pale eyes, with wide sloping shoulders"
Candy	His right hand is simply a stump because he lost his hand in a ranch accident.'
Curley	"He hates big guys. He's alla time picking scraps with big guys"
Curley's Wife	She had full, rouged lips and wide-spaced eyes, heavily made up. Her fingernails were red.
Slim	"Slim's as good a skinner as I ever seen"
Carlson	A powerful, big-stomached man came into the bunk house.'
Crooks	"Crooks, the negro stable buck, had his bunk in the harness room"

7. Historical Information

- The Roaring 20s
- 1930s Great Depression
- Immigrant Workers
- Black Rights Movement
- The Wall Street Crash
- The American Dream
- The Dustbowl

8. Themes

- Racism
- Prejudice
- Hope and Dreams
- Loneliness and Companionship
- Brutality and Dignity
- Class
- Gender

YEAR 8 - ROMEO AND JULIET – ENGLISH KO

CHARACTERS	
Romeo	The son and heir of Lord and Lady Montague. Romeo is handsome and intelligent, yet he is also impulsive and extremely sensitive. Romeo is a peaceful character and is not interested in the violence that goes on around him, choosing instead to focus his energies on love.
Juliet	The daughter of Capulet and Lady Capulet. Juliet is a beautiful young girl (13 years old at the start of the play). Juliet is caring, compassionate, and at times demonstrates courage.
Prince Escalus	The most powerful character in the play, with the authority to govern the other characters and administer sentences. He is also a kinsman to Mercutio and Paris. As the seat of Verona, his main concern throughout most of his appearances are in relation to ensuring that the peace is kept.
Mercutio	A kinsman to the prince and one of Romeo's closest friends. Mercutio is an extraordinary character; much of Mercutio's speeches deal in puns and word-play. His hot-headedness is eventually his downfall.
Lord Montague and Lord Capulet	The patriarchs of the Montague and Capulet families, who have held a long and violent feud with one another from some time before the play begins. Both seem to deeply love their respective child, yet do not always seem appropriately aware of their emotional wellbeing.
Friar Laurence and The Nurse	Both Friar Laurence and the Nurse act as guidance counsel for Romeo and Juliet. They appear to be the two people that Romeo and Juliet trust more than any others in the world, as they are the two that they confide in.

THEMES	
LOVE	FATE
INDIVIDUAL VS SOCIETY	DEATH
VIOLENCE	FAMILY

KEY WORDS	
Context	The conditions in which something exists.
Society	A group of people living together with shared norms and values.
Prologue	A separate introductory section of a literary, dramatic, or musical work.
Oxymoron	A figure of speech in which apparently contradictory terms appear in conjunction (e.g. *faith unfaithful kept him falsely true*).
Patriarchy	The male head of a family or tribe /relating to or denoting a system of society or government controlled by men.
Pilgrim	A person who travels to a religious or sacred place for religious reasons.
Profane	To treat something sacred with irreverence or disrespect.
Analyse	A detailed explanation of key elements in order to further understand something.
Bigamy	The offence of marrying someone whilst also being married to someone else.
Archetype	A typical example of something.

DRAMATIC DEVICES	
Foreshadowing	Foreshadowing is a warning or indication of a future event or possibility in a text.
Soliloquy	A speech in which a character speaks their thoughts aloud. This can be addressed to the audience or to themselves.
Asides	An aside is a line or speech in which the character does not speak to other people on stage but instead speaks to themselves and/or the audience.
Dramatic Irony	Dramatic irony occurs when the audience knows something that the character does not. It can also apply if not all the characters have the same knowledge.

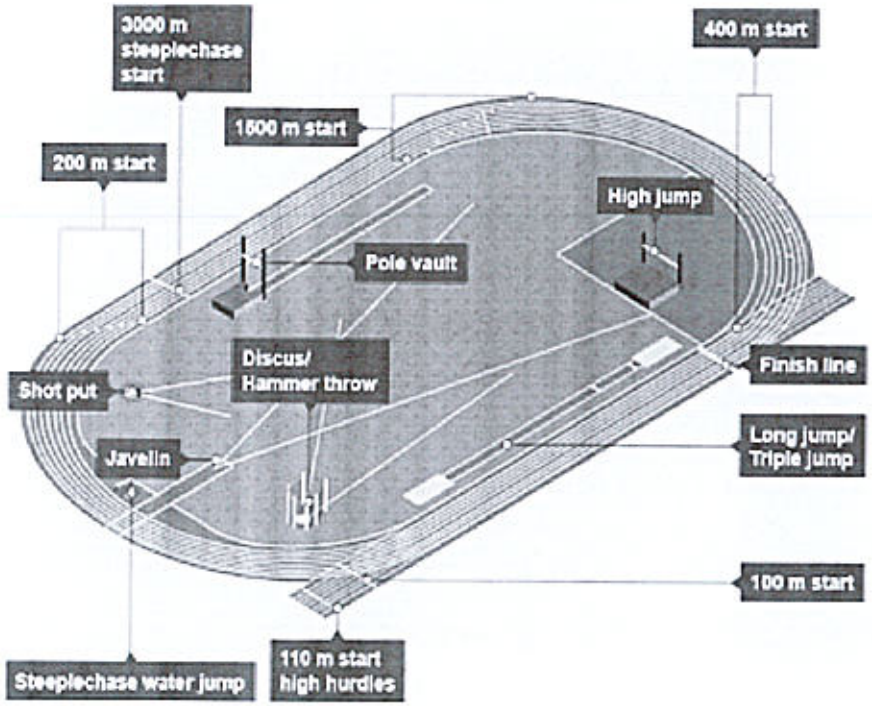
FEATURES OF A TRAGEDY	
Tragic Hero	A main character cursed by fate and possessed of a tragic flaw (Romeo, and to an extent Juliet).
Hamartia	The fatal character flaw of the tragic hero (his passion and impulsiveness).
Catharsis	The release of the audience's emotions through empathy with the characters.
Fatal Flaw	The struggle the hero engages in with his/her fatal flaw.

CONTEXT	
Shakespeare's Time	Shakespeare wrote his plays at the time of two monarchs: Queen Elizabeth I and James I. *Romeo and Juliet* was written relatively early in Shakespeare's career (the bulk of his tragedies were written in the 17th century) yet was extremely popular in his lifetime, as it is now. Shakespeare borrowed heavily from two texts: *The Tragical History of Romeo and Juliet* (1562) and *Palace of Pleasure (1567)*
Elizabethan England in Italy	Shakespeare frequently engaged with Italy in his plays, leading many to believe that he travelled there between the late 1580s and early 1590s. Italy was a place that Shakespeare's contemporaries would have had a keen interest in; it was already an advanced and beautiful place for travel. Shakespeare's depictions of many areas of Italian life at the time are deemed largely accurate.
Religion	The heavy religious presence is evident across several parts of *Romeo and Juliet*. This is reflective of a society across Europe that was deeply religious (predominantly catholic or protestant). Several characters demonstrate their commitment to the church, such as Romeo and Juliet who choose to marry rather than fornicate, and the Capulets, who are quick to contemplate that Juliet is in a better place (heaven) after she is found 'dead.'
Patriarchal Society	Society throughout the Middle Age and at Shakespeare's time was patriarchal – women were considered inferior to men. This was also the case in much of Europe, including Italy. Women belonged to their fathers (or brothers if their fathers had died) and then their husbands, so Juliet would be expected to obey her father. Women were not permitted to own land or enter most professions. They were instead expected to bear children, be gentle and womanly.
Astrology and the Supernatural	At the time of Shakespeare, the belief in both astronomy and the supernatural was far more preeminent than in society today. The reference to 'star-cross'd lovers demonstrates the large role of horoscopes and planet positions in being used to predict fate. Also, Romeo and Juliet make reference to the fact that they feel they are being guided by a supernatural force (e.g. 'fortune's fool).
Healthcare and Medicine	Healthcare and medicine were not as advanced in Shakespeare's age as they are today – there were numerous ailments and diseases that were not yet understood. This makes it much more believable for both the Capulets and Romeo that Juliet could have died so suddenly and so young. The high death count in the play would seem slightly more common in those days!

Subject Knowledge Organiser
Athletics – Competition, Scoring & Officials

Competition
Athletics is a collection of sporting events that consist of the three major areas of running, jumping and throwing. The running events include sprints, middle and long-distance events and hurdling. Jumping events include the long jump, high jump, triple jump and pole vault, while the throwing events include the discus throw, hammer throw, javelin throw and shot put. There are also combined events, such as the decathlon for men, which consists of ten events, and the heptathlon for women, which consists of seven events.

Shown below is a typical competition area for athletics.



Scoring
Success in athletics is judged on times and distances rather than points or goals.

Track events – These races are started with an electronic pistol which is only sounded again on a false start. In races that are very close, officials use a digital line-scan camera across the finish line to give them a photo finish picture. The clock stops when an athlete has passed through the finish line.
Jumping events – These events are measured from the front edge of the take-off board to the first mark made in the sand by the athlete. The distance is always measured to the nearest centimetre and athletes will always be given a minimum of three jumps.
Throwing events – These events are measured from the front edge of the throwing line to the first mark made in the ground by the implement. The distance is always measured to the nearest centimetre and athletes will always be given a minimum of three attempts.

Officials
An athletics competition requires a wide range of officials. These include:

Starter – Starts all track events.
Starter's marshals – Line up competitors in correct order ready for starting.
Timekeepers – Provide official times for all track competitors.
Place judges – Ensure the correct order of positions are given.
Field event judges – Measure, record and let athletes know when it is safe to compete.
Relay judges – Make sure runners at change-overs are in the correct lane and within the change-over box.

Key Vocabulary

- Dribbling	- Pivot	- Passing	- Receiving
- Manipulation	- Shooting	- Defending	- Layup
- Rebound	- Overhead	- Bounce	- Chest
- Cross-over	- Protect	- Possession	- Defence

Lesson Overview

1. Aim of the game
2. Rules of the game
3. Dribbling and stopping
4. Passing and receiving area
5. Defending
6. Layup and rebounding
7. Shooting the ball
8. Game play

BASKETBALL

KS3 Knowledge Grid

Aim of the game

Basketball is played by two teams who score points by throwing a ball into the opposing team's basket. Players can move the ball around the court by passing, or dribbling. The team who scores the most points are the winners

Rules of the game

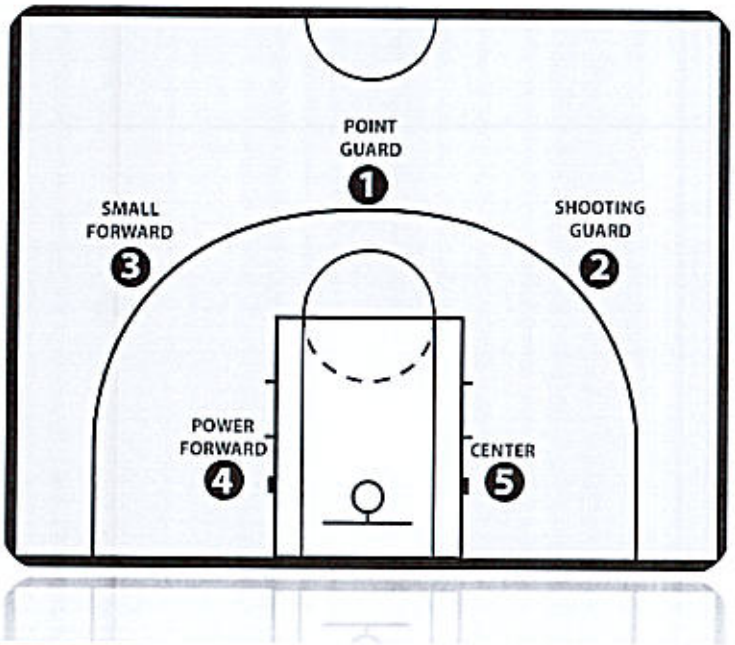
- Each team can have a maximum of 5 players on the court at any one time. Substitutions can be made as many times as they wish within the game.
- The ball can only be moved by either dribbling (bouncing the ball) or passing the ball. Once a player puts two hands on the ball (not including catching the ball) they cannot then dribble or move with the ball and the ball must be passed or shot.
- After the ball goes into a team's half and they win possession back the ball must then make it back over the halfway line within 10 seconds. If the ball fails to do so then a foul will be called and the ball will be turned over.
- Each team has 24 seconds to at least shot at the basket. A shot constitutes either going in the basket or hitting the rim of the basket. If after the shot is taken and the ball fails to go in the basket then the shot clock is restarted for another 24 seconds.
- The team trying to score a basket is called the offence whilst the team trying to prevent them from scoring is called the defence. The defence must do all they can to stop the offence from scoring by either blocking a shot or preventing a shot from being fired.
- After each successful basket the ball is then turned over to the opposition.
- Fouls committed throughout the game will be accumulated and then when reached a certain number will be eventually be awarded as a free throw. A free throw involves one player from the offensive team (the player fouled) to take a shot unopposed from the free throw line.
- Violations in basketball include travelling (taking more than one step without bouncing the ball), double dribble (picking the ball up dribbling, stopping then dribbling again with two hands) and back court violation (once the ball passes the half way line the offensive team cannot take the ball back over the half way line).

Playing Positions and basic skills

Basic Basketball skills:

- Dribbling and stopping (strong and weak hand, ways to protect the ball basic pivoting, ball manipulation including crossing over and jump stopping).
- Passing and receiving (Chest pass, Overhead pass, Bounce pass).
- Defending (basic movement of feet and defensive positioning).
- Layup and rebounding (strong and weak hand, retrieving the ball).
- Shooting the ball (Set shot with blanking, progressing onto jump shot for exertion)
- Introduction to game play (3v3 and 5v5).

Court positions:



Key Vocabulary

- Batting - Bowling - Fielding - Running - Throwing
- Stumps - Wicket - Stumps - Wicket Keeper - Umpire
- Innings - Wide - No Ball - Over - Four - Six

Lesson Overview

1. Aim of the game
2. Rules of the game
3. Basic Cricket skills
4. Positions/playing area
5. Throwing
6. Catching
7. Batting
8. Bowling

Cricket

KS3 Knowledge Grid

Aim of the game

The object of Cricket is to either outscore a team with the most runs when batting or stop the opposition scoring the most runs when bowling and fielding.

Rules of the game

There are various versions of cricket such as Test, One Day, 50 over, 20/200, indoor and quick cricket.

- A game in school typically has two teams of eleven players
- Each team bats once in each innings before the sides switch.
- The fielding team has a bowler, wicket keeper, and then the field is set depending on the size of pitch
- A batter must successfully strike the ball and run between the stumps as many times as possible with their partner or hit the ball over set a set boundary. If the ball rolls over this boundary it is 4 points if the ball without bouncing reaches this point they get 6 runs.
- Batters can be out by being bowled (ball hitting stumps), LBW (Ball hits the Leg Before Wicket) or by being Caught (by the fielding team)
- Once all Batters are out, they can swap and the bowling/ fielding team become the batting team.
- Typically cricket is played with a hardball and is split by genders.
- The number of innings or number of overs can be pre-set and make up the duration of the game

Playing Positions and basic skills

Basic Cricket skills:

BATTING – The batter will swing the bat and aim to strike the ball that is bowled from the bowler

BOWLER – The bowler deliver six balls (Over) at the batter in an attempt to hit there stumps to get them out or have them caught out.

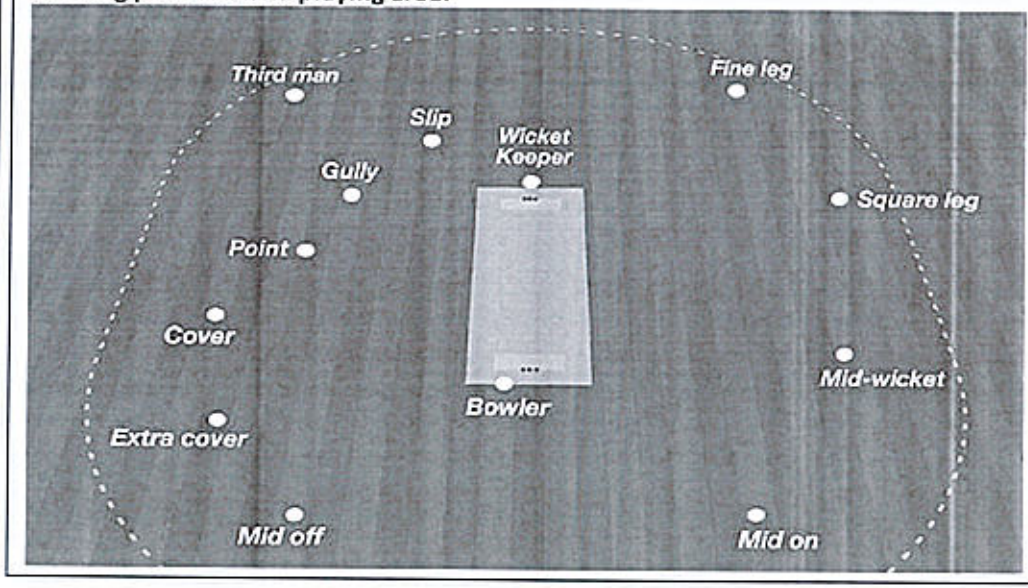
THROWING – Fielders will throw the ball to where it is needed in an attempt to get the batters out, usually at the stumps

CATCHING – Fielders have will either catch a ball that is hit by the batter or that is thrown by a fielder

RUNNING – Batter will run as fast as they can between the stumps with their partner

FIELDING – The aim is to get the batting players out by catching the ball after it is hit, or by throwing it back to the stumps and running the batter out at the stumps

Fielding positions and playing area:



Key Vocabulary

- Aesthetic quality - Choreography - Motif - Routine - Formations - Fluency - Movement memory - Mirroring - Unison - Cannon - Musicality - Directions - Pathways - Travel - Contrasting levels - Finishing lines - Placement - Stillness - Actions

Lesson Overview

1. Dance Key words
2. Principles of choreography
3. Dance Styles
4. Dance musicality
5. Choreography
6. Motif development
7. Motif development
8. Aesthetic quality

Dance

KS3 Knowledge Grid

The Purpose of Dance

Dance is the movement of the body in a rhythmic way, usually to music in a given space. Dance is created with the intent to express or communicate emotion, feelings, ideas created and performed in a concert and/or theatrical setting or an audience.

Styles of Dance

- Ballet
- Tap
- Jazz
- Modern
- Lyrical
- Hip-hop
- Street
- Contemporary
- Line
- Disco
- Ballroom
- Latin
- Freestyle
- Breakdance
- Commercial
- Traditional/ Folk

Aesthetic Quality & Principles of Choreography

Aesthetic Quality (when performed, does the routine look good):

-MOVEMENT MEMORY – can you remember the movements and routines in your own head or do you need to copy? Do you know what movements are coming next?
-TIMING – do you understand the beat of the music? Can you count the beats? Can you perform the movements in time with the beats/music?
-PERFORMANCE SKILLS (FINISHING LINES/ PLACEMENT/ CONFIDENCE):
FINISHING LINES- stretch all positions into the ends of your fingertips and down into your toes
PLACEMENT- are you placing your arms/legs/body into the correct position?
CONFIDENCE- be confident in your performance, think facial expressions, body position, don't slouch or hide

Principles of Choreography (what techniques you can use to improve the quality and creativeness of your own choreographed routine):

-MAKE POSITIONS BIG- fill as much space with your body
-CONTRASTING LEVELS- movements should be performed at differing heights, high, medium, low, ground etc.
-ADD ACTIONS- link the movements so they flow, how can you creatively get from one position to another?
-TRAVEL- Can you add a leap, jump, roll, walk, skip, step ball change?
-CHANGE OF DIRECTION & SPEED
-STILLNESS
-FORMATIONS- how is your group presenting to the audience (all in a line, stood one behind the other, standing in a square)?
-PATHWAYS- does your group all remain in the same position on the stage or do you change pathways?
-CANNON- the timing of each individual to begin a movement
-MIRRORING- completing the same movement with a partner but using the opposite limbs
-UNISON- all groups members performing the exact same movements at the same time

KS3 Football Knowledge Organiser

Key Vocabulary

Passing- sending the ball
Receiving- catching the ball
Dribbling – running with the ball in an attempt to beat an opponent
Defending- preventing the other team from gaining possession of the ball and scoring
Jockeying - is the defender's skill of keeping between the attacker and his or her intended target (usually the goal).
Tackling - to dispossess an opponent of the ball
Marking- a way to prevent your opponent from receiving or passing the ball or shooting
Attacking- making an attempt to score
Crossing - a cross is a medium- to-long-range pass from a wide area of the field towards the opposition's goal
Shoot- attempt to score a goal
Offside- Moving into an area where you're not permitted (see offside rule)
Interception- preventing a pass between players

Rules of the Game

Starting the game - The game begins with the toss of a coin, and the winning captain decides which goal to defend or to take the first kick off.

Method of scoring - A goal is scored when the ball has completely crossed the goal line between the goalposts and under the crossbar, provided that no other infringements have taken place. The team with the most goals wins. If both teams score the same number of goals, or if no goals are scored at all, the match is a draw.

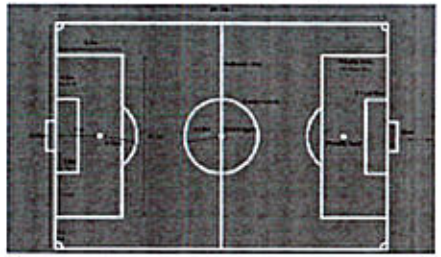
Fouls - A foul has been committed if a player trips, kicks, pushes, charges another player recklessly, striking of any kind, makes a tackle but connects with the player before the ball, deliberately handles the ball, obstructs an opponent or prevents them from releasing the ball.

Offside - A player is in an offside position if: he is nearer to his opponents' goal line than both the ball and the second last opponent when the ball is kicked forward.

Free Kicks - Restart play after a foul or infringement and are usually taken from the place from which the offense was committed. Free-kicks can be "direct"in which the taker may score directly, or "indirect", in which the taker and a second player from the same team must touch the ball before a goal can be scored.

Penalty Kick - Is awarded for a foul committed by a defending player in his or her own penalty area. The kick is taken from the penalty spot and all other players except for the goalkeeper and taker must be at least 9.15m (10yrd) from the spot.

Playing Area



Player Positions

GK – to prevent the opposing team from scoring
Defenders - a defender is an outfield player whose primary role is to prevent the opposing team from scoring goals.
Midfielders - Midfielders are generally positioned on the field between their team's defenders and forwards.
Strikers – Strikers are the players on a football team who play nearest to the opposing team's goal, and are therefore most responsible for scoring goals.

Lesson Overview

1. Passing and receiving
2. Dribbling and turns
3. Shooting 4. Heading
5. Attacking 6. Defending
7. Assessment

Gymnastics

Key Vocabulary

Balance: Holding a static position that demonstrate strength, agility and flexibility for 3 seconds.

Aesthetically pleasing: A way that gives pleasure through beauty.

Fluency: Being capable to move effortlessly and smooth with ease once mastered a skill/technique.

Posture: the position in which someone holds their body when standing or sitting.

Flexibility: To have a wide range of motion in a joint.

Roll: A rotation over an axis in the body over a surface.

Forward roll: a gymnastic exercise in which a person tucks their head down and rolls their body in a forward circle on the floor.

Backward roll: a gymnastic exercise in which a person tucks their head down and rolls their body in a backward circle on the floor.

Cartwheel: The manoeuvre where one moves sideways, from hands to feet, in a straight line (in the motion that the wheel of a cart would follow), while keeping the back, arms, and legs straight, and the feet pointed.

Handstand: To stand straight up with a tight body and hands on floor.

Headstand: an act of balancing on one's head and hands with one's feet in the air.

Round-off: A type of cartwheel where the gymnast pushes off the ground and lands on two feet.

Matching Balance

Copying exactly how your partner is balancing. E.g. same limbs.

Mirroring Balance

Doing the opposite of how your partner is balancing.

Full body weight balances

Having a partner hold your full body weight during a balance.

Part body weight balances

Having a partner hold part of your body weight during a balance.

Counter Balance

PUSHING against your partner

Counter Tension

PULLING against your partner

Lesson Overview

9. Travelling.
10. Balancing.
11. Partner Balances (Matching/Mirroring).
12. Partner Balances (Weight Baring).
5. Rolls and Rotation.
6. Jumps/Flight.
7. Routine Composition.
8. Routing Performance/Evaluation.

Knowledge Grid

Handball

Key Vocabulary

- Passing
- Receiving
- Footwork
- Defending
- Attacking
- Marking
- Shoot
- Transition
- Interception
- Throw in
- Side Pass

Rules of the game

Allowed	Not Allowed	Consequences
Throw and catch the ball using hands and arms	Block or kick the ball using your feet	Free throw to the defending team
Pass the ball to a team mate	Hold the ball for more than 3 seconds	Free throw to the defending team
Bounce the ball with one hand and catch it again	Bounce the ball, catch it and bounce it again – dribble fault	Free throw to the defending team
Take a maximum of 3 steps with the ball	Take more than 3 steps with the ball	Free throw to the defending team
Move outside of the goal area	Enter the goal area	Goalkeeper throw
Touch the ball in the air above the goal area	Touch the ball lying in the goal area	Goalkeeper throw
Break through the defence	Charge the opponent	Free throw to the defending team
Pass the ball in order to create a scoring chance	Keeping the ball in possession without creating a scoring chance – passive play	Free throw to the defending team
Use the hands and arms to block the ball	Pull or hit the ball out of the hands of the attacking player	Free throw to the attacking team
Make a frontal body contact with the attacking player	Hold the attacking players shirt/body, push/run or jump into him/her	Free throw/progressive punishment
Stay outside of the goal area	Use the goal area as a defence position/prevent a clear scoring chance	7 metre throw
Stay 3m away from a opposing player when restarting the game	Interfere with a player attempting the restart the game	Progressive punishment

Team Information
Playing Positions and Officials

Goalkeeper — the player who defends the goal with just about every part of the body! The goalkeeper is the only player who can touch the ball with their feet.

Centre — a creative handball player who directs play in both defence and attack. Also known as the 'playmaker' and sets up the tactics and the players in shooting positions.

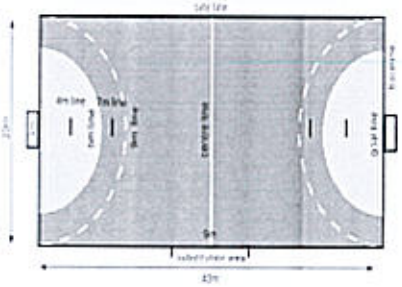
Left and right backs — usually the largest players on the handball team. When defending, they try to block shots, and in attack they are the long-range handball shooters.

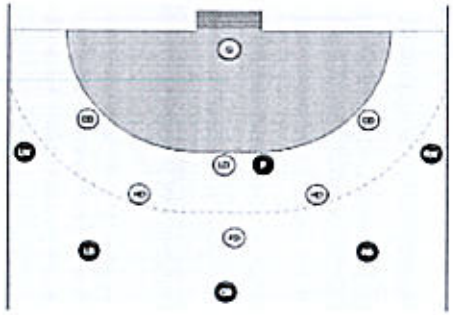
Circle runner — the creative force in attack and disruption to opponents when defending. The circle runner is quick and gets in among opposing defenders to either create openings for teammates or to get into a good scoring position themselves.

Left and right wingers — the fast players who patrol the sides of the court. They counter opposing wingers and in attack look to create openings for others, or shoot from the more difficult angles.

Substitutes — substitution is allowed at any moment, without limit and without time stoppage. There are seven substitutes on the side lines for each handball side. But a substitute can't play until the player they are swapping for is off the court.

The officials — there are four handball officials: a scorekeeper; a timekeeper, and two referees who control the play at close quarters.

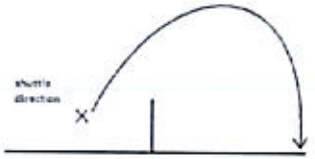


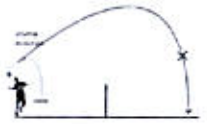
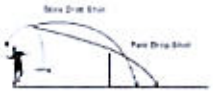
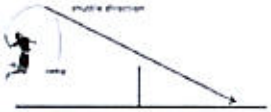


Key Stage 3- Badminton Knowledge Organiser

Key Vocabulary

racket, shuttlecock, arm extension, flick wrist, transfer of weight, sideways stance, grip, court

Skill	Teaching Points	Image
Short Backhand Serve	• Grip your racket comfortably but not too tightly • You can grip slightly above the hilt for more control, should it be necessary • Using your thumb and forefinger (middle finger if you must), hold the shuttle feather and tilt the shuttle head towards you, feathers facing the net. • To get ready to execute the badminton backhand serve, stand with your racket foot forward, and with the shuttle and racket bearing-arms forward in position as shown in the diagrams above. • The badminton backhand serve starts with the weight on the back foot and shifting towards the front foot during the process of serving • The wrist should be pulled back and flicked gently to push the shuttle forwards	
Long Serve	• Played with a forehand underarm action. • Stand two to three feet behind the short service line. • Relax your body and bent your knees slightly. • Lead with your non-racket leg and place your racket leg behind. • Bring your racket back to almost your shoulder level then swing it forward following the rhythm of the stroke. • Hold the shuttle by the feathers and let it drop slightly in front of you. • Hit it with the flat face of your racket and follow through until your racket reaches the non-racket side of your head.	

Skill	Teaching Points	Image
Overhead Clear	• Move into position and get behind the shuttle. ... • Raise your Racket Arm and Non-Racket Arm. • Your body should face sideways with your feet pointing slightly sideways. • Commence your Forehand Stroke. • Take the shuttle at the Highest **Point** possible. • Complete a Full Arm Swing.	
Drop Shot	• Use a forehand grip. • Stand sideways with your non-racket hand facing the net. • Shift your weight to your rear foot, bend your elbow holding the racket and prepare to hit the incoming shuttle. • As you hit the shuttle, straighten your elbow, tapping the shuttle as you hit it.	
Smash	• Your body should face the side of the court. Both your feet should also point sideways.. • Take the shuttle at the highest point possible. • Hit the Shuttle with a Full Arm Swing. • Follow Through with your Swing.	

Subject Knowledge Organiser

HRF – Health, Fitness and Exercise, Consequences of a SL, Lifestyle choices & CoF

Health, Fitness and Exercise

Health can be defined as 'complete physical, mental and social wellbeing and not only the absence of illness or infirmity'. Fitness can be defined as 'the ability to meet the demands of the environment'. Exercise can be defined as 'a form of physical exercise done to improve health or fitness or both'. *Adults* - five sessions of thirty minutes activity per week. The activity should be physical enough to cause the adult to breathe more deeply and to begin to sweat. *Children and young people* - seven sessions of sixty minutes per week. At least two of these sessions should be of high intensity exercise such as running, jumping or cardiovascular based sports.

Consequences of a sedentary lifestyle

If a person does not take part in regular physical activity, exercise or sport then they are at risk of a number of illnesses and negative effects such as weight gain or obesity; heart disease; hypertension (high blood pressure); diabetes; depression; increased risk of osteoporosis and loss of muscle tone.

Lifestyle choices

Other lifestyle choices can affect a person's health in either a positive or negative way. For example, eating a balanced diet means a person is less likely to become ill or put on excess body fat; getting enough sleep is important for the body to rest and brain to function optimally; not smoking as this causes illnesses such as bronchitis and lung cancer and not taking recreational drugs such as alcohol as in the short term it can lead to disorientation and poor decision-making and in the long term can lead to disease.

Component of Fitness

	Definition	Example
Body composition	The percentage of body weight which is fat, muscle and bone	The gymnast has a lean body composition to allow them to propel themself through the air when performing on the asymmetrical bars
Cardiovascular fitness	The ability of the heart, lungs and blood to transport oxygen	Completing a half marathon with consistent split times across all parts of the run
Flexibility	The range of motion (ROM) at a joint	A gymnast training to increase hip mobility to improve the quality of their split leap on the beam
Muscular endurance	The ability to use voluntary muscles repeatedly without tiring	A rower repeatedly pulling their oar against the water to propel the boat towards the line
Strength	The amount of force a muscle can exert against a resistance	Pushing with all one's force in a rugby scrum against the resistance of the opposition pack
Agility	The ability to change the position of the body quickly and control the movement	A badminton player moving around the court from back to front and side to side at high speed and efficiency
Balance	The ability to maintain the body's centre of mass above the base of support	A sprinter holds a perfectly still sprint start position and is ready to go into action as soon as the gun sounds
Coordination	The ability to use two or more body parts together	A trampolinist timing their arm and leg movements to perform the perfect tuck somersault
Power	The ability to perform strength performances quickly	A javelin thrower applies great force to the spear while moving their arm rapidly forward
Reaction time	The time taken to respond to a stimulus	A boxer perceives a punch from their left and rapidly moves their head to avoid being struck
Speed	The ability to put body parts into motion quickly	A tennis player moving forward from the baseline quickly to reach a drop shot close to the net

Key Stage 3- Netball Knowledge Organiser.

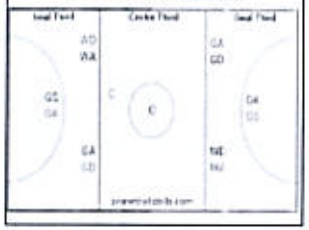
Key Vocabulary

Passing- sending the ball
Receiving- catching the ball
Footwork- how you land when in control of the ball (see footwork rule)
Dodging- a way to change direction quickly
Defending- preventing the other team from gaining possession of the ball and scoring
Attacking- making an attempt to score
Marking- a way to prevent your opponent from receiving or passing the ball or shooting
Shoot- attempt to score a goal
Offside- Moving into an area where you're not permitted (see offside rule)
Interception- preventing a pass between players
Throw in- a free pass taken off court
Centre Pass- taken to start or restart the game
Free Pass- awarded when there is an infringement of the rules by a player
Penalty Pass- as above, when two players are involved
Goal Third & Centre Third- areas of the court.

Rules of the game

Starting the game- centre pass. A centre pass alternates between the teams, regardless of which team has scored. Before the whistle, all players must start in the goal thirds except the two Centres (see diagram). The Centre stands in the centre circle with the ball.
After the whistle the Centre pass must be caught or touched by a player standing in or landing within the Centre third.
Offside- A player cannot move into an area of the court that is not designated for their position. This will result in a free pass being awarded to the opposing team.
Footwork- A player can receive the ball: With both feet on the ground or jump to catch the ball and land on two feet simultaneously. You may then take a step in any direction with one foot (but not both) and pivot on the spot with the other foot. Once one foot is moved, the other is considered to be the landing foot. Hopping or dragging the landing foot is not allowed. This will result in a free pass being awarded to the opposing team.
Obstruction-A player attempting to intercept or defend the ball must be at least 3ft (0.9m) away from the player with the ball. A penalty pass will be awarded if you obstruct.
Contact- You must not come into contact with another player whether they have the ball or not. A penalty pass or shot will be awarded if you contact an opponent. If two opposing players contact simultaneously a toss-up is taken between the two players concerned.
Held ball- you can only hold onto the ball for a maximum of 3 seconds.
Over a third-The ball cannot be thrown over a complete third of the court without being touched or caught by a player (i.e. it cannot cross two transverse lines).

Playing Area



Team Information

There are 7 players on a team each with a different role;
Goal Shooter (GS)-To score goals and to work in and around the circle with the GA.
Goal Attack (GA)-To feed and work with GS and to score goals.
Wing Attack (WA)-To feed the circle players giving them shooting opportunities.
Centre (C) - To take the centre pass and to link the defence and the attack.
Wing Defence (WD)-To look for interceptions and prevent the WA from feeding the ball to the GS and GA.
Goal Defence (GD)-To win the ball and stop the GA from scoring.
Goal Keeper (GK)-To work with the GD and to prevent the GA/GS from scoring.

Key Stage 3- Trampolining Knowledge Organiser

Key Vocabulary

Body Tension, Control, Aesthetics, Travel, Fluency, Shape, Routine, Extend, Raise, Height, Spotter, Straddle, Tuck, Pike, Straighten, Vertical, Horizontal

Skill	Teaching Points	Image
Straight Jump	• Stand on both feet on the red cross, in the middle of the trampoline. • Bend your knees and push gently off your toes to begin a low, controlled bounce. • As you move up and away from the trampoline bed move your arms in an upward direction • When you reach the top of your jump and begin to travel back to the trampoline bed bring you arms back down to your side.	
Straddle Jump	• As you take off, bring your legs apart and extend them out to the sides of you more than 90 degrees and horizontal. • Straighten your arms, place them out to sides like your legs, and place hands on knees/legs. • Keep your upper body and head as still as possible. • Ensure your toes are pointed and you are looking forwards.	
Tuck Jump	• As you take off, bring your arms away from your sides and extend them out in front of you and elevate your arms quickly above your head. • Keep your upper body and head as still as possible. • As you begin to reach the peak of the jump, bring your knees upwards and into the chest. • Ensure that both knees are tucked tight into the chest and the shins are vertical with the floor and parallel to your back. • Bring the arms down from the extended position and touch the hands just below the front of the knees.	
Pike Jump	• As you take off, keep your legs together and straight and extend them out in front of you. • Knees should be straight and both knees and feet together touching. • Straighten your arms, extend them out forwards and place hands on knees/legs. • Keep your upper body and head as still as possible. • Ensure your toes are pointed and you are looking forwards.	
Seated Landing	• As you take off, bring your arms away from your sides and elevate your arms above your head. • Begin to tilt your pelvis upwards slightly to create a natural leg lift. • Keep straight legs and your upper body and head as still as possible. • Maintain position. • As you begin to lose height, bring your arms down to make contact with the bed just behind your bottom and extend your feet forwards. • Ensure you land with your back close to upright and hands tucked in just behind your bottom with the fingers pointing forwards in the same way as your toes	

Key Vocabulary

- Batting - Bowling - Fielding - Running - Throwing
- Base - Back Stop - Rounder - Half Rounder - No Ball
- Innings - Obstruction - Catching

Lesson Overview

1. Aim of the game
2. Rules of the game
3. Basic Rounders skills
4. Positions/playing area
5. Throwing
6. Catching
7. Batting
8. Bowling

Rounders

KS3 Knowledge Grid

Aim of the game

The object of Rounders is to either outscore a team with the most runs when batting or stop the opposition scoring the most runs when bowling and fielding.

Rules of the game

WE ARE ALL ROUNDERS

ROUNDERS ENGLAND

SIMPLIFIED RULES

TEAMS

- Games are played between two teams. Each team has a maximum of 15 and a minimum of 6 players.
- No more than 9 players may be on the field at any one time.
- If a mixed team - there should be no more than 5 male players.
- List of players and substitutes should be submitted to the Umpire prior to play.
- Games are usually played over 2 innings.
- Players once substituted may return during the game, but batters only in the position of their original number.

BATTING

- Wait in the backward area well away from 4th post.
- If out, wait in the backward area well away from 1st post.
- Enter the batting square when called to do so by the Umpire.
- You will have one good ball bowled to you.
- Batter can use 2 hands.
- You can take a no ball and score in the usual way, but once you reach 1st post you cannot return.
- You cannot be caught out or stumped out at 1st post on a no ball.

NO BALLS

- Not smooth underarm action.
- Ball is above head or below knee.
- Ball bounces on way to you.
- Wide or to right of body.
- The Bowler's foot is outside the square during the bowling action.

Playing Positions and basic skills

Basic Cricket skills:

BATTING – The batter will swing the bat and aim to strike the ball that is bowled from the bowler

BOWLER – The bowler will bowl at the batter in an attempt to get them caught out.

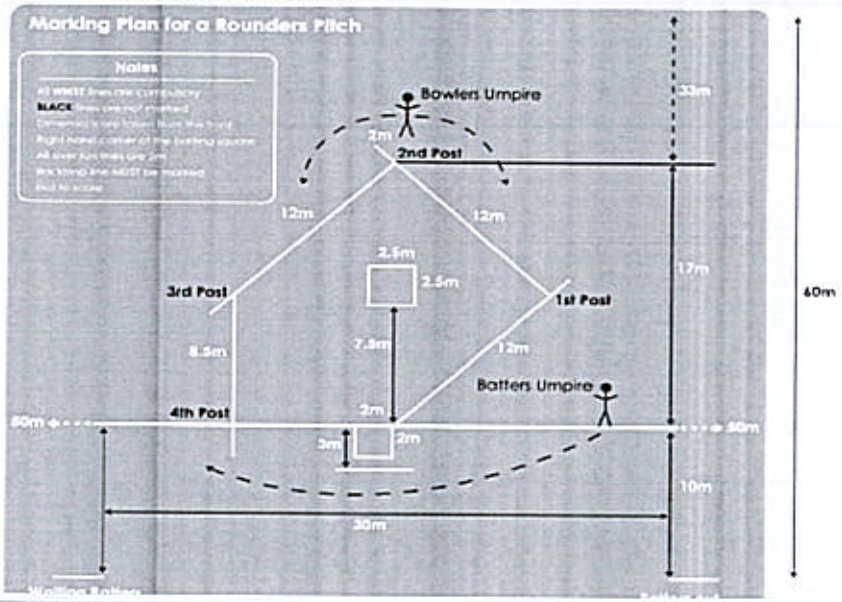
THROWING – Fielders will throw the ball to where it is needed in an attempt to get the batters out, usually at the bases.

CATCHING – Fielders have will either catch a ball that is hit by the batter or that is thrown by a fielder

RUNNING – Batter will run as fast as they can between the bases and score Rounders base on where they can get to.

FIELDING – The aim is to get the batting players out by catching the ball after it is hit, or by throwing it back to the stumps and running the batter out at the stumps

Fielding positions and playing area:

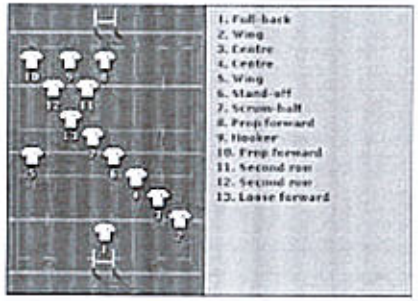


Knowledge organiser for Rugby League KS3

The game.

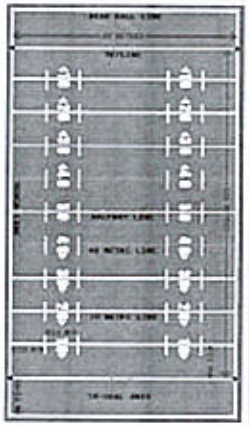
You have 6 attempts to score a try . The defending side must stop the opposition from scoring by tackling the player with the ball. Once 6 tackles have been completed by the defending team the ball is turned over for the other team to try and score with 6 attempts.

Positions at kick off.



Scoring system/points
Points are scored when a try has been awarded. A conversion immediately follows a try.
Penalties are kicked and points awarded if successful.
Try = 4 points
Conversion = 2 points
Penalty = 2points
Drop goal = 1 point

The pitch.



Role of player positions

1- gathers and catches kicks from the opposition, tackles any player breaking through the line of defence and supports players 2,3,4,5 and 6 when attacking Generally one of the fastest and smallest player on the pitch.

2,3,4,5 and 6 Attacking and creative players. Main role is to score tries and defend the wide channels.

6- the most creative player. Main role is to generate gaps and spaces to set up opportunities for players 2,3,4,5 to score.

7- collects the ball from all restarts and links up with player 6 to create opportunities for attacking players.

8,9,10,11,12 and 13 are the biggest players who form the scrum. They are responsible for defending the centre of the pitch, trying to break through the defensive wall of the opposition and set up opportunities for others to score.

General rules

Game starts with a '**kick off**' and this must be a 'drop kick'
There are 13 on field players per team and substitutions off the field.
The ball must be passed (out of hand) backwards **only.**
After **6 completed** tackles the '**hand over**' rule applies and the ball is given to the other team.
No tackle should be above shoulders and shoulder barging is penalised.
No '**stripping**' the ball carrier of the ball.
No **rucks** or **mauls** can be formed.
Offside is when a player is in front of the ball and interferes with play or the ball is past to them.
If the ball is kicked off the field of play this is called '**out of play**' and the game restarts with a 'tap kick' and pass in field to a designated player.
A '**Scrum**' is awarded for a 'knock on' or a forward pass.
Players 8,9,10,11,12 and 13 form the scrum .
Player 9 is called the '**hooker**' and is responsible for striking the ball back with his foot to player 13, '**Loose forward**'
Player 7 is responsible for putting the ball in the scrum.
Penalty kicks are awarded for infringement of the rules, dangerous play, gamesmanship and dissent.
Referee can '**sin bin (yellow card)**' a player if they decided the offending player was unsafe in a tackle, dissent, carried out a dangerous act on the field and not playing to the laws of the game. If a player is sin binned they must leave the field of play for 10 minutes . The player can not be replaced and this would leave his team with only 12 on the field.
Red cards are awarded for serious offences and the player can not return to the game or be replaced eg 12 versus 13 for the remainder of the game.
More than 1 player can be sin binned at any one time.
'**Play the ball**'-After every completed tackle **the tackled player must** stand up and play the ball. No other player can perform this for them.
Kicking the ball is allowed at any time but is generally tactical and performed after the 4th or 5th tackle. Kicking is deemed to gain field position advantage, different type of pass, start the game or to kick for points.

Key Vocabulary

- Hitting - Throwing - Catching - Base running - Fielding - Pitching
- Pitcher - Catcher - Base fielder - Deep fielder - Short stop - Innings
- Home run - Foul area - Outfield - Dead ball area - Tied game

Lesson Overview

1. Aim of the game
2. Rules of the game
3. Basic softball skills
4. Positions/playing area
5. Throwing
6. pitching
7. Batting
8. Catching

Softball

KS3 Knowledge Grid

Aim of the game

The object of softball is to hit the ball with a bat and try to run around a pitch with four bases. Once a player manages to get right round without being given out, a run is scored. The team with the most runs at the end of the game is deemed the winner.

Rules of the game

- Each team consists of 9 players and teams can be of mixed gender
- A game lasts for 7 innings and is split into two sections; the top and bottom of the innings.
- Each team bats once in each innings before the sides switch.
- The fielding team has a pitcher, catcher, a player on first base, second base, third base, three deep fielders and short stop.
- A batter must successfully strike the ball and run around as many bases as possible. Once they get all the way around and back to home plate without being given out, a run is scored.
- The fielding team can stop the batter by making them miss the ball, catching the ball, tagging one of the bases before they reach it or tagging the batter whilst they are running with the ball in hand.
- Behind the first and third base line is a foul area. Once the ball crosses this line before it bounces the ball is deemed 'dead' and play restarts with a new pitch.
- A home run can be scored by hitting the ball over the outfield and into a dead ball area. The batter can then stroll around the bases to score along with any additional batters on base.
- The winners of the game will be decided after the 7 innings have all been completed. The team with most runs after 7 innings will be declared the winner. If after 7 innings the game is tied, then an extra innings will be played until a winner is found

Playing Positions and basic skills

Basic softball skills:

HITTING – The batter will swing the bat and aim to strike the ball that is pitched from the mound

THROWING – Fielders will throw the ball to where it is needed in an attempt to get the batters out

CATCHING – Fielders have will either catch a ball that is hit by the batter or that is thrown by a fielder

BASE RUNNING – Batter will run as fast as they can in between the bases

FIELDING – The aim is to get the batting players out by catching the ball after it is hit, or by touching a base with the ball before they reach it.

PITCHING – A method of throwing the ball at the batter waiting to hit

Fielding positions and playing area:

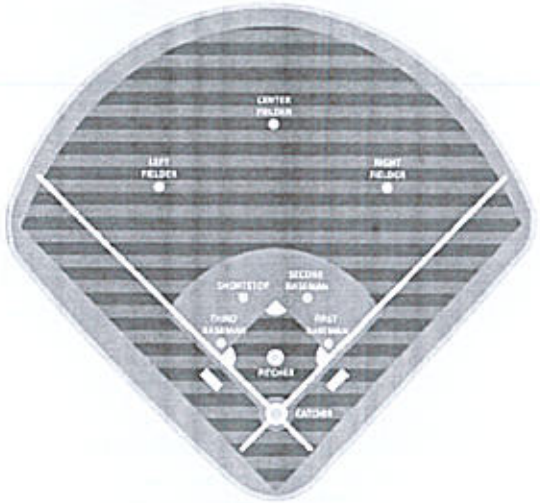


Table Tennis Knowledge Organiser

Key Vocabulary

Backhand: A shot done with the racket to the left of the elbow for a right hander, the reverse for a lefthander.

Backspin: Backward spin placed on the ball. Also called Underspin.

Bat: Implement to hit the ball.

Blade: Wooden part of bat.

Closed: Holding the racket such that the racket's hitting surface is aimed downward, with the top edge leaning away from you.

Cross-table: A ball that is hit diagonally from corner to corner.

Dead: A ball without any spin.

Deep: A ball that ends deep on the table. A serve that will not bounce twice on the opponent's side of the table if given the chance is also considered deep.

Down the line: A ball that is hit along the side of the table.

Drive: The basic topspin shot or smash executed close to the table.

Flat: A ball that has no spin, usually travelling with good pace.

Footwork: How a person moves to make a shot.

Forehand: Any shot done with the racket to the right of the elbow for a right hander, the reverse for a lefthander.

Game/ Set: Each game is played to 11 points unless a deuce occurs.

Game Point: Last point of a game.

Kill: Ball is hit with enough speed so the opponent cannot make a return.

Let: Service ball hitting the net or a distraction that causes the point played over.

Open: Holding the racket such that the racket's hitting surface is aimed outward, with the top edge leaning towards you.

Point: A unit of scoring in table tennis.

Push: A push is an underspin shot executed over the table, and usually close to the net. This is a passive shot that is used when it is impossible to attack a ball.

Rally: The period in which the ball is in play.

Receive: The return of a serve.

Serve: The first shot, done by the server. It begins with the ball being thrown up from palm of hand and struck by the racket.

Shakehand: The most popular grip. It gives the best balance of forehand and backhand.

Smash: A putaway shot. Ball is hit with enough speed so the opponent cannot make a return.

Spin: The rotation of a ball. Topspin: Spin placed on a ball to allow it to curve down onto the table.

Stroke: Any shot used in the game, including the serve.

Topspin: Spin placed on a ball to allow it to curve down onto the table.

• Rules of the Game

Starting a game: Service is decided by a coin toss.

Service: The player serving the ball starts a point.

The player serving must stand with the ball held behind the endline of the table.

The ball must be held over the height of the table in the palm of the free hand.

The server must toss the ball without spin, upwards, at least 16 centimetres.

During the serve the ball must remain above the height of the table at all times.

The server cannot use his body or clothing to obstruct sight of the ball; the opponent and the umpire must have a clear view of the ball at all times

The ball must be hit from behind the baseline so that it bounces once on his or her half of the table, and then bounces at least one time on the opponent's half.

If the ball strikes the net but does not strike the opponent's half of the table, then a point is awarded to the opponent.

However, if the ball hits the net, but goes over and bounces on the other side, it is called a let (or net-in). Play stops, and the ball must be served again with no penalty. A player may commit any number of lets without penalty.

Returning service: To make a "good" return of service the ball must be returned before it bounces twice on your side of the table.

Hitting the ball: The ball must be hit so that it passes over or around the net.

If a player cannot return a hit over or around the net so that the ball bounces on the opposite side of the table, the player loses the point.