



“If you’re not willing to learn no one can help you. If you’re determined to learn no one can stop you.”

*Anon*

Name

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Tutor

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Educating  
for life in  
all its  
fullness



# St Cuthbert Mayne School Year 9 Autumn Term



Knowledge Organiser

## CORE VALUES

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To have integrity and be courageous, compassionate and creative. These core values underpin how we work as a School Community and the values we look to develop in all members of the Community.

**Courageous:** Being confident, to embrace challenge.

**Compassionate:** Reflect the love of God. A care for others, to be peace makers who understand the importance of forgiveness and reconciliation.

**Creative:** To be inventive, resourceful and visionary.

**Integrity:** To do the right thing even when no one is watching.

## Introduction

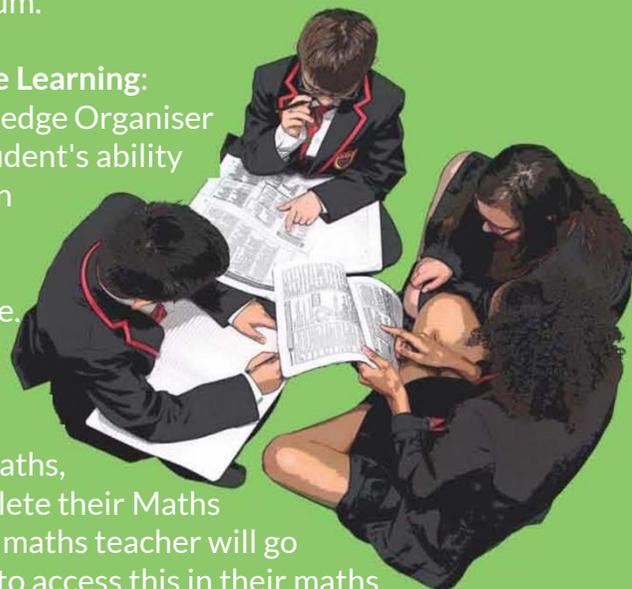
This booklet provides you with all of the KNOWLEDGE that you will need to succeed in your learning this term. The minimum requirement from you is one full A4 page or 20 minutes per subject. Your home learning will be checked by your subject teachers each week. Subjects will set additional Home Learning to help you apply the knowledge from this booklet.

At St Cuthbert Mayne there are two strands to our Home Learning Strategy:

**Subject Specific Home Learning:** students will be set specific subject tasks linked to the curriculum.

### Guided Independent Home Learning:

An approach using a Knowledge Organiser which aims to develop a student's ability to retain knowledge over an extended period of time. Students will routinely self test core subject knowledge.



Students will use SPARX Maths, an online platform to complete their Maths home learning. Your child's maths teacher will go through the details of how to access this in their maths lessons and communicate this home. Other subjects may also use online platforms to facilitate their subject specific tasks and those subjects will communicate this to students and to parents at the start of term.

## Instructions for completing your Home Learning

**Read**

The definition a couple of times



**Cover**

The Page



**Remember**

The definition, think about it



**Write**

Write what you remember



**Repeat**

Each step until you can write the definition correctly



## Home Learning Timetable



	Monday	Tuesday	Wednesday	Thursday	Friday
	Maths	Computing	Technology	Music	English
Developmental Studies		French	Geography	PE	
	Science	Drama	History	Art	RE







## UNIFORM AND APPEARANCE - OUR EXPECTATIONS

Students are expected to present themselves correctly and tidily at all times both in school and on the way to and from school or when involved in off-site visits. This not only helps to maintain the high standards of the school, but also is good training for later life.

There are separate guidelines on dress code for students in the 6th Form available on application to the school. If parents / carers are unsure about whether an item of uniform is suitable for school they should visit our website or contact us directly prior to purchasing.

- Blazers – This must be the school blazer (black with red braiding and school badge) purchased from Torre Sports / Pro-direct Sport. These must be worn at all times except if involved in physical activity on the field or on the yards during lunch and morning break when they can be removed if desired. If a student wishes to take his or her blazer off during a lesson then he/she should ask the teacher. A black V-neck jumper (not sweatshirt) may be worn under the blazer.
- Skirts – Black\* knee length pleated skirt, as supplied by Torre Sports / Pro-direct Sport or an identical skirt. The skirts should be approximately knee length and not worn in a very short manner (e.g. Not more than 5cms above the knee). Tights if worn should be plain black. Socks if worn should be plain black ankle socks.
- Boys Trousers - Trousers must be plain black\* formal style school trousers, as supplied by Torre Sports / Pro-direct Sport or an identical item. Not acceptable: black jeans, chino or denim style or any form of tight stretchy style of trouser. Plain black socks to be worn. If a belt is worn, it needs to be plain black (wide belts and large buckles are not appropriate).
- Girls Trousers – Trousers must be plain black\* formal style school trousers, as supplied by Torre Sports / Pro-direct Sport or an identical item. Non acceptable items are as listed for boys.

Black\* means that the colour and shade of the trousers /skirt must match that of the blazer (as supplied by Torre Sports / Pro-direct Sport

- Shoes – Formal black shoes that are fully polishable. Moreover, Footwear, which displays a sports branding, is not appropriate for school i.e. the Nike tick. Moreover, trainers should not be worn. All students in the main school must wear shoes that are completely black including on their way between home and school. Shoes should be of a “sensible style” suitable for a wide variety of activities that students tackle each day. Shoes should be waterproof, flat soled, leather or leather like, able to be polished and cover the whole foot. Therefore, platform soles higher than 3cms, high heels higher than 5cms, mules, flip flops, sling backs and sandals, Converse, Vans or boots of any kind are inappropriate for school wear and must not be worn.

- School Bags – A suitable school bag which can carry at least A4 folders e.g. ruck sack not a large fashion handbag.



## UNIFORM AND APPEARANCE - OUR EXPECTATIONS

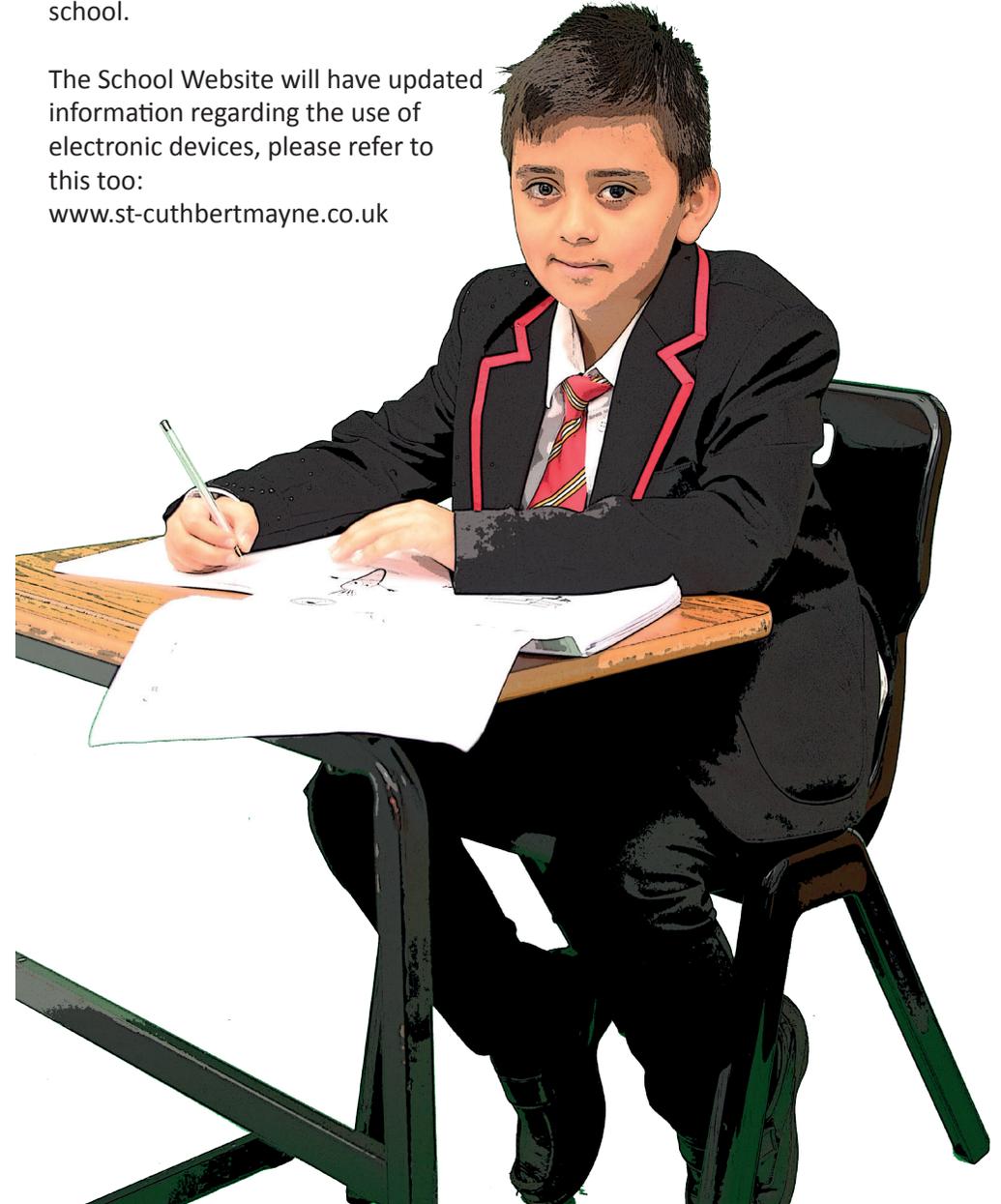
- School Coat – Dark (blue/black) plain outdoor style coat (with no logo, design or graffiti), preferably waterproof. Denim or leather jackets, hoodies or other sweatshirts are not acceptable as school uniform even as outdoor clothing. Coats, hats, gloves or scarves should not be worn in classrooms at any time.
- Make-up – Make-up must be kept to a minimum and should be subtle and not noticeable. Nail varnish is not to be worn into school, if worn students will be instructed to remove it. False nails are not appropriate for school.
- Collared Shirt and Tie – Students must wear a white formal shirt which must button at the neck and be tucked in at all times. All ties must be the school's clip-on tie.
- Jewellery – Jewellery should be kept to a minimum and removed during PE or sporting activities. If students wear a necklace it should not be visible but worn under their shirt. Bracelets must not be worn to school. If excessive or inappropriate jewellery is worn (e.g. rings) the items will be confiscated and put in a safe place until collected by Parents / Carers (normally from Student Services).
- Earrings – For safety reasons any earring which is not of a small stud type should not be worn to school. There must be no more than one in each ear.
- Body piercings - Studs, rings, etc including on the face, nose and in the mouth must not be worn to school under any circumstances. Piercings that require a ring, retainer or object to remain in place whilst the site heals is not acceptable during school sessions. Nose studs cannot be worn in school.
- Hair – Non-natural occurring hair colours are unacceptable for school. Extreme hair styles are also not acceptable e.g. Mohicans, tram lines, highly gelled etc. Headwear of any kind should not be worn in school unless; It is of a religious nature or for medical reasons and has been previously agreed with the Head teacher

- Additional notes:

Aerosols of any description, fizzy drinks, rugby balls, are not permitted in school.

The School Website will have updated information regarding the use of electronic devices, please refer to this too:

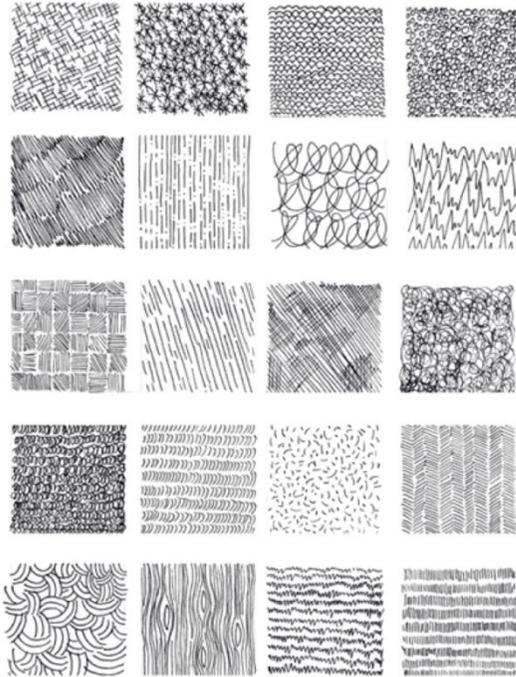
[www.st-cuthbertmayne.co.uk](http://www.st-cuthbertmayne.co.uk)



# ART: Year 9 Unit 1

Please work on plain paper.  
Tasks to be completed:  
Sept-Oct half term

**Task 1:** Create a series of boxes and fill each one with a different mark. The neater you are the better the marks will look.



## MARK MAKING IDEAS

**Tip:** Try cutting a square template from some card or strong paper. Draw around this several times to create your boxes.

**Extension:** Create a range of 'rubblings' using a wax crayon or a pencil on it's side. To explore this task as it can get messy it is advised you do the rubblings on separate paper and then cut them out and attach to your Home Learning paper. To create a rubbing you just need to place your paper over something that has an interesting texture or pattern that is in relief.

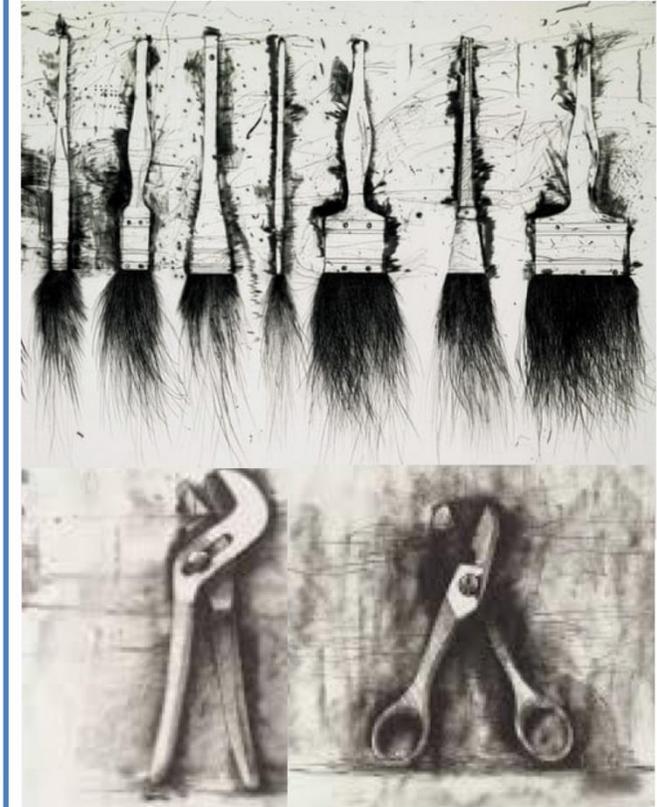
**Task 2:** Research the artist Jim Dine and the work that he creates. Focus on images he creates that look at the idea of Negative space.



## Key Questions:

- How do you think the work was created?
- What material do you think was used, why?
- What do you like/ dislike about the artist work?
- What are the images of/ what does the artist focus on?
- How do you think the background is created in the image on the bottom left? What is negative space?
- Why do you think the artist focusses on the negative space/ area around an object?
- Why do you think the artist works in a limited amount of colours?
- How would you go about creating an image in a similar style?

**Task 3:** Jim Dine is an artist who focuses on negative space. Using his concepts create your own negative space images. To do this you should place an object on the page and using mark making techniques fill the area surrounding the object (similar to the image below)



## How to Research an Artist:

- Find Imagery of the artist's work
- Find information about the artist
- Make copies of the work
- Add your own opinions about the work

## Aim Higher:

Can you find work by other artists that explore positive and negative shapes. What are the differences and similarities between them and the work of Jim Dine?

**Information:** Please use this blank piece of paper to complete your ART work on or work on your own paper for better quality. If you need additional paper please request more from your subject teacher (some students often complete several pages of Art KO each half term). You may alternatively use paper that you have at home. You will then hand your work in to your subject teacher at the end of each half term by cutting this page out and/ or handing in additional paper. You will then place your

 - - - - - work in the back of your school Art sketchbook - - - - -



# ART: Year 9 Unit 2

Please work on plain paper.  
Tasks to be completed:  
October - Christmas Holidays

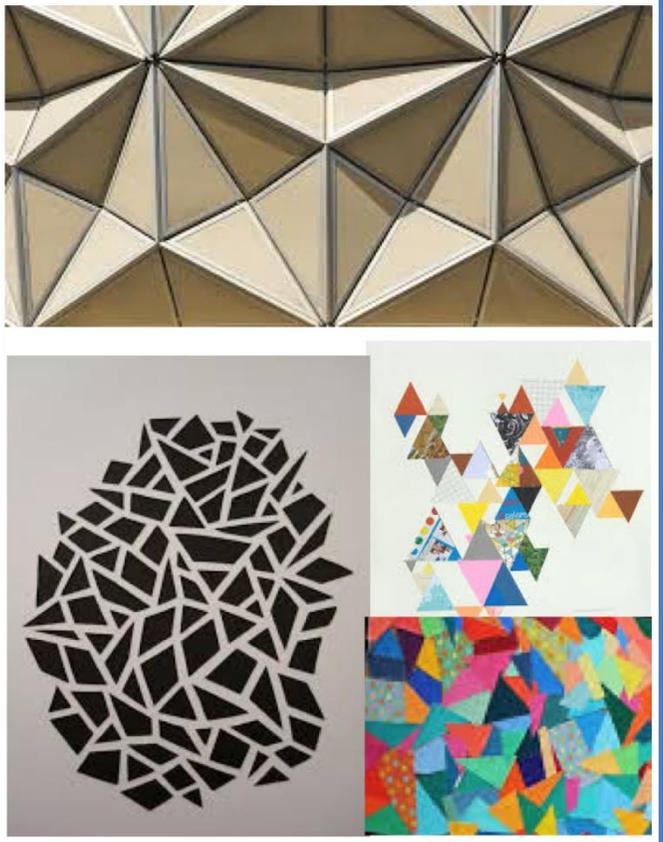
**Task 1:** Place an old sheet or material over the back of your bedroom door or over some objects. Draw a box that is portrait in its orientation. Using a pencil see if you can recreate the shapes going from dark to light. See if you make the material look folded.



**Extension:** See if you can add a shading bar that goes from very dark to very light showing all the tones you have created. See if you can add at least 5 shades to your drawing.



**Task 2:** Using a Triangle shape create an original piece of artwork but repeating the shape. You could cut the shapes from different papers, materials, magazine sections or even design something on a computer.



**Key Words:** Mark making, Scribble, Folded, Shading, Tone, Proportions, Triangle, Materials, Mixed Media, Collage, Light, Dark, Blending.

**Aim Higher:** If you decide to use a computer for this task see if you can gradate the shapes so the go from dark to light. This will give the impression the piece is folded in different ways.

**Task 3:** Using a 'scribble' technique create a portrait of yourself. Try to work quickly and go over areas. Sometimes looking at your face in a mirror and not looking at the paper can have striking outcomes. This task is designed to help with confidence. Don't be afraid if it doesn't look right. Spending a long time making it look 'neat' isn't what this task is about.



**Tip:** Consider before you start this task reading some information about the proportions of a face. Getting the concept of the face structurally correct first can really help the outcomes look more accurate.

**Proportions of the Face**

1. To begin drawing a portrait you must first draw the outline of the face. Measure the width of the face and draw a vertical line down the middle. This will be the center line of the face and will go down to the chin.

2. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

3. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

4. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

5. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

6. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

7. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

8. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

9. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

10. Draw the outline of the face. The outline should be roughly oval-shaped. The top of the face should be wider than the bottom.

**Information:** Please use this blank piece of paper to complete your **ART** work on or work on your own paper for better quality. If you need additional paper please request more from your subject teacher (some students often complete several pages of Art KO each half term). You may alternatively use paper that you have at home. You will then hand your work in to your subject teacher at the end of each half term by cutting this page out and/ or handing in additional paper. You will then place your

 - - - - - work in the back of your school Art sketchbook - - - - -

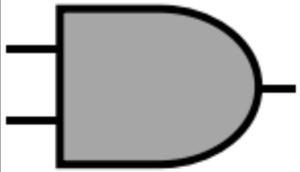
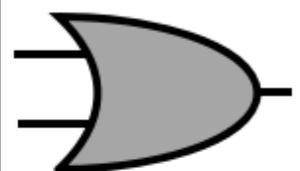
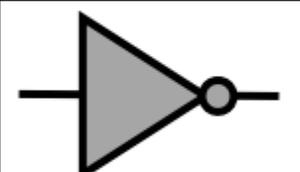


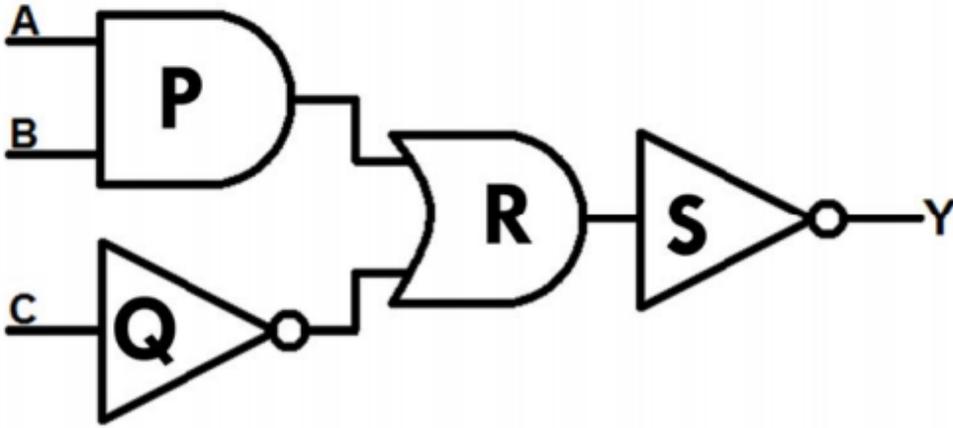
# Computing: Boolean Logic, Logic Gates and Truth Tables

## Key vocabulary

<b>Logic Gate</b>	A logic gate is an building block of a digital circuit. Most logic gates have two inputs and one output. At any given moment, every terminal is in one of the two binary conditions 0 or 1.
<b>And</b>	A logic gate which returns a 1 when both inputs are 1's. Else a 0 is returned.
<b>Or</b>	A logic gate which returns 1 when either or both of the inputs are 1.
<b>Not</b>	A logic gate which inverts its input.
<b>Truth Table</b>	A table which shows outputs from a logic gate or circuit given certain inputs.

## Binary Logic Gate Diagrams

<b>AND</b>		<b>Input A</b>	<b>Input B</b>	<b>Output Q</b>	$Q = A \wedge B$
		0	0	0	
		0	1	0	
		1	0	0	
		1	1	1	
<b>OR</b>		<b>Input A</b>	<b>Input B</b>	<b>Output Q</b>	$Q = A \vee B$
		0	0	0	
		0	1	1	
		1	0	1	
		1	1	1	
<b>NOT</b>		<b>Input A</b>	<b>Output Q</b>	$Q = \neg A$	
		0	1		
		1	0		



A	B	C	P	Q	R	S/Y
0	0	0	0	1	1	0
0	0	1	0	0	0	1
0	1	0	0	1	1	0
0	1	1	0	0	0	1
1	0	0	0	1	1	0
1	0	1	0	0	0	1
1	1	0	1	1	1	0
1	1	1	1	0	1	0

# Computing: Introduction to Python

Key Words	Python Programming	Key Knowledge												
<p><u>Annotation</u>: Commenting your code to explain what parts do.</p> <p><u>Assignment</u>: Storing a value (numerical or otherwise) to a variable.</p> <p><u>Data Structure</u>: A way of storing multiple bits of information at once.</p> <p><u>Index</u>: A position reference in a data structure.</p> <p><u>Iteration</u>: Repeating sections of codes using loops, usually with changing values each time.</p> <p><u>List</u>: Also known as an array. A data structure.</p> <p><u>Module</u>: A collection of linked functions. External modules can be imported in to your code.</p> <p><u>Selection</u>: Using code to choose what happens in a program. Also called a conditional.</p> <p><u>User Input</u>: Allowing the person using the code to provide data.</p> <p><u>Variable</u>: A value that can change. Used to store information for use in a code.</p>	<h2 style="text-align: center;">Key Skills</h2> <p><u>Understanding Python Code</u>:</p> <pre style="border: 1px solid black; padding: 5px;"> name = input("Enter Name") #A age = 14 #B users = ["John", "Jane"] #C length = len(users) #D valid = False #E  for i in range(length): #F     if name == users[i]: #G         valid = True #H  if valid == True: #I     print("Valid user") #J else: #K     print("Invalid user")</pre> <p>A: Stores user inputted text to a variable called name.          B: Stores an integer value 14 to a variable called age.          C: Creates a list which contains 2 string values. Stores to users.          D: Calculates the length (how many items are in) of users.          E: Stores the Boolean value False to variable valid.          F: Use of white space to make code clearer.          G: Creates a loop that will iterate for every element in users.          H: Use of selection to determine if the entered value match with any values from the list. users[i] looks up the current value from the list based on the given index.          I: If the name is in the list users, valid is changed to True.          J: Selection based on whether valid was changed to True.          K: Runs alternative code if the criteria from J is not met.</p>	<p><u>Key Syntax</u>:</p> <table border="1" style="width: 100%;"> <tr> <td>= used for assignment</td> <td>== used for comparison</td> </tr> </table> <p>Python functions (such as print or len) must have brackets after them, which may contain information. E.g. print("Hello") or exit()</p> <table border="1" style="width: 100%;"> <tr> <td>Keywords in lower-case only e.g. if, while</td> <td># used to start a comment</td> </tr> </table> <p>: must be used at the end of selection and iteration</p> <p><u>Handling Data Types</u>:</p> <table border="1" style="width: 100%;"> <tr> <td>Convert to integer</td> <td>int(x)</td> </tr> <tr> <td>Convert to float</td> <td>float(x)</td> </tr> <tr> <td>Convert to string</td> <td>str(x)</td> </tr> <tr> <td>Convert to Boolean</td> <td>bool(x)</td> </tr> </table> <p>User input in python is always a string by default.</p> <p><u>Variable Name Conventions</u>:</p> <p>Should not be overly long but should be easy to identify purpose. Must start with a letter. Must not contain any symbols or spaces. Instead of a space, use an underscore or camelCase, e.g.:</p> <p>user name ❌ user_name ✅ userName ✅</p>	= used for assignment	== used for comparison	Keywords in lower-case only e.g. if, while	# used to start a comment	Convert to integer	int(x)	Convert to float	float(x)	Convert to string	str(x)	Convert to Boolean	bool(x)
= used for assignment	== used for comparison													
Keywords in lower-case only e.g. if, while	# used to start a comment													
Convert to integer	int(x)													
Convert to float	float(x)													
Convert to string	str(x)													
Convert to Boolean	bool(x)													

# Computing: Advanced Flash Animation

## Animation is...

a series of still images played quickly one after the other to give the appearance of movement

## Frames

Each individual image is known as a frame. Important points are **KEYFRAMES**

## FPS

Frames Per Second  
How many images play for each second of the animation

The lower the number the more jumpy the animation will be.  
The higher the number the smoother and more realistic the animation will be.



## Anticipation

Action that happens before the main movement E.g. a character's arm moves backwards before throwing a ball

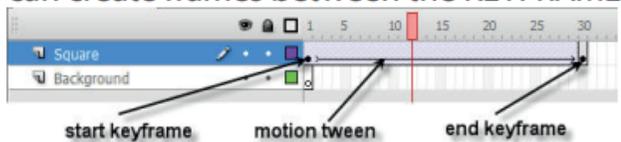
## Follow Up

Action that happens after the main movement. E.g. the character's arm moves back to his side after throwing

# KS3 Media Animation

## Tweening

In digital animation the software can create frames between the **KEYFRAMES**



## Layers

By placing each item on a separate layer we can control them independently



## Squash& Stretch

A technique used to show an object moving or bumping into another object

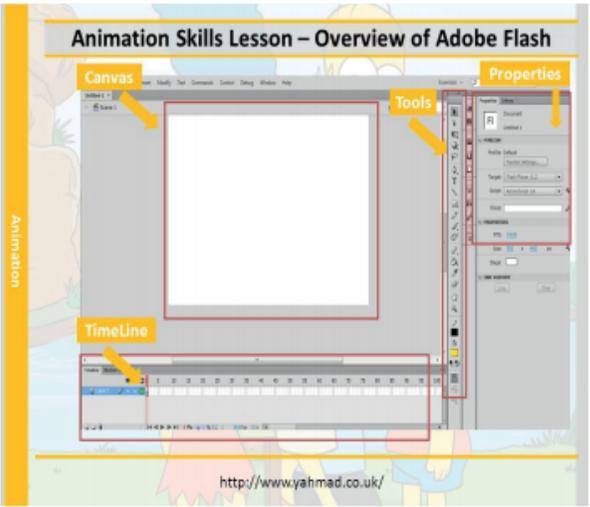
## Onion Skin

Allows us to see the previous position of an object as a reference



## Timeline

A function of digital animation that allows us to control events in the animation



# Year 9 D & T KO: Clocks

## Week 1: The Design Process

There are 9 stages in the design process:

Design Brief

Product Analysis

Market Research

Design Specification

Designing

Planning

Manufacturing

Testing

Evaluating



Market research techniques include **surveys, interviews, focus groups, and customer observation.**

## Week 4: Types of clocks

An Analogue clock is a clock that uses “Hands” to tell the time. These hands in turn are used to point at numbers, roman numerals or just markers on a clock “face”.

A Digital watch or clock is a clock that displays the time with a “Row” of figures or digits. Generally L.E.Ds or LCDs are used to form digits and displays in actual numbers.

Note: L.E.D is a light emitting diode LCD is a liquid crystal display

## Week 2: Design Specification - ACCESS FM

A - Aesthetics - What does it look like?

C - Cost - How much does it cost to make and sell?

C - Consumer - Who would use this clock?

E - Environment - Where would it be used?

S - Safety - How will it be made safe?

S -Size - What size will it be?

F - Function -What will it be used for?

M - Material/Manufacture - What will it be made from? How long will it take to make and what will be needed to make it?

**Extension task: Briefly explain each design stage of the design process**



**Extension task:  
Research sundial, water & pendulum clocks.**



## Week 3: Clock history

The history of clocks is very long, and there have been many different types of clocks over the centuries. Not all historians agree on the history of the clock. The word clock was first used in the 14th century (about 700 years ago). It comes from the word for bell in Latin - clocca

### Using the Sun

The first way that people could tell the time was by looking at the sun as it crossed the sky. When the sun was directly overhead in the sky, it was the middle of the day, or noon. When the sun was close to the horizon, it was either early morning (sunrise) or early evening (sunset). Telling the time was not very accurate.

# Year 9 D & T KO: Clocks



## Week 5: Quartz Crystal Clocks

Quartz is a type of crystal that looks like glass. When you apply voltage, or electricity, and pressure, the quartz crystal vibrates or oscillates at a very constant frequency or rate. The vibration moves the clock's hands very precisely. Quartz crystal clocks were invented in 1920.

Extension task: Using ACCESS FM, analyse 4 crystal quartz clocks

## Week 6: Materials

Properties of plywood:

- High strength.
- High panel shear.
- Flexibility.
- Moisture resistance.
- Chemical & fire resistance.
- Impact resistance.
- Insulation.

Properties of acrylic:

- Excellent clarity.
- Lightweight.
- Good impact resistance.
- Outstanding thermal insulator.
- UV resistant.
- Easy to heat-form.

## Week 7: Packaging products

The primary purpose of packaging is **to protect its contents from any damage that could happen during transport, handling and storage**. Packaging retains the product intact throughout its logistics chain from manufacturer to the end user. It protects the product from humidity, light, heat and other external factors. Good packaging **should be convenient**. Package should be made in a way that the product could be conveniently taken from one place to another and can be handled easily by middlemen or consumers. The size and shape of package also should be convenient for retailers to keep in shop or for consumers to keep at their home.

## Week 8: Final evaluation:

An evaluation gives the opportunity to discuss and analyse the quality of the product that has been designed and made. It enables you to think about the designing and making processes, including how well and safely you have worked.

Evaluating identifies the successes and improvements of your design and practical work. Comments can be made on WWW and EBI with justifications.

It enables you to consider: your designs, how well your product solves the design brief/problem, the materials that you used, what the product looks like, how well it functions, what others have to say about it, whether it could be made more cheaply, and its impact on the environment. Evaluations may include references to what happened when you tested the product. You may also consider: which aspects of your design and make work would you try to improve, or approach in a different way, what did you leave to the last minute, or spend too much time on, which parts are you most pleased with, and why? How well did you make the product, including processes, tools, equipment and safety? And finally, further developments in the future.

# Year 9 D & T KO: Electronic Speaker



## Week 1: Health & Safety

- Eye protection must be worn when soldering because the solder can sometimes spit.
- Wear an apron during all electronic practical lessons.
- Do not stand close to someone else using the soldering iron.
- Keep hands away from any area close to the tip of the soldering iron.
- Always keep the soldering iron tip clean otherwise it will burn.
- Always place the soldering iron back into the holder.
- Keep fingers away from the wire cutters when trimming the wire.

**Week 3:** When designing electronic systems, electrical engineers start with a block diagram called a systems diagram. Systems diagrams help the designers to work out how the electronic system will work and which parts need to be connected together.

**INPUT** → **PROCESS** → **OUTPUT**

**Extension task: Draw and label the components that you have used to make your speaker.**

## Week 4:

### INPUT

This is the trigger to make the circuit do whatever it is supposed to do. This is normally a switch or a sensor.

### PROCESS

This is the part of the circuit that receives a signal from the input components and then tells the output components what to do. This could be a transistor or an integrated circuit, or even a microcontroller.

### OUTPUT

This is the part of the circuit that does the work, this could be an LED, a motor or a buzzer etc.

## Week 2: Soldering

Step 1: Use a soldering iron that is in good condition. Inspect the tip to make sure it is clean. If it is not clean it will prevent you from soldering a good joint.

Step 2: Whilst soldering make sure you are wearing an apron and goggles, also that you have a wet sponge.

Step 3: The heated soldering iron should then be placed in contact with the soldering wire and carefully placed against the component and track. The solder should flow around the component and copper track.

Step 4: Having completed the circuit the legs on the components need to be trimmed using a pair of wire cutters. The circuit is now ready to be tested. .

## Year 9 KO: Electronics - Speaker

### Week 5:

**Resistor:** An electrical component that limits or regulates the flow of electrical current in an electronic circuit.

**Capacitor:** A passive electronic component that stores energy in the form of an electrostatic field.

**Switch:** A device for making and breaking the connection in an electric circuit.

**LED:** A semiconductor device that emits visible light when an electric current passes through it.

### Week 7: Nets for making 3d shapes:

Cube

Tetrahedron

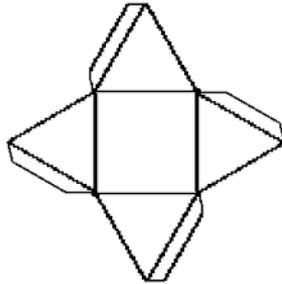
Octahedron

Icosahedron

Dodecahedron

Cuboid

Square based pyramid



**Extension task:** Research all the different 3D shapes that could be used for your speaker case.

### Week 6: Resisting the flow

If you touch a live wire you'll get an electric shock. So electrical wiring is protected by enclosing it in an insulating material. Switches are made of plastic. This prevents you getting a shock when you turn a light on, or any other electrical equipment for that matter. The reason is that plastic doesn't conduct electricity. It has a high electrical resistance, which means it resists the flow of electricity through it. We say it's an insulator. Metals, on the other hand, are good conductors. They have a low resistance to the flow of electricity. Resistance varies from metal to metal, so some metals are better conductors than others. The resistance of a metal wire also depends upon its thickness and length. Thinner wires have a higher electrical resistance than thick ones, and the longer a wire, the greater its electrical resistance.

### Week 8:

#### Properties of cardboard:

- absorption power
- insulation qualities (heat, sound, vibration)
- air permeability
- shape stability

#### Properties of metal:

- high melting points.
- good conductors of electricity.
- good conductors of heat.
- high density.
- malleable.
- ductile.

# YEAR 9 FOOD KNOWLEDGE ORGANISER - Food safety

## WEEK 1 What are bacteria?

A microorganism that multiply in certain conditions

### Where can bacteria be found?

Everywhere!

### Are all bacteria bad?

No- some are good and essential for normal bodily function

### How can you reduce the risk of bacteria?

- Storing food separately
- Storing and cooking foods at the correct temperatures

### Can we kill bacteria by putting them in the fridge?

No- but keeping food chilled at the correct temperatures will slow bacterial growth

## WEEK 2: Why we cook food

**Appearance** – heat changes the colour and size of food

**Taste** – makes it taste nicer

**Texture** – heat changes the texture

**Safety**– heat kills bacteria so we don't get food poisoning

## The 4 C's

**Cleaning** – wash your hands properly

**Cooking** – make sure you cook food properly or you could make someone very ill

**Chilling** – keep it chilly silly

**Cross contamination** – keep raw meat and cooked food apart

## Cross Contamination

### What is cross contamination?

Cross contamination is spreading bacteria from one place to another.

## WEEK 3

### What are the four C's to help prevent spreading bacteria?

- Clean
- Cook
- Chilling
- Cross contamination

### Why do we use different coloured chopping boards when preparing food?

To prevent the spreading of bacteria (to avoid cross contamination)



### Extension Task:

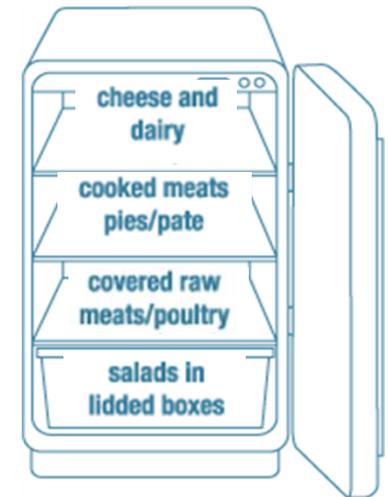
Write a risk assessment for each practical in Food Technology. Carry out a hazard analysis and record safety rules and checks for each stage

## WEEK 4 Storing Food

Temperature is really important to keep food safe. The following temperatures should be used:

<b>Refrigeration</b>	Fridges should run at 4°C or below
<b>Freezing</b>	Freezing of food at -18°C or below will stop bacteria multiplying
<b>Cooking</b>	Temperatures of 72°C or above kills almost all types of bacteria
<b>Danger Zone</b>	The temperature range where bacteria is most likely to reproduce: 8°C-63°C

To prevent cross contamination (the spreading of bacteria), foods must be stored separately. Follow the rules of food storage within a fridge:



## What do bacteria need to multiply?

## WEEK 5

## multiply?



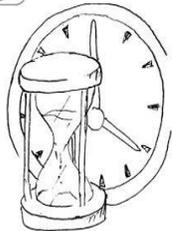
Water: bacteria need moisture to grow



Temperature: bacteria grows when warm

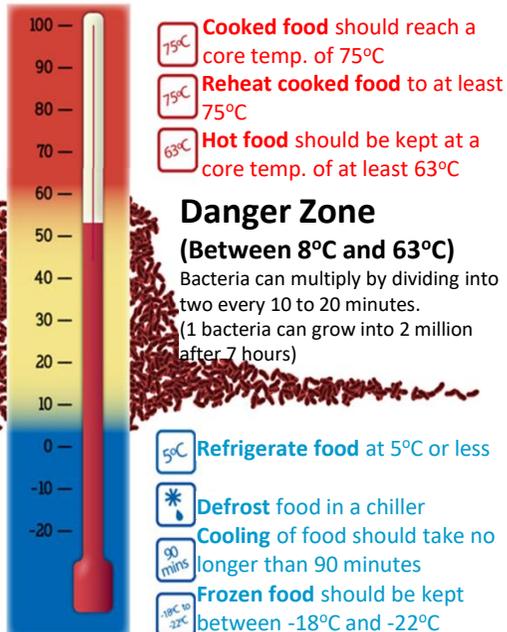


Food: provides the energy for bacteria to grow, multiply and produce toxins



Time: if food is exposed to these things for a long time they will quickly multiply

## Keep food out of the **Danger Zone**



### **Danger Zone** (Between 8°C and 63°C)

Bacteria can multiply by dividing into two every 10 to 20 minutes.  
(1 bacteria can grow into 2 million after 7 hours)

# YEAR 9 FOOD KNOWLEDGE ORGANISER- Special Dietary Needs

## WEEK 6 Dietary Needs

People have different dietary needs; this affects what they can and cannot eat.

### Key Words:

- Allergy:** an adverse reaction by the body to certain substances.
- Intolerance:** a condition that makes people avoid certain food because of the effects on their body
- Allergic reaction:** the way someone responds to certain food. For example: a rash/swelling/anaphylactic shock



Do not eat the meat of any animal (meat, poultry or fish) or eggs, milk, cheese and honey



Do not eat the meat of any animal (meat, poultry or fish), but they do eat eggs, milk, cheese and honey



Do not eat red meat or poultry but they do eat fish, eggs, milk, cheese and honey

### If you were a vegetarian, how could you get your portion of protein?

Sources of protein don't have to be in the form of meat.

- Beans (kidney beans, chickpeas, lentils, etc.)
- Nuts
- Soy and low-fat dairy products
- Micro-protein (Quorn, etc.)

## Some people make a choice not to eat certain foods. Reasons

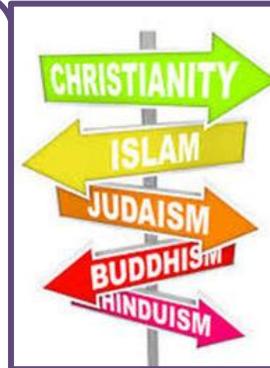
### WEEK 7 include:

- \* Religious beliefs
- \* Medical reasons
- \* Taste/texture of food
- \* Ethical beliefs

### Religious/cultural reasons

**Muslims:** Do not eat pork, alcohol. Meat must be halal.

**Jews:** Do not eat pork, shellfish. Do not eat milk and meat together. Meat must be kosher.



### **Extension task:**

Explain how you could adapt your recipes to meet different dietary needs

### Extra Reading



## WEEK 8: Medical reasons

Name of medical condition	Food/drinks to avoid	Reason to avoid
<b>Diabetes</b>	Starchy food/ high in sugar	High in saturated fat. Can lead to heart disease, while excess sugars can cause unwanted weight gain and blood sugar spikes
<b>Nut allergy</b>	Nuts, blended cooking oil, margarine with nuts oils and often seeds	the immune system overreacts to proteins in these foods
<b>Lactose intolerance</b>	Milk, cheese, yogurt, processed food	cannot metabolize <b>lactose</b> properly; they lack lactase, an enzyme required in the digestive system to break down <b>lactose</b> . Patients typically experience bloating, flatulence, and diarrhoea
<b>Gluten intolerance (coeliac)</b>	Wheat, wholemeal, bran, pasta, rye, beer	Celiac disease is caused by a reaction to a gluten protein found in wheat, barley, rye, and sometimes oats. Symptoms include chronic <a href="#">diarrhoea</a> , weight loss and <a href="#">fatigue</a>

# Year 9 D & T Knowledge Organiser - Textiles

## WEEK 1: The 6 R's

**RETHINK:** Do we make too many products? Design in a way that considers people & the environment.

**REFUSE:** Don't use a material or buy a product if you don't need it, or if it is not good for people or the environment

**REDUCE:** Cut down the amount of material and energy you use, as much as you can

**REUSE:** Use a product to make something else with, using all the parts or some of them.

**RECYCLE:** Reprocess a material or product and make something else.

**REPAIR:** When a product breaks down/ doesn't work properly, fix it

## WEEK 2: Hazard analysis/Risk assessment

### Room safety

1. Do not run in the Textiles room, always walk because ...
2. Place your bag safely under the table because...
3. Never throw items of equipment across the room because...

### Handling scissors

1. Hold scissors by the closed blades when handing to other people ...
2. Do not leave equipment near the edge of the table because...
3. Use scissors carefully when cutting out because...

### Use of Sewing Machine

1. Do not let your fingers go near the moving machine needle because...
2. Do not distract/talk to a person using the sewing machine because...
3. Do not thread the sewing machine unless it is switched off because...

### Needles and Pins

1. Pick up any needles or pins if you drop them because...
2. Never put needles or pins in your mouth or skin

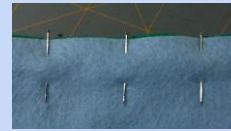
**Extension Task:** Produce an information sheet or poster with the title 'The 6 R's in the Textiles and fashion industry'

## Processes

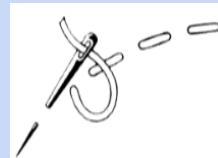
### Cutting out fabric



### Pining



### Tacking



### Machine sewing



### Putting in the cord



### Tie dyeing



## Week 3: ACCESS FM

**Aesthetics:** What would you like it to look like?

**Consumer:** How much will it cost to make & to sell

**Cost:** Who could the product be designed for?

**Environment:** What environmental impact would the product have?

**Safety:** How can you make sure your product is safe to use?

**Size:** What size could you make it?

**Function:** How and where could it be used?

**Materials/manufacture:** What could it be made from and how?



## WEEK 4: Tools and equipment



### Pins

To temporarily secure patterns and fabric in place



### Scissors

To cut out fabric accurately



### Overlocker

To finish the ends of the fabric so they do not fray



### Needle

To tack and sew material together by hand



### Safety Goggles

To wear when machine sewing & overlocking



### Sewing machine

To machine sew material securely



### Thread

To tack and sew material together by hand

## Week 5: Fibres and fabrics

**Polyester:** Man made fibre made from oil/plastic. The properties of polyester: cheaper than silk to produce, can be manufactured to have different finishes and qualities, crease resistant, non breathable. It is not biodegradable, not absorbent and not very warm

**Cotton:** Natural fibre made from the cotton plant. The properties of cotton are: strong, cool, hardwearing, breathable, easy to wash, can be bleached. Products made from cotton include shirts, jeans, T shirts, blouses, sheets and towels.

# Year 9 D & T Knowledge Organiser - Textiles

## Week 6: Decoration Techniques

**Appliqué:** When one shape of fabric is sewn on top of another piece of fabric, it can be attached using hand stitching or zig-zag machine stitch.

**Transfer print:** An image from the computer is printed onto paper and then transferred to fabric using a heat press (THIS IS NOT CALLED HEAT PRESS!)

**Sequins:** Small plastic shapes that add sparkle to a design

**Hand embroidery:** Using a needle and thread to create patterns or pictures or word with stitches

**Fabric pens/paints/crayons:** Dye can be applied straight to fabric by pens, paints or crayons, often they need "fixing" (setting of the dye so it won't come out) this is done with heat.

## Smart Materials

### Thermochromic:Paint, Dye, Beads and Thread

Thermo means heat, Chromo means colour, the paint/dye changes colour in different temperatures

### UV reactive beads/paint/thread

The colour changes depending on the amount of UV rays (light) they experience

### LEDs

Light Emitting Diodes, small electronic lights that can be sewn into clothing, however they require a battery to run and often need conductive thread to work.

**Extension Task: Research other ways to decorate your drawstring bag. Produce an information page with pictures.**



**Week 7: Natural fibre fabrics** are absorbent and dye well. They are not classed as excellent insulators. They are usually quite flammable unless treated.

**Cotton Natural** - From a plant  
Cooling fabric  
Strong and durable  
Absorbent  
Dyes well  
Can crease easily

**Silk Natural** - From a caterpillar  
Naturally warm, but also keeps you cool. Breathable  
Natural lustre (shine)  
Smooth to the touch  
Dyes very well  
Expensive

**Extension Task:**  
Research and find out what other fabric items use smart materials?

**Wool Natural** (sheep's wool)  
Naturally warm and insulating,  
Naturally flame retardant (won't catch fire easily) Water repellent  
Can shrink when in hot water

**Week 8: Synthetic fibres** tend to:melt under intense heat which is quite dangerous, they are usually non absorbent unless blended with a natural absorbent fibre, don't tend to be good insulators unless they are manufactured specifically to be so.

**Polyester** Man made/Synthetic (oil/plastic)

Cheaper than silk to produce  
Can be manufactured to have different finishes and qualities.  
Crease resistant  
Non breathable  
Not biodegradable  
Not absorbent  
Not very warm

**Lycra** Man made/Synthetic (oil/Plastic)

Very stretchy/elastic  
Strong  
Crease resistant  
Good for sports wear  
Not absorbent  
Not insulating  
Not breathable

## Stimulus (what is it?)

The starting point, idea or inspiration for your devised drama. It is what you base your drama around.

Types of Stimuli:

- Textual: a novel, poem, story, letter or factual material
- Visual: a painting, photograph, film or artefact
- Aural: a piece of music, a soundscape or a recording
- Abstract: a word, a theme or a mood



You must learn these key definitions that will be used throughout your drama lessons. Try the following:

- Look, Cover, Copy, Write
- Creating a poster
- Creating flashcards
- Create pictures to represent the key words

## Challenge Tasks...

Base a piece of drama on the ideas contained in one of the images or script extract (see over the page) <https://www.tonictheatre-platform.co.uk/wp-content/uploads/2015/05/ThisChangesEverything-Extract.pdf>



Support for storyboarding:

<https://www.bbc.co.uk/programmes/p02r7fyb>

Before you start your storyboard, ask yourself the following questions:

Who is your **audience**?

What steps will you take to ensure your work appeals to the audience?

How much text will you include?

What media will you include, eg audio, video, images and photos, animation, charts and graphs?

Where will you get it from?

How will your layout make good use of **white space** to avoid your work looking cluttered, eg how will you break the text up?

You can use this script extract to help give you ideas for a devised piece and write a script or storyboard your ideas for it.

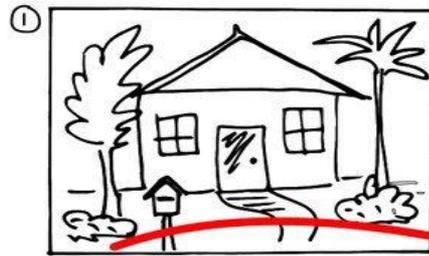
Consider who the character is, who are they speaking to, why would an audience want to listen to the speech or think about the ideas within it?

*KLARA. We should stay because... We know why you came here. Everything back home is wrong. A few rich white men making decisions for loads of people who are not rich and white and men and those decisions are always about money while stuff's running out, people are fighting over oil, water, food – Wars are coming, riots, police violence, it's all coming unless we change how we all live, not just in little token ways but completely. We have to come up with entirely different ways of living here and what you were talking about in the conversations we decoded, fairness, equality, it all makes sense. And now we've read those, now we know all that, we don't belong back there. We can't fit in, we belong here, away from exam results, timetables, choosing what job we should do, trying to fit in to a broken system. We should stay because we can help, because we want to, because we're not just little girls, we're people and we want to change everything. With you. That's why we should stay.*

Support for storyboarding: this version is for a film but you can ignore camera movement and angles if you want to create something for the theatre:

<https://www.acmi.net.au/education/school-program-and-resources/script-storyboard/>

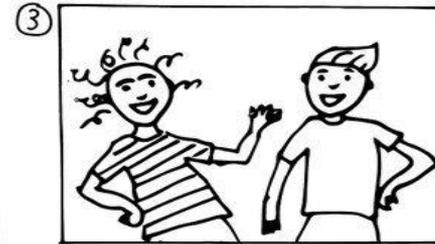
# Storyboard



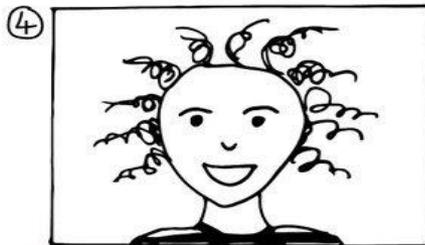
① One ordinary Thursday...



② I noticed something out-of-the-ordinary.



③ My brother Jeremy was NOT being annoying.



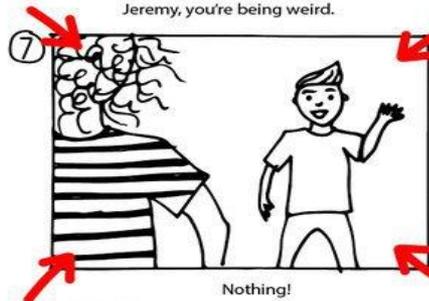
④ Jeremy, you're being weird.



⑤ I'm just happy to see my super amazing sister!



⑥ What are you hiding?

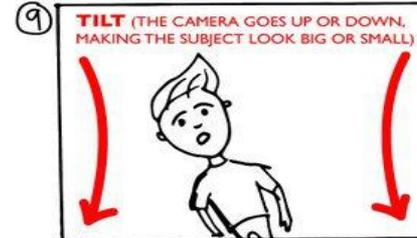


⑦ Nothing!

**DOLLY** (A NEAT WAY TO ZOOM IN OR OUT)

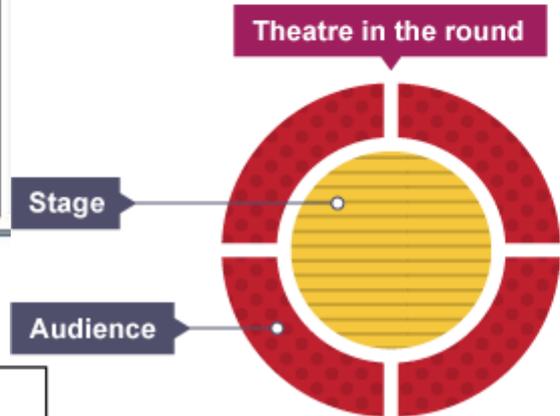
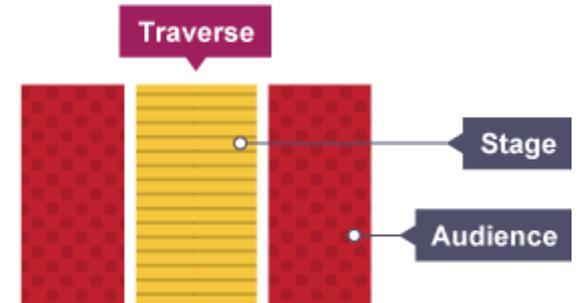
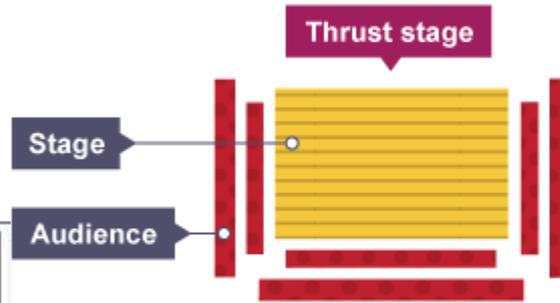
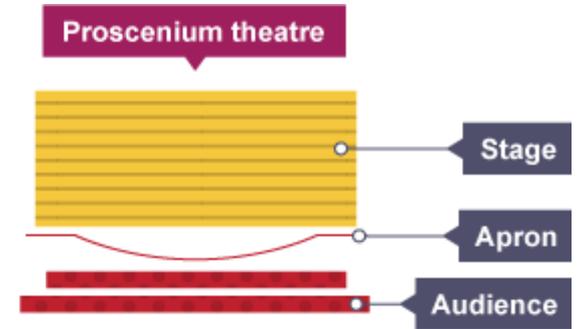
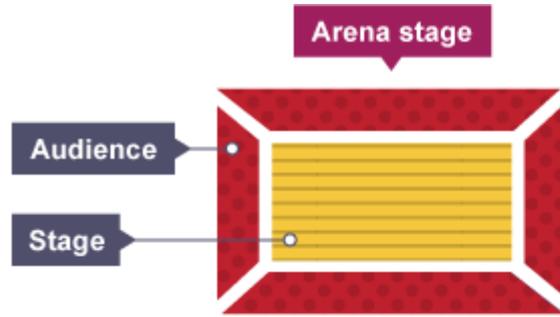


⑧ Come clean maggots!

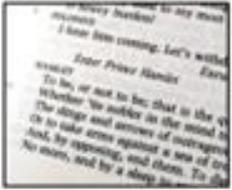


⑨ Ok, ok! I ate ALL of your chocolate!

Consider now how your creative writing or storyboarding work will work in these different types of theatre space. What impact might it have on how you stage different scenes as a devisor or a director?



**Script:** The entire play written down. Scripts include all the dialogue that the characters speak, stage directions and a brief overview of the setting.



BLOCKING  
Planning your positioning and movement around the stage, including entrances and exits.

## Directing

Advice  
Question the actors  
Guide - don't tell.  
Always keep an eye on the 'big picture'  
What is your intention for the piece?  
How are you going to use the stage?

# DRAMA YEAR 9 TERM 1

Physical Checklist	
<b>Facial Expression</b>	Using your face to communicate emotions and thoughts
<b>Body Language</b>	Using your body to communicate thoughts and feelings
<b>Gesture</b>	Using your body, head or hands to express emotion/meaning
<b>Eye Contact</b>	Looking at another person or the audience to communicate a message or meaning
<b>Levels</b>	Using height and positioning on stage to communicate status/meaning

You must revise these key definitions that will be used throughout your drama lessons. Try the following:

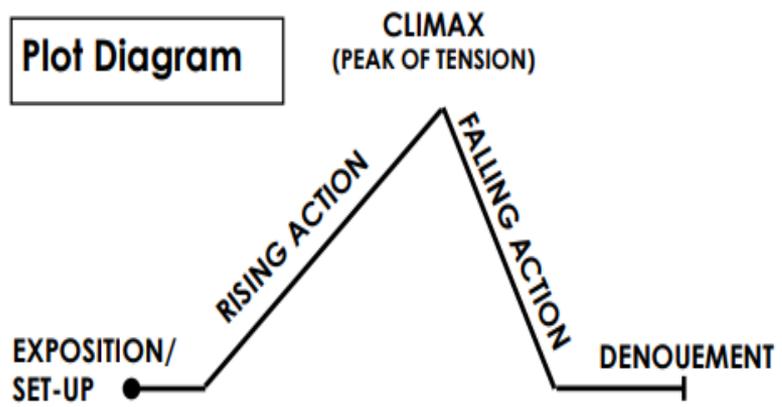
- Look, Cover, Copy, Write
- Creating a poster
- Creating flashcards
- Create pictures to represent the key words

**Challenge Tasks...**consider how your acting technique might change based on where you are in the narrative 'arc'.

Vocal Checklist	
<b>Volume</b>	Loud/quiet
<b>Pitch</b>	High/low
<b>Pace</b>	Speed, fast/slow
<b>Pause</b>	A temporary stop
<b>Tone</b>	Pitch, strength, quality of voice

Explorative Techniques	
<b>Still Image</b>	A moment of action frozen in time, like a photograph
<b>Narration</b>	A performer describing what is happening/telling the story to the audience
<b>Thought Tracking</b>	When an actor speaks their inner thoughts and feelings on stage, all other actors are frozen on stage
<b>Hot seating</b>	Staying in character and answering questions truthfully – and seriously!

**Plot Diagram**



<b>Textual or script writing devices (advanced)</b>	You will find these in some of the texts we study this year but you can also use these in your own devised or improvised work.
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<b>Narrator</b>	An actor describing what is happening/telling the story.
<b>Monologue</b>	A piece of text performed by one actor.
<b>Choral Speech</b>	A number of actors speaking together at the same time.
<b>Flashback</b>	Showing a time period in the past.
<b>Direct Address</b>	Speaking out to the audience, addressing them/breaking the Fourth wall.
<b>Multi-role</b>	Actors playing more than one character in a performance.

You must revise these key definitions that will be used within your drama lessons. Try the following:

- Look, Cover, Copy, Write
- Creating a poster
- Creating flashcards
- Create pictures to represent the key words or scenes
- Write a script

**Challenge Tasks...**

Write a script that uses these advanced techniques.

Create a story board or set of images that use some of these advanced devices.

<b>Explorative Techniques (advanced)</b> (use these in your practical work and in script writing to deepen your approach)	
<b>Cross Cutting</b>	Split stage, action on one side and frozen on the other. You can then create drama that goes forwards and backwards in time.
<b>Role Play</b>	Scenes which include speaking and movement to communicate believable characters.

<b>Physical skills (advanced)</b>	
<b>Synchronised Movement</b>	How you move your body with unison with another performer
<b>Posture</b>	Position you hold your body upright when standing/sitting or slumped to show defeat or fear etc

# Year 9 English Literature Unit 1 Victorian Novel

## *Great Expectations* by Charles Dickens

### **Week 1:**

From your lessons this week create an information sheet about life in Victorian Times. You should aim to write a page in clear paragraphs with subtitles

### **Week 2:**

Charles Dickens was one of the greatest novelists. Write a biography of his life. Subheadings: early life, family life, his life as a writer and his death. Write a full A4 page.

### **Week 3:**

You should have met the character Magwitch in lessons. Imagine that you are Magwitch on a prison hulk. Write a diary for a day in prison.

### **Week 4:**

Write a description of a country character. Think about showing their personality in their clothes, actions, setting and behaviour. A4 sheet.

### **Week 5:**

Write a description of the inside of a spooky room. Aim to include a range of techniques, punctuation and clear paragraphs.

### **Week 6:**

Write a review of the novel. Target your writing style of younger readers in Year 7. Make sure that you use appropriate vocabulary for this audience.

# Year 9 English Literature Unit 1 Victorian Novel

## *Great Expectations* by Charles Dickens

### **Key Words:**

novel = a fictional story book  
chapters = parts of a story  
novelist = a person who writes novels  
philanthropy = the desire to help others  
benefactor = a person who assists another person with money or support  
protagonist = main character in a story  
author = the writer

### **Narrative Structure:**

\_exposition - problem - rising action - climax - falling action - denouement

### **Terminology**

pathetic fallacy = using the weather to symbolise emotions  
adjective = describing word (filthy/rich)  
metaphor = saying something is what it is not to create a comparison  
imagery = creating strong images with words  
bias = prejudice in writing towards a group or individual - bias can be positive (positive spin) or negative  
phonetic spelling = writing words the way they sound  
accent = the way a person's words sound  
adverb = words that describe actions (quickly)  
cliff-hanger = when a chapter or part of a story ends abruptly and readers are hooked into events

### **Analysing:**

What does the writer say?  
Is it a special technique?  
How does it impact the reader?  
What is being implied?

# Year 9 French AUTUMN Term

1	Je suis grand et mince. <i>I am tall and slim.</i>
2	J'ai les yeux bleus et les cheveux longs et blonds. <i>I have blue eyes and long, blonde hair.</i>
3	Je suis sympa, poli et drôle. <i>I am nice, polite and funny.</i>
4	Bien que je sois aussi paresseux quelquefois. <i>Although I am also lazy sometimes.</i>
5	Je m'entends bien avec mon père car il est gentil. <i>I get on well with my Dad because he is kind.</i>
6	Je me dispute avec ma mère car elle est trop sévère. <i>I argue with my Mum because she is too strict.</i>

## Key phrase for all themes

Quand j'étais plus jeune...

When I was younger...

## Key idiom for theme 1

Bien que je sois.....

Although I am

Physical description		
A	Français	English
1	Les yeux....	... eyes
2	Les cheveux...	...hair
3	Grand	Big
4	Petit	Small
5	Mince	Slim
6	Gros	Fat
7	Beau / belle	Beautiful
8	Moche	Ugly
9	Une barbe / une moustache	A beard / a moustache
10	Je porte des lunettes	I wear glasses

Family members		
B	Français	English
1	Ma mère	My mum
2	Ma belle-mère	My stepmum
3	Mon père	My dad
4	Mon beau- père	My stepdad
5	Mon frère	My brother
6	Ma sœur	My sister
7	Mon demi-frère	My half brother
8	Ma demi-sœur	My half sister
9	Mes grandparents	My grandparents
10	L'enfant	Child

## Opinions

C	Français	English
1	J'adore	I love
2	J'aime	I like
3	Je déteste	I hate
4	À mon avis	In my opinion
5	D'après moi	In my opinion
6	Selon moi	According to me
7	Pour moi	For me
8	Je pense que	I think that
9	Je crois que	I believe that
10	Je trouve que	I find that

## Past tense verbs

E	Français	English
1	J'étais	I was
2	J'avais	I had
3	Il y avait	There was
4	C'était	It was
5	J'habitais	I used to live
6	J'allais	I used to go
7	Je me suis disputé(e) avec...	I argued with...
8	Je me suis fâché (e) avec...	I got angry with...
9	Je me suis chamaillé(e) avec...	I squabbled with...

## Future tense verbs

G	Français	English
1	Je serai	I will be
2	Cela sera	I will be
3	Je voudrais	I would like
4	J'aimerais	I would like
5	Cela serait	It would be
6	Je vais aller	I'm going to go

## Adjectives - Personality description

D	Français	English
1	Drôle	Funny
2	Amusant (e)	Fun
3	Bavard (e)	Chatty
4	Poli (e)	Polite
5	Sympa	Nice
6	Gentil (le)	Kind
7	Paresseux / euse	Lazy
8	Méchant (e)	Nasty/mean
9	Agaçant (e)	Annoying
10	Égoïste	Selfish

## Present tense verbs

F	Français	English
1	Je suis	I am
2	J'ai	I have
3	Il y a	There is
4	C'est	It is
5	Je vais	I go
6	Je m'entends bien avec..	I get on well with...
7	Je me dispute avec..	I argue with..
8	Je me fâche avec...	I get angry with...
9	Je me chaille avec..	I squabble with...
10	Je me confie à...	I confide in...

## Time phrases

H	Français	English
1	Normalement	Normally
2	Hier	Yesterday
3	Le weekend dernier	Last weekend
4	Le weekend prochain	Next weekend
5	À l'avenir	In the future

## Connectives

I	Français	English
1	En plus	In addition
2	Aussi	Also
3	Mais	But
4	Cependant	However
5	Par contre	However

# Year 9 French AUTUMN Term

1	Pendant mon temps libre.... <i>During my free time...</i>
2	Je regarde la télé parce que c'est extraordinaire. <i>I watch TV because it is amazing.</i>
3	Je préfère les émissions de sport car ce sont incroyables. <i>I prefer sports programmes because they are incredible.</i>
4	Mon chanteur préféré est Ed Sheeran car j'aime ses paroles et ses mélodies. <i>My favourite singer is Ed Sheeran because I like his lyrics and his tunes.</i>
5	Le weekend dernier, j'ai fait du sport avec mon frère. C'était amusant à mon avis. <i>Last weekend, I did sport with my brother. It was fun in my opinion.</i>
6	Le weekend prochain, je vais aller au cinéma avec mes amis et je vais regarder un film d'horreur. Cela sera chouette. Je vais porter des jeans avec un tee-shirt. <i>Next weekend, I am going to go to the cinema with my friends and I am going to watch a horror film. It will be great. I am going to wear some jeans with a t-shirt.</i>

## Key phrase for all topics

Quand j'étais plus jeune...

When I was younger...

## Key idiom

Ça me rend....

It makes me...

## TV / Film / Music / Reading

A	Français	English
1	Les émissions	Programmes
2	La télérealité	Reality TV
3	Les comédies	Comedies
4	Les films d'horreur	Horror films
5	Les films d'amour	Love films
6	La musique de...	...s music
7	Mon chanteur préféré	My favourite singer
8	Mon chanson préféré	My favourite song
9	Les livres	Books
10	Les romans	Novels

## Sport with faire

B	Français	English
1	Du patinage	Ice skating
2	Du vélo	Cycling
3	De la musculation	Weight lifting
4	De la natation	Swimming
5	De l'équitation	Horse riding
6	De la planche à voile	Wind surfing
7	De l'escalade	Climbing
8	Des randonnées	Walks
9	Du footing	Jogging
10	Du hockey sur glace	Ice hockey

## Opinions

C	Français	English
1	J'adore	I love
2	J'aime	I like
3	Je déteste	I hate
4	À mon avis	In my opinion
5	D'après moi	In my opinion
6	Selon moi	According to me
7	Pour moi	For me
8	Je pense que	I think that
9	Je crois que	I believe that
10	Je trouve que	I find that

## Adjectives

D	Français	English
1	Amusant	Fun
2	Chouette	Great
3	Génial	Great
4	Extraordinaire	Amazing
5	Passionnant	Exciting
6	Incroyable	Incredible
7	Intéressant	Interesting
8	Cher	Expensive
9	Ennuyeux	Boring
10	Nul	Rubbish

## Past tense verbs

E	Français	English
1	Je suis allé(e)	I went
2	J'ai joué	I played
3	J'ai fait	I did
4	J'ai regardé	I watched
5	J'ai écouté	I listened
6	J'ai lu	I read
7	J'ai dansé	I danced
8	J'ai mangé	I ate
9	J'ai bu	I drank
10	C'était	It was
11	J'étais	I used to be
12	Je jouais	I used to play
13	Je faisais	I used to do

## Present tense verbs

F	Français	English
1	Je vais	I go
2	Je joue	I play
3	Je fais	I do
4	Je regarde	I watch
5	J'écoute	I listen
6	Je lis	I read
7	Je danse	I dance
8	Je mange	I eat
9	Je bois	I drink
10	C'est	It is

## Future tense verbs

G	Français	English
1	Je vais aller	I'm going to go
2	Je vais jouer	I'm going to play
3	Je vais faire	I'm going to do
4	Je vais regarder	I'm going to watch
5	Je vais écouter	I'm going to listen
6	Je vais lire	I'm going to read
7	Je vais danser	I'm going to dance
8	Je vais manger	I'm going to eat
9	Je vais boire	I'm going to drink
10	Cela sera	It will be

## Time phrases

H	Français	English
1	Normalement	Normally
2	Hier	Yesterday
3	Le weekend dernier	Last weekend
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## Connectives

I	Français	English
1	En plus	In addition
2	Aussi	Also
3	Mais	But
4	Cependant	However
5	Par contre	However



**Extra - can you find out some more fantastic Africa facts?**

### Key Vocabulary

Triangle of Trade	The journey of exchange made of goods and slaves between Europe, the Americas and Africa.
Colonisation	The action or process of taking over control over local people of an area.
Cash crops	A crop produced for its commercial value rather than for use by the grower.
Migrate	To move from one region or habitat to another according to seasons.

### 1. Introduction to Africa – Physical Geography

- Africa is home to diverse ecosystems, from sandy deserts to lush rain forests.
- It is the **second-largest continent**, is surrounded by the Mediterranean Sea, the Red Sea, the Indian Ocean, and the Atlantic Ocean. It is divided in half almost equally by the Equator.
- Longest River: **Nile** (6,852metres/4,258miles). The Nile is the longest river in the world. The Nile has two sources: The White Nile coming from Lake Victoria in Tanzania and the Blue Nile coming from Lake Tana in Ethiopia. The river mouth is in Egypt.
- Highest Mountain: **Mt Kilimanjaro** in Tanzania. The highest peak of the mountain 'Kibo Peak', also called 'Uhuru Peak', (4,895metres/16,060ft) is located in the Tanzanian highlands.
- Biggest Lake: **Lake Victoria** (bordering Uganda, Tanzania and Kenya) is also the world's second largest freshwater lake. Only Lake Superior in North America is bigger!
- Driest Place: **The Sahara** in northern Africa is the largest hot desert in the world. The climate is extremely dry (arid) in this region.
- **There are sixteen landlocked countries in Africa.** Two tiny countries, Swaziland and Lesotho, are located within South Africa. These countries are all located in the interior of the continent and have neither access to the Atlantic Ocean nor to the Indian Ocean. Two of these countries, the tiny countries, Swaziland and Lesotho, are located within South Africa.

**Extra - do some of your own research into one African country. Find out about its geography and past. What are its challenges and opportunities for the future?**

### 2. Introduction to Africa – Human Geography

- There are **54** countries in Africa - and 9 territories -with a total of more than 1.1 billion people living on the continent, which is 15% of the world's total population.
- The largest country in Africa is **Algeria**. The country is covering more than half the continent's landmass. However, the most populous country is **Nigeria**, with more than 185 million people, but the country is only a third of the size of Algeria.
- The largest city in Africa is **Lagos** in Nigeria. With more than 21 million inhabitants, Lagos is also one of the six biggest metropolitan cities in the world.
- The smallest country in Africa is the **Seychelles**, which is an archipelago (nation of islands) in the Indian Ocean. On the African mainland, the smallest country is **The Gambia**



**Extra - do some research of Chimamanda Ngozi -find out more about her, watch a longer clip of her Single Story idea**

### 3. The Slave Trade

- Between the 1600's and the 1800's, 12-15 million Africans were sold into slavery.
- Europeans bought people in West Africa in exchange for goods, developing a triangle of trade.
- Slavery was abolished from 1833.

#### The Legacy of Colonisation.

- African countries began to gain their independence from Europe in the 1960's.
- Many countries have found the road to a strong and stable nation difficult.
- The wealth of natural resources continues to be over-exploited by European business.
- The best agricultural land is still used to grow cash crops rather than growing crops to feed the growing population of Africa.



## Year 9 : Our World Full of Challenges and Opportunities

### 1. NATURAL RESOURCES

- Africa is rich in natural resources:
- It exports 16% of the world's uranium, used to produce nuclear energy.
  - In 2011, Africa produced more than half of the world's diamonds and nearly 75% of the world's platinum.
  - Africa has 10% of the world's oil and gas reserves.
  - Africa is rich in forests, a source of major hardwoods.
  - Nigeria and Libya are 2 of the leading oil producing countries in the world.

### 2. SAVANNA REGIONS

These are found to the north and south of tropical rainforests. Savanna regions have distinct wet and dry seasons. This biome has lots of wildlife within it however, animals may migrate great distances for food and water. The climate of this area shows that rainfall and temperatures relate to each other – the hottest temperatures come just before the heavy rains, and the coolest time of the year comes just after the rains.

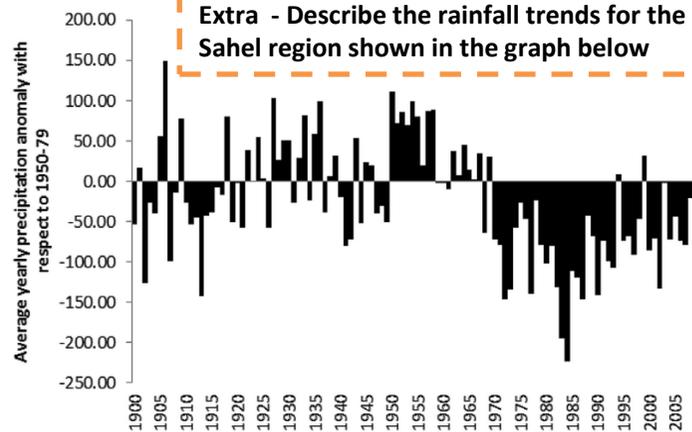


**Extra** - discuss what you think this means. Can you give any examples?  
**"Africa is not poor, it is poorly managed"** Ellen Johnson-Sirleaf, former president of Liberia.

### 3. DESERTIFICATION

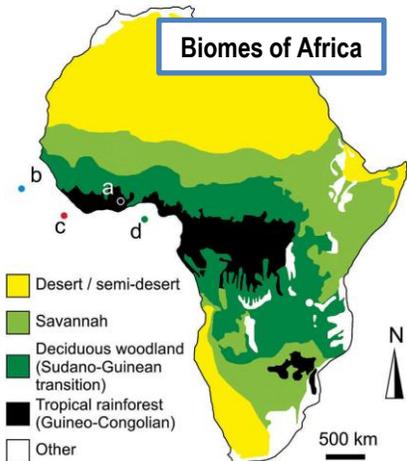
Desertification in the Sahel

- Droughts have occurred when the normally short rainy season is delayed or does not occur.
- Rains are very irregular in the Sahel along with rapid population increase, vegetation clearance and livestock overgrazing are causing the desert to spread southwards (desertification).



**4. The Man that Stopped the Desert** – Yacouba Sawadogo, a peasant farmer, is famous as the man who stopped the desert. 30 years ago the land was so barren and many people were giving up farming and moving away. Yacouba came up with a simple sustainable solution

Biomes of Africa

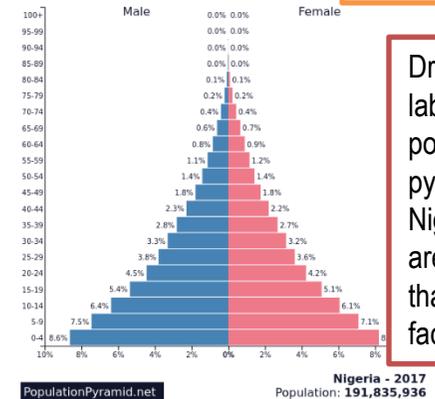


**5. Urbanisation in Ethiopia** - Ethiopia has the second largest population in Africa with over 100 million people. The government is trying to develop the economy of this landlocked country. Although 80% of the population is still rural, urbanisation and economic development are accelerating fast. Much of the population is located in the capital city, Addis Ababa which is located centrally in the country.

People move to the city as they think they will be better off however, they end up living in slums which is becoming a big problem. Slums are often built illegally, they offer cheap rent but they have limited access to water and toilets. This can lead to a spread of disease and lots of problems for the government to solve.

### 6. Government Projects to solve some of the problems in Addis Ababa:

- **Building:** Hundreds of thousands are built every year. These new houses are bought to own, and opportunities to live in them are distributed by a public lottery.
- **Infrastructure:** The Light Rail Transit, the first in Africa, opened in 2015. Built with Chinese support, it cost US\$475 million.
- **Business:** Attract multinational companies to build factories in the city offering incentives and cheap labour.



Draw and label this population pyramid for Nigeria – what are the issues that Nigeria faces?

**Extra** - find a population pyramid for another African country. Describe the similarities and differences between the two pyramids



### A INTRODUCTION TO KENYA

- Kenya is located in East Africa, on the equator.
- In 2012, the population of Kenya was estimated to be around 43 million.
- Kenya is officially known as the Republic of Kenya.
- The capital and largest city is Nairobi. Mombasa is the second largest city.
- The two official languages in Kenya are English and Swahili, although there are dozens of other languages spoken in various parts of the country.
- Kenya shares Lake Victoria, the world's second largest fresh water lake, with Tanzania and Uganda.
- Kenya features many national parks and wildlife reserves, with safaris being a popular activity for visitors.
- Agriculture is important to Kenya's economy, especially tea, coffee and flowers.
- Kenya is named after Mt Kenya, the tallest mountain in the country (5,199 metres, 17,057 feet). Kenya gained independence from the United Kingdom in 1963
- Hydroelectricity is the largest contributor to Kenya's electricity supply.
- Kenya is a developing country and half of the population live in poverty.

### B LOCATION OF KENYA – Can you write a paragraph to describe whereabouts Kenya is within the continent of Africa?



### D RURAL/URBAN CONTRASTS

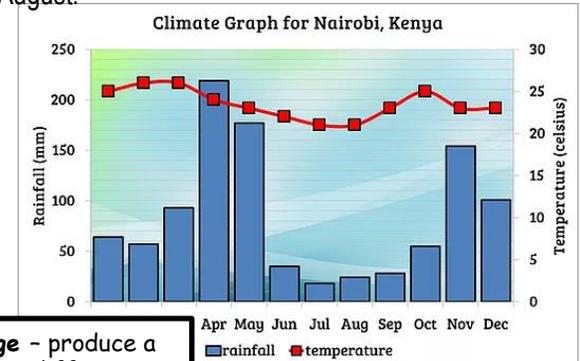
Kenya's capital is Nairobi and it is a big bustling city of 3.4 million people. With many large skyscrapers and its good flight connections, Nairobi is often where large multinational companies choose to locate their African headquarters.



Kenya is home to many national parks. Inside the parks, the land is protected from development and the wildlife is protected from hunting. This makes them excellent places to take a safari

### C KENYA'S CLIMATE

Pleasant and favourable with plenty of sunshine all year round. Rainfall is sometimes heavy around April to May while some areas are more cloudy though without much rain around July/August.



**Extra challenge** - produce a similar slide on a different African country of your choice. Use this one to help with the format

### E KENYA'S ECONOMY

In addition to tourism which forms a large part of the Kenyan economy, the next two biggest foreign income earners are tea production and horticulture, the growing of flowers.

The acidic soils of Kenya's southwest region, with the high levels of rain and ample sunshine make the hills of the southwest an ideal place to grow tea. Tea is traditionally grown in large plantations like the one shown in this photo.





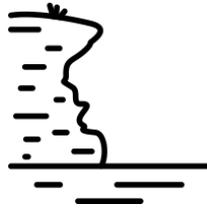
## Year 9 : Our Coastal World

### 1. KEY TERMS

<b>Coastline</b>	Where the sea meets the shore.
<b>Weathering</b>	A process that changes the structure and appearance of cliffs, by how they are exposed to the atmosphere.
<b>Subaerial erosion</b>	The weathering and movement of the top of a cliff. This is not necessarily caused by the sea.
<b>Hydraulic Action</b>	Force of the water hitting the cliff.
<b>Attrition</b>	Rocks in the sea knocking into each other and the cliff.
<b>Abrasion</b>	Pebbles grinding along a rock platform like sandpaper.
<b>Solution</b>	Sea water dissolving certain types of rock e.g. chalk.
<b>Constructive waves</b>	These waves lead to gently sloping beaches as they have strong swash movement to build up the beach.
<b>Destructive waves</b>	These waves lead to scoured, steep beaches as they have strong backwash movement which removes material from the beach.



**Extra - find out some positives and negatives of the coastline around Torquay**



**3. Norfolk's Disappearing Village** – A bungalow is balanced on a cliff edge. The house next door is gone already. All that is left is the back garden where the displaced owner lives in a caravan. The coastline has retreated around 50m per decade. After the 1953 North Sea floods, which killed 307 people across four English counties, coastal defences were built across the Norfolk coast.

**Extra - find out about the sea defences that they built in this area. Were they successful? What is the evidence for this?**

**Extra - can you recognise any coastal defences in your local area?**

**2. Coastal Uses** – It is estimated that over 3 million people live on the coast of the UK. In fact, nowhere in the UK is more than 113km away from the sea. The sea brings many positives for people, such as jobs from fishing, sea transport at ports and tourism. Coastlines are also attractive places to live, But there are also some negatives, such as the risk of flooding, damage to property or cliffs collapsing. Coastlines are exciting, dramatic places, as this barrier faces a constant battle against the sea from erosion and from weathering. Coastal engineers have to protect some coastlines, where people live or earn a living, from the impact of erosion. The government have to make difficult decisions about funding engineering projects to protect our shores.

**4. Shaping our Coastline** – our coastline changes over time and geomorphology is the study of how it changes. Geomorphic processes change how the world looks through actions such as weathering, erosion, transportation and deposition. **Weathering** is a process that changes the structure and appearance of materials like cliffs by how they are exposed to the atmosphere.



**5. Geology** - how coasts change depends not only on the geomorphic processes but also on the geology (rock type) of the area. Headlands are pieces of rock that jut out into the sea. Very often these are made from chalk which is a sedimentary rock and is relatively hard. This means that it is stronger than surrounding rocks and can resist erosion by the sea for longer. Sometimes the coastal area is covered with glacial till, soft material dumped here by glaciers. This rock is made of clay with a mixture of boulders. This material can be eroded and weathered much more quickly than the chalk. **Sub-aerial erosion** is the weathering and movement of the top of a cliff. This is not necessarily caused by the sea

**Extra - find out the geology of the local coastline. What features have been produced as a result of the different rocks?**



**1. Erosion** – this is the wearing or breaking down of material like rocks. Waves drive erosion through their own power or by influencing how the material on the beach or in the sea, moves around. There are four erosion types: **hydraulic action, attrition, abrasion and corrosion/solution.**

**Hydraulic action** – the power of the waves forces water and air into cracks in the rock. This pressure forces fractures in the rock to split apart. Over time this creates faults and notches which get bigger

**Abrasion** – the waves pick up rocks from the sea and throw them against other rocks or cliff faces. Over time this rubs and smooths the rock, like using sandpaper

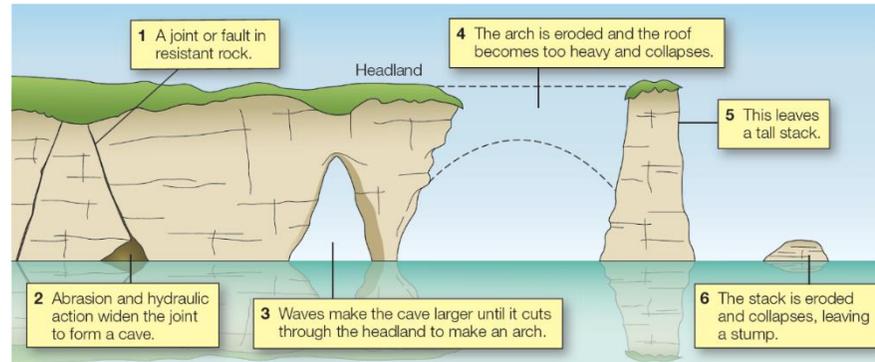
**Corrosion/Solution** – salts or chemicals in the water act to dissolve the rocks they touch, for example, limestone is dissolved by sea salt.

**Attrition** – the sea picks up angular rocks and knocks them into each other. This chips away the corners to make them rounder.

**2. Landforms created by forces of erosion** – as weathering and erosion processes shape the coast they create landforms. These include: headlands and bays, wave-cut platforms, caves, arches and stacks.

**3. Caves, Arches, Stacks** - the chalk contains structural weaknesses, which mean that the sea can erode the cliff at different rates creating and enlarging cracks in the rock, which are eventually enlarged into caves. Two caves either side of a headland can eventually be eroded through to form an arch.

Draw the labelled diagram that is shown below

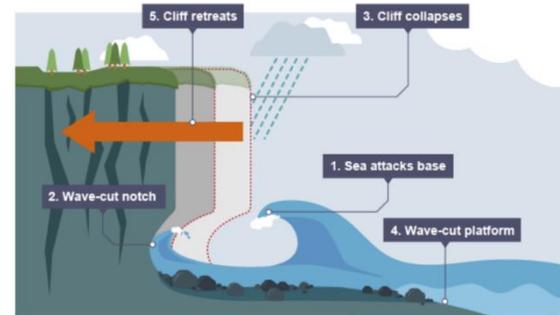


**5. Transportation** - not only does the sea erode coastlines but it then moves the eroded material along and away from the beaches and cliffs. This is called transportation, and it is controlled by the waves.

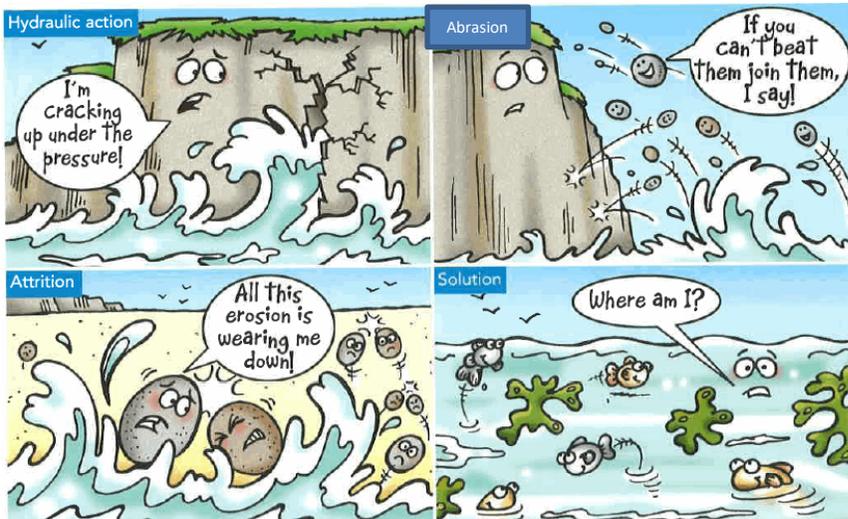
Waves are caused by the movement of wind (not the same as tides which are controlled by the Moon). As the wind blows over the surface of the sea it creates friction on the surface which pushes water along to build up a wave. Water within the wave moves in circular patterns, getting bigger as the wave gets taller and then when the wave meets the shore it becomes unstable and is forced to break.

There are two types of wave: **Constructive waves** are smaller in height with less energy and lead to gently sloping beaches. **Destructive waves** are much larger in height, with lots of energy and take material away from the beach leading to a steeper beach

**4. Wave cut Platforms** – these are visible when the tide is out. The platform is created by erosion processes over times. Waves hit the base of the cliff creating a notch. Draw the labelled diagram below into your notes.



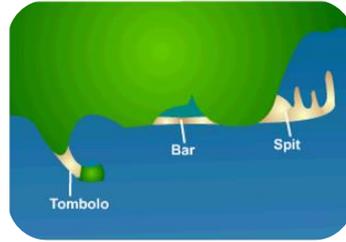
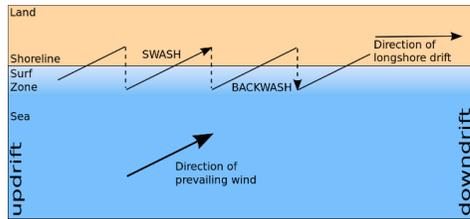
Can you describe in your own words how this feature is formed?  
Extra – can you identify any of these in your local area?





**1. Longshore Drift** - This is the process of transporting beach material (such as sand and pebbles) along the beach, according to the direction of the waves.

- The prevailing wind pushes a wave up the beach, picking up beach material in the swash.
- The backwash drags the material back down the beach.
- Another wave picks up beach material and moves it up the beach again.
- The backwash moves material back off the beach.
- The process keeps repeating moving sediment up and down the beach.



**3. The use and value of landforms** – beaches, spits, bars and tombolos are all used by people for different reasons. All over the world, coastlines are used for varied social, economic, and environmental purposes including fishing, sailing, tourism, residences, adventure sports or just dog walking! Such landforms are also popular with wildlife: birds, seals in particular flock to these habitats. This also attracts people to watch them.

When coastal engineers, planners and the Environment Agency study the coast they must look at its value – this is important when deciding if an area needs protecting.

**2. Deposition** - when waves no longer have the energy to carry the material that has been eroded and transported along the coast, it is deposited. Small material, such as sand, can float in the water for longer, but larger material is deposited sooner. These deposits build up and over time, beaches are formed.

Beaches continue to evolve as erosion and transportation continues, and the cycle of break it to move it to make it carries on. This can lead to other landforms being created such as **spits, bars and tombolos**.

These landforms are all created due to deposition. They are also vulnerable to change (and to erosion and destruction) by waves and longshore drift, unless they are protected.

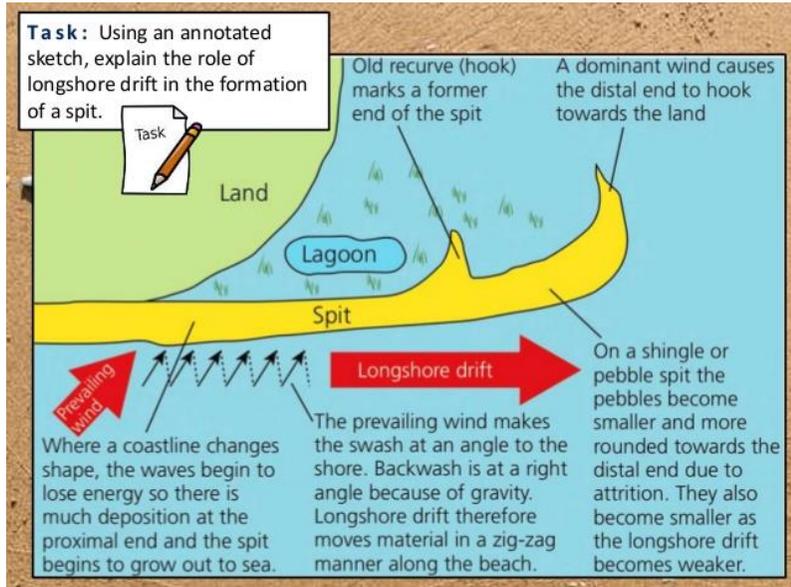
**4. Coastal Changes** – One area of the UK that has seen lots of change has been the Holderness Coast (on the eastern coast) which is the fastest eroding coastline in Europe. A combination of rock type, prevailing wind direction and storms all contribute to the issues facing this ever-changing coastline. Erosion of the cliffs and sea bed here results in 3 million cubic metres of sediment being transported south by longshore drift to Spurn Point each year!



### 5. What is it like for people living on the Holderness Coast?

The Holderness coastal area is mainly rural with a population of about 312,000 and a low population density. The urban areas at Withernsea, Hornsea and Bridlington have tourism, fishing, residential property and business value.

There is rich fertile agricultural land, and industry at Easington where the gas terminal provides 25% of Britain's gas supply, and yet is just 25m from the cliff edge. Spurn Point is itself a conservation site, a Site of Special Scientific Interest, yet it is constantly threatened by the sea.



**6. Protecting the coastline** – the natural coastal processes change coastlines affecting people. Decisions need to be made whether to protect or leave the coastline to the forces of the sea. Decision-makers have to weigh the value and importance of the stretch of coastline against the cost of building defences. There are two categories of coastal management:

**Hard Engineering** – this is usually more expensive and involves dramatic physical structures and changes.

**Soft Engineering** – this involves trying to work more closely with nature and is usually cheaper.

## St Cuthbert Mayne History Department: Year 9 Knowledge Organiser One - Getting the Vote

Key Term	Definition
<b>Vote</b>	The right to have a political voice
<b>Franchise</b>	The right to vote
<b>Electorate</b>	People in a country with the right to vote.
<b>Revolution</b>	The use of force to overthrow the govt
<b>Constituency</b>	An area represented by an MP
<b>Democracy</b>	A system of government in which citizens choose their representatives by voting
<b>MP</b>	An elected member of Parliament
<b>Parliament</b>	An elected body that runs a country

Key Term	Definition
<b>Rotten Boroughs</b>	Constituencies with very small populations but had one or two MPs
<b>Reform</b>	Change brought around by government, not revolution
<b>Suffragists</b>	Members of the National Social and Political Union who campaigned for the vote by non-violent means
<b>Suffragettes</b>	Members of the WSPU who used violent methods to get the vote
<b>Pocket Boroughs</b>	Constituencies where aristocrats or wealthy landowners selected MPs
<b>Militant</b>	Aggressive and violent behaviour in pursuit of a political cause, favouring extreme or confrontational campaign methods.
<b>Petition</b>	A formal written request or application, especially one signed by many people, to a particular individual or group, for example, a government.

### **Why have a KO?**

In History there are some words you have to know. For each topic you cover there will be 15 key words to learn.

You will be tested on these on a regular basis.

### **How do I use my KO?**

Your teacher will tell you when you need to study for a test. It's really simple:

Read  
Cover  
Write

**Repeat the process until you know the key terms and their definitions.  
Enjoy!**

# St Cuthbert Mayne History Department: Year 9 Knowledge Organiser Two: The Causes of WW1

Key Term	Definition
<b>Rivalries</b>	A situation in which countries compete against each other for the same thing
<b>Tension</b>	A feeling of fear or anger between two countries who do not trust each other..
<b>Empire</b>	A group of countries ruled by a single country
<b>Militarism</b>	The belief that it is necessary to have strong armed forces and that they should be used in order to gain power.
<b>Alliances</b>	An agreement between countries that benefits each of them.
<b>Navy</b>	The part of a country's armed forces that is trained to operate at sea
<b>Nationalism</b>	A nation's wish and attempt to be politically independent OR a great love of your own country.
<b>Assassination</b>	The planned murder of an important person

Key Term	Definition
<b>Imperialism</b>	Extending a country's influence by building a large overseas empire – usually using military force.
<b>Arms Race</b>	A race between rival countries to build up their weapons to be bigger and stronger than the other.
<b>Dreadnought</b>	A type of battleship introduced in 1906, larger, faster and equipped entirely with large-calibre guns
<b>Balkans</b>	The Balkans are a group of countries in southeast Europe – key countries in WWI are Bosnia, Serbia and Austria Hungary.
<b>Weltpolitik</b>	'World politics' – a more aggressive foreign policy aimed at increasing German military strength and overseas empire.
<b>Colony</b>	A colony is a country/territory under the complete control and occupied by another country or state.
<b>Ultimatum</b>	The final demand. Accept or else.

## **Why have a KO?**

In History there are some words you have to know. For each topic you cover there will be 15 key words to learn. You will be tested on these on a regular basis.

## **How do I use my KO?**

Your teacher will tell you when you need to study for a test.

It's really simple:

- Read
- Cover
- Write

**Repeat the process until you know the key terms and their definitions.**  
**Enjoy!**

# St Cuthbert Mayne History Department: Year 9 Knowledge Organiser Three - WW1

Key Term	Definition
<b>Stalemate</b>	Deadlock where neither side can move or achieve outright victory.
<b>Attrition</b>	The wearing down and gradual weakening of the enemy forces.
<b>No Man's Land</b>	Land between the front line trenches of opposing sides.
<b>Trench</b>	A ditch like structure . It came to dominate warfare in WW1
<b>Over the Top</b>	Phrase used to describe the infantry climbing out of the trenches to attack the enemy.
<b>Front</b>	The point to which an army has advanced and is engaging with an enemy.
<b>Artillery</b>	Very large guns that fire at long range. Moved on wheels or tracks.
<b>Gallipoli</b>	Major campaign of WW1 on the Turkish peninsula .

Key Term	Definition
<b>Blockade</b>	To seal off – to prevent passage of goods. Introduced by the British to starve the Germans during WWI.
<b>Trench Foot</b>	A fungal infection that could lead to infection, amputation and death
<b>Shell Shock</b>	Old term for PTSD, often viewed as a sign of cowardice in WW1.
<b>Conscientious Objector</b>	A man who refused to fight due to their personal beliefs.
<b>Propaganda</b>	Information used to control people's beliefs.
<b>Barbed Wire</b>	Hated by all soldiers, many became trapped and killed on this.
<b>Machine Gun</b>	Able to fire 6-8 bullets per second, this weapon killed on a scale never seen before.

## **Why have a KO?**

In History there are some words you have to know. For each topic you cover there will be 15 key words to learn. You will be tested on these on a regular basis.

## **How do I use my KO?**

Your teacher will tell you when you need to study for a test. It's really simple:

- Read
- Cover
- Write

**Repeat the process until you know the key terms and their definitions.**  
**Enjoy!**

# St Cuthbert Mayne History Department: Year 9 Knowledge Organiser Four - The End of the War and Versailles

Key Term	Definition
<b>Armistice</b>	The agreement to stop fighting
<b>War Guilt</b>	To take responsibility for starting the war
<b>Treaty</b>	An agreement between countries
<b>Diktat</b>	A forced 'agreement'.
<b>Reparations</b>	Payments to another country
<b>Colonies</b>	Areas of an empire.
<b>Communism</b>	Political idea that everyone should be equal.
<b>De - militarised</b>	To remove armed forces from an area.

Key Term	Definition
<b>Nationalism</b>	Belief that each country should rule itself.
<b>Diplomacy</b>	To solve a problem without fighting.
<b>League of Nations.</b>	An organisation with the aim of avoiding war through diplomacy.
<b>Corridor</b>	Piece of land separating countries.
<b>Territory</b>	Land that belongs to a country
<b>Big Three</b>	The USA, GB and France
<b>Anschluss</b>	The union of Germany and Austria

## Why have a KO?

In History there are some words you have to know. For each topic you cover there will be 15 key words to learn. You will be tested on these on a regular basis.

## How do I use my KO?

Your teacher will tell you when you need to study for a test. It's really simple:

- Read
- Cover
- Write

**Repeat the process until you know the key terms and their definitions.**

**Enjoy!**

# The power of Sparx for parents and carers

sparx

Be empowered to become a pivotal part of your child's education.

## The challenge

Engaging young people with any homework can be tough, let alone tackling maths. At Sparx, we know that parents and carers can be very influential when it comes to homework, and that is why we are so keen for you to be involved in their maths learning journey.

## What is Sparx?

In schools, Sparx Maths Homework automatically sets one hour of personalised learning for every student, every week.

Unique content, covering the KS3 and GCSE maths curriculum, is devised and written by our in-house teams. Over 33,000 hand-written questions are supported by more than 7,800 tutorial videos, which help explain concepts and encourage independent learning.



## Receive reassurance

You will receive a weekly email keeping you up-to-date with your child's homework hand-in dates and what they are studying in the coming week.



## Helpful videos

Your weekly emails contain a link to a topic-based video that can help you to understand the topic your child will be covering.



## Personalised learning for every student

Our technology learns where students' strengths and weaknesses lie, and how long they take to complete different types of questions. It then determines which homework questions would help improve and consolidate their learning. Question difficulty is gradually increased to suit the learner and topics are repeated during the year to help them fully understand the skill for the long term.



## Improves attainment

Additional teacher time and a bespoke learning experience drive both progress and attainment in maths.



## Supports mental health

Progress in core subjects such as maths has a recognised effect on overall attainment. Tackling issues such as 'maths anxiety' and rewarding progress for all students creates confidence that is evidenced at a school-wide level.



## Keeps your child motivated

Students collect XP (experience points) and are rewarded with mini-games.

Home Learning set weekly every Friday 16:00 and due every Thursday 08:00. If you have completed 30% by Monday, we recommend that you attend Bright SPARX.

“ I used to hate maths, now I want to do maths every day ”

Student from All Saints Academy

Bright SPARX clubs run every Monday and Tuesday from 15:10 – 16:10. Supervised by the Maths Department to help anyone who may have issues logging in or would like help on any aspect of the homework.

YEAR 9 MUSIC  
AUTUMN TERM 1 TASKS

# COVERS & ARRANGEMENTS

Please complete the following tasks for your Music Lessons using your 'Covers and Arrangements' Knowledge Organiser pages. There are TWO pages.

Try to write the tasks in your very best handwriting with the title (e.g. 'Week 1 - Music') and date at the top of your page. **Make sure you complete your KO every week even if you don't have a lesson** and remember, you should use your KO as a guide to learn and revise keywords and information - don't just copy it down!

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
<b>T A S K S</b>	<p><b>Task:</b> Learn what notes are in each chord - C, F, G &amp; Am (A minor).</p> <p>Learn about black notes and what a <b>semitone</b> means.</p> <p>Learn the rule for playing chords on the keyboard including broken chords.</p>	<p><b>Task:</b> Memorise common instruments that can be found in popular music.</p> <p>Make sure you know how these instruments sound. YouTube will give you some great examples.</p>	<p><b>Task:</b> Learn the structure of a pop song:</p> <p style="text-align: center;">INTRO VERSE 1 VERSE 2 CHORUS VERSE 3 CHORUS BRIDGE/ MIDDLE 8 CHORUS CODA</p>	<p><b>Task:</b> Create your own cover of a song. It can be any style and should be at least 30 seconds in length.</p> <p>This will make up part of your assessment grade. Present it to your teacher live in lesson or recorded via email/google drive etc.</p> <p><b><u>DUE: W/B 11th Dec</u></b></p>	<p><b>Task:</b> Learn the definition of <b>Form and Structure</b>.</p> <p>Learn what each term means for each section of a song.</p>	<p><b>Task:</b> Learn about the different parts of a song.</p> <p>Can you listen to some songs and pick out each part?</p>



1	<b>Form &amp; Structure</b>	The different sections of a piece of music or cons and how they are ordered
2	<b>Intro</b>	The introduction sets the mood of a song. It is often instrumental but can occasionally start with lyrics
3	<b>Verse</b>	Verses introduce the song theme. There are usually new lyrics for each verse which helps to develop the songs' narrative, but the melody is the same in all verses.
4	<b>Pre-Chorus</b>	A section of music that occurs before the chorus which helps the music move forward and 'prepare' for what is to come
5	<b>Chorus</b>	All the choruses have the same lyrics. This section relays the main message of the song and this part of the song is repeated identically each time with the same melody and music (although this sometimes changes key - <b>modulates</b> - to add drama) before the <b>coda</b> .
6	<b>Middle 8 / Bridge</b>	This section adds some contrast to the verses and choruses by using a different melody and chord progression. Sometimes the <b>middle 8/bridge</b> features a solo.
7	<b>Instrumental Solo</b>	Solos are designed to show off an instrumentalists' skills. Rock, jazz and blues often feature solos on instruments such as piano, guitar and drums.
8	<b>Coda/Outro</b>	The final section of a popular song which brings it to an end ( <b>coda</b> is Italian for 'tail'!)

Typical Pop Song Structure

- INTRO
- VERSE 1
- VERSE 2
- CHORUS
- VERSE 3
- CHORUS
- BRIDGE/
- MIDDLE 8
- CHORUS
- CODA

# MUSIC

## Covers & Arrangements

**MELODY** - The main tune of a song, often sung by the **LEAD SINGER** or sometimes played on instruments within the band e.g. **LEAD GUITAR**. A melody can move by **STEP** using notes that are next to or close to one another and this is called **CONJUNCT MOTION**, or it can move by **LEAPS** using notes that are further apart which is called **DISJUNCT MOTION**. The distance between the lowest pitched and highest pitched note in a melody is called the **MELODIC RANGE**.

**CHORD** - A group of two or more notes played at the same time

**BASS LINE** - The lowest pitched part of the song, often performed by bass instruments such as the **BASS GUITAR**. The bass line provides the harmonies on which the chords are constructed.

**ACCOMPANIMENT** - Music that accompanies either a lead singer or melody line - often known as the "backing" - provided by a band or **BACKING SINGERS**.

**LYRICS** - The words of a song performed/sung by the singer or backing singers.

**TEXTURE** - Layers of sound combined to make music - in a pop song this could be the bass line, chords and melody.

**HOOK** - A 'musical hook' is usually the 'catchy bit' of the song that you will remember. It is often short and used and repeated in different places throughout the piece.

**RIFF** - A repeated musical pattern often used in the introduction of in the **MIDDLE 8/BRIDGE** or **INSTRUMENTAL SOLOS** of a song. **RIFFS** can be rhythmic, melodic or lyrical, short and repeated.



Pop Bands often feature a **DRUM KIT** to provide the rhythm along with **ELECTRIC GUITARS (LEAD GUITAR, RHYTHM GUITAR and BASS GUITAR)** and **KEYBOARDS**. Sometimes **ACOUSTIC INSTRUMENTS** are used such as the **PIANO** or **ACOUSTIC GUITAR**. **ORCHESTRAL INSTRUMENTS** are often found in pop songs such as the **STRINGS, SAXOPHONE, TROMBONE and TRUMPET**. Singers are essential to a pop song - **LEAD SINGER** – Often the "frontline" member of the band (most famous) who sings most of the melody line to the song. **BACKING SINGERS** – Support the lead singer providing **HARMONY** and don't sing all the time but just at points within a pop song.

YEAR 9 MUSIC  
AUTUMN TERM 2 TASKS

# SAMBA

Please complete the following tasks for your Music Lessons using your 'Samba' Knowledge Organiser pages. There are THREE pages.

Try to write the tasks in your very best handwriting with the title (e.g. 'Week 1 - Music') and date at the top of your page. **Make sure you complete your KO every week even if you don't have a lesson** and remember, you should use your KO as a guide to learn and revise keywords and information - don't just copy it down!

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
<b>T A S K S</b>	<p><b>Task:</b> Learn about MAD TSHIRT (bottom of page 1). Write out the acronym, the keyword AND the definition clearly in your book.</p> <p>Also learn about SAMBA DRUMMING MUSIC. Can you summarise this style of music?</p>	<p><b>Task:</b> Learn about RHYTHM.</p> <p>Copy out the table making sure you can identify the note name, draw the note symbol and explain the note value (length of the note).</p> <p>Also, learn about INSTRUMENTS/ TIMBRE and TEXTURE.</p>	<p><b>Task:</b> Learn the key words and definitions of the following boxes:</p> <ul style="list-style-type: none"> <li>- MELODY</li> <li>- DYNAMICS</li> <li>- TEMPO/TIME</li> <li>- STRUCTURE</li> </ul> <p>Can you use these keywords to describe the music we are learning in class?</p>	<p><b>Task:</b> Answer the QUESTIONS ABOUT MUSICAL FEATURES in clear sentences.</p> <p>Try to link these keywords back to your classroom learning.</p>	<p><b>Task:</b> Look at page 3 of your Samba Knowledge Organiser at the KNOWLEDGE column.</p> <p>Create a mindmap of all the key features of Samba music and define them - turn your book landscape to complete this.</p> <p>Complete the table filling in the missing gaps of the notes.</p>	<p><b>Task:</b> Staying on page 3 of your Samba Knowledge Organiser, complete <b>at least 2</b> out of the 5 exercises on the APPLICATION column:</p> <ul style="list-style-type: none"> <li>- outline of samba piece</li> <li>- 4-part polyrhythm</li> <li>- 4-beat ostinato</li> <li>- 3-beat ostinato</li> <li>- call and response rhythm</li> </ul>

# Music Knowledge Organise: Samba

## Exploring Rhythm and Pulse



### MELODY

Pitch – high and low sounds  
 Improvisation – making music up on the spot (can be a melody (tune) or just a rhythm)

### DYNAMICS

Piano - soft ***p*** *cresc.* ***f***  
 Forte - loud  
 Crescendo – gradually getting louder  
 Diminuendo – gradually getting quieter  
*dim.*

### TEMPO/TIME

Metre – the number of beats in a bar  
 Time Signature – found at the beginning of a piece of music and shows how many beats are in a bar. In the time signature below there are 2 beats in a bar. Samba music often is in 2/4 time. One bar



### STRUCTURE

Intro/Outro – the start/end of the piece  
 Groove – the main section of Samba  
 Break – a link passage of music between sections

### TEXTURE

Solo – one person on their own  
 Monophonic – one layer of sound  
 Unison – playing as one  
 Call and response – where one person plays and the rest of the group respond



### INSTRUMENTS/TIMBRE

Timbre - the type of instrument sound  
 Percussion – an instrument that makes a noise by being hit, shaken or scrapped



Samba Drumming Music originates from Rio De Janeiro, Brazil in South America and is a fusion of Portuguese and African music. It is often heard at Carnivals and has a fast beat. Months are spent preparing floats and costumes for carnival. It plays a huge part in Brazilian culture. The band learns to play from memory and the leader plays an Apito whistle to signal when to change beats.

### RHYTHM

Rhythm - a combination of notes of different durations  
 Syncopation - an off-beat rhythm (not on the main beats)  
 Polyrhythm – different rhythms played at the same time  
 Ostinato (rhythmic ostinato) – a repeated rhythmic pattern



### Whole Class Samba Polyrythm

- Team 1: Tea \_\_\_\_\_ a cup of tea \_\_\_\_\_
- Team 2: Sugar shaker coffee maker
- Team 3: All I want is a bar of choc'late
- Team 4: Rice cakes coffee, cold chips and vindaloo

Note Name	Note Symbol	Note Value
Crotchet <i>Remember it... Tea</i>		1 beat
Pair of Quavers <i>Remember it... Coffee</i>		2 x 1/2 beats = 1
Four Semiquavers <i>Remember it... Cappuccino</i>		4 x 1/4 beats = 1
Two Semiquavers + one Quaver <i>Remember it... Lemonade</i>		2 x 1/4 and 1/2 = 1
One Quaver + two Semiquavers <i>Remember it... Blackcurrant</i>		1/2 and 2 x 1/4 = 1
Crotchet Rest <i>Remember it... Shh!</i>		1 beat rest

M	A	D	T	S	H	I	R	T
Melody	Articulation	Dynamics	Texture	Structure	Harmony	Instruments	Rhythm	Tempo/Time
the tune	how notes are played	loud/soft and any changes in volume	the layers of sound and how they fit together	sections of music and how they are organised	the chords used	types of instruments used (timbre)	the pattern of notes	the speed of the music/number of beats in a bar

# Music Questions: Samba

Exploring Rhythm and Pulse



QUESTIONS ABOUT MUSICAL FEATURES	
How many beats does a crotchet last?	What is syncopation?
How many beats does a quaver last?	What is a crotchet rest?
What is a polyrhythm?	How might you structure a Samba composition?
What are dynamics in music?	What does the time signature tell you?
What do the following symbols mean? How can we use them in performance? <i>p</i> <i>cresc.</i> <i>f</i>  <i>dim.</i> 	<b>CONTEXT, SKILLS, REHEARSAL TECHNIQUES AND WIDER QUESTIONS</b>
What is an ostinato pattern?	What is a musical ensemble?
Name the different timbres (instruments) used in Samba music.	Where does Samba music originate from?
Which instruments in Samba play different pitches?	Where do you often hear Samba music?
What is call and response?	What is a musical ensemble? Give an example
How is call and response used in Samba music?	How do the Samba band keep in time?
Name the different sections found in Samba music.	Which instrument does the leader play?
Which texture describes when everyone plays the same rhythm at the same time?	
Define the term 'solo'.	
What is improvisation?	

# Music Extension Activities: Samba

Exploring Rhythm and Pulse



## KNOWLEDGE

Create a mind map of all the key features of Samba music.  
In a different coloured pen define each feature.  
For each feature give an example of how it is used in Samba music

Perform these rhythms using your knowledge of notation

 HOT DOG 	 GRAPE SODA 	 APPLE PIE 	 HOT FUDGE SUNDAE 	 COCONUT SHRIMP 
 RICE KRISPIE TREAT 	 CHOCOLATE STRAWBERRY 	 CINNAMON OATMEAL 	 MILK AND CEREAL 	 AVOCADO TOAST 
 COCONUT SHRIMP 	 CHEESE RAVIOLI 	 STRAWBERRY ICE CREAM 	 CHIPS AND GUACAMOLE 	 PEPPERONI PIZZA 

Complete the table filling in the missing note symbols, values and note names

Note Name	Note Symbol	Note Value
Remember it... Tea		
Remember it... Coffee		beats = 1
Remember it... Cappuccino		4 x ¼ beats = 1
Remember it... Shh!		

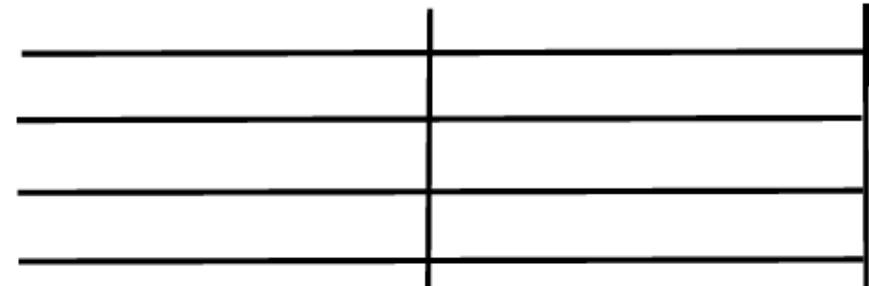
## APPLICATION

Create an outline for a samba piece. Decide on the structure and map out how you will use the features of Samba music in each section.  
Consider when you will use each feature and how it contributes to the piece.

Create your own 4-part polyrhythm in 2/4 time. Write a part suitable for the Surdo, Ganza, Tambourim and Agogo Bells. Can you show the different pitches of the Agogo Bell?



2/4  
2/4  
2/4  
2/4  
2/4



Compose a four-beat ostinato using the note values and rests in the table on the left.

Compose a three-beat ostinato using the note values and rests in the table on the left.

Compose a call and response using the note values and rests in the table on the left.

# Year 9 P.E Knowledge Organiser - The Principles of Training

There are certain PRINCIPLES OF TRAINING which should be followed in order to improve sporting performance

<p><b>Specificity</b></p> <p>Your training should be 'linked' towards your chosen sport or activity.</p> <p>You need to train specifically to develop the right:</p> <ul style="list-style-type: none"> <li>➤ muscles – if your sport requires a lot of running, work mainly on your legs.</li> <li>➤ type of fitness – do you need strength, speed, stamina or a combination?</li> <li>➤ skills – you need to practice any relevant skills like kicking, serving and passing.</li> </ul> <p>For example- The training for a shot putter would be different from the training for a marathon runner.....</p> <p>You would not ask your shot putter to run 2 miles nor ask a runner to use heavy weight based exercises</p>	<p><b>Progressive Overload</b></p> <p>This principle involves working the body harder than normal and gradually increasing the amount of exercise you do.</p> <p>This makes our body adapt to the training levels and therefore getting fitter.</p> <p>Athletes need to monitor performance levels and adjust the programme in order to take fitness to a higher level.</p> 	<p><b>FITT Principle</b></p> <p>Frequency</p> <p>How often do you train?</p> <p>Intensity</p> <p>How hard do you train?</p> <p>Time</p> <p>How long do you train?</p> <p>Type</p> <p>Which method of training do you use?</p>
<p><b>Rest and Recovery</b></p> <p>For effective training performers should achieve the right balance between rest and recovery.</p> <p>Rest and recovery allows the body to:</p> <ol style="list-style-type: none"> <li>1. Replenish energy stores</li> <li>2. Repair muscles fibres</li> </ol>	<p><b>Individual Needs</b></p> <p>Everybody's fitness level differs and we should therefore tailor training to meet their specific needs.</p> <p>Understanding an individual's needs will mean training is set at their level and accounts for their strengths and weaknesses.</p>	<p><b>KEYWORDS</b></p> <p>Specificity</p> <p>Progressive Overload</p> <p>Rest &amp; Recovery</p> <p>Individual Needs</p>
<p><b>Adaptation</b></p> <p>One or more of your physiological systems change as a result of long term training.</p> <p>Your body changes to meet the demand of the training / competition you are involved in.</p>	<p><b>Reversibility</b></p> <p>This means that instead of progressing or remaining at the same level, the athlete loses fitness.</p> <p>It only takes 3 or 4 weeks to get out of condition</p> <p>This can be due to injury or a lack of training..</p>	<p>Adaptation</p> <p>Variance</p> <p>Reversibility</p> <p>FITT Principle</p>

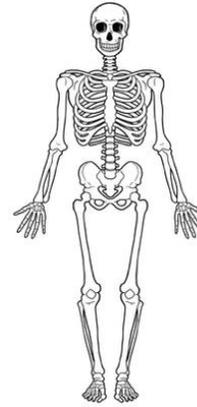
# Year 9 P.E Knowledge Organiser - The Principles of Training Cont.

## Short Term Effects on the Musculoskeletal System

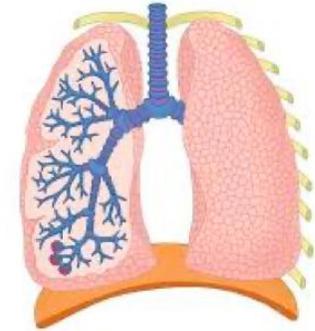
How does a warm up and flexibility exercises help improve the range of movement of at a joint?

Explain your answers the following questions:

- Why do we take part in a warm up before we exercise?
- What benefits will this have on our muscles?
- Why is it important to warm up?



Label the diagram of the lungs identifying the correct location of the following:



Describe the 4 main functions of the skeletal system:

- 1) Protection
- 2) Support
- 3) Movement
- 4) Supply & Storage

- 1) Lungs
- 2) Bronchi
- 3) Bronchioles
- 4) Diaphragm
- 5) Alveoli

## Overloading the Muscles

What does it mean by progressive overload?

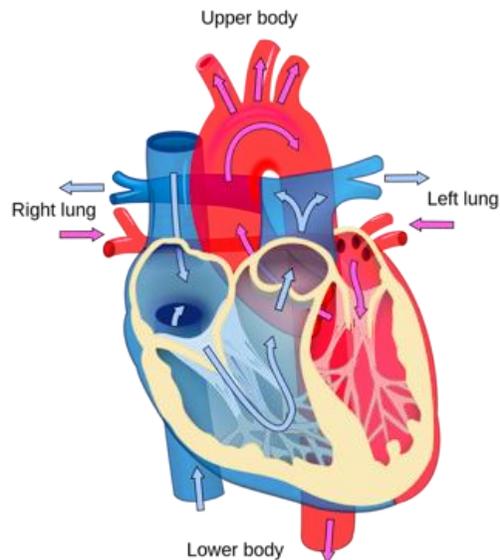


How could you overload the muscles when exercising?

How do micro tears help the muscles become bigger and stronger?

# Year 9 P.E Knowledge Organiser - The Principles of Training Cont.

The Heart - A basic Diagram



Label the diagram of the heart identifying the correct location of the following:

- 1) Aorta
- 2) Atria
- 3) Ventricles
- 4) Pulmonary Vein
- 5) Pulmonary Artery
- 6) Vena Cava

Heart rate and training questions:

Short term effects that happen to my heart rate when completing a training session.

What is the reason for this?

Short term effects that happen to my breathing when completing a training session.

Why does my breathing change?

What is Lactic Acid?

Why do I get a build-up of this in the main sessions of my training program when I increase the intensity I am working at?

How can I prevent the build-up of lactic acid when I train?

## RE Year 9 Autumn Term: What does it mean to be Muslim?

**L.F: To know and understand how beliefs influence individuals, communities and societies.**

Islam – An introduction

The word Islam is an Arabic word related to Salam which means peace. Islam is the peace that comes from obeying the will of God.

The word Muslim is also an Arabic word which means someone who obeys the will of God.

Allah means 'The God' and is singular, not plural. This reflects the Muslim belief that there is only One God.

Allah is the name that Muslims use for God.

Muhammad is the name of the Arabic man who lived about 1,500 years ago) in Arabia and became the prophet of Islam. Many Muslims add the letters pbuh which stand for 'Peace and Blessings Upon Him' after his name.

Muhammad's (pbuh) messages were all written down and collected together. The book that they are written in is called the Holy Qur'an. It is written in Arabic, the language in which it was revealed, but it has been translated into many other languages.

Muslims have five rules which are most important. These come from the Qur'an and the actions of Muhammad (pbuh). They are often called The Five Pillars of Islam:

Muslims pray on their own and together. When they pray together they often go to the Mosque.

Islam is one of the biggest religions in the world today. There are Muslims in most countries and Britain is no exception. There are around 2 million British Muslims.

When Muslims meet, they greet each other by saying, As-Salāmu `Alaykum

This is a traditional Muslim greeting, often translated as Peace be upon you.



**L.F: To know and understand how beliefs influence individuals, communities and societies.**

Muhammad – who was he?

Muhammad was born in Makkah in 571CE, his childhood was often hard, and he was orphaned at the age of six. As he grew up, he became known as Al-Amin – 'The Trustworthy' – and was called to become a prophet at 40 years old. Allah spoke to Muhammad through an Angel to reveal His Word.

Even when Muhammad was violently attacked by his opponents, he lived justly and peacefully. He treated his enemies with mercy and forbid his followers to attack first. Muhammad taught people how to behave, and what the consequences would be for disobedience. He taught that all will be judged on the Last Day.



# RE Year 9 Autumn Term: What does it mean to be Muslim?

**L.F: To know and understand religious practices.**

## What is a Mosque?

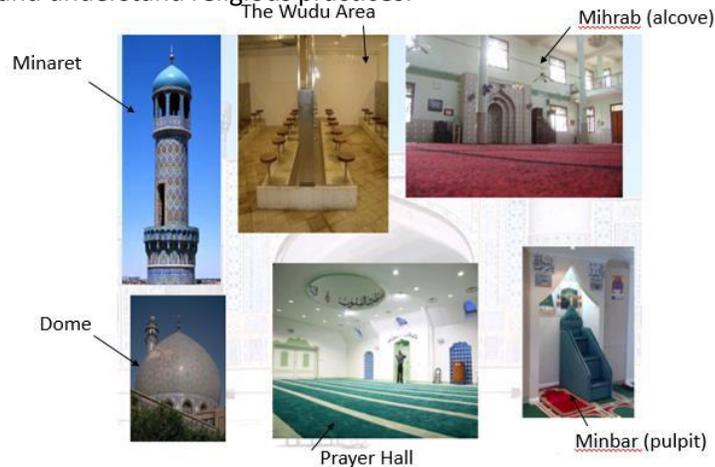
A Mosque is a Muslim Holy Place of Worship. There are many physical features that can help you recognise a Mosque. However, not ALL mosques have to have them and can be converted dwellings such as in Swindon.

Muslim prayer is called Salah and it is one of the Five Pillars of Islam – the five duties that all Muslims should perform.

## Why might the Mosque be more than a place where worship happens?

- The Mosque has more than just a prayer hall; it has a library and school room so that it can be used to educate the young and older members of the community and a sense of 'learning' is a large part of the religion.
- The Mosque also has community space where the community of Muslims can gather and hold other functions this helps unite the community in other ways than worship
- The Mosque is seen as a focal point for the community; the Imam can act as both a spiritual leader and councillor in everyday life.

**L.F: To know and understand religious practices.**



**L.F: To know and understand religious practices.**

**The Dome** - The Dome, which is positioned above the prayer hall, symbolises Heaven arching above the worshippers. But Mosques also have domes for very practical reasons: It helps the Imam's voice to resonate around the prayer hall, so everyone can hear him, it also helps people to identify the building as a mosque.

**The Minaret** - The tall tower attached to the mosque is called a minaret and it has two main uses: It helps people to find the mosque, since it is often the tallest structure in the town and it is used for the call to prayer. A man called a muezzin has the job of climbing to the top and singing the Adhan. This is the call to prayer, and it reminds everyone that it is time to come to the mosque.

**Wash Room** - Before Muslims pray, they must perform a special wash called wudhu (or wudu) in which they wash their hands, feet and face three times. This is done to symbolize purity and to highlight that prayer is important. There will separate wash rooms for men and women.

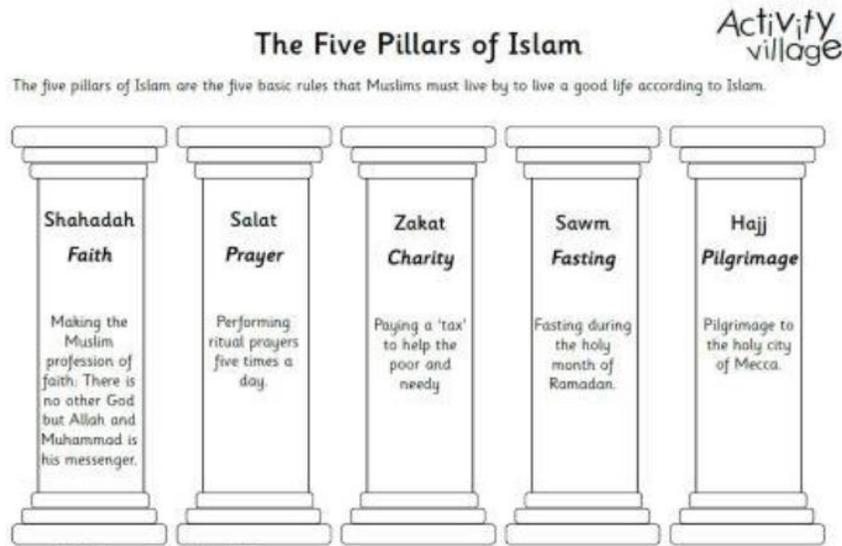
**Prayer Hall** - The main prayer hall is usually just a large empty hall with the dome above it. There are no chairs (apart from maybe a few for the disabled or elderly) because everyone sits on the carpet. During prayer Muslims will kneel and prostrate with their foreheads to the floor as a sign of obedience to God, so chairs would only get in the way. Men and women sit separately so that their minds are on their prayers and not on each other.

**Mihrab** - When Muslims pray they must face the direction of the Ka'ba, which is a cube-shaped holy building in the centre of Mecca in Saudi Arabia. This direction is called the qibla. The mihrab is an archway set into the wall at the front of the prayer hall, and if you are facing the mihrab, you know that you are facing the qibla.

# RE Year 9 Autumn: What does it mean to be Muslim?

**L.F: To know and understand religious practices.**  
**To know and understand religious sources of wisdom and authority.**

## The 5 Pillars



**L.F: To know and understand religious practices.**  
**To know and understand religious sources of wisdom and authority**

## Why is following these 5 Pillars important?

Carrying out these duties provides the framework of a Muslim's life, and weaves their everyday activities and their beliefs into a single role of religious devotion.

No matter how sincerely a person may believe, Islam regards it as pointless to live life without putting that faith into action and practice.

Carrying out the Five Pillars demonstrates that the Muslim is putting their faith first, and not just trying to fit it in around their secular lives

**L.F: To know and understand religious practices.**  
**To know and understand religious sources of wisdom and authority**  
**Pillar 4 – Sawm (fasting)**

Once a year every Muslim who is old enough should perform a month of daylight fasting. This is called Ramadan. If a Muslim is pregnant or of old age, they do not need to participate.

Why do they fast?

Fasting is meant to help teach Muslims self – discipline, self – restraint and generosity.

Fasting will also remind Muslims of the suffering of the poor who may not get to eat well all the time.

Ramadan also allows time for Muslims to reflect on the teachings of the Qur'an – often Muslims will attempt to read the whole Qur'an over the Ramadan period.

The celebration at the end of Ramadan thanks Allah for the help and strength that he gave them throughout Ramadan

Finally; the festival (Eid) is also a time for forgiveness and a time to give money to charity in order for the poor to be able to celebrate too.

**L.F: To know and understand religious practices.**  
**To know and understand religious sources of wisdom and authority**  
**Pillar 5 – Hajj**

Hajj is the fifth pillar of Islam, where all Muslims are required to perform a pilgrimage to Mecca in Saudi Arabia at least once in their life time. They have to be fit and financially secure in order to go, if they can't someone may go on their behalf.

Irham – this is where the pilgrims wash and shave their heads and dress in white clothing. They do this to represent equality and purity

Ka'abh – the pilgrims must walk around the Ka'bah seven times which reminds them of when Muhammad (PBUH) stormed the Ka'bah when people were worshipping idols.

Safa Marwah – this is where the pilgrims walk between two hills 7 times to represent the story of Hagar and Ishmail searching for water in the desert

Arafat – this is where the pilgrims stand on a hill for the whole day praying and repenting; it is believed that this is where their sins can be forgiven

Stoning the Pillars – this is where the pilgrims throw stones at three pillars which represent the temptations of the Devil and they are not giving into these temptations.

Sacrifice – this is when at the end of Hajj, each pilgrim pays for a lamb to be slaughtered and it is given to the poor.

# Science Knowledge Organiser - Autumn Term



1. There is one page in here to be completed each week.
2. Each week complete the page with the correct date at the top.
3. Use the information sheets to help you answer the questions
4. Once you have answered the questions or completed the task, spend the rest of your time learning the information. Try writing the answers in your green book, and then checking your page.
5. Ensure you have your knowledge organiser in Science lessons so that your teacher can check you have completed the work for the week.
6. You will also be tested on these questions during the week

# Cell Biology Information Sheet

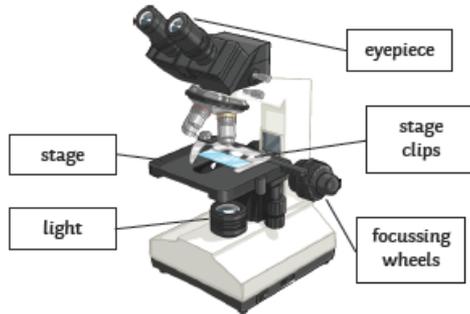


## Cell Biology Knowledge Organiser – Foundation and Higher

### Required Practical

#### Microscopy Required Practical

- Includes preparing a slide, using a light microscope, drawing any observations – use a pencil and label important observations.



#### Osmosis and Potato Practical

- Independent variable – concentration.
- Dependent variable – change in mass.
- Control variable – volume of solution, temperature, time, surface area of the potato.

The potato in the sugar solution will lose water and so will have less mass at the end; the potato in the pure water solution will gain water.



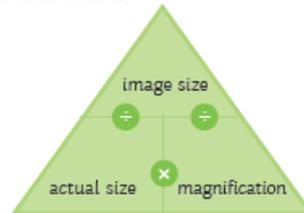
### Specialised Cells

When a cell changes to become a specialised cell, it is called differentiation.

Specialised Cell	Function	Adaptation
sperm	To get the male DNA to the female DNA.	Streamlined head, long tail, lots of mitochondria to provide energy.
nerve	To send electrical impulses around the body.	Long to cover more distance. Has branched connections to connect in a network.
muscle	To contract quickly.	Long and contain lots of mitochondria for energy.
root hair	To absorb water from the soil.	A large surface area to absorb more water.
phloem	Transports substances around the plant.	Pores to allow cell sap to flow. Cells are long and joined end-to-end.
xylem	Transports water through the plant.	Hollow in the centre. Tubes are joined end-to-end.

### Equations and Maths

#### Equation

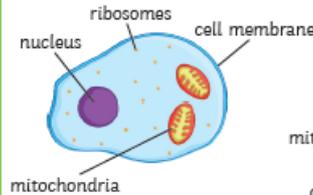


#### Maths Skills

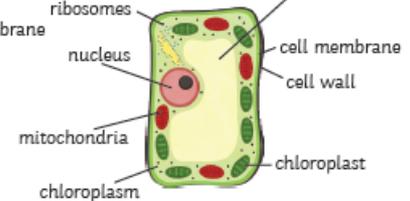
Conversions:  
 Micrometres to millimetres: divide by 1000.  
 Standard Form:  
 $0.003 = 3 \times 10^{-3}$   
 $5.6 \times 10^{-5} = 0.0056$

### Prokaryotic and Eukaryotic Cells

#### Animal Cells



#### Plant Cells

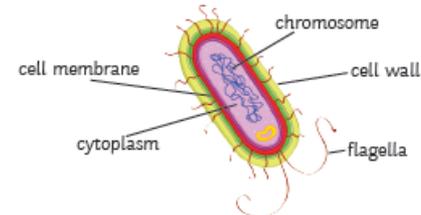


Plant and animal cells have similarities and differences:

	Animal	Plant
nucleus	✓	✓
cytoplasm	✓	✓
chloroplast	X	✓
cell membrane	✓	✓
permanent vacuole	X	✓
mitochondria	✓	✓
ribosomes	✓	✓
cell wall	X	✓

#### Bacterial Cells

Bacterial cells do not have a true nucleus, they just have a single strand of DNA that floats in the cytoplasm. They contain a plasmid.



# Cell Biology Information Sheet



## Cell Biology Knowledge Organiser - Foundation and Higher

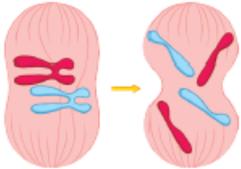
### Chromosomes and Mitosis

In the nucleus of a human cell there are 23 pairs of **chromosomes**. Chromosomes contain a double helix of **DNA**. Chromosomes have a large number of genes.



The **cell cycle** makes new cells.

Mitosis: DNA has to be **copied/replicated** before the cell carries out mitosis.



### Key Vocabulary

active transport  
alveoli  
chromosome  
diffusion  
eukaryotic  
gas exchange  
mitosis  
multicellular  
osmosis  
prokaryotic  
undifferentiated  
replicated  
specialised  
villi

### Stem Cells

**Embryonic stem cells** are **undifferentiated** cells, they have the potential to turn into any kind of cell.



**Adult stem cells** are found in the bone marrow, they can only turn into some types of cells e.g. blood cells.

Uses of stem cells:

- Replacing faulty blood cells;
- making insulin producing cells;
- making nerve cells.

Some people are against stem cell research.

For Stem Cell Research	Against Stem Cell Research
Curing patients with stem cells - more important than the rights of embryos.	Embryos are human life.
They are just using unwanted embryos from fertility clinics, which would normally be destroyed.	Scientists should find other sources of stem cells.

### Stem Cells in Plants

In plants, stem cells are found in the **meristem**. These stem cells are able to produce clones of the plant. They can be used to grow crops with specific features for a farmer, e.g. **disease resistant**.

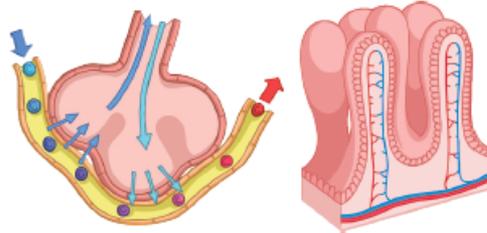
### Exchange – Humans

**Multicellular** organisms have a large surface area to volume ratio so that all the substances can be exchanged.

#### Gas exchange: Lungs

The alveoli are where gas exchange takes place.

They have a large surface area, moist lining, thin walls and a good blood supply.

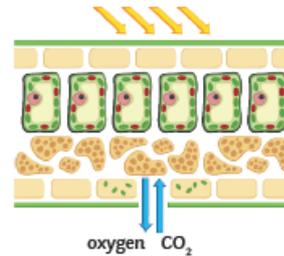


#### Villi: Small Intestine

Millions of villi line the small intestine increasing the surface area to absorb more digested food.

They are a single layer of cells with a good blood supply.

### Exchange in Plants



The surface of the leaf is flattened to increase the surface area for more gas exchange by diffusion.

Oxygen and water vapour diffuse out of the stomata. Guard cells open and close the stomata, controlling water loss.

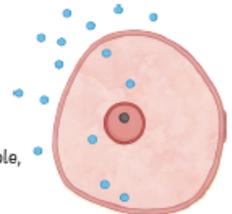
### Key Processes

**Diffusion** is the spreading out of particles from an area of higher concentration to an area of lower concentration.

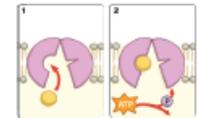
**Cell membranes** are semi-permeable, only small molecules can get through.

**Osmosis** is the movement of water molecules across a partially permeable membrane from a region of higher concentration to a region of lower concentration.

**Active transport** is the movement of substances against the concentration gradient. This process requires energy from respiration.



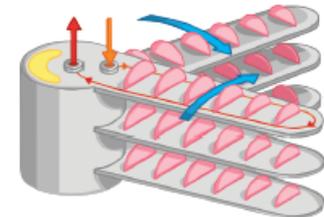
Cell Diffusion



Active Transport in Cells

### Exchange in Fish

Fish have a large surface area for gas exchange. These are called **gills**. Water enters the fish through the mouth and goes out through the gills. The oxygen is transported from the water to the blood by **diffusion**. Carbon dioxide diffuses from the blood to the water. Each gill has **gill filaments** which give the gills a large surface area. **Lamellae** cover each gill filament to further increase the surface area for more gas exchange. They have a **thin surface layer** and **capillaries** for good blood supply which helps with diffusion.





## Key Recall Questions

## Answers

How do we calculate the total magnification of a microscope?

State the function of the nucleus.

State the function of the cytoplasm.

State the function of the cell membrane.

State the function of the mitochondria.

State the function of the ribosomes.

State the function of the cell wall.

State the equation that links magnification, image size and actual size.

Define 'resolution'.

Which type of microscope has higher magnification and resolving power - Light or electron?

Why does the tissue sample need to be stained before looking at it under the microscope?

Which objective lens should we start using?

Which focus knob should be used during low and medium power magnification?

Which focus knob should be used during high power magnification?

Why must we not use the coarse focus knob during high power magnification?

What is the function of a scale bar?

# Cell Biology

W/C 20<sup>th</sup> Sept



## Key Recall Questions

## Answers

State the function of the chloroplasts.

State the function of the permanent vacuole.

State three differences between animal and plant cells.

What substance makes up plants' cell walls?

Convert 5mm to  $\mu\text{m}$ .

State a key difference between prokaryotes and eukaryotes.

State one organism that is prokaryotic.

Prokaryotes have a cell wall. True or false?

Some bacteria have an extra layer on top of their cell walls. What is the name of that layer?

Where does the genetic material of a prokaryotic cell exist?

What is a difference between prokaryotic and eukaryotic DNA?

What is the name of extra small DNA rings found in some prokaryotes?

What is the function of flagella?

State a difference between animal cells and bacteria.

State a similarity between plant cells and bacterial cells.

Explain the use of a tail in sperm cells.

# Cell Biology

W/C 27<sup>th</sup> Sept



## Key Recall Questions

## Answers

Define 'diffusion'.

What does it mean by 'net movement'?

State three factors that affect the rate of diffusion.

How does concentration difference affect the rate of diffusion?

Explain why a higher temperature results in faster diffusion.

Name a substance that diffuses into our cells for use.

Name a substance that diffuses out of our cells to be removed.

Define 'osmosis'.

Define 'dilute'.

Define 'concentrated'.

What are partially permeable membranes?

What is an isotonic solution?

What is a hypertonic solution?

What is a hypotonic solution?

If a cell is in a hypertonic solution, water will \_\_\_\_ (enter/leave) the cell.

If a cell is in a hypotonic solution, water will \_\_\_\_ (enter/leave) the cell.



## Key Recall Questions

## Answers

What will happen to an animal cell if it is in a hypertonic solution?

What will happen to an animal cell if it is in a hypotonic solution?

Why do animal cells burst in hypotonic solutions?

What will happen to a plant cell if it is in a hypertonic solution?

What will happen to a plant cell if it is in an isotonic solution?

What will happen to a plant cell if it is in a hypotonic solution?

What does 'plasmolysed' mean?

Why does the potato skin need to be removed before putting the potato cylinders into the solutions?

How do we calculate % change in mass?

Define 'active transport'.

Explain the importance of active transport in plants.

Explain the importance of active transport in animals.

State one adaptation cells may have if they need to carry out active transport.

How does active transport differ from diffusion and osmosis?

State two differences between diffusion and osmosis.

State the relationship between size and surface area to volume ratio.

# Cell Biology - Recap

W/C 11<sup>th</sup> Oct



## Key Recall Questions

## Answers

Draw and label an animal cell

Draw and label a plant cell

Draw and label a bacterial cell

Define 'active transport'.

Define 'osmosis'

Define 'diffusion'

Define 'resolution'

Define 'magnification'

Define 'dilute'.

Define 'concentrated'.

# Atomic Structure Information Sheet

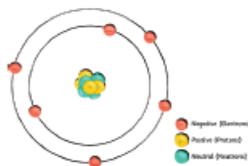


## Atomic Structure and the Periodic Table – Foundation and Higher

### Atoms

Contained in the nucleus are the **protons** and **neutrons**. Moving around the nucleus are the **electron shells**. They are negatively charged.

Particle	Relative Mass	Charge
proton	1	+1
neutron	1	0
electron	Very small	-1



Overall, atoms have no charge; they have the same number of protons as electrons. An ion is a charged particle - it does not have an equal number of protons to electrons.

### Atomic Number and Mass Number



### Elements

Elements are made of atoms with the same atomic number. Atoms can be represented as symbols.

N = nitrogen    F = fluorine    Zn = zinc    Ca = calcium

**Isotopes** – an isotope is an element with the same number of protons but a different number of neutrons. They have the same atomic number, but different mass number.

Isotope	Protons	Electrons	Neutrons
$^1_1\text{H}$	1	1	1 - 1 = 0
$^2_1\text{H}$	1	1	2 - 1 = 1
$^3_1\text{H}$	1	1	3 - 1 = 2

**Compounds** – a compound is when two or more elements are chemically joined. Examples of compounds are carbon dioxide and magnesium oxide. Some examples of formulas are CO<sub>2</sub>, NaCl, HCl, H<sub>2</sub>O, Na<sub>2</sub>SO<sub>4</sub>. They are held together by chemical bonds and are difficult to separate.

### Equations and Maths

To calculate the relative atomic mass, use the following equation:

relative atomic mass ( $A_r$ ) =

$$\frac{\text{sum of (isotope abundance} \times \text{isotope mass number)}}{\text{sum of abundances of all isotopes}}$$

### Balancing Symbol Equations

There must be the same number of atoms on both sides of the equation:



$$\text{C} = 1$$

$$\text{O} = 4$$

$$\text{H} = 4$$

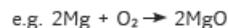
### Chemical Equations

A chemical reaction can be shown by using a word equation.

e.g. magnesium + oxygen → magnesium oxide

On the left-hand side are the reactants, and the right-hand side are the products.

They can also be shown by a symbol equation.



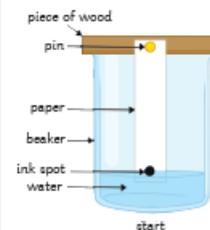
Equations need to be **balanced**, so the same number of atoms are on each side. To do this, numbers are put in front of the compounds.



### Mixtures, Chromatography and Separation

**Mixtures** – in a mixture there are no chemical bonds, so the elements are easy to separate. Examples of mixtures are air and salt water.

**Chromatography** – to separate out mixtures.



**Evaporation** – to separate a soluble salt from a solution; a quick way of separating out the salt.



**Filtration** – to separate solids from liquids.



**Crystallisation** – to separate a soluble salt from a solution; a slower method of separating out salt.



**Separating out salt from rock salt:**

1. Grind the mixture of rock salt.
2. Add water and stir.
3. Filter the mixture, leaving the sand in the filter paper
4. Evaporate the water from the salt, leaving the crystals.

# Atomic Structure Information Sheet

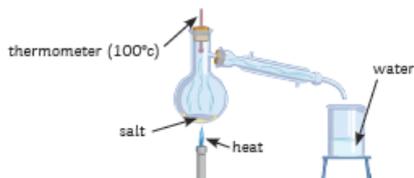


## Atomic Structure and the Periodic Table – Foundation and Higher

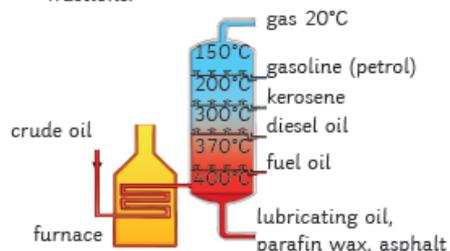
### Distillation

To separate out mixtures of liquids.

1. **Simple distillation** – separating a liquid from a solution.



2. **Fractional distillation** – separating out a mixture of liquids. Fractional distillation can be used to separate out crude oil into fractions.



### Metals and Non-metals

They are found at the **left** part of the periodic table. Non-metals are at the **right** of the table.

#### Metals

Are strong, malleable, good conductors of electricity and heat. They bond **metallically**.

#### Non-Metals

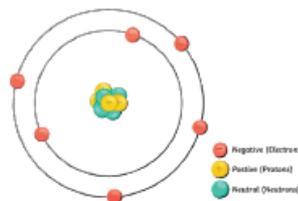
Are dull, brittle, and not always solids at room temperature.

### History of the Atom

Scientist	Time	Discovery
John Dalton	start of 19 <sup>th</sup> century	Atoms were first described as solid spheres.
JJ Thomson	1897	Plum pudding model – the atom is a ball of charge with electrons scattered.
Ernest Rutherford	1909	Alpha scattering experiment – mass concentrated at the centre; the nucleus is charged. Most of the mass is in the nucleus. Most atoms are empty space.
Niels Bohr	around 1911	Electrons are in shells orbiting the nucleus.
James Chadwick	around 1940	Discovered that there are neutrons in the nucleus.

### Electronic Structure

Electrons are found in shells. A maximum of two in the most inner shell, then eight in the 2<sup>nd</sup> and 3<sup>rd</sup> shell. The inner shell is filled first, then the 2<sup>nd</sup> then the 3<sup>rd</sup> shell.



### Group 7 Elements and Noble Gases

#### Halogens

The halogens are **non-metals**: fluorine, chlorine, bromine, iodine. As you go down the group they become less reactive. It is harder to gain an extra electron because its outer shell is further away from the nucleus. The melting and boiling points also become higher.

#### Noble Gases

The noble gases (**group 0** elements) include: helium, neon and argon. They are un-reactive as they have full outer shells, which makes them very stable. They are all colourless gases at room temperature.

The boiling points all increase as they go down the group – they have greater intermolecular forces because of the increase in the number of electrons.

### Development of the Periodic Table

In the early 1800s, elements were arranged by atomic mass. The periodic table was not complete because some of the elements had not been found. Some elements were put in the wrong group.

Dimitri Mendeleev (1869) left gaps in the periodic table. He put them in order of **atomic mass**. The gaps show that he believed there was some undiscovered elements. He was right! Once found, they fitted in the pattern.

### The Modern Periodic Table

Elements are in order of **atomic mass/proton number**. It shows where the metals and non-metals are. **Metals** are on the left and **non-metals** on the right. The columns show the groups. The group number shows the number of **electrons** in the outer shell. The rows are **periods** – each period shows another full shell of electrons.

The periodic table can be used to predict the reactivity of elements.

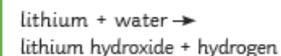
### Alkali Metals

The alkali metals (**group 1** elements) are soft, very reactive metals. They all have **one electron** in their outer shell, making them **very reactive**. They are **low density**. As you go down the group, they become more reactive. They get bigger and it is easier to lose an electron that is further away from the nucleus.

They form ionic compounds with non-metals.

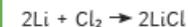
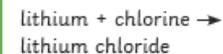
They react with water and produce hydrogen.

E.g.



They react with chlorine and produce a metal salt.

E.g.



They react with oxygen to form metal oxides.

# Atomic Structure

W/C 18<sup>th</sup> Oct



## Key Recall Questions

## Answers

Define atom

Define element

Define compound

Define molecule

Define mixture

State the three subatomic particles

State the masses of the subatomic particles

State the relative charges of the subatomic particles

How are the subatomic particles arranged in an atom? (3 marks)

What is the plum pudding model of the atom?

# Atomic Structure

W/C 1<sup>st</sup> Nov



## Key Recall Questions

## Answers

What did the gold foil experiment prove?

What is the atomic number of an atom?

What is the mass number of an atom?

How do you calculate the number of neutrons in an atom?

How are the electrons arranged in atoms?

How many electrons can go in the first shell?

How many electrons can go in the second and third shells?

What are groups in the periodic table?

What can the group tell you about the electrons in an atom?

What are periods in the periodic table?

# Atomic Structure

W/C 8<sup>th</sup> Nov



## Key Recall Questions

## Answers

What can the period tell you about the electrons in an atom?

Why did Mendeleev put some elements in groups?

Why did Mendeleev leave gaps in his periodic table?

What is an ion?

How many electrons does calcium have?

How many electrons does silicon have?

How are the electrons in sulphur arranged?

How are the electrons in magnesium arranged?

How many electrons are in the outer shell of boron?

How many electrons are in the outer shell of phosphorous?

# Atomic Structure

W/C 15<sup>th</sup> Nov



## Key Recall Questions

## Answers

How many electrons are in the outer shell of sodium?

An element has three shells and three electrons in the outer shell. What element is it?

How many electrons are in the outer shell of Gallium?

In terms of electrons, what do group 1 elements have in common?

In terms of electrons, what do group 7 elements have in common?

In terms of electrons, what do group 0 elements have in common?

What is more reactive, lithium or sodium?

What is more reactive, chlorine or bromine?

Define inert

Explain why the noble gases are inert

# Atomic Structure

W/C 22<sup>nd</sup> Nov



## Key Recall Questions

## Answers

What is a trend?

State the trend in the melting points of the alkali metals

What state is fluorine at room temperature?

What state is chlorine at room temperature?

What state is bromine at room temperature?

What state is iodine at room temperature?

Name LiOH

Name KOH

What are the products of the reaction of sodium and water?

Which of these physical properties do group 1 elements have?

# Particle Model of Matter Information Sheet



## AQA Combined Science: Physics Topic 3 Particle Model of Matter

### Required Practical

#### Measuring the density of a regularly shaped object:

- Measure the mass using a balance.
- Measure the length, width and height using a ruler.
- Calculate the volume.
- Use the density ( $\rho = m/V$ ) equation to calculate density.

#### Measuring the density of an irregularly-shaped object:

- Measure the mass using a balance.
- Fill a eureka can with water.
- Place the object in the water - the water displaced by the object will transfer into a measuring cylinder.
- Measure the volume of the water. This equals the volume of the object.
- Use the density ( $\rho = m/V$ ) equation to calculate density.



### Density

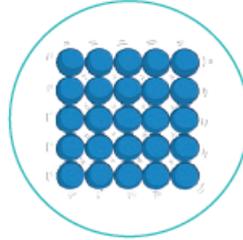
Density is a measure of how much mass there is in a given space.

$$\text{Density (kg/m}^3\text{)} = \text{mass (kg)} \div \text{volume (m}^3\text{)}$$

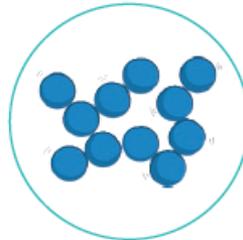
A more dense material will have more particles in the same volume when compared to a less dense material.

### Particles

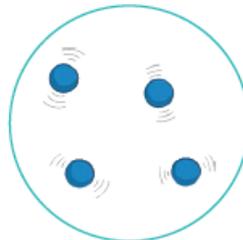
**Solids** have strong forces of attraction. They are held together very closely in a fixed, regular arrangement. The particles do not have much energy and can only vibrate.



**Liquids** have weaker forces of attraction. They are close together, but can move past each other. They form irregular arrangements. They have more energy than particles in a solid.



**Gases** have almost no forces of attraction between the particles. They have the most energy and are free to move in random directions.



### Particles

Gas particles can move around freely and will collide with other particles and the walls of the container. This is the pressure of the gas.

If the temperature of the gas increases, then the pressure will also increase. The hotter the temperature, the more kinetic energy the gas particles have. They move faster, colliding with the sides of the container more often.



### Density

The density of an object is  $8050\text{kg/m}^3$  and it has a volume of  $3.4\text{m}^3$  - what is its mass in kg?

$$8050 = \text{mass} \div 3.4$$

$$8050 \times 3.4 = \text{mass}$$

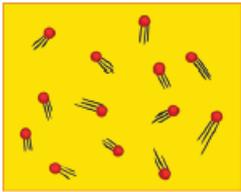
$$27\,370\text{kg}$$

# Particle Model of Matter Information Sheet

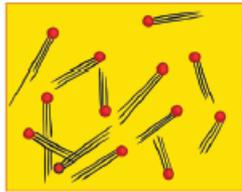


## Internal Energy

Particles within a system have kinetic energy when they vibrate or move around. The particles also have a potential energy store. The total internal energy of a system is the kinetic and potential energy stores.



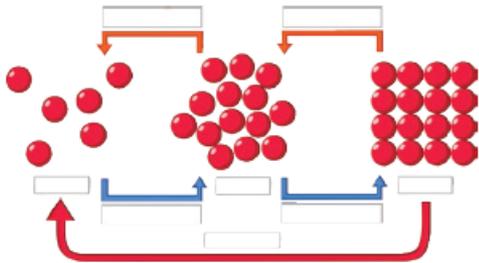
Low Temperature



High Temperature

If the system is heated, the particles will gain more kinetic energy, so increasing the internal energy.

## Changing State

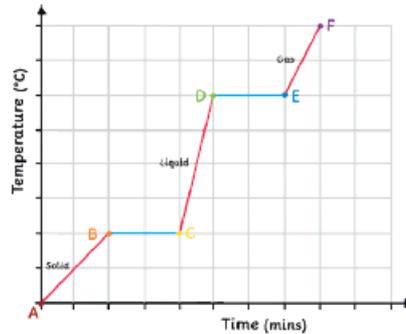


If a system gains more energy, it can lead to a change in temperature or change in state. If the system is heated enough, then there will be enough energy to break bonds.

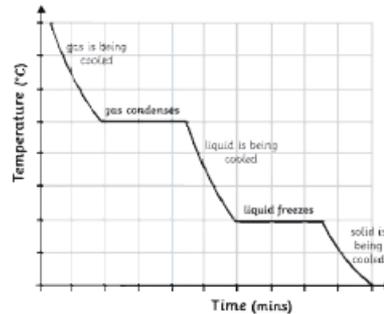
When something changes state, there is no chemical change, only physical. No new substance is formed. The substance will change back to its original form. The number of particles does not change and mass is conserved.

## Specific Latent Heat

Energy is being put in during melting and boiling. This increases the amount of internal energy. The energy is being used to break the bonds, so the temperature does not increase. This is shown by the parts of the graph that are flat.



When a substance is condensing or freezing, the energy put in is used to form the bonds. This releases energy. The internal energy decreases, but the temperature does not go down.



The energy needed to change the state of a substance is called the latent heat.

Specific latent heat is the amount of energy needed to change 1kg of a substance from one state to another without changing the temperature. Specific latent heat will be different for different materials.

- solid  $\rightarrow$  liquid - specific latent heat of fusion
- liquid  $\rightarrow$  gas - specific latent heat of vaporisation

## Specific Latent Heat Equation

The amount of energy needed/released when a substance of mass changes state.

$$\text{energy (E)} = \text{mass (m)} \times \text{specific latent heat (L)}$$

$$E = mL$$





## Key Recall Questions

## Answers

What are the three states of matter?

Which of the three states of matter has the highest density?

Which of the following states of matter can flow and can be compressed?

The particles within a \_\_\_\_\_ are arranged regularly and fixed in position

What is the equation for density?

What is the unit of density?

What is the density of a material if 10 cm<sup>3</sup> of it has a mass of 20 g?

What is the mass of 15 cm<sup>3</sup> of a material that has a density of 50 g/cm<sup>3</sup>?

If gold has density of 19.3 g/cm<sup>3</sup>, what is this in kg/m<sup>3</sup>?

What do you use a Eureka can for?

What piece of equipment do you use to measure the volume of a regular solid object?

What piece of equipment do you use to measure the mass of an object?

What is the equation for measuring the volume of a regular solid object?



Key Recall Questions	Answers
What is the volume of a cube which has sides that are 2 cm long?	
What is the name of the process which happens when a solid becomes a liquid?	
What is the name of the process which happens when a gas becomes a liquid?	
What is the name of the process which happens when a liquid becomes a gas?	
The temperature at which a liquid changes state to a gas is called the_____	
Is a change in state a physical or chemical change?	
Is a new material formed during boiling?	
Define Specific Latent Heat	
What equation do you use to calculate Specific Latent Heat?	
Define Specific Latent Heat of Vaporisation	
Define Specific Latent Heat of Fusion	
How much energy does a kilogram of molten lead emit as it freezes if its latent heat of fusion is 22,400 J/kg?	
How much energy is transferred to the surroundings when 100 g of oxygen gas is condensed into a liquid at the same temperature? $L = 213 \text{ kJ/kg}$	



## Key Recall Questions

## Answers

What is a systems total energy called?

Kinetic Energy + Potential Energy =

When a material changes state, the amount of \_\_\_\_\_ energy increases

In which state do particles have the most energy?

What are particles doing in their system if they have energy in their kinetic store?

What is the unit of energy?

What happens if you heat a system enough to break the bonds between particles?

As particles are constantly moving, \_\_\_\_\_ between particles occur

\_\_\_\_\_ is caused by the random motion of particles colliding with the walls of the container.

Does increasing temperature increase or decrease pressure?

What will happen to the volume of a gas if the pressure on it is tripled?