Harrow Way Community School
Learning for life, success for all

# Year 8 Knowledge Organiser

## Spring Term

# How do I complete Knowledge Organiser Homework?

Link to self-quiz video: https://youtu.be/cFUuhtPIMPU

## Step 1

Check on:
ShowMyHomework for what words / definitions / facts you have been asked to learn.

## Step 2

Write today's date and the title from your Knowledge Organiser in your self-quizzing book.

## Step 3

Read the section of the Knowledge Organiser that you are studying. Read it slowly, you can read it aloud and with a ruler if this helps.

## Step 4

Cover up the section and try to write out the information exactly as it is written on the Knowledge Organiser in your self-quizzing book.

DO NOT PEEK!

## Step 5

Uncover the section and compare it to what you have written. If you have made mistakes or missed parts out, add them in using a pencil or a different colour.

## Step 6

Repeat steps 3-5 again until you are confident.
You will need to bring your self-quizzing book in every day and your teacher will check your work.
You will be tested in class.

# Knowledge Organiser - YEAR 8 - SPRING TERM

**Contents**

# Petal to Print

## Useful Website/ Weblinks

- MonoPrinting: https://www.youtube.com/watch?v=wENSFfRvFQk&safe=active
- Polyblock Printing: https://www.youtube.com/watch?v=ayG7uPyaqUQ
- Angie Lewin Website: https://www.angielewin.co.uk/
- Angie Lewin Videos: https://www.youtube.com/watch?v=4LhvoC8n_N8 https://www.youtube.com/watch?v=0sZwzBcjvtE

## Big Question

How can reduction printing be used to create a tri-colour printed response?

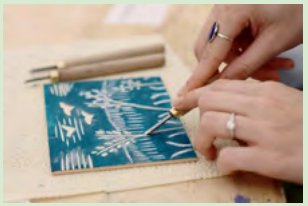
## What will I be doing in this project?

Over the course of the project you will be exploring different methods of printing.

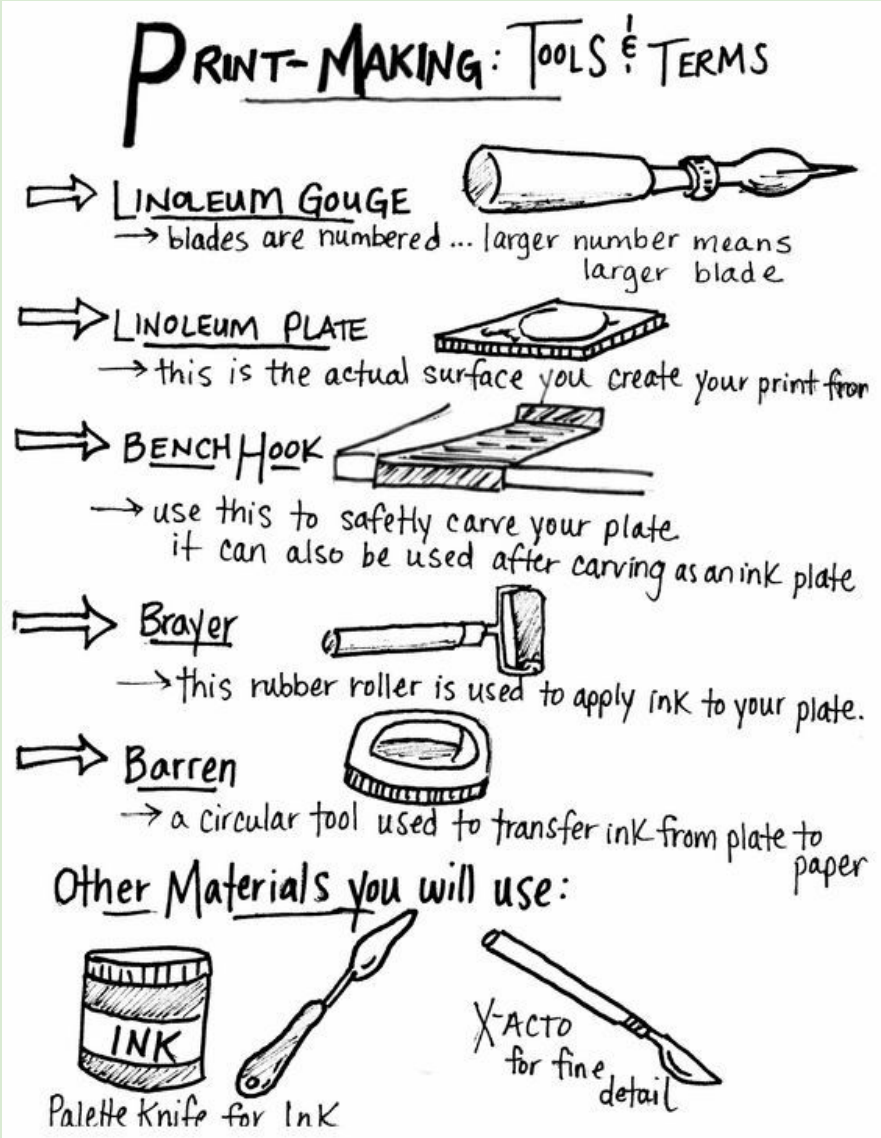
You will be experimenting with **Monoprint, Poly Block Printing** and **Lino Cut Printing**.

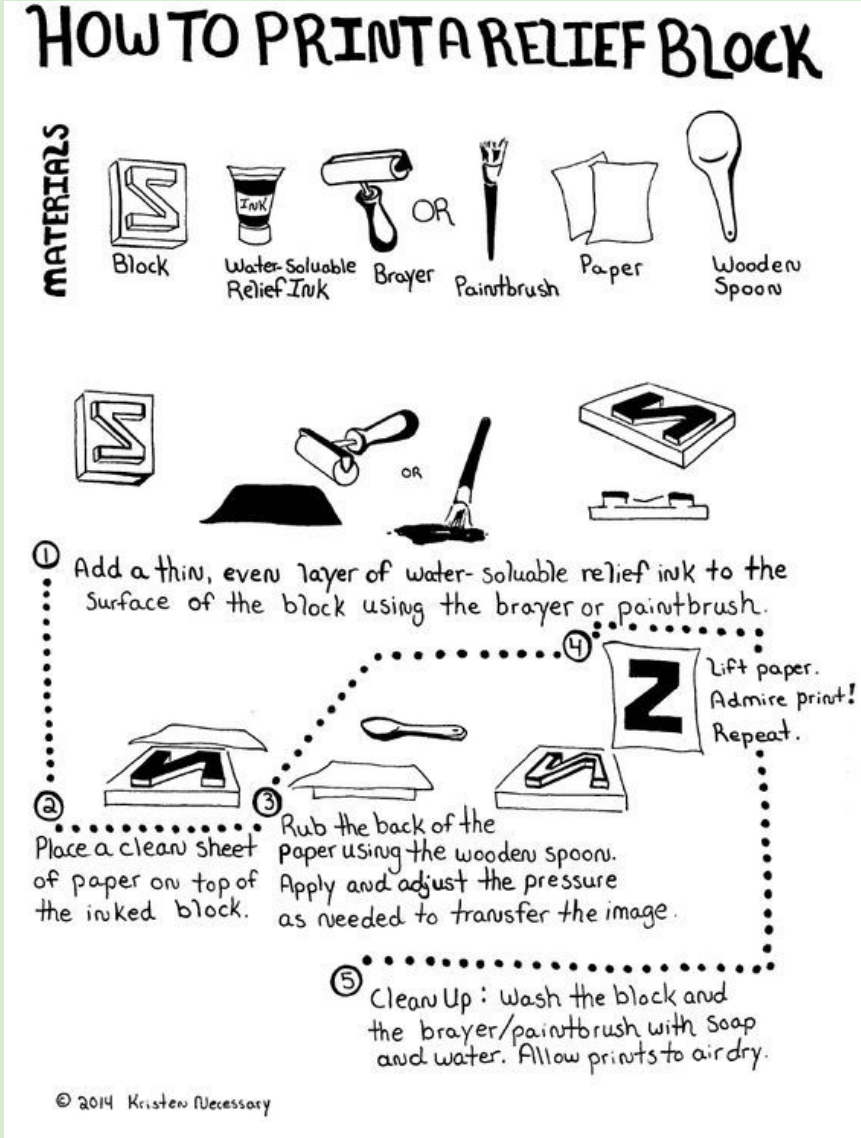
Your final outcome will be a **lino print**, influenced by the work of artist **Angie Lewin.**

# Petal to Print

| Keyword | Definition | Visual Clue |
|---|---|---|
| Printmaking | **Printmaking** is an artistic process where images or designs are transferred from a specially prepared surface (like a carved block, etched plate, or screen) onto another surface, usually paper or fabric |  |
| Mono Print | A **monoprint** is a unique type of printmaking where an image is created on a smooth surface, like a glass or metal plate, and then transferred to paper. Unlike other printmaking techniques that allow for multiple identical prints, monoprints are typically one-of-a-kind |  |
| Linocut Print | A **linocut print** is a type of relief print created by carving a design into a sheet of linoleum, which is a soft, rubbery material. The artist cuts away parts of the linoleum to form an image, leaving the raised (uncarved) areas to hold the ink. |  |

| Keyword | Definition | Visual Clue |
|---|---|---|
| Carving | **Carving** is the process of shaping or cutting a material, such as wood, stone, or linoleum, by removing parts of it to create a specific design or form. It involves using tools like knives, chisels, gouges, or other sharp instruments to carefully remove material and reveal a pattern, image, or three-dimensional shape |  |
| Bench Hook | A **bench hook** is a simple but essential tool used in printmaking and woodworking to securely hold a piece of material in place while cutting or carving |  |
| Cutting Tool | Lino **cutting tools** are specialized hand tools used in linocut printmaking, featuring interchangeable or fixed blades in various shapes and sizes for different cuts and details. |  |


PRINT-MAKING: TOOLS & TERMS
LINOLEUM GOUGE
→ blades are numbered ... larger number means larger blade
LINOLEUM PLATE
→ this is the actual surface you create your print from
BENCH HOOK
→ use this to safetly carve your plate it can also be used after carving as an ink plate
Brayer
→ this rubber roller is used to apply ink to your plate.
Barren
→ a circular tool used to transfer ink from plate to paper
Other Materials you will use:
INK
Palette Knife for Ink
X-ACTO for fine detail


HOW TO PRINT A RELIEF BLOCK
MATERIALS
Block
Water-Soluable Relief Ink
Brayer
OR
Paintbrush
Paper
Wooden Spoon
OR
1 Add a thin, even layer of water-soluable relief ink to the surface of the block using the brayer or paintbrush.
2 Place a clean sheet of paper on top of the inked block.
3 Rub the back of the paper using the wooden spoon. Apply and adjust the pressure as needed to transfer the image.
4 Lift paper. Admire print! Repeat.
5 Clean Up: Wash the block and the brayer/paintbrush with soap and water. Allow prints to air dry.
© 2014 Kristen Necessary

# Petal to Print

Angie Lewin

# Year 8 Design and Technology TEXTILES / APRON Knowledge Organiser

## Smart Materials

### Smart materials

A **smart material** has a property that can change depending upon its environment. This change can be reversed if the environment changes again. For example, in some sunglasses the lenses get darker when the light gets brighter; when the light dims, the lenses become clear again.

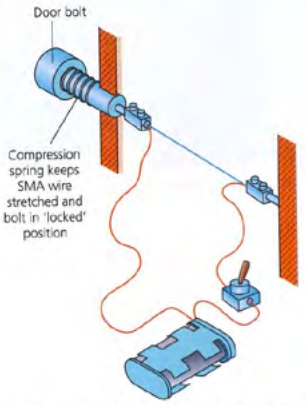
▼ Examples of smart materials

| Smart material | Smart property | Examples of use |
|---|---|---|
| **Thermochromic pigments** | Change colour with temperature | Plastic strip thermometers<br>Mugs or spoons that change colour when hot<br>Test strips on batteries (a printed resistor under the film generates heat when current flows through it) |
| **Photochromic pigments** | Change colour with light | Lenses in sunglasses that get darker as the light gets brighter<br>Security markers that can only be seen in ultraviolet light |
| **Shape-memory alloys (SMA)** | If bent, will return to their original shape when heated (either directly or when an electric current is passed through them) | Spectacle frames<br>Sensors in fire sprinkler systems (heat causes the change in shape)<br>Electric door locks |

### Interactive textiles

#### Conductive threads

Conductive fibres and threads made from carbon, steel and silver can be woven into textile fabrics and made into clothing. Conductive threads can also be sewn into a product to connect a circuit. Common uses include performance monitors for athletes, GPS tracking systems and heating elements, as well as communication devices, such as mobile phones.




▲ An electric door lock using an SMA

## Environmental Factors

When a product is designed, the designer doesn't just think about how it will work. They may have to alter the design due to the effect it has on the environment, our society or the economy.

### Environmental challenges

Products can affect the environment in many ways:

- The materials that are needed to make them might use up natural resources.
- The processes used to make them may need energy.
- The way they are used may affect the environment, for example electrical items need energy.
- When they are no longer needed, disposi them may cause pollution.

Designers must consider the impact that the products will have on the environment. One method of doing this is to apply the 6 Rs of **sustainability** when designing a product.

▲ The recycle logo shows that a product can be recycled

▼ The 6 Rs of sustainability

| | |
|---|---|
| **Refuse** | Is the product necessary? |
| **Rethink** | Are there alternative materials or design options that are more sustainable? |
| **Reduce** | Can the product be made from fewer materials?<br>Can the amount of unsustainable materials be reduced? |
| **Reuse** | Can parts of the product be **reused** in a different product? |
| **Recycle** | Can the materials used be **recycled**?<br>Is the product made from recycled materials? |
| **Repair** | Can the product be repaired rather than being thrown away if it breaks? |

# Year 8 Design and Technology TEXTILES / APRON Knowledge Organiser

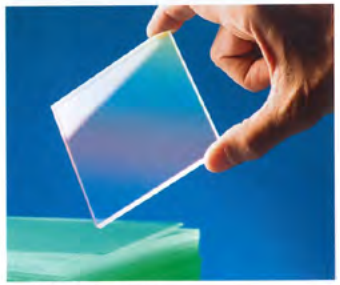
## New Materials

The development of new materials can offer improved properties or combinations of properties that were not previously possible. In turn, this allows the development of improved or completely new products. This section outlines some of the recent developments in materials.

### Graphene

**Graphene** was discovered in 2004 and is a form of the chemical element carbon. It is harder than diamond, about 300 times stronger than steel and conducts electricity better than copper. It is also extremely flexible, which is unusual for such a tough, strong material.

Graphene flakes are already being used to make ink that conducts electricity, and sheet graphene is used in some solar cells that make electricity from sunlight. Although graphene is still in the early stages of development, manufacturers are investigating its use for touchscreens. This could lead to foldable phone screens and televisions.



▲ A sheet of graphene

### Composites

A **composite material** is made up of two or more different materials. The properties of the materials that they are made from are combined. If you look at the structure of the composite material under a microscope, you can still see the separate materials it is made from.

One of the most common composites is reinforced concrete. This contains cement, which has very good compressive strength but poor tensile strength, with steel reinforcement bars, which have good tensile strength. It is widely used to build buildings and bridges.

▲ A reinforced concrete bridge

Glass-reinforced polymer (GRP, also called fibreglass) reinforces a polymer with strands of glass fibres. The polymer is flexible and the glass fibres are strong but brittle. Together they make a composite that is tough and strong. GRP is used to make hulls for boats.

Similarly, carbon-reinforced polymer (CRP) reinforces a polymer with carbon fibres. This is even stronger than GRP. CRP is used to make crash helmets and the frames for high-performance racing bikes.

▲ Canoes made from moulded GRP

## Social and Moral Issues

### Social challenges

Products can have both positive and negative effects on people. For example, the ability to play music from a phone or MP3 player gives people entertainment no matter where they are. However, if the music is too loud, it could also damage the user's hearing. Further, the noise from the earphones can irritate other people, for example fellow passengers on public transport. The designer has to consider both the wants of the user and how the design will affect other people.

Another **social issue** is the working conditions and safety of the people who manufacture products.

▲ Listening to music while on public transport may irritate other passengers

In the UK there are very strict laws regarding this. However, not all countries have these rules in place. For example, in some countries child labour is used to make products, with children working long days in harsh conditions. Some customers may not buy products if they have been made in ways they do not agree with.

### Economic challenges

The **economy** is the way money is made, organised and used by a society. Successful designs can have a really positive impact on the economy. If a product sells well, the company producing it can open new factories, creating more jobs and paying more workers. The more **profit** a company makes, the more tax it pays, which helps to fund public services such as healthcare and education. However, if an economy is not performing well and people are less well-off, it might be difficult for a designer to get the money needed to develop a product.

### Key words

**sustainability** – the level to which resources can be used without them becoming unavailable in the future.

**reusing** – using the parts of a product in a new product, without reprocessing the materials.

**recycling** – the reprocessing of materials for use in new products.

**social issue** – an issue that has an impact on a community or group of people.

**economy** – how money is made, organised and used in a society.

**profit** – the money that a company makes after all of its costs have been paid.

## Knowledge Organiser – Year 8 Food Special Diets

| Food Allergy | Food Intolerance |
|---|---|
| Symptoms come on within seconds and include an itchy, red rash. Swelling of the lips, tongue, eyes and face<br>Stomach pains, diarrhoea and vomiting . | Symptoms come on more slowly, are long-lasting and include bloating, stomach cramps and diarrhoea. |
| It is easily diagnosed with tests. | It's difficult to diagnose as there are only a few reliable tests and you may be intolerant to a number of different foods. |
| Even a tiny trace of the food can cause a reaction. | A reasonable portion of food is usually needed to cause a reaction |
| In extreme cases it can be life threatening. | It's never life threatening, symptoms are often bloating and stomach cramps |
| Most allergic reactions to food are to peanuts, milk, soya, nuts from trees, eggs and wheat. | Most common ones are wheat, gluten, dairy, yeast and alcohol. |

### Diabetes

There are two types of Diabetes:
**Type 1** occurs in children and young adults
**Type 2** occurs in adults and is linked to a poor diet and not exercising enough.

Diabetes is a condition that causes a person's blood sugar level to become too high.
When you eat food, it releases glucose into your bloodstream.
Insulin (hormone) then moves the glucose from your blood to your cells, where it is then used to produce energy.
If you have diabetes your body can't break the glucose down into energy.

**BRITISH FOOD**

***British food is reared, grown and produced under strict guidelines and is some of the best quality world wide***

### Lactose Intolerance

- Lactose intolerance is the inability to absorb lactose - the sugar in milk - into the digestive system.
- If lactose is not absorbed properly, it ferments (goes off) inside your stomach
- Symptoms include:

*Stomach rumbling, increased wind, Diarrhoea, abdominal colic, nausea.*


- You can get a test to see for sure from your doctor
- Cut back on certain food products like:
- Cows milk, butter, cheese, certain breads and chocolate.

### Diet

- There are many reasons why people choose to or even have to follow a special diet.
- There are also many other factors which affect what a person eats.
  - The food available to them
  - Time
  - Whether they can cook
  - Their likes and dislikes
  - Culture and religion

### 8 Government Guidelines for Healthy Eating

- Base your meals on starchy foods
- Eat lots of fruit and vegetables
- Eat more fish (1 portion of oily fish a week)
- Cut down on saturated fat and sugar
- Try to eat less salt
- Get active and try to be a healthy weight
- Drink plenty of water
- Don't skip breakfast

**Vegans** eats no animal products at ALL! This includes red and white meats, fish, eggs and dairy. They also can't eat anything that comes from or is made by animals such as honey and beef stock.

**A Vegetarian** doesn't eat red and white meats, fish and who also avoids slaughter by-products such as gelatine (made from horns, hooves, bones etc).

**There are many reasons why people chose a vegetarian diet:**

- **HEALTH**-Reduce fat intake, decreases risk of heart disease, high cholesterol, no growth hormones etc.
- **Religious reasons**-Buddhism, Hinduism
- **Texture** – They don't like the way it tastes or feels in their mouth
- **Animal Cruelty**- Do not like the way animals are treated before they get to our plates

***A vegetarian diet is considered healthy because of the emphasis....***

on fresh fruit and vegetables. Protein is obtained mainly from beans, lentils, peas, nuts, tofu and wholegrain cereals, which are also rich in vitamins and minerals.

### Coeliac's Disease



Coeliac disease is a digestive disease that damages the small intestine.
You struggle to digest and absorb gluten.
Gluten is a protein found in wheat.
Gluten is like a glue which holds food together. In bread dough it is what makes it stretchy when we knead it.
People with coeliac disease cannot eat cereals, pasta, grains and most processed foods.
Most food in supermarkets are now labelled to say if they are made with wheat or grain products because of people with Coeliac's.

# Year 8 Design and Technology Knowledge Organiser Board Game

## Branding

You can consider a brand as the idea or image people have in mind when thinking about specific products, services, and activities of a company, both in a practical (e.g. “the shoe is lightweight”) and emotional way (e.g. “the shoe makes me feel powerful”).

**Logos with meaning**

The yellow arrow in their logo starts at the letter ‘a’ and ends at the letter ‘z’, implying that they sell everything from a to z. The arrow also represents a smile, with the arrowhead being a stylized dimple or smile line. The smile indicates the happiness

**Key terms**

| | |
|---|---|
| Branding | A logo or image associated by the public |
| Cooperate image | The branding of a company |
| Corporate identity | The qualities or values a company wishes to be associated with and recognised by and its |

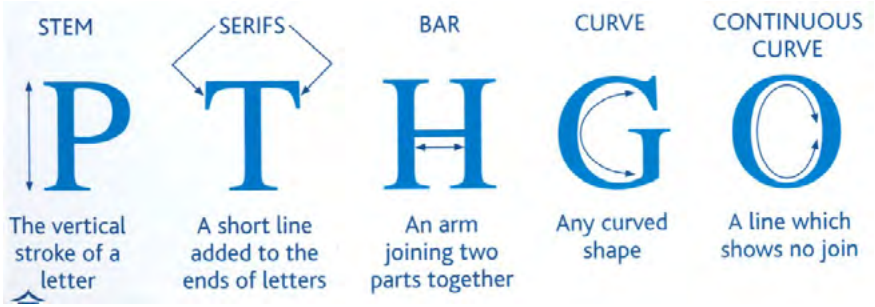
## Typography

In essence, typography is the art of arranging letters and text in a way that makes the copy legible, clear, and visually appealing to the reader. Typography involves font style, appearance, and structure, which aims to elicit certain emotions and convey specific messages. In short, typography is what brings the text to life.

**Key terms**

| | |
|---|---|
| Typography | The art form of letter style and design |
| Font | A specific letter type consisting of upper and lower case letters. You can change the style of |
| Type face | The style of the text you can use, for example |
| Kerning | Adjusting letter space to achieve the best visual |

**The parts of a letter.**



# Year 8 Design and Technology Knowledge Organiser Board Game

## Common print processes

Because there are so many variations in printing surfaces, the quantity of prints required, the quality of the print and the costs involved, a range of different print processes have been invented.

A *The main qualities of each printing method*

| Print process | Common use | Advantages | Disadvantages | Cost (10 = high) | Print quality (10 = high) |
|---|---|---|---|---|---|
| Offset lithography | Newspapers<br>Magazines<br>Books | Most common method<br>High quality<br>Fast<br>Prints onto paper extremely well | Expensive set-up costs | 5 | 9 |
| Flexography | Packaging<br>Corrugated boxes<br>Shopping bags<br>3D surfaces like bottles | Very fast | Expensive set-up costs | 6 | 8 |
| Screen printing | Short print runs<br>T-shirts<br>Big posters | Good for short print runs<br>Can print on absorbent surfaces | Not as good quality as the other processes<br>Slow | 4 | 6 |
| Gravure | Expensive high-quality magazines<br>Stamps | Best quality print process<br>Very fast | Very expensive setup costs | 8 | 10 |
| Laser | One-off items | Immediate printing<br>No set-up costs | Very expensive individual print | 10 | 7 |

**Paper and boards**

## Why are there so many different types of paper?

We all use many types of paper and board in graphics. They are made from the vegetable fibres found in wood, which are carefully extracted through the process of crushing wood to make a 95 per cent water-based pulp. This looks a bit like milk. It is then refined by being passed through a series of dryers and rollers to achieve the basic quality that paper-makers need for board or paper.


## Weight and thickness

Paper is sold by weight in **grams per square metre (gsm)** up to 220 gsm, when it is called board. Board is sold and measured for thickness in units called **microns**, represented by the symbol µm. There are 1000 microns in 1 mm and a typical birthday card is around 300 microns thick, compared with the paper this book is printed on which is about 90 microns thick and 90 gsm in weight.

## Recycling

**Virgin paper** makes up 90 per cent of all paper, and the remaining 10 per cent of paper has some recycled content. Compared with recycled paper, virgin paper tends to be stronger and easier to make whiter. Virgin paper is used generally for food containers because it reduces the contamination risk to the food products.

It is also possible to make paper from all sorts of materials other than wood pulp, such as corn, straw, cotton and hemp, and each of these materials gives the paper different properties. It is important that we try to recycle as much as possible in order to try to save our planet from additional global warming.

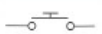
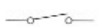
# Year 8 Design and Technology Knowledge Organiser LED Desk Tidy

## Electronics components—input, output and passive

### Input devices

An input device is usually a sensor or switch. It detects a signal from the environment around it, such as light, temperature or movement (for example, when a switch is pressed). The input device normally transforms this signal into an electronic signal.

Input devices

| Type | Picture | Circuit symbol | What it does |
|---|---|---|---|
| Light-dependent resistor (LDR) |  |  | Detects changes in light |
| Thermistor |  |  | Detects changes in temperature |
| Push-to-make switch |  |  | Allows electricity to flow through it ('makes' the circuit) when pressed |
| Rocker switch |  |  | Allows electricity to flow through it when placed in the 'on' position |

### Output devices

An output device transforms the electronic signals from the process blocks in a system into signals that we can understand in the 'real world', such as light, sound or movement.

Output devices

| Type | Picture | Circuit symbol | What it does |
|---|---|---|---|
| Lamp |  |  | Produces light when electricity flows through it |
| Light-emitting diode (LED) |  |  | Produces light when electricity flows from the + leg to the - leg. Uses much less energy than a lamp |
| Buzzer |  |  | Produces a 'buzzing' sound when electricity flows through it |
| Motor |  |  | Produces a turning movement when electricity flows through it |

### Passive components

If a component is not an input, process or output device, or a power supply, then it is usually a passive component. Passive components are needed to allow the input, process and output devices to work properly. They do not add energy into a circuit and do not use electrical power to carry out their function.

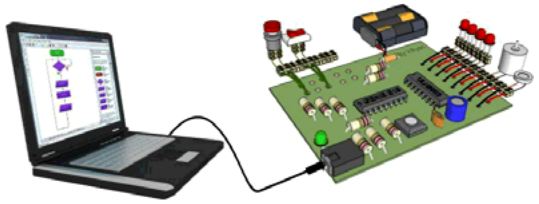
Passive components

| Type | Picture | Circuit symbol | What it does |
|---|---|---|---|
| Resistor |  |  | Limits the flow of electricity in a circuit |
| Diode |  |  | Allows electricity to flow in one direction only |
| Capacitor |  |  | Stores electrical charge |

## Microcontrollers

Microcontrollers are quickly replacing computers when it comes to programming robotic devices. These microcontrollers are small and can be programmed to carry out a number of tasks and are ideal for school and industrial projects. A simple program is written using a computer, it is then downloaded to a microcontroller which in turn can control a robotic device.

**PIC MICROCONTROLLERS**



CIRCUIT WIZARD SOFTWARE - USED TO PROGRAM THE GENIE PIC MICROCONTROLLER

A GENIE PIC MICROCONTROLLER PROGRAMMABLE CIRCUIT

| | |
|---|---|
| Advantages | • They can be programmed to perform many different tasks such as timing, counting and reading sensors.<br>• Can be reprogrammed many times, allowing circuits to be used for different things.<br>• Makes circuits smaller, one of them can replace many non-programmable components saving many and reducing the amount of waste produced. |
| Disadvantages | • They can cost more than most non programmable components. This means they may not be the best option for simple circuits.<br>• Access to a computer and software is needed to program them.<br>• It the system doesn't work, then checks need to be made on both the electronic circuit and the program. This can take time. |

# Year 8 Design and Technology Knowledge Organiser LED Desk Tidy

## Flow charts

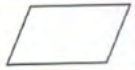
### Programming flow charts

This is a flow chart representing the making of tea. It starts with filling the kettle with water all the way through every possible stage. Imagine a robot had to be programmed to perform this basic task. The programmer would have to give the robot every instruction. Remember - computers will only do what we instruct then to do. They cannot not decide anything for themselves.

### Manufacturing flow charts.

Planning the manufacture of a design, is an important aspect of the design process. Plain flowcharts are often associated with planning a mass production line, so that thousands of a product can be manufactured efficiently in a factory. At the beginning of the century, the first mass production line was set up in the USA. The Ford Motor Company set up a 'line' of workers who put together each 'Model T' car. The production line was composed of hundreds of people, each doing only one job. When you plan your production line, you need to keep each stage of manufacture very simple. This is planning for 'mass production'

▼ Common flowchart symbols

| Symbol | Name of symbol | Typical use in a flowchart program |
|---|---|---|
|  | Start/end | Marks the start or end point of a program |
|  | Decision/compare | Checks whether a digital input is 'on' or 'off', or whether a sensor value is within a certain range |
|  | Process | Performs various processing functions, such as counting and timing |
|  | Input/output | Turns an output device 'on' or 'off' |
|  | Sub-routine | Activates a separate flowchart, then returns to the original flowchart |

## Computer-aided manufacture (CAM)

Computer-aided manufacture (CAM) is about the manufacturing process linked to a computer system. There are also lots of advantages when using CAM, for example it ensures that each product is produced exactly the same as the previous one. CAD and CAM can be linked together by converting the numerical data of a design into machine data that can be used to drive the machine.

## Examples of computer-aided design machines


Laser Cutting is a non-contact process which utilises a laser to cut materials, resulting in high quality, dimensionally accurate cuts. The process works by directing the laser beam through a nozzle to the work piece. A combination of heat and pressure creates the cutting action

3D printing, also known as additive manufacturing, is a method of creating a three dimensional object layer-by-layer using a computer created design. 3D printing is an additive process whereby layers of material are built up to create a 3D part

# Year 8 - Drama - Term 2

## Stage Terminology

| Definition | Term | ⇩⇩ Cover & Test ⇩⇩ |
|---|---|---|
| The left hand side of the stage from the **actors'** point of view. | **Stage Left (SL)** | |
| The right hand side of the stage from the **actors'** point of view. | **Stage Right (SR)** | |
| The back of the stage / area furthest away from the audience. | **Upstage (US)** | |
| The front of the stage / area nearest the audience. | **Downstage (DS)** | |
| Areas at the side of the stage where actors can wait, unseen. | **Wings** | |
| Curtains that hang from the ceiling and hide actors in the wings. | **Legs** | |
| An extra bit of stage in front of the main tabs. | **Thrust / Forestage** | |
| The back wall of the stage, often white to reflect light. | **Cyclorama or 'Cyc'** | |
| The small room from which lights and sound are operated. | **Tech Box** | |
| A part of the wings where the Stage Manager sits. | **Prompt Corner** | |
| Curtains at the front of the stage that can be opened or closed. | **Tabs** | |
| The metal poles in the ceiling from which the lights are hung. | **Bars** | |
| A theatre term for steps. | **Treads** | |
| The 'frame' through which the audience watch the play. | **Proscenium Arch** | |
| The imaginary 'missing wall' through which the audience watches the play. | **The Fourth Wall** | |
| A corridor or route that takes you from one side of the stage to the other without being seen. | **The Cross-Over** | |

## Stage Jobs

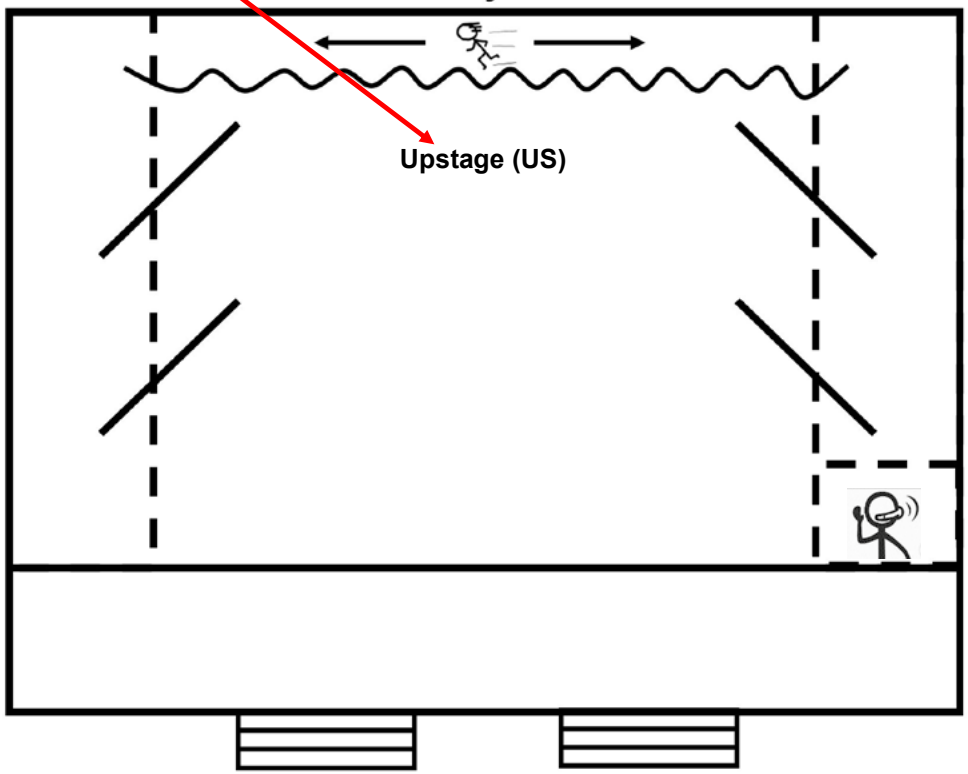
| Definition | Term | ⇩⇩ Cover & Test ⇩⇩ |
|---|---|---|
| They organise props and move the set during scene changes. | **Stage Managers SM** | |
| They make the sound effects and play them during the show. | **Sound Operator SFX** | |
| They operate the lighting and special effects during the show. | **Lighting Operator LX** | |
| The FoH Manager is in charge of the whole venue (theatre). FoH is in charge of checking that the show is safe and ready to begin. | **Front of House Manager FoH** | |
| Everyone who works on the show but is not a performer. | **Tech Crew** | |

# Drama 2

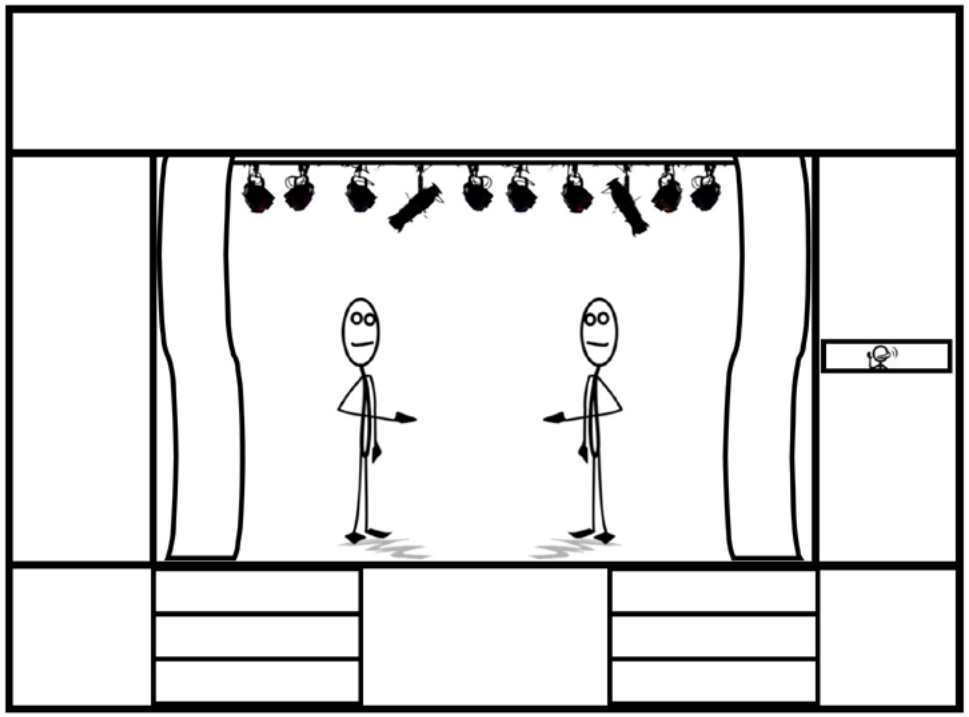
## Year 8 - Drama - Term 2

| EXAMPLE: **Upstage (US)** The back of the stage . | **Stage Right (SR)** The right hand side of the stage from the **actors'** point of view. | **Legs** Curtains that hang from the ceiling and hide actors in the wings. | **Cyclorama / 'Cyc'** The back wall of the stage, often white to reflect light. | **The Cross-Over** A corridor or route that takes you from one side of the stage to the other without being seen. | **Bars** The metal poles in the ceiling from which the lights are hung. | **Proscenium Arch** The 'frame' through which the audience watch the play. | **The Fourth Wall** The imaginary 'missing wall' through which the audience watches the play. |
|---|---|---|---|---|---|---|---|

**Bird's Eye View**




**End On View**



| **Stage Left (SL)** The left hand side of the stage from the **actors'** point of view. | **Downstage (DS)** The front of the stage / area nearest the audience. | **Wings** Areas at the side of the stage where actors can wait, unseen. | **Thrust / Forestage** An extra bit of stage in front of the main tabs. | **Prompt Corner (In both diagrams)** A part of the wings where the Stage Manager sits. | **Treads (In both diagrams)** A theatre term for steps. | **Tabs** Curtains at the front of the stage that can be opened or closed. | **Tech Box** The small room from which lights and sound are operated. |
|---|---|---|---|---|---|---|---|

Don't forget to label this!

English Department

# YEAR 8

Spring Term – Grammar

## SENTENCE TYPES

Sentences fall into three categories: **simple**, **compound** and **complex**.

SIMPLE SENTENCE – A simple sentence contains only one **clause.** *A clause is a unit of a sentence containing a subject and a verb, or a subject, verb and object.* Here are two examples:

Josie drew a picture.

Concentrating intensely, Josie drew a picture using pens and coloured pencils.

*Although the second sentence is much longer, it is still only a simple sentence because the other parts are phrases, not clauses.*

COMPOUND SENTENCE – A compound sentence contains two clauses joined together with a coordinating conjunction. *There are only seven coordinating conjunctions in the English language, which you can remember with the acronym FANBOYS: For, And, Nor, But, Or, Yet, So*. Here is an example:

Josie drew a picture and Selma made a sculpture.

COMPLEX SENTENCE – A complex sentence is made up of a main clause and a subordinate clause joined by a subordinating conjunction. There are lots of subordinating conjunctions in our language; examples include *because, although, whereas, however, until, while, as, after, since, when*.

Subordinate means 'less important'. We call it this because its meaning is tied in with the main clause: it cannot stand alone as a sentence on its own. Here is an example:

Josie drew a picture because Selma asked her to.

With complex sentences, you can also switch the clauses around so that the subordinate clause comes first, like this:

Because Selma asked her to, Josie drew a picture.

Or even in the middle, like this:

Josie, because Selma asked her to, drew a picture.

## SUBORDINATE CLAUSES

Subordinate clauses appear in **complex** sentences. They are sometimes called *dependent* clauses, because their full meaning *depends* on the information given in the main clause of the sentence.

HOW CAN WE TELL IF A CLAUSE IS SUBORDINATE?

Let's look more closely at this. Here are two similar sentences – the first is a **compound** sentence, i.e. two main clauses joined together, and the second is a **complex** sentence made up of a main clause joined to a subordinate clause.

| main clause | main clause |
|---|---|

The cat ran away and the dog barked.

The coordinating conjunction *and*, signals that the two things happening in this sentence (cat running away; dog barking) are separate events – there is no relationship between them. The information in both clauses is *independent.*

| main clause | subordinate clause |
|---|---|

The cat ran away when the dog barked.

In this example, it is clear that there *is* a relationship between the two events. The subordinating conjunction *when* signals that the cat ran away *at the same time* as the dog barked, leading us to infer that the dog's bark may have *caused* the cat to run away. So, in this way, the information in the subordinate clause *depends* on the main clause

## WHO OR WHOM?

These two words mean the same thing, so why do we have both? *If we are referring to the **subject** of a clause, we say 'who', but if we are referring to the **object** of a clause, we say 'whom'.*

## CLAUSE STRUCTURE

Sentences are built out of smaller units called **clauses** and **phrases**. The most basic type of sentence is called a **simple sentence** and consists of only one clause.

A clause must contain two elements: a **subject** and a **verb**.

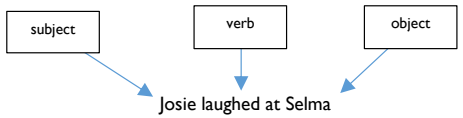
The subject of a clause must be a **noun** or **noun phrase**.

Here is an example of a basic clause:


A clause can also contain a third element, called the **object**, which must also be a **noun** or **noun phrase**.

You can think of the subject as the 'thing' which *does* the action indicated by the verb. In the example above, Josie is the one laughing, which is why she is the subject of the sentence.

The object is the 'thing' which *receives* the action indicated by the verb. Here is an example of a clause with an object:




Here, Selma is the one being *laughed at* – she is not the one doing the laughing. Therefore, she is the object in the clause.

Most clauses in English follow the order *subject, verb, object.*

## RELATIVE CLAUSES

A relative clause is a special type of **subordinate clause** which tells us more about the noun or noun phrase in the sentence. Unlike a normal subordinate clause, the position of a relative clause cannot be moved around in the sentence.

Relative clauses are easy to spot because they always start with a **relative pronoun**. The relative pronouns are *who/whom, which, that, and whose.*

Here is an example. The relative clause is underlined:

The cat ran up the tree which stood at the end of the garden.

## VERB INFINITIVES

1-ETRE = to be
2- AVOIR = to have
3- FAIRE = to do
4- ALLER = to go
5- JOUER = to play
6. REGARDER = to watch
7. ECOUTER = to listen
8. AIMER = to like
9. MANGER = to eat

## PRESENT TENSE VERBS WITH "JE"

1- je suis = I am
2- j'ai = I have
3- Je fais = I do
4- je vais = I go
5- je joue = I play
6. Je regarde = I watch
7. J'écoute = I listen
8- Je mange = I eat

## PAST TENSE VERBS WITH "JE"

1- je suis allé(e) = I went
2- j'ai joué = I played
3- j'ai regardé = I watched
4- J'ai mangé = I ate

## FUTURE TENSE VERBS WITH "JE"

1- je vais aller = I'm going to go
2- je vais jouer = I am going to play
3- je vais regarder = I am going to watch
4- je vais manger = I am going to eat

*French y8*

# Core Language

KnowIT

## TIME MARKERS

PAST
1- hier = yesterday
3- la semaine dernière = last week

FUTURE
1- demain = tomorrow

PRESENT

1- quelquefois = sometimes
2- tous les jours = everyday
3- une fois par semaine = once a week
4- souvent = often
5- soir = evening
6- matin = morning
7 – d'habitude = usually

## OTHER VERY IMPORTANT PHRASES

1- ne…pas = not
2- ne… jamais = never
3- il y a = there is / il n'y a pas de = there isn't
4- dans = in

## CONNECTIVES AND INTENSIFIERS

1- d'abord = firstly
2- puis / ensuite = then
3- enfin = finally
4- et = and / ou = or
5- mais = but
6- cependant = however
7- si = if
8- quand = when

1- trop = too
2- très = very
3- assez = quite
4- un peu = a little
5- vraiment = really

## OPINIONS

1- j'aime = I like
2- je n'aime pas = I don't like
3- j'adore = I love
4- Je déteste = I hate
5- je trouve ça = I find it
6- parce-que / car c'est= because it is

j'ai horreur de = I really hate

génial / chouette = great
Intéressant = interesting
marrant / drôle = fun
ennuyeux / barbant = boring
Pénible = annoying
nul / horrible = rubbish

# FRENCH Y8- TOPIC 2 – MES LOISIRS

## À la télé • On TV

| | |
|---|---|
| je regarde ... | *I watch ...* |
| les dessins animés | *cartoons* |
| les documentaires | *documentaries* |
| les émissions de sport | *sports programmes* |
| les émissions de télé-réalité | *reality TV shows* |
| les émissions musicales | *music shows* |
| les infos | *the news* |
| les jeux télévisés | *game shows* |
| la météo | *the weather* |
| les séries | *series* |
| les séries policières | *police series* |
| les séries américaines | *American series* |
| Mon émission préférée, c'est ... | *My favourite programme is ...* |
| j'adore | *I love* |
| j'aime bien | *I like* |
| je n'aime pas | *I don't like* |
| je ne regarde jamais | *I never watch* |
| je ne rate jamais | *I never miss* |

## Les films • Films

| | |
|---|---|
| j'aime ... | *I like ...* |
| je suis fan de ... | *I'm a fan of ...* |
| je ne suis pas fan de ... | *I'm not a fan of ...* |
| j'ai une passion pour les ... | *I have a passion for ...* |
| j'ai horreur des ... | *I really dislike ...* |
| je déteste ... | *I hate ...* |
| les comédies | *comedies* |
| les films d'action | *action films* |
| les films d'amour | *romantic films* |
| les films d'arts martiaux | *martial-arts films* |
| les films d'aventure | *adventure films* |
| les films fantastiques | *fantasy films* |
| les films d'horreur | *horror films* |
| les films de science-fiction | *science-fiction films* |
| mon acteur préféré, c'est ... | *my favourite actor is ...* |
| mon film préféré, c'est ... | *my favourite film is ...* |

## Sur Internet • On the internet

| | |
|---|---|
| J'envoie des e-mails. | *I send emails.* |
| Je fais beaucoup de choses. | *I do lots of things.* |
| Je fais des recherches pour mes devoirs. | *I do research for my homework.* |
| Je fais des achats. | *I buy things.* |
| Je fais des quiz. | *I do quizzes.* |
| Je joue à des jeux en ligne. | *I play games online.* |
| Je mets à jour ma page perso. | *I update my homepage.* |
| Je vais sur mes sites préférés. | *I go onto my favourite sites.* |
| Je vais sur des blogs. | *I go onto blogs.* |
| Je vais sur des forums. | *I go onto forums.* |

## PRESENT of –ER verbs

To form the present of -er verbs,
1- we chop off the ER
2- we add the endings-

Je……..-e
Tu……..- es
Il……..- e
Elle……..- e
On……..-e
Nous……..-ons
Vous……..-ez
Ils……..-ent
Elles……..-ent

Je regarde
Tu regardes
Il regarde
Elle regarde
On regarde
Nous regardons
Vous regardez
Ils regardent
Elles regardent

## Qu'est-ce que tu lis? • What are you reading?

| | |
|---|---|
| je lis ... | *I'm reading ...* |
| une BD | *a comic book* |
| un livre sur les animaux | *a book on animals* |
| un livre d'épouvante | *a horror story* |
| un magazine sur les célébrités | *a magazine about celebrities* |
| un manga | *a manga* |
| un roman fantastique | *a fantasy novel* |
| un roman policier | *a thriller* |
| un roman d'amour | *a love story* |

## Hier soir • Last night

| | |
|---|---|
| J'ai discuté. | *I discussed/chatted.* |
| J'ai écouté la radio. | *I listened to the radio.* |
| J'ai envoyé des SMS. | *I sent text messages.* |
| J'ai joué à des jeux en ligne. | *I played games online.* |
| J'ai posté des photos. | *I posted photos.* |
| J'ai regardé la télé/des clips vidéo. | *I watched TV/video clips.* |
| J'ai surfé sur Internet. | *I surfed the net.* |
| J'ai tchatté sur MSN. | *I chatted on MSN.* |
| J'ai téléchargé des chansons. | *I downloaded some songs.* |

## PAST of –ER verbs

To form the past of -er verbs,
1- we use AVOIR

J'ai
Tu as
Il a
Elle a
On a
Nous avons
Vous avez
Ils ont
Elles ont

2- We chop off the ER and write a "é" at the end of the verb.

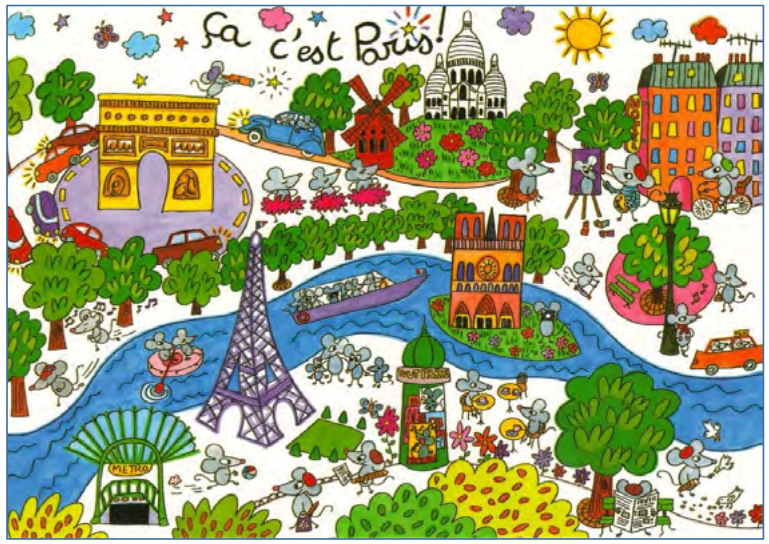
J'ai regardé
Tu as regardé
Il a regardé
Elle a regardé
On a regardé
Nous avons regardé
Vous avez regardé
Ils ont regardé
Elles ont regardé

## FRENCH Y8- TOPIC 3 – PARIS

### A Paris – In Paris

| | |
|---|---|
| J'ai passé une semaine à Paris. | *I spent a week in Paris.* |
| J'ai visité la tour Eiffel. | *I visited the Eiffel Tower.* |
| J'ai mangé au restaurant. | *I ate in a restaurant.* |
| J'ai admiré la Pyramide du Louvre. | *I admired the Louvre Pyramid.* |
| J'ai regardé le feu d'artifice. | *I watched the fireworks.* |
| J'ai acheté des souvenirs. | *I bought some souvenirs.* |
| J'ai rencontré un beau garçon/une jolie fille. | *I met a good-looking boy/a pretty girl.* |
| J'ai envoyé des cartes postales. | *I sent some postcards.* |
| J'ai pris des photos. | *I took some photos.* |
| J'ai vu la *Joconde*. | *I saw the* Mona Lisa. |
| J'ai attendu le bus. | *I waited for the bus.* |
| J'ai très bien dormi. | *I slept very well.* |
| Je n'ai pas visité Notre-Dame. | *I didn't visit Notre-Dame.* |
| On a fait les magasins. | *We went shopping.* |
| On a bu un coca. | *We drank a cola.* |
| On a fait un tour de la ville en segway. | *We did a tour of the town by segway.* |
| On a fait une balade en bateau-mouche. | *We went on a boat trip.* |

La Tour Eiffel – Le Sacré Coeur – Le Louvre
Notre Dame - L'arc de Triomphe-
Le Champs Elysées – Le Centre Pompidou




### Un voyage • A journey

| | |
|---|---|
| Je suis allé(e) (à Paris). | *I went (to Paris).* |
| Je suis parti(e)/arrivé(e) à (dix heures). | *I left/arrived at (ten o'clock).* |
| Le train est parti/arrivé à (huit heures). | *The train left/arrived at (eight o'clock).* |
| Je suis sorti(e). | *I went out.* |
| Je suis resté(e) (chez moi). | *I stayed (at home).* |
| Je suis rentré(e) (chez moi). | *I went/got home.* |
| Je suis monté(e). | *I went up.* |

### Perfect tense with *être*

ALLER – RESTER – ARRIVER-
PARTIR – SORTIR - RENTRER


**Je suis allé.**


**Je suis allée.**

### Tu as voyagé comment? • How did you travel?

| | |
|---|---|
| en avion | *by plane* |
| en bus | *by bus* |
| en car | *by coach* |
| en métro | *by underground* |
| en train | *by train* |
| en voiture | *by car* |
| à vélo | *by bicycle* |
| à pied | *on foot* |

Some verbs have irregular past participles.

| Infinitive | Perfect tense with *je* |
|---|---|
| *boire* (to drink) | *j'ai* **bu** (I drank) |
| *faire* (to do/make) | *j'ai* **fait** (I did) |
| *prendre* (to take) | *j'ai* **pris** (I took) |
| *voir* (to see) | *j'ai* **vu** (I saw) |

To make a perfect tense verb negative, put ***ne … pas*** around **the part of *avoir***.

*Je* ***n'ai pas*** *mangé au restaurant.*

Change *un/une* and *du/de la/de l'/des* to **de** after a negative:

*J'ai envoyé* ***une*** *carte postale à mes parents.* → *Je n'ai pas envoyé* ***de*** *carte postale à mes parents.*

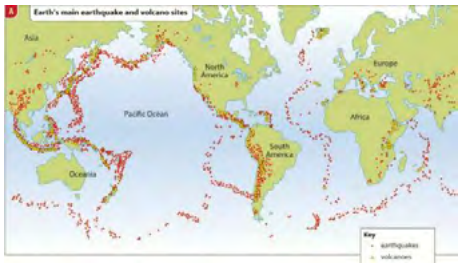
### C'était comment? • What was it like?

| | |
|---|---|
| C'était … | *It was …* |
| J'ai trouvé ça … | *I found it …* |
| bien | *good* |
| bizarre | *weird* |
| cool | *cool* |
| cher | *expensive* |
| effrayant | *scary* |
| ennuyeux | *boring* |
| fabuleux | *wonderful/fantastic* |
| génial | *great* |
| horrible | *horrible/terrible* |
| intéressant | *interesting* |
| marrant | *funny/a laugh* |
| nul | *rubbish* |
| Ce n'était pas mal. | *It wasn't bad.* |

# Year 8 Geography Knowledge Organiser Term 3: Volcanoes

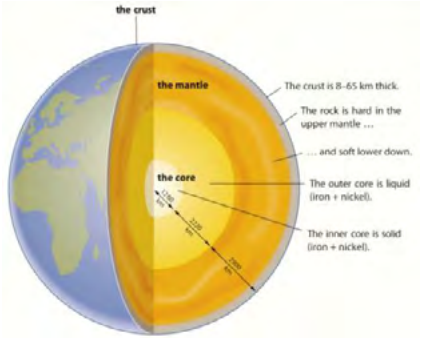
## Location and Distribution

Volcanoes are found along plate boundaries and hot spots.




## Structure of the Earth

The earth is made up of 4 layers.




## Plate Boundaries

Convection currents drive the movement of tectonic plates. When the tectonic plates meet they create 4 types of boundary:

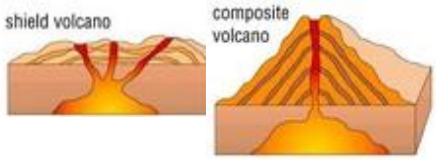
Collison,
Constructive
Destructive
Conservative

Volcanoes are formed at constructive and destructive plate boundaries.

## Volcano Structure

A volcano is where magma is able to escape from the earth's surface.

The two types of volcano are shield (gentle, flat and runny lava) and composite (violent, steep and thick lava).




## Volcanic Hazards

Volcanoes produce fertile warm land which has many benefits. However, there are many hazards which can be mitigated through the 3 P's; Plan, Predict and Prepare

<u>Yellow Stone Super Volcano</u>
The Yellowstone Caldera is a supervolcano in Yellowstone National Park in Wyoming (USA). Beneath Yellowstone Park is a monstrous plume of hot rock. Past volcanoes have erupted with a thousand times the power of Mount St. Helens.

## Speak Like a Geographer

Volcano, Magma, Magma Chamber, Shield Volcano, Composite Volcano, Pyroclastic Flow, Plume, Vent, Crater, Primary Impact, Secondary Impact, Plan Predict, Prepare, Geothermal Energy, Agriculture, Fertile, Tourism, Minerals, Geology

## Fieldwork


## Skills

A hazard map is a map that highlights areas that are affected by or are vulnerable to a particular hazard

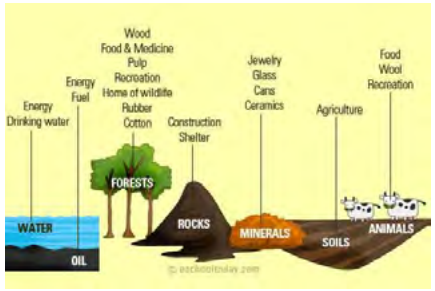
**<u>Advantages</u>**: provide important information to help people prepare and evacuate safely

**<u>Disadvantages</u>**:
It's not always 100% accurate

# Year 8 Geography Knowledge Organiser Term 4: Remarkable Resources

## Earth's Natural Resources

A resource is something of use. The main resources are; food, energy, minerals and water.




## Location and Distribution

Resources are not evenly spread around the world e.g. oil shown in dark orange. Demand and supply drives international trade and it is worth billions of dollars.


## Humans' Use of Resources

ACs have become very dependent on resources and have often depleted their own supplies.

They therefore depend on links with EDCs and LIDC's to supply them with resources.

Humans have over exploited many resources having a negative impact on the environment e.g. deforestation.

## Types of Energy

Fossil fuels such as coal, oil and natural gas take millions of years to form. They are cheap to produce, however, they release a lot of energy when burnt and give off a lot of pollution.

Renewable energy comes from a source that will not run out including; solar, geothermal, hydropower, wind and biomass. They are expensive to set up and generate less energy but release minimal pollutants.

## The Middle East

The Middle East is south east of the UK, in Asia. It is rich in oil (fossil fuel) and therefore exports to many ACs like the UK. There have been many conflicts in oil rich countries.


## Speak Like a Geographer

Natural Resources, Fossil Fuels, Non-Renewable, Consumption, Fracking, Environment, Mining, Deforestation, Food Security, Water Crisis, Commercial Fishing, Mechanisation, Sustainability, Demand and Supply

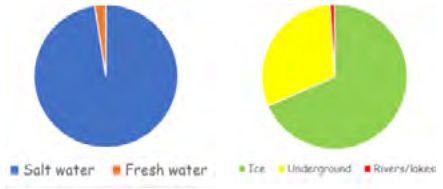
## Fieldwork


## Skills

A pie chart is a circular chart that shows how data sets relate to one another.

**Advantages**: summarize a large data set in visual form and be visually simpler than other types of graphs.

**Disadvantages**:
If too many pieces of data are used, pie chart becomes less effective.



# Year 8 History: Spring Term

| Key Words | | |
|---|---|---|
| **Democracy** | A way of governing which depends on the allowing people to choose | Britain is a democracy |
| **Elections** | The process of voting to choose a political leader | Britain has elections to choose a new Prime Minister |
| **Strike** | Workers deliberately stopping work to protest something | The Match girls went on strike due to low pay |
| **Suffrage** | The right to vote in political elections | The Suffragists and Suffragettes fought for women's suffrage |
| **Middle passage** | The forced voyage of enslaved Africans across the Atlantic Ocean from Africa to the New World. | Millions of African people forcibly travelled the Middle passage. |
| **Slavery** | The practice of people owning other people. Enslaved people have to work for the owners, doing whatever the owners ask them to do. | America and Britain participated in slavery. |
| **Abolition/ abolish** | To stop something/making it illegal. | The British government passed an act abolishing slavery in 1807. |

## Part 1: Slavery

| | |
|---|---|
| **Arguments used to justify it** | • Belief that Africans needed to convert to Christianity<br>• Economic benefits<br>• Supposed superiority of white people (racism) |
| **Arguments against** | • Kidnapping Africans<br>• Treatment of slaves (starvation, disease, beatings, murder)<br>• Forced labour |


*Map showing the Triangular Trade routes: From Europe to Africa and then onto America*

| Key individuals | |
|---|---|
| William Wilberforce | British MP who campaigned for the abolition of slavery in Parliament. |
| Olaudah Equiano | A slave who bought his freedom and published a description of life as a slave. He became an anti slavery campaigner |

## Part 2: Women's suffrage

| | |
|---|---|
| **Suffragists** *(National Union of Women's Suffrage Societies)* | 1897 - Led by **Millicent Fawcett**. Aimed to gain the vote by **peaceful** persuasion. Wrote letters gather signatures & went on peaceful marches. |
| **Suffragettes** *(Women's Social & political Union)* | 1903 - . Led by **Christabel Pankhurst** they aimed at **"deeds not words"**- using arson, hunger strikes and violent demonstrations. **Emily Davison** died at 1913 Derby while trying to pin a votes for women banner on the King's race horse. Government responded with arrests and forced feeding of hunger strikers. |
| **WW1** | Women gave support to the war effort and the government promised vote in return. |

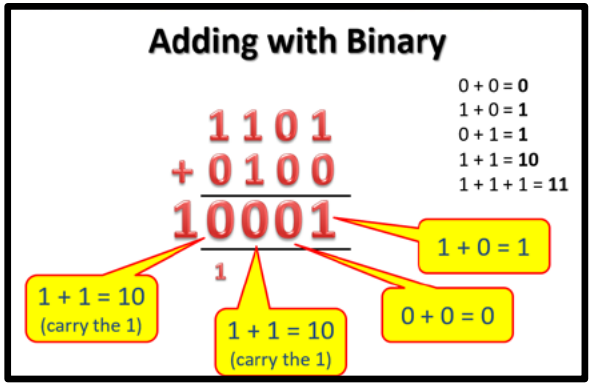
| Tactics | |
|---|---|
| **Hunger Strike** | When people refuse to eat as a form of protest. |
| **Petition** | A formal written request, usually signed by lots of people, asking the government or another important group to do something. |
| **Arson** | The act of deliberately setting fire to property with a view to causing extensive damage. |

**Cat and Mouse Act**
Permitted suffragettes on hunger strike to be released but re-arrested once well again to complete their sentences.

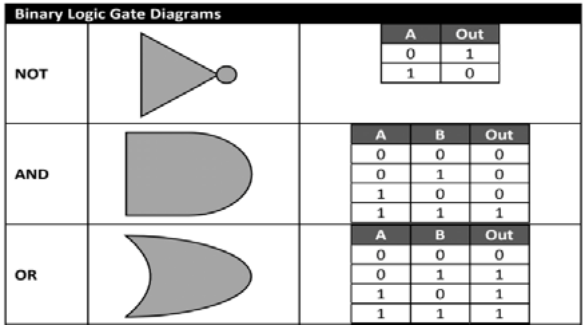
# Year 8 ICT Knowledge Organiser – Data representation

| Key words | |
|---|---|
| **Binary** | Counting using base 2 (0's & 1's) the only language that computers truly understand. |
| **Denary** | Counting using base 10 (0-9) |
| **Bit** | The smallest amount of data (stands for Binary digit (0 or 1) |
| **Nibble** | 4 bits – ½ a Byte |
| **Byte** | 8 bits – representing a character on the keyboard |
| **Kilobyte** | 1024 bytes |
| **Megabyte** | 1024 Kilobytes |
| **Gigabyte** | 1024 Megabytes |
| **Terabyte** | 1024 Gigabytes |
| **Image file size equation** | An image 1000 x 800 pixels with 16 bit colour depth would be:<br>(1000 x 800) x 16 = 12,800,000 bits or 12 MB |
| **Resolution** | how big the pixels are in the image |
| **Meta Data** | The data to help the computer process the image. It includes Size of the image grid (width and height), Colour depth (number of bits per pixel) and Resolution to display the image in (pixels per inch) |

**IMAGES - Bitmaps** are types of images. They are laid out in a grid format with each box on the grid containing one "***Pic***ture ***el***ement" which is better known as a "***Pixel***".




Logic Gates and Truth Tables




**SOUND -** To improve the quality of the digital signal so that is becomes closer to the original analogue signal you need to

- Increase how often the sample is taken - this is known as the "Sample Rate".
- Increase the number of bits per sample to allow a more precise recording of the sample to be taken – for instance, have a range between 0 and 255 (8 bits) rather than 0 – 31 (5 bits)

These changes will increase the size of the file.

# Year 8 ICT Knowledge Organiser - Networking

**Network Hardware:**
**Switch**
**Server**
**Router**
**Wire/Cable**
**Wireless**

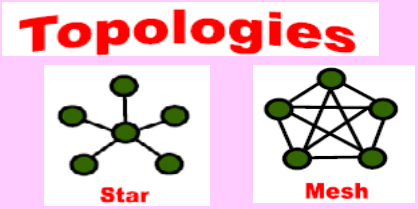
**A NETWORK -** 2 or more computers connected together using wired or wireless media to share resources, files, programs and to communicate.

**Peer to Peer Network** – Computers are connected directly together and there is NO central server . Each user is responsible for their own hardware, software and security but can share files and resources.

**Client Server Network** – A central server provides services to client computers. The server allows the computers to have a central backup, communicate, share files and monitor and maintain everything from a central point 24/7.

**Topologies**

STAR – Computers connected via a central switch.




MESH – Each computer is connected to every other computer.

**Types of Computer Network**

**A LAN -** A collection of computers connected together over a small geographic area. There are found in homes, schools, and single-site companies. The hardware required is owned and maintained by the organisation that uses it.

**A WAN -** A collection of computers that are connected over a large geographic area. The hardware required is owned and maintained by large telecommunication companies. The Internet is the largest WAN in the world.

# Mathematics — Spring Term 1 — Year 8

## Topic: Circles

A **compound shape** is more than one shape joined to make a new shape.

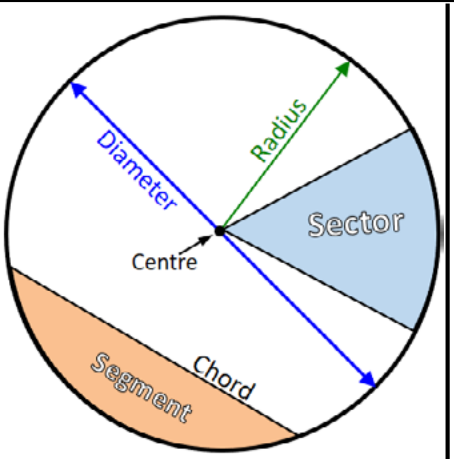
An **arc** is part of a **circumference**.

**Circumference** = $\pi \times d$

**Area of a circle** = $\pi \times r^2$

**Arc length** = $\frac{angle}{360} \times \pi d$

**Sector area** = $\frac{angle}{360} \times \pi r^2$




**Video Links:** Circumference Area Arcs Sectors

## Topic: Ratio and Proportion

A **ratio** shows us the **proportion** of one amount compared to another. They are written like this: $3:4$

**Equivalent ratios** have the same proportions, but different values. (Multiply or divide both sides by the same value)

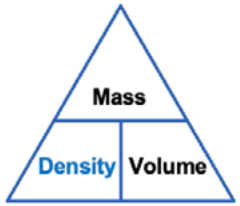
Two quantities are in **direct proportion** if they both increase at the same rate. **Inverse proportion** is when one quantity increases as the other decreases. (eg: As one doubles, the other is halved.)

**Video Links:** Simplify Find Missing Part Sharing in a Ratio Direct Proportion (unitary) Inverse Proportion Recipes

## Topic: Compound measures

Compound measures include **speed**, **density** and **pressure**.
eg: **Miles-per-hour** (mph), **Metres-per-second** (m/s)

*Learn these three triangles to help you:*



$Speed = \frac{Distance}{Time}$ $Density = \frac{Mass}{Volume}$ $Pressure = \frac{Force}{Area}$

**Video Links:** Speed Density Pressure

## Topic: Data handling

A **frequency polygon** is a graph using straight lines to join the midpoints of intervals in order.

A **time series graph** is a line graph measured over regular time intervals.

A graph can show a pattern which we call a **trend**. This can be upward, downward, or a repeating pattern over time.

We calculate three types of **average**: **mean**, **median** and **mode**. The **range** is a measure of how spread out the data is $(maximum - minimum)$.

**Estimated mean** $= \frac{sum\ of\ (frequency \times midpoint)}{sum\ of\ frequency}$

**Video Links:** Mean Median Mode Range Frequency Polygon Estimated mean

# Mathematics

Spring Term 2

Year 8

## Topic: Standard form

**Standard form** is another way of writing numbers. It is useful for writing either very small or very large numbers.

It has two parts…

$$2.45 \times 10^5$$

A single digit (followed by a decimal point if needed)

A power of 10

**Positive** powers of 10 show the value of the number is multiplied by that power of 10 (eg, x10, x100, x1000,…)

**Negative** powers of 10 show the value of the number is divided by that power of 10 (eg, ÷10, ÷ 100, ÷ 1000,…)

**Video Links:** Standard Form SF Multiply SF Division SF Addition

## Topic: Linear Graphs

**Linear graphs** are the graphs of straight lines on a set of axes ($x-$ axis and a $y-axis$).

The **gradient** is the steepness of the line. A line with zero **gradient** is flat (horizontal).

$$\text{Gradient} = \frac{change\ in\ y}{change\ in\ x}$$

The **y-intercept** is the point where the line crosses the $y-axis$.

The **midpoint** of any line segment is calculated using the two coordinates at each end, $(x_1, y_1)$ and $(x_2, y_2)$.

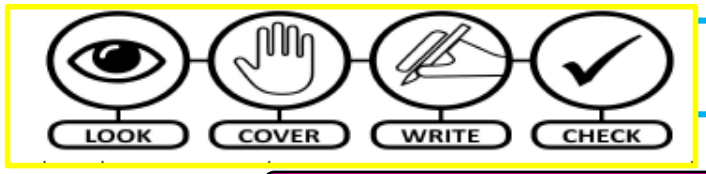
$$\text{Midpoint (coordinate)} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

The equation of a sloping line is in the form of…

$$y = mx + c$$

Where $m$ is the gradient and $c$ is the y-intercept.

**Video Links:** Gradient y = mx + c Midpoint

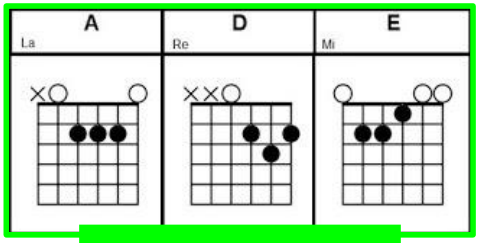



# KNOWLEDGE ORGANISER – Year 8 – Reggae / Pop

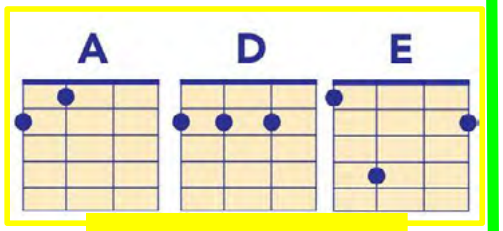
## Reggae

"Three Little Birds" is made up of the three **PRIMARY** chords (I, IV and V) in the key of A:

Chord I = A (A+C#+E)  Chord IV = D (D+F#+A)  Chord V – E (E+G#+B)

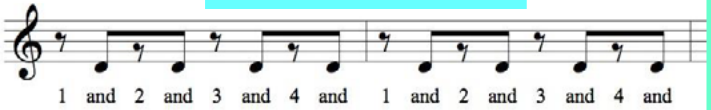



Guitar Chords




Ukulele Chords

## The Off-beat




In Reggae music the chords are played on the off-beat. This means that they are not played on the usually stressed beats. You need to play on the "and".

Reggae started in Jamaica around the late 1960s. The earliest reggae lyrics spoke mostly of love but as the music and the musicians making it made their way into the 1970s, reggae started taking on a heavy Rastafarian influence. Now the love being sung about was not just romantic love, but spiritual love, the love of of God, or "Jah". When reggae singers weren't singing about love, they were singing about rebellion and revolution against the forces preventing that love, like the extreme violence, poverty, racism, and government oppression they were witnessing or experiencing on a regular basis.

| Tick when done | Reggae Listening - Identify the instrumentation |
|---|---|
| | https://www.youtube.com/watch?v=2XiYUYcpsT4 "I Shot The Sheriff" – Bob Marley |
| | https://www.youtube.com/watch?v=xlCmQcRPtRg "Welcome To Jamrock" – Damien Marley |

## Pop - 4-chord songs

| Chord | Keyboard | Ukulele | Notes |
|---|---|---|---|
| C | | | C E G |
| F | | | F A C |
| G | | | G B D |
| Am | | | A C E |

Most Pop songs are made up of the same four chords in a key, these are:

Chord I
Chord IV
Chord V
Chord vi (minor)

In the key of C they are listed below:

| I | ii | iii | IV | V | vi | vii° |
|---|---|---|---|---|---|---|
| C | Dm | Em | F | G | Am | Bdim |

## Pop Song Structure

| Tick when done | Watch the following video on pop song structure |
|---|---|
| | https://www.youtube.com/watch?v=oXifpcE7ewU "Learn Popular Music Song Structure" – Mr D. Morley |

## Keywords

| | |
|---|---|
| Chord | Two or more notes played at the same time. |
| Key | Adds a sense of space to a sound |
| Riff | A short, repeated melodic pattern usually 1-4 bars long. |
| Hook | A short catchy melodic idea designed to be instantly memorable |
| Fills | Short flourishes used to fill a gap between phrases - often played on drums |
| Middle 8 | The section of a song where there is a new, different tune/chord progression. Usually 8 bars in length. |
| Reverb | Adds a sense of space to a sound. |

# HOCKEY

## THEORY IN ACTION


**Coordination** may be advantageous to hockey player in producing an effective dribble, coordinating footwork and arm action.

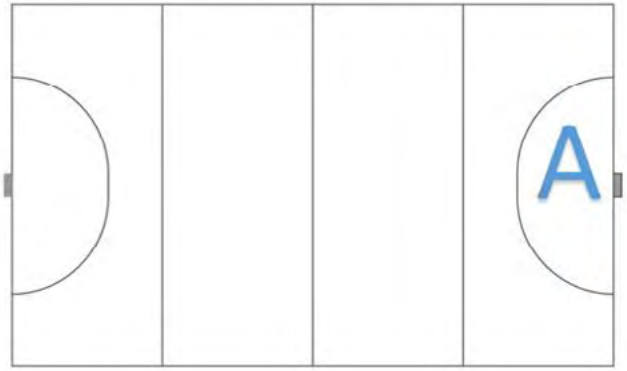
## DEFINE THIS

"Co-ordination is the ability to move two or more body parts under control, smoothly and efficiently."

## Overview of the rules

The rules of hockey are very similar to the rules of football except that players must use sticks instead of their feet to play the ball. There are 11 players on a team made up of a goalkeeper, defenders, midfielders and attackers.

1. Use the "front" (flat) side of the stick.
2. Cannot use feet.
3. At re-starts or free hits, the defending team must stand 5m from the ball.
4. Can only score from inside the "D" (A).
5. From a re-start a players is allowed to move the ball to themselves. Known as a self-pass.



# BASKETBALL

**Rules for Offence**

When a player has the basketball (offence) there are certain rules they must follow:

1. The player must bounce the ball with one hand while moving both feet. If both hands touch the ball or the player stops dribbling, the player must only move one foot.

2. Once a player has stopped dribbling they cannot start another dribble. A player who starts dribbling again is called for double-dribble.

3. A player can only start another dribble after another player from either team touches or gains control of the basketball.

4. Back court violation. Once you advance beyond the half way line you cannot return to your half in possession of the ball.

**Defensive Rules**

The team on defence is the team without the basketball.

1. The main rule for the defensive player is not to foul. This means the defensive player may not touch the offensive player in a way that causes the offensive player to lose the ball or miss a shot.

**Rules for everyone**

1. Although the foul rule is described as a defensive rule, it applies exactly the same to all players on the court.

2. Basketball players cannot kick the ball or hit it with their fist.

3. The positions in basketball are just for basketball strategy and there are no positions in the rules.

THEORY IN ACTION

**Power** is important in explosive movements like jumping.

DEFINE THIS

"Power is the ability to exert maximum muscular contractions in an explosive burst."

# NETBALL

## Overview of rules

1. 3 seconds on the ball – Players are only allowed to have the ball in possession for 3 seconds.
2. Start of a game – a game starts with a pass that must be received in the centre third. This is also how a game re-starts.
3. Shooting –Players can only shoot form inside the "D".
4. Footwork – Players cannot more their landing foot (first foot to hit the floor) when they have the ball.
5. Contact – contact is not allowed in netball
6. Penalty pass – Awarded for major fouls: Contact and obstruction.
7. Distance – Defending players must be 0.9m away from the ball before putting up their arms to defend. 2.
8. Replaying the ball: You must not pick the ball up or bounce the ball if you have dropped it

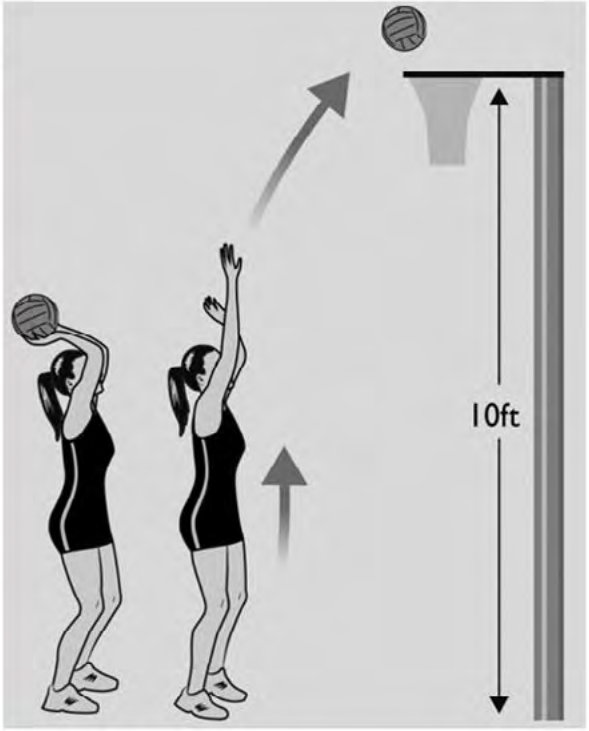

## THEORY IN ACTION

To generate the **power** to shoot the ball toward the hoop, the **triceps** must **contract** to **extend** the arm at the **elbow**. The **biceps relax**.

## DEFINE THIS

Antagonistic pairs:

Muscles can **only pull**; they cannot push. This is why they usually work in pairs. One muscle **contracts to move** the body part, the other muscle in the pair then **contracts to return** the body part back to the original position.



# BADMINTON

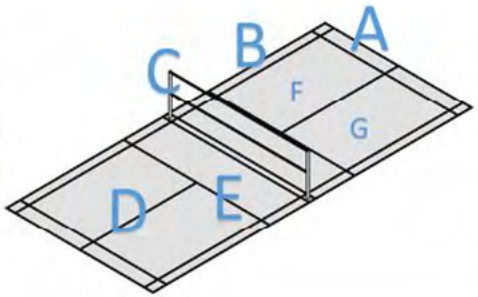
Overview of the rules

Badminton is a net game and played as singles (two opposing players) or doubles (two opposing pairs). The aim of the game is to win points by hitting a shuttlecock across the net and into your opponent's court forcing your opponent to make an error and be unable to return the shuttlecock back.

The basic rules

1. You must serve underarm.
2. A serve must reach the front service line.
3. If the shuttle lands **on** the edge line of the court, this is IN.
4. If you win a rally, **you** get a point added to your score and **you** serve next.
5. You can only hit the shuttle once in a row.
6. In a full game, the game is the first player to 21 points.
7. If your score is "even" (0,2,4,6...) you serve from the right-side service box (F).
8. If your score is "odd" (1,3,5,7...) you serve from the left-side service box (G).

A: Baseline: the end of the court
B: Side line: the side edge of the court
C: The net
D: Centre line: the middle of the court
E: Service line: where a rally is started
F: Right-side service box
G: Left-side service box




THEORY IN ACTION

Athletes with good **Agility** keep their entire body under control throughout. Agility is especially important in sports that require a sharp movement or turn. i.e. returning a shuttle in badminton.

DEFINE THIS

"Agility is the ability to change the position of the body quickly and with control."

# FOOTBALL

## THEORY IN ACTION

Femur

Patella

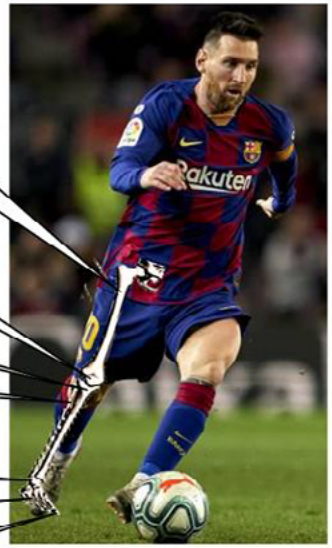
Tibia

Fibula

Tarsals

Meta-tarsals

Phalanges



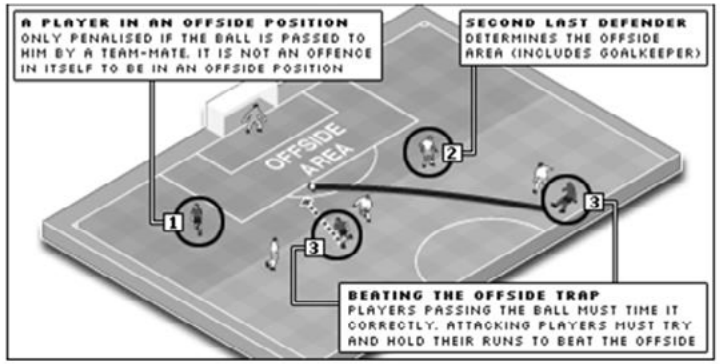
Balance can be static *i.e. handstand* or dynamic *i.e. dribbling around defenders.*

## DEFINE THIS

"Balance is the ability to stay upright or stay in control of body movement. "

Overview of the rules

1. A football match is played by two teams, with each allowed no more than 11 players on the field.
2. All players must use their feet head or chest to play the ball. Only the goalkeeper is allowed to use their hands, and only within their *designated goal area (box A)*.
3. The aim of the game is to outscore the opposition. A goal (score) is achieved by kicking or heading the ball into the *opposition team's goal (B)*.
4. If the ball touches or crosses the *side line (C)*, it is thrown back in by the team that was not the last to touch the ball.
5. The game is controlled by a central referee. They award free kicks and penalties when rules are broken.
6. A player is in an **offside** position if, when the ball is played by a team-mate, they are nearer to the opposition's goal line than the ball and the second last opponent.



# RUGBY

Overview of the general rules

Rugby has may variations but the aim of the game is very simple - use the ball to score more points than the other team.

1. Scoring a "try". A try is scored when the ball is placed down on the playing surface with pressure in the in goal area by the attacking team.

2. Moving the ball. To move the ball toward the line you can run with it, kick it and pass it. However, passing or knocking the ball *forwards* (unless kicked) is not allowed.

3. Kicking . Kicking is allowed but must kicked from the hands and not while the ball is on the floor.

4. Offside. Players are not allowed to receive the ball if they were in front of the ball when it was passed or kicked.

5. Penalties. A penalty can be awarded by the referee if any player breaks the laws of the game, this will lead to a turnover of possession. The opposition can choose to tap and run, tap and pass or kick to resume the game.

6. Starts and re-starts. If the ball goes out of play the ball is passed back in by the opposition. The ball is kicked from the half way line forward at the start of the match and after each try.

1. Tackling rules:
2. The tackler must grasp/ wrap the ball carrier below the armpits, on the shirt, shorts or around the legs. The grasp must be simultaneous with, or prior to, shoulder contact.
3. The tackler must not shoulder barge their opponent.
4. When a tackle is called the player can pass the ball to team mate or present the ball on the ground for a team mate.
5. If the ball is presented or loose, then a defending player may make an attempt to claim (turn over) the ball.
6. TOUCH VERSION – use two hands to touch the player at the waist. They then have 2-3 seconds to pass or present the ball.

## THEORY IN ACTION

As the player begins to kick the ball his "kicking leg" is in **flexion**. As he follows through the kick, the leg is in **extension**.

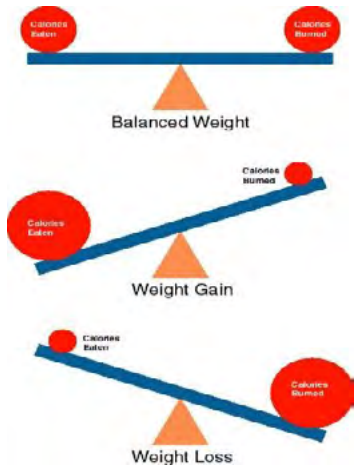
DEFINE THIS

**Flexion** – a decrease in the angle at the joint.

**Extension** – an increase in the angle at the joint.

## Nutrition and Balanced Diet

| | | | |
|---|---|---|---|
| **Carbohydrates** | Provides quick energy. 60% of our diet should comprise 'carbs' | Running. Athletes in training will eat more 'carbs'. Marathon runners will 'load' (build up stores of fuel in the muscles by resting and eating lots of pasta etc) for three days before the event | Pasta, cereals and potatoes |
| **Fats** | Provides slow energy. 25% of our diet should be fat. | Walking and low impact exercise - it produces energy too slowly to be used when working hard. | Oils, dairy products, nuts and fish |
| **Protein** | Builds and repairs muscle. We only need 15% of our diet to be protein | When training hard and recovering from injury. 'Power' athletes such as weight lifters will eat more protein | Meat, pulses and fish |
| **Vitamins** | Helps the body work. Helps concentration. | Staying calm, making quick decisions. | Fresh fruit and vegetables |
| **Minerals** | Helps release energy from food. Helps decision making | When training hard and competing. | Fruit, vegetables and fish |
| **Fibre** | Can't be digested. Fills you up and keeps you 'regular'. | Healthy digestion, (no constipation) helps in sport. Also helps with weight control. | Fresh fruit, vegetables and wholegrain cereals |
| **Water** | Maintains fluid levels. | Whenever you sweat. It prevents dehydration. | The tap! It's all you need most of the time |




A **Balanced Diet** is one that contains the correct proportions of nutrients necessary to maintain good health".

## Health, Fitness and Wellbeing

| Physical Health | Emotional Health | Social Health |
|---|---|---|
| **Cardiovascular Fitness:** your ability to exercise your whole body for long periods of time, sometimes called stamina or aerobic endurance<br>**Body Composition:** the percentage of body weight that is muscle, bone or fat<br>**Muscular Strength:** the amount of force a muscle can exert against a resistance<br>**Muscular Endurance:** the ability to use voluntary muscles many times without getting tired<br>**Flexibility:** the total range of motion possible at a joint. | **Feeling Good:** doing exercise produces serotonin, a 'feel good' chemical in the body<br>**Relieving Stress & Tension:** provide a distraction from the problems of daily life<br>**Increasing Self Esteem & Confidence:** overcoming a challenge in sport gives a sense of achievement<br>**Enjoyment:** most people who exercise and play sport do so because they enjoy it<br>**Emotional/Psychological Challenge:** challenging yourself can boost your confidence<br>**Aesthetic Appreciation:** enjoying something because it is pleasing to look at | **Cooperation:** working in groups helps to improve teamwork and communication<br>**Developing Friendships & Social Mixing:** you get to know more people, make new friends and develop lasting friendships<br>**Gaining a Good Attitude to Competing:** to compete well in sport you need to have a strong sense of self; and learn to respect your opponent |

**Health, Fitness and Wellbeing**

**Fitness:** the ability to meet the demands of the environment
**Wellbeing:** being comfortable, healthy & happy so impacting on emotional/psychological health and happiness
**Health:** a complete state of physical, mental and social wellbeing, not merely the absence of disease or infirmity.

## Types of Movement and Muscle Action

- **Flexion-** bending and decreasing the angle at a joint e.g. performing a bicep curl.
- **Extension-** straightening and increasing the angle at a joint e.g. when throwing/ releasing a dart.
- **Adduction-** moving a limb towards the centre line of the body e.g. when jumping up to do a star jump.
- **Abduction-** moving a limb away from the centre line of the body e.g. when returning back to the ground at the end of a star jump.

**Classification of joint**

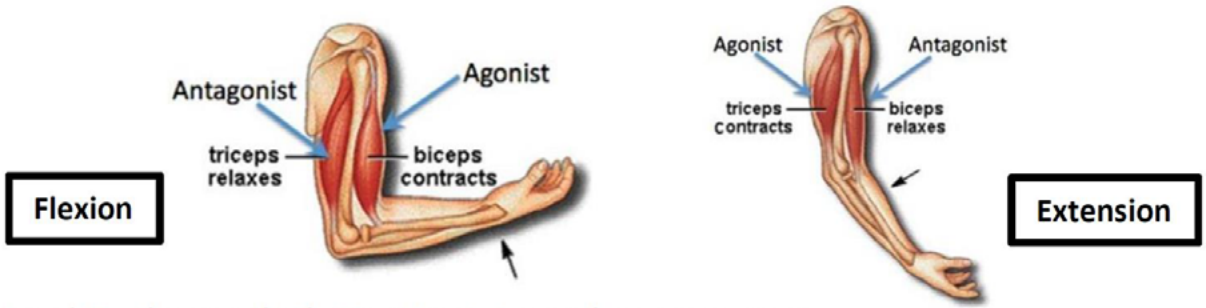
- Pivot (neck – atlas and axis)
- Hinge (elbow and knee)
- Ball and socket (hip and shoulder)
- Condyloid (wrist)

**Connective tissue**

**Ligaments –** attaches bone to bone to add joint stability.

**Tendons –** attaches muscles to bone and contributes to joint movement as a result of muscle contraction.

**Antagonistic pairs -** Muscles are arranged in antagonistic pairs.
As one muscle contracts (shortens) its partner relaxes (lengthens) *i.e. Biceps and Triceps.*




**Agonist = the muscle that contracts to produce movement.**
**Antagonist = the muscle that relaxes to allow the movement to occur.**

**Examples in the body:**

- Biceps & Triceps
- Quadriceps & Hamstring

## Effects of Exercise

| | |
|---|---|
| Immediate effects of exercise (during exercise) | • hot/sweaty/red skin<br>• increase in depth and frequency of breathing<br>• increased heart rate. |
| Short-term effects of exercise (up to 36 hours after exercise) | • tiredness/fatigue<br>• light headedness<br>• nausea<br>• aching/delayed onset muscle soreness (DOMS)/cramp. |
| Long-term effects of exercise (months and years of exercising) | • body shape may change<br>• improvements in specific components of fitness<br>• build muscle strength<br>• improve muscular endurance<br>• improve speed<br>• improve suppleness<br>• build cardio vascular endurance<br>• improve stamina<br>• increase in the size of the heart (hypertrophy)<br>• lower resting heart rate (bradycardia). |

# PSHE - Family and Feelings

Define:
***Body Language***
Nonverbal signals that you use to communicate your feelings and intentions. It includes your posture, your facial expressions and your hand gestures.

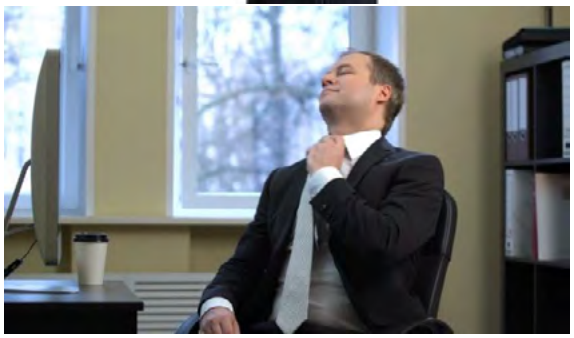
Define:
***Emotional Intelligence***
The ability to understand and manage your own emotions, and those of the people around you.

Define:
***Nuclear Family***
A family unit consisting of two parents (usually married)and one or more children

Define:
***Siblings***
A sibling is one of two or more individuals having one or both parents in common. A full sibling is a first-degree relative. A male sibling is a brother, and a female sibling is a sister.

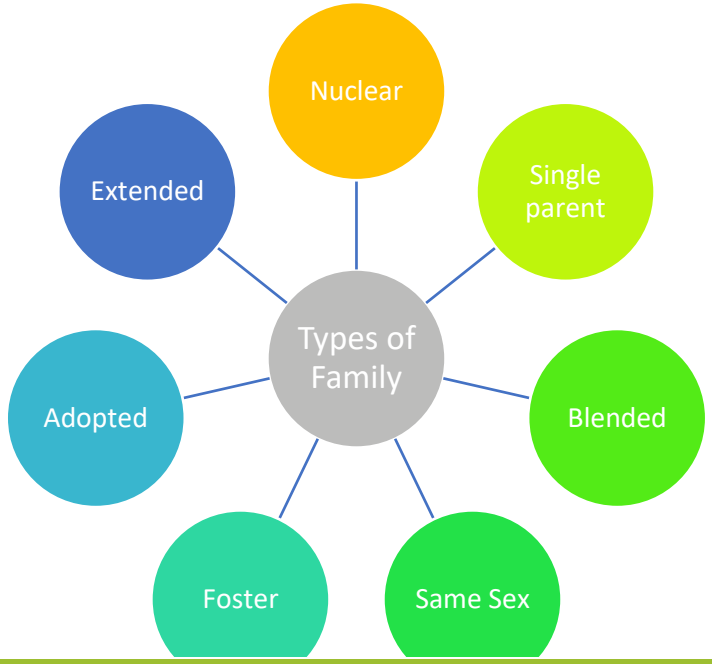
**Indications that someone is lying to you.**

- Going over the top with detail
- Covering mouth and eyes
- Not looking at you
- Gesturing
- Pausing a lot when telling a story



**Facial Expressions**
Facial expressions can help us determine how someone is feeling. Usually, if you have high emotional intelligence, you are good at determining someone's feelings based on their facial expressions.

Anger Compassion Contempt Embarrassment Pride Politeness Happiness Shame



# PSHE - Smoking

Define:
***Nicotine***
A toxic colourless or yellowish oily liquid which is the chief active constituent of tobacco. It acts as a stimulant in small doses, but in larger amounts blocks the action of autonomic nerve and muscle cells.

Define:
***Vaping***
The action or practice of inhaling and exhaling the vapour produced by an electronic cigarette or similar device

Define:
***Smoking***
The action or habit of inhaling and exhaling the smoke of tobacco or a drug. Usually through cigarettes or cigars

Define:
***E-Cigarette***
E-cigarettes are electronic devices that heat a liquid and produce an aerosol or mix of small particles in the air. Which is then inhaled.

## Effects of Nicotine

**Nicotine is both a sedative and a stimulant.**
When a body is exposed to nicotine, the individual experiences a "kick." This is partly caused by nicotine stimulating the adrenal glands, which results in the release of adrenaline.
This surge of adrenaline stimulates the body. There is an immediate release of glucose, as well as an increase in heart rate, breathing activity, and blood pressure. Indirectly, nicotine causes the release of dopamine in the pleasure and motivation areas of the brain.


## Smoking and the Law

You must be over 18 to buy cigarettes in the UK. If you're under 16 the police have the right to confiscate your cigarettes.
It's illegal:
•For shops to sell you cigarettes if you are underage
•For an adult to buy you cigarettes if you are under 18
•To smoke in all public enclosed or substantially enclosed area and workplaces.
•To smoke in a car with a child.

## Vaping and the Law

•You must be 18 or over to purchase e-cigarettes or e-liquids in the UK.It also became illegal for an adult to buy e-cigarettes for someone under the age of 18.
•Although there is no legal restriction on where you can vape in the UK there are local laws and bylaws in force that prohibit the practice. The choice of whether or not to allow vaping is that of the property owner.
•Vaping generally is not allowed on the underground, planes, buses or trains and train stations in the United Kingdom.
•Vaping while you drive may not seem like such a big deal but it could land you with up to nine penalty points and a fine of £2,500.

## How do E-Cigarettes work?

E-cigarettes produce an aerosol by heating a liquid that usually contains nicotine, flavorings, and other chemicals that help to make the aerosol.
The liquid used in e-cigarettes often contains nicotine and flavorings. This liquid is sometimes called "e-juice," "e-liquid," "vape juice," or "vape liquid."
Users inhale e-cigarette aerosol into their lungs. Bystanders can also breathe in this aerosol when the user exhales it into the air. E-cigarette aerosol is NOT harmless "water vapor." The e-cigarette aerosol that users breathe from the device and exhale can contain harmful and potentially harmful substances, including:
•Nicotine
•Ultrafine particles that can be inhaled deep into the lungs
•Flavoring such as diacetyl, a chemical linked to a serious lung disease
•Volatile organic compounds
•Cancer-causing chemicals
•Heavy metals such as nickel, tin, and lead

It is difficult for consumers to know what e-cigarette products contain. For example, some e-cigarettes marketed as containing zero percent nicotine have been found to contain nicotine.

## Year 8 Spring Term Knowledge Organizer Self-Quizzing

**Key words;**

- **Sacrifice;** giving something up for something of greater value.
- **Martyrdom;** someone who dies for a cause.
- **Resurrection;** body coming back to life.
- **Ascension;** body and soul rising to heaven.

***While they were wondering about this, suddenly two men in clothes that gleamed like lightning stood beside them. [5] In their fright the women bowed down with their faces to the ground, but the men said to them, "Why do you look for the living among the dead? [6] He is not here; he has risen!***


**Crucifixion**

Facts of crucifixion are; nails through wrists and feet, crown of thorns, sign saying INRI (*'king of the Jews'*) above his head and his legs were likely broken.

Questions to which to know answers…

- *What was the hill he was crucified on called?*
- *What happened to his body?*
- *Do you think there would be a religion called Christianity if the crucifixion had not happened?*

**Steps to crucifixion are;**

1. JC was betrayed by Judas; who revealed his whereabouts to the Romans for 30 pieces of silver.
2. He had become a threat to the Romans; they ruled the country and had ultimate power but JC was preaching and drawing large crowds.
3. He had been popular but eventually the crowd turned against him.

**Key aspect of the Last Supper is that Jesus had the opportunity to flee but didn't. Think of reasons why; cowardice is never respected, he had to die in order to resurrect.**

Simon of Cyrene helped him when he fell carrying the cross. The Romans cast lots for his clothes. Both these people/groups show the difference in attitude using **agape.**

**Year 8 Spring Term Knowledge Organizer Self-Quizzing**

We all know what it is, we all want it but it can be very difficult to achieve in some countries/situation.

Freedom is having the right/ability to think what you want and, within the law, behave in the way you wish.

It isn't being able to do anything you want.

Keeping freedom is reliant on the people in a society being vigilant as people who live in totalitarian regimes say it is a gradual erosion of rights which stopped their freedom.

1. Democracy; this means that the majority will win an election but it generally keeps out dictators.
2. Education; on the whole the more you have the more money you get and that often ties in with freedom.
3. Crime; having a criminal record limits your freedom immeasurably. Can't go to certain countries or get certain jobs etc.

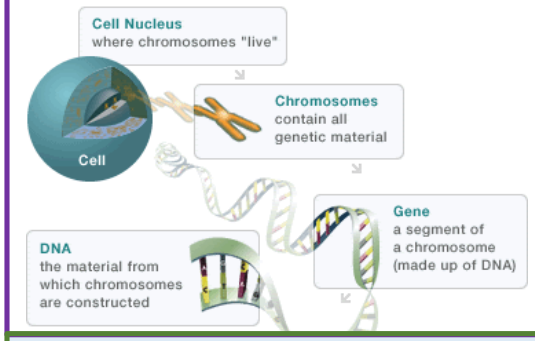
There are certain freedoms which have been gained in Britain such as women getting the vote and free education for all. Countries such as <u>Saudi Arabia</u> and North Korea have very low levels of freedom for the individual. These are gained through struggle, hard work and occasionally violence. The Peasants' Revolt and the Suffragettes both utilized these ideas to gain freedoms denied to them.

**<u>Freedom;</u>**
Democracy is the majority voting for a party. Best way of assuring freedom for the individual.

# Science - Biology - Variation

| Section 1 Definitions | | |
|---|---|---|
| 1 | Cell | The unit of a living organism, contains organelles o carry out life processes |
| 2 | nucleus | Contains genetic material (DNA) which controls the cell's activities |
| 3 | Chromosome | Thread-like structures containing tightly coiled DNA. |
| 4 | Gene | section of DNA that determines an inherited characteristic |
| 5 | DNA | A molecule found in the nucleus of cells that contains genetic information. |
| 6 | Variation | The differences within and between species. |
| 7 | Mutation | A change in the genetic code (DNA) |
| 8 | Inherited variation | Features that are passed from parents to their offspring. |
| 9 | Environmental variation | Feature that are due to the surrounding and conditions where an organism lives. |
| 10 | Population | Group of organisms of the same kind living in the same place |
| 11 | Natural selection | Process by which species change over time in response to environmental changes and competition for resources. |
| 12 | Biodiversity | The variety of living things. It is measured as the differences between individuals of the same species, or the number of different species in an ecosystem |
| 13 | Competition | When two or more living things struggle against each other to get the same resource. |
| 14 | Evolution | Theory that the animal and plant species living today descended from species that existed in the past. |
| 15 | Extinct | When no more individuals of a species remain. |

## Section 2 genetic material



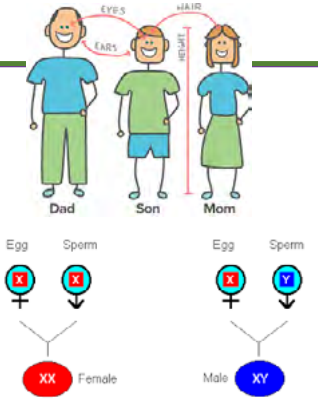

The genetic material in the **nucleus** of a cell is composed of a chemical called **DNA**. DNA is a polymer made up of two strands forming a double helix. The DNA is contained in structures called **chromosomes**.
A **gene** is a small section of DNA on a chromosome. Each gene codes for a particular sequence of amino acids, to make a specific protein.
The **genome** of an organism is the entire genetic material of that organism. The whole human genome has now been studied and this will have great importance for medicine in the future.

**Variation and inheritance**

## Section 3 Passing on characteristics

Differences in the characteristics of individuals in a population is called variation and may be due to differences in:
- the genes they have **inherited** (genetic causes)
- the conditions in which they have developed (**environmental** causes)
- a combination of genes and the environment

Ordinary human body cells contain 23 pairs of chromosomes.
22 pairs control characteristics only, but one of the pairs carries the genes that determine sex.
- In females the sex chromosomes are the same (XX).
- In males the chromosomes are different (XY).




## Section 4 Changes over time

The theory of **evolution** by **natural selection** states that all species of living things have evolved from simple life forms that first developed more than three billion years ago.

**Natural selection – the process**

1. Within any population there is variation caused by a mutation.
2. The organisms within the population complete for resources.
3. The organisms that are best adapted will survive
4. The organisms will breed and pass on the adaptations to the next generation

**Biodiversity** is vital to maintaining populations. Within a species variation helps against environment changes, avoiding extinction. Within an ecosystem, having many different species ensures resources are available for other populations, like humans.

**Extinction** may be caused by:
- changes to the environment over geological time
- new predators
- new diseases
- new, more successful competitors
- a single catastrophic event, eg volcanic eruptions or collisions with asteroids

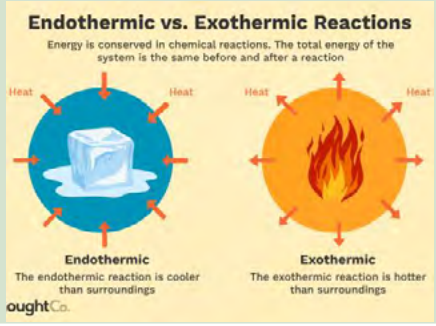
# Science - Chemistry - Chemical Reactions

## Section 1: Definitions

| | | |
|---|---|---|
| 1 | Chemical reaction | When bonds are broken and made |
| 2 | Exothermic | Process of making bonds (releasing heat) |
| 3 | Endothermic | Process of breaking bonds (taking heat from the surrounding) |
| 4 | Physical reaction | A physical change where a compound is not changed |
| 5 | Chemical reaction | A chemical change where a new compound is formed |
| 6 | Combustion | Burning of fuel |
| 7 | Displacement | When a more reactive element removes a less reactive element from a compound |
| 8 | Thermal decomposition | When compounds break down when heated, forming two or more products from one reactant |
| 9 | Catalyst | A substance that speeds up the rate of reaction. It is not used up or changed chemically during the reaction. |
| 10 | Catalytic Converter | Exhaust systems of cars are fitted with catalytic converters. These help reduce the release of toxic gases from the exhaust pipe. |

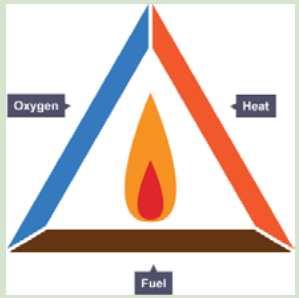
**Chemical Reactions**

## Section 2: Exothermic and Endothermic



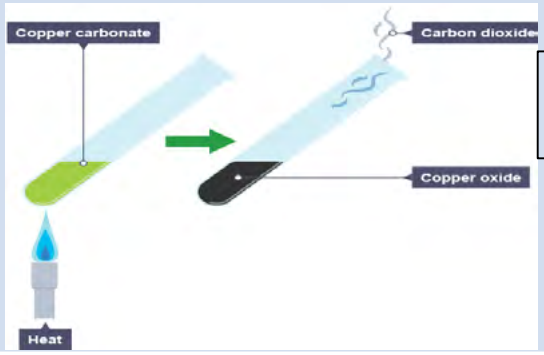

Cold Pack is an example of an endothermic reaction


Combustion is an exothermic reaction




## Section 3: Displacement and decomposition

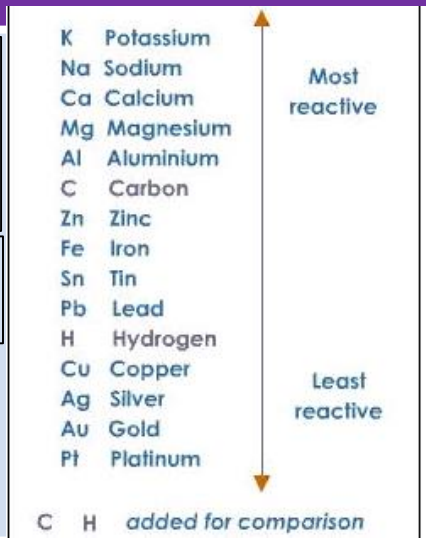

A + BC → AC + B



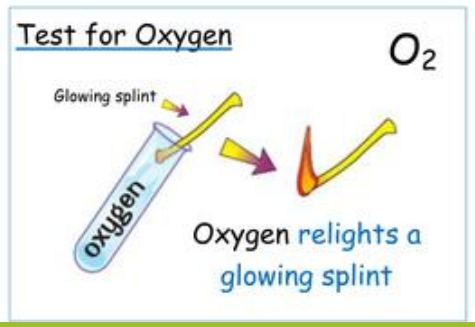

Displacement reactions happens when the most reactive element takes the place of a less reactive element

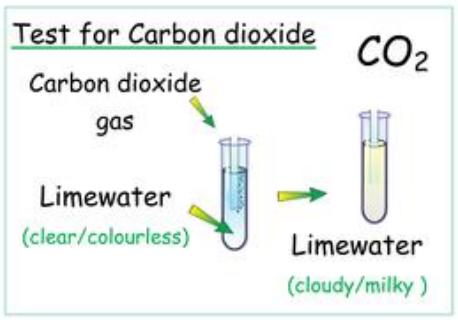
Thermal decomposition is an example of an exothermic reaction

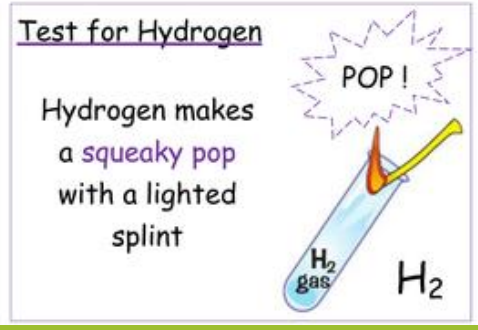
Metals can be arranged into a reactivity series

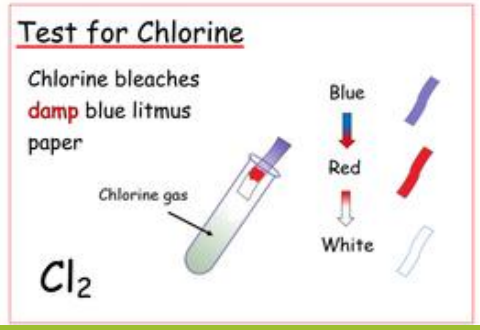



## Section 4: Gas tests



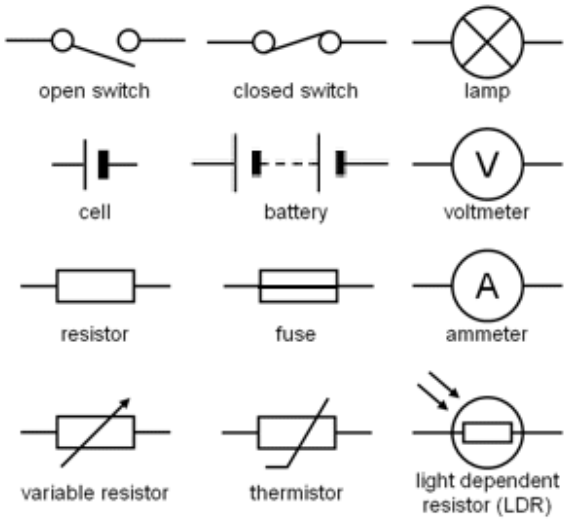



# Electricity

| Section 1 Circuits and current: | |
|---|---|
| Current | The flow of electrical charge around a circuit per second |
| Amps | Units of measure for an electrical current (A) |
| Ammeter | Measures an electrical current |
| Cell | Provides the push that moves charge around a circuit |

## Section 2 – circuit symbols

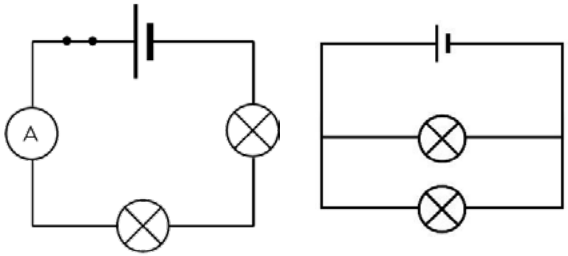



Rules for drawing circuits:

1. Always use a **ruler**
2. Leave **no gaps**
3. Set it out as a **square/rectangle**
4. **Don't** put components on **corners**

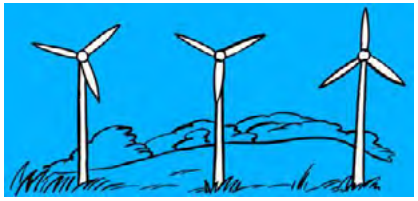
| Section 3 Potential difference: | |
|---|---|
| Potential Difference | The measure of a the push that a cell/battery can supply |
| Volts | The measurement of potential difference |
| Voltmeter | Measures the potential difference |

| Section 3 series and parallel circuits: | |
|---|---|
| Series circuits | All the components (parts of the circuit) are joined in one loop |
| Parallel circuits | There are two or more paths for the current to travel, more than one loop |




| Section 4 resistance: | |
|---|---|
| Resistance | How difficult it is for current to flow through a component in a circuit |
| Ohms | The unit of measurement for resistance |
| Equation (Ohm's law) | Resistance (R) = $\frac{\text{potnetial differnce (V)}}{\text{Current (A)}}$ |

| Section 6 | Generating energy |
|---|---|
| **Fossil fuels** | **Non-renewable fuels coal, gas and oil. Made from the remains of sea creatures and plants.** |
| **Renewable energy** | **Energy sources which will not run out, such as wind, solar, tidal, geothermal, wave, biomass and hydrothermal.** |

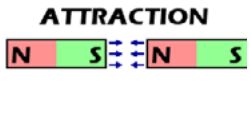


| | |
|---|---|
| Independent | The variable we change during an investigation |
| Dependent | The variable we measure during an investigation |

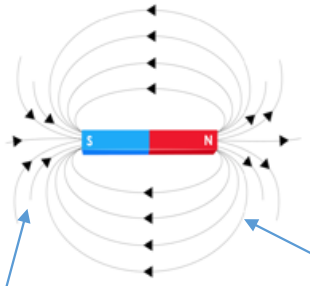
# Magnets

| Section 1 -Keywords | |
|---|---|
| Magnet | An object that attracts iron, cobalt and nickel |
| Attract | To move towards something |
| Repel | To move away from something |
| Magnetic force | The force exerted between magnets or a magnetic and a magnetic material e.g. iron |
| Magnetic pole | Magnets have a north pole and a south pole. Like poles repel but opposite poles attract |
| Magnetic field | a region around a magnetic material where the force of magnetism acts. |
| Core | the piece of iron, bundle of iron wires forming the central or inner portion in an electromagnet |
| Permanent magnet | a metal that is always magnetic |
| Induced magnet | A material that becomes a magnet when it is placed in a magnetic field |
| Electromagnet | A magnet made by passing electric current through a coil surrounding |

| Section 2 – Attract or Repel? | | |
|---|---|---|
| | | Attract or repel? |
| North | North | Repel |
| South | South | Repel |
| North | South | Attract |




## Section 3 – Magnetic fields



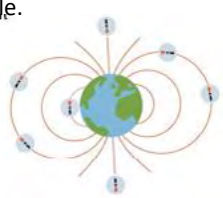

- This it the magnetic field of a bar magnet.
- The direction of magnetic field lines point from North to South
- Field lines have arrows on them

The magnetic field is weakest away from the poles, where the lines are least concentrated

The magnetic field is strongest at the poles, where the lines are most concentrated

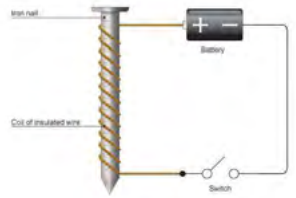
## Section 4– Magnetic fields – part 2

- The Earth's core is made from iron and molten nickel. It has a magnetic field.
- The needle on a compass points towards the Earth's North pole.



- You can use a plotting compass or shake iron filings onto paper to show the shape of a magnetic field

## Section 5 – Making an Electromagnet



1. Coil a piece of metal wire around an iron core
2. Use a power supply/battery to provide an electrical current to the circuit
3. Pass the current through the coil
4. To turn the magnet off, turn the power supply off

**Advantages of an electromagnet over a permanent magnet**

1. Electromagnet can be turned on and off
2. Strength of electromagnet can be changed

**How to increase the strength of an electromagnet**

1. **Increase voltage**
2. **Increase no. turns in coil**

## Spanish Y8- A comer

| ¿Qué te gusta comer y beber? | What do you like to eat and drink? |
|---|---|
| Me gusta | I like |
| No me gusta | I don't like |
| Odio | I hate |
| Me encanta | I love |
| Prefiero | I prefer |
| El agua | Water |
| el arroz | Rice |
| La carne | Meat |
| Los caramelos | Sweets |
| La fruta | Fruit |
| Las hamburguesas | Hamburgers |
| Los huevos | Eggs |
| La leche | Milk |
| El marisco | Seafood |
| El pescado | Fish |
| El queso | Cheese |
| Las verduras | Vegetables |

| ¿Qué desayunas? | What do you have for brekafast? |
|---|---|
| Desayuno | I have breakfast |
| Los cereales | Cereal |
| Los churros | Churros |
| Las tostadas | Toast |
| El yogur | Yoghurt |
| El café | Coffee |
| El té | Tea |
| El cola cao | Chocolate milk |
| El zumo de naranja | Orange juice |
| No desayuno nada | I don't have breakfast |
| Como | I eat |
| Un bocadillo | A sandwich |
| Las patatas fritas | Chips |
| El pollo con ensalada | Chicken with salad |
| Desayuno a las siete | I have breakfast at 7 |
| Como a las dos | I eat at 2 |

| En el restaurante | Opinions |
|---|---|
| Me gusta | I like |
| Me gusta mucho | I really like |
| Me encanta | I love |
| No me gusta | I don't like |
| No me gusta nada | I really don't like |
| Odio | I hate |
| Detesto | I detest |
| Pues… | Well |
| Depende… | It depends |
| No sé… | I don't know |
| Bueno/vale | Ok |
| A ver | Let's see |

| En el restaurante | In the restaurant |
|---|---|
| Buenos días | Good day |
| ¿Qué van a tomar? | What are you going to have? |
| Voy a tomar | I am going to have |
| De primer plato | As a starter |
| De segundo plato | As a main |
| De postre | For dessert |
| Tengo hambre | I'm hungry |
| Tengo sed | I'm thirsty |
| Nada más | Nothing else |
| La cuenta por favor | The bill, please |

| Palabras muy frecuentes | | High frequency words | |
|---|---|---|---|
| A las… | At… | Lugar | Place |
| Bastante | Quite | Para | For |
| Día | Day | Por ejemplo | For example |
| Favorito/a | Favourite | Pasado/a | Last |
| Hora | Hour | Que viene | Next |

# Spanish - ¿Qué Hacemos?- Part 1

## Spanish Y8- ¿Qué hacemos? (1)

| ¿Te gustaría ir al cine? | Would you like to go to the cinema? |
|---|---|
| A la bolera | To the bowling alley |
| A la cafetería | To the cafeteria |
| Al centro comercial | To the shopping cenre |
| Al museo | To the museum |
| Al parque | To the park |
| A la pista de hielo | To the ice skating rink |
| Al polideportivo | To the sports centre |
| Al castillo | To the castle |
| A la iglesia | To the church |
| Al catedral | To the cathedral |
| Al ayuntamiento | To the town hall |

| ¿A qué hora? | | At what time? | |
|---|---|---|---|
| A las… | At | Seis y media | 6:30 |
| Seis | 6 | Siete menos cuarto | 6:45 |
| Seis y cuatro | 6:15 | Siete menos diez | 6:50 |

| ¿Dónde quedamos? | Where do we meet up? |
|---|---|
| Al lado de… | Next to |
| Delante de… | In front of |
| Detrás de | Behind of |
| Enfrente de | Opposite |
| En | In |
| A la izquierda da | To the left of |
| A la derecha de | To the right of |

| Lo siento, no puedo | I'm sorry, I can't |
|---|---|
| ¿quieres salir? | Do you want to go out? |
| Tengo que… | I have to… |
| Cuidar a mi hermano | Look afer my brother |
| Hacer los deberes | To do my homework |
| Pasaer al perro | To walk the dog |
| Salir con mis padres | To go out with my parents |
| No quiero | I don't want to |
| No tengo dinero | I don't have money |

| ¿Cómo te preparas? | How do you get ready? |
|---|---|
| Me baño | I have a bath |
| Me ducho | I have a shower |
| Me lavo la cara | I wash my face |
| Me lavo los dientes | I brush my teeth |
| Me visto | I get dressed |
| Me maquillo | I put on makeup |
| Me peino | I brush my hair |
| Me aliso el pelo | I straighten my hair |

| Los colores | Colours |
|---|---|
| Amarillo/a | Yellow |
| Azul | Blue |
| Blanco/a | White |
| Gris | Grey |
| Marrón | Brown |
| Morado/a | Purple |
| Naranja | Orange |
| Negro/a | Black |
| Rojo/a | Red |
| Rosa | Pink |
| Verde | Green |
| De muchos colores | Multi-coloured |

| Palabras muy frecuentes | | High frequency words | |
|---|---|---|---|
| Al/a la | To the | Demasiados | Too many |
| Del/ de la | Of the | Siempre | Always |
| Demasiado/a | Too (much) | Puedo | I can |
| Por eso | For this reason | Quiero | I want |
| Por supuesto | Of course | Hacer | To do / make |

# Spanish - ¿Qué Hacemos? - Part 2

## Spanish Y8- ¿Qué hacemos? (2)

| ¿Qué vas a llevar? | What are you going to wear? |
|---|---|
| ¿Qué llevas normalmente los fines de semana? | What do you normally wear at the weekend? |
| Normalmente llevo… | Normally I wear |
| Una camisa | A t-shirt |
| Una camiseta | A shirt |
| Un jersey | A jumper |
| Una sudadera | A sweatshirt |
| Una falda | A skirt |
| Un vestido | A dress |
| Una gorra | A hat |
| Unos pantalones | Some trousers |
| Unos vaqueros | Some jeans |
| Unas botas | Some boots |
| Unos zapatos | Some shoes |
| Unos zapatos de deporte | Some trainers |
| Llevo | I wear |
| Voy a llevar | I am going to wear |

| Reacciones | | Reactions | |
|---|---|---|---|
| De acuerdo | All right | Estoy de acuerdo | I agree |
| Vale | Ok | No estoy de acuerdo | I don't agree |
| Muy bien | Very good | Con tus padres | With your parents |
| Genial | Great | Contigo | With you |
| Sí, me gustaría mucho | Yes, I would really like to | Con mis amigos | With my friends |
| ¡Ni hablar! | No way! | Eres demasiado joven | You are too young |
| ¡Ni en sueños! | Not a chance! | En mi opinión | In my opinion |
| No tengo ganas | I don't feel like it | Tienes razón | You're right |
| ¡Qué aburrido! | How boring! | ¿Tú qué opinas? | What do you think? |

### Estrategia 4
**Finding the right word**

Be careful not to choose the wrong Spanish word when you use a dictionary.

Make sure you:
1. Look up the correct spelling of the English word (e.g. meet/meat, pair/pear).
2. Look for dictionary abbreviations (*vt*, *nm*, *nf*, etc. – see page 86). If it's a noun you want, don't choose a verb (e.g. a watch/to watch).
3. Look at any example sentences given.
4. Double-check the Spanish word in the Spanish–English half of the dictionary.

Find the correct Spanish translations of these items of clothing in a dictionary:
- tie
- cap
- trainers
- suit
- dress

## Spanish Y8- El Presente

| Verbos Claves | Key Verbs |
|---|---|
| Me llamo | My name is |
| Soy | I am |
| Es | He/she is |
| Somos | We are |
| Son | They are |
| Tengo | I have |
| Tiene | He/she has |
| Tienen | They have |
| Hago | I do |
| Juego | I play |
| Está | It is (location) |
| Voy | I go |
| Me gusta | I like |
| Me encanta | I love |
| Odio | I hate |
| Vivo | I live |

| Los verbos -AR | | AR Verbs |
|---|---|---|
| Yo | I | O |
| Tú | You | As |
| Él/ella | He/she | A |
| Nosotros | We | Amos |
| Vosotros | You (pl) | Áis |
| Ellos/ellas | They | an |

| Los verbos -ER | | ER Verbs |
|---|---|---|
| Yo | I | O |
| Tú | You | Es |
| Él/ella | He/she | Es |
| Nosotros | We | Emos |
| Vosotros | You (pl) | Éis |
| Ellos/ellas | They | En |

| Los verbos -IR | | IR Verbs |
|---|---|---|
| Yo | I | O |
| Tú | You | Es |
| Él/ella | He/she | E |
| Nosotros | We | Imos |
| Vosotros | You (pl) | Ís |
| Ellos/ellas | They | En |

## Spanish Y8- El preterito

| Verbos Claves | Key Verbs |
|---|---|
| Fui | I went |
| Fue | It was |
| Comí | I ate |
| Bebí | I drank |
| Estuve | I was (location) |
| Tuve | I had |
| Hizo buen tiempo | It was good weather |
| Hizo mal tiempo | It was bad weather |
| vi | I saw |
| Jugué | I played |
| Jugó | He/she played |
| Nadé | I swam |
| Bailé | I danced |
| Conocí | I met |
| Visité | I visited |
| compré | I bought |

| Los verbos -AR | | AR Verbs |
|---|---|---|
| Yo | I | É |
| Tú | You | Aste |
| Él/ella | He/she | Ó |
| Nosotros | We | Amos |
| Vosotros | You (pl) | Asteis |
| Ellos/ellas | They | Aron |

| Los verbos -ER | | ER Verbs |
|---|---|---|
| Yo | I | Í |
| Tú | You | Iste |
| Él/ella | He/she | Ió |
| Nosotros | We | Imos |
| Vosotros | You (pl) | Isteis |
| Ellos/ellas | They | Ieron |

| Los verbos -IR | | IR Verbs |
|---|---|---|
| Yo | I | Í |
| Tú | You | Iste |
| Él/ella | He/she | Ió |
| Nosotros | We | Imos |
| Vosotros | You (pl) | Isteis |
| Ellos/ellas | They | Ieron |

## Spanish Y8- Near future

| The steps | |
|---|---|
| Use the verb 'ir' and decide who is going to be speak | **I – voy** |
| Followed by the Word 'a' | a |
| Followed by the infinitive | Comer |

| IR | | IR |
|---|---|---|
| Yo | I | Voy |
| Tú | You | Vas |
| Él/ella | He/she | Va |
| Nosotros | We | Vamos |
| Vosotros | You (pl) | Vais |
| Ellos/ellas | They | Van |

+ a +

Voy a comer – I am going to eat
Va a visitar – he/she is going to visit

| Los infinitivos | Infinitives |
|---|---|
| Comer | To eat |
| Beber | To drink |
| Jugar | To play |
| Ir | To go |
| Mandar | To send |
| Ver | To watch |
| Visitar | To visit |
| Aprender | To learn |
| Hablar | To speak |
| Salir | To go out |
| Tener | To have |
| Ser | To be |
| Estar | To be (location) |
| Nadar | To swim |
| Bailar | To dance |
| vivir | To live |

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