



Year 8

Knowledge Organiser

Cycle 3 – 2023/24

“
**HAPPINESS IS NOT
SOMETHING READYMADE.
IT COMES FROM YOUR
OWN ACTIONS.**

Dalai Lama

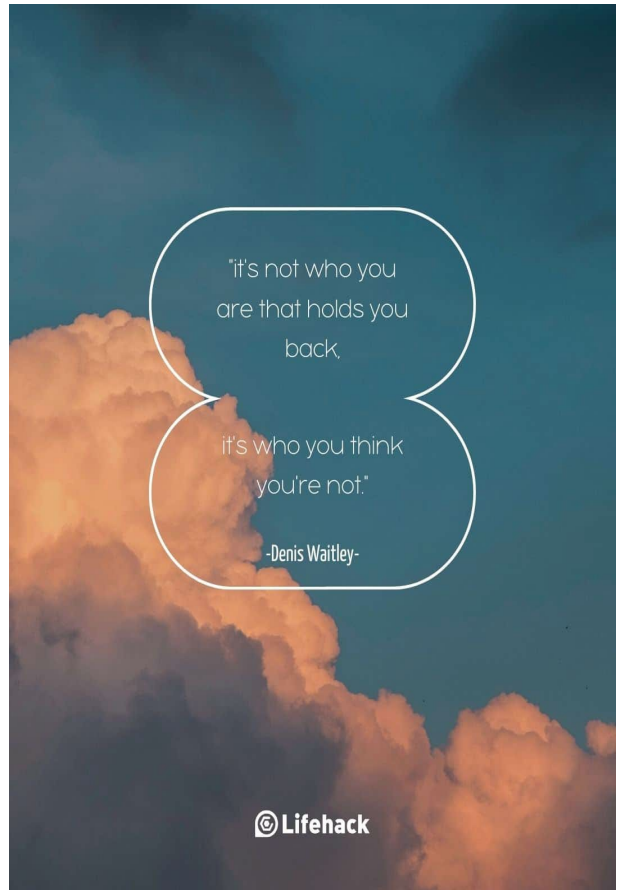


“It's not who you
are that holds you
back.

It's who you think
you're not.”

-Denis Waitley-

© Lifehack



CREATIVE

- **Art**
- **Drama**
- **Music**

Cycle 3 in Art will focus on: 3D Natural Forms

Inspiration taken from the artist Kate Malone

You will be assessed on:

- Your ability to produce a final outcome that is inspired by natural forms.
- Your ability to sculpt the clay into a 3D form.



It is really important that you spell the art terms correctly. Take some time to learn the spellings of these words.

Key words and definitions

Modelling	The activity of making three – dimensional models
Primary	Used to indicate the main purpose/reason for something
3D	Having or appearing to have length, breadth, and depth
Properties	A quality or trait belonging and especially particular to an individual or thing
Relief	A sculptural technique where the three dimensional sculpted elements are raised and built up from a flat base
Volume	The volume of an object is the amount of space that it contains or occupies
Texture	The feel, appearance, or consistency of a surface or substance
Pattern	A repeated decorative design
Decoration	Serving to make something look more attractive

What is clay coiling?

Coiling involves **the rolling out of clay into a long thin sausage-like form that is would round like a spring.** Building a vessel with coils is accomplished by placing them around the circumference and gradually increasing the height.

Where does Kate Malone get her inspiration?

Kate Malone’s work is inspired by **close observation of nature, particularly its fruits, nuts and berries and her fascination with the more abstract forces of life.**



Kate Olivia Malone MBE is a British studio potter, ceramic artist and judge, along with Keith Brymer Jones, on BBC2's The Great Pottery Throw Down.



She has developed an unmistakable and highly regarded style, evidenced by her unique, hand-made pots and intricately ornamented sculptures.



Relief is a sculptural technique where the three dimensional sculpted elements are raised from a flat base.

Types of relief in sculpture:

- **Low relief** - slightly raised above the surface but does not stand out.
- **High relief** - the sculptured elements stand out from the base.

British artist

Born January 29, 1959, London.

Cycle 3 in Drama will focus on developing and devising drama based on different stimuli.

What is devising?

Devising is a process in which the whole creative team develops a show collaboratively. You are usually given a stimulus that you use to help inspire ideas to make up your own piece of drama.

DEVISING TECHNIQUES Starting to create your own piece of theatre

BRAINSTORM

As a group, discuss the themes that you want to explore in the performance. Brainstorm stories that involve the characters experiencing each theme.

CHARACTERS

Start by creating the characters. Too many devised pieces fail because the characters have not been carefully thought out. Name each character and talk about their personality and relationships.

FREEZE FRAME

Create freeze frames that depict crucial moments in the character's life. These can then be incorporated into your performance later on.

MUSIC

Find a piece of music that represents your theme, either lyrically or through the dynamics or texture. Use the music to create a movement sequence that shows the mood of a character.

STRUCTURE

Create a flow chart of the story and highlight the key scenes. Experimenting with the structure may help you create a more imaginative and original performance.

IMPROVISE

Improvise a scene in every rehearsal. Don't just talk thing through. Try to improvise a scene using different styles. A scene may work better as a comedy even though it was originally a drama.

MONOLOGUE

In a group, think of one word each that describes your character. Then on your own, use the list of words (in the order they were said) to write a monologue for your character.

REFLECT

At the end of a rehearsal, reflect on what you have done next. Set aims and assign jobs for the next session. Create a rehearsal schedule and stick to it.

What is a stimulus?

A stimulus is a starting point to generate ideas. It may be a picture, song, poem, short story, object, or even just a word! It is meant to be explored, discussed and used to create an original piece of drama. The final piece of drama does NOT need to resemble any starting stimulus – the stimulus is simply the starting point in order to generate ideas to explore.

The purpose of a scene.

You need to have a firm decision before the start of the devising process on what is the purpose of your scene. This will then influence how structure your play and any drama techniques you might use.

What about your audience?

Always consider your audience when you are devising the work. What do you want your audience to think, feel, see etc. This could be as simple as audience sightlines.

Dramatic techniques

Experiment with different techniques – don't always use the same ones or not be willing to change your mind if it is not working for your scene

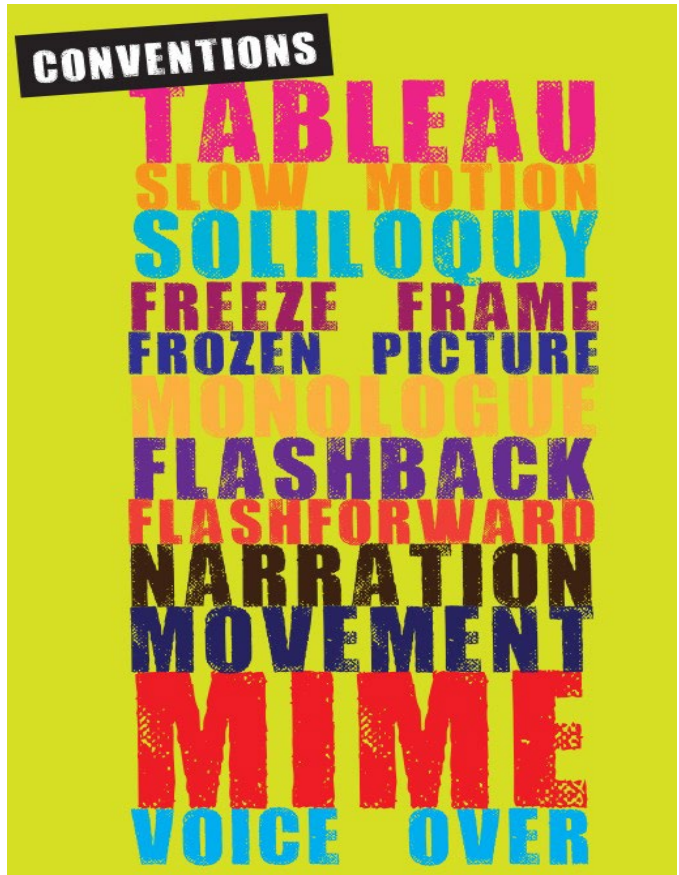
Key words and definitions	
Audience	The viewers of the performance. Will often find themselves involved in the production.
Cross Cutting	Two scenes that happen on stage at the same time.
Devising	To create an original performance without the use of scripts.
Flashback	Drama technique of showing events from the past.
Narration	one or more performers speak directly to the audience to tell a story, give information or comment on the action of the scene or the motivations of characters
Performance	An act of presenting a play, concert or other form of entertainment.
Stimulus	The idea on which the 'Devised' work is based.
Story telling	Delivering a narrative that informs the audience.
Structure	How the plot or story of a play is laid out,
Style	How the work is presented on stage.
Tableaux	Frozen Pictures.
Thought tracking	A character speaks out loud either their own or another characters thoughts and feelings.

Tips for creating work:

- ✓ Be co-operative! (Take part and follow the instructions of your team members)
- ✓ Listen respectfully to others' ideas
- ✓ Share your own ideas and make contributions
- ✓ Stay in your working space - Don't distract others
- ✓ Think about where your audience will be and rehearse with this in mind
- ✓ Don't be afraid to experiment with ideas, conventions, techniques. If it doesn't work start again.

Top tip for devising:
 Once you have a theme, story or idea in mind, keep questioning every new thing that comes into the piece of theatre you are devising. Question it's relevance to the central idea of what you want to communicate. It is important to justify every decision you make in the devising process through making it link to your core objective for the piece you are creating.

How to make a play interesting :
 Modern plays incorporate a range of Dramatic Conventions to help make the performance interesting for an audience. However, the conventions used in a play will depend on they style and genre of the performance. Dramatic conventions can influence how your structure your play.



Cycle 3 in Music will focus on building keyboard skills. We will also build on our knowledge of music notation and music reading skills.

Key words and definitions







Bar	A cell of music
Staff	Lines that musical notes are placed upon
Note	A symbol that tells a musician to play
Rest	A symbol that tells a musician to play
Time Signature	Numbers that tell you how many beats are in each bar
Pitch	High and low notes
Scale	A musical ladder of notes e.g. C D E F G A B C – C major scale
Chord	A group of notes played together
Technique	A method of playing that improves performance

This unit will draw upon skills and knowledge developed in the previous year.

We will develop our ability to understand musical styles and describe the factors that influenced their inception.

These skills will be important for developing your understanding of musical history and will prepare you for further study in KS4.

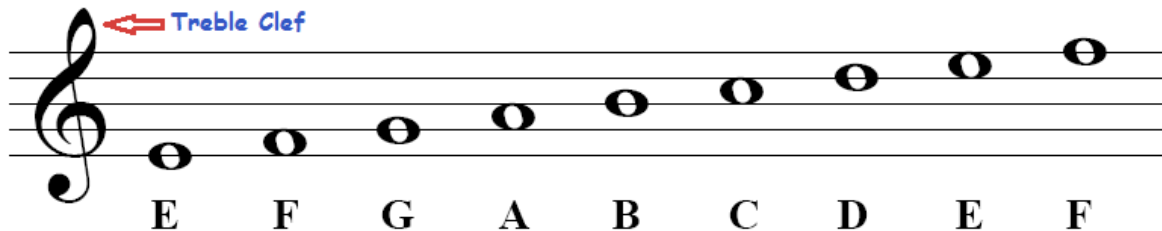
The cycle will conclude with a knowledge test based on your understanding of the orchestra and a practical assessment to assess the skills you have developed.

NOTE NAME	NOTE SYMBOL	NOTE LENGTH
Semibreve		4 beats
Minim		2 beats
Crotchet		1 beat
Quaver		1/2 beat
Semiquaver		1/4 beat
Demisemiquaver		1/8 beat

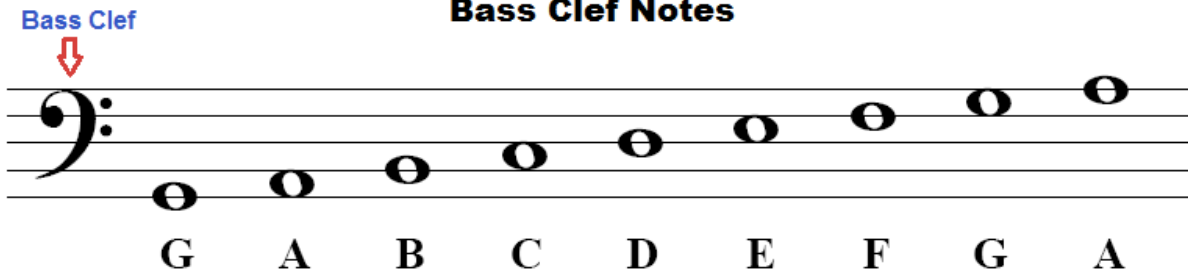
It is really important that you spell the music words correctly. Take some time to learn the spellings of these words.



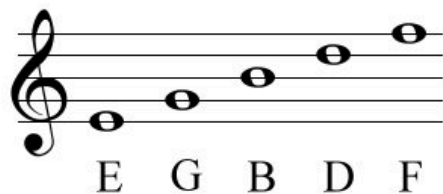
Treble Clef Notes



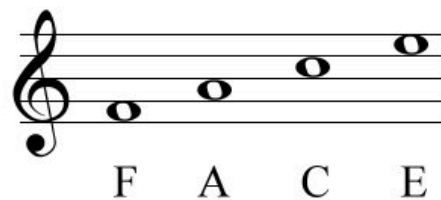
Bass Clef Notes



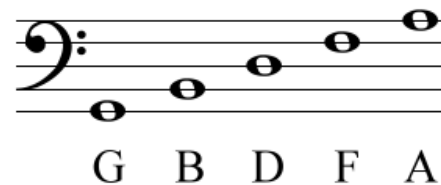
Line Notes



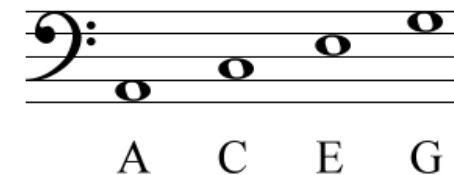
Space Notes



Line Notes:



Space Notes:



CAREERS: Performer (Orchestra)

- A performer in a British orchestra can expect to be paid around £30,000 a year.
- Performers will spend time rehearsing, touring and recording for film and tv.
- Top soloists can expect to be paid more. Lang Lang has made an estimated £30 million as a professional pianist.



Lang Lang is a concert pianist who has performed all over the world. He is considered by many as one of the most famous and accomplished classical musicians of modern times. His hands are insured for over \$100 million!

DESIGN & TECHNOLOGY

- **Design & Technology**
- **Food & Nutrition**

Special diets – some people need to adapt and change the foods they eat

Coeliac

- An **intolerance** to the protein called **gluten**
- Gluten can be found in wheat, barley, oats and rye

Vegetarian

- People who choose to be vegetarian **don't eat meat or fish**
- They still eat dairy products like milk, cheese, yoghurt

Diabetic

- People who are diabetic are lacking the hormone called **insulin**. Insulin is created in the pancreas.
- Diabetics have difficulty controlling the **blood sugar levels** in their body
- Diabetics need to eat a balanced healthy diet and **reduce their sugar intake**

Lactose intolerance

- People can't eat anything with milk in, including cheese yoghurt, cream, butter



Common Food Allergens



Gluten & Wheat



Cow's Milk



Eggs



Peanuts



Soy Products



Tree Nuts



Seafood



Shellfish



Vitamin A

Beneficial in treating eye disorders, skin infections

Vitamin B9

Reduces risk of neural tube defects during pregnancy

Vitamin B12

Provides relief from symptoms of anemia, kidney and liver disorders

Vitamin C

Helps treat scurvy, cancer and common cold

Vitamin D

Aids in treating arthritis, tooth decay, diabetes and rickets

Vitamin E

Improves blood circulation and slows down aging process

Vitamin K

Reduces risk of menstrual pain and internal bleeding

Creaming method

Also known as the 'sugar-shortening' method, the sugar and shortening fat are blended together first and then creamed by mixing with a spatula.



During creaming, small air cells are formed and then incorporated into the mix. This mix becomes larger in volume and softer in consistency.



Cuts of vegetable



Rubbing in method

Step 1

Weigh your flour and put into a roomy mixing bowl. You need to get your hands in the bowl so give yourself a decent-sized bowl so you have space to work.

Step 2

Weigh your fat (butter or margarine). It shouldn't be at room temperature like with other cakes - straight from the fridge is actually better as the fat won't melt as you rub.

Step 3

Put the fat into the bowl with the flour.



Step 4

Start with a table knife and chop the fat into small pieces.

Step 5

Once the fat is well chopped, it's time to get your hands dirty! (Ensure you have clean hands).

Step 6

Using both hands, pick up handfuls of fat and flour and rub them together between your fingertips and thumbs. The fat and flour will combine into what look a bit like breadcrumbs

Step 7

Try and lift up the fat and flour as you do it so you introduce air into the mixture - do the rubbing above rather than in the mixture.

Step 8

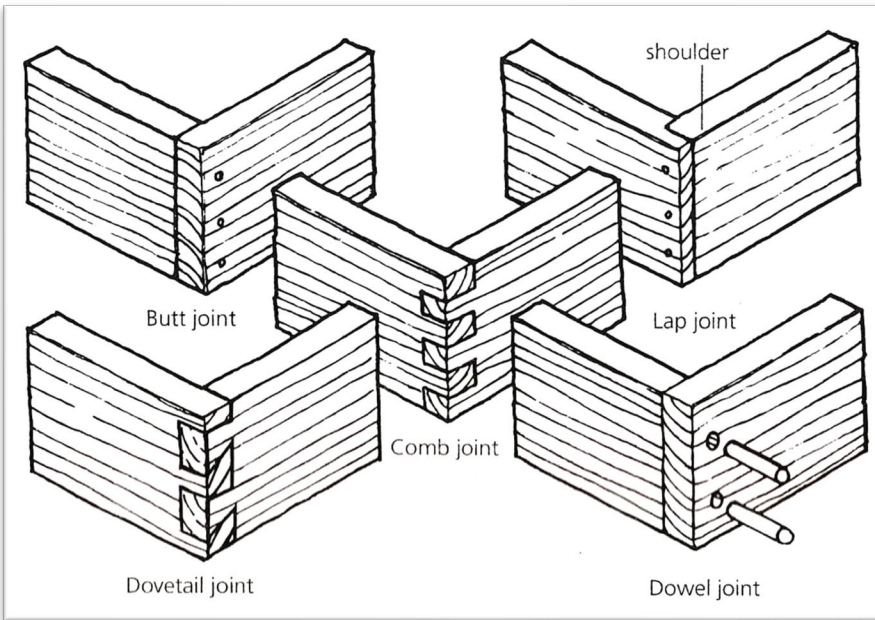
Use the tips of your fingers not your whole hands as this keeps the ingredients cooler.

Step 9

Give the bowl a shake every now and then to allow the remaining lumps of fat to come to the top. Keep going at this until all the lumps of fat have disappeared and you are left with a whole bowl of breadcrumb-like particles.

Step 10

This should take no more than 5 minutes (once you've got the hang of it!). Don't over-do it or you'll make the fat too warm.



Boxes of various shapes and sizes are the basis of many things made in wood:

- A **DOWEL JOINT** does have mechanical strength, because the wooden peg (dowel) goes into both pieces of wood. Glue adds further strength.
- A **COMB JOINT** is an interlocking joint which, when well made and glued has a lot of strength.
- A **DOVETAIL JOINT** is more complicated and difficult to make than the other on this page. Often a router and jig are used to make this joint. When glued a dovetail joint is extremely strong.
- The **BUTT JOINT** is the simplest joint to use as with all joints, both pieces of wood need to be cut accurately. It has no mechanical strength of its own and relies entirely on glue and nails/pins.
- The **LAP JOINT** has a shoulder which gives it a little more rigidity than the butt joint. Like the butt joint it relies on glue and nails/pins for its strength.

Manufactured Boards

Manufactured boards are timber sheets which are produced by gluing layers of wood or wood fibres together.

Manufactured boards often make use of waste wood materials. Manufactured boards have been developed mainly for industrial production as they can be made in very large sheets of consistent quality and are available in many thicknesses.

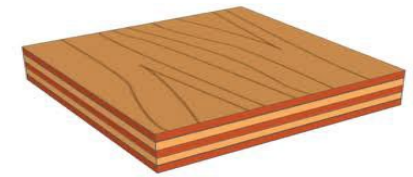
Manufactured Board properties:

- Manufactured boards often make use of waste wood materials
- Saw dust is used to make MDF and hardboard
- The saw dust is held together with glue
- Boards are inexpensive so are often used as instead of real woods
- Manufactured boards however do not look as good as real wood
- Manufactured boards are often covered with a thin layer of real wood which is called veneer this improves their appearance
- They are less prone to warping and twisting compared to real wood.

Plywood

Is a man-made board like MDF and Chipboard. It is made from veneers (thin layers) of timber with each grain layer being at right angles to each other and bonded together by resin and pressure. There are a number of different grades available which are designed to suit a variety of situations.

1. Marine plywood that is moisture resistant
2. Weather and boil proof plywood
3. Interior plywood



Wood Finishes / Wood Stains

Once an object has been made it needs to be finished. Natural wood looks nice but collects dirt, absorbs water and discolours easily.

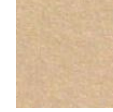
Finishes can protect against:

- Heat
- Stains
- Insects
- Moisture

Wood stains come in a variety of colours and are easy to apply. They are water-based and can be applied using a brush or cloth. The wood stain soaks into the surface of the wood and like a felt tip pen, if you add a second coat of wood stain the brightness and intensity of colour will increase.



Blockboard - Similar to plywood but the central layer is made from strips of timber. Good for shelves and worktops. A man-made board.



MDF - Smooth, even surface. Easily machined and painted or stained. Also available in water and fire resistant forms. A manufactured board.



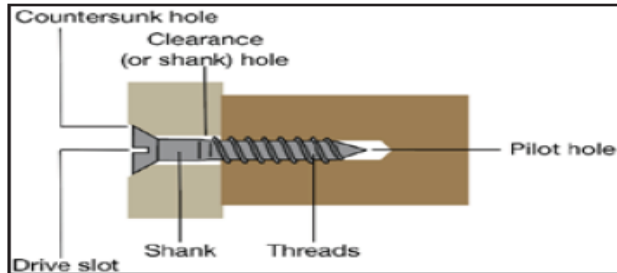
Plywood - A very strong board which is constructed of layers of veneer or piles which are glued at 90 degrees to each other. Interior and exterior grades are available. A man-made board.



Chipboard - Made from chips of wood glued together. Usually veneered or covered in plastic laminate. A manmade board.



Hardboard - A very cheap particle board which sometimes has a laminated plastic surface.



Pilot vs Clearance

What's the difference?

The pilot hole is the same diameter as the shank. The Clearance hole diameter is slightly bigger than the screw thread but smaller the screw head



Tenon Saw	Cutting straight lines	Hand Drill	Drilling holes
Coping Saw	Cutting curves	Chisel	Removing small pieces of wood
Try Square	Marking right angles	G Clamp	Holding material together



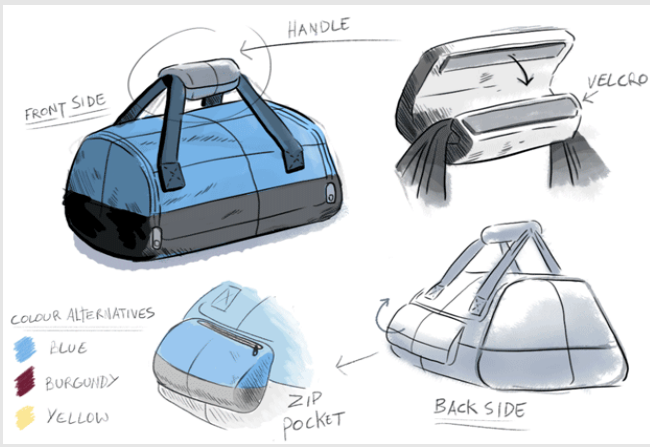
Communication of design ideas

During this topic you will learn different ways that designs can be communicated and modelled.

Sketching & Annotation

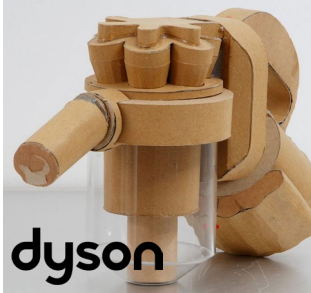
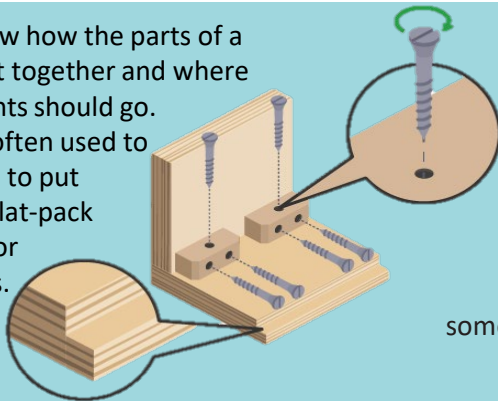
Sketching is a great way of getting initial design ideas down quickly on paper. More detailed sketches can be made for more advanced designs and to specify particular details, such as product dimensions and materials.

Annotation can be added at any point to **show key parts, sizes, materials, components and construction**. The use of shading, colour and different viewpoints can be an easy way of communicating initial ideas.



Communication techniques

These show how the parts of a product fit together and where components should go. They are often used to show how to put together flat-pack furniture or model kits.



Computer modelling

Products can be digitally modelled in detail and viewed from any angle. CAD allows for extensive testing under various specific conditions, such as air pressure, forces and temperature, these are called simulations.



Exploded view

These show how a product can be assembled and how the separate parts fit together, with dotted lines showing where the parts slide into place.

Exploded diagrams can take the place of detailed written instructions, meaning they can explain the construction of something without the barrier of different languages. They are widely used as instructions for self-assembly furniture.

3D Modelling

Modelling involves making simplified versions of the design that can be tested against the design specification too see if the basic design concept is likely to work.

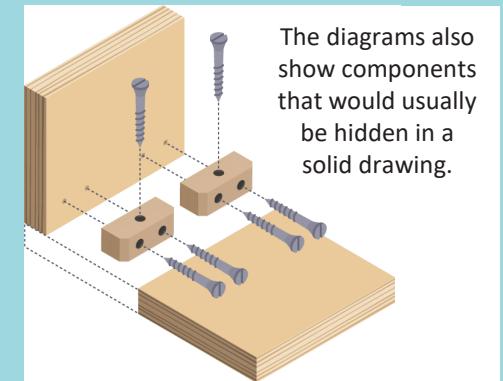
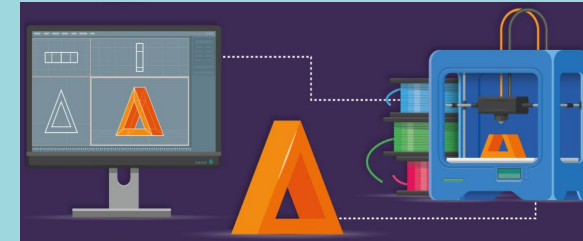
Models should ideally be made of low cost materials that are similar to the materials intended for the final product.

Making a model allows designers to visualise and test how a product looks and performs in 3D.

Prototypes can be full size or a smaller scale version. Materials used include paper, fabric, cardboard, Styrofoam or HIPS.

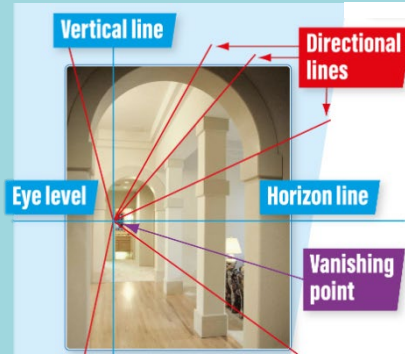
3D printing

3D printing is a form of manufacturing using thin layers of a material to build a physical object.



The diagrams also show components that would usually be hidden in a solid drawing.

Perspective drawings

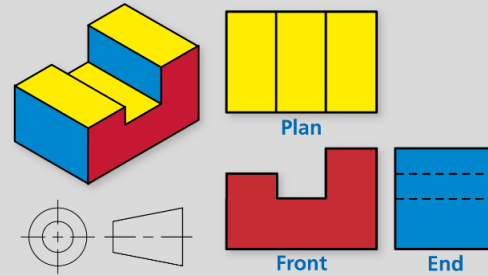


Perspective drawings provide a realistic representation of how objects are seen. As in real life, the further into the distance an object is, the smaller it appears.

If you stand at one end of a corridor and look down it, you will notice the walls and ceiling appear to converge (meet at a point).

The horizontal, vertical and directional lines can be extended back but will always meet at the vanishing point, which is on the horizon line.

Orthographic drawings



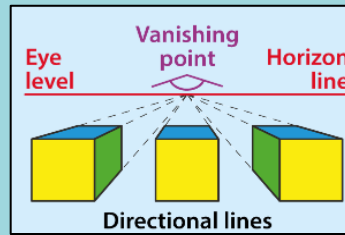
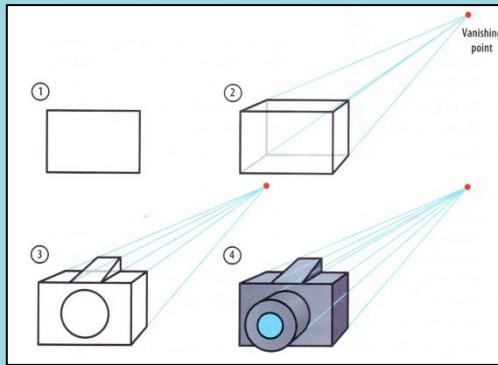
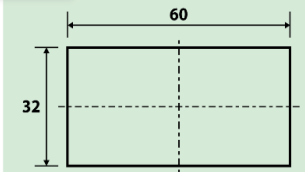
The plan view is drawn at the top, the front view is directly below this and the end view is positioned next to the front view.

Orthographic drawings are often used in manufacturing because they provide detailed information about the design.

Orthographic Drawing Conventions

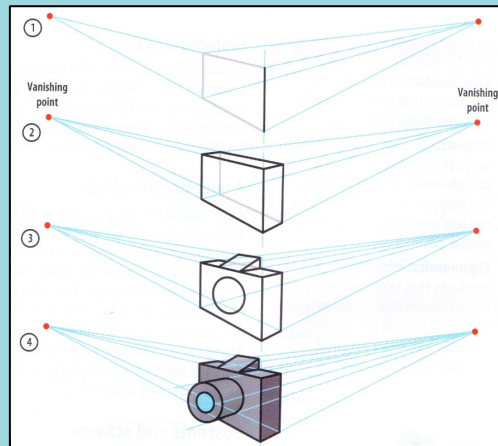
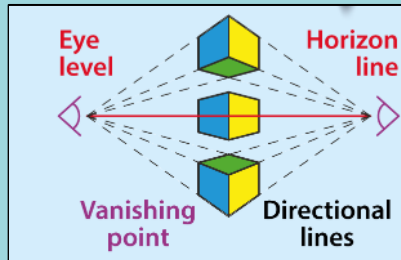
Key	
Outlines	—————
Projection/ construction lines	—————
Centre lines	- - - - -
Hidden details	· · · · ·
Dimension lines	←————→

For clarity, lines and dimensions must conform to British Standards.



Shows an object as it appears directly in front of the viewer. All lines lead to the one vanishing point.

Provides a more realist view by using two vanishing points on either side of the object.



Two-point perspective

Computer Aided Design

CAD is commonly used by designers to **create design ideas, develop and model** 2D and 3D products and manipulate before manufacturing.
e.g. 2D design, Autodesk Inventor (3D)



Computer Aided Manufacturing

CAM uses **Computer numerical control (CNC)** to create CAD designs. The CAD software creates coordinates for every part of the design, and the CAM machine then interprets the coordinates to manufacture the design.
e.g. Laser cutter, 3D printer, CNC router and CNC lathes

Metals are usually produced from rocks mined from the earth, called ore.
Metals can be divided into two groups - **ferrous metals** and **non-ferrous metals**

Ferrous Metals

The word ferrous comes from a latin word *ferrum*, meaning iron. Ferrous metals are metals which **contain iron**. Most ferrous metals are prone to **rusting** and are **magnetic**, which are properties of iron.

Non-ferrous Metals

Non-ferrous metal is a group of metals that **do not contain iron** and are therefore not magnetic and do not rust.

Metal surface finishes

Prevents corrosion of metals by creating a barrier and enhances the aesthetics (appearance) of metals. E.g. paint, plastic dip coating and lacquering.

During this topic you will learn the types, properties and uses of metals.

Key word	Definition
Hard/ Hardness	The ability to resist deformation, indentation and wear and tear.
Malleable/Malleability	The ability to be pressed or bent into shape, and hold that new form.
Ductile/Ductility	The ability to reshape the metal by stretching.
Thermal conductivity	The ability to transfer heat through the material.
Electrical conductivity	The ability to allow electricity to pass along it.
Tough/Toughness	The resistance to indentation or scratching.

Alloys

Pure metals are made up from only one chemical element, such as aluminium or copper.








An alloy is a metal which contains more than one metal or non-metal elements. This is usually done to improve the properties of the metal. Alloys can be ferrous or non-ferrous, depending whether they contain iron.

E.g. Brass is a non-ferrous alloy

Copper + Zinc = Brass

Stainless steel is a ferrous alloy

Iron + Carbon + Chromium = Stainless steel

Non-ferrous metal	Properties	Ferrous metal	Properties
Aluminium 	Lightweight, corrosion resistant, malleable, tough, high electrical and thermal conductivity.	Cast Iron 	Iron + Carbon (2-4%) Hard skin but brittle, soft core. Good in compression Poor corrosion resistance
Copper 	Tough, corrosion resistant, high electrical and thermal conductivity	Mild Steel (low carbon steel) 	Iron + Carbon (0.25%) Malleable, ductile, tough. Poor corrosion resistance
Zinc 	Corrosion resistant, ductile. Used mainly for plating (covering) metals like steel and iron.	Stainless Steel 	Alloy – Iron + Chromium and other elements. Corrosion resistant Hard, tough.
Brass 	Alloy – Copper, Zinc Corrosion resistant, good thermal and electrical conductivity.	High Speed Steel 	Alloy – Iron + Carbon + Tungsten Brittle, hard.

Screwcutting Taps

Description

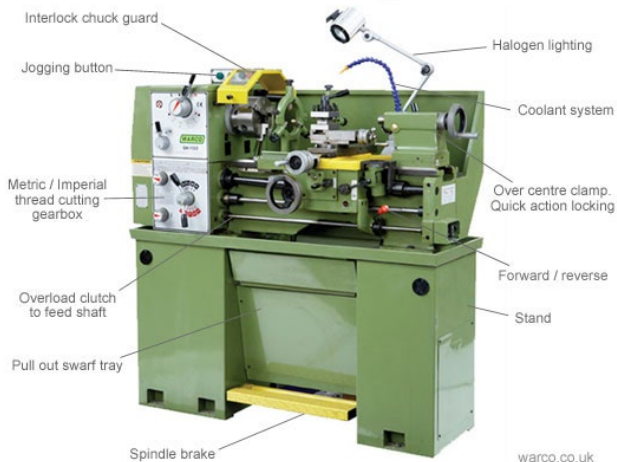
Taps are hand tools used for the fabrication process known as tapping; a process used on metals and engineering plastics. Taps are made from high carbon steel that has been hardened and tempered or high speed steel. The process involves the cutting of internal (female) vee-shaped threads in a pre-drilled hole known as the tapping hole. Taps are usually supplied in sets of three; taper, intermediate and plug.



Diameter	Tapping drill (mm)
M3	2,5
M4	3,3
M5	4,2
M6	5,0
M8	6,8
M10	8,5
M12	10,2
M14	12,0

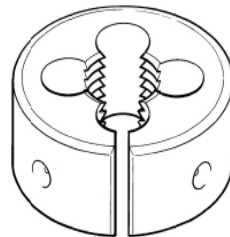
During this topic you will learn new tools for shaping metal and efficiency in planning.

The Centre Lathe

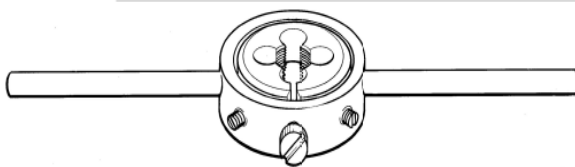










Description

Dies are hand tools used to cut external (male) vee-shaped threads on a circular bar. This fabrication process is known as threading and is used on metals and engineering plastics. Dies are made from high speed steel and are available in various types; circular, square, sliding and split.



Circular split dies are held in a tool known as a die stock or die holder.



1. 	2. 
3. 	4. 
5. 	6. 
7. 	8. 
9. 	10. 

Tool name	Use	Tool name	Use
1. Metal vice	To hold work whilst cutting/ filing.	6. File/s	Removes fine amount of material from work.
2. Hacksaw	Cutting straight lines in metal.	7. Ball peen hammer	Use to shape metal/ or use with centre punch.
3. Engineers Square	Marking perpendicular lines on work.	8. Steel rule	Measuring material in mm.
4. Dividers	Marking out circles or arcs.	9. Centre punch	Make an indent in metal before drilling.
5. Odd leg calipers	Marking parallel lines to an edge.	10. Scriber	Use to mark out lines/ design on metal.



ENGLISH

Year 8 Cycle 3 – English Knowledge Organiser

Definition of dystopian writing: literature that describes an imaginary society that is as dehumanising and as unpleasant as possible.

Typical genre features:	A Dystopian Protagonist:	Typical settings:
<ul style="list-style-type: none"> • Propaganda is used to control the citizens of society. • Information, independent thought and freedom are restricted. • A leader/concept is worshipped by the citizens of the society. • Citizens have a fear of the outside world. • Citizens live in a dehumanized state. • Citizens conform to uniform expectations. Individuality and dissent are bad. • The society is an illusion of a perfect utopian world. 	<ul style="list-style-type: none"> • often feels trapped and is struggling to escape. • questions the existing social and political systems and attempts to rebel but in a way that is still morally acceptable • believes or feels that something is terribly wrong with the society in which he or she lives. • Lacks the selfish nature of those in charge. 	<ul style="list-style-type: none"> • Futuristic, industrial cities • Destroyed natural habitat with little connection to nature • High levels of surveillance • Environments and weather that creates a strong sense of oppression or constraint

Social and Historical Context	Relevant vocabulary	
<ul style="list-style-type: none"> • Dystopian ideas within literature have existed for a long time, but the genre itself is one of the newer genres within literature. <i>Utopia</i> written by Thomas More in 1516, which, despite its title, reflects a dystopian society. Although it's presented as an ideal world, we know that in reality, it would not successfully function. So even when trying to describe a utopia, writers may actually end up portraying a society that is flawed or dysfunctional. • With the increase of social media, public surveillance, fear over nuclear weaponry and an increased awareness of social issues such as racism, greed or poverty, writers have written about the extreme cases of controlling such issues. • BIG QUESTION: Orwell writes in 1984, "If you want a picture of the future, imagine a boot stamping on a human face – for ever." Is this the true depiction of human life? Does this lead us to assume that humans have an ingrained capability to be evil? • Several dystopian books have been adapted for film, fuelling our obsession with the imperfect society and 'what if' scenarios. However, some are less successful than we would expect. P.D. James, who wrote "The Children of Men", acknowledged that it could be seen as science fiction but was anxious that it was instead identified as dystopian to recognise the moral of the story. "The Children of Men" didn't sell nearly as well as her detective novels. Why might this be?) H.G. Wells abandoned his dystopian science fiction to write a different genre. Why might that be? 	Utopia Dystopia Dehumanising Dictatorship Totalitarian Tyrannical Oppressive Repressive Liberation Captive Constrained Censorship Compliance	Propaganda Revolution Dissent Compliance Apocalypse Conformity Free will Democracy Dysfunction Omnipresent Dehumanisation Surveillance

Notable Dystopian texts

1984 George Orwell	Brave New World Aldous Huxley	The Giver Lois Lowry	Fahrenheit 451 Ray Bradbury	The Running Man Stephen King	The Maze Runner James Dashner	A Handmaid's Tale Margaret Atwood	I am Legend Richard Matheson	Delirium Lauren Oliver	Noughts and Crosses Malorie Blackman	More than This Patrick Ness	The Hunger Games Suzanne Collins
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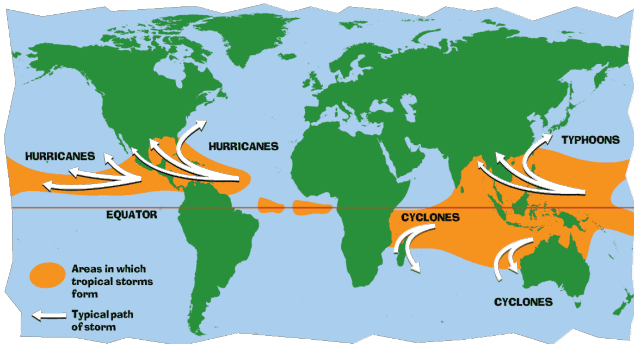
HUMANITIES

- **Geography**
- **History**
- **RE**

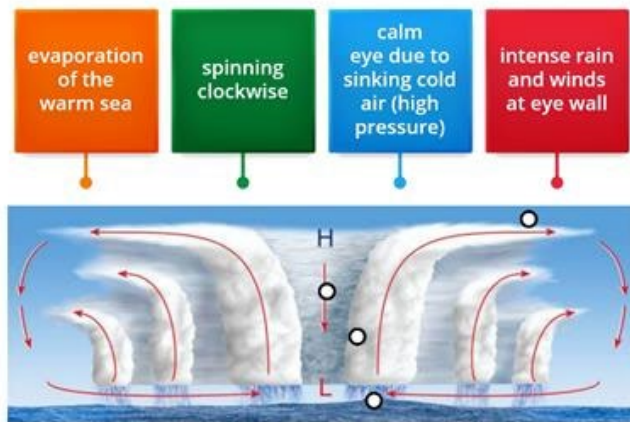
Why are tropical storms so deadly?

Distribution of tropical Storms.

They are known by many names including hurricanes (North America), cyclones (India) and typhoons (Japan and East Asia). They all occur in a band that lies roughly 5-15° either side of the equator.



The structure of tropical storms



Formation of tropical Storms

1	The sun's rays heats large areas of ocean in the summer and autumn. This causes warm, moist air to rise over the particular spots
2	Once the temperature is 27°, the rising warm moist air leads to a low pressure. This eventually turns into a thunderstorm. This causes air to be sucked in from the trade winds.
3	With trade winds blowing in the opposite direction and the rotation of earth involved (Coriolis effect), the thunderstorm will eventually start to spin.
4	When the storm begins to spin faster than 74mph, a tropical storm (such as a hurricane) is officially born.
5	With the tropical storm growing in power, more cool air sinks in the centre of the storm, creating calm, clear condition called the eye of the storm.
6	When the tropical storm hits land, it loses its energy source (the warm ocean) and it begins to lose strength. Eventually it will 'blow itself out'.

Measuring tropical storms

Determining hurricane categories using the Saffir-Simpson Hurricane Wind Scale

The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating scale used to categorize hurricanes. The scale was first introduced in 1973 by Herbert Saffir, an engineer, and Robert Simpson, the Director of the National Hurricane Center at the time. The ratings are determined strictly by the sustained wind speed of a hurricane. We categorize hurricanes using this scale as an estimate of its potential for significant property damage and the possibility of lives lost.

Category 1	Category 2	Category 3	Category 4	Category 5
74-95 mph winds Minimal Damage	96-110 mph winds Moderate Damage	111-129 mph winds Extensive Damage	130-156 mph winds Extreme Damage	157+ mph winds Catastrophic Damage

Primary effects of tropical Storms

- The intense winds of tropical storms can destroy whole communities, buildings and communication networks.
- As well as their own destructive energy, the winds can generate abnormally high waves called storm surges.
- Sometimes the most destructive elements of a storm are these subsequent high seas and flooding they cause to coastal areas.

Secondary effects of tropical Storms

- People are left homeless, which can cause distress, poverty and ill health due to lack of shelter.
- Shortage of clean water and lack of proper sanitation makes it easier for diseases to spread.
- Businesses are damaged or destroyed causing employment.
- Shortage of food as crops are damaged.



SUPER TYPHOON HAIYAN

LOCALLY KNOWN AS 'YOLANDA'

13 MILLION PEOPLE AFFECTED

3,000,000 DISPLACED

371,000 IN CENTERS
2.7M OUTSIDE*
*WENT TO STAY W/ FRIENDS OR FAMILY

301 M NEEDED
23% FUNDED

1,087 EVACUATION CENTERS

5 FOREIGN MEDICAL TEAMS IN TACLOBAN

34,095 PEOPLE IN NEED OF FOOD ASSISTANCE

2.5M PEOPLE IN NEED OF FOOD ASSISTANCE

4.9M CHILDREN AT RISK OF MALNUTRITION

170,475 DSWD/WFP FAMILY FOODPACKS REACHED FAMILIES

478,343 HOUSES DAMAGED
50% DESTROYED

134,000 HECTARES OF CROPS AFFECTED
40% DESTROYED

28,000 WATER CONNECTIONS RESTORED AS OF 16 NOVEMBER 2013

HURRICANE KATRINA

Over **1,000,000** people displaced

300,000 homes destroyed

80% of New Orleans flooded

US\$135 billion in damages

1,833 people killed

"The single most catastrophic natural disaster in U.S. history."

How did the Treaty of Versailles cause WWII?

- The Treaty of Versailles punished Germany harshly at the end of WWI by making them take full guilt for the war, pay reparations (compensation), reduce their army to 100,000, reduce their navy to 6 battleships and drastically cutting the land they owned (and the Polish Corridor cut through Germany to give Poland access to the Sea).
- Germans felt the Treaty was unfair (e.g. WWI began when Austria-Hungary attacked Serbia and was not totally their fault) and so many voted for Hitler to 'right the wrongs of Versailles'.
- Britain later saw the Treaty as too harsh and so they didn't always enforce it by stopping Hitler when he broke it.

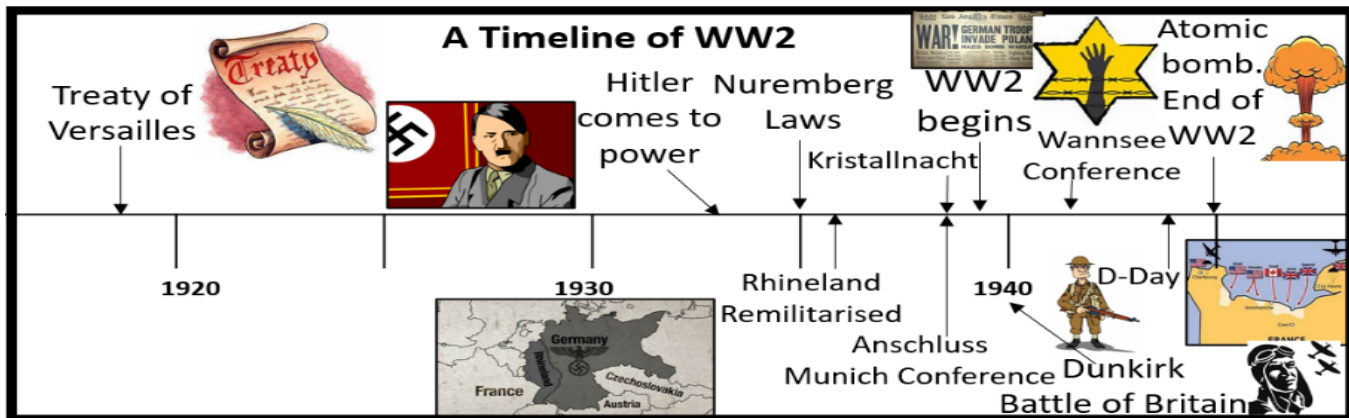


How did Hitler's Foreign Policy cause WWII?

- Hitler followed an aggressive foreign policy with the aim of 'righting the wrongs of Versailles', uniting German speakers and gaining living space (lebensraum) in the East.
- This meant that Hitler broke the Treaty of Versailles by building up his armed forces, remilitarising the Rhineland, Anschluss with Austria and expanding into Czechoslovakia.
- When Hitler invaded Poland Britain declared war as his foreign policy aims were unlimited.

Was WWII a Total War?

- The lives of civilians were radically altered with many women working in munitions factories or on farms (the land army), children and other vulnerable groups being evacuated and many suffering from the impact of bombing raids.
- Propaganda suggests that the rescue of the British army from Dunkirk after the fall of France was a result of a national effort including fishing boats and pleasure craft being used to ferry soldiers from the beaches to waiting ships, but others say the boats were forcibly taken by the navy and Dunkirk wasn't really a success because so many weapons and equipment had to be abandoned. Also, many of the rear guard weren't rescued.
- Churchill said that 'Never in the field of human conflict was so much owed by so many to so few' because if the pilots hadn't stopped Germany gaining control of British skies then Britain would have been invaded by Germany



Key Words and Definitions

Appeasement	Refers to listening to Hitler's demands and giving in to the ones which are reasonable.
Battle of Britain	The German attempt to ground the British air force during 1940 to make a channel invasion of Britain possible.
Blitz	The German bombing of Britain (and especially London) during 1940 and 1941 to force the British to surrender.
D-Day Landings	The landing of British, American and other troops on the French coast in 1944.
Evacuation	Moving people from an area at risk e.g. children from towns which could be bombed.
Hitler's Foreign Policy	The aggressive way in which Hitler dealt with other countries.
Home Front	Refers to what civilians are doing during a war which supports the actions of the military forces e.g. working in factories.
Paris Peace Conference	Meeting attended by the British, French and American leaders after WWI to decide Germany's punishment.
Rationing	A way of sharing out food supplies fairly in times of shortage. Although supplies are still paid for by the customer, they can only buy a certain amount a week.
Total War	An unrestricted war e.g. many or all civilians are involved.
Treaty of Versailles	The list of punishments (drawn up at the Paris Peace Conference) which Germany was forced to sign in 1919.

Genesis 1
¹ In the beginning God created the heavens and the earth.
² Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters.
³ And God said, "Let there be light," and there was light.
God the Father and God the Holy Spirit were present at creation. God's word created the universe and life.

John 1
¹ In the beginning was the Word, and the Word was with God, and the Word was God.
² He was with God in the beginning.
³ Through him all things were made; without him nothing was made that has been made.
God the Father and God the Son (The Word) were present at creation.

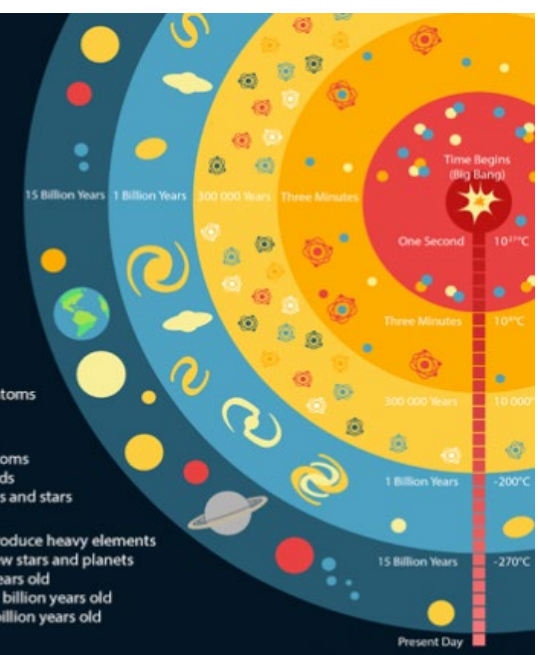
Genesis 1 repeatedly states that 'God saw that it was good'. Most Christians believe that this means that the world was created to be good.



Christianity

BIG BANG THEORY PHASES

- 1** Boiling "soup" with electrons, quarks and other elementary particles. Space cools off rapidly. Quarks form protons and neutrons.
- 2** Universe - superhot fog. Heated protons and electrons hinder the emission of light. Light elements created like deuterium, lithium, helium.
- 3** Protons, electrons, neutrons combine and form atoms. Primarily hydrogen and helium atoms
- 4** Galaxy formation era. Hydrogen and helium atoms begin to form giant clouds that will become galaxies and stars
- 5** First dying stars produce heavy elements which turn into new stars and planets
 Sun ~ 4.6 billion years old
 Solar System ~ 4.5 billion years old
 Milky Way ~ 13.2 billion years old



Hinduism

Key words and definitions

Creation	The beginning of something.
Genesis	The first book in the bible
Creationist	the belief that the universe originate from specific acts of divine creation.
Reincarnation	the rebirth of a soul in another body.
Dharma	The duty a Hindu should perform in their life
Brahma	Supreme being, believed to be the creator of everything.
Samsara	Cycle of reincarnation.
Stewardship	The value of responsible planning and management of resources.
Dominion	Humanity's right to control and have power over the land and all other living beings.

Before time began there was no heaven, no earth and no space between. A vast dark ocean washed upon the shores of nothingness and licked the edges of night. A giant cobra floated on the waters.

The mighty serpent watched over the Lord Vishnu, who lay asleep within its endless coils. Everything was so peaceful and silent that Vishnu slept undisturbed by dreams or movement.

From the depths a humming sound began to tremble. The first word was created: Om. It grew and spread, filling the emptiness and throbbing with energy. The night had ended. Vishnu awoke.

As the dawn began to break, from Vishnu's navel grew a magnificent lotus flower. In the middle of the blossom sat Vishnu's servant, a God with four faces, named Brahma. He awaited the Lord's command.

Vishnu spoke to his servant: 'It is time to begin.' Brahma bowed, and Vishnu commanded: 'Create the world.'

A wind swept up the waters. Vishnu and the cobra vanished. Brahma remained in the lotus flower, floating and tossing on the sea. He lifted up his arms and calmed the wind and the ocean. Then Brahma split the lotus flower into three. He stretched one part into the heavens. He made another part into the earth. With the third part of the flower he created the skies.

The earth was bare. Brahma set to work creating grass, flowers, trees and plants of all kinds. To these he gave feeling. Next he created the animals and the insects to live on the land. He made birds to fly in the air and many fish to swim in the sea. To all these creatures, he gave the senses of touch and smell. He gave them power to see, hear and move.

The world was soon bristling with life and the air was filled with the sounds of Brahma's creation.





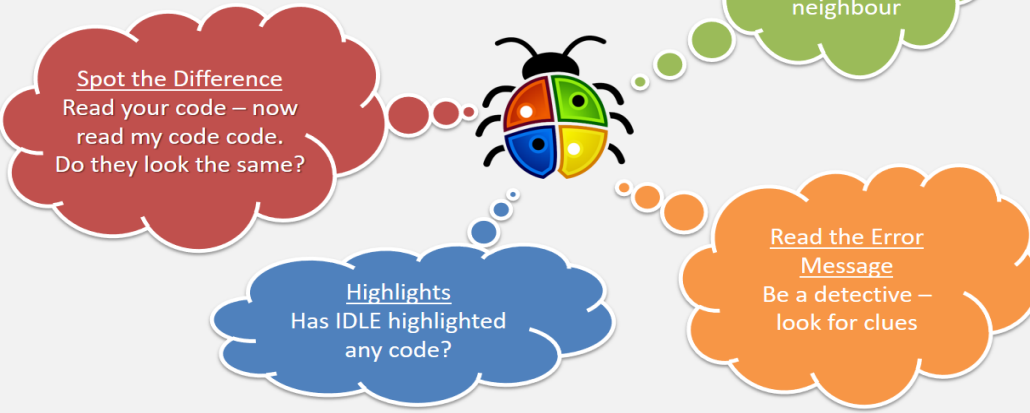
ICT

Cycle 3 in Computer Science will focus on coding using the Python programming language. You will start by using Python Turtle, which allows you to create drawings using a special Python module. We will then move on to using Python to create a text based multiple choice quiz.



Debugging Strategies

If your code does not work try the following debugging strategies.



Key vocabulary	
Python	A high level programming language.
Programming	The process of writing computer programs.
Code	The instructions that a program uses.
Sequence	Parts of the code that run in order and the pathway of the program reads and runs very line in order.
Selection	Selects a pathways through the code based on whether a condition is true
Iteration	Code is repeated (looped), either while something is true or for a number of times
Algorithm	A set of rules/instructions to be followed by a computer system
Variable	A value that will change whilst the program is executed. (eg. temperature, speed)
Comparative Operator	When comparing data, an operator is used to solve the equality such as <>, != or ==
Syntax	The punctuation/way that code has to be written so that the computer can understand it. Each programming language has its own syntax.
Data Type	This indicates how the data will be stored. The most common data types are integer, string, and float/real.
String	A collection of letters, numbers or characters. (eg, Hello, WR10 1XA)
Integer	A whole number. (eg. 1, 189)
Float/Real	A decimal number, not a whole number. (eg. 3.14, -26.9)
Boolean	1 of 2 values. (eg. True, False, Yes, No)



Key Point: Iteration

Draw a square without Iteration

```
turtle.forward(100)
turtle.left(90)
```

```
turtle.forward(100)
turtle.left(90)
```

```
turtle.forward(100)
turtle.left(90)
```

```
turtle.forward(100)
turtle.left(90)
```

This code uses iteration to draw a square. Iteration is used to simplify code and repeat steps. The first line of the code tells the computer to repeat the indented line 4 times

Draw a square with Iteration

```
for i in range(4):
    turtle.forward(100)
    turtle.left(90)
```

This line of code moves forward 100 pixels.

Note how these two lines of code are indented

Decide between options

Decide to run a block (or not)

```
x = 3
if x == 3:
    print('x is 3')
```

Decide between two blocks

```
mark = 80
if mark >= 50:
    print('pass')
else:
    print('fail')
```

Decide between many blocks

```
mark = 80
if mark >= 65:
    print('credit')
elif mark >= 50:
    print('pass')
else:
    print('fail')
```

- ▶ elif can be used without else
- ▶ elif can be used many times

Are two values equal?

```
x == 3
```

△ two equals signs, not one

Are two values not equal?

```
x != 3
```

Less than another?

```
x < 3
```

Greater than another?

```
x > 3
```

Less than or equal to?

```
x <= 3
```

Greater than or equal to?

```
x >= 3
```

The answer is a *Boolean*:

True or **False**

Repeat a block (a fixed number of times)

Repeat a block 10 times

```
for i in range(10):
    print(i)
```

Sum the numbers 0 to 9

```
total = 0
for i in range(10):
    total = total + i
print(total)
```

Repeat a block over a string

```
for c in 'Hello':
    print(c)
```

Keep printing on one line

```
for c in 'Hello':
    print(c, end=' ')
print('!!!')
```

Repeat a block over list (or string) indices

```
msg = 'I grok Python!'
for i in range(len(msg)):
    print(i, msg[i])
```

Count from 0 to 9

```
range(10)
```

△ range starts from 0 and goes up to, but not including, 10

Count from 1 to 10

```
range(1, 11)
```

Count from 10 down to 1

```
range(10, 0, -1)
```

Count 2 at a time to 10

```
range(0, 11, 2)
```

Count down 2 at a time

```
range(10, 0, -2)
```

Learning Outcome 2:

To understand how to create a simple quiz using the Python programming language

Interact with the user (*input and output*)

Print a message

```
print('Hello, world!')
```

Print multiple values (of different types)

```
ndays = 365
print('There are', ndays, 'in a year')
```

Asking the user for a string

```
name = input('What is your name? ')

```

Asking the user for a whole number (an integer)

```
num = int(input('Enter a number: '))

```

Get Python software FREE! Go to: <https://www.python.org/downloads/>

Comparative Operators

==	Equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

Play games and learn how to code:

<https://py.checkio.org/>

Follow easy tutorials and learn how to write Python code:

<https://www.w3schools.com/python/>

Code Academy Python course:

<https://www.codecademy.com/learn/learn-python-3>

LANGUAGES

- **French**
- **Spanish**

In Learning Cycle 3 we take a trip to Paris, the City of Light! You will learn about the many tourist attractions to visit and things you can do in Paris. You'll also learn to use the perfect tense, so that you can write a report of what you've done

Key words and definitions	
Subject pronouns (we don't tend to use these in writing/speaking)	Je (I), tu (you), il / elle (he / she), nous (we), vous (you plural), ils/ells (they M / they F)
Nouns	Used to identify a class of people, places or things
Adjectives	Used to describe a noun
Verbs	A word used to describe an action, state or occurrence, and forming the main part of the predicate of a sentence (such as hear, become, happen)
Adverbs of frequency	Used to say how often someone does something
Infinitive	A verb in its unchanged form / a verb which can be found in a dictionary / a verb which has an ER, IR or RE ending in French (jouer) / a verb which has 'to' in front of it in English (to play)
Present tense	Used to say what someone is currently doing (I do / I play)
The Preterite tense	Used to talk about what someone did in the past (I talked/I lived/I ate – Hablé/viví/comí)
The near future tense	Used to talk about what someone is going to do in the future (I am going to play football)

Asking questions in the perfect tense

You can ask some questions in the perfect tense by making your voice go up at the end of the sentence.

Tu es allé à Paris? – Did you go to Paris?

Another way is to put **est-ce que** at the beginning:

Est-ce que tu es allé à Paris? – Did you go to Paris?

Other questions need question words such as **où** (where), **comment** (how), **qui** (who), **quand** (when), **à quelle heure** (at what time) and **combien** (how much/how many).



Don't confuse **est-ce que** with **qu'est-ce que**, which means 'what':
Qu'est-ce que tu as fait à Paris? – What did you do in Paris?

Regular verbs

- You use the perfect tense to say what you did or have done.
- To form the perfect tense, you need: **1** an auxiliary verb (usually part of the verb *avoir* – to have) and **2** the past participle of the main verb.
- You form the past participle of regular verbs as shown on the right.



Remember, you need two things to form the perfect tense!

j'ai	} (e.g. manger) → mangé (e.g. finir) → fini (e.g. attendre) → attendu
tu as	
il/elle/on a	
nous avons	
vous avez	
ils/elles ont	

Irregular verbs

Some important verbs have **irregular** past participles. Learn them by heart!

boire (to drink) → j'ai **bu**

prendre (to take) → nous avons **pris**

faire (to do) → elle a **fait**

voir (to see) → ils ont **vu**

The perfect tense with être

With a small number of verbs (mostly verbs of movement), you use **être**, not **avoir**, to form the perfect tense. See the Verb tables on page 129 for a full list of these verbs.

You add an extra **-e** to the past participle in the feminine and an extra **-s** in the plural.

One female person:

je suis/tu es/elle est sortie.

All male or mixed male/female group:

on est/nous sommes/ils sont partis.

All female group:

on est/nous sommes/elles sont arrivées.

Using negatives in the perfect tense

To make a perfect tense verb negative, put **ne ... pas** around the part of *avoir* (or *être*).

J'ai fait les magasins. → *Je n'ai pas fait les magasins.*

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

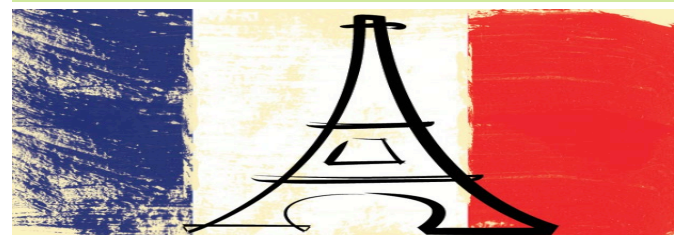
J'ai envoyé une carte postale à mes parents. → *Je n'ai pas envoyé de carte postale à mes parents.*

J'ai acheté des souvenirs. → *Je n'ai pas acheté de souvenirs.*

Mnemonics

Can anyone help you learn the 13 "unlucky" verbs that use *être* to form the perfect tense?

Ms. Van der Tramp can. She's not actually a person, she's a mnemonic, a phrase consisting of the first letters of each of the verbs in question. In *Studio 1* you learnt how you can use mnemonics to help remember new words.



Qu'est-ce qu'on peut faire?

• **What can you do?**

On peut ...	You can ...
aller à un concert	go to a concert
aller au théâtre	go to the theatre
faire les magasins	go shopping
faire un tour en segway	go on a tour by segway
faire une balade en bateau-mouche	go on a boat trip
manger au restaurant	eat in a restaurant
visiter les monuments	visit the monuments
visiter les musées	visit the museums

Les mots essentiels • High-frequency words

à quelle heure?	when?/at what time?
quand?	when? (for day, month, year, etc.)
combien?	how much?/how many?
où?	where?
un peu	a bit
beaucoup (de)	a lot (of)
d'abord	first of all
ensuite	next
puis	then
après	afterwards
finalement	finally, lastly



Des questions touristiques

• **Tourist questions**

C'est où, le musée?	Where is the museum?
C'est ouvert quand?	When is it open? (day or date)
C'est ouvert à quelle heure?	At what time is it open?
C'est combien, l'entrée?	How much does it cost to get in?
Est-ce qu'il y a ...	Is there ...
une cafétéria/une boutique de souvenirs?	a cafeteria/a souvenir shop?

J'aime ... • I like ...

J'adore ...	I love ...
Je n'aime pas ...	I don't like ...
Je déteste ...	I hate ...
aller au cinéma (avec mes amis)	going to the cinema (with my friends)
aller aux concerts (rock)	going to (rock) concerts
aller voir des matchs (au Parc des Princes)	going to watch matches (at the Parc des Princes)
faire du roller (au Trocadéro)	roller-blading (at the Trocadéro)
faire les magasins	going shopping
prendre des photos	taking photos
retrouver mes copains	meeting up with my mates

C'était comment? • What was it like?

C'était ...	It was ...
beau	beautiful
bizarre	weird
ennuyeux	boring
génial	great
intéressant	interesting
marrant	funny/a laugh
nul	rubbish
Ce n'était pas mal.	It wasn't bad.

À Paris • In Paris

J'ai passé le 14 juillet à Paris.	I spent the 14th July in Paris.
J'ai acheté des souvenirs.	I bought some souvenirs.
J'ai (beaucoup) dansé.	I danced (a lot).
J'ai envoyé des cartes postales.	I sent postcards.
J'ai mangé au restaurant.	I ate in a restaurant.
J'ai regardé le défilé/le feu d'artifice.	I watched the parade/the fireworks.
J'ai rencontré un beau garçon/une jolie fille.	I met a good-looking boy/a pretty girl.
J'ai visité ...	I visited ...
le musée du Louvre/la tour Eiffel/les catacombes	the Louvre museum/the Eiffel Tower/the Catacombs

Des informations touristiques

• **Tourist information**

horaires d'ouverture	opening times
ouvert tous les jours	open every day
sauf le lundi	except Mondays
ouvert du (mardi) au (dimanche)	open from (Tuesday) to (Sunday)
fermé	closed
de 10h00 à 17h00	from 10 a.m. to 5 p.m.
tarifs d'entrée	admission prices
adultes	adults
jeunes	young people
enfants	children
gratuit	free
Il y a (une cafétéria).	There is (a cafeteria).
Il n'y a pas de (boutique de souvenirs).	There isn't a (souvenir shop).

In **Learning Cycle 3** you will learn to talk about holidays and how to form the past tense. You will practise giving opinions about your holidays and give an account of a past holiday. You will communicate what you have done in the past.

Key words and definitions

Subject pronouns – we don't tend to use these in writing and speaking	Yo (I), tu (you), el / ella (he / she), nosotros (we), vosotros (you plural), ellas/ellos (they M / they F)
Nouns	Used to identify a class of people, places or things. Spanish nouns have a different gender. They are <u>either masculine or feminine</u> .
Adjectives	Used to describe a noun. Comes after the noun it describes and agrees in gender and number.
Verbs	A word used to describe an action, state or occurrence, and forming the main part of the predicate of a sentence (such as hear, become, happen)
Adverbs of frequency	Used to say how often someone does something
Infinitive	A verb in its unchanged form / A verb which can be found in a dictionary / A verb which has an AR/IR/RE ending in Spanish (jugar) / A verb which has 'to' in front of it in English (to play)
Present tense	Used to say what someone is currently doing (I do / I play)
The Preterite tense	Used to talk about what someone did in the past (I played football)
The Near Future tense	Used to talk about what someone is going to do in the future (I am going to play football)

Making verbs negative

To make a statement or a question negative, put **no** before the verb.

No fui a la playa.

I **didn't** go to the beach.

Mi hermano **no** jugó al golf.

My brother **didn't** play golf.

The preterite of regular verbs

You use the preterite (simple past tense) to talk about completed events in the past. Regular -ar, -er and -ir verbs follow these patterns:

bailar	to dance	conocer	to meet	escribir	to write
bailé	I danced	conocí	I met	escribí	I wrote
bailaste	you danced	conociste	you met	escribiste	you wrote
bailó	he/she danced	conoció	he/she met	escribió	he/she wrote
bailamos	we danced	conocimos	we met	escribimos	we wrote
bailasteis	you (pl) danced	conocisteis	you (pl) met	escribisteis	you (pl) wrote
bailaron	they danced	conocieron	they met	escribieron	they wrote

Some verbs change their spelling in the 'I' form:
sacar → saqué jugar → jugué

The preterite of ir and ser

Ir (to go) and ser (to be) are irregular verbs. They are identical in the preterite.

	ir	ser
fui	I went	I was
fuiste	you went	you were
fue	he/she/it went	he/she/it was
fuimos	we went	we were
fuisteis	you (pl) went	you (pl) were
fueron	they went	they were

Mi hermana **fue** a Italia. **Fue** un desastre.

My sister **went** to Italy. **It was** a disaster.

Using different time frames

To reach a higher level, you need to show that you can use verbs in the present, the preterite and the near future tense. To do this, you need to be able to form the verbs correctly. If in doubt, use the verb tables on pages 136–138. Different verb groups work like this in the three main tenses:

	infinitive	present	preterite	near future
regular verbs	visitar comer escribir	visito como escribo	visité comí escribí	voy a visitar voy a comer voy a escribir
stem-changing verbs	jugar	juego	jugué	voy a jugar
irregular verbs	hacer ir ver tener	hago voy veo tengo	hice fui vi tuve	voy a hacer voy a ir voy a ver voy a tener

Key verbs and vocab

Present		Past	
Voy	I go	Fui	I went
Vas	You go	Fuiste	You went
Va	He/she goes	Fue	He/she went
Vamos	We go	Fuimos	We went
Vais	You lot go	Fuisteis	You lot went
Van	They go	Fueron	They went

a... - to...

Escocia - Scotland	Gales - Wales
Italia - Italy	Grecia - Greece
Egipto - Egypt	Irlanda - Ireland
Alemania - Germany	Estados Unidos - USA

Con... - with

En... - by

Avión - plane	barco - boat
Autobús - bus	autocar - coach
Tren - train	coche - car

Opinions

Fue... - it was

Guay - cool
 Flipante - awesome
 Genial - great
 Regular - ok
 Horroroso - terrible
 Un desastre - a disaster
 Raro - strange/weird

¡Lo pasé bomba! - I had a fantastic time
 ¡Lo pasé fenomenal! - I had a wonderful time
 ¡Lo pasé guay! - I had a great/cool time
 Lo pasé mal - I had a bad/terrible time


Activities

El primer día - On the first day
 El último día - on the last day
 Primero - first
 Luego - then
 Después - after
 Más tarde - later

Visité monumentos - I visited monuments
 Compré una camiseta - I bought a t-shirt
 Saqué fotos - I took photos
 Monté en bicicleta - I rode a bike
 Descansé en la playa - I relaxed on the beach
 Mandé SMS - I sent a message
 Bailé - I danced
 Nadé en el mar - I swam in the sea
 Tomé el sol - I sunbathed
 Escribí SMS - I wrote messages
 Comí una paella - I ate paella
 Bebí una limonada - I drank a lemonade
 Conocí a un chico guapo - I met a good-looking boy
 Salí con mi hermana - I went out with my sister
 Vi un castillo interesante - I saw an interesting castle

Let's show off!

Acabo de ir a... - I have just been to...
 Siempre he soñado con ir a... - I've always dreamed of going to...
 Ojalá pudiera ir a... - I wish I could go to...
 Cuesta un ojo de la cara - It costs an arm and a leg
 El hotel era... - the hotel was...
 El hotel tenía... - the hotel had...



Normalmente voy de vacaciones a <u>Grecia</u> .	Normally I go on holiday to <u>Greece</u> .
Voy con <u>mi familia</u> y vamos en <u>avión</u> .	I go with <u>my family</u> and we go by <u>plane</u> .
<u>ya que es rápido</u> pero también es <u>aburrido</u> .	because it's <u>fast</u> but also it's <u>boring</u> .
<u>Acabo de ir a Francia</u> y fue <u>guay</u> .	I've just been to <u>France</u> and it was <u>cool</u> .
Fui con <u>mi clase</u> y fuimos en <u>autocar</u> .	I went with <u>my class</u> and we went by <u>coach</u> .
El primer día <u>visité monumentos</u> y <u>saqué muchas fotos</u> .	On the first day <u>I visited monuments</u> and <u>I took lots of photos</u> .
Después compré <u>una camiseta roja</u> .	After, I bought a <u>red t-shirt</u> .
El último día <u>tomé el sol</u> en la playa	On the last day <u>I sunbathed</u> on the beach
y más tarde, <u>nadé en el mar</u> .	and later, <u>I swam in the sea</u> .
<u>¡Lo pasé bomba!</u>	I had a <u>fantastic</u> time!
Siempre he soñado con ir a <u>Estados Unidos</u>	I've always dreamed of going to <u>America</u>
porque me encanta <u>la comida</u> y <u>la cultura</u> .	because I love <u>the food</u> and <u>the culture</u>
Sin embargo, <u>cuesta un ojo de la cara</u> .	However, it costs an arm and a leg.

Great phrases

Try and learn some of these phrases - they'll be amazing in your writing and speaking!

Acabo de + infinitive: "Acabo de ver un documental..."	I have just "I have just watched a documentary..."
Siempre me ha gustado "Siempre me ha gustado comer chocolate"	I have always liked "I have always liked eating chocolate"
Es pan comido "Me encanta el inglés porque es pan comido"	It's a piece of cake "I love English because it's a piece of cake"



MATHS

Cycle 3 in **Maths** you will begin by learning all about numbers written in index form and be confident in evaluating indices as well as simplifying using index laws. Following this, you will look at standard form and how this can be used to write numbers that are big or small. The second half of the cycle will look at some key numeracy skills, including working with mass and length, before finishing with some data handling.

Topic 1

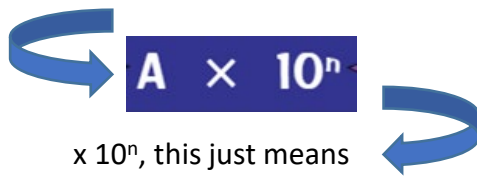
To be able to write numbers in and out of standard form and to be able to use index laws in calculations.

Sparx: M608, M150, M719

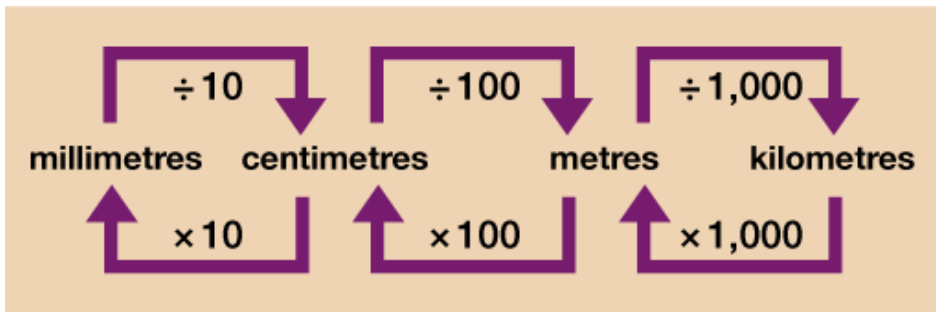
It is difficult to read numbers like 12345678900000 or 0.000000002345678. To make it easy to read very large and small numbers, we write them in standard form.

A number written in standard form must always be written in this form:

A number between 1 and 10



$\times 10^n$, this just means how many time to multiply or divide by 10



Four Easy Rules:

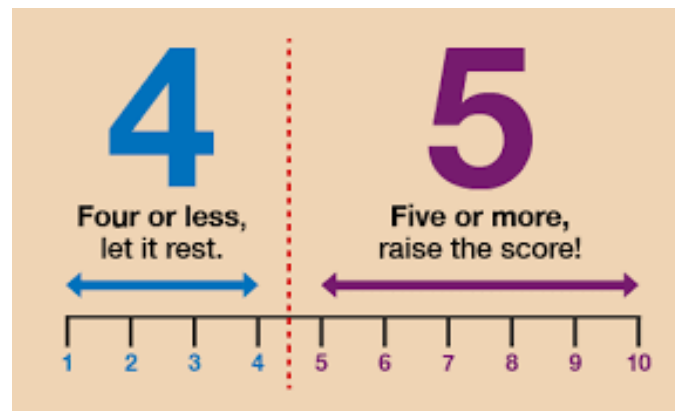
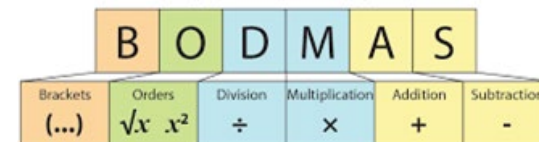
- 1) When **MULTIPLYING**, you **ADD THE POWERS**. e.g. $3^4 \times 3^6 = 3^{4+6} = 3^{10}$
- 2) When **DIVIDING**, you **SUBTRACT THE POWERS**. e.g. $c^4 \div c^2 = c^{4-2} = c^2$
- 3) When **RAISING one power to another**, you **MULTIPLY THE POWERS**. e.g. $(3^2)^4 = 3^{2 \times 4} = 3^8$
- 4) **FRACTIONS** — Apply the power to **both TOP and BOTTOM**. e.g. $(\frac{2}{3})^3 = \frac{2^3}{3^3} = \frac{8}{27}$

Warning: Rules 1 & 2 **don't work** for things like $2^3 \times 3^7$, only for **powers of the same number**.

Write these in standard form:

- a) $3600 = 3.6 \times 10^3$
- b) $560 = 5.6 \times 10^2$
- c) $0.00005 = 5 \times 10^{-5}$
- d) $0.0000000589 = 5.89 \times 10^{-8}$

Ordering Mathematical Operations



Topic 2

To recap key number skills ready to apply to broader problem solving.

Sparx: M772, M530

Key words and definitions Data and Probability	
Frequency	The number of occurrences of a particular event in a particular time.
Axis	A reference line on a graph or the cartesian plane.
Probability	The likelihood of something happening.
Outlier	A piece of data that does not fit with the trend of the data as a whole.
Line of Best Fit	A line that approximates the trend of a scatter graph, allowing estimations to be made.
Estimation	The process of finding an approximate answer.
Discrete	Data that is counted rather than measured.
Continuous	Data that is measured rather than counted.
Venn Diagram	A diagram showing the distribution of data across interlocking circles.
Two-Way Table	A table of data comparing two variables and the distribution of data across them.
Product	The result of a multiplication.

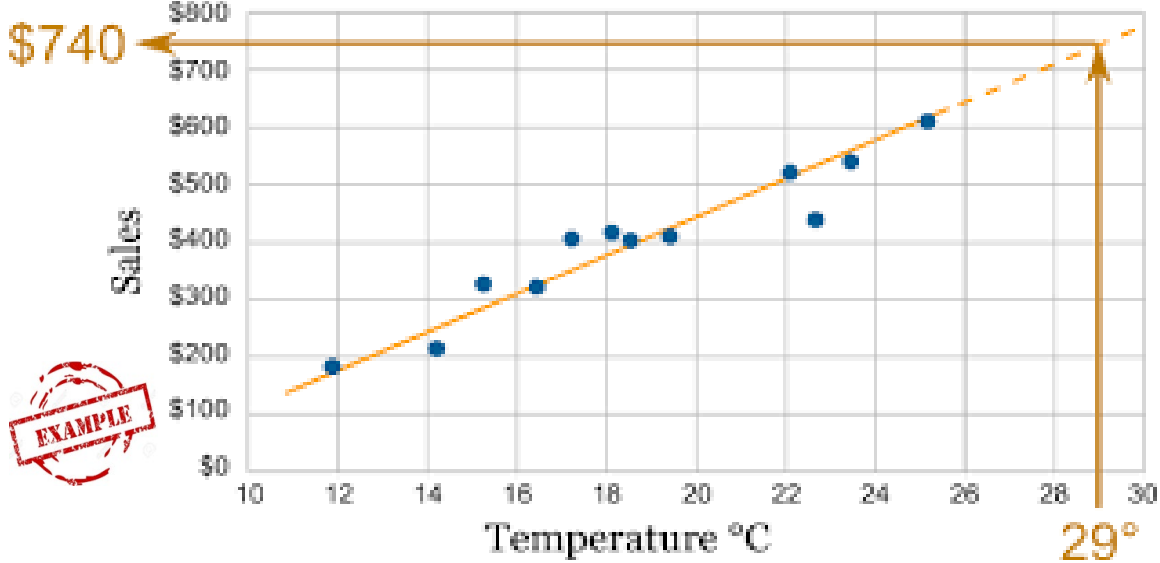
Topic 3

To be able to work with scatter graphs and frequency tables and to be able to calculate probability from these tables

Sparx: M769, M596, M899

Scatter graphs show data as a series of coordinates that compare two variables.

You can plot a line of best fit on a scatter graph by following the trend of the data and ensuring an equal number of points lie either side of the line.



Probability is the likelihood of something happening. It can be represented as a fraction, percentage or decimal, or expressed in words.

Fractions are usually easiest - the numerator is the frequency of the event in question and the denominator is the grand total.

PE

Cycle 3 Knowledge Organiser

QR code for basic football rules video



Basic Rules

Players: Only 7 players per side, who all have different positions

Contact rule: You can't touch or push any player during the game as it is a non-contact sport. **This will result in a penalty pass or if they contact you whilst you are in the shooting circle, you will get a penalty shot.**

Footwork rule: You are not allowed to move with the ball. When catching the ball the foot that lands first must stay in contact with the floor until ball is passed. **If footwork happens a free pass is awarded.**

Obstruction rule: you must be 1 metre away from the player you are marking before your arms go up and over the ball. **If your defender is obstructing you before you shoot, you get a penalty shot.**

3 seconds rule: You can only hold the ball for 3 seconds before you pass or shoot. **If a player holds a ball to long a free pass is awarded.**

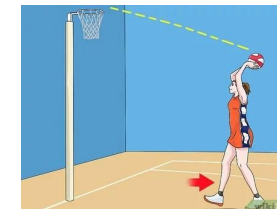
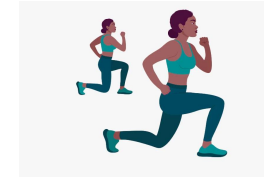
Centre pass rule: To start a game and after a goal is scored you go back to the centre pass and players must receive in the centre third.

Repossession: If a player drops the ball or bounces the ball and picks it back up again the other team gets a free pass.

Offside rule: If you go into a third that you are not allowed in or if any other player than GS GA GK GD go into the shooting circle the other team gets a free pass. **If offside happens a free pass is awarded.**

How to score: A goal is scored when a GA or GS gets the ball into the hoop from within the D.

Out of court: If the ball gets knocked out of the court by team A, then team B will gain the throw in.



Leadership Skills

Communication

Using language and terminology that others understand **E.g. Explaining how to shoot in football with key points**

Organisation

Making sure that people are in the right place for the task set, **E.g. Sorting players into even teams so that it is fair**

Adaptability

Making sure that the task set is appropriate for ability of those taking part. **E.g. Making something easier to help or more difficult to challenge.**

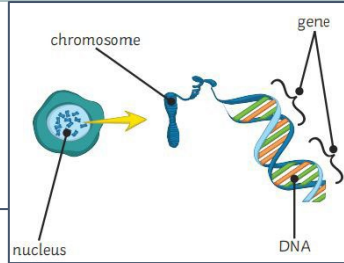
Creativity

Ensuring practices or games aren't the same each time **E.g. Creating different rules in the game to focus on certain skills**



SCIENCE

Variation Key words and definitions	
Variation	Differences in characteristics of individuals in a population.
Allele	An alternative form of a gene.
Chromosome	Structures that contain the DNA of an organism and are found in the nucleus.
Gene	A small section of DNA that codes for a specific protein.
DNA	A polymer that is made up of two strands that form a double helix.



Variation

Variation is all the differences that exist in a population of the same species. These differences are caused by:

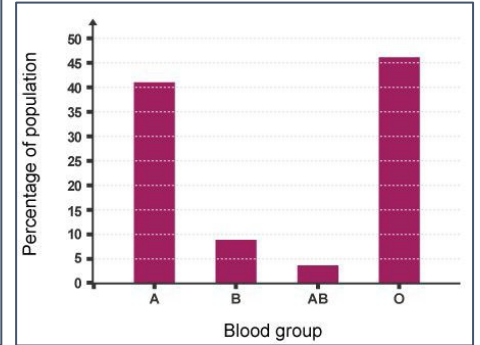
- **Genetic variation** - these are differences between individuals that are inherited from parents, such as the colour of your eyes, hair and skin.
- **Environmental variation** - these are differences between individuals that are not inherited but caused by the environment that the organism lives in, including scars and tattoos.
- **Genetic and environmental variation** - differences between individuals that are caused by both genetic and environmental factors, such as height and weight.

Discontinuous variation

Surveys of **discontinuous variation** give us values that come in groups rather than a range. Human blood groups are an example of discontinuous variation. In the ABO blood group system, only four blood groups are possible - A, B, AB or O. You cannot have a blood group in between these four groups, so this is discontinuous variation.

Here are some examples:

- blood group
- eye colour

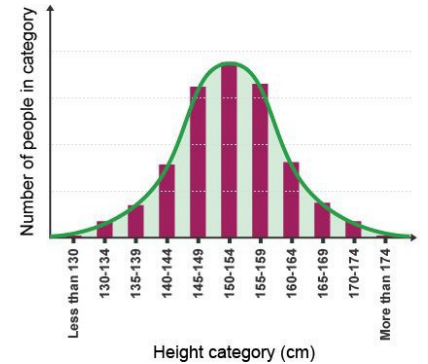


Continuous variation

Surveys of **continuous variation** give us results that come in a range. Human height is an example of continuous variation. It ranges from that of the shortest person in the world to that of the tallest person. Any height is possible between these values, so this is continuous variation. For example, you can be 150 cm tall, 151 cm tall, or any height in between this - if you had a ruler that could measure small enough values.

So, a characteristic that changes gradually over a range of values shows continuous variation. Examples of such characteristics are:

- height
- arm span
- weight



Different breeds of animal still belong to the same species.



Fossil Evidence
Key words and definitions

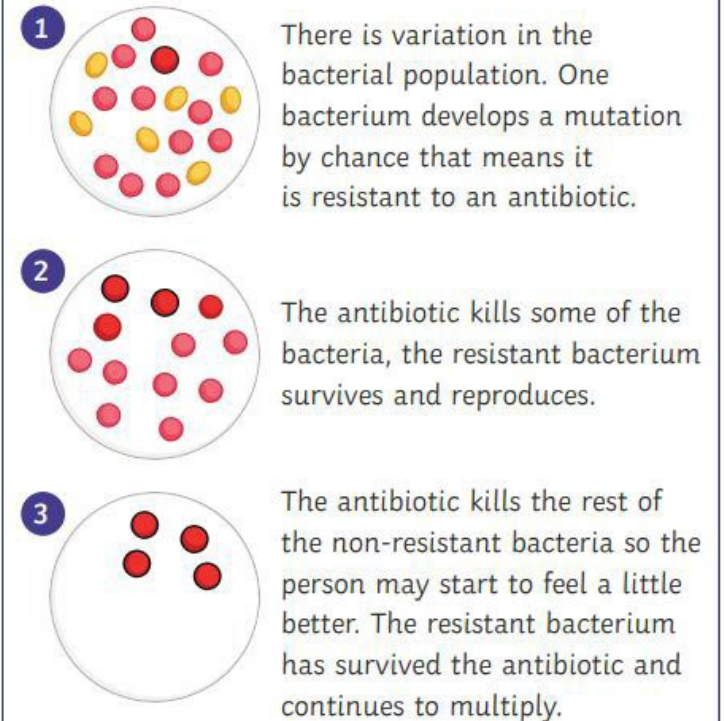
Fossils	The remains of organisms from millions of years ago which are found in rocks.
Evolution	A change in the inherited characteristics of a population, over time, through a process of natural selection.
Extinction	The permanent loss of all members of a species.
Natural selection	The process by which organisms that are better suited to an environment are more likely to survive and reproduce.
Selective breeding	Humans selecting animals or plants, that have a required characteristic, for breeding.



Resistant Bacteria

To reduce the rate at which antibiotic resistant strains appear:

- Antibiotics should only be used when they are really needed, not for treating non-serious or viral infections.
- Patients should complete their courses of antibiotics, even if they start to feel better.
- The agricultural use of antibiotics should be restricted.



Fossils

Fossils could be:

- the actual remains of an organism that has not decayed;
- mineralised forms of the harder parts of an organism, such as bones;
- traces of organisms such as footprints or burrows.

Many early life forms were soft-bodied so have left few traces behind.

Fossils help us understand how much or how little organisms have changed as life developed on earth.

Evolution

All species of living things have evolved from simple life forms by natural selection.

- If a variant/characteristic is advantageous in an environment then the individual will be better able to compete.
- This means they are more likely to survive and reproduce.
- Their offspring will inherit the advantageous allele.

Resistance

Resistance in Electrical Circuits

What is resistance?

Measured in ohms, it is the opposition to the movement of electrical charge through a component...

...or, how difficult it is for electricity to flow through a part!

Resistance...

...should increase if the length of a wire increases, or the thickness decreases.



Ohm's Law

Ohm's Law tells us that: $V=IR$

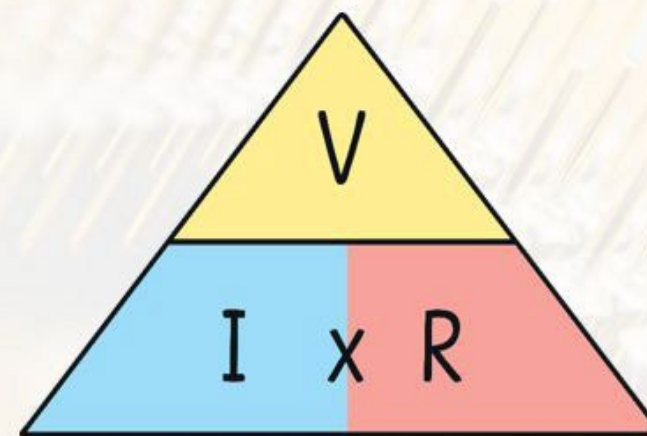
where

V =voltage (potential difference)

I =current

R =resistance

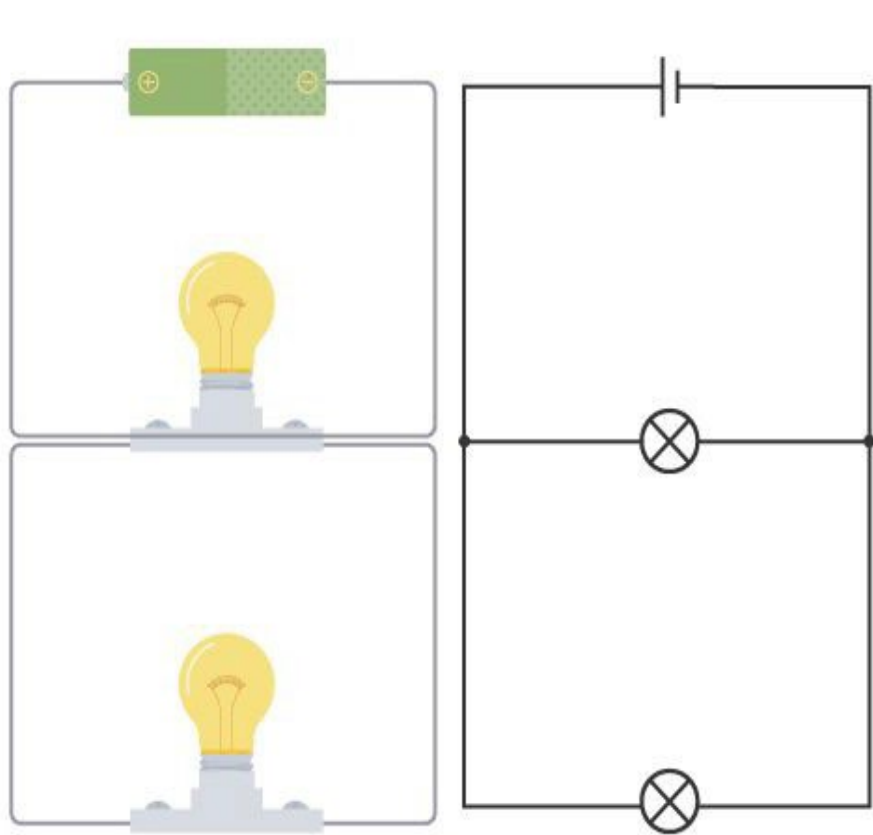
We can rearrange this to find any of the components.



Parallel Circuits

Connecting components in parallel

When we connect **components** in **parallel**, the components are connected on different branches of the circuit. There are two or more 'loops' and multiple paths for a **current** to flow.



This circuit and circuit diagram contain a cell and two lamps connected in parallel

Current is the flow of **charge** around a circuit. The faster the **charge** flow, the higher the current.

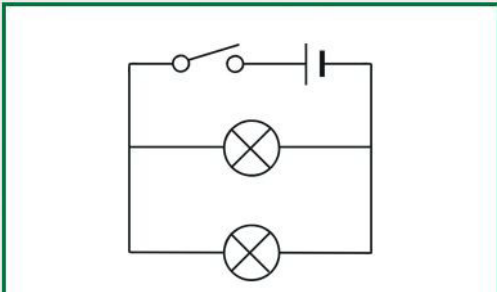
Current is measured in **amps** using an **ammeter** (always in series).

The current is the same everywhere in a series circuit. It does not matter where you put the ammeter, it will give you the same reading.

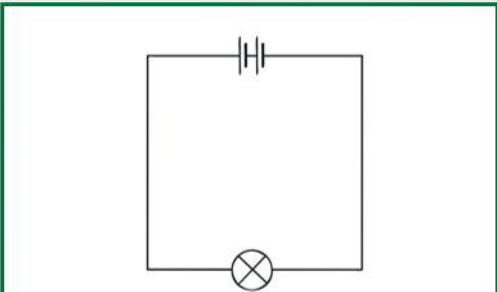
The current in a series circuit depends upon the number of cells. The more cells you add, the greater the current. Current is **not** used up.



What differences do you notice between a parallel and a series circuit?



In a parallel circuit, the components are connected side by side. This gives the current several different paths for it to flow around. If one bulb blows, the other bulbs will remain lit as the circuit is still complete.



In a series circuit, the components are connected end to end in a loop. If one bulb breaks, the whole circuit will go out and none of the bulbs will light as the circuit is no longer complete.