Co-op Academy
Walkden

Knowledge Organisers

Year 7 Term 2

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What are Knowledge Organisers?

Knowledge organisers are a summary of the key knowledge and skills that pupils need for a unit of work or a curriculum subject. They are overview sheets with information broken down into bite size chunks so pupils can revise and use them within their homework or studies.

How do I use my Knowledge Organiser?

There will be several strategies to use when using Knowledge Organisers (KOs) which will include:

- Read, say, cover, write and check (RSCWC). When revising knowledge for your subjects we have discussed the importance of doing it from memory and not copying from one piece of paper to another.
- A knowledge or skill highlighting a tricky area (gaps underlined).
- Demonstrate spaced practice through revising with the knowledge organiser a little between each lesson, rather than a lot each week or fortnight.

Read	Read your Knowledge organiser and select one area to focus on at a time.
Say	Select a section and read out aloud to yourself or to a family member or friend.
Cover	Cover your knowledge organiser so you can find out which areas you need to work on.
Write	Write down all the knowledge and skills you remember in you knowledge organiser fr that section.
Check	Look back and check to see if you were correct and got it right. Correct any mistakes or missing information in red pen.

Art

YEAR 7 : CLAY FISH

Roll clay into a smooth ball

Push your thumb into the ball ¾ down.

Using a pinching technique, press the clay between your thumb and fingers.

Create an even thickness on all sides of the pinch pot

Produce a second pinch pot of the same size.

With a clay tool scratch the rim of each pinch pot to create a textured surface.

Fill the pinch pots with newspaper to strengthen, add slip to each rim and join together.

Smooth the join with your thumb and strengthen with an additional strip of clay if needed.

Add fish features including mouth, eyes, fins and tail using the scratch and slip technique.

Leave the clay sculpture to dry, fire in the Kiln and then once cooled paint.

KEYWORDS

Pinch Pot – a hollow form created through the process of 'pinching' clay
Wedging – a method of kneading clay to remove the air
Clay tool – a tool used to model clay when hand building
Slip - clay mixed with water to produce a clay glue

Kiln – a large furnace for firing pottery
Firing – heating clay to a specific temperature
Impressed texture – indenting a design or texture into soft clay
Applied texture - adding pattern/texture to clay using the scratch and slip technique.

Year 7 : CLAY FISH

HOMEWORK

Art Homework at KS3 is set once a fortnight. Tasks should take no more than 30 minutes to complete. Pupils can expect to be set the following types of tasks:

- Keyword retrieval / definitions
- Artist analysis
- Retrieval tasks using a knowledge organiser
- Research - imagery collection / art history information
- Observational drawings
- Taking photographs
- Creating mood boards
- Skill practice worksheets
- Reading - texts about artists / art movements
- Completing classwork

READ: Art Forms in Nature by Ernst Haeckel, What if we do nothing? – Waste disposal by Christiane Dorion
VISIT: https://mymodernmet.com/ocean-art-world-oceans-day
WATCH: Origins of Ceramics - https://www.youtube.com/watch?v=t5IxnjNcwXA

Drama

Brecht The Caucasian Chalk Circle & Darkwood Manor

WHO: Bertolt Brecht was born in Germany in 1898 and died at the age of 58 in 1956. He is one of the most famous people in the world of theatre. He was a playwright, a director, an actor and developed many ideas and theories about theatre and acting which means he is considered to be a theatre practitioner

WHERE AND WHEN: After serving as a medical orderly in the First World War and appalled by the effects of the war, he went first to Munich and then to Berlin in pursuit of a career in the theatre. That period of his life came to an end in 1933 when the Nazis came to power in Germany. Brecht fled and during this period the Nazis removed his citizenship, so he was a stateless citizen.

DRAMATIC CONVENTIONS Brecht developed the 'Verfremsdungseffekt' which we call the 'Alienation Effect', this means that the performers make familiar things strange to the audience, which in turn makes them an active audience who have to think about what they are watching.

Examples of how he did this were:

Songs – to remind the audience that they are watching a performance and to change the tone or atmosphere.

Spass – fun – making the audience laugh and then making them question why they are finding serious things funny.

Design – The audience were reminded that they were in a theatre watching a performance as the house lights were left on, all of the set was visible from the start and the actors did all of the set changes.

Costumes were also changed on stage and the actors played the instruments used for the songs on stage.

Placards – Signs were held up to tell the audience the title of the scene and even what was going to happen in them, this was to take away suspense and emotion and allow the audience to think about the scene instead.

Direct address – The actors speak directly to the audience, sometimes in the form of questions, this reminds the audience that what they are seeing isn't real and forces them to think about what they are watching. This is called 'breaking the fourth wall'.

Multi role-play – The actors play more than one part in the performance, changing characters in front of the audience's eyes and reminding the audience that they are actors and not the characters. This technique also stops the audience from becoming too emotionally involved with the characters.

Representational costume – The actors would simply put on one item of clothing, or an accessory such as a hat or glasses to represent that they were a particular character – they didn't try to 'become' the character.

WHAT: Brecht made many changes to the theatre of his day. He disagreed with the fact that an audience should be swept along with the emotion of a production. Before Brecht, the theatre of the day would use realistic story lines and high emotion, it would expect the audience to believe in the characters and the situations. Brecht felt that the theatre should be something that made the audience feel more than simple emotion – he wanted it to make the audience think or learn something and to make a change for the better as a result. Brecht disliked the way that the theatre tricked the audience into thinking that what they were watching on stage was real life. He decided to try to remind the audiences of his productions that they were sitting in a theatre just watching a story being told. Brecht trained his actors to remember that they were not 'becoming' the characters but simply presenting the character to the audience.

The Caucasian Chalk Circle is a play by Bertolt Brecht. It features a play-within-a-play as two villages fight over some land that they both want to farm.

They stage a play to help decide which one of them will have the land.

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The play-within-the-play involves a custody dispute: Grusha has raised Michael since she found him abandoned. Michael's birth-mother, Natella, hopes to use Michael to claim her late husband's lands.

The magistrate claims that Michael's true mother will be able to pull Michael out of a chalk circle. Grusha refuses to pull Michael for fear of hurting him, and she is declared his mother.

Extension & Support
What to read and watch

Who is Brecht?

https://www.youtube.com/watch?v=Lk0baAeeqnE

The Alienation Technique

https://www.youtube.com/watch?v=iOZtW3UJlNs

The Caucasion Chalk Circle

https://www.youtube.com/watch?v=Q6QlgwXiRZk

Darkwood Manor - Listen to this music - what kind of a place does it make you picture?

https://www.youtube.com/watch?v=XCKQgJ0Eqlg

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Design Technology

Briefs, Specifications, Ideas and Development

Design Briefs

A Design Brief is the statement of how you will solve the Design Problem
It will often include:

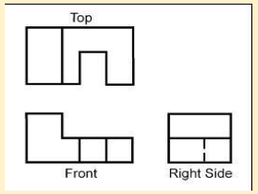
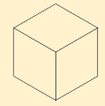
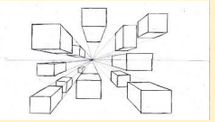
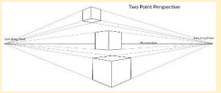
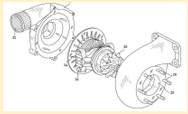
- Constraints/ limitations
- What the product is
- Materials/processes
- Any key information you know

Design Specifications

A Design Specification is a list of requirements your product has to meet in order to be successful

It is also useful for evaluation. If your product hasn't met the Spec then it gives you a starting point for improvements.

Aesthetics	What the product looks like? Style? Colour Scheme? Design Movement?
Customer	Who would buy it? (Age, gender, socio-economic, personality) How does the design appeal to them?
Cost	How much will it cost? (min-max) Why?
Environment	Where will it be used? Why? How will you make it suitable?
Safety	How is it safe? How will it be checked? Why must it be safe?
Size	What is the maximum or minimum size? Why?
Function	What does the product do? What features make it do that function well? How is it unique from similar products?
Materials	What is it made from? Why?
Manufacture	How might it be made? Why? What scale of production? Why?

Technique	Description/ notes	Diagram
Orthographic Projection/ Working Drawings	• Includes "Front", "Plan" and "End" 2D Views, and often an Isometric 3D View • Standardised method for scale, dimensions and line types • Great for manufacturing	
Isometric	• Common 3D sketching method • Can be drawn free-hand or using isometric paper and ruler • Angles are at 30 degrees • Great for seeing most of the products	
1-Point Perspective	• A 3D drawing method • Often used by interior designers and architects • Gives drawings depth • Only uses 1 vanishing point	
2-Point Perspective	• Used for 3D designs • Exaggerates the 3D effect • Objects can be drawn above of below the horizon line but must go to the 2 vanishing points	
Annotated Drawings/ Free and Sketches	• Quick and easy way of getting ideas down • Range of ideas can be seen • Annotation helps explain designs further	
Exploded View	• Helps see a final design of a product and all it's parts • Can see where all the parts fit • Great for manufacturers	

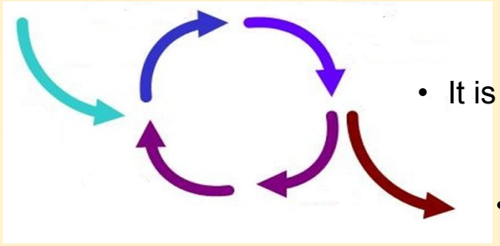
Modelling and Development

Modelling and development are key to testing and improving products
This can be done physically using materials like; card, foam, clay, man-made boards or virtually in **CAD**
Modelling helps the designer get feedback from the customer, check aesthetics, function, sizes and even materials and production methods and change them if needed

Design Strategies

Design Strategies are used to solve **Design Fixation**, and help develop creative design ideas.

Iterative Design



- A Proposal is made
- It is then planned and developed to meet the brief
- It is analysed and refined
- It is then tested and modelled
- Then evaluated against the brief – many versions fail but that then informs development to make the idea better
- The cycle then repeats and if the product is successful it is then made and sold on the market

Iterative Design	
Advantages	**Disadvantages**
• Consistent testing helps solve problems earlier • Constant feedback • Easy evidence of progress	• Designers can loose sight of "the big picture" • Time consuming

User-Centred Design

- This is when designs are based on fulfilling the needs and wants of the Users/ Clients at every stage of the design process
- Questioning and testing is ongoing and is often found through interviews, questionnaires, surveys, etc

User-Centred	
Advantages	**Disadvantages**
• User feels listened to • Makes sure the product meets their needs	• Requires extra time to get customer feedback • If focused on just one person it can limit appeal to others

Systems Approach

- Usually used for electronic products
- Often uses diagrams to show systems in a visual way
- Planning the layout for the correct sequences e.g. inputs, outputs, timings, etc
- Electronics and mechanical systems need an ordered and logical approach

Systems Approach	
Advantages	**Disadvantages**
• Does not need specialist knowledge • Easy to communicate stages • Easy to find errors	• Sometimes over-simplifies stages • Can lead to unnecessary stages

Collaborative Approach

- Working with others to share data and solving problems and coming up with design proposals can help with creativity
- Numerous companies work in teams, and has been shown to improve the range and quality of ideas produced

Collaborative Approach	
Advantages	**Disadvantages**
• Gets multiple opinions and a range of views • Working in groups can produce more ideas	• Can be difficult to design ideas with opposing views • Can be difficult to find time to communicate with multiple people

Energy Generation and Storage

Non-Renewable Energy Sources	This is when certain sources of energy will run out eventually
Fossil Fuels	• Coal, Oil and Gas • Burned to create steam, turned in turbines to create electricity. • Burning creates C02 which adds to **Global Warming**
Nuclear Power	• Nuclear Fission controls the reactor (that creates the electricity). This requires **Uranium** which is non-renewable • Accidents and waste can severely damage the environment and cause radiation poisoning • **Radiation poisoning** can be fatal and cause physical deformations • Nuclear waste has to be disposed of properly and is hazardous for thousands of years.

Storing Energy

Pneumatics: This is the production of energy using compressed gas or air. E.g. Pistons in an engine

Hydraulics: Like a Pneumatic system, but uses water or oil under pressure. E.g. Wheelchair lifts

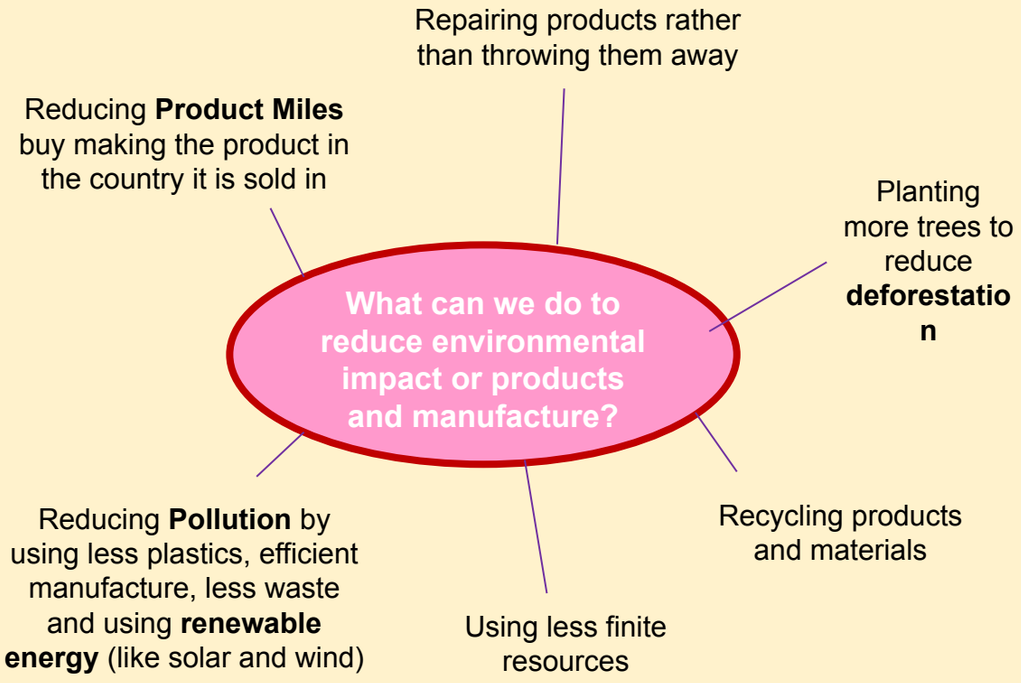
Kinetic: Energy that is generated by movement. This is stored by items like springs in a “clickable” pen or balloons,

Batteries: Electrical power can be stored in batteries. Rechargeable batteries are becoming increasingly popular.

Renewable Energy Sources	This is when certain sources of energy will not run out.
Solar	• **Solar panels** are used to collect light and convert it into electricity • There is no waste and a consistent supply • However, the panels are not effective at night or in countries where there isn’t a lot of sunlight
Wind	• **Turbines** harness wind energy • Not effective on non-windy days • Some people don’t like turbines as they are noisy, and not attractive to look at
Hydro-Electrical	• This harnesses energy from water held behind a **dam** • Has to be created by flooding land – damaging wildlife habitats • **Tidal** energy comes from using energy from waves
Biomass	• This is fuel from natural sources e.g. crops, scrap woods and animal waste • Growing biomass crops produces oxygen and uses up C02 • However, is a very expensive method

Environment

The 6Rs	Meaning
Reuse	To use a product again either for the same purpose or a different one
Reduce	To have less of material/packaging/pollution when making products by making them more efficient
Recycle	Breaking down and forming the material into another product
Refuse	Customers not buying or supporting products that make an environmental impact
Rethink	Designers and customer rethinking their decisions when making and buying products.
Repair	Fixing a product rather than throwing it away. Extending its life rather than using more resources to make another Often products are **Designed for Maintenance** so can easily be repaired. E.g. Using screws so even non-specialists can take a product apart, or using components that can easily be replaced like fuses or batteries



Life Cycle Assessment

This is when a designer looks at the environmental impact a product makes over its life time and how it could be reduced. Including:

- Impact of materials
- Impact of processes
- Product Miles (how far a product has to travel to get from factory to consumer)
- Impact while in use
- Impact when disposed of (6Rs)

Sustainability is maintaining our planet and its resources and making a minimal negative impact

Finite Resources *Will run out of eventually*	Non-finite Resources *Can be re-grown and re-bread. Will not run out of*
Plastics	Paper
Metals	Boards
Polymers (Textiles)	Natural Timbers
Coal, Gas and Oil	Cotton
	Leather

Planned Obsolescence	This is where products “die” after a certain amount of time. E.g. Disposable cups, Phones, Lightbulbs, Printer Ink, etc This can have a big environmental impact as customers are throwing away lots of products, and resources are being used to create new ones.

Finishes, Standard Components, Accuracy and Process Orders

Finishes

Finishes are used to improve the **aesthetics** and **durability** of products

Material Type	Finishes Used
Papers and Boards	• Paints • Varnishes • Laminating • Plastic coating • Wax coating
Timbers and Boards	• Paints • Varnishes • Wax and Polish • Staining • Oil
Metals and Alloys	• Painting • Lacquering • Electroplating • Galvanizing • Polishing • Plastic Coating • Powder Coating
Plastics	• Polishing • Painting • Decals (stickers)

Standard Components

Standard components are parts or components manufactured in the 1000s+
They are readily available, don't require specialist knowledge or tools to replace them and are universally recognised

Material Type	Components used
Papers and Boards	• Staples • Clips • Split pins
Timbers and Boards	• Nails • Screws • Panel Pins • Hinges
Metals and Alloys	• Nuts and bolts • Screw • Rivet • Washer
Plastics	• Plastic hinges

Tolerances

- The total amount a specific dimension or property is permitted to vary
This can apply to hole depth, length, angle, thickness, weight and elasticity
A gauge can be inserted into a gap or hole to check if the sizes fall within tolerance
If parts do not fit within the specified tolerances they are discarded or recycled

Quality Control and Quality Assurance

- QC is ***product*** oriented
Quality control is where products are regularly tested (during and after manufacture) to ensure they meet the defined set of quality criteria

- QA is ***process*** oriented
Quality assurance is ensuring that the processes used to test the product have been done correctly and consistently
You can test a product all you like, but if the tests are wrong/ inconsistent with each other than the results are invalid

- Below are examples of Quality Assurance symbols:

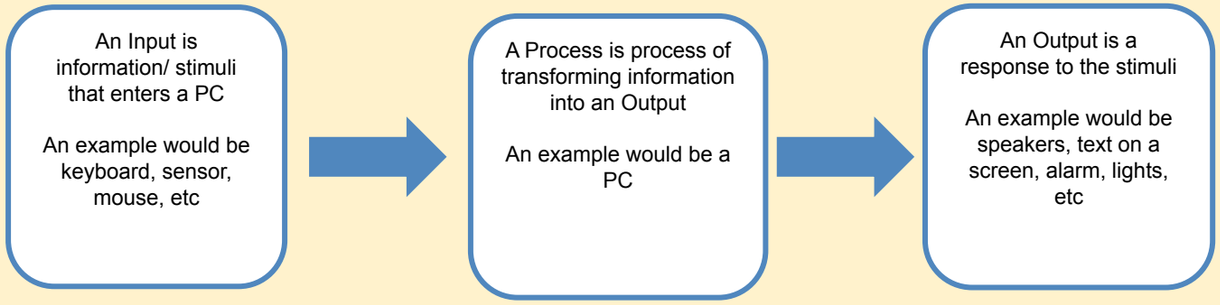
European Conformity

BSI Kitemark

Lion Mark

Registration Mark

Process Orders



Industry and Enterprise

Automation

This is when machines and robotics help make products or make them for you.

Often this is done by **CAD (Computer Aided Design)** and **CAM (Computer Aided Manufacture)** and **Computer Numerical Control (CNC)**

This helps products be made quicker, with more accuracy. Reducing errors humans make to products.

However, these machines are expensive to buy, need specialist training to use and need constant maintenance to keep them working properly

Virtual Marketing

This is when websites, social media and email are used to promote and sell products. This has become very popular in recent years, with big social media apps being funded by advertisers

Companies can also pay search engines to push their company further to the top of the results page, so customers are more likely to click it.

Cooperatives

A Cooperative is an Enterprise that is run by members that are part of the workforce or customers.

This means the organisation is democratic and often supports the local community. They are set-up to protect the rights of their members and ensure the same rules apply to everyone.

Your school is part of the Co-op, the world's largest Cooperative.

Enterprise

This is when an idea is developed into a business and produces a viable product.

Often, one of the biggest enterprises in in apps for smartphones

To make sure ideas are protected from being copied, a **Patent** can be applied for. This legally protects your idea on invention from being stolen.

Crowdfunding

This is where ideas are funded by large groups of ordinary people.

www.Kickstarter.com is a good example of this.

Fair Trade

This is an organisation that promotes fair pay, working conditions and better trade with farmers in developing countries

You can tell when something is Fairtrade as it will often have the symbol on the product or packaging. Common Fairtrade items include; bananas, cotton and chocolate.

Modern and Smart Materials

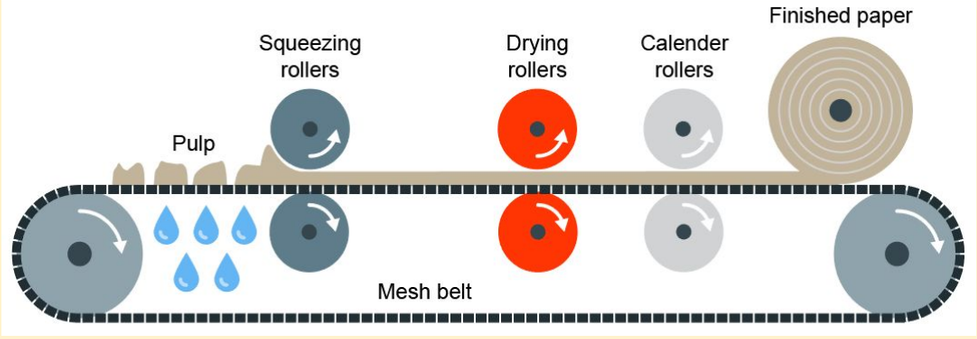
Modern Materials are materials that have been developed recently		
Material	**Key info**	**Examples**
Corn-starch Polymers	These are plant-based polymers that are a replacement for plastics that are **biodegradable** but cannot be recycled.	Plastic bottles, tubs, food containers, etc
Flexible MDF	Made in the same way as normal MDF but with grooves cut into the surface so it is flexible. **Flexiply** is the same but for Plywood. These can easily be shaped into curves	Modern furniture, interior walls and room dividers
Titanium	High strength to weight ratio. Doesn't corrode or rust. Suitable for medical use as its hypo-allergneic	Prosthetics, medical applications, sports cars, etc
Kevlar	A woven polymer with a high strength to weight ratio.	Bullet-proof vests, tyres, helmets, etc

Smart Materials are materials that change and react to the stimuli		
Material	**Key info**	**Examples**
Thermochromic Pigments	Change colour in reaction to heat	Kettles, baby bottles, etc
Photochromic Pigments	Change colour in reaction to light	Colour changing glasses, windows, etc
Shape Memory Alloy	Returns to its original shape, in reaction to heat	Braces and glasses
Polymorph	Granules that once exposed to hot water, become a modelling material (like a dough or clay)	Modelling and repairs

Papers and Boards

Papers and Boards come from trees. **The Stock forms** for papers are: rolls, sheets, A4, A3, etc		
Material	**Key info**	**Uses/ Examples**
Cartridge Paper	Thick white paper, completely opaque and more expensive than photocopy paper	Sketching, ink drawings
Layout Paper	Light, semi-translucent, good for blending inks and artist markers	Sketching, drawing and some tracing
Corrugated Cardboard	Strong but light. Rigid triangles of card sandwiched between a top and bottom layer.	Outer packaging, food packaging
Duplex Board	Light card with white outside layers. Waxy coating can be added	Cheap packaging. If waxy coating is applied, can be used for food
Foil-lined Board	White card coated with a thin aluminium layer. Foil is great for insulation and water resistance	Takeaway containers
Solid White Board	High-quality white card with a smooth finish. Stiff and holds colours well	Greetings cards, packaging and advertising

Primary Processing of Papers and Boards



Paper is made by first making pulp. Pulp is a mix of tree fibres and water. This is cooked and bleached white, and adding any other additives.
The pulp is then drained and goes through **Calendering** where the pulp is drained and goes through rollers to convert it to its stock forms

Timbers and Boards

Natural Timbers

Softwoods are generally cheaper than hardwoods as they are more available, since they grow quicker.
But because man-made boards are manufactured they are cheaper than timbers.
Man-made boards also come in a better variety of sizes since they don't depend on tree growth.

Stock forms for both include; sheets, dowel, planks, etc

Hardwoods come from **Deciduous Trees.** These trees lose leaves in winter and grow fruit and flowers in spring		
Material	**Key info**	**Examples**
Ash	Flexible, tough and shock resistant	Sports equipment Tool Handles
Beech	Fine finish, tough and durable	Toys, furniture and veneers
Mahogany	Easily worked, durable, high quality finish	High-end furniture
Balsa	Very soft and spongy. Light	Modelling
Oak	Tough, durable and hard	Flooring, furniture and veneers

Softwoods come from **Coniferous Trees.** These have thin, needle-like leaves and grow all year round. Often have pine cones and sometimes nuts and seeds		
Material	**Key info**	**Examples**
Larch	Durable, tough, good water resistance and finishes well	Furniture, flooring and used outdoors
Pine	Light, easy to work with but can split	Cheap furniture, construction and decking
Spruce	Easy to work with, high stiffness but can decay quickly	Furniture, musical instruments and construction

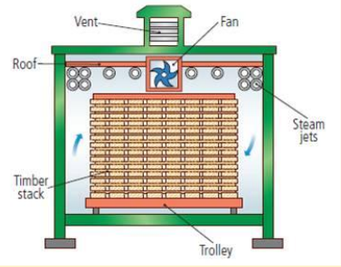
Man-Made Boards

Manufactured boards are made from wood chips/dust/ layers and glue.		
Material	**Key info**	**Examples**
Chipboard	Prone to chipping but good compressive strength. Not-water resistant	Flooring, low-end furniture, flat-pack
MDF	Rigid and stable. Easy to finish. Absorbs liquid easily	Flat-pack furniture and kitchen units
Plywood	Very stable. Exterior veneer can be used from more expensive woods	Shelving, furniture, toys

Primary Processing of Papers and Boards

Trees are cut then converted into planks by cut using saws
It is then seasoned to reduce the moisture in the wood. This is done by either:

Air-drying – Planks are stacked and air allowed to circulate; causing evaporation
Kiln-drying – Where planks are put into a kiln and dried rapidly. This process is more costly than air-drying



Manufactured boards can be either be made by lamination or compression

Lamination – Layers of woods and adhesive are layered and compressed together. Usually with a more expensive wooden veneer on the top

Compression – Wood is shredded, heated and compressed with adhesive under extreme pressure

Metals, Alloys and Plastics

Metals

Metals come from ores in the ground. **Stock forms** are sheets, bars and rods

Ferrous Metals contain iron and are magnetic and rust		
Material	**Key info**	**Examples**
Low Carbon Steel	Tough and ductile and easily machined and welded	Construction, screws, cars
High Carbon Steel	Hard and wears well	Tools, blades and knives
Cast Iron	Hard but brittle. Easily cast but hard to machine	Pots, pans, vices

Non-Ferrous Metals do not contain iron, aren't magnetic and don't rust		
Material	**Key info**	**Examples**
Aluminium	Light, high strength to weight ratio and ductile	Pots, pans, cars, cans
Copper	Ductile, malleable and good conductor	Plumbing supplies and cables
Tin	Soft, malleable and good conductor	Used as a protective coating

Alloys are mixtures of 2 or more metals to get the best of their properties		
Material	**Key info**	**Examples**
Brass	Malleable and easy to cast	Musical instruments, plumbing
Stainless Steel	Doesn't rust, hard and smooth	Cutlery, medical tools, etc

Plastics

Plastics come from crude oil. **Stock forms** are sheets, powders, granules and rods

Thermoplastics can be reheated and reshaped and infinite amount of times		
Material	**Key info**	**Examples**
PET	Easily **blow moulded,** food safe and easily recycled	Bottles, packaging, etc
PVC	Flexible, tough, easily **extruded**	Pipes, tape, hard hats
HIPS	Flexible, lightweight, food safe and easily **vacuum formed**	Containers and yoghurt pots
Acrylic	Tough, brittle, easily scratched	Car lights, baths, displays/ signs

Thermosets once heated and set **cannot** be reshaped		
Material	**Key info**	**Examples**
Melamine Formaldehyde	Food safe, hygienic, hard and brittle	Kitchenware and work surfaces
Urea Formaldehyde	Good insulator, hard and brittle	Electrical casings, buttons and handles
Polyester Resin	Strong, heat resistant, can be transparent	Coatings, casings

Primary Processing of Metals and Alloys

Metals are mined from the earth and then go through an extraction process
Extraction happens by putting the ore in a blast furnace
The metal is then separated from the waste material

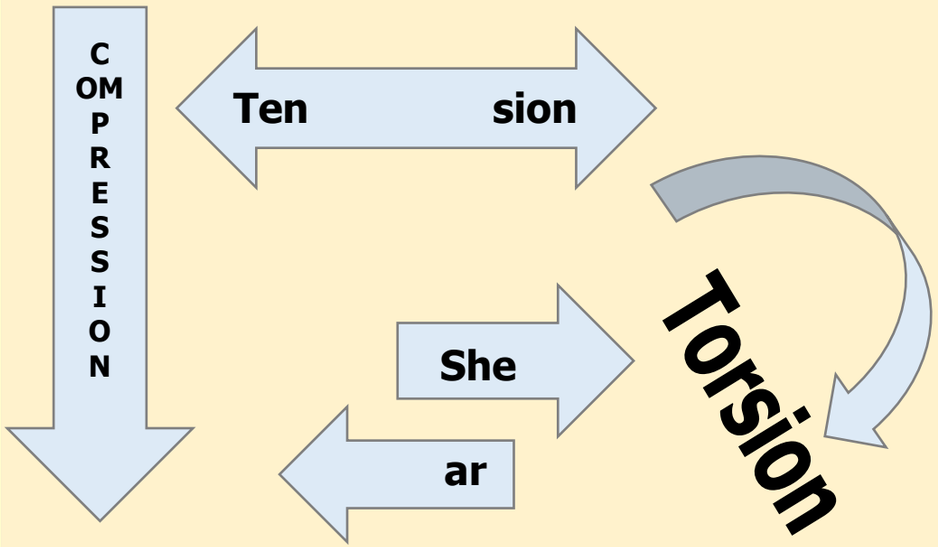
Primary Processing of Plastics

Crude oil is extracted from the earth and then processes into different types of fuels, etc. This is called **Fractional Distillation**

A process called **Cracking** then converts the large hydrocarbon molecules into plastics

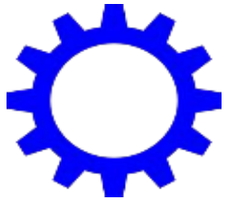
Mechanical Systems

Forces

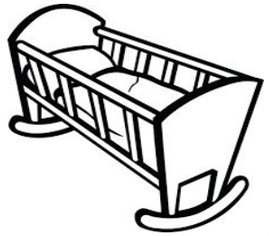


Motion

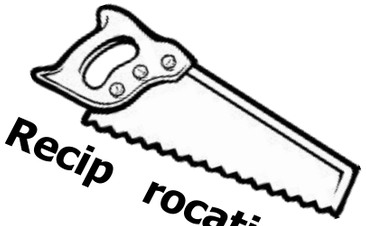
Linear



Rotation

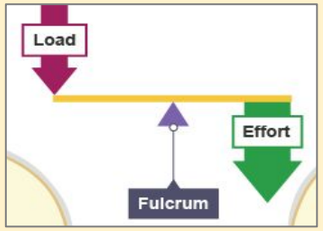


Oscill ating

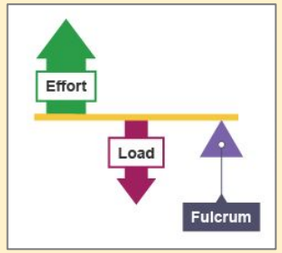


Recip rocating

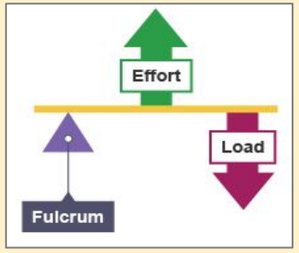
Levers



1st Class Lever: Fulcrum in the centre
E.g. Scissors



2nd Class Lever: Load in the centre
E.g. wheelbarrow



3rd Class Lever: Force in the centre
E.g. Lifting a dumbbell

Gears and Pulleys

A Pulley is a grooved wheel, that has a belt running through it

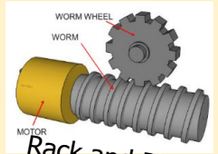
This uses rotary motion and is often used to help with heavy loads, and transfer force from a motor to a tool in machines like drills, etc

Gears have teeth that mesh together with each other (like teeth on a zip)

They mainly focus on rotary motion on tools and machinery e.g. car steering and pillar drills

Bevel Gear

Spur Gear



Rack and Pinion

Worm and Wheel

People. Society and Culture

Market Pull and Technology Push

Technology Push is the development of new technology, materials and manufacturing methods to create new products or improve old ones.

Examples include; Smart Phones, Electricity, Mass Production, etc

Market pull is the demand from consumers for new products and improvements in old ones; this is often found via reviews, polls, surveys, etc

Examples include; Product **Aesthetics,** making products easier to use, etc

Cultures, Faith and Belief

Different groups of people have different interests and have to be catered for.

Different countries and cultures also react to products differently.

E.g. In India McDonalds don't sell beef burgers as it has a large Hindu population, and cows are seen as sacred – in contrast the UK sells its most amount of fish and chips on a Friday as it is a Christian tradition to not eat meat on that day.

Case Study: £5 note

Hindu, Sikh and some other faith-based communities may choose to follow a vegetarian diet, and this is part of their culture. In addition to not eating meat, many followers of these faiths, as well as vegans and vegetarians, take every opportunity to avoid using animal products in their day-to-day lives.

The revelation in 2016 that the new polymer Bank of England £5 note contained tallow, an animal fat-based substance, upset a number of communities. There was a prompt call for the Bank of England to find an alternative way to produce the note and in the first two days of an official petition well over 100,000 signatures were received.

Shortly after the Bank of England admitted that the new polymer £5 note contained the animal by-product, some establishments refused to take the notes as a method of payment. One café owner was repulsed by the idea that the note contained tallow and believed that her customers supported her view. They received no complaints.

The Bank of England say they currently have no plans to change the manufacturing process.

Fashion and Trends

Fashion and Trends will change quickly, and you can see major differences in fashions over decades.

Designers have to make sure their products meet the fashion and trends of the area they are designing and selling the product to.

The change of products over time is called **Product Evolution**. This is caused by Market Pull, Technology Push and Fashion and Trends.

Some products are seen as **timeless.** These products are called **Iconic Designs.** These products are timeless because they were innovative, set a bench mark for following products, changed their industry and are often copied.
Examples include; iPod, iPhone, Angle-Poise Lamp, Swiss Army Knife, Converse Shoes, Levi's Jeans, Classic Mini Cooper

Inclusive vs. Exclusive Design

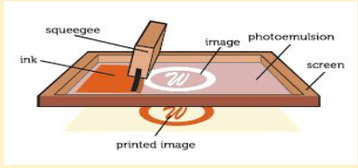
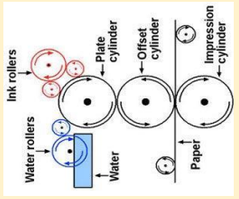
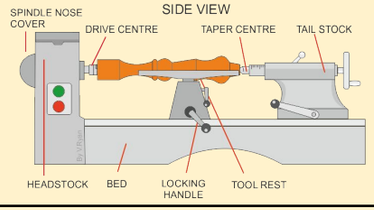
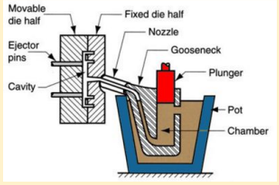
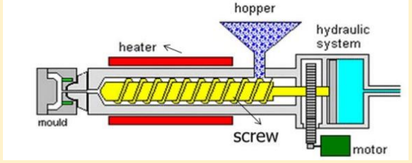
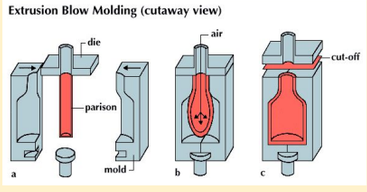
Inclusive Design: The aim to create a product that as many people as possible can use

Examples include; Cars, Doorframes, Adjustable Products, etc

Exclusive Design: The aim to create a product for a particular group and their needs

Examples include; Car seats for babies, Wheelchairs, Stair Lifts

Production Processes

Name of Process	Diagram	Material	Products Made	Key info
Screen -printing		Papers and Textiles	Posters, signs and t-shirts	Screen printing places paint on top of a screen. The screen has a stencil embedded in it, so when the paint is passed across it the desired shape is printed underneath. Good process in one-off and batch production as often done by hand
Offset Lithography		Papers and card (thin, flexible plastics)	Posters, newspapers, plastics bags	Rollers containing the colours and water go onto the plate cylinder. The water stops the colours sticking to certain places, creating the shape. The shape is transferred between rollers and onto the material. Can be used at batch and mass production
Lathe Turning		Wood and metal	Chair legs, baseball bats (cylindrical items)	Material is placed between the tail stock and the headstock and spun at high speed. The material is then cut using specialist tools (either by hand or my automated machinery) to the desired shape. Can be used in one-off and batch production
Die Casting		Metal	Car parts, engine components, etc	Molten metal is poured into a chamber and a plunger forces the metal through the nozzle into the mould. Unlike sand casting, the mould is reusable. Good process for both one-of and batch production
Injection Moulding		Plastics	Chairs, toys, etc	Plastic granules are poured into the hopper and onto the screw. The screw moves the material towards the heater where it turns into a liquid. The liquid is then forced into the mould, cooled and released. Great process for mass production as it makes 100s+ of products at once, to a identical standard.
Blow Moulding		Plastics	Plastic bottles	A Plastic parison is heated and put into the mould. The parison is then filled with air (like blowing up a balloon) and is forced to fit the mould shape. It is then cooled and then released. This is a great process for mass producing bottles.

Production Techniques and Systems

CAD Computer Aided Design

Examples; 2D Design, Autodesk Inventor, Fusion 360, Photoshop, etc

Advantages	Disadvantages
• Easy to change designs • Designs are easily saved and sent • Can be worked on by multiple people simultaneously • Can be used for virtual testing • Can produce high-quality designs	• Complex and time-consuming to learn • Expensive to buy • PCs can crash or be hacked – causing work to be lost • Takes up PC memory

CAM Computer Aided Manufacture

Examples; 3D Printing, Laser Cutting, CNC Router, Automated Machines and Robotics, etc

Advantages	Disadvantages
• Faster and more accurate than traditional tools • Repetitive accuracy/ consistent outcomes • Machines can run 24/7	• Expensive to buy the equipment, etc • Training takes cost and time • Need specialists to maintain and repair the machines • Dependence on CAM can cause unemployment

Flexible Manufacturing Systems

This is where **automated machines** are adaptable and can produce different products if needed.

If a manufacture is making a product with machines that are just dedicated to specific tasks they have to be reprogrammed and re-tooled before changing to a new task. This is time consuming and expensive.

Examples include; CNC Machines, 3D Printers, Laser Cutters, Robotic arms, etc

Lean Manufacturing

This is where waste and energy is kept to a minimum.
This helps manufacturers save money and resources in production, as well as helping minimise the **environmental impact** of producing products.

Just-in-Time (JIT) Manufacture

This is where manufacturers only order materials, parts, etc when needed. The customer's order triggers the production process and the resources needed for that order are the only ones bought.

This can be used in any **scale of production** but is particularly useful for one-off production.

Advantages	Disadvantages
• Saves on warehouse and storage costs • Money is not tied-up in stock • Little/minimal waste • Customer often pays in advance so money is secure before production	• All production stops if a part/ material is missing • Needs to have a fast, reliable and good quality supply chain to work properly • Can be time-consuming

Scales of Production

Name/ Type	How many it makes	Key Info	Examples of Products
One-off Production	1	• Also known as Bespoke or Prototype manufacture • Custom-made products • Specialist workers/ skills • Specialist machines and materials • High Quality but expensive	• Towers / Bridges • One-off Houses • Custom made clothes
Batch	10s-1000s	• Uses a mix of workers and machinery • Uses jigs, moulds and templates to help make identical products • Stations of workers e.g. cutting station, painting station, etc • Can have some variation e.g. colour, finish, flavour	• Baked foods • Limited edition car • Socks • Chairs
Mass	10,000s - 100,000s	• Big assembly lines (and sub-assembly lines) • Heavily automated • Standard and identical products • Little worker input	• Cars • Bottles • Microchips • Plain shirts
Continuous	100,00s +	• 24/7 production • Heavily automated • Standard and identical products • Little worker input	• Energy • Water • Paper • Plastic

One-off Production	
Advantages	**Disadvantages**
• Custom made • High Quality Materials • High Quality Craftsmanship	• Time consuming • Specialist training for workers • Expensive to buy

Batch Production	
Advantages	**Disadvantages**
• Lower cost than one-off • Jigs, moulds and templates help products look identical • Can have some variety	• High storage costs • Jugs, moulds and templates have to be checked • Workers can become bored on their station

Mass Production	
Advantages	**Disadvantages**
• Large amounts made at once • All products are identical and to same standard • Using automation reduced human error	• Initial starting costs are high • If production line stops, the product can't be made • Workers become bored monitoring machines and repetitive tasks

Continuous Production	
Advantages	**Disadvantages**
• Large amounts made at once • All products are identical and to same standard • Using automation reduced human error	• Initial starting costs are high • If production line stops, the product can't be made • Workers become bored monitoring machines and repetitive tasks

Work of others and Customer Research

Work of Others

Image/ Example	Designer	Design Movement	Key info
	William Morris	Arts and Crafts	• British designer in 1880s • Simple natural crafts • Useful and beautiful products (wallpapers, cushions, etc)
	Charles Rennie Mackintosh	Art Nouveau	• Scottish designer in 1860s – 1920s • Known for light and shadow • Created stained glass and furniture • Inspired by nature and geometric lines
	Ettore Stottas	Memphis	• Italian designer in the 1950s/60s • Enjoyed making everyday objects wacky and bold • Used lots of bold colours and black lines

Image/ Example	Brand	Key info
	Alessi	• Italian Design Company • Homeware and kitchen utensils • "Post-modern" style • Phillipe Starke is a major designer
	Apple	• USA-based tech company • Famous for **iconic designs** of iPod and iPhone • Steve Jobs and Jonathan Ive are major designers • Known for innovative and modern design
	Dyson	• British engineering company • Famous for vacuum cleaners and innovative technology • James Dyson is a major designer

Research

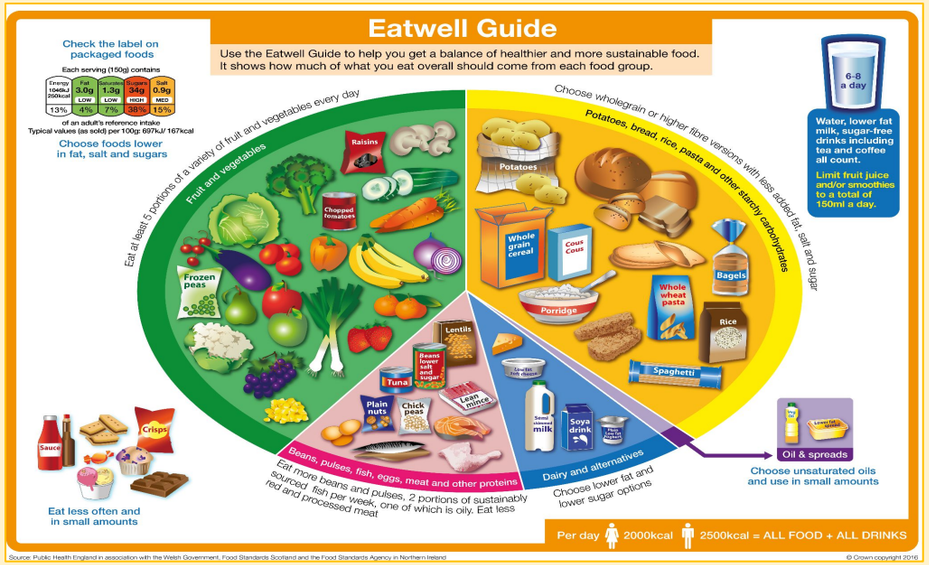
Research can be divided into 2 categories; **Primary Research** and **Secondary Research**.
Primary is research you complete yourself.
Secondary is research from resources others can gathered e.g. books, magazines and internet

Primary research is generally more reliable as it is done by the person using it and can double-check the data

Another key piece of research, is **Anthropometrics and Ergonomics.** This helps develop the sizes of products, etc to make sure it fits the User	
Anthropometrics	The study of measurements of the human body. E.g. Knowing the grip width of a palm, if designing a new travel coffee cup
Ergonomics	The application of anthropometrics to ensure products are safe and comfortable to use. This can also include; size, material, appearance, brightness, sound and texture. E.g. making sure the travel cup is the correct size, and an insulating smooth material to make it comfortable to hold for long periods

Food Technology & Nutrition

Nutrition



5 a day

Evidence shows there are significant health benefits to getting at least 5 portions of a variety of fruit and vegetables every day. That's 5 portions of fruit and veg in total, not 5 portions of each.

5 A Day portion sizes

Portions for adults

An adult portion of fresh, frozen or tinned fruit or vegetables is 80g. For dried fruit, a portion is 30g.

Portions for kids

Kids should also eat 5 different types of fruit or veg each day, but a portion depends on their size and age.

As a rough guide, 1 portion of fruit or veg for a child is the amount they can fit in the palm of their hand.

Macronutrients

Nutrient	Support to the body	Found in
Carbohydrates	Provides the body with energy.	Complex : Potatoes, bread rice Simple: Sugars, chocolate, fizzy drinks
Proteins	Growth and muscle repair Secondary source of energy	High Biological Value - Meat, fish eggs, cheese, yoghurt. Low Biological value - beans,peas, nuts, lentils.
Fats	Temperature regulation and protection of internal organs	Saturated - beef, margarine, corn oil Unsaturated - avocado, nuts, salmon, olive oil

Micronutrients

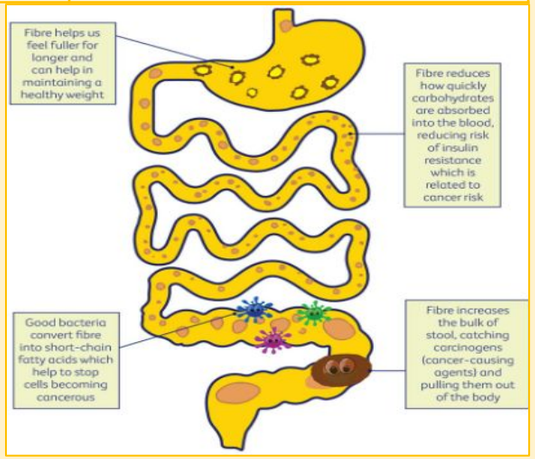
Nutrient	Support to the body	Found in
Vitamins	Help to resist infections, nerve function and blood clotting.	Fruit and vegetables, milk, dairy and grains.
Minerals	Support bone development, muscle function and regulate body's water balance	Fruit and vegetables, meat, cereals, dairy.

Fibre

To be healthy, we need fibre. Fibre cannot be processed by the body as a nutrient but is essential for the body **to get rid of toxins and waste.**
Fibre helps you **feel fuller for longer**.

Not enough fibre can result in feeling sluggish and having digestive problems such as constipation, stomach pains, IBS (irritable bowel syndrome), obesity and even bowel cancer.

Fibre is present in **whole grains, fruits and vegetables, especially the outer covering of seeds.**



English

Co-op Academy Walkden English Knowledge Organiser

Year 7 Spring: The Gothic

Conventions of The Gothic

- Threatening and sinister settings: castles, graveyards, cobbled street, abandoned mansions
- Curses and omens
- Elements of the supernatural
- Emotional distress
- Terror
- Mystery and secrets
- Darkness
- Decay
- Extreme weather
- Isolation

Key Vocabulary

Origins: the point or place where something begins.
Conventions: A very typical example of a type of person or character.
Archetype: The features of a text that help to define its genre.
Antagonist: A character who presents a conflict to the protagonist.
Sublime: A convention in Gothic Literature where feelings of awe and terror are intertwined. The sublime can be used for settings and characters. These would be described beautifully, but, then something about this beauty twists them into being grotesque.
Semantic field: A group of words connected by theme or meaning.
Metaphor: A comparison in which one thing is described as being another.
Pathetic fallacy: The projection of human emotions onto non-human objects found in nature.

Gothic Characters

Gothic Monsters

The internal monster: Man gone wrong. Here the monster is human. Perhaps a character who has gone mad.
The external monster: An outsider. The external monster will be one who comes from 'somewhere else' and brings the threat to a community e.g. vampires, mummies, ghosts.
The man-made monster: A monster created by man.

Presentation of Female Characters in Gothic Literature

The persecuted maiden: The trembling victim: frail, blonde, silent, passive, helpless and innocent. Fear and terror portrayed through her often over exaggerated reactions. She is often shown fleeing an aggressive and predatory male however, at times she is made to feel sympathy for the monster which pursues her.
The femme fatale: The other typical gothic female is a sharply contrasting female predator. Dark haired, red lipped, wearing a tight black dress (parodied by Morticia in the Addams family). A dangerous and aggressive creature, offering a real sexual threat. Often punished in their story for their offences.

Voices of Gothic Women in Gothic Literature

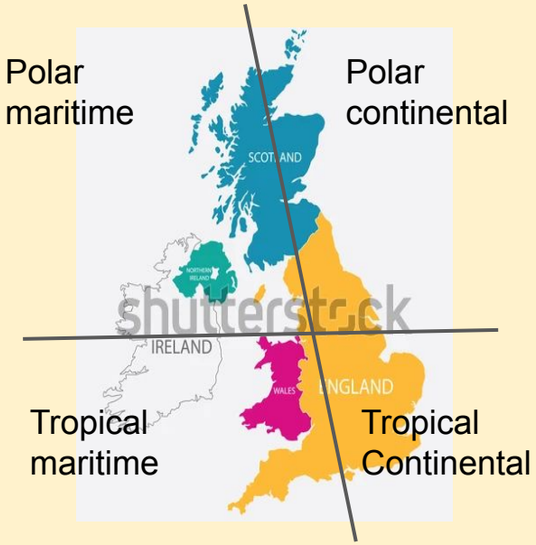
The troubled heroine: Is usually beautiful and virtuous and suffers great misfortune, often as the victim of a male villain, before achieving a happy ending.
The hysterical woman: Usually a woman who has irrational fears and is often reckless. Their voice shows a range of emotions which are unpredictable.
The victim: Often covers the theme of confinement and rebellion against events that have happened to them. Often shows a sense of vulnerability whilst being fragile.
The predator: This voice often narrates sinisterly, often having a facade of the stereotypical woman. Aggression, revenge and retribution are the main emotions through their voice.

Geography

Year 7 Geography Topic 3: **Weather and Climate**

Keywords

Weather Day to day changes in wind speed, temperature and precipitation
Climate The average precipitation and temperature over a 30 year period
Precipitation Rain, Hail, Snow, Sleet
Low Pressure When warm air rises
High Pressure When cold air sinks
Wind caused by air moving from different pressures, the greater the difference the faster the wind
Air Mass an area of the atmosphere which is all the same temperature and pressure
Warm front a band of warm air
Cold front a band of cold air
Occluded front When a cold front overtakes a warm front forming cyclones
Anticyclones A high pressure system in the atmosphere with dry, settled weather
Depressions Low air pressure bringing clouds and rainfall
Tropical Storm a storms which forms between the tropics and often revolves
Greenhouse Effect when emissions cause the atmosphere to thicken and trap heat causing temperatures to rise



What are the effects of tropical storms?

The Beast from the East

A cold front from the East
Freezing temperatures
17 deaths
Grounded fights
£1 Billion damage
50-70 mph winds
Hoot food and blankets given
200 NHS staff helped

Climate Change

Increased CO2 emissions
Burning fossil fuels for energy
Deforestation
Increased waste disposal
Rising global temperatures
Melting ice caps and glaciers
Increasing ocean temperatures
Sea level rise
Flooding
Loss of land leading to food shortage and migration

Homework

1: Knowledge Organisers

These provide the basic knowledge for each topic which needs to be known off by heart. This may include, key words, key concepts, costs and benefits.

2: Meanwhile, elsewhere

What we learn in our lessons only offers a glimpse of the world. To widen our understanding, one page research sheets will be used to explore what else was going on around the world at the same time as the topic we are studying. These need to be researched using the links and resources provided and completed.

3: Revision

Preparing for Geography assessments is an essential part of each topic, as these assessments allow teachers and pupils the chance to check their progress in Geography. Revising gives you the chance to show off what you know.

Read

Greta Thunberg, No one is too small to make a difference

Horrible Geography

Watch

Earth: The Power of the Planet

Listen

Podcast: Geography Ninja

Year 7 Geography Topic 4: Microclimates Field Work

Keywords

Microclimate a area which has a different temperature and wind speed to the area surrounding it

Fieldwork collecting data to test a hypothesis

Hypothesis A prediction of what we will find out

Methodology what we will do to collect data

Anemometer measures wind speed and temperature

Okta the unit to measure cloud coverage

Conclusion a summary of findings

Evaluation assessing positives and negative of fieldwork and suggesting improvements

Factors affecting microclimates

Physical features: trees can provide shade, water can provide a cooling effect and hill tops can be windy.

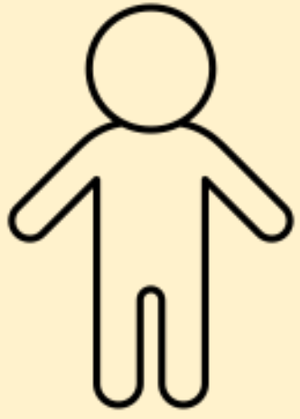
Shelter: trees, hedges, walls and buildings can provide shelter, which means they will be warmer.

Buildings: buildings give off heat that has been stored during the day, they also break up any wind.

Surface: the colour of the ground affects warming.

Aspect: the direction that you/a building is facing is called aspect, facing the south will be warmer.

How will you prepare for fieldwork?



Evaluation of Fieldwork

Advantages	Disadvantages
Accurate wind speed reading using an anemometer The Okta grid helped to assess how much cloud coverage there was at each location	We took just one reading at each site The grid was small and only assessed a small area of sky

To improve more data would need to be collected on different days throughout the year.

Homework
Read, Write, Discuss, Revise

1: Knowledge Organisers
These provide the basic knowledge for each topic which needs to be known off by heart. This may include, key words, key concepts, costs and benefits.

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History

Anglo-Saxon and Norman England

The Heptarchy

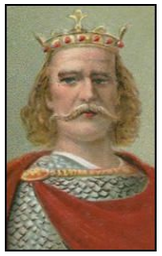
Map of the Norman Conquest

Key Vocabulary

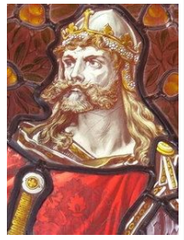
Ealdorman/ Earl	High ranking nobles in Anglo-Saxon and later, Norman England. They ruled areas of land and fought for the king.
Heptarchy	The collective name for the seven Anglo-Saxon Kingdoms of England
Fryd	The Anglo-Saxon peasant army. These were raised in times of war.
Burgh	Fortified towns in Anglo-Saxon England.
Earldom	An area of land ruled by an earl.
Fealty	Swearing loyalty to an overlord
Vassall	Someone who pledges loyalty and services to an overlord
Feudal System	The form of government in Norman England, at the top was the king who held all the land in England.
Harrying	To persistently carry out attacks
Serfdom	The practice of peasants being tied to the land. They worked their lord's land and could not leave it without their permission.

Key People

Edward the Confessor
King of the English
1042-1066



Harold Godwinson
Earl of Wessex
1053-1066
King of the English
1066



Harald Hardrada
King of Norway from 1046 to 1066. He unsuccessfully claimed the English throne in 1066

William the Conqueror
Duke of Normandy
1035-1087
King of England
1066-1087

Timeline of Key Events

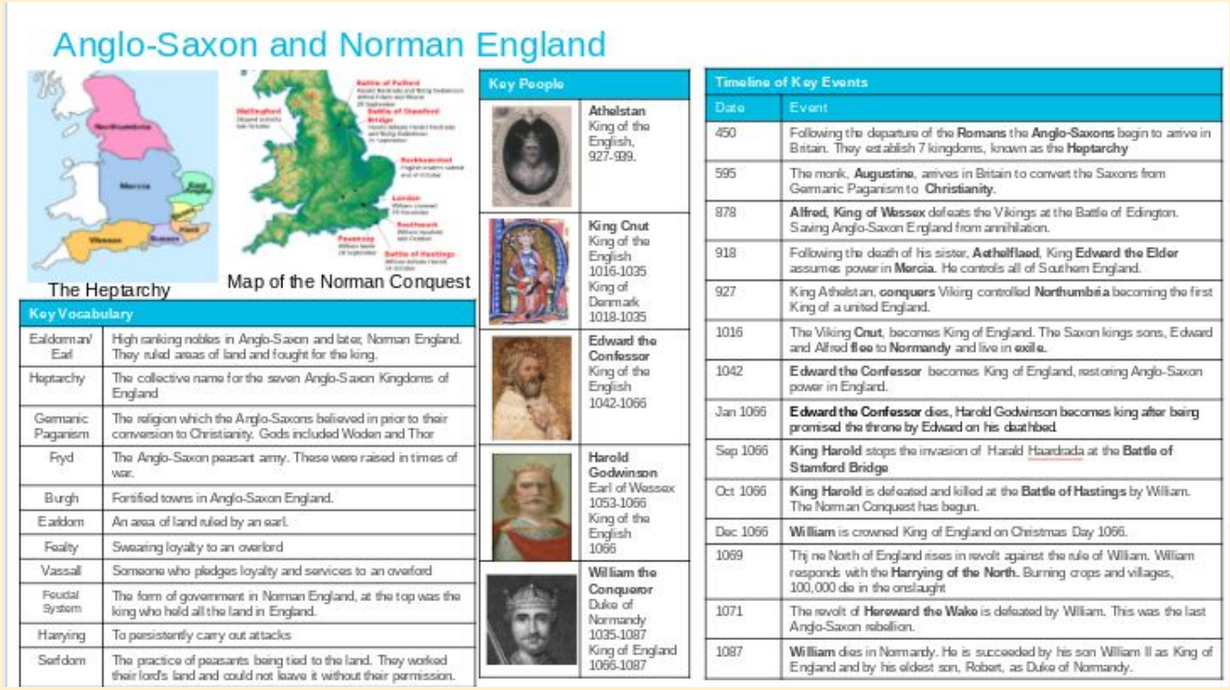
Date	Event
450	Following the departure of the **Romans** the **Anglo-Saxons** begin to arrive in Britain. They establish 7 kingdoms, known as the **Heptarchy**
1042	**Edward the Confessor** becomes King of England, restoring Anglo-Saxon power in England.
Jan 1066	**Edward the Confessor** dies, Harold Godwinson becomes king after being promised the throne by Edward on his deathbed.
Sep 1066	**King Harold** stops the invasion of Harald Hardrada at the **Battle of Stamford Bridge**
Oct 1066	**King Harold** is defeated and killed at the **Battle of Hastings** by William. The Norman Conquest has begun.
Dec 1066	**William** is crowned King of England on Christmas Day 1066.
1069	The North of England rises in revolt against the rule of William. William responds with the **Harrying of the North.** Burning crops and villages, 100,000 die in the onslaught
1071	The revolt of **Hereward the Wake** is defeated by William. This was the last Anglo-Saxon rebellion.
1086	**The Domesday Survey** is ordered by William. It results in the **Domesday Book** being made - a record of the lands of England, giving details of land ownership, occupants, and the uses of different areas of the country.
1087	**William** dies in Normandy. He is succeeded by his son William II as King of England and by his eldest son, Robert, as Duke of Normandy.

Year 7 History Homeworks

1: Knowledge Organisers
These provide the basic knowledge for each topic which needs to be known off by heart. This may include a timeline, key words, key concepts and summaries.

2: Meanwhile, elsewhere
What we learn in our lessons only offers a small glimpse of the past. To widen our understanding, one page research sheets will be used to explore what else was going on around the world at the same time as the topic we are studying. These need to be researched using the links and resources provided and completed.

3: Revision
Preparing for history assessments is an essential part of each topic, as these assessments allow teachers and pupils the chance to check their progress in History. Revising gives you the chance to show off what you know.



Anglo-Saxon and Norman England

The Heptarchy

Map of the Norman Conquest

Key Vocabulary	
Ealdorman/ Earl	High ranking nobles in Anglo-Saxon and later, Norman England. They ruled areas of land and fought for the king.
Heptarchy	The collective name for the seven Anglo-Saxon Kingdoms of England
Germanic Paganism	The religion which the Anglo-Saxons believed in prior to their conversion to Christianity. Gods included Woden and Thor
Fyrd	The Anglo-Saxon peasant army. These were raised in times of war.
Burgh	Fortified towns in Anglo-Saxon England.
Earldom	An area of land ruled by an earl.
Fealty	Swearing loyalty to an overlord
Vassal	Someone who pledges loyalty and services to an overlord
Feudal System	The form of government in Norman England, at the top was the king who held all the land in England.
Harrying	To persistently carry out attacks
Serfdom	The practice of peasants being tied to the land. They worked their lord's land and could not leave it without their permission.

Key People

Athelstan King of the English, 927-939.

King Cnut King of the English 1016-1035 King of Denmark 1018-1035

Edward the Confessor King of the English 1042-1066

Harold Godwinson Earl of Wessex 1053-1066 King of the English 1066

William the Conqueror Duke of Normandy 1035-1087 King of England 1066-1087

Timeline of Key Events	
Date	Event
450	Following the departure of the **Romans** the **Anglo-Saxons** begin to arrive in Britain. They establish 7 kingdoms, known as the **Heptarchy**
595	The monk, **Augustine**, arrives in Britain to convert the Saxons from Germanic Paganism to **Christianity**.
878	**Alfred, King of Wessex** defeats the Vikings at the Battle of Edington. Saving Anglo-Saxon England from annihilation.
918	Following the death of his sister, **Aethelflaed**, King **Edward the Elder** assumes power in **Mercia**. He controls all of Southern England.
927	King Athelstan, **conquers** Viking controlled **Northumbria** becoming the first King of a united England.
1016	The Viking **Cnut**, becomes King of England. The Saxon kings sons, Edward and Alfred **flee** to **Normandy** and live in **exile**.
1042	**Edward the Confessor** becomes King of England, restoring Anglo-Saxon power in England.
Jan 1066	**Edward the Confessor** dies, Harold Godwinson becomes king after being promised the throne by Edward on his deathbed.
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A genocide was committed in Rwanda...

meanwhile, elsewhere...

Genocide took place on European soil at Srbrenica in Bosnia.

KEY INFORMATION:

In July ____, more than _____ Bosnian Muslim boys and men were murdered by _____ in Srebrenica, in eastern Bosnia and Herzegovina.

Why was there a war taking place in Bosnia?

What happened in July 1995? (Use the BBC Video)

What did the UN promise in April 1993?

How similar was this to the Rwandan genocide?

What has Serbia said about the killings?

Useful websites, videos and podcasts
Introduction to the Bosnian Civil War https://www.theholocaustexplained.org/what-was-the-holocaust/what-was-genocide/the-srebrenica-genocide-1995/
What happened in Srebrenica? https://www.srebrenica.org.uk/what-happend/srebrenica-genocide/happened-srebrenica/
BBC Video https://www.youtube.com/watch?v=vmf5p3LbCAE

This 'meanwhile, elsewhere' was designed by:
Mr H Gibbins

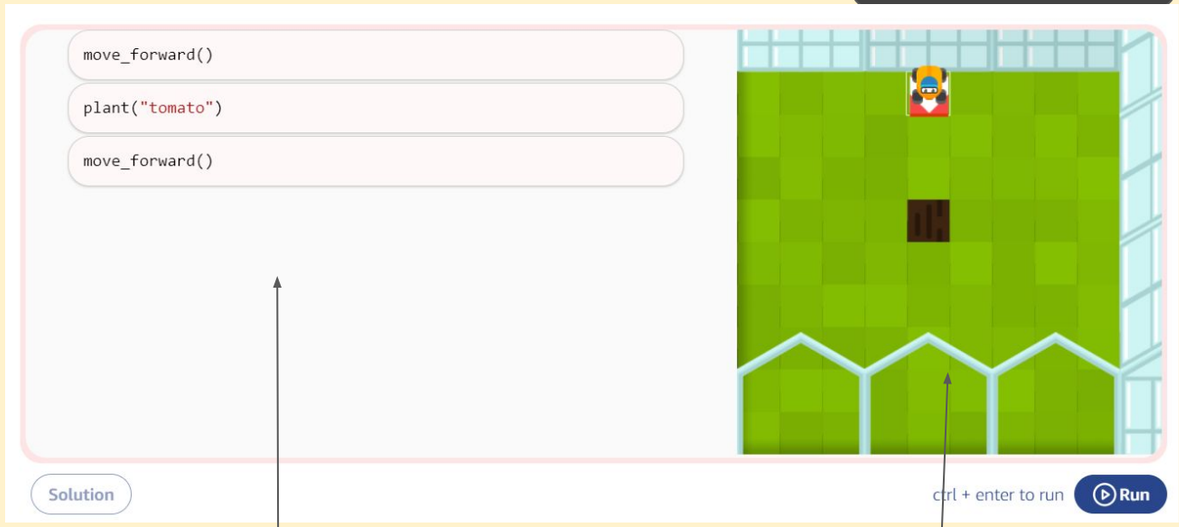
Computer Science

Knowledge Organiser - Programming

Key Term	Definition
Algorithm	A set of **rules** or **instructions** following by a computer system.
Sequence	Lines of code that are **executed one after another** without 'skipping' or ignoring any lines.
Selection	The process of **making a decision** within a computer program. In Python an **IF statement** is used.
Iteration	**Repetition** (or looping) of an instruction using a a formal construct such as **WHILE** or **FOR** loops.
Syntax	The way/format code is written in a specific programming language. Each language has its own syntax.
Debugging	The process of **locating and correcting logic or syntax errors** within the code.
Operator	When comparing data, an operator is used to check the equality such as < >, != or ==
Data Type - This is how data is stored within a computer system.	**String** - A collection of letters, numbers and/or characters usually signified by enclosing in speech marks i.e. "Hello"
	Integer - A whole number i.e. 99, 3, 56
	Boolean - A data type that accepts one of two values, i.e. True/False or Yes/No
Variable	**A value that can change** during the execution of a program, for example SCORE, LIVES etc.

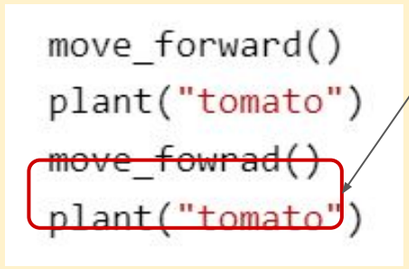
Integrated Development Environment (IDE)

Coding/programming is created in an IDE. This is a piece of software that will assist in the development of the code. It will often help identify errors in the code or suggest correct formatting/syntax to use.



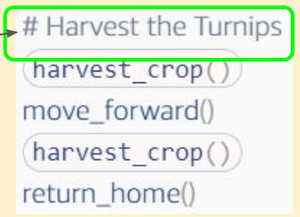
Editing area where code can be written, structured and edited.

Testing area - this is where instructions created can be seen being executed.



Identifying **errors (debugging)** can be undertaken by examining the code and looking for syntax errors, where the code has been mistyped.

Hashtag # comments in your code can help you and other people understand and follow your code better.

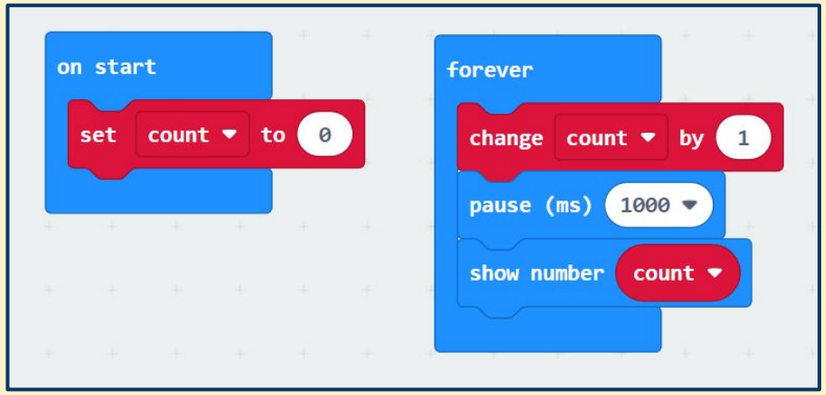


Writing your code

Blockly coding - This type of visual coding method that is good for beginners, you do not need to know the correct syntax for a specific programming language. This can develop your understanding of computing concepts by 'dragging and dropping' the blocks of code available into the correct sequence in your program.

Text-based programming languages use a specified syntax (coding language) to create a computer program. Programmers need to learn the syntax in order to write and understand their programs.There are many different programming languages, however they all use the same programming constructs of sequencing, selection and iteration.

Blockly example



Text based language example

```
count = 0

def on_forever():
    global count
    count += 1
    basic.pause(1000)
    basic.show_number(count)
basic.forever(on_forever)

```

Python Coding

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: '))
```

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 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)
```

Maths

Year 7 – Introduction to Algebra

What do I need to be able to do?

- Know what an algebraic expression is
- Know how to simplify an algebraic expression
- Know how to use indices to represent a repeated product
- Know how to substitute into an expression
- Know how to expand brackets
- Know how to expand and simplify an expression
- Know how to factorise an expression
- Know how to solve an equation

Key words

Expression – a mathematical phrase with variables, numbers and operations (for example $4x + 3$ is an expression).

Like terms – Terms that have the same algebraic part. $2x$ and $3x$ are like terms. $2x$ and $3y$ are unlike terms.

Substitute – replace a variable with a number.

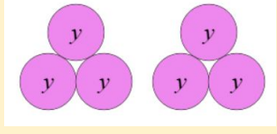
Expand – remove the brackets by multiplying. Expanding $2(x + 5)$ gives $2x + 10$

Factorise – the opposite of expanding. Factorising $6x + 10$ gives us $2(3x + 5)$.

Equation – an equation is a statement that a expression is equal to a value or another expression. $2x + 3 = 15$ is an equation.

Simplify

$2 \times 3y$



$= 2 \times 3 \times y$
$= 6y$

Using indices

$3 \times 3 \times 3 \times 3$

Can be written as 3^4

$x \times x \times x$

Can be written as x^3

Substitute $x = 3$ into the expression $2x + 5$

$2x + 5$

$= 2 \times x + 5$
$= 2 \times 3 + 5$
$= 6 + 5$
$= 11$

Expand $2(3x + 5)$

	$3x$	5
2	$6x$	10

$6x + 10$

Factorise $4x + 10$

	$2x$	5
2	$4x$	10

$2(2x + 5)$

Solve

$3x + 5 = 17$
$-5 \quad -5$
$3x = 12$
$\div 3 \quad \div 3$
$x = 4$

Year 7 – Coordinates

What do I need to be able to do?

- Know how to describe the position of a point on a plane
- Know what the x and y axes are
- Know how to plot and identify a coordinate
- Know how to describe and label horizontal and vertical lines
- Know what the lines $y = x$ and $y = -x$
- Know that a straight line can be constructed when there is a certain relationship between x and y
- Know how to measure the steepness of a line

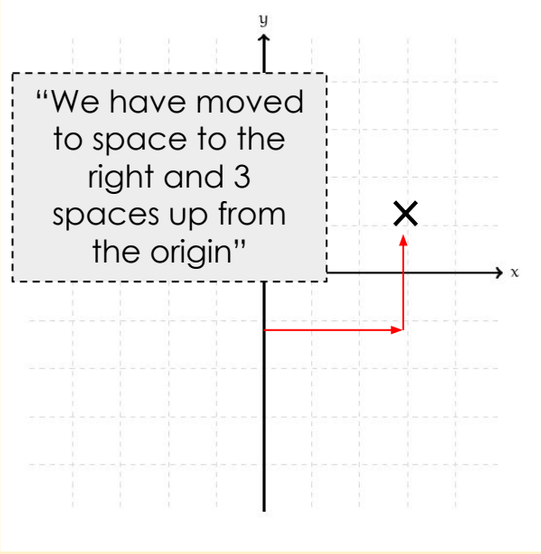
Key words

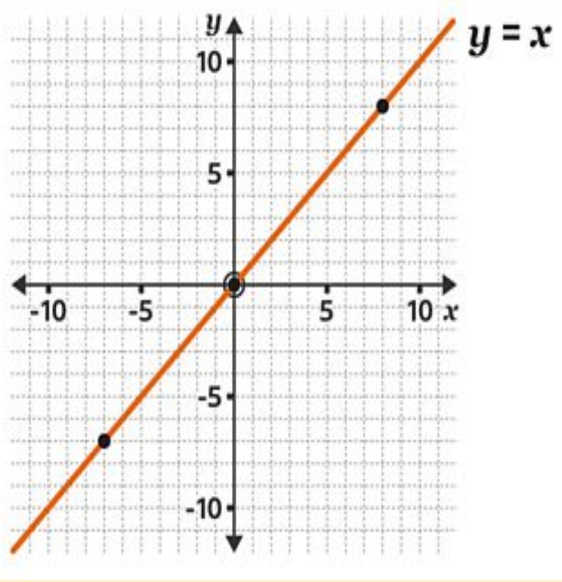
Plane – a 2D space (imagine a flat surface that we can plot points on or move around on).

Origin – the point where the x and the y axes intercept. The coordinate (0,0).

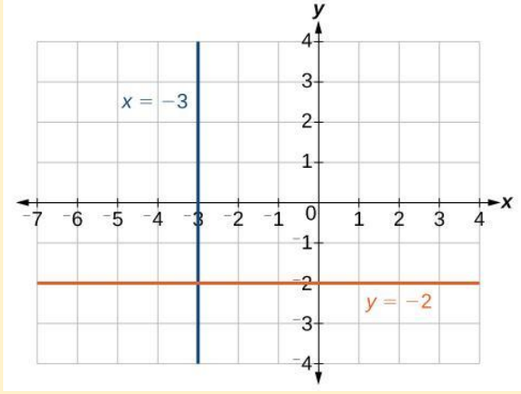
Coordinate – A point plotted using two values, an x ordinate and a y ordinate. The x ordinate tells us how far to move horizontally from the origin and the y ordinate tells us how far to move vertically.

Gradient – The steepness of a line. This can be measured by looking at the vertical change for every 1 'step' to the right.

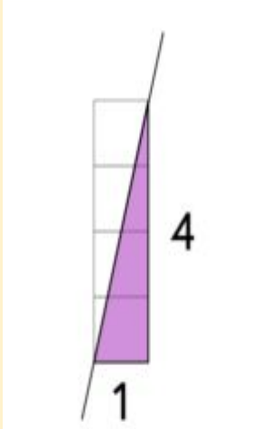




$x = -3$ is vertical because all of the coordinates on the line can be written as $(-3,\ \ )$



$y = -2$ is horizontal because all of the coordinates on the line can be written as $(\ \ , -2)$



French

Dans ma salle de classe- in my classroom

Where?	*There is/ there are*	*What?*	*Where about exactly?*
Dans ma salle de classe In my classroom **Sur la photo** On the photo **Dans ma classe idéale** In my ideal class	**il y a** There is/are **il y aurait** There would be	**un tableau** A board **un placard** A cupboard **un/e prof** A teacher **un écran** A screen **un ordinateur** A computer **une porte** A door **une fenêtre/ des fenêtres** A window/some windows **des posters** Some posters **des éleves** Some pupils **des tables** Some tables **des chaises** Some chairs	**devant** At the front **derrière** behind **au centre** In the centre **au fond** At the back **à droite** On the right hand-side **à gauche** On the left hand-side

Mes matières et mes opinions

OPINION	SUBJECT	BECAUSE	INTENSIFIER	REASON
J'adore I love **J'aime beaucoup** I like a lot **J'aime** I like **J'aime bien** I enjoy/ quite like	le français (French) le théâtre (drama) le dessin (art) la géographie (geography) la musique (music) la technologie (technology) l'anglais (English) l'EPS (PE) l'espagnol (Spanish) l'histoire (history) l'informatique (IT) les maths (maths) les sciences (science)	**parce que c'est** because it is **car c'est** because it is **je trouve que c'est** I find it is **je pense que c'est** I think it is	**vraiment** really **assez** quite **trop** too **un peu** a bit **plutôt** rather **super/hyper** super	**utile** useful **facile** easy **interessant** interesting **amusant/rigolo** fun/funny **génial** great
J'ai horreur de/du/des I can't stand **Je déteste** I hate **Je n'aime pas du tout** I don't like at all **Je n'aime pas** I don't like/ dislike **Je n'aime pas bien** I don't really like				**inutile** useless **difficile** difficult **nul** rubbish **ennuyeux/ barbant** boring **affreux** awful

Mon emploi du temps- my time table

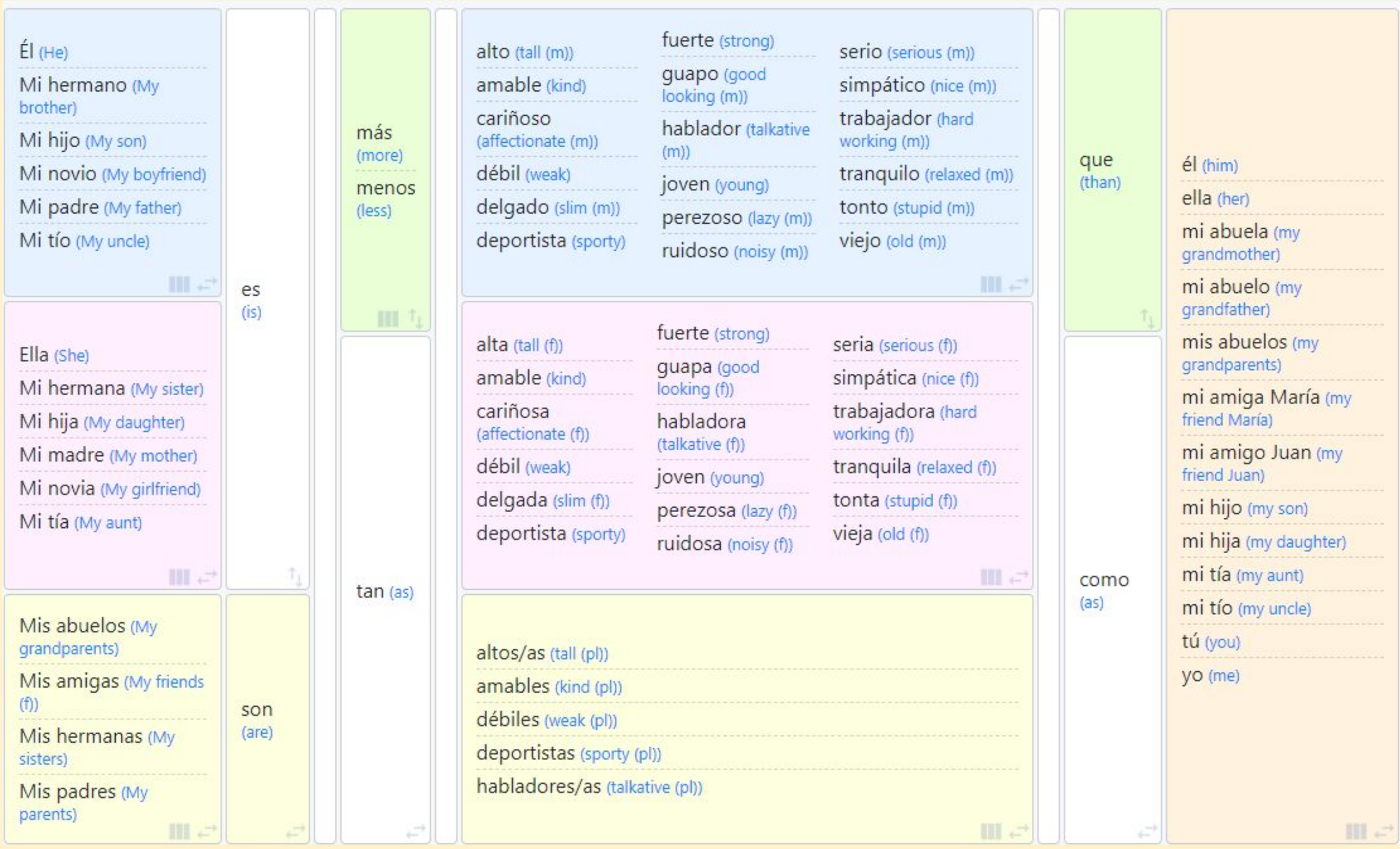
WHEN	VERB	SUBJECT	TIME	MINUTES
Le lundi On Mondays **Le mardi** On Tuesdays **Le mercredi** On Wednesdays **Le jeudi** On Thursdays **Le vendredi** On Fridays **D'abord** Firstly **ensuite** Next **enfin** Finally **Hier** yesterday	**j'ai** I have **on a** We have **je commence avec** I start with **on commence avec** we start with **je finis avec** I finish with **on finis avec** We finish with **j'ai étudié** I studied **J'ai commencé avec** I started with **J'ai fini avec** I finished with	le français (French) le théâtre (drama) le dessin (art) la géographie (geography) la musique (music) la technologie (technology) l'anglais (English) l'EPS (PE) l'espagnol (Spanish) l'histoire (history) l'informatique (IT) les maths (maths) les sciences (science)	**à huit heures** At 8 **à neuf heures** At 9 **à dix heures** At 10 **à onze heures** At 11 **à midi** At noon/midday **à treize heures** At 13/ 1pm **à quatorze heures** At 14/ 2pm **à quinze heures** At 15/ 3pm	**trente** 30 **et demie** Half past **cinquante** 50 **moins dix** Minus 10/ 10 to (the next hour)

Spanish

Describir a mi familia- **describing my family**

Yo soy (I am)	es (is)	alto (tall (m))	fuerte (strong)	y / e (and)	aburrido (boring (m))	impaciente (impatient)
Tú eres (You are)		bajo (short (m))	gordo (fat (m))		antipático (mean (m))	paciente (patient)
Él (He)		bueno (good (m))	guapo (good looking (m))		divertido (fun (m))	simpático (nice)
Mi hermano (My brother)		delgado (slim (m))	malo (bad (m))		generoso (generous (m))	terco (stubborn (m))
Mi padre (My father)		feo (ugly (m))	musculoso (muscular (m))		hablador (talkative (m))	tímido (shy (m))
Ella (She)		alta (tall (f))	fuerte (strong)		aburrida (boring (f))	impaciente (impatient)
Mi hermana (My sister)		baja (short (f))	gorda (fat (f))		antipática (mean (f))	paciente (patient)
Mi madre (My mother)		buena (good (f))	guapa (good looking (f))		divertida (fun (f))	simpática (nice (f))
		delgada (slim (f))	mala (bad (f))		generosa (generous (f))	terca (stubborn (f))
		fea (ugly (f))	musculosa (muscular (f))		habladora (talkative (f))	tímida (shy (f))

más/ menos/ tan- **more/ less/ as much as**



No (NOT)	me gusta (I like)	hacer (to do)	boxeo. (boxing.)	escalada. (rock climbing.)	No (NOT)	Lo hago (I do it)	de vez en cuando (from time to time)
	te gusta (you like)		ciclismo. (cycling.)	natación. (swimming.)		Lo haces (You do it)	una vez a la semana (once a week)
	le gusta (s/he likes)		deporte. (sport.)	senderismo. (hiking.)		Lo hace (S/he does it)	a menudo (often)
	nos gusta (we like)		equitación. (horse riding.)	yoga. (yoga.)		Lo hacemos (We do it)	después del colegio (after school)
	os gusta (you all like)		nada. (nothing.)			Lo hacéis (You all do it)	todos los días (every day)
	les gusta (they like)	jugar (to play)	al ajedrez. (chess.)	al tenis. (tennis.)		Lo hacen (They do it)	nunca (never)
			al baloncesto. (basketball.)	a las cartas. (cards.)			
			al fútbol. (football.)	a los videojuegos. (videogames.)			
		ir (to go)	al cine. (to the cinema.)	al parque. (to the park.)	a la piscina. (to the pool.)		
			al estadio. (to the stadium.)	a la playa. (to the beach.)	de pesca. (fishing.)		

porqué es
because it is

relajante
relaxing
saliendo
exiting
divertido
fun
asombroso
awsome

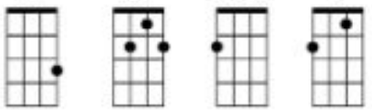
Lo que me gusta por qué, cuando- **What I like,why,when**

Music

Knowledge Organiser - Music Spring Term

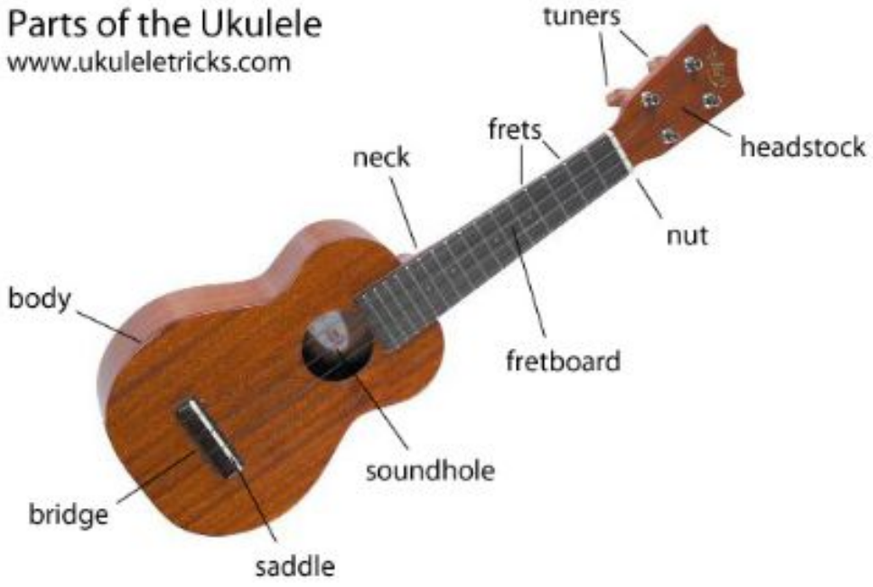
4 Chord Trick

- This sequence of chords is made up of the Primary Chords (I, IV and V) plus chord vi.
- Progression: I - V - vi - IV
- In C Major: C - G - Am - F
- Hold the ukulele in your **left hand**
- Strum using your **right hand**



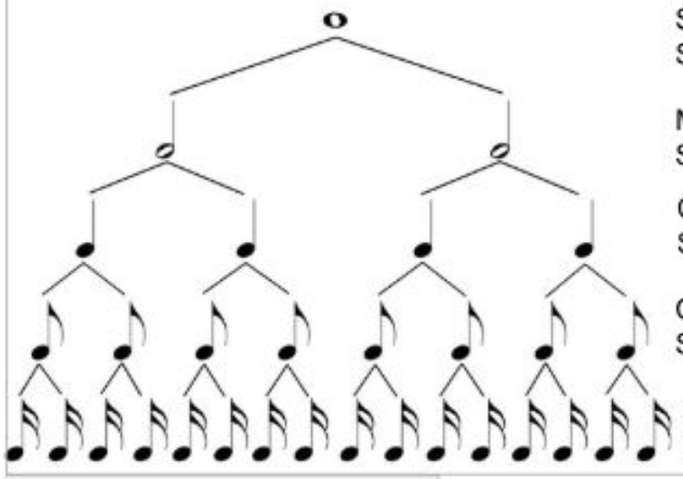
Parts of the Ukulele

www.ukuleletricks.com



Rhythmic Values

- The diagram shows the divisions of rhythmic values.
- Hungarian composer Zoltán Kodály, came up with a system of syllables to ensure musicians play the rhythmic patterns accurately and in time



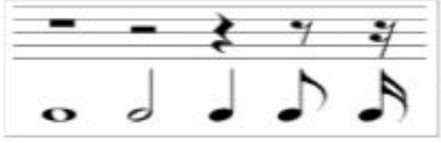
Semibreve = 4 beats
Syllable = Toooo

Minim = 2 beats
Syllable = Too

Crotchet = 1 beat
Syllable = Ta

Quavers = ½ beats
Syllable = Te-Te

Semiquavers = 1/4 beats
Syllable = Tika-tika



Every rhythmic value has an equal resting value. This diagram shows the **rest** symbols for each rhythm

Knowledge Organiser - Music Spring Term

Homework

- Come to the Music Department for Year 7 Homework Clubs to practice for your performances
- Complete knowledge and key word checks on Google Classroom
- Complete performance reflection at the end of the topic

General Listening/Watching/Reading

Listen & Watch

Pentatonix - The Evolution of Music

https://youtu.be/lExW80sXsHs

Voice Play - ACA Top 10 - Disney Villains

https://youtu.be/UctWkdeO-eA

Hornpipe from Handel's Water Music

https://www.youtube.com/watch?v=Pq8l1tzau_o

Somewhere Over The Rainbow

https://youtu.be/j6aP5QREd0s

Binary & Ternary Form Explained

https://youtu.be/D8j8bYeo3Wk

Religious Studies

Coming soon

Science

Science knowledge organiser here