PENISTONE GRAMMAR SCHOOL

Achieving Excellence through a Values Driven Education

Aim High

Be Determined

Be Brave

Be Supportive

Be Proud

ESSENTIAL KNOWLEDGE SHEETS CURRICULUM BOOK

YEAR 9 BOOK 1

CONTENTS

To make the most of your essential knowledge book, you must:

1. **Bring it to school every day and have it available on your desk in every lesson.**
2. **Keep all your essential knowledge sheet books as they provide you with the essential knowledge for each topic and subject you learn.**
3. **Take pride in your book, keeping it in excellent condition.**
4. **Write your name on the front of the book.**
5. **Be aware that if you lose or damage your book it is your responsibility to replace it at a cost of £4.**

What is an Essential Knowledge Book?

An effective learning tool to help you retain, revise and retrieve the essential knowledge of a topic within your subjects. The Essential Knowledge Sheet for each topic is usually no more than two sides of information that includes core facts, concepts, diagrams, vocabulary and quotations that you need to know and understand to master a topic.

Why Essential Knowledge Sheets?

They provide you, your teachers and parents/carers with an overview of a topic by having the core knowledge, diagrams, explanations and key terms in one place. They allow you to routinely refer to and 'check off' what you know and understand as you are taught a topic.

Research evidence shows that the regular retrieval of knowledge helps us to know more, remember more and do more. This then allows you to store knowledge in, and recall it from your long-term memory, freeing up space in your working memory to take in new knowledge and information. The better you know the essential knowledge of a subject, the better you will be able apply to it to problems, questions, assessments, home learning, and further increase your independence within lessons and at home.

How to use your Essential Knowledge Sheets

The most powerful use of an Essential Knowledge Sheet is as a self-quizzing tool. For example:

1. **READ → COVER → WRITE → CHECK → QUIZ**
   Read a chunk of information from your essential knowledge sheet (more than once is most effective), Cover it up, Write what you remember, Check to see if you have remembered the information correctly. If you haven't remembered it all correctly then re-do the process. When you are confident in your retention of the knowledge, quiz yourself (or ask a friend or family member) to see if you can apply the knowledge learned to questions, problems and practice tasks.

2. **Mind Maps**
   Mind mapping is a diagram to visually represent information. It is a graphic technique you can use to translate what you know of a topic/concept into a visual picture. Use knowledge learned from your Essential Knowledge Sheet to create mind maps. Make sure to use colours and images and keep writing to a minimum. This technique embeds essential knowledge into your long-term memory.

3. **Flash Cards**
   Use your Essential Knowledge Sheets to create flash cards. Write the question/key term on one side and the answer/definition on the other. Most importantly you need to quiz yourself on each question/key term until you can remember them all correctly.

4. **Revision Clock**
   Start by drawing a basic clock face. Break your Essential Knowledge Sheet into 12 sub-categories. Make notes from your Essential Knowledge Sheet in each section of the revision clock. Your brain will retain more information if you include images as well as key words and definitions. Read and Revise each section for 5 minutes, turn the clock over and then try to write out as much information as you can from one of the 12 sections on the revision clock. Repeat the process until you are confident in your learning of the essential knowledge on the revision clock.

Key Words	Definition
Portraiture	Portraiture is the art of making a portrait, which is a close study of one person/animal. Portraits can be works of art that record the likenesses of humans or animals that are alive or have been alive.
Proportion	Proportion refers to the dimensions of a composition and relationships between height, width and depth. How proportion is used will affect how realistic or stylised something seems. Proportion also describes how the sizes of different parts of a piece of art or design relate to each other.
Expressive Features	Expressive features is how an artist creates emotion in their artwork. Expressive qualities refers to the feelings, moods, and ideas that are disseminated to the viewers by an artist through a work of art. This aesthetic quality was deeply favoured by emotionalism.
Distorted & Exaggerated	Exaggeration/distortion affects proportion by changing the size or shape of a part or the entire image to show emotions. Artists use distortion to show emotion in an image like enlarging a body and keeping a smaller head to create the illusion of strength.
Ceramics	A ceramic is any of the various hard, brittle, heat-resistant and corrosion-resistant materials made by shaping and then firing a non-metallic mineral, such as clay, at a high temperature. Common examples are earthenware, porcelain, and brick.
Hand-Building	Hand-building is an ancient pottery-making technique that involves creating forms without a pottery wheel, using the hands, fingers, and simple tools. The most common hand-building techniques are pinch pottery, coil building, and slab building. The most common hand-building techniques in ceramics are pinch pottery, coil building, and slab building.
Slab-Building	The Basics of Hand-Building Slab Pottery. ... What makes these creations unique is the hand artistry and the type of potter's clay you use. Slab pots can be produced using soft slabs and stiff slabs. You can roll out the slabs by hand or use machines to roll out the slabs.
Biscuit Firing	Biscuit firing refers to any pottery that has been fired in a kiln without a ceramic glaze. This can be a final product such as biscuit porcelain or unglazed earthenware or, most commonly, an intermediary stage in a glazed final product.
Earthenware	Earthenware, pottery that has not been fired to the point of vitrification and is thus slightly porous and coarser than stoneware and porcelain. The body can be covered completely or decorated with slip (a liquid clay mixture applied before firing), or it can be glazed.
Stoneware	Stoneware is made from a particular clay which is fired at a higher temperature of 1,200°C. This results in a more durable material, with a denser, stone-like quality. The finished product will be waterproof and unlike earthenware, does not need to be glazed.
Textures	There are two types of texture — tactile and visual. Tactile texture is the real thing. It is the actual way a surface feels when it is felt or touched, such as rough, smooth, soft, hard, silky, slimy, sticky, etc. 3-D art such as sculpture and architectural structures are tactile in nature because they can be felt.

Examples


Portraiture


Proportion


Expressive Features


Distorted & Exaggerated


Ceramics


Hand-Building


Slab-Building


Biscuit Firing


Earthenware


Stoneware


Textures

During the project you will apply programming concepts and terminology you developed during your Y7 and Y8 Python.

As key terms are introduced use the spaces provided to record their meaning – remember they apply to ANY programming language around the world!

	Key Term	Definition	Show an example of it being used/in context
2B	**Data Types**	A data type a particular kind of data item, as defined by the values it can take, the programming language used, or the operations that can be performed on it.	Integer = 2 Float = 1.5
3A	**Project Lifestyle**	This is a plan that shows the time frame a project and the steps on how to complete the project.	It is vital to follow a project lifestyle to ensure success.
4B	**Flow chart symbol:**	 Decision Process Input and Output Start or End	Draw a flowchart for tying your shoes laces.
5A	**Variable**	Used within an algorithm to save inputted data. This is used only once.	ChapterOneoption = input()
5A	**Global Variable**	Used within an algorithm to save inputted data. This can be used more than once.	Name = input()
5A	**Casting**	Casting is when you convert a variable value from one type to another.	This is, in Python, done with functions such as int() or float() or str() .
5A	**Selection**	This is used to let the use select and option within the algorithm. This is normally written with IF, ELIF and ELSE.	if ChapterOneoption == “a”: print(“You have selected A. Runaway”)
6B	**Subroutine**	Subroutines are used to organise the algorithm into chapters which can be called within the algorithm.	Example: def ChapterOne():
7A	**Array**	An array is a data structure that stores values of same data type.	Arrays in python can only contain values corresponding to same data type.
7A	**Dictionary/Multi-dimensional Array**	Multidimensional Array can be explained as a technique of defining and storing the data on a format with more than two dimensions.	

CAD: Computer Aided Design

CAM: Computer Aided Manufacture

The environmental impact of:

Transportation Diesel ships and trucks emit large amounts of CO_2. This can be reduced by sourcing locally. Using less packaging can also mean more items can be moved at once, however if an item gets damaged it is counter productive.

Waste Large amounts of waste go to landfill. This scars the landscape. 'Leachate' or landfill run off is toxic and can contaminate water and food supplies. Recycling waste reduces landfill usage and energy consumption.

Energy Wind, solar, hydroelectric, tidal and biomass power sources are all 'renewable' energy sources. They do not rely on burning fossil fuels which releases large amounts of CO_2 into the atmosphere.

Raw Materials Mining scars the landscape and uses lots of C02. It can lead to subsidence (land collapsing). Deforestation. Large areas of forest and rain forest are destroyed to harvest wood. This kills animal habitats.

Pollution Atmospheric Pollution. The quality of air is affected by pollution. Emissions are given off by raw material extraction, manufacturing, transportation and incinerating waste. Oceanic pollution is caused by pollutants entering the water system. An example of this is micro plastics and plastic fibres from clothing and product packaging.

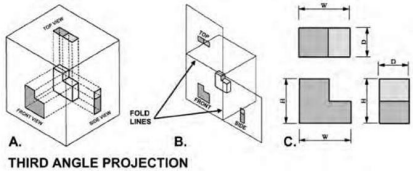
Socioeconomic Noise Pollution. Noise from construction, material extraction and manufacture can be a real issue with local residents. Fairtrade: This is an organisation that ensures workers get better prices, decent working conditions, local sustainability, and fair terms of trade for farmers and workers in the developing world.

Existing Designers

Zaha Hadid
Born in Iraq and lived between 1950- 2016. Hadid was known as the queen of the curve much of her work is seen as futuristic, combining curved edges with sharp angles using concrete and steel. Notable works include: Heydar Aliyev Centre.

Heatherwick Studio
Founded by Thomas Heatherwick in 1994. Heatherwick Studios employs over 250 people including architects, engineers, landscape architects and product designers who work collaboratively. Notable works include: The Vessel (Image above left).

Orthographic Drawing



Scale

A drawing or model that is half the size of the original is of the scale 1:2. A model that is of the scale 1:50 would be 50 times smaller than the original, so for every 1mm on the model, it is 50 times bigger in reality.

Using Tape

Advantages

- Will not damage paper/card or cause it to warp as there are no liquids involved.
- Tape can be applied prior to cutting out allowing adhesive to be positioned exactly to the edge of the paper/card.

Disadvantages

- Difficult to remove if placed in the wrong position.
- Can have a low aesthetic appeal if visible on a product.

Corrugated Board

Made from layers of fluted board sandwiched between paper outer layers.

Advantages Made from recycled pulp. It is also easily recycled. Lightweight and stiff.

Disadvantages Brown finish doesn't convey quality.

Foam Board

Foam is sandwiched between two layers of paper or card.

Advantages Rigidity means it is ideal for the walls in architectural models.

Disadvantages Not recyclable or biodegradable.

Fossil Fuels

Pros Produces large amounts of high power energy.

Cons Burning fossil fuels releases lots of CO_2 emissions.

Wind

Pros Does not burn fossil fuels so is considered non-polluting.

Cons Weather dependent. If there is no wind, or too much wind, then the wind turbines cannot operate.

Nuclear Power (Fission)

Pros Generates large amounts of power with very little fuel.

Cons Waste is radioactive and safe disposal is very difficult and expensive.

Tidal

Pros Long lifespans, once built they will provide power for a long time.

Cons Negative impact on marine life and habitats.

Wood

Hardwoods

- Come from deciduous (leaf losing) trees.
- Generally slower growing, making them denser (harder).
- Some trees take up to 100 years to reach full maturity, this makes them expensive to buy.
- Colours vary.

Softwoods

- Coniferous (cone-bearing) trees.
- Generally grow faster than hardwoods (reach maturity in 30 years).
- Softer to work.
- Cheaper than hardwoods.

Metals

Ferrous

- Consist of iron, carbon and other elements.
- Most are prone to rusting.
- Most can be picked up with a magnet (except stainless steel – designed not to rust and some grades are non-magnetic).

Non-Ferrous

- Don't contain any iron.
- Aren't attracted to a magnet.
- Don't rust when exposed to moisture (but they do tarnish and oxidise).

Wood & Type	Grain Pattern	Properties	Uses	Aesthetics	Advantages	Disadvantages
Oak (Hardwood)		• Hard. • Tough. • Durable. • High density.	• High-quality furniture. • Garden benches. • Boat building. • Veneers.	• Light-brown. • Distinctive growth rings. • Open grained.	• Finishes well. • Very hard but quite easy to work with.	• Contains an acid which corrodes steel.
Mahogany (Hardwood)		• Durable. • Medium density.	• Indoor furniture. • Interior woodwork. • Window frames. • Veneers.	• Reddish-brown colour.	• Finishes well. • Relatively easy to work.	• Prone to warping. • Some tropical types can be sort and fibrous.
Ash (Hardwood)		• Tough. • Flexible. • Good elasticity.	• Sports equipment. • Ladders. • Furniture. • Tool handles. • Veneers.	• Creamy white colour (often stained black). • Open grained.	• Flexible. • Can be laminated (sliced into veneers which are then glued together and cramped around a former until dry).	• Can become a bit splintered.
Pine (Softwood)		• Lightweight.	• Constructional woodwork (joists, roof trusses). • Floorboards. • Children's toys. • Garden decking.	• Straight-grained but knotty. • Light in colour (cream/pale brown).	• Appealing colour and grain pattern. • Grows relatively quickly in comparison to hardwoods. • Fairly strong but easy to work with. • Inexpensive.	• Prone to warping. • Knots can fall out and cause holes.

Metal & Type	Example	Properties	Uses	Advantages	Disadvantages
Mild Steel (Ferrous)		• Tough. • Malleable. • Magnetic.	• Structural steel girders. • Car body panels. • Nuts. • Bolts. • Furniture frames. • Gates.	• Easily worked and joined (even in a school workshop). • Relatively cheap. • Widely available in numerous forms and sections. • Can be recycled.	• Will oxidise (rust) if left unprotected/ exposed to moisture. • Can only be case-hardened.
Stainless Steel (Ferrous)		• Hard. • Tough. • Excellent corrosion resistance.	• Cutlery. • Kitchen sinks. • Pots and pans. • Surgical instruments.	• Easily cleaned. • Does not need any surface finishing. • Can be recycled. • High-lustre finish.	• Difficult to use and join in a school workshop. • Specialist welding equipment needed for joining.
Aluminium (Non-Ferrous)		• Lightweight. • Soft. • Ductile. • Malleable. • Good conductor of heat and electricity. • Corrosion-resistant. • Light grey in colour.	• Window frames. • Kitchen foil.	• Easily drawn into thin wires and sheets. • Can be recycled.	• Expensive. • Difficult to weld (specialist equipment needed).
Copper (Non-Ferrous)		• Malleable. • Ductile. • Good conductor of heat and electricity. • Corrosion-resistant. • Reddish-brown, but can turn green after exposure to oxygen.	• Electric cables. • Plumbing fittings and wires. • Hot water cylinders.	• Easily drawn into thin wires. • Can be recycled. • Can be easily soldered.	• Expensive. • Will tarnish (change colour) over time.
Brass (Alloy)		• Good resistance to corrosion. • Good fluidity, casts well. • Good conductor of heat and electricity. • Hard, yellow metal.	• Plumbing fittings. • Marine fittings.	• Can be polished to achieve a high-lustre finish. • Tougher than copper • Can be recycled. • Easily cast and turned.	• Relatively expensive.

Plastics

Thermoplastics

- Soften when heated and can be shaped when hot. The plastic hardens when cooled, but can be reshaped if heated up again.

Thermosetting

- Heated and moulded into shape.
- Can't soften if reheated.

Plastic & Type	Example	Properties	Uses	Advantages	Disadvantages
Acrylic (Thermoplastic)		• Good impact strength (tends not to shatter but to break into big pieces). • Lightweight. • Good electrical insulator. • Durable.	• Ornamental fish tanks. • Baths and bathroom furniture. • Car indicator covers/ reflectors. • Machine guards.	• Can be recycled. • Excellent environmental stability. • Polishes and finishes well. • Available in a wide variety of colours.	• Relatively soft. • Scratches easily. • Poor chemical resistance. • Hard wearing, but will shatter if treated roughly (into big pieces).
High Impact Polystyrene (HIPS) (Thermoplastic)		• Light but strong. • Tough/rigid. • Good electrical insulator.	• Vacuum forming. • Outer casings on electronic products and packaging. • Food appliances. • Toys. • DVD and CD cases.	• Light but strong. • Widely available in lots of colours/ sheets. • Can be machined and painted. • Can be recycled.	• Expensive. • Limited flexibility. • Will not biodegrade.

Tools and Equipment

- Steel Ruler.
- Try Square.
- Marking Out Gauge.
- Tenon Saw.
- Router.
- Pillar Drill.
- Battery Powered Drill.
- Scroll Saw.
- Hammer.
- Bradawl.
- Laser Cutter.
- Paint Brush.
- Sanding Block.
- Band Sander/Disc Sander.
- Bench Hook.

Materials

- Soft Pinewood.
- Vinyl (3 layers/3 colours) - Opaque, Transparent, Translucent (light emitting).
- Oak.
- Mahogany.
- Glass Paper.
- LED Light Strip.
- USB Cable.

Construction Methods

- Wood Screws (2 sizes).
- Wing Nut.
- Washers.
- Coach Bolts.

Finishing Methods/ Techniques

- Sanding (stages are M2, F2, 00).
- Sanding Sealant.
- Wax Polish.
- Staining.
- Spray Paint.
- Laser Cutter for Engraving.

Standard Components - Screws

Woodscrews are used to temporarily join two pieces of wood together. They are available in different lengths and diameters and are usually made from brass or steel. They also have different shaped heads for different applications.

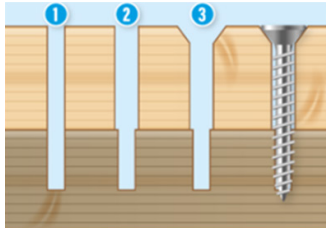
Slotted

Pozidriv

Phillips

Allen (hexagonal)

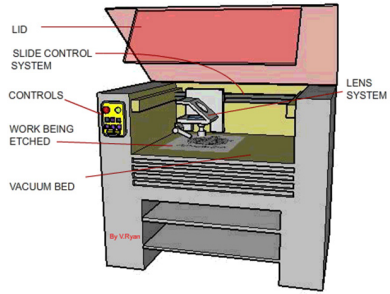
When joining two pieces of wood together using wood screws...

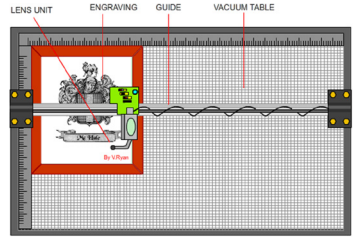


1. Drill a pilot hole through both pieces of wood. This hole should be slightly narrower than the thread of the screw.
2. Drill a clearance hole through the top piece of wood. This hole should be slightly larger than the shank or thread of the screw.
3. If using a countersunk screw, a countersunk hole should be drilled to the depth of the screw.

Laser Cutting

Laser cutting / etching machines are quite simple in the way they work. The lens system that controls the position of the laser is itself moved by a motorised slide control system. This allows movement in any direction. The control system moves according to the programme being used by the machine. The diagram shows the LID open - however, the laser will not operate unless the lid is closed. This is a safety feature. The work/material being engraved or cut by the laser is held firmly in position on the bed. The work/material is normally positioned in the top left corner as shown on the diagram below. The machine operates with three axis, X, Y and Z. The top left corner is regarded as coordinates (0,0,0), this is sometimes called zero point.





Fabric	Advantages	Disadvantages
Plain Weave Cotton	Breathable, lightweight, biodegradable, easy to care for, absorbent (good for dying).	Takes a long time to dry.
Cotton Velvet	Insulating, soft, luxurious sheen.	Difficult to care for, Not very durable.
Twill Weave Polyester (Synthetic)	Strong, durable, drapes well, hydrophobic (does not absorb water) so quick drying, easy to care for, pleats/shapes can be set with heat-good for adding structure, diagonal pattern on surface of fabric can be used to create patterns, cheap to purchase as manmade.	Polyester can melt or misshape with high temperatures. Take care with aftercare.
PVC (Synthetic)	Synthetic fibre, plastic texture, cheap to buy, strong, rigid. Lots of colours available including transparent.	Difficult to work with due to rigid structure.
Cotton Terry Towelling	Very absorbent due to the loops (takes a long time to dry), Interesting surface texture, soft.	Loops can snag. Takes a long time to dry.
Acetate Satin (Synthetic)	Lustrous shine, drapes well, strong, durable, pleats/shapes can be set with heat-good for adding structure, hydrophobic (does not absorb water) so quick drying,	Can snag easier than other weaves so not suitable for everyday wear.
Knitted Wool	Insulating, soft, absorbent natural elasticity, lots of texture.	Takes a long time to dry, Heavy when wet, Expensive.
Cotton Lace	Breathable, absorbent, lightweight, easy to clean, biodegradable, lots of variations of intricate designs (good to add pattern and texture), areas of pattern alongside sheer areas.	Delicate to work with. Can snag or pull easily.
Cotton Jersey Knit	Breathable, stretchy soft, lightweight, absorbent, biodegradable, crease resistant.	It doesn't retain its shape well when over stretched. Unravels if cut or snagged as made from one continuous yarn.
Cotton Denim (Twill Weave)	Breathable, biodegradable, easy to care for, absorbent (good for dying), durable, diagonal twill surface adds pattern and texture.	Expensive, no stretch, heavy when wet, slow drying.
Cotton Corduroy	Insulating, soft, biodegradable, absorbent (good for dying), different cord thicknesses are available.	Medium durability, the pile cord can wear down with abrasion, takes a long time to dry.

A component is something that is added to a garment to complete it. Below are some examples of components you may be interested in using.

Component	Information
Zip	Metal or plastic, invisible or open. Easy to use for all ages. Secure. When broken cannot be fixed.
Buttons	Available in a wide variety of different materials. Functional fastening good for adjustable sizes alongside being decorative. Choking hazard for young children.
Elastic	Highly stretch and retain shape well. Good to use in waist bands and cuffs for a comfortable fit and to retain body heat.
Velcro	Easy to use (so good for the young and elderly or for a quick fastening) but not very strong or durable.
Drawstring	Drawstrings can be added into casing channels and used to tighten and fasten things such as trousers and bags. An easy fastening which can be adjusted to the users requirements. Drawstrings can be purchased in many colours and fibres and can be flat or circular.
Interfacing	This is a piece of material that is ironed or stitched onto the inside of fabrics to add strength or structure. Used a lot inside collars and waistbands to help them maintain shape.

Decorative Technique	Information
Applique	When you stich one fabric to another, this adds colour, texture and decoration. This can be done by hand or machine.
Hand Embroidery	A range of decorative hand stitches to create a pattern/ picture. These add colour, texture and uniqueness to a project but can be time consuming.
Sublimation printing	Adding photos, pictures or text to a fabric. Sublimation printing ensures you achieve a realistic, professional finish and it is quick to do. Synthetic fibres give a better finish as colours are more vibrant.
Decorative Embellishment	Sewing sequins, beads and buttons to the fabric to add decoration.
Piping	Aesthetically pleasing trim which adds a pop of colour but also strengthens the seam.
CAD/CAM Embroidery	Machine embroidery which is programmed by you and sewn by the machine-Quick and durable with a professional finish. Used in year 9 to write letters and numbers only.
Quilting	Two layers of fabric sandwich a layer of wadding which is stitched in diagonal squares or with a decorative pattern. This traps air which is insulating alongside adding texture and decoration.
Tie Dye	A resist dying method which uses elastic bands or string to form a pattern. Tie dye adds colour and originality to a product but if not done correctly can look uneven and unprofessional. Natural fibres such as cotton must be used.
Patch Pocket	Both decorative and functional! A patch pocket is a pocket sewn onto the surface of a garment and can be produced in many shapes.

Construction Technique	Information
Pleats	To add interest, texture and volume to a product. Knife, Box and Inverted are all different types of pleats you can add!
Darts	Add shape to a garment to create the perfect fit! Single point, double point and French darts are different types of darts and positionings on garments.
Seams	Used to stitch two pieces of a product together. Different seams can be used depending on the fabric and end use. Common seams are the plain seam which is cheap and quick to produce, the double stitched seam (sometimes called double felled) which is used on items that require strength such as jeans and coats and the French seam. Which is used on delicate fabrics.
Gathers	Adds volume and decoration to a product.

Key Spellings

Key Spellings

- Sequin.
- Aesthetically.
- Design.
- Scalloped.
- Velcro.
- Pattern.
- Embroidery.
- Applique.
- Specification.
- Lycra.
- Durable.
- Occasion.
- Waist.
- Aesymetric.
- Functional.
- Tulle.
- Professional.
- Synthetic.
- Fibre.
- Hydrophobic.
- Hydrophillic.
- Thermoplastic.
- Palette.
- Sew.
- Seam.
- Luxurious.
- Lusterous.
- Drape.
- Inspiration.

Making Work Inspired by Splendid Theatre

Key Terms

- Episodic theatre.
- Humour.
- Multiple perspectives.
- Rehearsal skills.
- Performance skills.
- Evaluation skills.
- Games, teamwork and the ensemble.
- Practitioners, companies and genres.
- Vocality.
- Physicality.
- Interaction.
- Energy.
- Focus.
- Engaging the audience.
- Stanislavski and naturalism.
- Brecht and non-naturalistic theatre.
- Verbatim.

What Matters in Your World?

Making Theatre

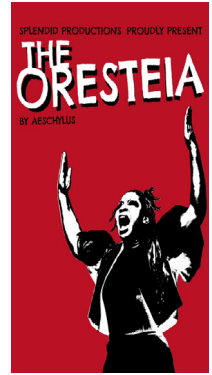
- Issue based theatre.
- Storytelling.
- Exploring Issues.
- Working from a stimulus.

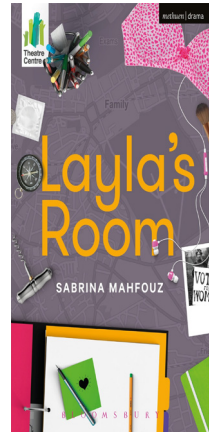
Layla's Room

- Research and interpretation.
- Sabrina Mahfouz.
- Developing characters in contemporary theatre.
- Creating the world of Layla: representations of school, family, gender, best friends and coercion.

Discover Drama Challenges Essential Vocabulary

Advanced Ensemble Development	Guidelines and shared values to enable excellent collaboration in creative work.
Communication Skills	Ways we share and receive messages verbally and non–verbally. Listening is key.
Practitioners	Specialists who have done significant work in drama and theatre.
Splendid Theatre	Kerry Frampton and Ben Hales contemporary theatre.
Brecht	German practitioner of political, epic, entertaining non-naturalistic theatre.
Political Theatre	Theatre that explores human decisions and power.
Episodic Structure	Created of a series of parts rather than 5-Act structure.
Storytelling	Ways to tell a story theatrically as an ensemble.
Issue Based Theatre	Theatre that explores complicated problems.
Fourth Wall	Imaginary wall between actors and audience.
Theatre Companies	Professional groups that create and perform theatre.
Theatrical Genres	Types of theatre – tragic, political, comic, physical etc.
Humour	Use of funny, witty and entertaining strategies.
Layla's Room	Contemporary play by Layla Mahfouz.
Cross Cuts	Two or more locations on stage at once.
Play Structures	How a play is put together – cyclic, episodic, non- naturalistic , flashbacks, well-made, etc.
Research	Studies and work to find out more.
Performance Skills	How actors use their voices, bodies and interactions.
Evaluation Skills	How we analyse theatre and performance.
Devising Theatre	Theatre that is created without script.
Aim	What a company/writer intends to achieve.
Multiple Perspectives	Seeing a story from several points of view.
Vocality	How we speak.
Physicality	How we move.
Energy	The power and attack of our work.
Focus	A way of concentrating and paying attention.
Engaging the Audience	How performers get and keep audience focus.





Vocabulary	Definition
Poverty	Lacking in money linked to deprivation in social conditions, housing and education.
Wealth	The abundance of money or possessions.
Liverpudlian	A person who comes from Liverpool (often with a distinct accent).
Deceit	Concealing or misrepresenting the truth.
Death	Ending of life.
Innocence	The state of being pure and lacking in corrupt behaviour.
Superstition	Irrational belief in widely held supernatural instances.
Class System	The concept that there is more than one social class of people: working class, middle class and upper class and the rules which govern the lives of people in different classes lead to societal unfairness.
Hierarchy	Ranking of members of society due to status or authority.
Disillusioned	Disappointment in someone or something that appears to be less good than initially thought.
Condescension	A patronising, condescending attitude towards others.
Snobbery	The character or quality of being a snob.
Underprivileged	Not having access to the same standard of living as other people in society.
Omniscient Narrator	All knowing narrative voice.
Dialogue	Speech.
Accent	A distinctive way of pronouncing words.
Dramatic Irony	From Greek tragedy: the audience is aware of the importance of events but the characters are not.
Foreshadowing	Predicting or warning of a future event in the text.
Pathetic Fallacy	Linking of nature and weather to human emotions/moods.
Metaphor	Where one thing becomes another in a comparison.
Musical	The form of the play: music plays an important part in revealing the action/events.
Symbolism	Using symbols in literature to represent ideas or qualities.
Motif	A dominant or recurring idea in the play.

Skills

Analysis Points

- Link to the question.
- Link to the terminology (Lang/Structure – evaluating choice).
- Short Quote(s) -or Moment.
- Explain meaning and effect – both obvious and hidden (explicit and implicit).
- Zoom in on words/explore connotations and effect.
- Suggest what other readers might think/feel (offering an alternative opinion).
- Link to the writer's intentions (step out from the close analysis to give an overview of meaning) - Context.
- Explore a linking quote/supporting idea.

Key Themes

Wealth, Poverty, Social Class, Inequality, Superstition, Fate, Deceit, Childhood, Violence, Death.

Characters

The main characters in Blood Brothers are the twins Mickey Johnstone and Edward Lyons, and their mothers Mrs Johnstone and Mrs Lyons. Mickey and Edward's friend Linda, who becomes Mickey's wife, is also an important character.

The Narrator is on stage throughout the play and communicates with the audience rather than being involved in the events.

Mickey's brother Sammy and Edward's father Mr Lyons feature less in the play, but both have an impact on the plot.

Use of Form and Setting in Blood Brothers

Blood Brothers is a musical, a play that features songs as an important part. They are spread throughout and used to develop the plot of the play.

As Blood Brothers is a piece of theatre, it is important to remember that it was written to be seen and heard as a performance.

Blood Brothers, a musical by Liverpudlian playwright Willy Russell, revolves around twin boys (Mickey and Edward) who are separated at birth and brought up in completely different environments in the city. The play, set in the 1960s, is divided into two acts, with songs throughout.

Event Guide

Act 1

- The narrator introduces the plot in a Greek Chorus (we realise the play is a tragedy).
- Meet two very different women, Mrs J v poor agrees to give away one of her twins to Mrs L who is rich.
- Meet the twins ages 7: they are very different in many ways (nurture) but do have quite similar natures. They're treated differently by the police/ school.
- Mrs L is paranoid her son will discover his adoption so moves the family to the country to get away from Mickey and Mrs J. Years later, the council rehouses the Johnstone family in the country.

Act 2

- The boys meet again aged 14 and their friendship continues. The boys, again, display similar natures. They have very different qualities in education. Mickey is in love with Linda.
- Mrs L becomes increasingly mad at the thought of Edward finding out and tries to kill Mrs J.
- Aged 18, Edward goes to university and Mickey gets a full-time job which he hates. The gap is widening between them.
- Linda is pregnant so she and Mickey marry. Mickey loses his job, helps Sammy rob a garage and is sent to prison. Nothing is the same for him and Linda again.
- Mickey is released from prison but is addicted to anti-depressants. Desperate, Linda asks Edward for help. He gets them a house and Mickey a job, but starts a brief affair with Linda.
- Mrs L tells Mickey about the affair, he confronts Edward with a gun in the council chamber. Mrs J reveals that they are twins. Mickey shoots Eddie and the police kills Mickey.

Mrs Johnstone

- "He told me I was sexier than Marilyn Monroe" Recurring motif – Her looks were all she had going for her and when they were gone so was her husband.
- "By the time I was twenty-five, I looked like forty-two" Hyperbole – showing the impact on her appearance of having a hard life and so many children so young.
- "During the dance, she acquires a brush, dusters and a mop" stage directions – showing that she is happy to be working even if it is in a menial job.
- "Never put new shoes on a table" Foreshadowing – this superstition suggests that something bad will happen right from the start of the play. Mrs Johnstone believes in these superstitions.
- "Silver trays to take meals on"/"A bike with both wheels on" – Mrs J & Mrs L Juxtaposition – Highlights the different lifestyles both boys would have. Envy from Mrs J. too.
- "Mrs Lyons shows the Bible to Mrs Johnstone" Religious imagery and stage directions – showing how once a pact has been made and sworn on the bible you can't change your mind. Important symbolically as this is the point of no return in giving a baby away.
- "Don't you ever come round here again"/"I'm very sorry, but it's Edward's bedtime" – Mrs J and Mrs L juxtaposition of the characters.
- "She removes a locket from around her neck" - Symbolism.
- "bright new day, we're goin' away" - Foreshadowing and cheerful tone.
- "I curse you! Witch!" – Mrs L to Mrs J hyperbole.

The Narrator

- "I'm up to here with hard luck stories" – Milkman/ narrator.
- First person – shows a lack of caring and the poverty that the family live in.
- "The devil's got your number" – narrator.
- Foreshadowing – song shows us that she won't get away with giving up her son.
- "Did you never hear how the Johnstones died" – narrator Foreshadowing - the narrator tells us the ending at the start of the play.
- "The mother, so cruel, there's a stone in place of her heart" – narrator Hyperbole – The narrator exaggerates how horrible Mrs J. is which we find out if not true. He is being very judgemental and patronising towards her.
- "A debt is a debt, and must be paid" – narrator repetition – here the narrator is giving a double meaning, physical money and the fact that she will have to pay for giving up her child.
- "There's a mad man" – narrator Alliteration – referring to Mickey and his desire to kill Edward with the gun from Sammy's robbery.
- "Do we blame superstition for what came to pass? Or could it be what we, the English, have come to know as class?" – the narrator.
- Rhetorical questions – questioning tone as to whether the blame lies with society rather than the characters themselves.
- "Did you ever hear the story of the Johnstone twins, as like each other as two new pins" – narrator Cyclical structure of the novel – repetition of the opening – showing their deaths were inevitable from the start.
- "The music pulsates and builds" stage directions – showing the culmination of the action and the building to the deaths.

Edward/Mickey

- "Mam"/"mummy", "pissed off"/"you say smashing things", "the two of them immediately wriggle and giggle with glee" – Edward and Mickey - Juxtaposition and difference in speech patterns.
- "We're blood brothers" Mickey and Edward Symbolism – childhood ritual and the fact they are actually twins.
- "If you cross your fingers and if you count from one to ten" – the children Foreshadowing – showing childhood beliefs and superstitions.
- "Peter Pan" Symbolism of never growing up – foreshadowing later difficulty when both boys do grow up.
- "Take a flying fuck at a rolling donut"/"it's borin'" - Juxtaposition - of trouble at school for Mickey and Edward.
- "A game of piggy-in-the-middle" the stage directions and foreshadowing – showing where Linda is in the middle of Mickey and Edward throughout both their childhood and into adulthood too.
- "Workin' overtime"/"I go away to university tomorrow" – Mickey and Edward statements – shows the contrast in lifestyles and class for both boys.
- "How come you got everything... an' I got nothin'?" – Mickey, to Edward Dialogue – jealousy from Mickey to Edward showing he sees the unfairness in society.
- "I could have been him!" – Mickey shouting accusatory tone –how unfair the whole situation has been and despondency Mickey at his poverty.
- "Walkin' round in circles" – Mickey Tone – Mickey is resentful and angry at what has happened.
- "I grew up. An' you didn't, because you didn't need to" – Mickey to Edward Emotive language – shows jealousy of Edward's freedom, money and Uni.
- "Chronically depressed" – Mickey Emotive language – Mickey is reliant on pills after prison.
- "You sorted it out. You and Councillor Eddie Lyons" – Mickey Sarcastic tone –not grateful for Eddie's help.
- Edward is "on a platform" stage directions –Edward is isolated and an easy target.

Mrs Lyons

- "Give one to me" imperative – demanding tone showing that she is desperate for a baby and will do anything to get one.
- "How can you possibly avoid some of them being put into care?" Rhetorical Question – persuade her to give one of the twins to her.
- "You'll be locked up" Directive – threatening Mrs J.
- "It's just... just this place" repetition – shows her bad state of mind.
- "Has a lethal-looking kitchen knife in her hand" Stage directions – she is trying to stab Mrs J. showing that she is going mad.

Minor Characters

Mr Lyons

"It's a sign of the times, Miss Jones" - statement – showing that there is no work for anyone (linking to Mickey being unemployed and unable to find a job).

Police

"He was about to commit a serious crime"/"it was more of a prank, really" - juxtaposition of the treatment of Mickey and Edward by the police – unfairness and class stereotyping.

Sammy

"Sammy burnt the school down" - foreshadowing – that he will be trouble and lead Mickey into trouble too.

Schoolteacher

"This is a boys' school, Lyons" – negative tone – showing Edward getting into trouble.

Cormier presents Larry LaSalle as a complex character in Heroes.

He is physically striking and he has an attractive personality.

He is a war hero, having been awarded a Silver Star Medal. He is also portrayed as a hero to the kids of Frenchtown.

There are hints throughout the opening chapters that he might not be what he seems.

Context

Pearl Harbor

The United States were brought into the Second World War because of the **bombing of Pearl Harbor by the Japanese** on December 7th, 1941. It was a surprise attack by the Japanese on an important US naval base. Pearl Harbor is on one of the islands of Hawaii, which is part of the USA. Many US battleships and aircraft were destroyed, and over 2,000 people were killed.

The attack made public opinion in the USA switch overnight to pro-war patriotism. Unlike in Europe there was no conscription, but **many Americans volunteered to go and fight overseas**.

Key Quotations

These quotations 'show' us the type of character that Larry LaSalle is. Use them in your response when you are analysing.

- 'The broad shoulders of an athlete and the narrow hips of a dancer'.
- 'He could tap dance with machine gun speed'.
- 'He was our champion'.
- 'Does that one sin of mine wipe away all the good things?'.
- 'Movie star teeth' and a 'touch of Fred Astaire'.
- 'Dark hints that he had 'gotten into trouble' in New York City'.
- 'You are all stars'.

Sentence Starters

What?

- The writer presents...
- Larry is portrayed as...
- LaSalle appears to be a character who...

How?

- The use of [insert descriptive device, e.g. metaphor] is effective because...
- The word, '...' has suggestions of...
- '[insert quote]' has connotations of ...
- This implies/suggests...
- The word/phrase is effective because...

Why?

- Cormier creates a sense of...
- The reader's response would be...
- The effect of this is...

In contrast, In addition, Alternatively, Furthermore.

Key Words

Foreshadows	Warns of a future event.
Charismatic	A charming personality which seems to attract others.
Manipulative	When you use unpleasant/ immoral means to influence someone.
Ominous	Suggests something bad will happen.
Connotes	Implies or suggests something.
Veteran	Ex-member of the military, e.g. an ex-soldier.
Empathy	The ability to understand and share the feelings of others.
Distrust	When you don't trust someone.

Example Response

Cormier presents Larry LaSalle as a fake. Initially, he is described as a glamourous and charismatic man with his 'movie star teeth' and 'a touch of Fred Astaire'. The use of metaphors is effective as it shows Larry to be elevated from the ordinary residents of Frenchtown. Fred Astaire was a famous dancer and movie star so the fact that Larry only needs 'a touch' of his qualities amplifies his skill and prowess.

Cormier creates a sense of mystery where Larry is concerned because the people of Frenchtown are likely to focus on the excitement of his celebrity status instead of questioning his motives. The reader is likely to feel concern that the fact there are 'dark hints about his past' and therefore he may pose a threat to the children of Frenchtown.

Eatwell - 8 Tips for Healthy Eating

1. Base your meals on starchy foods.
2. Eat lots of fruit and veg.
3. Eat more fish – including a portion of oily fish each week.
4. Cut down on saturated fat and sugar.
5. Eat less salt – no more than 6g a day for adults.
6. Get active and try to be a healthy weight.
7. Drink plenty of water.
8. Don't skip breakfast.

Healthy Food Swaps

Changing just a few eating habits can make a big difference to your diet and is the healthiest way to lose weight. Eat less fat, salt, sugars, processed foods and high calorie foods. Swap them for something healthier, such as more fruit and vegetables (5 a day).

Find out more:
www.nhs.uk/change4life/food-facts

Health Issues Linked to Poor Diet

Heart Disease CHD	Arteries become blocked with fatty deposits. Linked to **saturated fats** and **obesity**.
Obesity	A condition where the body has accumulated **too much fat**.
Type 2 Diabetes	A condition linked to too much **processed sugar**, obesity and lack of exercise.
Tooth Decay	Plaque builds up on teeth causing decay. Made worse by eating too much **sugar**.

Macronutrients - We need these in large amounts.

Nutrient	Food Examples	Main Function in Body
Starchy Carbohydrates	Cereals, bread, rice, potatoes, pasta etc.	Give us slow release energy. (Wholegrain versions are higher in fibre).
Protein	Meat, fish, eggs, nuts, seeds, pulses, lentils.	Growth, repair and maintenance of muscles.
Fat	Butter, lard, margarine, sunflower oil, olive oil, etc.	Insulates our vital organs (heart, lungs, etc.) and keeps us warm.

Micronutrients – We need these in small amounts.

Nutrient	Food Examples	Main Function in Body
Vitamins & Minerals	Fruits and vegetables.	Help our immune system fight off illnesses and help us release energy from other foods.

Other Essential Nutrients

Nutrient	Food Examples	Main Function in Body
Dietary Fibre (NSP)	Wholegrain cereals, fruit/ vegetables, nuts/ seeds, etc.	Helps our digestive system remove waste and avoid constipation.
Water	Keeps us hydrated, controls body temperature, helps digestion, gets rid of waste.	

All the **foods** on the **Eatwell Guide** give us a range of **different nutrients** which all do **different jobs** in our body.

Remember lots of foods provide more than 1 nutrient.

Practical Dishes

Skills and Processes

Swiss Roll
Aeration, creating an egg foam which helps products to rise when baked. Checking for readiness. Filling and shaping.

Fajitas
Knife skills. Stir frying. Checking for readiness (no pink chicken). Working with high risk foods (chicken). Assembling wraps.

Pizza
Rubbing in, kneading, shaping. Strong flour used for bread dough is high in a protein called gluten. Knife skills.

Chilli–Con-Carne
Dry frying meat. Vegetable preparation, knife skills. Control of hob. Food safety.

Pasta and Cheese Sauce
Boiling, simmering. Sauce making gelatinisation of starch.

Cheesecake
Crushing, melting, aeration by mechanical whisking. Combining ingredients. Piping cream for decorative finish.

Milestone Dish of Choice
Time management, organisation. Demonstration of skills. Use of cooker/ oven/safety/hygiene.

1.1 Je suis comme ça

Tu es comment?	What do you look like?
J'ai les cheveux...	I have... hair.
blonds.	blond
noirs.	black
bruns.	good
roux.	red
J'ai les yeux...	I have...eyes.
bleus.	blue
marron.	brown
gris.	grey
verts.	green
Je suis beau/belle.	I am good-looking/ beautiful.

Mon caractère	My personality
Je suis...	I am...
drôle.	funny.
gentil(le).	kind.
intelligent(e).	intelligent
lunatique.	moody.
sportif/sportive.	sporty.
timide.	shy.

masculine	feminine	meaning
sport**if**	sport**ive**	sporty
gent**il**	gent**ille**	kind
b**eau**	b**elle**	good-looking/ beautiful
sympa	sympa	nice
timide	timide	shy

1.2 Tu vuex y aller?

Les invitations et les reactions	Invitations and reactions
Tu veux aller...	Do you want to go...
au cinéma/à la piscine?	to the cinema/ swimming pool?
ce matin	this morning
cet après-midi	this afternoon
ce soir	this evening
demain (matin)	tomorrow (morning)
samedi (après-midi/soir)	Saturday (afternoon/ evening)
Oui, je veux bien.	Yes, I'd like to.
D'accord.	OK.
Génial!	Great!
Pourquoi pas?	Why not?
Non, merci.	No thanks.
Tu rigoles!	You're joking!
J'ai horreur de ça!	I hate that!
Désolé(e), je ne peux pas.	Sorry, I can't.

Où vas-tu le weekend?	Where do you go at the weekend?
Je vais...	I go...
au centre commercial	to the shopping centre
au centre de loisirs	to the leisure centre
au cinéma	to the cinema
au fastfood	to the fast-food restaurant
à la patinoire	to the ice rink
à la piscine	to the swimming pool

La fréquence	Frequency
quelquefois	sometimes
souvent	often
tous les jours	every day
tous les soirs	every evening
tous les weekends	every weekend
une fois/deux fois par semaine	once/twice a week

Aller – to go (present tense)

Je vais	Nous allons
Tu vas	Vous allez
Il/elle/on va	Ils/elles vont

Avoir – to have (present tense)

J'ai	Nous avons
Tu as	Vous avez
Il/elle/on a	Ils/elles ont

1.3 Qu'est-ce-que tu as fait samedi?

Qu'est-ce que tu as fait samedi?	What did you do on Saturday?
J'ai dansé avec...	I danced with...
J'ai joué au bowling avec...	I went bowling with...
J'ai mangé un hamburger avec...	I ate a hamburger with...
J'ai regardé un DVD avec...	I watched a DVD with...
Je suis allé(e) au cinéma avec...	I went to the cinema with...
Je suis allé(e) en ville avec...	I went into town with...
Je suis allé(e) a une fête avec...	I went to a party with...
C'était...	It was...
génial.	great.
romantique.	romantic.
sympa.	nice.
ennuyeux.	boring.
nul.	rubbish.
un désastre.	a disaster.

Aller – to go (present tense)

Je suis allé(e)	Nous sommes allé(e)s
Tu es allé(e)	Vous êtes allé(e)s
Il/elle/on est allé(e)	Ils/elles sont allé(e)s

1.4 Fou de musique

chouette	great
reposant(e)	relaxing
emouvant(e)	moving
passionannt(e)	gripping
incroyable	incredible
nul(le)	rubbish
affreux(se)	awful
ennuyeux(se)	boring
stupide	stupid
rhythmique	rhythmical
répétitif(ve)	repetitive
commercial(e)	commercial
cool	cool
Plus....que	more...than
Moins....que	less...than

Etre – to be (present tense)

Je suis	Nous sommes
Tu es	Vous êtes
Il/elle/on est	Ils/elles sont

Au festival de musique	At the music festival
On a écouté toutes sortes de musicques.	We listened to all sorts of music.
On a chanté.	We sang.
On a dansé toute la soirée.	We danced all night.
On a mangé de la pizza.	We ate pizza.
On a regardé le concert sur des écrans géants.	We watched the concert on giant screens.
On a bien rigolé.	We had a good laugh.

Les mots essentiels	High-frequency words
oui	yes
non	no
j'ai	I have
je suis	I am
et	and
mais	but
ou	or
aussi	also
très	very
assez	quite
un peu	a bit
avec	with
qu'est-ce que?	what?
pourquoi?	why?
parce que	because
ce/cet	this
merci	thank you

2.1 Touché(e)!

la bouche	mouth
le bras	arm
le corps	body
le dos	back
l'épaule	shoulder
les fesses	buttocks
le front	forehead
le genou	knee
la jambe	leg
la main	hand
le nez	nose
l'œil	eye
les oreilles	ears
le pied	foot
la tête	head
le visage	face
les yeux	eyes
J'ai mal + au/à la/à l'/aux...	My ...hurts/aches / I have ...ache
J'ai chaud/froid/ faim/soif	I am hot/cold/ hungry/thirsty
J'ai la gripe	I have the flu
J'ai de la fièvre	I have a fever
Je suis malade/ fatigue(e)	I am ill/tired
Je suis enrhumé(e)	I have a cold

Les opinions	**Opinions**
Je pense que...	I think that...
Je suis d'accord avec...	I agree with...
Je ne suis pas d'accord avec...	I don't agree with...
À mon avis,...	In my opinion,...

2.2 Le sport et le fitness

Pour être un bon sportif,...	In order to be a good sportsperson,...
Il faut...	You must...
avoir un bon programme d'entraînement.	have a good training programme.
bien manger.	eat well.
bien dormir.	sleep well.
être motivé.	be motivated.
aimer la compétition.	like competition.
J'aime...	I like...
Je n'aime pas...	I don't like...
jouer dans une équipe	to play in a team
Ça booste le moral.	That boosts morale.
C'est fatigant.	It's tiring.
C'est ennuyeux.	It's boring.
l'entraînement	training
faire de l'activité physique	to do physical activity
jouer un match	to play a match
travailler avec son coach	to work with your coach

2.3 Manger sain

les boissons gazeuses	fizzy drinks
les céréales	cereals
les chips	crisps
l'eau	water
les fruits	fruit
les légumes	vegetables
les œufs	eggs
le pain	bread
le poisson	fish
les produits laitiers	dairy products
les sucreries	sweet things
la viande	meat
Je mange sain.	I eat healthily.
Je ne mange pas sain.	I don't eat healthily.
Je mange des...	I eat...
Je ne mange pas de...	I don't eat...
Je ne mange jamais de...	I never eat...

Studio Grammaire

de, de la, de l' and des all mean 'some'.
How do you know which one to use? See below.

	singular		plural
masculine	feminine	before vowel	
du pain	**de la** viande	**de l'**eau	**des** chips

Negative expressions go around the verb.

Je **ne** mange **pas** de chips.	I don't eat crisps.
Je **ne** bois **jamais** de boissons gazeuses.	I never drink fizzy drinks.

After pas/jamais, du, de la, de l', des – de/d'.

Je mange...	I eat...
Je vais manger...	I am going to eat...

2.4 Je vais changer ma vie

Je vais faire du sport régulièrement.	I am going to do sport regularly.
Je vais manger sain.	I am going to eat healthily.
Je vais prendre des cours d'arts martiaux.	I am going to take martial-arts classes.
Je vais aller au collège à pied.	I am going to walk to school.
Je vais faire trente minutes d'exercice par jour.	I am going to do thirty minutes' exercise per day.
Je vais aller au collège à vélo.	I am going to go to school by bike.

2.5 Es-tu en forme?

La forme	**Fitness**
actif/active	active
Ça ne m'intéresse pas.	That doesn't interest me.
J'ai un problème.	I have a problem.
Je joue à des jeux vidéo.	I play video games.

Les mots essentiels	**High-frequency words**
à l'avenir	in the future
alors	so
c'est	it is
ce sont	they are
d'abord	first
deux fois par semaine	twice a week
en général	in general
en plus	as well as that
ensuite	then
finalement	finally
où	where
parce que	because
quand	when
tous le jours	every day
très	very
Voilà!	That's that/Here you are!/There you go!

La bande-annonce (the trailer)

Un drame	A drama
Un film d'horreur	A horror film
Une comèdie	A comedy
Un film de science-fiction	A science fiction film
Un film historique	A historical film
Un film de guerre	A war film
Un film d'action	An action film
Un film romantique/ d'amour	A romantic/love film
il a les cheveux... roux/bruns/noirs/ blonds/gris	He has... ginger/ brown/black/ blonde/grey hair
il n'a pas de cheveux/il est chauve	He doesn't have any hair/he is bald
il a... une moustache/une barbe	He has... a moustache/a beard
il est.... grand/petit	He is... tall/short
il porte...	He wears...
des lunettes	glasses
une cravate	a tie
un short	shorts
un costume	a suit
un pull	a jumper
des bretelles	braces
un nœud-papillon	a bow-tie

Les personnages (the characters)

l'homme	the man
le garçon	the boy
le directeur	the headteacher
le professeur (prof)	the teacher
l'élève	the pupil
le guardien	the caretaker
il est.../il n'est pas...	he is.../he isn't...
sympa	nice
gentil	kind
timide	shy
sévère	strict
intelligent	intelligent
méchant	mean/naughty

Les matières (school subjects)

le français	French
le théâtre	drama
le dessin	art/drawing
la musique	music
la technologie	technology
la géographie (géo)	geography
l'informatique (f)	computing
l'histoire (f)	history
l'EPS (f)	PE
l'anglais (m)	English
l'espagnol (m)	Spanish
l'éducation civique (f)	citizenship
les sciences	science
les mathématiques (maths)	maths
ma matière préférée, c'est...	my favourite subject is...
intéressant	interesting
facile	easy
créatif	creative
nul	rubbish
amusant	fun
génial	great
utile	useful
ennuyeux/barbant	boring
difficile	difficult

L'école (school)

le collège	secondary school
le bâtiment	the building
les cours	the lessons

L'uniforme scolaire (school uniform)

porter	to wear
je porte...	I wear...
on porte...	we wear...
une cravate/une chemise/une jupe/ un pantalon/ un blazer/des chaussures (f)/des chaussettes (f)/des collants (m)	a tie/a shirt/a skirt/ trousers/a blazer/ shoes/socks/tights
noir(s)/noire(s)	black
blanc(s)/ blanche(s)	white
c'est../ce n'est pas...	it's../it's not...
confortable	comfortable
inconfortable	uncomfortable
élégant	smart
pratique	practical
à la mode/chic	fashionable

Le règlement (school rules)

il faut.../il ne faut pas...	you must.../you must not...
dormir	sleep
être impoli	be rude
fumer	smoke
se bagarrer	fight/scrap/argue
crier en classe	shout out in class
lancer des avions en papier	throw paper planes
tendre un piège à quelqu'un	set a trap for someone
manger dans la classe	eat in class
si on...	if you...
on risque de...	you risk...

Les mots essentiels (high frequency words)

assez	quite
très	very
un peu	a bit
trop	too
mais	but
aussi	also
et	and
pourtant	however
parce que/car	because
à mon avis	in my opinion
je pense (que)	I think (that)
je crois (que)	I believe (that)
c'est	it is
ce n'est pas	it isn't

Qu'est-ce qui s'est passé? (what happened?)

je suis arrivé	I arrived
j'ai parlé	I spoke
j'ai travaillé	I worked
j'ai crié	I shouted
j'ai selectionné	I chose/selected
j'ai dessiné	I drew
j'ai sonné	I rang
j'ai rencontré	I met

avoir (to have)

j'ai	nous avons
tu as	vous avez
il/elle/on a	ils/elles ont

aller (to go)

je vais	nous allons
tu vas	vous allez
il/elle/on va	ils/elles vont

Key Words/ Key Concepts/ Processes	Definition
Urbanisation	An increase in the percentage of population living in towns and cities.
Megacity	A city with a population of over 10 million.
Push Factor	A negative reason(s) that makes people leave an area.
Pull Factor	A positive reason(s) that makes people come to an area.
Natural Increase	When a population increases because there are more births than deaths.
Natural Decrease	When a population decreases because there are more deaths than births.
CBD	The Central Business District is where the majority of shops and offices are located in a city.
Inner City	The central part of a city where people live and where there are often problems because people are poor and there are few jobs.
Regeneration	To develop and improve something to make it more active, successful, or important, especially after a period when it has been getting worse.
Integrated Transport System	This is where different modes of transport are efficiently linked with each other.
Public Transport	Buses, trains, and other forms of transport that are available to the public, charge set fares, and run on fixed routes.
Shanty Towns	An unplanned, illegal settlement also known as Bustees (India) Favelas (Brazil), slums and squatter settlements.
Informal Sector	People employed in the 'black economy' which are unregulated and illegal.
Sanitation	Conditions relating to public health, especially the provision of clean drinking water and adequate sewage disposal.

Urbanisation

Push Factors
Crime, drought, famine, lack of employment.

Pull Factors
Health care, employment, education.

CBD

Problems
Out-of-town shopping centres, online retailer.

Solutions
City centre markets, events e.g. music festivals.

Transport Solutions

Better public transport, pay as you go bikes, electric cars, life sharing and park and ride schemes.

Key Words/ Key Concepts/ Processes	Definition
Air Pollution	The presence or introduction into the air of a substance which has harmful or poisonous effects.
Water Pollution	This is the contamination of water bodies, usually as a result of human activities
Scatter Graph	This is a set of points plotted on a horizontal and vertical axes.
Correlation	A relationship or connection between two or more things.
Sustainable	This means something that causing little or no damage to the environment, benefits local people and is able to continue for a long time.
Revision	Revisiting work done previously to improve one's knowledge of a subject, typically to prepare for an examination.

Inner City

Problems
Crime, lack of green spaces, old factories, poor quality housing.

Solutions
Regeneration of run down areas e.g. creation of parks new housing.

Shanty Town

Problems (Dharavi)
1 million people living in 1 square mile, 4,000 cases of typhoid a day, water available for 2 hours a day, 12-16 people per 21m2 1 toilet shared amongst 120 people, poor quality housing.

Solutions
Clean water supply, provide concrete so resident s can built stronger housing and build additional floors to their houses, improve sanitation, provide a legal and safe electricity supply.

Air Pollution (Mexico City)

Car free Sundays, car control schemes, ban older vehicles, switch to cleaner fuels, ban older cars, improve public transport.

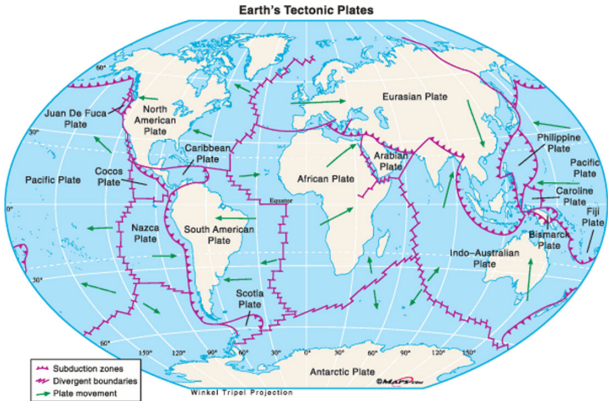
Water Pollution (India)

Improve sewage treatment, educate people, enforce environmental laws.

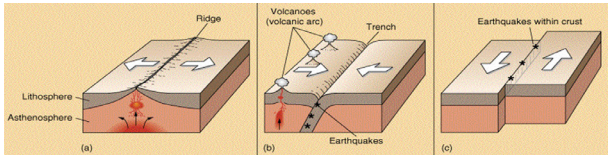
Case Study: Sustainable Settlement

BedZed Features
Wind cowls, large south facing windows, electric car charging ports, lockable bike stores, low flow taps.

Key Words/ Key Concepts/ Processes	Definition
Crust	The thin outer layer of the Earth, made of rock.
Continental Crust	This is made of lighter (less dense) rock and forms the continents.
Oceanic Crust	The heavier (denser) crust, under the oceans.
Tectonic Plates	The Earth's surface is broken into large pieces, each piece is called a tectonic plate.
Core	The inner layer of the Earth, made of molten iron and some nickel.
Mantle	The semi-molten middle layer of the earth, between the crust and the core.
Convection Current	A current of warmer material (magma) which rises, when heated from below.
Earthquake	The sudden shaking of the Earth's surface, caused by rock movement.
Focus	The point where the energy is released in an earthquake.
Epicentre	The point on the ground directly above the focus of an earthquake.
Seismic Wave	The wave of energy given out in an earthquake, that shakes the ground.
Aftershock	A smaller earthquake following the main shock of a large earthquake.
Magma	Melted rock below the Earth's surface.
Lava	Melted rock, which breaks though the Earth's surface.
Volcano	A mountain or hill, typically cone shaped, that has a vent through which lava erupts from the Earth's crust.
Pyroclastic Flow	A flow of gas, dust, ash and other particles that rushes down the side of a volcano after an eruption.
Tsunami	A high wave caused by an earthquake at sea.

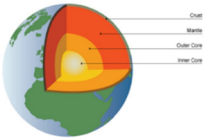


Types of Plate Movement



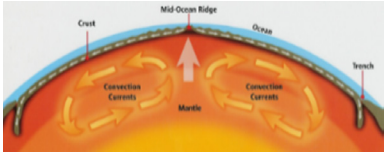
Margin Type	Constructive	Destructive	Conservative
Movement	Apart (Diverge).	Together (Converge).	Alongside each other.
Effect on Land		Land destroyed.	No change.
Volcanoes?	Yes.	Yes.	No.
Earthquakes?	Yes.	Yes.	Yes.

Structure of the Earth



Convection Currents

The core heats the mantle and causes the hot magma to rise towards the crust. This moves the plates of the crust either towards or apart from each other. As the magma cools it sinks back towards the core, continuing the cycle and driving the convection currents.



Key Dates and Events You Should Know

May 1882	The Triple Alliance was formed between Germany, Austria-Hungary and Italy. The three countries agreed to support each other if attacked by either France or Russia.
March 1905	The Moroccan crisis - Morocco wanted independence from France. Germany declared support for the Moroccans against the French. War was avoided following negotiations which allowed France to retain possession of Morocco.
1905-06	The Bosnian crisis - Austria took control of Bosnia angering Serbia. Serbia threatened Austria-Hungary with war. Russia, allied to Serbia, mobilised its forces. Germany mobilised its forces and threatened Russia. War was avoided when Russia backed down.
August 1907	The Triple Entente was formed between Britain, France and Russia and stated that they had a "moral obligation" to support each other.
March 1908	Germany launched it's first Dreadnought sparking the naval race between itself and Britain.
28TH June 1914	Assassination of Archduke Franz Ferdinand – tensions rise across Europe triggering several countries and alliances to declare war.
23rd July 1914	Austria Hungary sent an ultimatum to Serbia forcing them to accept an enquiry into the assassination and accept that they would allow the Austro-Hungarians to take over their legal system to do this or a war would be declared. Serbia refused.
24th July 1914	Russia offered its support to Serbia.
28th July 1914	Austria Hungary declared war on Serbia.
3rd August 1914	Germany launched the Schlieffen plan, invading France to capture Paris by going through Belgium.
4th August 1914	Britain declared war on Germany.

Objectives: To be able to explain the causes of the First World War, making connections between them. To be able to understand different interpretations of these events.

Key Historical Skills Covered in this Topic

Chronology	Ordering historical events.
Cause and Consequence	Giving reasons why events happened and their effects.
Explanation	Sharing your understanding using historical knowledge.
Significance	Making judgements about the importance and impact of an historical event.

Key Words

Alliances	An alliance is an agreement between countries to help each other in a war. In 1914 the major powers in Europe were divided into two armed groups known as the Triple Alliance and the Triple Entente. The members of the Triple Alliance were; Austria-Hungary, Germany and Italy. The members of the Triple Entente were; Britain, France and Russia.
Nationalism	The belief in and support for your country often above the needs or position of other countries.
Imperialism	The policy of making your country bigger and more powerful be taking over other countries and their resources.
Militarism	The belief that your country should build and maintain a powerful military and should be willing to use it to defend the country's interests.

The Trenches (Home Learning Project)

This task is a an independent task which will ask you to use evidence to explain the structures and military use of the trenches in the First World War. This will form part of the Y10 GCSE course if you choose to continue on to GCSE history. You will be sent full objectives and supporting resources by your class teacher on MS Teams.

There is one assessment for this topic.

The first assessment for this topic will focus on:

- Knowledge questions retrieving key skills e.g. centuries, keywords, key events studied.
- The causes of and an explanation of some of the key causes of the war.
- Interpretations from different viewpoints on who was to blame for the war beginning.

What were the short and long term causes of World War One?

Long term causes—fear, competition and problems which had been building up over many years before the war began

- **Alliance systems:** Created suspicion between different countries. When war began between any two countries this made it more likely that war would spread across Europe. Also led up to the long term build up of military capability in Europe.
- **Militarism:** No country wanted to be in a position not be able to defend itself so all countries (with the exception of Britain) began actively recruiting into their armies in the years before 1914. For Britain and Germany this also included building new battleships called Dreadnoughts.
- **Nationalism:** All countries in Europe believed their countries should be seen as the strongest and most powerful. This was particularly the case for Germany, whose leader, Kaiser Wilhelm, wanted to prove himself by getting Germany its 'place in the sun'.
- **Imperialism:** All countries wanted to increase their political power and wealth by building empires. By 1900 Britain was considered to have the biggest and wealthiest empire with land in India, Canada, the West Indies and Africa. Other countries were also trying to expand, leading to competition in Morocco and Bosnia which also created conflict.
- **The Treaty of London:** This was signed by countries across Europe declaring they would defend Belgium if it was attacked as its neutrality was to be protected.

Short term causes—events that happened in the weeks and months before the war began

- The assassination of Archduke Franz Ferdinand.
- Austria-Hungary's declaration of war on Serbia.
- The Schlieffen plan and the invasion of Belgium.
- Britain's defence of Belgium.

'Bravo Belgium' - A British Cartoon published 12th August 1914

Objectives: To be able to describe the use of and conditions in the trenches during the First World War. To be able to explain the illnesses and medical issues caused by trench warfare and to develop source analysis skills in order to successfully answer GCSE questions.

Key Dates and Events You Should Know

August 1914	Britain joined the First World War. British troops halted the German advance through France. The FIRST TRENCHES were built by both sides defended by barbed wire and machine guns after neither side retreated.
1915	Germany used CHLORINE GAS for the first time. Allied casualties were estimated at 60,000, German at 35,000.
December 1915	The Thomas Splint began to be used on the front line for leg fractures improving survival rates from 20% to 82% for men with this kind of injury,
July-Nov 1916	The Battle of Verdun and the battle of the Somme (July-Nov). There were 60,000 casualties on the first day alone and 400,000 by the time the battle ended. British forces gained just 5 miles during this time of fighting.
April 1917	The Battle of Arras. The British used tunnels to attack German trenches. Some of these tunnels were also used for.
October 1917	At the Battle of Cambrai, the British army used a large number of tanks to attack German trenches. These were very effective for attacking across No Man's land but also further destroyed land making transportation of injured men difficult.
1917	The first use of stored blood (blood bank) for doing blood transfusions on the front line.
November 1918	The First World War ended.

Key Historical Skills Covered in this Topic

Chronology	Ordering historical events.
Cause and Consequence	Giving reasons why events happened and their effects.
Explanation	Sharing your understanding using historical knowledge.
Usefulness	Judging how useful a source is for finding out about a key event/issue. Is it accurate? Is the author reliable? When and why was it produced?

Key Words

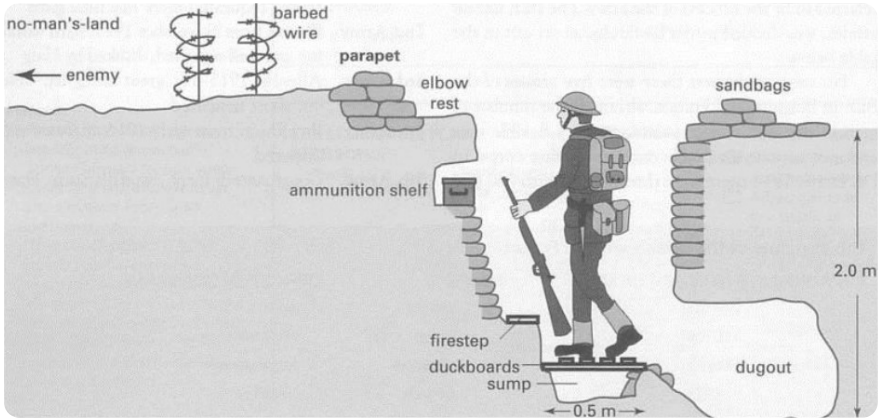
Trench Fever	Known as PUO – spread by lice; caused headaches, shivering and pain.
NYD .N	Stood for 'Not yet diagnosed. Nervous.' Shell shock. This term was first used in 1914. By 1916 men were being treated for the condition in France by being given food, rest and talks.
Trench Foot	A condition caused by soldiers' feet being in wet trenches in tight boots. Feet became swollen and blistered and gangrene sometimes set in.
Shrapnel	Shells broke into fragments and became embedded in the bones of soldiers.
Gas	Chlorine, mustard and phosgene was used from 1914. Could cause blindness, coughing and even suffocation.
Regimental Aid Post	The first stage in the evacuation of men who were wounded, by STRETCHER BEARERS; **RAP**s were close to the front line and the aim was to decide which men had light wounds and which men needed to be sent to dressing stations for further treatment.
Casualty Clearing Station	The **CCS** were large, well equipped medical facilities for the wounded, 7-12 miles from the fighting. Tents or large huts housed them. They could perform operations and could deal with 1,000 casualties at a time.
Base Hospitals	Converted hospitals or buildings with operating theatres, x-ray departments and some specialist centres close to railway lines. From here, recovering soldiers were often sent back to England.
Thomas Splint	Helped injured legs to heal after bones had been fractured; it pulled the leg lengthways, stopping the bones from grinding against each other.

There is one assessment for this topic.

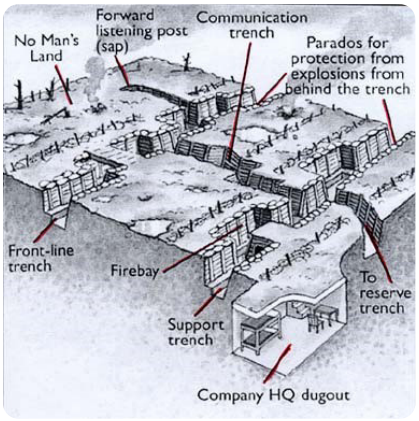
The first assessment for this topic will focus on:

- Describing key features of an event/object/issue linked to the topic.
- Explaining how useful two sources are to finding out about something linked to this topic.
- Identifying how you could find out more about a topic by asking questions about a source and looking for more evidence.

What were the key features of a trench?



Can you describe the key features of a trench and what each feature was used for?



Can you explain how different parts of the trench system were connected?

What do I need to be able to do?

You should be able to:

- Understand different representations of fractions.
- Fully simplify fractions.
- Recognise and find equivalent fractions.
- Convert between mixed numbers and improper fractions.
- Add/subtract any fractions.
- Add/subtract mixed numbers.

Key Words

Numerator	The top number of a fraction.
Denominator	The bottom number of a fraction.
Equivalent	Of equal value.
Mixed Number	A number with an integer and a proper fraction.
Improper Fraction	A fraction where the numerator is larger than the denominator.
Coprime	Two numbers which share no common factors (except 1).

Representing Fractions

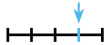
Numerator → $\frac{3}{4}$ ← Denominator

We say 'three quarters' or 'three out of four'

$3 \div 4$

0.75

75%



All of these show $\frac{3}{4}$

Simplifying Fractions - You must always simplify your fractions if you can.

$\frac{2}{4} = \frac{1}{2}$ (÷2 ÷2)

HCF of 2 and 4 is 2 so to fully simplify the fraction by dividing the numerator and denominator by 2.

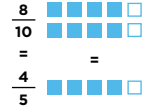
$\frac{4}{12} = \frac{2}{6} = \frac{1}{3}$ (÷2 ÷2 ÷2 ÷2)

$\frac{4}{12} = \frac{1}{3}$ (÷4 ÷4)

Both ways get us to the right answer, just one takes a bit longer!

$\frac{8}{10}$

Sometimes a picture can help to visualise the problem.



Once you cannot find a common factor, the fraction is fully simplified.

$\frac{7}{10}$

This fraction is fully simplified as 7 and 10 have no common factors. We can say that 7 and 10 are COPRIME.

Equivalent Fractions

Two fractions are equivalent if they represent the same quantity.

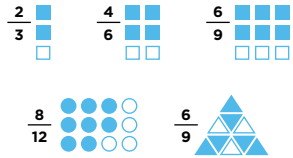
If the numerator and denominator have the same multiplier, they are equivalent.

$\frac{5}{7} = \frac{25}{35}$ (x5 x5)

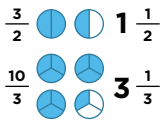
$\frac{1}{4} = \frac{2}{8}$ (x2 x2)

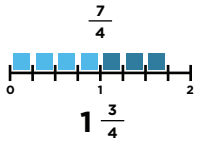
Each of these diagrams represents an equivalent amount.

They all show '2 out of every 3' or $\frac{2}{3}$



Mixed Numbers and Improper Fractions





Fractions can represent more than one whole.

The denominator tells us how many parts make up one whole.

$\frac{9}{5}$ ← This tells us that one whole is made up of 5 parts. We have 9 parts, so we can make one whole plus 4 parts.

$1\frac{4}{5}$ ←

Adding/Subtracting Fractions - Common Denominators

$\frac{2}{7} + \frac{4}{7}$

$\frac{2}{7} + \frac{4}{7} = \frac{6}{7}$

Remember that the denominator doesn't change.

$\frac{5}{8} - \frac{4}{8}$

$\frac{5}{8} - \frac{4}{8} = \frac{1}{8}$

We can just subtract 4 from 5!

$\frac{1}{10} + \frac{3}{10}$

$\frac{1}{10} + \frac{3}{10} = \frac{4}{10} = \frac{2}{5}$ (÷2)

4 and 10 have a common factor (2)!

You must always fully simplify you fractions.

Adding/Subtracting Fractions - Common Multiples

$\frac{3}{5} + \frac{1}{10}$

10 is a multiple of 5 (5 x 2) so, using equivalent fractions we can say: $\frac{3}{5} = \frac{6}{10}$

$\frac{6}{10} + \frac{1}{10} = \frac{7}{10}$

$\frac{3}{4} - \frac{1}{12}$

12 is a multiple of 4 (4 x 3) so, using equivalent fractions we can say: $\frac{3}{4} = \frac{9}{12}$

$\frac{9}{12} - \frac{1}{12} = \frac{8}{12}$

Remember you must always fully simplify your fractions!

$= \frac{2}{3}$

$\frac{1}{2} + \frac{2}{3} + \frac{1}{6}$

Here, we know that 2 and 3 share a common multiple of 6, so we can say:

$\frac{1}{2} = \frac{3}{6}$ and $\frac{2}{3} = \frac{4}{6}$

$\frac{3}{6} + \frac{4}{6} + \frac{1}{6} = \frac{8}{6}$ (Simplify)

We need to give our answer as a mixed number.

$= \frac{4}{3} = 1\frac{1}{3}$

Adding/Subtracting Fractions - Different Denominators

$\frac{1}{5} + \frac{3}{4}$

We need to find a common denominator using equivalent fractions.

$\frac{1}{5} \xrightarrow{\times 4} \frac{4}{20}$

$\frac{3}{4} \xrightarrow{\times 5} \frac{15}{20}$

$\frac{4}{20} + \frac{15}{20} = \frac{19}{20}$

$\frac{3}{11} + \frac{2}{3} = \frac{9}{33} + \frac{22}{33} = \frac{31}{33}$

$\frac{3}{11} = \frac{9}{33}$ $\frac{2}{3} = \frac{22}{33}$ — The LCM of 3 and 11 is 33, so our equivalent fractions are;

$\frac{5}{7} + \frac{4}{9} = \frac{45}{63} + \frac{28}{63} = \frac{73}{63}$

Remember you can find the LCM of 7 and 9 by listing their multiples;
7, 14, 21, 28, 35, 42, 49, 56, **63**, 70
9, 18, 27, 36, 45, 54, **63**, 72

Let's convert it to a mixed number.

$= 1\frac{10}{63}$

Adding/Subtracting Mixed Numbers

Method 1

$1\frac{3}{4} + 2\frac{1}{2}$

We have three 'wholes'

$+ \frac{3}{4} + \frac{1}{2}$

$\frac{3}{4} + \frac{1}{2} = \frac{3}{4} + \frac{2}{4}$

$= \frac{5}{4}$

$= 1\frac{1}{4}$

So we have:

$3 + 1\frac{1}{4} = 4\frac{1}{4}$

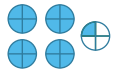
Method 2

$1\frac{3}{4} + 2\frac{1}{2}$

$1\frac{3}{4} =$  $= \frac{7}{4}$

$2\frac{1}{2} =$  $= \frac{5}{2} = \frac{10}{4}$ (x2)

$\frac{7}{4} + \frac{10}{4} = \frac{17}{4} = 4\frac{1}{4}$



How many times does 4 go into 17?
4, 8, 12, 16, 20
4 with a remainder of 1.

What do I need to be able to do?

You should be able to:

- Multiply unit fractions.
- Multiply non-unit fractions.
- Use cross-cancelling to simplify fractions before multiplying.
- Divide integers by fractions.
- Divide fractions by fractions.
- Find fractions of amounts.
- Use a given fraction to find the whole.
- Find the reciprocal of an integer/fraction.

Key Words

Numerator	The top number of a fraction.
Denominator	The bottom number of a fraction.
Unit Fraction	A fraction with a numerator of one.
Commutative	Changing the order of the operations doesn't change the result.
Reciprocal	The reciprocal of a number is 1 divided by the number.
Coprime	Two numbers which share no common factors (except 1).

Multiplying Unit Fractions

$\frac{1}{2} \times \frac{1}{3}$ "One half of one third".

$= \frac{1}{6}$

Multiplying Any Fractions

Example 1

$\frac{2}{3} \times \frac{2}{5} = \frac{4}{15}$

"Two thirds of two fifths".

Another way to think of it: Two parts out of three parts on two out of five rows.

Example 2 See cross-cancelling for a quicker method!

$\frac{5}{7} \times \frac{14}{15} = \frac{5 \times 14}{7 \times 15} = \frac{70}{105}$

Remember to simplify where possible!

$= \frac{2}{3}$

Example 3 $1\frac{1}{2} \times 2\frac{1}{3}$

$\frac{3}{2} \times \frac{7}{3} = \frac{21}{6} = \frac{7}{2} = 3\frac{1}{2}$

Dividing Integers by a Unit Fraction

$3 \div \frac{1}{3}$ Think of this as 'how any 3 times does a third go into 3?'.

There are three thirds in one whole, so there are **9 thirds in 3 wholes**.

Cross-Cancelling Method

6 and 3 both have a common factor of 3, so we can divide both by 3!

$\frac{2}{\cancel{3}_{1}} \times \frac{\cancel{6}^{2}}{7} = \frac{4}{7}$

This method means that we do not need to simplify our answer as it should be fully simplified already!

Example 1

$\frac{\cancel{5}^{1}}{\cancel{9}_{1}} \times \frac{\cancel{18}^{2}}{\cancel{25}_{5}}$

This becomes:

$\frac{1}{1} \times \frac{2}{5} = \frac{2}{5}$

Remember; Multiply the numerators then multiply the denominators

Example 2

$\frac{\cancel{15}^{1}}{\cancel{27}_{3}} \times \frac{\cancel{36}^{4}}{\cancel{45}_{3}}$

This becomes:

$\frac{1 \times 4}{3 \times 3} = \frac{4}{9}$

Reciprocals

A number multiplied by its reciprocal is always 1.

$2 \times \frac{1}{2} = 1$

$5 \times \frac{1}{5} = 1$

The reciprocal of a is $\frac{1}{a}$

Dividing by a fraction, $\frac{1}{a}$, is the same as multiplying by its reciprocal, a.

Example

$3 \div \frac{1}{3} = 9$ $3 \times 3 = 9$

Dividing Fractions

Example 1

$$\frac{2}{3} \div \frac{5}{7}$$

$$\frac{2}{3} \times \frac{7}{5}$$

$$\frac{2 \times 7}{3 \times 5}$$

$$\frac{14}{15}$$

Example 2

$$\frac{5}{12} \div \frac{25}{18}$$

$$\frac{\cancel{5}^{1}}{\cancel{12}^{2}} \times \frac{\cancel{18}^{3}}{\cancel{25}_{5}}$$

$$\frac{1 \times 3}{2 \times 5}$$

$$\frac{3}{10}$$

Reverse Fractions of Amounts

$\frac{3}{4}$ of a number is 15. What is the number?

5 5 5 5 — If 3 parts = 15, then one part must = 5.

15

The original number was **20**.

$\frac{2}{3}$ of a number is 16. What is $\frac{3}{4}$ of the number?

8 8 8 — If 2 parts = 16, then one part must = 8.

16

The number is 8 x 3 = 24. So what is $\frac{3}{4}$ of 24?

One quarter is 6.

6 6 6 6 = **18**

3 x 6 = 18

Finding Fractions of Amounts

Find $\frac{1}{2}$ of 10. "Share 10 into 2 equal parts". 5 5

Find $\frac{2}{3}$ of 24. 2 parts is 16. Each part must be worth 8.

$\frac{1}{3}$ is 8 as 24 ÷ 3 = 8. 8 8 8 $\frac{2}{3}$ of 24 = **16**

Find $\frac{7}{10}$ of £105. £10.50 £10.50 £10.50 £10.50 £10.50 £10.50 £10.50 £10.50 £10.50 £10.50

£105 ÷ 10 = £10.50. 7 x £10.50 = £73.50.

$\frac{7}{10}$ of £105 = **£73.50**

Worded Problem

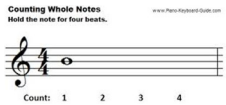
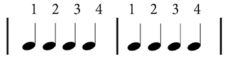
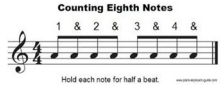
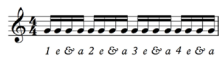
A TV is on sale for 2/5 off the price. It now costs £150.
How much did it cost originally?

Sale Price Discount

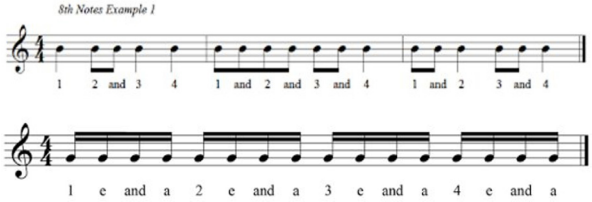
£50 £50 £50 £50 £50

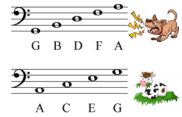
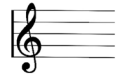
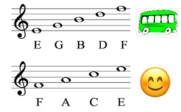
£150

So the original price of the TV was 5 x £50 = **£250**.

Symbol	Name	Value	How to Count
𝅝	**Semibreve**	4	
𝅗𝅥	**Minim**	2	
♩	**Crotchet**	1	
♪	**Quaver**	½	
𝅘𝅥𝅯	**Semiquaver**	¼	

Try tapping out some of these rhythms while you count:



Pitch	Visual Representation	Features	Description
Low Pitch		Bass, Cello, Tuba, Trombone use this clef.	This is the bass clef, sometimes called the F clef.
Low Pitch Notes		There is an easy way to remember the lines and spaces: **G**reat **B**ig **D**ogs **F**righten **A**untie. **A**ll **C**ows **E**at **G**rass.	The bass clef is used to notate low pitch instruments.
High Pitch		Violin, clarinet, right hand piano.	This is the treble clef, sometimes called the G clef.
High Pitch Notes		There is an easy way to remember the lines and spaces: **E**very **G**reen **B**us **D**rives **F**ast. **F A C E**.	The treble clef is used to notate higher pitch instruments.
Low and High Voices Acronym: **SATB**		Peoples singing voices range from low to high. Male voices are lower, female voices are higher.	**S**oprano: Highest female voice. **A**lto: High female voice. **T**enor: Mid-range male voice. **B**ass: Low male voice.

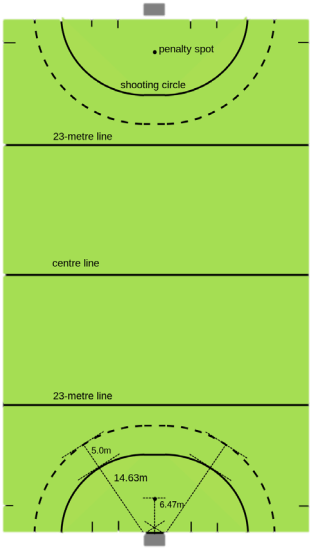
Self-Test Questions

1. Which clef would a bass guitar use?
2. Which is the highest pitch female voice?
3. What does SATB stand for?
4. Which clef does higher sounding notes use?
5. A clarinet would use which clef?

Super Challenge Question

1. Which clef would a piano use?

Pitch Markings



Key Rules/Fouls

Feet	The ball cannot make contact with the feet at any time.
Shooting Circle	You must be inside this area to shoot.
Non-Contact	Contact with another player cannot be made at any time.
Obstruction	Blocking the ball with your body from an opponent.
Back Stick	Only the flat side of the stick can be used to hit the ball.
Sticks	You cannot hit another players stick with your own.
High Stick	Stick cannot be above the hip if another player is around you.

Key Skills

Dribbling	Basic and Indian dribble.
Tackling	Block, jab and reverse.
Shooting	Hit, push, flick and slap.
Passing	Hit, push, flick and slap.
Jockeying	Pushing towards the line.
Receiving the Ball	Trapping and on the move.

Penalties Awarded

Free Hit	All players 5m away from the ball. Can be a pass of taken to yourself.
Penalty Corner	Awarded when the defence commits a foul in the shooting circle or purposefully hits the ball over the back line.
Penalty Stroke	Awarded when a foul is committed which would have prevented an almost certain goal.

Personal Skill Development

- Communication.
- Teamwork.

Theoretical Links

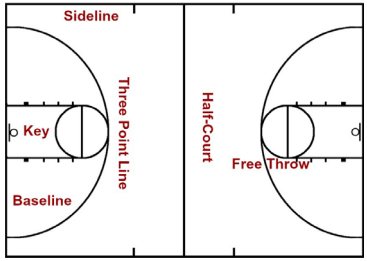
- Importance of a warm up and its stages.
- Importance of a cool down and its stages. Key muscles used and joint types.
- Fartlek training.
- Components of fitness required for successful performance.

Health Benefits

- Improves cardiovascular endurance.
- Improved co-ordination.

ENGLAND HOCKEY

Court Markings



Essential Skills

Pivot, Footwork, Jump Stop	**1.** First foot to land is the static pivoting foot. **2.** Landing on both feet – either foot can become static pivoting foot. **3.** On the move – release the ball before third step.
Triple Threat	Face the basket. Able to pass, shoot or dribble the ball.
Dribbling	One handed, push the ball with your finger tips, keep your head up to see team mates and the opponents.
Passing	3 main types: Bounce, chest and overhead pass.
Shooting	**1. Set shot (two hands release)** – '**BEEF**' – Balanced, Eye on target, Elbow under ball, Follow through. **2. Lay up (one hand release)** – dribble, pick up ball, take two steps to drive to the basket, shoot aiming at the top corner of the backboard small square **3. Free throws:** Taken after a personal foul, worth 1 point.
Defending	Man-to Man. Rebounding. Boxing out. Zonal marking. Half court press. Full court press.
Screening	A legal block set by an offensive player on the side of or behind a defender in order to free a teammate to take a shot or receive a pass.

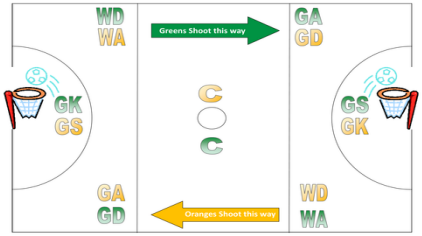
Key Rules/Infringements

Teams	Played with 5 players on each team.
Non-contact	Basketball is a non-contact. Deliberate contact results in a foul.
Travelling	Taking more than 'two steps' when in possession of the ball or moving your pivot foot once you've stopped.
Double Dribble	You must dribble the ball bouncing with one hand in one continuous motion. Two handed dribbling or start-stop dribbling is not allowed.
Scoring	You score by shooting the ball through the basket. Two points inside the circle, 3 points from outside the circle. 1 point from a free throw.
Moving/Handling the Ball	Once you cross the halfway line you cannot go back into your half during possession. You can only hold onto the ball for a maximum 5 seconds then you must pass, dribble or shoot.
Duration/Format	4 quarters of 12 minutes. Allowed to call 'time outs' up to six times in a game for tactical and recovery purposes.

Positioning

Point Guard	'Playmaker' team's best dribbler and passer.
Shooting Guard	Team's best shooter. Makes shots from long distance and is a good dribbler.
Power Forward	Plays near the basket, good at rebounding, defending and taking longer shots.
Small Forward	Strong all round player. Licence to move all over the court.
Centre	Tallest player. Plays near the basket. Scores close shots and makes rebounds on misses.

Court Markings



This shows the position on the court that each netball player must start at for every centre pass.

Penalties Awarded

Free Pass	For a player going out of their set playing areas/ centre pass not received in the centre third/ footwork.
Penalty Pass/Shot	Awarded for contact or obstruction. The ball is given to the opponent and the infringing player stands at their side until the pass is made. Within the D it becomes a penalty pass or shot.
Sideline/Backline Passes	Ball given to the team that did not throw it out of court.

Key Rules/Fouls

Held Ball	You can hold the ball for a maximum of 3 seconds.
Contact	With another player cannot be made at anytime.
Feet	You cannot move with the ball.
Shooting Circle	The shooters must be fully in the semi-circle to shoot.
Positional Play	You must stick to your positions areas of play on court.
Obstruction	You cannot be less than 0.90m/3ft away from the player with the ball.
Centre Pass	Must be received in the centre third.

Key Skills

Footwork and Movement	One foot/two feet landing/pivoting.
Passing	Chest, shoulder, bounce, overhead.
Attacking Dodging Skills	Feint/single dodge and double dodge.
Signalling	Receiving the ball.
Marking a Player	Defending.
Interception	Gaining possession.
Shooting	Close/distance.
Rebounding	Attacking/defending.

Personal Skill Development

- Communication.
- Teamwork.
- Spacial awareness.

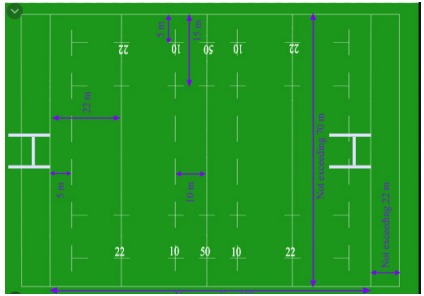
Theoretical Links

- Short and long term effects of exercise on the body.
- Feedback.
- Nutrition for a netballer and other sports performers.

Health Benefits

- Improves cardiovascular fitness.
- Improves agility.
- Improves balance.

Pitch Markings



Key Rules

- The game is played between two teams of thirteen players each.
- The game lasts for 80 minutes, with two halves of 40 minutes.
- Each team is given six tackles for a chance to score.
- If a team doesn't score in this time then the ball is 'handed over' to the opposition.
- 4 points are awarded for a try, 2 for a conversion/penalty and 1 for a drop goal.
- The ball cannot be passed forwards.

Key Skills

- **Passing:** Able to pass to the left and the right.
- **Tackling:** Front, side, rear.
- **Kicking:** Defensive and attacking.
- **Playing the ball**.
- **Positional awareness**.
- **Scrum**.
- Playing to individual **players strengths** and **opponents weaknesses**.

Penalties Awarded For

- Tackling a player who isn't in possession of the ball.
- Tripping an opponent up.
- Hitting an opponent with arm or fist.
- Kicking the ball when your opponent is trying to pick it up.
- Dangerous play, such as tackling your opponent above their shoulders.
- Defenders not back in line with the referee (5 metres).

Personal Skill Development

- Communication.
- Teamwork.

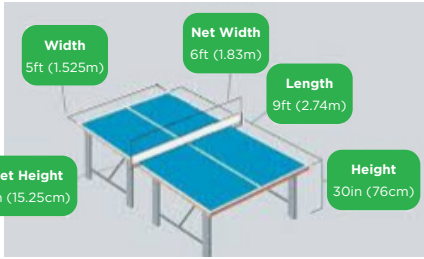
Theoretical Links

- Importance of a warm up/cool down.
- Different types of strength used and what training would be applicable to improving it.

Health Benefits

- Improves cardiovascular health.
- Promotes positive mental well being.

Equipment



Essential Skills

- **Grip:** The shake hands grip. Index finger does not go up the back of the racket.
- **Ready position:** Feet slightly wider than shoulder width on balls of feet/knees bent/upper body leant forward at the waist.
- **Flat service**.
- **Service with spin**.
- **Forehand drive:** Closed racket face/rotate backwards at the hip/swing from low to high finishing in a salute position near the forehead.
- **Forehand smash:** Rotate the hips and shoulders backwards so they are sideways to the table/hit the ball at its highest point or shoulder height/hit down on the ball.
- **Forehand push:** Open racket face/small backswing/play the ball to the side of you/follow through in the direction you hit the ball/do not prod at the ball.
- **Backhand push:** Be square to the line of the ball/slightly open bat/push forward from the elbow/strike ball in front of stomach.
- **Backhand drive:** Body square to the line of the ball/take racket back towards the belly button/slightly close racket face/hit the ball in front of you/shot comes from the elbow like throwing a Frisbee.

Key Rules/Infringements

Service Rules Each player will, in sequence, serve **two** good serves each. Serve from behind the table and serve anywhere on to the table. Ball must rest on the server's open hand. Ball shall be projected up without spin at least 16cm. Ball must drop before being hit. If the ball hits the net and goes over a "let" is played.

Ball in Play Until it touches anything other than the table surface, the net assembly, the racket or **the racket hand below the wrist**, or the point is won or it is a let.The ball is allowed to travel around the **outside of the net assembly** before hitting the opponent's part of the table.

Obstruction Occurs if the ball touches the player or the racket in front of the end line before it has touched the table surface. Occurs if the player's free hand touches the table.

Doubles You have two serves before it is your opponent's turn to serve twice. The service must go diagonally, from the server's right-hand side to the receiver's right-hand side. A doubles pair must strike the ball alternately. At the change of service, the previous receiver becomes the new server and the partner of the previous server becomes the receiver. This makes sure everybody does everything. After eight points you're back to the start of the cycle.

Positioning

- Speed and placement of service.
- Use of the cross table shot for safety.
- Use of topspin for net clearance.
- Use of spin to gain an advantage.
- Hitting to opponent's crossover point.
- Evaluation of opponent's strengths and weaknesses.

Pitch Markings

Key Rules/Fouls

- The game starts with a 'pull' this is where the team in possession of the disc throws it to the opposing team.
- You can only pivot when you have the disc.
- A goal is scored by catching the disc in your teams endzone, after each point your endzone changes to the opposite side and the conceding team return to their endzone before performing a pull to restart the game.
- No contact allowed.
- When the disc hits the floor possession is turned over.
- If a player intercepts or slaps the frisbee down to the floor they remain in possession.
- Can only hold the disc for 10 seconds, defensive player marking them to say 'stall' then count to 10.

Theoretical Links

- Levers.
- Feedback and information processing.

Penalties Awarded

Ultimate frisbee is self refereed – all players on the pitch are responsible for following the 'spirit of the game'.

Contact	No pushing, tackling, grabbing the disc out of a players hands; this results in a free pass to the opposing team.
Stalling	Holding the disc for longer than 10 seconds; this results in a free pass to the opposing team.
Fast Counting	Defenders counting to 10 too quickly; player in possession of the disc has another 10 seconds to release the disc.
Travelling	Where a player takes more than 1 step; change of possession.

Key Skills

- **Backhand throw.**
- **Forehand throw.**
- **Catching the disc.**
- **Intercepting/slap down.**
- **Cutting.**

Personal Skill Development

- Communication.
- Leadership.

Health Benefits

- Improved cardiovascular endurance.
- Improved reaction time.

What are the Causes of War?

Peace	A state of quiet; especially: freedom from public disturbance or war.
Conflict	A clashing or sharp disagreement (as between ideas, interests, or purposes).
Holy War	A religious war sanctioned by God or a religious authority, e.g. the Pope.

What does it mean to be a pacifist?

Pacifism	The belief of people who refuse to take part in war and any other form of violence.
Peace-maker	A person who works to establish peace in the world or in a certain part of it.
Conscientious Objectors	A person who refuses to do something because of their conscience, the biggest example of this is refusing to serve in the armed forces.
Conscience	A persons moral sense of right and wrong, viewed as acting as a guide to one's behaviour, some believe it is God.

Reconciliation

Reconciliation	Fixing a broken relationship and restoring friendly or amicable relations.
The Troubles	Violent conflict from about 1968 to 1998 in Northern Ireland between the Protestant unionists who wanted NI to remain part of the United Kingdom, and the Roman Catholic nationalists who wanted it to become part of the republic of Ireland.

Jihad

Greater Jihad	Refers to the personal spiritual struggle of every Muslim to follow the teachings of Allah in their daily lives, and includes overcoming evils such as anger, greed, pride and hatred, forgiving people who hurt them, and working for social justice.
Lesser Jihad	Muslims believe it is justifiable to struggle to defend Islam, for justice of those who are weak, or in self-defence.
Ummah	Worldwide community of Muslims who should work together to support each other.

Terrorism

Terrorism	The unlawful use of violence in order to inflict fear on innocent civilians. This may lead to injury or death.
9/11	Four coordinated terrorist attacks by the Islamist terrorist group Al-Qaeda against the United States on the morning of Tuesday, September 11, 2001.
7/7	A series of coordinated Islamist suicide attacks in London, England, that targeted commuters travelling on the city's public transport system during the morning rush hour.
Islamophobia	Irrational hatred, fear or violence towards the Muslim community.
#notinmyname	A campaign by the Muslim community in response to terror attacks worldwide.

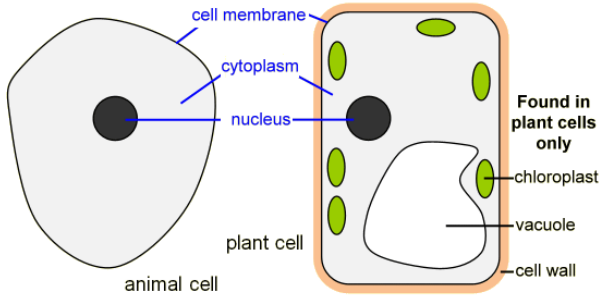
Nuclear War

Weapons of Mass Destruction	A weapon of mass destruction (WMD) is a weapon that can kill and bring significant harm to numerous humans or cause great damage to the environment.
Chemical Weapons	A specialized munition that uses chemicals formulated to inflict death or harm on humans. E.g. Mustard Gas. They are banned in international law.
Biological Weapons	Micro-organisms like virus, bacteria, fungi, or other toxins that are produced and released deliberately to cause disease and death in humans, animals or plants.
Nuclear Bomb	When triggered, these devices release a huge amount of energy in the form of a nuclear explosion and also radiation which can have long standing affects. Nuclear explosions can destroy a city and kill most of its people.

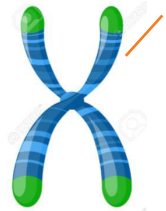
Victims of War

Victim	Somebody a person who has been harmed by the consequences of an internationally unlawful act.
Short-Term Aid	Immediate relief in emergencies such as war which helps immediately saves lives. This includes money, food, blankets, tents and medical supplies.
Long-Term Aid	Involves providing local communities with education, resources and skills for sustainable development. E.g. a water well or a school.
Refugee	A person who has been forced to leave their country in order to escape war, persecution, or natural disaster.
Civil War	A war between organized groups within the same state or country. E.g. to overpower the government. For example, the Civil War in Syria.

Cells



Chromosomes



Gene

An allele is a different form of the same gene. This can be recessive or dominant. Dominant alleles are always expressed (shown) over recessive alleles.

Environment and Inheritance

How does the environment affect variation?

Environmental factors such as diet can affect your height and weight. If you are malnourished you're more likely to be small in height and lower in weight. Characteristics like hair colour can be changed through dying your hair.

Cells

Features you can inherit from your parents:

- Eye colour.
- Weight.
- Hair colour.
- Skin colour.
- Height.

Selective Breeding

The Stages of Selective Breeding:

1. Select parents with the desired features.
2. Breed these together.
3. Pick the offspring with the desired features.
4. Breed these together.
5. Continue this until all offspring have the desired features.

Punnet Square Diagram

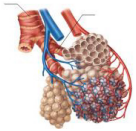
Both parents are carrier's of cystic fibrosis. What are the chances that their children will inherit the condition? Draw a punnet square diagram.

f is the cystic fibrosis allele		mother	
		F	**f**
father	**F**	FF	Ff
	f	Ff	ff

25% chance that the child will have cystic fibrosis (ff).

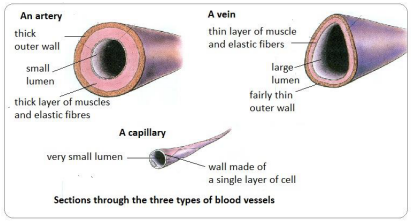
Adaptations of the Lungs

How are the lungs adapted for efficient gas exchange?



- One cell thick so a short diffusion path.
- Lots of alveoli increases the surface area.
- Good blood supply for rapid exchange of substances.

Blood Vessel Structure



Sections through the three types of blood vessels

Breathing vs Respiration

Breathing is also known as ventilation. Breathing is a physical process when we take oxygen into our lungs and remove carbon dioxide.

Respiration is a chemical process that happens in every cell in the body. Respiration releases energy in the mitochondria.

Aerobic Respiration

What is the word equation for aerobic respiration?

Glucose + oxygen => carbon dioxide + water + energy

Where does the glucose for respiration come from?

Food from our digestive system.

Where does the oxygen for aerobic respiration come from?

Breathing - the respiratory system.

What is the word equation for anaerobic respiration?

Glucose => lactic acid + energy

When do people use anaerobic respiration?

During high intensity exercise and at high altitudes.

Which microorganisms use anaerobic respiration?

Yeast.

What do they produce?

Ethanol.

The Effect of Exercise

What happens to your heart rate during exercise?

Increases.

Why does this happen?

To pump more blood around the body, carrying more oxygen to cells for respiration and carrying away more carbon dioxide from cells.

Why might we get cramp?

Build up of lactic acid from anaerobic respiration.

What is an oxygen debt?

The amount of oxygen we have to repay to break down lactic acid into carbon dioxide and water so that we can get rid of it.

How can you tell if someone is fitter?

Their resting heart rate will be lower and not rise as much during exercise.

Photosynthesis

Where does photosynthesis happen?

Palisade cells in the leaf.

Word equation:

Carbon dioxide + water => glucose + oxygen

Why do plants need to perform photosynthesis?

To create glucose needed for respiration.

Rate of Photosynthesis

What factors might speed up the rate of photosynthesis?

- Increased temperature.
- Increased light intensity.
- Increased carbon dioxide.
- Increased water.

Plant Reproduction

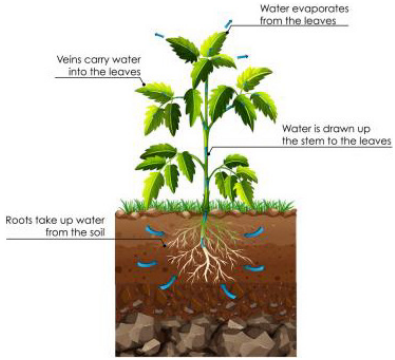
Fertilisation involves the fusion of the nucleus of the male gamete (**pollen**) with the nucleus of the female gamete (**ovule**).

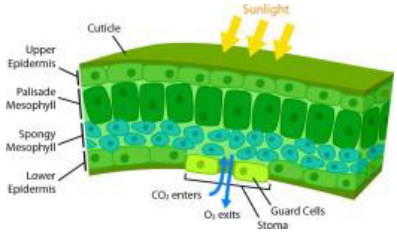
Pollination happens when **pollen** moves from one flower to another or some plants can fertilise themselves with their own pollen.

The pollen granule lands on the **stigma** and travels down the **style** in a pollen tube to the **ovary**.

Once this has happened the ovule starts to produce a **seed** or a **fruit** can form.

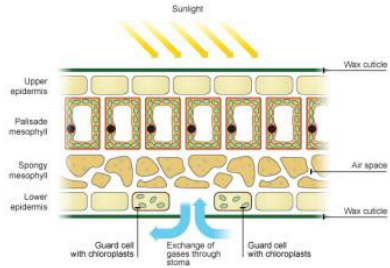
Transpiration





Water travels in the xylem through capillary action. Water evaporates from the stomata in leaves when the guard cells are open.

Adaptations



Palisade cells are close to the top of the leaf so that they absorb more sunlight. Lots of air spaces to increase surface area so more carbon dioxide can move in and oxygen out. Guard cells control the opening and closing of the stomata so can control the amount of carbon dioxide going in and can control the amount of water lost on a hot day.

Seed Dispersal

Type of Dispersal	How it Happens
Wind	The seed travels in the wind and lands in soil elsewhere.
Animal	Animals eat the seed and eject it as waste elsewhere. They can also stick to the animal who can take it other places.
Water	Seeds land in water (e.g. coconuts) and then transported elsewhere down the river.
Bursting	Some plants burst open releasing their seeds. The seeds travel from the pressure when the plant bursts.

Metals and Non-Metals

Metals are found on the **left** of the periodic table.

Three properties of metals are: **shiny**, **good conductors of heat and electricity**, **malleable**, **ductile**.

Non-metals are found on the **right** of the periodic table.

Three properties of a non-metal are: **brittle**, **insulators**, **dull**.

Metals in Order of Reactivity

Copper, sodium, magnesium, iron, zinc.

Sodium — Most reactive

Magnesium

Zinc

Iron

Copper — Least Reactive

Equations - Metals Reacting with Acids

Magnesium + Hydrochloric Acid →
Magnesium Chloride + Hydrogen

Zinc + Sulfuric Acid →
Zinc Sulfate + Hydrogen

Iron + Nitic Acid → Iron Nitrate + Hydrogen

Calcium + Sulfuric Acid →
Calcium Sulfate + Hydrogen

Metals Reacting with Water

Lithium	Floats on surface and fizzes. Universal indicator added to water will turn purple.
Sodium	Floats on surface and fizzes. Forms a sphere. Universal indicator added to water will turn purple.
Potassium	Floats on surface and fizzes. Produces a lilac flame. Universal indicator added to water will turn purple.

Equations - Metals Reacting with Water

Sodium + Water →
Sodium Hydroxide + Hydrogen

Potassium + Water →
Potassium Hydroxide + Hydrogen

Caesium + Water →
Caesium Hydroxide + Hydrogen

Metals Reacting with Oxygen

Metal	Observation	Product
Magnesium	Burns with a bright, white light.	Magnesium oxide.
Iron	Slowly forms an orange, crumbly layer.	Iron oxide.
Sodium	Quickly forms a grey coating.	Sodium oxide.

What is meant by a displacement reaction?

A more reactive meat will displace a less reactive one from a compound.

Magnesium + Copper Sulfate →
Magnesium Sulfate + Copper

Iron + Magnesium Sulfate →
No Reaction

Zinc + Iron Sulfate →
Zinc Sulfate + Iron

Base and Alkali

Base

A chemical which reacts with an acid to from salt and water. e.g. metal oxide, metal carbonate.

Alkali

A soluble base e.g. Metal hydroxides.

Conservation of Mass

Carbon (**12g**) + Oxygen (**32g**) →
Carbon Dioxide (**44g**)

Magnesium (**0.48g**) + Oxygen (**0.32g**) →
Magnesium Oxide (**0.80g**)

Balancing Equations

2 Mg + O_2 → **2** MgO

2 Na + Cl_2 → **2** NaCl

4 Al + **3** O_2 → **2** Al_2O_3

2 K + **2** H_2O → **2** KOH + H_2

General Equations

Acid + Metal → Salt + Hydrogen

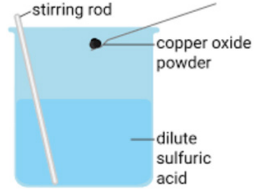
Acid + Base → Salt + Water

Acid + Carbonate →
Salt + Water + Carbon Dioxide

Salt Produced in Reactions

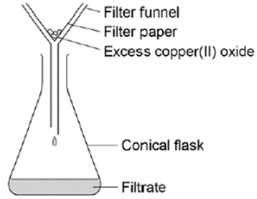
Acid	Base	Salt
Hydrochloric Acid	Copper Oxide	Copper Chloride
Sulfuric Acid	Sodium Carbonate	Sodium Sulfate
Nitric Acid	Sodium Hydroxide	Sodium Nitrate

Diagrams



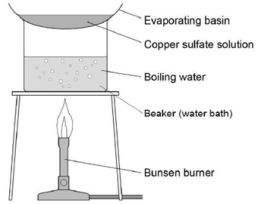
Add excess copper oxide to the sulfuric acid.

Stir to ensure that it has all reacted.



Filter off the excess copper oxide using a funnel and filter paper.

Pour the filtrate into an evaporating basin.



Place the evaporating basin over a beaker of water and heat until about half the liquid in the basin has evaporated.

Leave for a few days until crystals of copper sulfate form.

Pat crystals dry between 2 paper towels.

Describe Water Purification

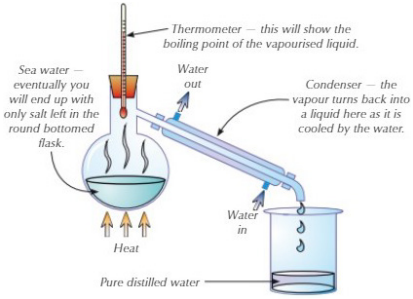
A boiling tube containing a solution was heated. In the top of the boiling tube there was a bung with a feeder tube. This fed into another boiling tube in a beaker of ice and water. When the steam evaporated from the original boiling tube it travelled to the second boiling tube where it condensed back into water.

What do we call drinking water? Potable.

Describe Distillation

Salt water is put into a round bottom flask and heated. The water is turned to steam and rises up. The salt is left in the flask. As the steam rises up the only place it can go is the down the condenser as all other routes are blocked. In the condenser the steam is cooled by the water and condenses back into a liquid.

Diagram of Distillation



Describe 4 Effects of Climate Change

- Increase in temperature can lead to melting of polar ice caps.
- Frequency and severity of storms.
- Changes to availability of water.
- Flooding and drought due to changes in weather patterns.

Name 4 Pollutants and the Problems Associated with them

- Sulphur dioxide acid rain.
- Oxides of nitrogen acid rain.
- Carbon dioxide Global warming.
- Carbon particulates (soot) global dimming.

Describe How a Person Could Reduce their Carbon Footprint

Change to greener energy sources and drive more efficient vehicles or change to an electric vehicle.

General Questions

What is a A) Hydrocarbon.

A compound containing only hydrogen and carbon.

B) Complete combustion.

When a fuel burns with sufficient oxygen.

C) Incomplete combustion.

When a fuel burns without sufficient oxygen.

What are the products of:

Complete combustion?

CO_2 and H_2O

Incomplete combustion?

CO_2, H_2O, carbon monoxide and carbon particulates.

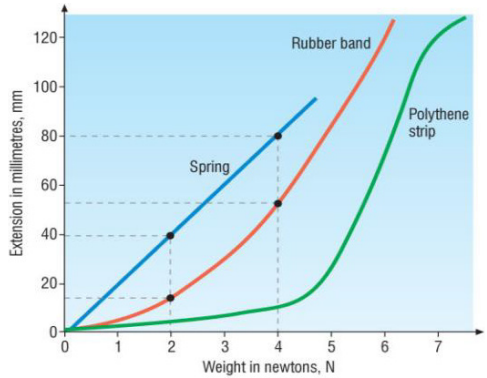
Elastic Materials

This graph shows the extension of different elastic materials, under different loads.

Directly proportional: A graph will show this if the line of best fit is a straight line through the origin.

The steel spring gives a **straight** line through the **origin**. This shows that the extension of the steel spring is **directly proportional** to the weight hung on it.

For example, doubling the weight from 2.0 to 4.0 N, doubles the extension from 40mm, to 80mm.



Keywords and Key Features

Series Circuit

Current in a series circuit stays the same. Potential difference is shared between components

Parallel Circuit

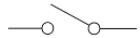
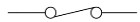
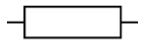
Current in a parallel circuit splits between each branch. Potential difference is the same across each branch.

Resistance of Wires

A longer wire has **more** resistance than a short one.

A wider wire has **less** resistance than a thin one.

Circuit Symbols and their Purpose

Component	Symbol	Purpose
Cell		Provides the power for the circuit.
Battery		Provides the power for the circuit.
Switch - Open		Stops a circuit from working.
Switch - Closed		Makes a circuit work.
Bulb/ Filament Lamp		Glows when a circuit is complete.
Resistor		It slows down the flow of electrons.
Ammeter		Measures the current.
Voltmeter		Measures the potential difference.

Key Formula and Units

Voltage from current and resistance:

Voltage is measured in volts (V)

Current is measured in amps (A)

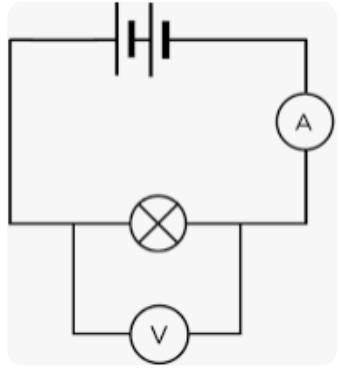
Resistance is measured in ohms (Ω)

List the Equipment Needed to Investigate How the Amount of Force Affects the Length of a Spring

Ruler, Spring, Clamp stand, Clamp, Boss, Weights.

Circuit Diagram

The circuit that can be used to find the resistance of a bulb:



General Questions

What is the definition of a force?

A force is a push or a pull that causes an object to move faster or slower, stop, change direction or change size or shape.

What are balanced forces and when do they occur?

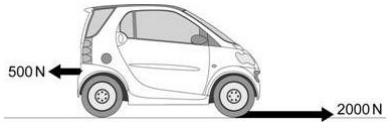
Balanced forces are when all forces are equal. They occur when an object is at rest or moving at a constant speed.

What are unbalanced forces and when do they occur?

Unbalanced forces are when there is a resultant force. It occurs when an object is moving.

Calculate the Resultant Force

2000N - 500N = 1500N to the right.



Distance Time Graphs

How does a distance time graph show:

Constant speed?

Diagonal line.

Acceleration?

Curved line.

Speed Equations

What is the equations for speed and what are the units?

Speed = Distance ÷ time

Speed is measured in either m/s or km/hr.

A car travels 500m in 2s. Calculate its speed:

500/2 = 250m/s

Terminal Velocity

What is terminal velocity?

The maximum constant speed an object falls at. It occurs when all the forces are balanced.

How does a velocity time graph show:

Constant speed?

Horizontal line.

Acceleration?

Diagonal line.

Diagrams

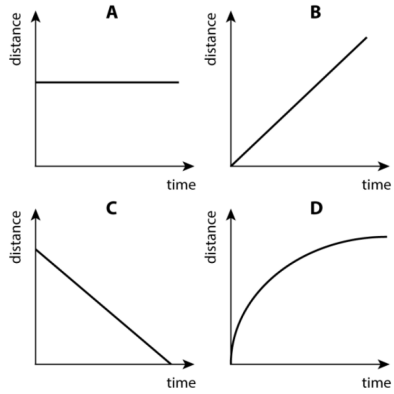
Link the letter to the description

Stationary: **A**

Constant speed away: **B**

Constant speed back: **C**

Changing speed: **D**



¿Qué te gusta comer y beber?

What do you like to eat and drink?

¿Qué no te gusta comer/beber?	What don't you like to eat/drink?
Me gusta(n) mucho...	I really like...
Me encanta(n)...	I love...
No me gusta(n) nada...	I don't like... at all.
Odio...	I hate...
Prefiero...	I prefer...
el agua	water
el arroz	rice
la carne	meat
los caramelos	sweets
la fruta	fruit
las hamburguesas	hamburgers
los huevos	eggs
la leche	milk
el marisco	seafood/shellfish
el pescado	fish
el queso	cheese
las verduras	vegetables

Gramática

To say 'you':

Use **tú** with one person you know well. Use **usted** (singular) or **ustedes** (plural) with people you don't know well.

The verb forms change as follows:

tú	¿Qué **vas** a tomar?
usted	¿Qué **va** a tomar?
ustedes	¿Qué **van** a tomar?

¿Qué desayunas?

What do you have for breakfast?

Desayuno...	For breakfast I have...
cereales	cereal
churros	churros (sweet fritters)
tostadas	toast
yogur	yogurt
café	coffee
Cola Cao™	Cola Cao (chocolate drink)
té	tea
zumo de naranja	orange juice
No desayuno nada.	I don't have anything for breakfast.
¿Qué comes?	What do you have for lunch?
Como...	I eat.../For lunch I have...
un bocadillo	a sandwich
¿Qué cenas?	What do you have for dinner?
Ceno...	For dinner I have...
patatas fritas	chips
pollo con ensalada	chicken with salad
¿A qué hora desayunas/comes/cenas?	At what time do you have breakfast/lunch/dinner?
Desayuno a las siete.	I have breakfast at 7:00.
Como a las dos.	I have lunch at 2:00.
Ceno a las nueve.	I have dinner at 9:00.

Facts to amaze your friends and family!

Did you know in Spain people tend to eat much later than in the UK. Often, people don't eat until 10pm!

En el restaurante

At the restaurant

buenos días	good day/good morning
¿Qué va a tomar (usted)?	What are you (singular) going to have?
¿Qué van a tomar (ustedes)?	What are you (plural) going to have?
¿Y de segundo?	And for main course?
¿Para beber?	To drink?
¿Algo más?	Anything else?
Voy a tomar...	I'll have...
de primer plato	as a starter
de segundo plato	for main course
de postre	for dessert
Tengo hambre.	I am hungry.
Tengo sed.	I am thirsty.
nada más	nothing else
La cuenta, por favor.	The bill, please.
la ensalada mixta	mixed salad
los huevos fritos	fried eggs
la sopa	soup
el pan	bread
las chuletas de cerdo	pork chops
el filete	steak
el pollo con pimientos	chicken with peppers
la tortilla española	Spanish omelette
el helado de chocolate/fresa/vainilla	chocolate/strawberry/vanilla ice cream
la tarta de queso	cheesecake
la cola	Coke

Una fiesta Mexicana / A Mexican party

¿Qué vas a traer/ comprar?	What are you going to bring/buy?
Voy a traer...	I'm going to bring...
quesadillas	quesadillas (toasted cheese tortillas)
limonada	lemonade
Voy a comprar...	I am going to buy...
una lechuga	a lettuce
un pimiento verde/rojo	a green/red pepper
un aguacate	an avocado
un kilo de tomates	a kilo of tomatoes
medio kilo de queso	half a kilo of cheese
200 gramos de pollo	200 grams of chicken
un paquete de tortillas	a packet of tortilla wraps
una botella de limonada	a bottle of lemonade

Ir (to go) – present tense

voy	**vamos**
vas	**vais**
va	**van**

¿Y tú? ¿Qué opinas? / And you? What do you think?

Pues...	Well...
Depende...	It depends...
No sé...	I don't know...
Eh...	Er...
A ver...	Let's see...
Bueno/Vale...	OK...

Lo siento, pero no entiendo / I'm sorry, but I don't understand

¿Qué significa '...'?	What does '...' mean?
¿Puedes repetir?	Can you repeat that?
¿Puedes hablar más despacio, por favor?	Can you speak more slowly, please?

Masculine (a[n]) / Feminine (a[n])

un	**una**

Masculine (some) / Feminine (some)

unos	**unas**

Desayunar (to have breakfast)

Preterite (past)	Present	Future
Desayuné (I had breakfast)	Desayuno (I have breakfast)	Voy a desayunar (I am going to...)

TOP TIP!

Using more than one tense **greatly** improves the quality of your writing.

Cenar (to have dinner)

Preterite (past)	Present	Future
Cené (I had dinner)	Ceno (I have dinner)	Voy a cenar (I am going to...)

Comer (to eat/to have lunch)

Preterite (past)	Present	Future
Comí (I ate)	Como (I eat)	Voy a comer (I am going to eat)

¿Te gustaría ir al cine?

Would you like to go to the cinema?

¿Te gustaría ir...?	Would you like to go...?
a la bolera	to the bowling alley
a la cafetería	to the café
al centro comercial	to the shopping centre
al museo	to the museum
al parque	to the park
a la pista de hielo	to the ice rink
al polideportivo	to the sports centre
¿Te gustaría venir a mi casa?	Would you like to come to my house?

¿A qué hora?

At what time?

a las...	at...
seis	six o'clock
seis y cuarto	quarter past six
seis y media	half past six
siete menos cuarto	quarter to seven
siete menos diez	ten to seven

¿Dónde quedamos?

Where do we meet up?

al lado de la bolera	next to the bowling alley
delante de la cafetería	in front of the café
detrás del centro comercial	behind the shopping centre
enfrente del polideportivo	opposite the sports centre
en tu casa	at your house

Reacciones

Reactions

De acuerdo.	All right.
Vale.	OK.
Muy bien.	Very good.
¡Genial!	Great!
Sí, me gustaría mucho.	Yes, I'd like that very much.
¡Ni hablar!	No way!
¡Ni en sueños!	Not a chance!/Not in your wildest dreams!
No tengo ganas.	I don't feel like (it).
¡Qué aburrido!	How boring!

Lo siento, no puedo

I'm sorry, I can't

¿Quieres salir?	Do you want to go out?
Tengo que...	I have to...
cuidar a mi hermano	look after my brother
hacer los deberes	do my homework
lavarme el pelo	wash my hair
ordenar mi dormitorio	tidy my room
pasear al perro	walk the dog
salir con mis padres	go out with my parents
No quiero.	I don't want to.
No tengo dinero.	I don't have any money.
No puede salir.	He/She can't go out.

Raise the standard of your work by including examples of the preterite, the near future tense or **me gustaría**. Look at the texts in exercise 6 to see how the writers did this.

Skills

Changing adjective endings

Adjectives are always listed in the masculine singular in a dictionary. If you look up 'gorgeous', you find **precioso**.

But you may need to change the adjective ending. For example, if you want to say 'a gorgeous skirt', you need to say **una falda preciosa**, as **falda** is feminine. With other nouns, you might need a plural ending.

Gramática

Querer and **poder** are stem-changing verbs. They are usually followed by an infinitive.

querer	to want
quiero	I want
quieres	you want
quiere	he/she wants
queremos	we want
quereis	you want
quieren	they want
¿Quieres salir?	Do you want to go out?
poder	to be able to/can
puedo	I can
puedes	you can
puede	he/she can
podemos	we can
podéis	you can
pueden	they can
No puede salir.	He/She can't go out.

Some verbs in Spanish can be followed by a second verb in the infinitive:

odio hacer los deberes	I hate doing homework
prefiero bailar	I prefer dancing
quiero salir	I want to go out
puedo ir	I can go
me gustaría visitar	I would like to visit
tengo que ordenar mi dormitorio	I have to tidy my room

¿Qué vas a llevar?

What are you going to wear?

¿Qué llevas normalmente los fines de semana?	What do you normally wear at weekends?
Normalmente los fines de semana llevo...	At weekends I normally wear...
una camisa	a shirt
una camiseta	a T-shirt
un jersey	a jumper
una sudadera	a sweatshirt
una falda	a skirt
un vestido	a dress
una gorra	a cap
unos pantalones	some trousers
unos vaqueros	some jeans
unas botas	some boots
unos zapatos	some shoes
unas zapatillas de deporte	some trainers
¿Vas a salir esta noche?	Are you going to go out tonight?
Voy a ir al/a la...	I am going to go to the...
Voy a llevar...	I'm going to wear...

¡No es justo!

It's not fair!

Estoy de acuerdo...	I agree...
con tu madre/padre	with your mother/father
con tus padres	with your parents
contigo	with you
Eres demasiado joven.	You're too young.
En mi opinión, tienes razón.	In my opinion, you're right.
¿Tú qué opinas?	What do you think?

Los colores

Colours

amarillo/a	yellow
azul	blue
blanco/a	white
gris	grey
marrón	brown
morado/a	purple
naranja	orange
negro/a	black
rojo/a	red
rosa	pink
verde	green
de muchos colores	multi-coloured

¿Cómo te prepares?

How do you get ready?

¿Cómo te prepares cuando sales de fiesta?	How do you get ready when you go to a party?
Me baño.	I have a bath.
Me ducho.	I have a shower.
Me lavo la cara.	I wash my face.
Me lavo los dientes.	I brush my teeth.
Me visto.	I get dressed.
Me maquillo.	I put on make-up.
Me peino.	I comb my hair.
Me aliso el pelo.	I straighten my hair.
Me pongo gomina.	I put gel on my hair.

Gramática

Reflexive verbs include a reflexive pronoun. They often describe an action you do to yourself – for example, **lavarse** (to wash oneself/to get washed).

me lavo	I wash myself/get washed
te lavas	you (sg) wash yourself
se lava	he/she washes him/herself
nos lavamos	we wash ourselves
os laváis	you (pl) wash yourselves
se lavan	they wash themselves

The word for 'this' or 'these' changes according to whether the noun described is masculine or feminine and singular or plural.

singular		**plural**	
masculine	**feminine**	**masculine**	**feminine**
este	esta	estos	estas
este jersey this sweater	**esta falda** this skirt	**estos zapatos** these shoes	**estas botas** these boots

Palabras muy frecuentes

High-frequency words

al/a la	to the
del/de la	of the
demasiado/a	too (much)
demasidos/as	too many
este/esta/estos/estas	this/this
por eso	for this reason
por supuesto	of course
¡Lo pasé fenomenal!	I had a fantastic time!

NOTES

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