

Student Name: _____

22/9/2022 - 6 Year

Organic Knowledge

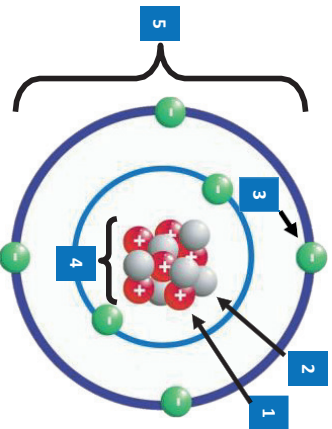
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Science – C1 – Atomic Structure and the Periodic Table



Name	Relative Mass	Relative Charge
1 Proton	1	+1
2 Neutron	1	0
3 Electron	very small	-1
4 Nucleus	A	+Z
5 Atom	A	0

Term	Definition
Atom	A neutral particle consisting of protons, neutrons and electrons. Number of protons = number of electrons
Mass number, A	Total of number of protons and neutrons in the nucleus of an atom
Atomic number, Z	Number of protons in the nucleus of an atom; determines the identity of the element
Atomic radius	Distance from the centre of an atom's nucleus to the electrons (approx. 10 ⁻¹⁰ m or 0.1nm)
Isotopes	Atoms of the same element (i.e. same number of protons) with different number of neutrons
Nanometre	1x10 ⁻⁹ m = 0.000 001µm = 0.000 000 001m
Nucleus	The positively charged centre of an atom made of protons and neutrons. Approximately 10 000 times smaller than the atom (approx. 10 ⁻¹⁴ m)
Subatomic	Smaller than the size of an atom

²³
Na

Sodium

11

a Relative atomic mass

b Element symbol

c Element name

d Atomic number

mean mass of nucleus taking into account relative abundance of isotopes

element name

number of protons

Number of protons

Determined by....

Term	Definition
Element	Substance that contains only one type of atom
Mixture	Two or more elements and/or compounds not chemically combined together
Compound	Contains two or more different elements chemically combined
Group	Columns on the periodic table, informs us of the number of electrons in the outer shell of the atom. Contain 'families' of elements with similar properties
Period	Rows on the periodic table, informs us of the number of electron shells in an atom
Reactants	The substances that take part in a chemical reaction
Products	The substances that are made in a chemical reaction
Electronic structure	Pattern of electrons in shells. Shells fill from the inside: 1 st shell max 2, 2 nd shell max 8, 3 rd shell max 8, 4 th shell max 2
Ion	An atom with an overall positive or negative charge due to the loss or gain of electrons

Method	For separating mixtures of...	Requirements	Example
Filtration	insoluble solids from liquids/solutions	Filter funnel, filter paper	Sand from water
Crystallisation	soluble solids from solvents	Heat energy for evaporation	Copper sulphate crystals from solution
Simple distillation	two liquids of different boiling points	Heat energy, condenser	Ethanol (alcohol) from water
Fractional distillation	many liquids of differing boiling points	Heat energy, condenser or fractionating column	Crude oil fractions
Chromatography	different coloured compounds	Solvent, chromatography paper	Pigments in ink/dye

Scientist	Contribution
Rutherford	Disproved 'plum pudding' model. Replaced with 'Nuclear model' Atom mostly empty space, nucleus positive where almost all the mass is concentrated
Bohr	Modified the 'Nuclear' model: central nucleus with orbiting electrons at specific distances.
Chadwick	After the proton was discovered, provided experimental evidence for existence of neutrons.



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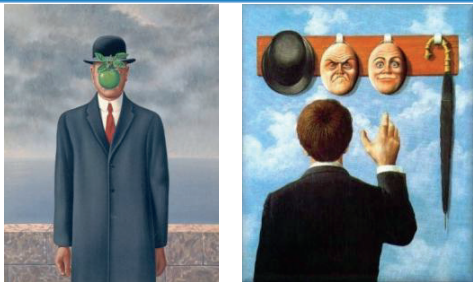
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Art

Art Year 9 Autumn Term – Surrealism

Concepts	Definitions
Fantasy	the faculty or activity of imagining impossible or improbable things
Subconscious	Of or concerning the part of the mind of which one is not fully aware, but which influences one's actions and feelings.
Juxtaposition	The fact of two things being seen or placed close together with contrasting effect.
Visualisation	The formation of a mental image of something .
Influence	the capacity to influence someone or something. The surrealists were influenced by the psy- chologist Sigmund Freud. Later Pop artists were influenced by Surrealism.
Inspiration	the process of being mentally stimulated to do or feel something, especially to do something creative.
Hidden meaning	Used by surrealist artists and often hinted in the title of the artwork.
Visual metaphor	A visual metaphor is the representation of a person, place, thing, or idea by means of a visual image that suggests a particular association or point of similarity.
Observational drawing	Drawing from life. In art we recognise the benefit of drawing from objects that are directly in front of you.
Cold glaze	A cold glaze makes colours bright and shine
Texture	The feel, appearance, or consistency of a surface or substance.
Blending	The technique of gently intermingling colours or values to create a gradual transition or to soften lines.

Rene Magritte

Date of birth/ death	1898— 1967	
Location	Born in Belgium	
Materials	Oil paint on canvas	
Education	Académie Royale des Beaux-Arts in Brussels	
Art Movement	Surrealism	
Inspiration	Everyday objects	Salvador Dali Context 1904–89), was a Spanish surrealist painter . He was inspired by dreams and the subconscious.
Context/ Concepts and Characteristic	He often blurred the line between what is real and what is imagined. He painted with photographic clarity, which made the surreal elements more striking.	

Art Movements	
A style in art with a specific common philosophy or goal, followed by a group of artists during a specific period of time	
Surrealism	A 20th-century avant-garde movement in art and literature which sought to release the creative potential of the unconscious mind, for
Realism	The quality or fact of representing a person or thing in a way that is accurate and true to life.
Clay	
Wooden modelling tools	Used for shaping, sculpting and smoothing clay, to slice, dice, cut, contour and shape.
Kiln	A kiln is a thermally insulated chamber, a type of oven, that produces temperatures sufficient to fire clay.
Firing	Firing is the process of bringing clay and glazes up to a high temperature
Rolling Pin	For rolling out clay to create smooth flat pieces.
Clay tools	Wooden or plastic instruments that help to shape and carve out clay.
Scoop/ Ribbon tool	To hollow out handmade shapes, especially sculptural forms.
Sponge	For smoothing and shaping clay surfaces and transferring water to the clay.

Colour Theory



Tertiary colours	Made by mixing a primary colour and a secondary colour together	
Vermillion		Red + Orange
Amber		Orange + Yellow
Chartreuse		Green + Yellow
Teal		Green + Blue
Violet		Blue + Purple
Magenta		Purple + Red
Tints	Made by mixing a colour into white	

Art Year 9 Spring Term – Pop Art

Key terms	Definitions
Composition	Composition is how all the parts of an artwork are arranged and put together. It's like the layout or design of a picture.
Ben day dots	Tiny, evenly spaced dots used in printing to create shading, color, and texture.
Mass-produced	Something made in large quantities, usually by machines in a factory.
Printer inks	Include: Cyan, Magenta, Black and Yellow.
Font	A style of text used in writing and design. It changes how letters and numbers look on a screen
To enlarge	To make something bigger in size, amount, or importance.
To exaggerate	To make something seem bigger, better, worse, or more important than it really is.
Collage	A piece of art made by sticking various materials such as photographs, pieces of paper, fabric, or
Mixed media	a type of art that combines different materials or artistic techniques in a single piece of work.
Viewpoints	the position or angle from which the subject is seen or represented.

Art Movement

A style in art with a specific common philosophy/goal, followed by a group of artists during a specific time period

Pop Art	Pop Art is an art movement that emerged in the mid-1950s in Britain and late 1950s in the United States , reaching its peak in the 1960s. It challenged traditional fine art by incorporating imagery and techniques from popular and mass culture , such as advertising, comic books, and every-day items.
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Skills Building Tasks



Recreate the pop art style lettering as accurately as you can using a ruler and a pencil. Once complete add colour by only using Ben Day Dots in primary colours (red, yellow and blue)

Remember: Ben Day Dots are perfectly uniform not random



Create a grid in your books and draw in the repeated Coca-Cola can in each quarter. Use complementary colours to create a Warhol inspired drawing

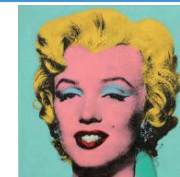


Roy Lichtenstein



Date of birth/death	1928—1997
Location	Born in New York, USA
Materials	Oil paint on canvas
Education	Studied Art and Design at Ohio state university
Art Movement	Pop art
Inspiration	Comic strips and commercial printing techniques
Context, Concepts and Characteristic	He used the Ben Day dotting system to mimic the style of comics and commercial printing techniques. He often added speech/thought bubbles to give narrative to his work

Andy Warhol



Date of birth/death	1928– 1987
Location	Born in Pennsylvania, USA
Materials	Screen print
Education	Studied Fine Art at Carnegie institute of Technology
Art Movement	Pop art
Inspiration	Mass production, consumer goods, and celebrity culture.
Context, Concepts and Characteristic	Explored how mass media and consumer goods shaped identity and culture. Often portrayed celebrities such as Elvis and Marilyn. Often used repetition and a limited colour palette.

Art Year 9 – Summer term

Composition

Composition is how all the parts of an artwork are arranged and put together. It's like the layout or design of a picture.

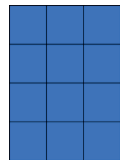
Diptych

An artwork made up of two panels that are connected or meant to be viewed together.



Grid

Image has a grid layered over it.



Triptych

An artwork made up of three panels that are usually connected or displayed together.



Landscape

The paper is wider than it is tall. The longer side is at the top.



Montage

A collection of images or scenes combined into one to show a bigger idea or story.



Portrait

The paper is taller than it is wide. The shorter side is at the top.



Skills Building Tasks

Create a copy of cupcake icing, focus on creating soft gradients and tone



Combine an ice cream and a squid to create a single surreal image.



Wayne Thiebaud



Date of birth/death 15th November 1920—died 25th December 2021 (Aged 101)

Location Born in Arizona, USA. Raised in Long Beach California

Material Oil Paint

Education Bachelors then Masters degree in Commercial art at California State University, Sacramento

Art Movement Pop Art

Inspiration Food commonly found in diners and cafeterias. His own experience working in a café when he was a teenager

Context, Concepts and Characteristic Used heaving pigments and exaggerated colours

Was linked to pop art due to his use of repetition and mass produced

Key terms

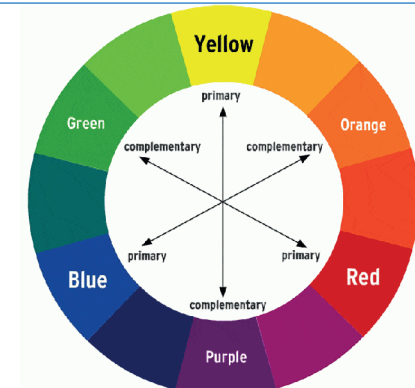
Colour Theory

Complementary Colours

Colours that are opposite on the colour wheel

Harmonious Colours

Colours that are adjacent on the colour wheel



Thumbnails Small, quick sketches artists make to plan out ideas for a larger artwork.

Collage Made by sticking different materials (like paper, fabric, or photos) onto a surface to create a new image.



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Computer Science

Computer Science – Python Search & Sort Algorithms

Key Vocabulary Terms

Autumn 1

Algorithm	A set of instructions for solving a problem or completing a task.
Linear Search	A method of finding an item by checking each element one-by-one.
Binary Search	A faster search technique used on sorted lists, halving the search space each time.
Bubble Sort	A sorting algorithm that repeatedly compares and swaps adjacent elements.
Sorted List	A list where the items have been placed in a specific order, such as smallest to largest or A to Z.
Comparison	Checking two values to decide how they relate to each other, such as whether one is larger, smaller, or equal.

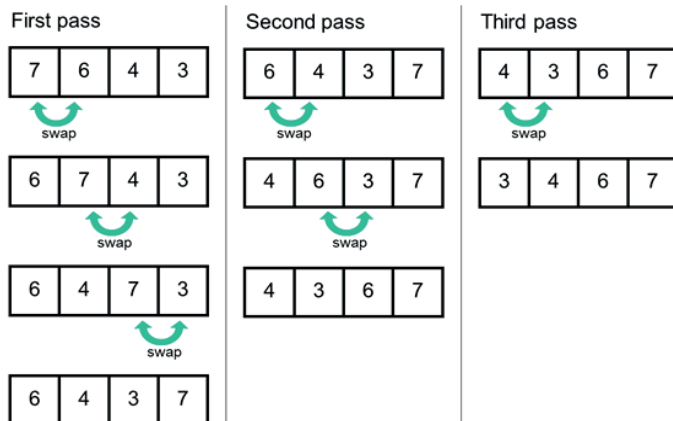
Key Vocabulary Terms

Autumn 2

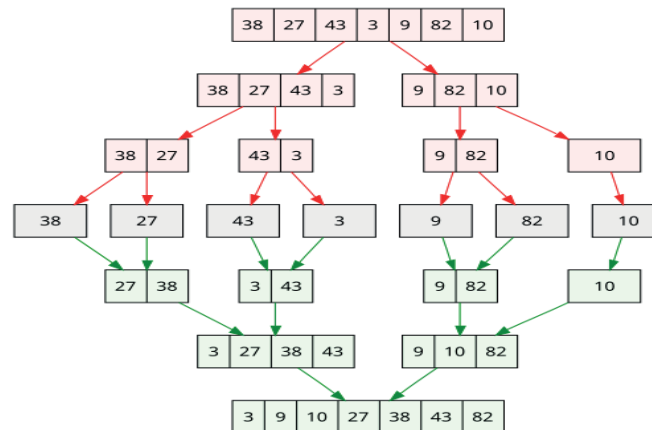
Merge Sort	A "divide and conquer" algorithm that breaks down lists and merges them in order.
Insertion Sort	A sorting algorithm that builds the final list by inserting elements in the correct position.
Debugging	Identifying and fixing issues in a program.
Efficiency	How well an algorithm performs in terms of steps or time taken.
Swap	Exchanging the position of two items in a list.
Pseudocode	A simple way of writing an algorithm using plain English and programming-style structure.

Sort Algorithms

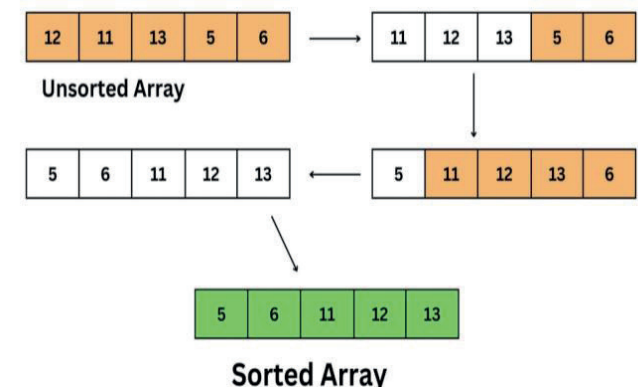
Bubble Sort



Merge Sort



Insertion Sort



Computer Science – Binary Logic & Networks

Key Vocabulary Terms

Spring 1

Boolean Logic	A system of logic using true/false values, often represented as 1 and 0 .
AND Gate	A logic gate that outputs true 1 only when both inputs are true.
OR Gate	A logic gate that outputs true 1 if at least one input is true.
NOT Gate	A logic gate that inverts the input, so 1 becomes 0 and 0 becomes 1 .
Truth Table	A table used to show all possible inputs and outputs for a logic gate or circuit.
Logic Circuit	A combination of logic gates used to process inputs and produce outputs in computer systems.

Key Vocabulary Terms

Spring 2

LAN	A network that connects computers within a limited area such as a home, school, or office building.
WAN	A network that covers a large geographical area, often using leased telecommunication lines.
Topology	The layout or structure of how devices are connected in a network, such as star, ring, or bus.
Protocol	A set of rules governing the exchange or transmission of data between devices.
Packet	A unit of data transmitted across a network.
IP Address	A unique string of numbers that identifies each computer using the Internet Protocol to communicate over a network.

AND



INPUT		OUTPUT
A	B	A AND B
0	0	0
0	1	0
1	0	0
1	1	1

OR



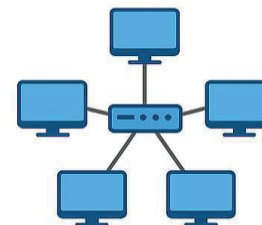
INPUT		OUTPUT
A	B	A OR B
0	0	0
0	1	1
1	0	1
1	1	1

NOT

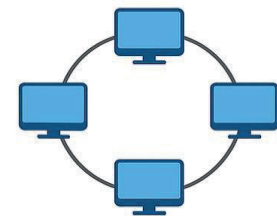


INPUT	OUTPUT
A	NOT A
0	1
1	0

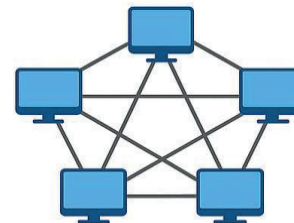
Star Topology



Ring Topology



Mesh Topology



Bus Topology



Computer Science – Impact of Digital Technologies

Key Vocabulary Terms		Key Vocabulary Terms	
Summer 1		Summer 2	
Data Protection	Laws and practices that protect personal information from misuse or unauthorised access.	Bias	When content is presented in a way that favours certain viewpoints or groups, often unintentionally.
Copyright	A legal right that protects ownership of creative work, such as images, music, and video.	Environmental Impact	The effect digital technologies have on the environment, including e-waste and energy use.
Computer Misuse	The illegal use of computers, including hacking, data theft, or spreading viruses.	Representation	How people or groups are shown in digital content, which can influence opinions and stereotypes.
Digital Footprint	The trail of data left behind by users when they interact online.	E-waste	Electronic waste, such as old phones, computers, or batteries, that must be disposed of carefully.
Misinformation	False or inaccurate information that is shared, often online, whether deliberately or by mistake.	Target Audience	The specific group of people a media product is designed for, such as teenagers, parents, or gamers.
Creative Commons	A type of licence that allows creators to give others permission to use their work under certain rules.	Media Influence	The way digital content, such as adverts, films, games, or social media, can affect people's opinions, choices, or behaviour.

Computer Related Legislation		
Computer Misuse Act	Data Protection Act	Copyright and Patents Act
Addresses the malicious use of computers. It outlines three primary offenses: • Unauthorised access: Hacking into a computer network. • Unauthorised access with intent: Hacking with the intention to commit further crimes • Unauthorised modification: Destroying or corrupting files or spreading malware.	Regulates how organizations collect, store, and process personal data. It establishes rights for individuals (e.g., the right to access your own data) and imposes strict penalties for data breaches. Primary Focus: Protecting an individual's data privacy	Protects original works, including software, source code, digital music, and video games. It makes the unauthorized copying, distribution, or sharing of copyrighted digital media illegal. Primary Focus: Ownership and preventing digital piracy



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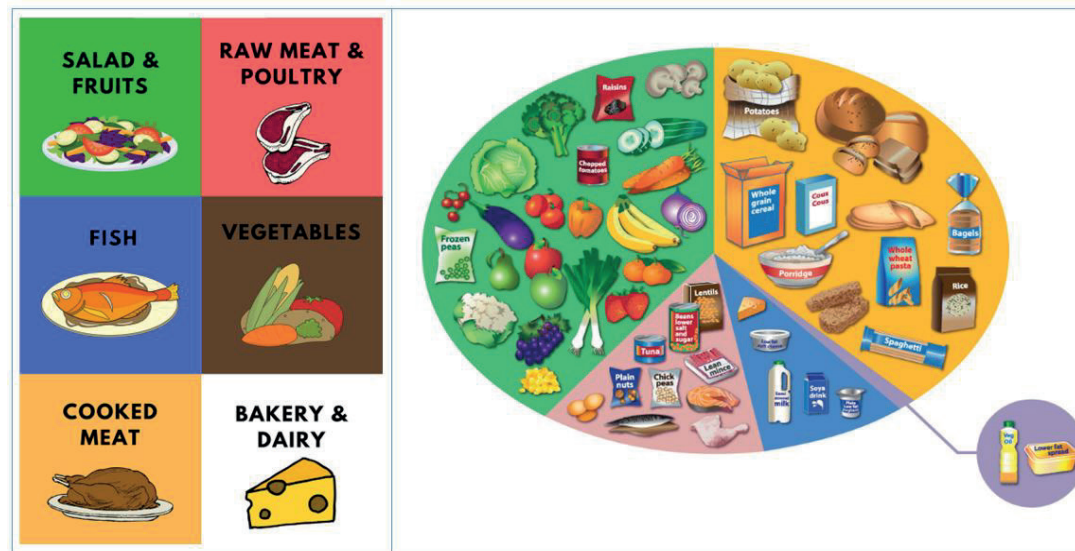
Design and Technology

Year 7 Design and Technology (Food) – Nutrition

Hygiene and safety	
Hazard	Anything that could cause harm
Food Poisoning	Illness caused by bacteria in food.
Bacteria	Single celled organisms, some can cause food poisoning
Cross Contamination	The spread of bacteria from one place to another
Food Hygiene	Food hygiene is the practice of handling, preparing, and storing food in a way that prevents foodborne illnesses
Personal Hygiene	Personal hygiene is practices such as washing your hands before handling food, never coughing, or sneezing over food, or where food is being prepared or stored.
Safety	This means working in a way to prevent any accidents or injuries such as tying back long hair, putting bags away, using the right equipment for the job

Practical skills	
Claw hold	Your little finger and thumb hold the food down and the knife briefly runs over your knuckles, keeping your finger tips safe from sharp blades.
Bridge hold	The food is held by the fingers and thumb creating a bridge. The knife should go through the bridge to cut the food.
Rubbing in	Using the fingertips to rub a solid fat such as butter or margarine into flour to create a fine breadcrumb texture
Boiling	The method of cooking food in boiling water. The boiling point of water is typically considered to be 100 °C
Baking	The method of preparing food that uses dry heat
Marinading	A mixture of oil, spices, or similar ingredients, in which food is soaked to flavour or soften it.

Chopping boards	
Red	Raw meat and poultry
Blue	Raw fish
Green	Salad vegetables and fruit
Brown	Root vegetables
Yellow	Cooked meat, poultry and fish
White	Dairy and bakery products



Eatwell guide food groups	
Yellow	Potatoes, rice, bread, pasta, and other starchy carbohydrates
Blue	Dairy and alternatives
Green	Fruits and vegetables
Pink	Beans, pulses, fish, eggs, meat and other proteins
Purple	Oils and spreads

Year 8 Design and Technology (Food) – Food Science

Hygiene and safety		Practical skills	
The 4 Cs	Principles in keeping food safe – cross contamination, cleaning, cooking, chilling	Kneading	Kneading is when you work the dough, usually by hand, for the purpose of developing the glutens in the flour, which is what gives bread its texture
Pathogens	A pathogen is an organism that causes disease	Melting	Changing a solid into a liquid when heat is applied.
Danger zone	Single celled organisms, some can cause food poisoning	Zesting	Scraping off the outer coloured part of the peel of (a piece of citrus fruit) to use as flavouring.
Binary fission	The spread of bacteria from one place to another	Stir fry	Frying food quickly over high heat in a lightly oiled pan (such as a wok) while stirring continuously.
Food poisoning	Illness caused by bacteria or other toxins in food, typically with vomiting and diarrhoea	Breading	Coating food in breadcrumbs (using egg and flour to help the breadcrumbs stick) before frying or baking.
Contaminate	Contamination is when unwanted bacteria, objects, or chemicals get into food making it unsafe to eat	Nutrition	
Pests	Pests are animals or insects that need to be kept out of the kitchen as they can carry food poisoning causing bacteria. Their hair and faeces could also contaminate the food.	Nutrients	A substance that provides nourishment essential for the maintenance of life and for growth.
Food science		Micro nutrients	Micronutrients are vitamins and minerals needed by the body in very small amounts. However, their impact on a body's health are critical.
Food science	Food science is the study of the physical, biological (including microbiological) and chemical makeup of food.	Macro nutrients	Macronutrients are the nutrients we need in larger quantities that provide us with energy: in other words, fat, protein and carbohydrate.
Raising agents	Substances that are added to baking mixtures which react chemically to release carbon dioxide which helps the product rise.	Protein	Protein is needed for the growth and repair of our cells. Its secondary function is providing energy.
Yeast	One celled fungus. They are used by bakers because they can produce carbon dioxide to make bread to rise.	Carbohydrates	Carbohydrates provide us with our main source of energy. They also provide use with fibre, which is important for our gut health.
Carbon dioxide	A chemical compound composed of one carbon and two oxygen atoms produced by raising agents to make a mixture rise.	Fats	Fat is needed for warmth, insulation, and protection in the body. It is also a secondary source of energy
Coagulate	The change in the structure of protein (from a liquid form to solid or a thicker liquid) brought about by heat, mechanical action or acids.		

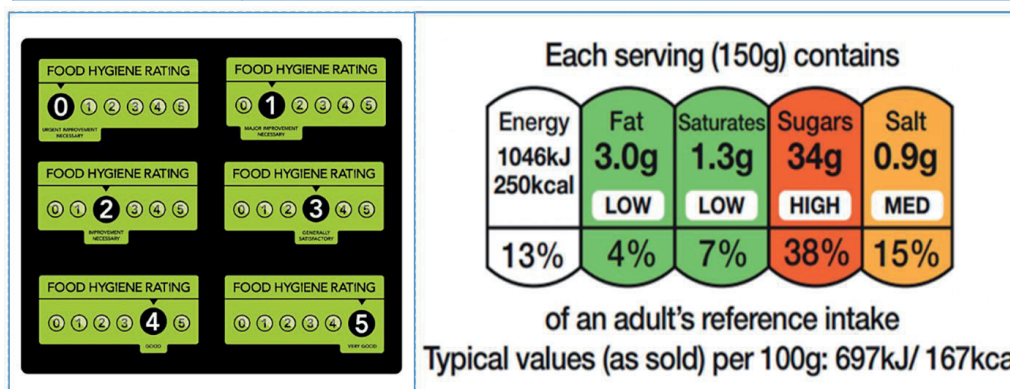
Year 9 Design and Technology (Food) – Food Hygiene Regulations

Hygiene and safety	
Risk	The consequence of a hazard. e.g. food poisoning caused by bacteria (a biological hazard)
Prevention/control method	Actions put in place to avoid the risk from a hazard e.g. Using different coloured chopping boards for different food to avoid cross contamination.
High risk food	Foods which support the growth of bacteria being high in protein and moisture e.g. meat, fish, eggs, dairy and cooked rice
Temperature control	To keep food safe when storing, preparing, cooking, and serving food. Freezer -18C, Fridge 1-4C, core temperature of cooked food should be 75C.
Danger zone	The range of temperatures from 5-63C in which bacteria multiply every 20 minutes
Risk assessment	A way of identifying things that could cause harm to people.

Environmental health officer	
Environmental health officer (EHO)	The officer protects the health and safety of the general public from any harmful exposures that they may encounter, often in food businesses it is food safety and hygiene.
Food hygiene rating	A rating given from 0-5 showing the food hygiene standards of an establishment. 0 being very bad and 5 being excellent.
Improvement notice	A notice that specifies what you're doing that breaks the law and say what you need to do to correct the issue.
Emergency Prohibition Notice	This is when the EHO gives notice to stop the use of the premises and equipment. Essentially this shuts down an establishment that has been deemed a serious risk to health.

Practical skills and food science	
Whisking	Blending ingredients together quickly or to incorporate air into ingredients such as egg whites
Roux	A mixture of fat (usually butter) and flour used in making sauces
Blind baking	A term used to describe the process of pre-baking a pie crust before the filling is added
Aeration	The process of adding air into a mixture
Gelatinisation	Gelatinization happens when starch absorbs liquid and bursts, thickening the liquid

Food labels	
Allergen	A substance that causes an allergic reaction.
Manufacturer	A person or company that makes goods for sale
Reference intake (RI)	Used to communicate recommended nutrient intake to the public
Traffic lights system	The traffic light label is colour coded and shows that green is low in a particular nutrient, amber means medium and red is high in a nutrient

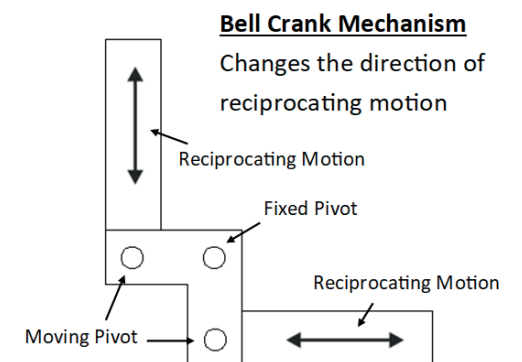
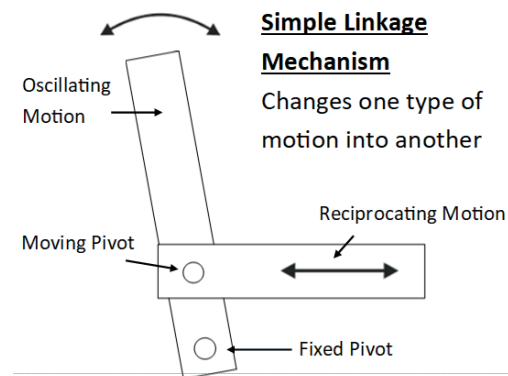


Year 7 Design and Technology (Graphics) – Mechanical Card

ACCESSFM	
Aesthetics	How a product looks
Cost	How much a product costs to make or buy
Customer	Who a product is aimed at
Environment	Where a product will be used
Size	How big a product will be
Safety	How safe a product is, and how safe the manufacture of a product is
Function	What a product does
Materials	What a product is made from

The Design Process	
Task analysis	Picking apart a task to try and solve the problem within it
Mood board	A collection of images to help you when designing
Product Analysis	Investigating and evaluating products to find out more about them
Design brief	A statement saying what you are going to design and make
Specification	A list of points saying what your project is going to be and do
Model	Making part of your product to check that you like it and to check that it works

Mechanisms	
Motion	The ways in which things move
Mechanism	A device that you can make to transform one type of motion into another
Bell crank	Part of a mechanism that allows reciprocating motion to change direction
Collar	Holds the arms of a mechanism in place
Pivot point	The point that motions move around
Split pin	A small metal component used to make pivot points on cards
Linear	Motion that moves forwards in one straight line
Rotary	Motion that moves in a circular path around a fixed point
Oscillating	Motion that swings back and forth from a fixed point
Reciprocating	Motion that moves continuously, and repetitively, back and forth, up and down, or left to right



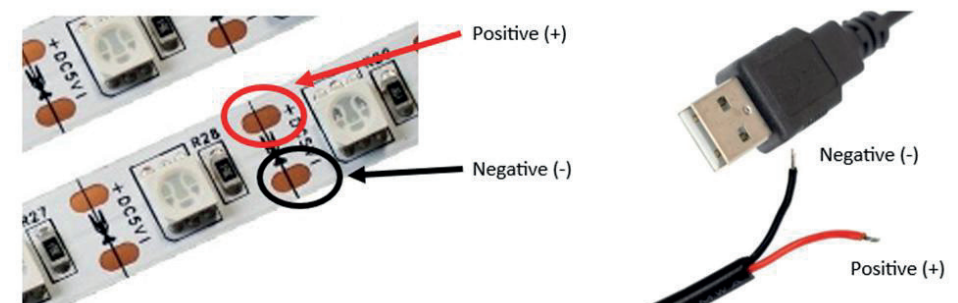
Year 8 Design and Technology (Product Design) – Mood Light

CAD/CAM	
CAD	Computer Aided Design
CAM	Computer Aided Manufacture
CNC	Computer Numerically Controlled
2D design	A programme on the computer that can be used to create drawings to be laser cut and engraved.
Laser cutter	A machine that uses a high powered laser to cut and engrave materials

Materials and Equipment	
Acrylic	A polymer that can be recycled. Comes in lots of colours and different levels of transparency
Softwood	A type of timber from faster growing trees that is softer and easier to cut, as well as being cheaper
Led strip	An electronic component – a strip of LED lights that can be soldered on to
USB cable	A cable that will connect to a USB port to power the light
Solder	Thin metal that can be melted to form a connection in an electronic circuit
Soldering Iron	A pen – shaped device with a hot end used for melting solder onto circuits.

Workshop Tools	
Pencil 	Marking out equipment – used to make marks on timber.
Ruler 	Measuring equipment – used to measure accurate sizes
Tri Square 	Marking out equipment – used to mark out an accurate right angle
Bench Hook 	Cutting equipment – used to put your timber on to stabilise it when cutting
Tenon Saw 	Cutting equipment – used to cut straight lines in wood
Vice	Workshop equipment – used to hold you work still while you are marking, measuring or cutting
Sander	An abrasive machine used for smoothing out the surface of timber
Pillar drill	A machine used to drill holes
Hand held drill	A hand help power tool used for drilling holes

Soldering the LED light strip correctly



Year 9 Design and Technology (Product Design) – Block Letters

Marking Out Tools			Cutting Tools and equipment		Shaping tools		
Pencil	Ruler	Tri square	Tenon Saw	Bench hook	File	Sanding board	Sand paper
							

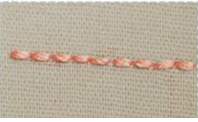
Workshop Machinery		Workshop Health and Safety Rules		Key Terminology	
Pillar drill	Belt sander	- Wear an apron - Hair tied back - Sleeves rolled up - Remove jewellery - No running - Carry tools / equipment blade down - Only one person to use a machine at a time - The person using the machine turns it on / off - Hold work firmly or clamp work while using machines - Keep fingers away from moving parts - Tidy up after each task		Edge	A flat part of a shape – the sides
				Angle	A part of the letter that is not vertical or horizontal
Also used to drill holes but is a fixed machine with a flat bed. Good for drilling holes at an exact 90° angle.		Materials MDF Medium Density Fibreboard – a manufactured board commonly used for simple projects as it is easy to mark out and cut. Made up of wood fibres, pressed together in a mould with glue,		Vertices	A point where two edges meet – a corner
A fixed machine used for sanding timber smooth. This machine has a fixed bed to sand at a 90° angle.				Perimeter	The entire distance around a shape
				PVA glue	A type of glue for indoor use. Polyvinyl Acetate
				Millimetres	A unit of measurement
				Centimetres	A unit of measurement
				CAD/CAM	Computer Aided Design and Computer Aided Manufacture, can be used to cut out complex shapes such as letters

Year 7 Design and Technology (Textiles) – Embellished Seascapes

Key Terminology

Embellish	To make (something) more attractive by the addition of decorative details or features.
Embroidery	The method used for decorating fabrics with a needle and a thread.
Pattern	A repeated decorative design.
Organic shapes	Shapes with a natural look and a flowing, curving appearance.
Geometric shapes	Precise and regular, like squares, rectangles, and triangles. Often found in human-made things.
Simplify	To make something less complicated.
Composition	The arrangement of elements within a work of art.
Thread	A long, thin strand of cotton, nylon, or other fibres used in sewing or weaving.
Bondaweb	A soft adhesive used for joining fabric layers together
Moodboard	A collection of visual images to show your thoughts and ideas
Textile artist	An artist / designer who creates their pieces using fabrics, stitches and other textile materials

Types of Stitch

				
Back Stitch	Running Stitch	Satin Stitch	French Knots	Cross Stitch

Francesca Colussi Cramer



A textile artist and designer based in North Wales, UK.

- Studied Literature and Women's History in Italy, then went to do a degree in textile design in the UK
- Her design work has been acquired by fashion and interior design brands such as Boden, Ikea and Nike.
- She transforms and re-purposes found images, vintage postcards and photographs through a contemporary, three-dimensional viewpoint
- She has exhibited at New Designers in London, and Premiere Vision in Paris

Textiles Equipment

			
Ironing Board	Sewing Machine	Tape Measure	Pin Cushion
			
Pins	Needle	Iron	Fabric Scissors

Year 8 Design and Technology (Textiles) – Aerial Weaving

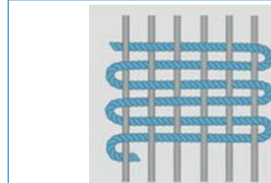
Key Terminology	
Weave	The process of interlocking two threads to create a fabric
Loom	A tool used to weave cloth and tapestry. It stretches the warp threads to help weave in the weft threads.
Warp	The yarn that is wound onto the loom.
Weft	The yarn that is woven over and under the warp threads.
Balanced Weave	A weave containing equal amounts of warp and weft.
Beat	To apply downward pressure on the weft threads.
Interlock	A weaving technique in which two weft ends loop around each other when they meet.
Tension	The amount of tautness put on the warp threads.
Weaver's knot	A simple knot used by weavers so that threads may be clipped close to the knot without coming apart.
Yarn	Fibrous threads used to make fabric
Slit	Weaving two colours horizontally and leaving a gap between them.
Fibres	A natural or synthetic filament that may be spun into yarn, such as cotton or nylon.
Natural fibres	Any hair-like, raw material from an animal, vegetable or mineral source that is spun and converted into yarn, such as cotton or silk.
Man made fibres	A type of fibre that is made artificially, such as polyester or rayon.

Tammy Kanat

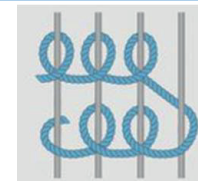


- Large scale textile artist inspired by the Australian landscape
- Started as a jewellery designer before moving to textiles
- Enrolled in the Australian Tapestry Workshop in 2011
- Exhibition in 2014 "Spirit" for her hand-woven wall art
- Gained international recognition through social media
- Artworks are inspired by organic shapes found in nature—tree trunks and geological formations such as agate
- Inspired by the textile artist Sheila Hicks

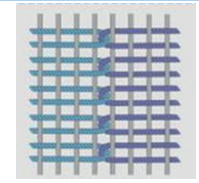
Types of Weaving



Tabby

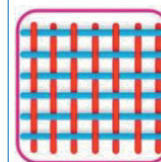


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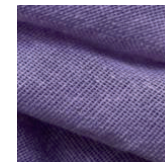


Interlock

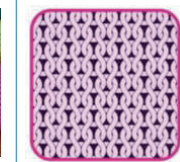
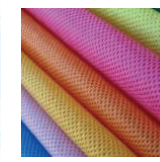
Types of Fabric



Woven fabric



Non-woven fabric



Knitted textiles

Year 9 Design and Technology (Textiles) – Print and Stitch

Key Terminology

Polytile printing	A method of block printing that uses a polystyrene tile.
Embellish	To make something more attractive by the addition of decorative details or features
Evaluate	To review work in order to see if the design can be corrected or improved
Water based ink	Inks that use water as the main solvent for carrying pigment. They are made up mostly of acrylic resins.
Geometric shapes	Shapes made up of points and lines including the triangle, square and circle
Texture	The feel and / or appearance of a surface
Simplify	To make something simpler or easier to do or understand.
Embroidery	Patterns or pictures made from stitches sewn directly onto cloth.
Intaglio printing	A print surface where the design is cut, scratched, or etched into the printing surface.
Calico	A plain-woven textile, made from half processed and unbleached cotton fibres
Print making	Making pictures or designs by printing them from specially prepared plates or blocks
Composition	The placement or arrangement of items
Interfacing	An extra layer of material or an adhesive stiffener that is applied to the fabric to add support
Horticulture	The science, art and technology of cultivating plants
Lithograph	A method of printing based on the idea that oil based inks and water do not mix

Angie Lewin



- Born in Cheshire in 1963.
- Studied Fine Art and Printmaking at St Martin's College, London from 1983-1986.
- Inspired by the cliff tops and salt marshes of the Norfolk coast and Scottish Highlands.
- Her work often incorporates real natural aspects such as seedpods, grasses, dried seaweed and feathers.
- Produces work in a number of mediums including wood engraving, lino cut, silkscreen, lithograph and collage.
- Her studies in horticulture inspired her to follow print making. She now lives and works in Scotland.

Types of stitch

Running stitch	Back stitch	French Knot	Chain stitch
Cross stitch	Lazy Daisy stitch	Feather stitch	Stem stitch
Satin stitch	Seed stitch		



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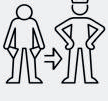
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English

English – Key Subject Terminology

Term	Definition	Term	Definition
Alliteration	The repetition of sounds at the start of a group of words.	Hyperbole	Deliberate exaggeration.
Allusion	A reference to a figure, place or event from outside the text.	Imagery	When something is described to appeal to the senses.
Anadiplosis	The word at the end of a sentence or clause is repeated at the start of the next sentence or clause.	Imperative	An authoritative command or instruction.
Anecdote	A short, humorous, or interesting story.	Juxtaposition	Putting two things beside each other that do not normally belong together e.g. light and dark.
Anaphora	Repetition at the start of successive lines or clauses.	Metaphor	Comparison stating one thing is another.
Antagonist	A character who opposes the protagonist.	Motif	A repeated image or idea.
Assonance	The repetition of vowel sounds in a group of words.	Onomatopoeia	Auditory words e.g. 'bang'.
Caesura	A pause in the middle of a line of poetry, created by punctuation.	Oxymoron	Putting two words together to create something impossible.
Climax	The most exciting part of a narrative.	Protagonist	The main character of a narrative.
Denouement	The final part of a narrative where matters are explained or resolved.	Realism	When the narrative is written as true to life as possible.
Emotive Language	Language used to provoke a particular emotion in the reader.	Refrain	A regularly recurring phrase or verse in a poem or song.
End-Stopped	When a line of poetry ends with punctuation.	Rising Action	The events preceding the climax of a narrative.
Enjambment	When there is no punctuation at the end of a line of poetry.	Semantic Field	A group of words linked to the same idea, place or object.
Epistrophe	Repetition at the end of a sentence, clause or line.	Sibilance	Repetition of the 's', 'sh' or 'z' sounds in a group of words.
Exposition	The beginning of a narrative when setting and characters are introduced.	Simile	Comparison using like or as.
Fact	Information that is known or proven to be true.	Stage Directions	Information for the actor and director to guide the performance.
Falling Action	The events after the climax of a narrative.	Statistic	A factual piece of information.
Figurative Language	Similes, metaphors or other devices used to describe something in a non-literal way.	Stanza	A paragraph or verse in a poem.
Five Act Structure	Narrative arc consisting of: exposition, rising action, climax, falling action and denouement.	Structure	The order or arrangement of ideas or events in a narrative or poem.
Hamartia	The fatal flaw that leads to the downfall of a tragic hero.	Symbolism	The use of objects to represent deeper ideas.
Hubris	Excessive pride.	Tragic Hero	Initially admirable, but their hamartia leads to a tragic downfall.

English – Blood Brothers

Big Ideas			Chanting – Key Subject Terminology	
Big Idea (S1)	Image	Moments (S2)	Term	Definition
Mrs Johnstone – The loving but impoverished matriarch who represents the exploited working class.		"a mother, so cruel, / There's a stone in place of her heart." Narrator, Act I	Dramatic Irony	When the audience knows more than the characters on stage.
		"New shoes on the table, take them off...Oh God, Mrs Lyons, never put shoes on a table...You never know what'll happen." Mrs Johnstone, Act I.	Tragic Hero	Initially admirable, but their hamartia leads to a tragic downfall.
		"I love the bones of every one of em." Mrs Johnstone, Act I	Hamartia	The fatal flaw that leads to the downfall of a tragic hero.
Mrs Lyons – The wealthy, privileged but mentally fragile mother who manipulates Mrs Johnstone out of jealousy and fear.		"(twigging it; laughing) Oh...you mean you're superstitious?" Mrs Lyons, Act I	Fate	The idea that a person's life and future are already mapped out by a higher power.
		"an adopted child can become one's own." Mrs Lyons, Act I	Peripeteia	A reversal in fortune or turning point.
		"You have ruined me." Mrs Lyons, Act II	Soliloquy	A speech in a drama when a character speaks to themselves or the audience, expressing their inner thoughts or feelings.
Mickey & Edward – While Mickey's limited education leads to unemployment and crime, Edward's privilege paves the way for university and political influence.		"So did y'hear the story of the Johnstone twins? As like each other as two new pins, Of one womb born on the self same day, How one was kept and one given away." Narrator, Act I.	Monologue	A long, uninterrupted speech by a single character.
		"we always have to stand by each other." Mickey, Act I	Stage Directions	Information for the actor and director to guide the performance.
		"you're not the same as him. You're not, do you understand?" Mrs Lyons, Act I	Aside	A short comment or remark spoken directly to the audience.
Social Class: It is clear that Russell feels that unjust society is the heaviest influence in where people end up.		"I don't want you mixing with boys like that! You learn filth from them and behave like a, like a horrible little boy, like them" Mrs Lyons, Act I.	Motif	A repeated image or idea.
		"And do we blame superstition for what came to pass / Or could it be what we, the English, have come to know as class?" Narrator, Act II	Extended Metaphor	A detailed comparison between two unlike things extended over many lines, paragraphs or a whole text.
		"if either twin learns that he was once a pair, they shall both immediately die." Act I, Mrs Lyons	Symbolism	The use of objects to represent deeper ideas.
Superstition and Fate The voice of fate is provided repeatedly throughout the play, by the Narrator, who reveals even at the outset that the two will die. Mrs Lyons plays on Mrs Johnstone's belief in superstition which causes the central conflict in the play.		"you know the devil's got your number" Act I, Narrator	Greek Chorus	A group of narrators who provide background information and warn the audience of what will happen.
		"Wherever I go you'll be just behind me. I know that now...always and forever and ever like, like a shadow" Mrs Lyons, Act II	Cyclical Structure	A text which starts and ends in the same place.
		"See this means that we're blood brothers an' that we always have to stand by each other. Now you say after me: 'I will always defend my brother. I will always defend my brother.'" Mickey, Act I		
Nature vs Nurture: Mickey and Edward are twins so, by nature, they are genetically as similar as can be. Therefore, Russell suggests that it is in fact nurture (their upbringing) that causes their contrasting behaviours, actions, and mannerisms.		"how come you got everything... An' I got nothin'?" Mickey, Act II		
		"I could have been... I could have been him!" Mickey, Act II		

English – A Scandal in Bohemia

Big Ideas			Chanting – Key Subject Terminology	
Big Idea (S1)	Image	Moments (S2)	Term	Definition
Holmes: Doyle characterises Sherlock Holmes as someone who can solve mysteries that are normally beyond the capability of human reasoning.		'extraordinary powers'	Mystery	A genre where the nature of an event, usually a murder or crime, remains mysterious until the end of the narrative.
		'He untangled the most inextricable mysteries.'		
		'You would certainly have been burned had you lived centuries ago.'	Peripheral Narrator	When the narrator is another character in the story, one who witnesses the main character's story and conveys it to the reader. They may be part of the action but not the focus.
Science: Doyle portrays Holmes' methods as scientific at a time when people saw science as leading humanity to an inevitable knowledge of everything in the Victorian era.		'He was...the most perfect reasoning and observing machine the world has seen.'	Exposition	The beginning of a narrative, where setting, characters and themes are introduced.
		'All emotions were abhorrent to his cold, precise but admirably balanced mind.'		
Adler: Doyle portrays Irene Adler as an independent woman who defies conventional Victorian societal roles.		'She eclipses and predominates the whole of her sex.'	Rising Action	The events before the climax of the narrative.
		'She has the face of the most beautiful of women, but the mind of the most resolute of men.'		
Gender: Doyle subverts the gender stereotypes of the time; Holmes underestimates Irene Adler because she is a woman, and she proves herself the better of any man.		'beautiful creature'	Climax	The most exciting part of a narrative.
		'Male costume is nothing new to me. I often take advantage of the freedom which it gives.'		
Power: While the King of Bohemia exerts physical power and dominance, both Holmes and Adler demonstrate intellectual power.		'Chest and limbs of a Hercules' and 'loud authoritative tap'.	Falling Action	The events after the climax of the narrative.
		'Mr Sherlock Holmes was beaten by a woman's wit.'		
			Denouement	The final part of a narrative where matters are explained or resolved.

English – Non-Fiction

Big Ideas			
Big Idea (S1)	Image	Moments (S2)	Writer's Perspective
The writers of the non-fiction texts expose the injustice present in society, for example: Kilgore exposes male privilege.		'I enjoy the attention I receive as a stay-at-home dad;'	Kilgore acknowledges that he has benefitted from male privilege.
		'men receive undeserved praise, attention, and rewards for performing work traditionally done by women.'	Kilgore criticises the pedestal effect and how men and women are not praised equally.
The writers advocate for change , for example: Nic Dhughaill advocates for greater awareness of the UK's indigenous languages.		'The ten languages indigenous to the British Isles and still spoken today are English, Scots, British Sign Language, Welsh, Gaelic, Irish, Cornish, Manx, Angloromani and Shelta.'	NicDhugaill utilises asyndetic listing to emphasise and celebrate the variety of languages in the UK.
		'almost a quarter of school pupils in Wales are educated through the medium of Welsh.'	NicDhugaill includes statistics to promote the continued prominence of indigenous languages, adding ethos and credibility to her argument.
The writers utilise rhetoric and the Aristotelian triad of ethos, pathos and logos to convince their readers of the importance of their argument , for example, Fountain utilises pathos to emphasize the desperate situation.		'climate change and its effects are accelerating, with climate related disasters piling up, season after season.'	Fountain uses emotive language (pathos) to convey his concern at the alarming rate of climate change.
		'"All the time we're breaking records in temperatures," Dr Taalas said.'	Fountain uses quotations from experts to add ethos to his argument and convince the audience to share his desperation.

Chanting – Key Subject Terminology			
Term	Definition	Term	Definition
Feminist	Someone who advocates for, or supports, the rights and equality of women.	Reductive	Thinking about, or presenting something, in a way that is too simple.
Indigenous	Originating, or occurring naturally, in a particular place.	Stigma	A strong feeling of disapproval that most people in society share about something.
Advocate	To publicly support an idea.	Subjective	Influenced or based on personal feelings or beliefs rather than facts.
Privilege	A special advantage, permission, right or benefit given to or enjoyed by an individual or group of individuals.	Objective	Influenced or based on facts rather than feelings or beliefs.

English – Creative Reading

Chanting – ROA Grammar		Chanting – Key ROA Terminology	
Term	Definition	Term	Definition
Connotation	Symbolic meaning – what we think, feel or imagine when we consider a word.	Context	When and where a text was written, including what was happening in society at the time.
Denotation	Literal meaning – the definition of a word.	Narrative Perspective	The point of view from which a story is told.
Extended Metaphor	A detailed comparison between two unlike things extended over many lines, paragraphs or a whole text.	Linear Narrative	A traditional narrative structure that includes an exposition, rising action, climax, falling action and denouement.
Motif	A repeated idea or image.	Non-Linear Narrative	A narrative structure where events are told out of order using flashbacks, parallel timelines or multiple perspectives.
Symbolism	The use of objects to represent deeper ideas.	Tone	The attitudes or feelings a writer expresses towards a subject.

Core ROA Reading Terminology		
Term	Definition	Example
Adverb	A word that describes verbs.	Sally walked quickly . He always puts in the effort.
Conjunctive Adverbial	Adverbs of one or more words that act as conjunctions, linking sentences or clauses.	It was raining heavily; however , we still went for a walk.
Explicit Characterisation	In fiction, something that the author tells us directly about a character.	Beneath his rugged and intimidating exterior, the blacksmith was a gentle soul who loved tending to injured wildlife.
Implicit Characterisation	In fiction, something we have to infer about a character through their actions, their dialogue and / or what others say about them.	Whenever the classroom door opened, she quickly tucked a strand of hair behind her ear, adjusted her glasses, and stared intensely at her notebook.
Parallelism	Two or more phrases or clauses in a sentence that have the same grammatical structure.	' It was the best of times, it was the worst of times,' – <i>Dickens, A Tale of Two Cities</i>
Parenthesis	Extra information added into a sentence using brackets, dashes or commas.	'The case was worn - and very full - and its straps struggled to keep in its contents.'
Subordinating Conjunction	A word that joins a dependent clause to a main clause	I am staying in because it is raining. Check your passport before you travel.

ROA Core Skills		
Writing	Reading	Speaking
		

English – Rhetoric

Chanting – ROA Grammar

Term	Definition
Anaphora	Repetition at the start of successive lines or clauses.
Emotive Language	Language used to provoke a particular emotion in a reader.
Modal Verb	A verb that indicates likelihood, ability, permission or obligation.
Rhetorical Question	A question that is used to make a point, rather than get an answer.
Statistic	A proven fact: a piece of data obtained from a study.

Chanting – Key ROA Terminology

Term	Definition
Anecdote	A short, humorous or interesting story.
Fact	Information that is known or proven to be true.
Ethos	The appeal to credibility.
Logos	The appeal to logic and reasoning.
Pathos	The appeal to emotion.

Crafting Creative Sentences

Question followed by: 'Well, the answer is simple:...'	Three is the magic number
What is it? A rhetorical question, followed by an answer, utilising a colon. What does it look like? <i>What is it that makes airbrushing and photo editing (especially with the rise of AI technology) so frightening? Well, the answer is simple: we lose sight of what's 'normal' and hold ourselves to increasingly unrealistic standards</i>	What is it? 3 rhetorical questions in a row 3 simple sentences in a row 3 sentences starting the same way What does it look like? Have you ever compared yourself to a celebrity or influencer's Instagram photos? Have you ever wondered how they get their skin so flawless? Have you questioned your value in comparison to them?
Ostensibly, (something that appears to be true on the surface); however, in reality...	There is one factor that concerns [X] more than anything else: [Y].
What is it? This sentence enables you to compare perception versus reality using discourse markers and a semi-colon. What does it look like? Ostensibly, photo manipulation and editing is just a bit of harmless fun; however, in reality there's a worrying correlation between extreme photo editing and our children's self-esteem.	What is it? Two sentences, joined with a colon, highlighting the importance of something through hyperbole. What does it look like? There is one factor that concerns me more than anything else: the way adults seem insistent on exercising control over the way we use social media.

ROA Core Skills

Writing	Reading	Speaking
		

English – King Lear

Big Ideas		
Big Idea (S1)	Image	Moments (S2)
Power Shakespeare explores how power can lead to corruption. Lear's abdication defies the Divine Right of Kings, resulting in devastating consequences.		'A very honest-hearted fellow, and as poor as the king.' (disguised Kent to Lear) 'All thy titles thou hast given away; that thou wast born with.' (Fool to Lear) 'Here I stand, your slave, A poor, infirm, weak, and despised old man' (Lear)
Appearances vs Reality Both Lear and Gloucester suffer from metaphorical blindness; they fail to see the true characters of their own children.		'Let's see: come, If it be nothing, I shall not need spectacles.' (Gloucester) 'Nothing will come of nothing: Speak again.' (Lear) 'O villain, villain! His very opinion in the letter! Abhorred villain! Unnatural, detested, brutish villain! Worse than brutish!' (Gloucester)
Madness Lear is characterised as lacking emotional control in the face of challenge.		'My lady's father! My lord's knave: you whoreson dog! You slave! You cur!' (Lear to Oswald) 'Doth any here know me? This is not Lear: Doth Lear walk thus? Speak thus? Where are his eyes?' (Lear)
King Lear Lear is a tragic hero; initially a powerful leader, he is blinded by flattery and false declarations of love, resulting in poor judgement and his ultimate downfall.		'See better, Lear' (Kent) 'Come not between the dragon and his wrath.' (Lear) 'I am a man More sinn'd against than sinning.' (Lear)
Goneril and Regan The older sisters act in an obsequious manner using hyperbolic flattery to convince Lear of their love.		'Sir, I love you more than words can wield the matter; Dearer than eye-sight, space and liberty.' (Goneril) 'Thou madest thy daughters thy mothers: for when thou gavest them / the rod, and put'st down thine own breeches.' (Fool to Lear) 'Ingratitude, thou marble-hearted fiend, More hideous... Than the sea-monster!' (Lear to Goneril)
Edmund Shakespeare characterises Edmund as the archetypal Machiavel.		'Edmund the base Shall top the legitimate. I grow; I prosper: Now, gods, stand up for bastards!' (Edmund) 'Let me, if not by birth, have lands by wit: All with me's meet that I can fashion fit.' (Edmund) 'My cue is villainous melancholy, with a sigh like Tom o'Bedlam.' (Edmund)

Chanting – Key Subject Terminology			
Term	Definition	Term	Definition
Great Chain of Being	Belief in the natural order that God had for both nature and humankind, within which every creature and person had their allotted place.	Soliloquy	A speech in drama when a character speaks to themselves or the audience, expressing their inner thoughts and feelings.
Divine Right of Kings	The belief that the monarch's authority to rule comes directly from God and that he or she is not subject to any earthly authority.	Machiavellian	Cunning, scheming and unscrupulous, especially in politics.
		Abdication	To give up one's position as king or queen.



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Religious Studies

RE – Introduction to Ethics

1. Key Vocabulary

Term	Definition
Morality	Principles concerning the distinction between right and wrong or good and bad behaviour.
Ethical Dilemma	A situation in which all available options have moral advantages and disadvantages.
Utilitarianism	The morally correct decision produces ' <u>the greatest happiness for the greatest number of people</u> '.
The Hedonic Calculus	A tool for measuring an actions consequences.
Rules	One of a set of explicit or understood regulations or principles governing behaviour.
Natural Moral Law	A system of laws based on close observation of human nature, given to humans by God.
Precept	A general rule intended to regulate behaviour or thought.
Reason	The power of the mind to think, understand, and form judgements logically.
Absolute Morality	The idea that some actions are always right or wrong, no matter the situation.
Situation Ethics	The view that there should be flexibility in the application of moral laws according to circumstances.

2. Key Vocabulary

Term	Definition
Relative Morality	Right and wrong depends on the situation.
Agape	Unconditional love, “the highest form of love, charity” and “the love of God for man and of man for God”.
Pragmatism	The correct action must be one that works best in practice.
Personalism	Must put the best interests of people before the rules.
Magisterium	The official teachings of the Catholic Church.
School of Thought	A set of shared ideas, beliefs or principles held by a group of people.
Moral Decisions	Choices influenced by upbringing, culture, religion and personal experiences.
Criticism	The analysis and judgement of the merits and faults of a literary or artistic work.
Trolley Problem	Thought experiment created by the philosopher Philippa Foot.
Context	The particular circumstances of a given situation.

RE – Ethics in the Modern World

1. Key Vocabulary

Term	Definition
Sanctity Of Life	The view that all life is sacred because it is made by God.
Quality Of Life	The standard of health, comfort, and happiness experienced by an individual or group.
Abortion	A procedure to end a pregnancy.
Pro-Life	Opposing abortion and euthanasia.
Pro-Choice	Advocating the legal right of a woman to choose whether or not she will have an abortion.
Euthanasia	The painless killing of a patient suffering from an incurable and painful disease or in an irreversible coma.
Capital Punishment	The legally authorized killing of someone as punishment for a crime.
Animal Rights	The rights of animals to live free from human exploitation and abuse.
Dominion	To be in charge of something or rule over it.
Stewardship	The job of supervising or taking care of something.

2. Key Vocabulary

Term	Definition
Saviour Sibling	A child conceived to donate tissue to save a sick sibling.
Autonomy	The right to choose.
Potential coercion	Pressure on vulnerable individuals.
Fast Fashion	The rapid production of inexpensive, low-quality clothing.
Microplastics	Small plastic pieces less than five millimetres long which can be harmful to our ocean and aquatic life.
Sacred	Holy and therefore deserving of respect.
Deterrence	To put people off committing crimes.
Capital Offence	A crime which is punishable by death.
Empathy	To recognise and understand the thoughts and feelings of another person.
Dignity in dying	An ethical concept advocating that terminally ill individuals should have control, autonomy, and freedom from unnecessary suffering at the end of their lives

RE – Philosophy and the Moral Self

1. Key Vocabulary

Term	Definition
Epistemology	How knowledge is gained and justified.
Ethics	What makes actions right or wrong.
Philosophy of Mind	What the mind is and how it relates to the body
Dualism	The view that the mind is non-physical and exists separately from the body.
Attribute	Quality or characteristic.
Immanent	Attribute of God meaning present in and involved with life on Earth and in the universe.
Omnibenevolent	Attribute of God meaning all-loving.
Omniscient	Attribute of God meaning all-knowing.
Omnipotent	Attribute of God meaning all-powerful.
Omnipresent	Attribute of God meaning everywhere, all the time.

2. Key Vocabulary

Term	Definition
Transcendent	Attribute of God meaning beyond and outside life on Earth and the universe.
Empiricism	The belief that all knowledge is gained through experience (which comes through our senses).
Faith	Complete trust or confidence in something or someone, despite the absence of proof.
Analogy	A comparison between one thing and another, typically for the purpose of explanation or clarification.
Design Argument	Argument for the existence of God based on the evidence of design in the world.
Infinite Regression	An infinite (eternal) chain of prior causes with no beginning.
Cosmological Argument	Argument for the existence of God which holds that God was the first cause of the universe.
Evil	The opposite of good; a force or the personification of a negative power that is destructive and against God.
Inconsistent Triad	Philosophical position arguing why, if the gods are omnipotent (all-powerful) and benevolent (all-loving), why do they allow evil to exist?
Suffering	When people have to face and live with unpleasant events or conditions.



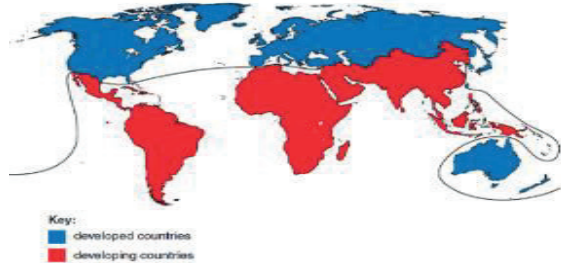
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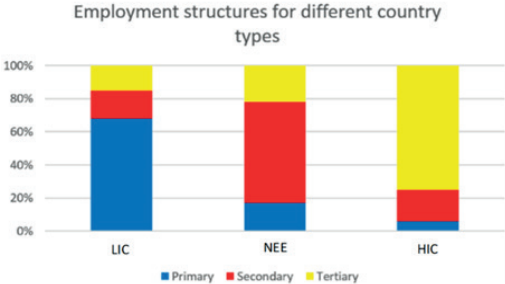
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Geography

Geography – Life in an Emerging Economy

1. What are newly emerging economies?		2. Is the Brandt line still correct today?	3. What are development indicators?	
Term	Definition	- The Brandt line suggests that there are only 2 categories of country, rich and poor. - Created in the 1980s and based purely on GDP (an economic measure). - Rise of BRIC and MINT countries undermines Brandt line. - Seven of the BRIC and MINT countries are south of the line. - Today many countries are seeing a rapid increase in their GDP per capita. 	Term	Definition
NEE	Newly emerging economy. A country that has experienced rapid economic growth.		Birth rate	The number of live births per 1,000 of the population per year
BRICs	The fastest growing economies named in 2001. Brazil, Russia, India, China. (South Africa)		Death rate	The number of deaths per 1,000 of the population per year
MINTs	The four more recently growing NEEs named in 2014. Mexico, Indonesia, Nigeria, Turkey.		Infant Mortality Rate	The number of babies that die before the age of 1, per 1,000 live births per year
Industrialisation	The process of a country moving from mostly agriculture (farming) to manufacturing goods (factories).		Life expectancy	The average age that a person may be expected to live to in a country.
Brandt line	A line drawn in the 1980s, dividing the rich north from the poor south.		Literacy rate	The percentage of adults that can read and write.
4. What are the characteristics of NEEs?		5. What is rural-urban migration?		GDP per capita The total value of the goods and services produced by a country in a year, divided by the population
Large land masses....	...means countries have space for industries to develop.	Term	Definition	
Large, young populations....	...means countries have a lots of people to work and pay tax.	Rural	Countryside	Human Development Index A composite indicator, taking into account both economic and social measures. HDI gives a score between 0 and 1, and combines: - Life expectancy (social) - Average number of years at school (social) - Gross national income per capita (economic)
Rich in natural resources....	...means countries can sell (export) them to other countries.	Urban	Towns and cities	
Home to many TNCs....	...this means there are more jobs available.	Urbanisation	An increase in the number of people living in urban areas compared to rural areas.	
Large secondary sector....	...because of the growth of industries.	Push factor	Any factor that encourages a person to leave an area	
		Pull factor	Any factor that encourages a person to move to an area	
6a. Push factors from rural areas in NEEs		6b. Pull factors to urban areas in NEEs		
Mechanisation	The introduction of machines and new technology to farming means fewer jobs available in rural areas.	More available jobs	Increased chances of securing employment and increasing your standard of living.	
Drought	A prolonged period of low rainfall leading to a shortage of water.	Higher wages	Increased income for workers.	
Lack of schools	Poor education infrastructure means less chance of children getting an education.	More access to schooling	Good education infrastructure means more chance of children getting an education	
Lack of access to healthcare	Lack of accessibility to medical care means disease and illness are left untreated.	Increased access to healthcare	Improved accessibility to medical care means disease and illness can be treated.	

Geography – Life in an Emerging Economy

7. Changing employment structure of NEEs		8. Factors leading to China's success		9. Rio de Janeiro	
Term	Definition	Imports	Exports	Rio is a city in Brazil, which has seen rapid rates of urbanisation .	
Employment structure	How the workforce is divided up between primary, secondary, tertiary and quaternary employment.		Goods sent to another country for sale.	Some people live in modern apartments, whilst others live in favelas . Favelas are: - Densely packed together - Built illegally and can be knocked down by authorities. - Built on marginal land (land that developers would not usually build houses on), including hillsides, marshland, near railway tracks and the outskirts of the city.	
NEE employment structure	Secondary is increasing and primary is decreasing.	Trade Unions	An organisation of workers who work to protect the rights of those employed.		
Informal employment	Jobs which are not taxed, workers don't have contracts or rights. Causes: - There are not enough formal jobs. - Jobs not created quickly enough. - Migrants are not skilled enough.	Tax breaks	A reduced amount of tax due, normally for a fixed period. This increases the profits a company can make.	10a. What are the opportunities of living in Rio de Janeiro?	
 Employment structures for different country types		Subsidies	Money given by a government to help an industry keep down the cost of exports.	Highest income per head	More jobs could lead to wages for food, medicines and sending children to school.
		- China had a very low minimum wage, so low wage costs. - Trade unions were weak, so shifts were very long, increasing productivity. - TNCs were given tax breaks, so more profit. - Lower environmental laws, so reduced costs for waste disposal. - The Chinese Government placed subsidies on exports (\$1billion each year).		Water supply	88% houses are connected to a water supply reducing diseases e.g., Cholera
				Electricity	Houses have electricity which means an improved quality of life e.g. being able to heat and light the home.
				10b. What are the challenges of living in Rio de Janeiro?	
				Unemployment	Unemployment in favelas is 20%, so many people do informal, cash in hand jobs. Pay can be low, so they might not be able to afford basic medicines and food.
				Waste collection	Only 50% of waste is collected, so waste builds up in the streets, sometimes leading to vermin and mosquitos, which can increase the risk of diseases, such as malaria.
				Crime	Corruption and crime are difficult to manage and can be a problem.
11. What are the impacts of a TNC locating in a NEE?		12a. Opportunities of having a TNC in an NEE (positives)		13. Shell in Nigeria. A TNC in an NEE	
Term	Definition	Job opportunities: employ local people, who earn a wage.		Positives of Shell (Benefits)	65,000 direct jobs.
Transnational Corporation (TNC)	Companies that operate in more than one country, often having their headquarters in a HIC and their factories in an NEE or a LIC.	Learn new skills: Workers can learn new skills to get higher paid jobs.			90% of contracts given to Nigerian companies.
Source country	The country where a TNC has its headquarters (HIC)	12b. Challenges of having a TNC in an NEE (negatives)		Negatives of Shell (Costs)	Bodo oil spill 08/09 spilled 280,000 barrels of oil over the Niger Delta
Host country	The country where a TNC places its factories (NEE/LIC)	Poor working conditions: Workers work long hours without breaks.	Strict rules: Rules inside factories can be strict, with reports of financial penalties		Gas flares affect people's health.
		Low taxes: Taxes can sometimes be quite small compared to profits made.	Footloose: Factories are not permanent and can relocate at any time.		

Geography – Climate Change

1. How have global temperatures changed over time?

- The world's climate has always changed. During the medieval period, grapes were grown in London, but during the time of the Stuarts the River Thames used to freeze over.
- Since 1880 the Earth's climate has increased by approximately **0.8 degrees Celsius**.
- This has **not been steady**, but has **fluctuated**.

Key term	Definition
Climate change	A change in the global climate from the expected average.
Glacial period	Colder period of time—more ice. Lasting approximately 100,000 years.
Interglacial period	Warmer periods of time—less ice. Lasting approximately 10,000 years.

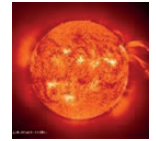
2. What is the evidence for climate change?

Evidence	Explanation
Tree rings	As a tree grows, a new outer layer (or ring) is formed. A new ring forms each year. Tree rings are thicker in warm and wet conditions. Tree rings can go back 10,000 years.
Ice cores	Ice sheets are huge blocks of ice, which are made of layers. A new layer forms each year. Gases trapped in the ice give information about the temperature when they were trapped. One ice core from Antarctica shows temperature change over 40,000 years.
Diaries and paintings	These provide insight into the climate conditions of a particular time. For example, paintings from the time of the Stuarts show Frost Fairs on the frozen River Thames. These records can be compared to current conditions to identify differences.

3. What are the natural causes of climate change?

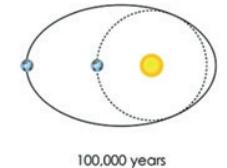
Solar output e.g. sunspot theory

These are **dark spots** that appear on the surface of the sun. The more dark patches, the **greater the heat** released by the sun. These come and go in **11 year cycles**, known as sunspot cycles.



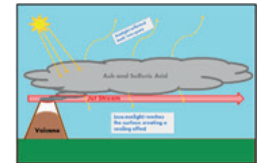
Changes in Earth's orbit e.g. Milankovitch cycles

Orbital change is about **how close the Earth is to the sun**. Every **100,000 years** the proximity of the Earth's orbit will change from circular to elliptical (oval). The **further** the Earth is from the sun, the **colder** the temperature of the Earth.



Volcanic activity e.g. Mount Pinatubo

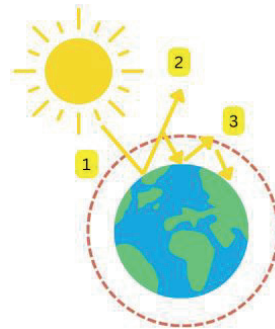
Lots of material is released into the atmosphere during a volcanic eruption as an **ash cloud**. This **reflects the sun rays** back out to space (so they **do not heat the surface** of the earth). As a result the earth's **climate is cooled**. The Mount Pinatubo eruption in 1991 caused global temperatures to fall by 0.5degrees Celsius.



4. What is the Greenhouse Effect?

The Greenhouse Effect

- The atmosphere is made up of **greenhouse gases**, such as carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and water vapour (H₂O).
- The Sun's rays (**solar radiation**) travel through the atmosphere to Earth.
- As the Sun's rays **reflect** off the Earth, some escape to space and some are **trapped**.
- This **balance** is needed to keep the Earth **warm enough for life**.



5. What is the Enhanced Greenhouse Effect?

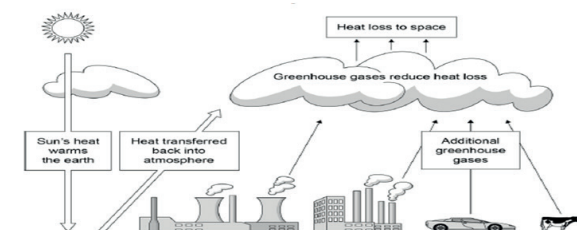
The enhanced Greenhouse Effect

- Many **human activities release greenhouse gases**.
- These **greenhouse gases** are released into the atmosphere, and they trap more of the sun's rays than would normally be trapped.
- This makes the global temperature increase.

Human causes of short term climate change:

Burning fossil fuels by using cars (and other transport), plus coal and gas power stations. All of which release CO₂ into the atmosphere.
Increased agriculture (farming) means more dung so more methane.
Deforestation means less trees to absorb CO₂.

Developed countries are the biggest contributors to the enhanced greenhouse effect. This is because they have more technology and money to do the things above.



Geography – Climate Change

6. What are the effects of climate change?

Social impacts	1. Temperature rise so there are more droughts & deaths from dirty water in places like the Sahel. 2. Rising sea levels means coastal areas are flooded, leading to migration. For example, Shanghai is at risk with 24.5 million people. 3. Lower yields of crops (e.g. Maize) due to warmer temperatures means farmers go bankrupt. 4. Droughts cause crop failure, which can cause famine and starvation. 5. Sea temperatures increase, causing more tropical storms, causing death / homelessness.
Environmental impacts	1. Warmer climate means glaciers and ice sheets melt (e.g. Greenland) so sea levels will rise. 2. Sea ice shrinking means lost habitats e.g. polar bears risk extinction. 3. Rising sea levels means coastal areas flood which destroys habitats e.g. Norfolk Broads. 4. Sea temperatures rise so coral reefs are bleached and habitats are lost e.g. the Great Barrier Reef.

7. Why are LICs more vulnerable to climate change than HICs?

1. Many LICs have a history of being **colonised**, meaning they are **not as developed** as they might otherwise have been. This means that they **do not have the money to invest** in defences meaning it is difficult to prevent things like increased flooding.
2. An **increase** in the number of **mosquitoes** due to increased temperatures will lead to **more disease** and this is **expensive** to cope with.
3. Many people **work in farming** meaning they may suffer a **loss of income** due to **droughts**.

8. Managing climate change: Mitigation

Mitigation	Trying to stop climate change from happening, by reducing greenhouse gases.		
Strategy	Description	Positive	Negative
International agreements	Countries agree to reduce their carbon emissions (carbon footprint) by setting emission targets.	Reduces CO ₂ being released, so stops the negative impacts e.g. flooding	Countries may choose to pull out of agreements or not join in the first place e.g. USA pulled out of the Paris Accord, but has since rejoined.
Alternative energy sources	Using wind farms, solar energy, nuclear and tidal.	Reduced CO ₂ and associated effects, also they will not run out (infinite).	Unreliable so will need to use fossil fuels when they are not working. Expensive initially, so higher bills.
Carbon capture and storage	Some power plants are designed to capture the CO ₂ they create when they burn fossil fuels. Once caught, it is stored underground.	Reduces CO ₂ released into the atmosphere, so reduces consequences e.g. flooding.	Expensive. It costs \$1bn to convert a power station to capture carbon.
Afforestation (planting trees)	Encouraging people to plant trees, which absorb CO ₂	More carbon dioxide will be removed from the atmosphere and locked within vegetation.	Takes time for trees to grow and there is not enough available land to plant as many trees as would be needed to reverse climate change.

9. Managing climate change: Adaptation

Adaptation	Changing our behaviour to better cope with the effects of climate change.		
Strategy	Description	Positive	Negative
Coping with rising sea levels	Sea levels are predicted to rise by 82cm by 2100. Physical barriers / flood embankments (levees) could be built e.g. The Thames Barrier.	These will hold the water back.	Very expensive, so developing countries will unlikely be able to prevent floods and the people will be forced to move.
Changing agricultural systems	Crop patterns are changing. In Kenya drought resistant crops are being used (e.g. millet) to provide food even when rainfall is low.	Reduces the risk of starvation.	Can be expensive, so the cost of food increases, resulting in the poor going without.
Managing water supply	Areas will get drier. Adding water meters will encourage people to use less water, therefore reducing use.	People will have clean water during times of low rainfall.	Limited impact in wealthy countries. Also, little impact if there is low rainfall, so the impacts of droughts (drinking dirty water) will remain.

Geography – Issues of urbanisation

1. What are the employment sectors?

Employment	When people are in work, receiving a wage and paying tax.
Unemployment	When people are not in work, therefore do not receive a wage and do not pay tax.
Primary Industry	Industries which collect or extract natural resources from the environment, such as farming or fishing.
Secondary Industry	Industries which manufacture goods into products, such as builders, car manufacturers or food processing.
Tertiary Industry	Industries that provide a service, such as teachers, doctors, sales assistants, hairdressers or bus drivers.
Quaternary Industry	Industries that involve using technology, design and research, including computer scientists, have designers, computer engineers and research scientists.

2a. What is urbanisation?

Urbanisation	An increasing proportion of a country's population living in towns and cities.
Sub-Urbanisation	The outward expansion of towns and cities, as people, services and businesses move from inner urban areas to the outskirts (suburbs).
Counter-Urbanisation	The movement of people and businesses from large urban areas to smaller towns or rural areas. For example, this could be because of lower housing costs
Urban Sprawl	The uncontrolled or rapid expansion of cities and towns into the surrounding rural areas.
Urban Decline	The deterioration of inner-city areas characterised by falling population, abandoned buildings, high unemployment and poor living conditions. Largely caused by deindustrialization.

3. What is rural-urban migration?

Term	Definition
Rural	Countryside
Urban	Towns and cities
Migration	The movement of people from one place to another.
Push factor	Any factor that encourages a person to leave an area
Pull factor	Any factor that encourages a person to move to an area

5a. What impacts does moving away from primary industries have?

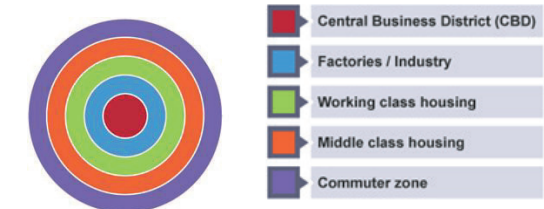
Positives	Negatives
Reduced pollution as there are less factories releasing greenhouse gases	Urban dereliction – Large amounts of abandoned buildings (brownfield sites)
Urban regeneration – areas within the zone of industry are transformed into entertainment districts or residential areas	Unemployment levels high
New investment from companies in tertiary and quaternary industries.	Deprivation in working class housing (zone 3 burgess model)

2b. What is the Burgess model and what does it show us?

The Burgess model is a 1925 urban land use theory.

The model proposes that cities grow outwards from a central business district (CBD) in five distinct rings. The five distinct rings are:

1. Central business districts: The city centre, dominated by shops, offices and high-rise buildings. It has the highest land value.
2. Zone of industry: Mixed land use with factories, industry and lower quality housing.
3. Working class housing: Older, terraced housing often inhabited by families working in the zone of industry.
4. Middle-class residential zone: Newer, larger houses with gardens often referred to as the suburbs, often inhabited by better-off residents.
5. Commuter zone: The outer ring, consisting of wealthy, low-density housing and villages where residents commute to the CBD



4. What is population structure?

Population structure	Number of people in each age range, separated into gender.
Economically active	Working age, so pay taxes to the government (16-65 years old)
Young dependents	Not yet working and paying taxes (15 and under).
Elderly dependents	No longer working and paying taxes, retired, receiving a pension (65+).

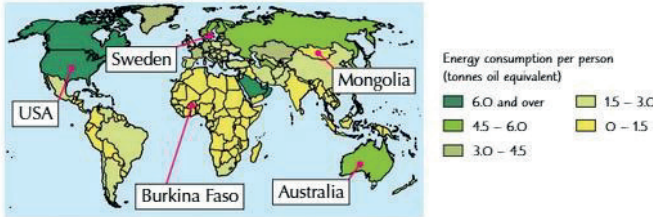
5b. What impacts does moving away from primary industry have?

Urban dereliction	Abandoned buildings and land because of deindustrialisation, economic decline or lack of investment.
Urban regeneration	Reversing urban decline by upgrading, redeveloping derelict areas.
Brownfield sites	Previously developed land that is often vacant, typically found in urban areas.

Geography – Issues of urbanisation

Why is regeneration needed?		Notes	
Economic decline and deindustrialisation	When industry closes people move away which leads to shops closing and a lack of investment.		
Deprivation	If areas have high levels of unemployment, poor health, low education attainment or high crime rates.		
Environmental improvements	Contamination from old abandoned factories will pollute the environment.		
How does regeneration affect land use?			
Brownfield redevelopment	Old industrial sites are repurposed for residential, leisure or office space. This reduces urban sprawl.		
Environmental improvements	Due to brownfield development areas of wasteland are cleaned up reducing pollution. It also improves the overall landscape reducing visual pollution.		
Improved infrastructure	New transport links are built, new bus links, improved roads and utilities installed.		
How are cities sustainable?			Examples
Sustainable	Meets the needs of today without compromising the ability of future generations to meet their own needs.		
Water conservation	Reducing waste-water, minimizing consumption and preventing pollution.	Water meters, dual-flush toilets and grey water recycling (re-using water from domestic tasks for activities like washing gardens).	
Energy conservation	Reducing energy consumption, lowering carbon footprints and saving money.	Installing smart meters, double/triple glazing windows, promoting public transport and cycling/walking to work schemes.	
Waste recycling	Focuses on managing waste by converting materials into new products, reducing landfill and saving energy.	Recycling, composting, burning waste to produce electricity.	
Green spaces	An area of vegetation within an urban area for reasons such as improving air quality, reducing flood risk and promoting biodiversity.	Urban parks, green roofs (planting vegetation on flat roofs) and planting trees.	
Transport strategies	Reducing congestion and pollution by improving infrastructure for public transport and cycling/walking.	Congestion charge zones, rapid transit systems, increasing cycle lanes and park and ride schemes.	
Sustainable cities Brazil case study - São Caetano do Sul		How has the UK's demographic changed?	
Positives	100% wastewater treatment – provides clean drinking water for all residents. 100% access to electricity for all residents. 100% sewage collection.	Urbanisation - Migration to towns and cities by working-age people. - Natural increase also occurs as people meet partners and birth rates increase. - Leads to the growth of megacities. Can also lead to a strain on services.	
Negatives	- City is becoming expensive to live in due to the high quality of life. - In 2020 the city ended its contract with a waste company due to COVID, which disrupted recycling services, so more waste was sent to landfill.	Counter-urbanisation - Rural areas experience growth as people migrate to them. - Leads to a higher demand in services in rural areas. - Younger families and retirees attracted for higher quality of life.	
		Case study London - London receives 200,000 new arrivals from overseas each year. - Migrants are mostly working-age people, looking for high paid work in the city. - London has a youthful population due to this; median age in Tower Hamlets = 30.6 years.	

Geography – Energy

1. Types of energy		
Renewable	Sustainable sources of energy that will not run out e.g. hydroelectric, wind solar, etc.	
Non - Renewable	Sources of energy that will eventually run out. E.g. burning fossil fuels	
2. Non - Renewable energy		
	Advantages	Disadvantages
Coal	- Enough available to meet current energy demands. - Reliable – supply can be controlled to meet demand. - Relatively cheap to extract and use.	- Will eventually run out. - Release carbon dioxide when burned – one of the main causes of climate change. - Release other polluting gases, such as sulphur dioxide (from coal and oil) which causes acid rain. - Oil spills in the oceans kill marine life.
Oil		
Natural gas		
		
3. Renewable energy		
	Advantages	Disadvantages
Solar energy	- Can be used in remote places very cheap to run once installed. - No pollution/ greenhouse gases produced.	- Supply depends on weather. - Expensive to buy and install. - Cannot supply large scale demand.
Hydroelectric	- Low running cost. - No fuel costs. - Reliable and supply. - Can be controlled to meet demand.	- Expensive to build hydroelectric dams. - Food a large area behind the dam, destroying habitats and resulting in greenhouse gas production from rotting vegetation.
Wind	- Low running cost. - No fuel costs. - No pollution/ greenhouse gases produced.	- Supply depends on weather. - Large amounts of land needed to generate enough electricity for large scale demand. - Can produce noise pollution for nearby residents.
Geothermal	- Low running cost. - No fuel costs. - No pollution/ greenhouse gases produced.	- Expensive to set up. - Only possible in a few suitable locations around the world.
Biofuels	- Can be carbon neutral – the amount of carbon dioxide released when the fuel is burnt is equal to the amount of carbon dioxide absorbed when the fuel is grown. - Reliable and supply can be controlled to meet demand.	- Expensive to produce biofuels growing biofuels requires a lot of land and water that could be used for food production. - Can lead to deforestation – forests are cleared for growing biofuel crops .
4. Energy in the UK		
Demand	We consume less energy even though there are more people because of industry decline and energy efficient products like LED lightbulbs.	
Energy mix	The different energy resources used by a country.	
How is it changing	Renewables are increasing 1970 – 91% came form coal and oil. 2014 – 19% came from renewable. - 50% came from coal and oil.	
Issues with energy exportation	Economic: - Extraction is expensive. - Oney needed to research alternatives. - UK has to pay to import energy.	Environmental: - Fracking can cause mini earthquakes. - Burning fossil fuels release CO₂
5. Electricity consumption and development		
Low-income country		Main sources of energy are from biomass (wood/charcoal). Typically used for cooking which created pollution indoors. LICs have limited access to electricity particularly in rural areas. Areas like southern Asia are in an energy poverty where they can't afford the prices of electricity.
High income country		HICs have a higher energy consumption. More energy is used for technology and industry. HICs are shifting towards more renewable sources of energy however most are still reliant on fossil fuels, this is then having further impacts on things like the climate.
6. Fossil fuel formation and energy efficiency		
Formation	Formed over millions of years from dead plants and animals. Heat and pressure underground chemically transform organic matter into coal, oil, or gas.	
Demand	Using less energy to provide the same service. Demand can fall due to the use of products like LED lightbulbs even as populations grow.	
Efficiency	Efficiency is low, large amounts of energy is lost during the extraction and transportation processes	
7. Trading of electricity and global markets.		
Electricity Trading	This involves the buying and selling of electricity in bulk between generators and suppliers, aiming to balance supply and demand in real time.	
Why do they do it?	The energy resources, like coal, oil, and gas are no evenly distributed across the Earth.	



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History

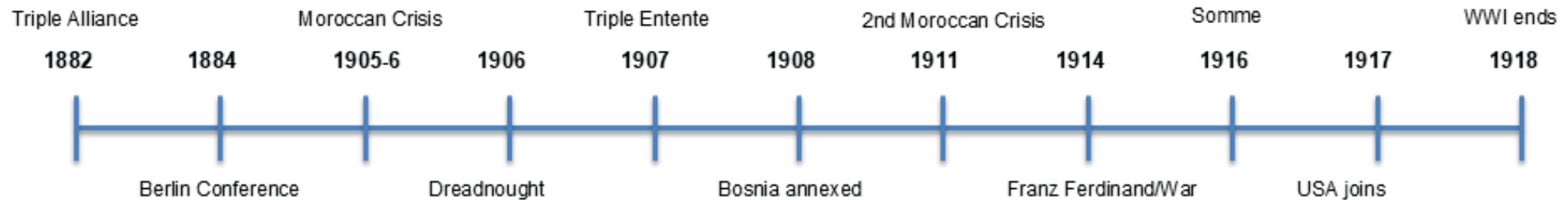
History – The First World War

1	Which three countries were in the Triple Alliance, signed in 1882?	Germany, Austria-Hungary, Italy
2	Which three countries were in the Triple Entente, formed in 1907?	Great Britain, France, Russia
3	Who was the leader of Germany from 1888 to 1918?	Kaiser Wilhelm II
4	Which term refers to a system in which a country rules over other countries, often using force to gain power over them?	Imperialism
5	Which term refers to Germany's aim to become a global power?	Weltpolitik
6	What was the name given to the competition for colonies in Africa?	The Scramble for Africa
7	By 1914, which country had an empire that spanned 24% of the world's land?	Great Britain
8	Which African country's independence did Germany unsuccessfully try to protect in 1905-6 and 1911?	Morocco's
9	Which term refers to the belief that a country needs strong armed forces?	Militarism
10	Which country had the largest and most powerful navy in 1900?	Great Britain
11	What was the name of the type of battleship first built by Britain in 1906?	Dreadnought
12	How many of these battleships had Britain and Germany each built by 1914?	Britain – 29, Germany – 17.
13	Which country had the largest land army in 1914 of 1.5 million men?	Germany
14	Which country annexed Bosnia-Herzegovina in 1908, angering Serbia?	Austria-Hungary
15	What was the name of Serbia's state-sponsored terrorist organisation?	The Black Hand
16	What was the aim of the Serbia's state-sponsored terrorist organisation?	To unite all Serbs under the leadership of Serbia
17	What was the name of the heir to the throne of Austria-Hungary in 1914?	Archduke Franz Ferdinand
18	Where did the heir to Austria-Hungary visit on 28 June 1914?	Sarajevo (Bosnia's capital)
19	Who carried out the assassination of Austria-Hungary's heir?	Gavrilo Princip
20	Which country gave Austria-Hungary a 'blank cheque' of support against Serbia?	Germany

History – The First World War

21	Which broken peace treaty, signed with Belgium in 1839, brought Britain into the war?	Treaty of London
22	What was the name of Germany's failed plan to invade France before Russia mobilised?	Schlieffen Plan
23	In which month and year was conscription introduced in Britain?	January 1916
24	What did the development of trenches result in, meaning that neither side could gain the advantage?	Stalemate
25	What was unoccupied land between the opposing sets of trenches called?	No Man's Land
26	Which medical condition, caused by standing in water, often led to amputation?	Trenchfoot
27	Which psychological condition was caused by the trauma of the trenches?	Shell shock
28	What was the date of the first day of the Battle of the Somme?	1 July 1916
29	How many casualties did the Battle of the Somme result in?	Over 1 million
30	Who was the British military leader behind the Battle of the Somme?	Sir Douglas Haig
31	Aside from Europe, in which continents were battles fought?	North America, South America, Asia, Africa
32	Why did Indian nationalists support the British war effort?	Hoped for greater autonomy for India after the war
33	How many non-white, non-European soldiers fought for Britain, France and their allies?	4 million
34	What sort of work did the Chinese Labour Corps do?	Digging trenches and maintenance
35	Which native Canadian tribe was the soldier Mike Mountain Horse from?	Kainai Blood Tribe
36	Which country entered the war against Germany in April 1917?	The USA
37	Which country left the war in March 1918, due to its own revolution?	Russia
38	When did WWI officially end?	11am 11 November 1918
39	Which peace treaty, which blamed Germany for the war, was signed on 28 June 1919?	The Treaty of Versailles
40	How much was Germany forced to pay in reparations?	£6.6 billion

History – The First World War



The Alliance System: In 1882 Germany Italy and Austria-Hungary signed the Triple Alliance. In 1907 Russia joined Britain and France in the Triple Entente. These alliances led to growing competitiveness and mistrust on both sides. Russia also had an alliance with Serbia, and Britain had promised to protect Belgium in the Treaty of London. This later drew these countries into war, creating a domino effect.



Why did tensions between the 'Great Powers' increase before 1914?

Militarism: By 1900, Britain had the largest and most powerful navy for over 100 years. In 1906, Britain built the dreadnought, a powerful new battleship. Germany copied the design and a naval arms race ensued, increasing competitiveness between the two countries. Other European countries were also building up their armed forces throughout this period, suggesting increasing preparedness for war.



Imperialism: European countries were competing to have the largest empires, which offered natural resources, manpower and prestige. The Scramble for Africa left Britain and France with large empires, but Germany wanted more land due to its Weltpolitik foreign policy under Kaiser Wilhelm II. Tensions rose when France tried to take control of Morocco, with Germany trying to protect Morocco's independence to challenge France. Ultimately, France was given the protectorship of Morocco in 1911, leaving Germany humiliated.



How did a single bullet lead to a global war?

1908: Austria-Hungary's annexation of Bosnia angered Serbia due to the large number of Serbs living in Bosnia. The Black Hand, a Serbian nationalist group, wanted all Serbian people to be united.

28 June 1914: Archduke Franz Ferdinand, heir to the Austro-Hungarian throne, was assassinated in Sarajevo by Gavrilo Princip, a member of the Black Hand.

28 July 1914: Austria-Hungary declared war on Serbia. Germany gave Austria-Hungary a 'blank cheque' of support against Serbia.

August 1914: The alliance system drew Germany, Russia and France into the war. Germany invaded Belgium to get to France, causing Britain to join due to the 1839 Treaty of London.

History – The First World War

Key Themes	
Causes of the war	Reasons for increasing tension between the Great Powers up to 1914: Militarism, Alliances, Imperialism, Nationalism.
The Western Front	Development of trench warfare, conditions in the trenches and the experiences of soldiers, the Battle of the Somme
Soldiers of the Empire	Soldiers from 5 different continents, different experiences of soldiers on the Western front and how commemoration of soldiers has differed
End of the war	Reasons for Germany's surrender, Treaty of Versailles and impact on Germany

What was trench warfare? Since neither side could gain an advantage, trenches were dug, resulting in stalemate. Conditions were poor, often wet and muddy, leading to medical conditions like trench foot. The constant shelling also contributed to thousands of soldiers developing 'shell-shock'.

Who fought on the Western front? Countries from across the empires of France and Britain fought in the war, across 5 different continents. It was the first true war in which peoples and nations across the globe fought and laboured alongside each other.

What happened on the Western Front?

Why was the Battle of the Somme significant? The first day of the battle was the single deadliest day in British military history, with horrific casualties. General Haig's leadership has been controversial for historians.

Why did Germany surrender in 1918? The USA joined the war, boosting the Allie's numbers and weapons. Germany's Ludendorff Offensive failed and the German military grew weaker. German citizens, worn down by the Allied naval blockade, lost morale.

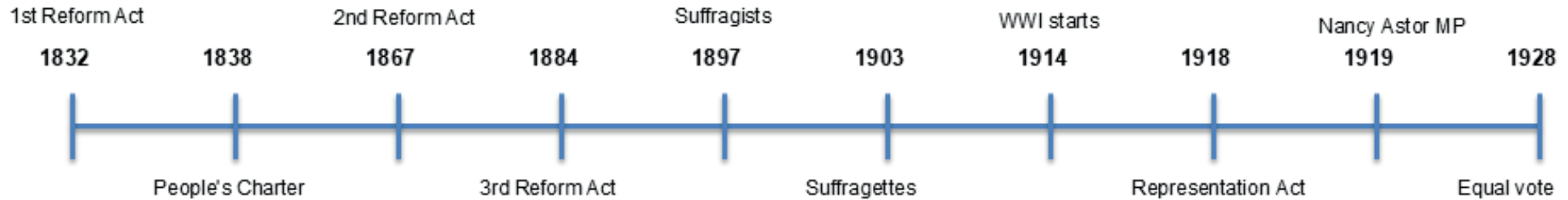
History – The Suffrage Movement

1	What proportion of the British population had the right to vote before the Great Reform Act?	2.5%
2	What were boroughs where one family or landowner elected the MP?	Rotten boroughs
3	Before 1870, what happened to a woman's wealth when they got married?	It became their husband's
4	In which year was the Great Reform Act passed?	1832
5	What was the voting qualification in Britain following the Great Reform Act?	Men living in a property over £10
6	Which working-class movement for equal political rights began in 1838?	Chartism
7	When was the Suffragists (NUWSS) movement formed?	1897
8	Who was the leader of the Suffragists (NUWSS)?	Millicent Fawcett
9	What methods did the Suffragists use to persuade people to their cause?	Pamphlets, petitions, meetings
10	How many members did the NUWSS (the Suffragists) have by 1918?	100,000 Members, 500 Branches
11	What was the main method used to by the NUWSS (the Suffragists)?	Peaceful protest methods
12	What was the goal of the NUWSS (the Suffragists)?	To win the right to vote.
13	How did Emily Massingberd promote women's suffrage?	Created the Pioneer Club.
14	Who was Catherine Marshall, and what was her role in the NUWSS?	Coordinate political campaigns
15	What did the Suffragists believe was the best way to achieve change?	Persuasion, education, and cooperation with male politicians.
16	When was the Women's Social and Political Union (WSPU) formed?	1903
17	Who founded the WSPU (the Suffragettes)?	Emmeline Pankhurst
18	Why did Emmeline Pankhurst and her daughters decide to form the WSPU?	Frustrated by the slow progress.
19	What tactics was used by the Suffragettes (WSPU)?	Used militant and confrontational methods
20	What does "civil disobedience" mean?	Deliberately breaking the law to protest against unfair treatment.

History – The Suffrage Movement

21	Give two examples of militant actions used by the Suffragettes.	Smashing windows, arson
22	What was “Black Friday” (18 November 1910)?	A protest where police and bystanders attacked Suffragettes
23	What law allowed hunger-striking Suffragettes to be temporarily released and re-arrested?	1913 - Cat and Mouse Act
24	What did many Suffragettes and Suffragists do when the war began?	Paused campaigns and helped the war
25	What type of work did British women do during the First World War?	Munitions factories, farming, clerical work, nursing
26	How did the war affect attitudes toward working women?	Proved women were capable and independent
27	How did the war help all men get the vote?	They had fought for their country
28	Which Prime Minister encouraged female suffrage?	David Lloyd George
29	Which law passed in 1918 gave all men aged 21+ and women 30+ the vote?	Representation of the People’s Act
30	Who was the first woman elected as a Member of Parliament (MP)?	Nancy Astor
31	In which year were women given the vote on equal terms with men?	1928
32	Who was Annie Kenney?	A working-class Suffragette, member of WSPU
33	What did Emily Davies help to found in 1869?	Girton College, Cambridge — The first British college for women.
34	Who was Lady Constance Lytton?	Upper-class Suffragette
35	What did Lady Constance Lytton do to expose unfair treatment in prisons?	Disguised as a working-class woman
36	What did Josephine Butler achieve through her campaign in 1886?	Repealed the Contagious Diseases Acts
37	Who was Sophia Duleep Singh?	Indian Princess and Suffragette
38	What actions did Sophia Duleep Singh take to support women’s suffrage?	Sold newspapers, joined protests, refused to pay tax
39	Why was Sophia Duleep Singh’s role important?	Used her royal status to spread the message
40	Why are these women still remembered today?	Paved the way for women’

History – The Suffrage Movement



Why did some women gain the right to vote in 1918?



Popular Protest - The Suffragists and Suffragettes both campaigned for women's right to vote but used different methods. The Suffragists, led by Millicent Garrett Fawcett, formed the NUWSS in 1897 and used peaceful protests, petitions, and lobbying to persuade Parliament. The Suffragettes, founded by Emmeline Pankhurst in 1903, believed in militant action, using the motto "Deeds not Words." They held demonstrations, chained themselves to buildings, smashed windows, and went on hunger strikes. Events like Black Friday (1910) showed the government's harsh response. Unlike the male suffrage movement, women had to overcome prejudice and prove they were responsible citizens. Together, their efforts kept the demand for votes for women at the centre of British politics.



World War One- women played a crucial role in supporting Britain's war effort. As men went to fight, women took on jobs in factories, transport, offices, and farms, showing they could do work previously thought suitable only for men. Many worked in munitions factories, while others joined the Women's Land Army or served as nurses and ambulance drivers. Their hard work and patriotism changed public opinion about women's abilities. By the end of the war, even Prime Minister David Lloyd George, who had once opposed votes for women, recognised their contribution and supported reform. Their service and sacrifice proved that women were capable, responsible citizens and helped convince politicians that they deserved the same political rights as men.



The Role of Individuals - Individual campaigners played a vital role in the fight for women's suffrage. Emily Massingberd founded the Pioneer Club in 1892, encouraging peaceful debate and women's rights. Emily Davison, a Suffragette, was imprisoned for militant protests and died at the Epsom Derby in 1913 while campaigning for votes for women, gaining national attention. David Lloyd George, who became Prime Minister in 1916, later supported women's suffrage after recognising their contributions during the war. Each of these individuals helped raise awareness and push Britain closer to granting women the vote.

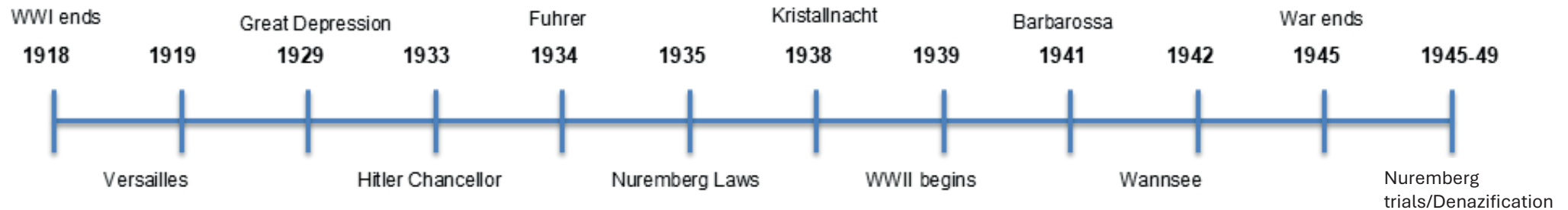
History – The Holocaust

1	How long have Jewish people lived in Europe?	Over 2000 years
2	What is an organised massacre of a group, typically Jewish, known as?	Pogrom
3	What does scapegoat mean?	Wrongly blamed for problems
4	What was the study of eugenics?	The scientific belief in races
5	What race did Nazi ideology claim was the most superior?	The Aryan race
6	Which term refers to hostility or prejudice against Jewish people?	Antisemitism
7	What proportion of Germany's population was Jewish?	Less than 1%
8	Which law in 1933 allowed Hitler to pass laws without consulting the Reichstag?	The Enabling Act
9	Which law meant Jewish Germans were no longer German citizens?	The Nuremberg Laws
10	Who was Hitler's propaganda minister?	Joseph Goebbels
11	How was anti-Jewish propaganda spread in Nazi Germany?	Posters, newspapers, radio, speeches, schools
12	Which two Nazi paramilitary groups attacked Jewish people?	The SA and SS
13	Which event in November 1938 saw Jewish shops and synagogues attacked?	November Pogrom (Kristallnacht)
14	How many Jewish people lived in Europe in 1933?	9.5 million
15	What is the areas of cities where Jewish people were separated from others?	Ghettos
16	Which three reasons caused 50,000 Jewish people to die in the Warsaw ghetto?	Hunger, cold, disease
17	What 'sub-human' race did the Nazis believe the Soviet people were?	Slavs
18	What were German military units tasked with killing Jewish people called?	Einsatzgruppen
19	How many were murdered in the 'Holocaust by bullets'?	2.2 million
20	At which camp were Jewish people first systematically murdered?	Chelmno

History – The Holocaust

21	How were Jewish people initially killed at this death camp?	In gas vans
22	Which meeting coordinated the deportation of Jewish people to death camps?	The Wannsee Conference
23	What was the agreement to solve the 'Jewish problem' known as?	The Final Solution
24	How were Jewish people primarily killed in death camps?	Gas chambers
25	Alongside Jewish people, name four minority groups who were persecuted by the Nazis.	Queer people, Roma and Sinti people, people with disabilities, and Black people
26	Which religious group were persecuted like they were political opponents?	Jehovah's Witnesses
27	How did the Nazis treat people with disabilities?	Sterilisation and euthanasia
28	How many Roma and Sinti people were murdered by the Nazis?	500,000
29	In which ghetto famously resisted deportation in Poland?	The Warsaw ghetto
30	How did Jewish people resist persecution through small everyday actions?	Singing, reading, theatre, painting
31	Why was it hard for prisoners to fight back in camps?	They were malnourished and unarmed
32	What were resistance groups who escaped capture by hiding in the forests called?	Partisans
33	When did the Soviets liberate Auschwitz-Birkenau (also Holocaust memorial day)?	27 th January 1945
34	What did the Nazis do with surviving prisoners as they retreated?	Forced them on 'death marches'
35	On which date did the Second World War in Europe end?	9 May 1945
36	In total, how many Jewish people were murdered in the Holocaust?	6 million
37	What state was created for Jews when the UN split Palestine into two countries?	Israel
38	Where did many trials of Nazi war criminals take place?	Nuremberg, Germany
39	What proportion of people responsible for the Holocaust never faced justice?	99%
40	What was the process of removing Nazi influence in post-war Germany known as?	De-Nazification

History – The Holocaust



The 1919 Treaty of Versailles

angered many Germans by making them accept blame for WWI and pay heavy reparation payments. Hitler shared this anger and promised to restore national pride.



Hitler was a gifted orator who inspired many Germans to vote for the party through persuasive speeches. Propaganda also helped to spread Nazi messages.

Why did the Nazis rise to power?



The 1929 Great Depression left many Germans unemployed, homeless, or struggling to feed their families. The Nazis offered hope and jobs to many.



By 1930, growing numbers of Germans voted for the Nazi party as they believed Hitler's promises that the Nazis would solve Germany's problems. This enabled the Nazi Party, and Hitler, to take power democratically.

History – The Holocaust

Hitler wrongly viewed Jewish people as an inferior 'race' and blamed them for many of Germany's problems. By the end of 1941, leading Nazis agreed that genocide (mass murder) was the 'Final Solution' to the 'Jewish problem'. Death camps were built and the systematic murder of Jewish people in gas chambers began.

Why were the Nazis able to pursue the 'final solution'?



The Role of Hitler: Hitler's racial world view and Aryanism, ideological obsession against Jewish people. Hitler had significant power after the 1933 Enabling Act, passing antisemitic laws. As the leader of the Nazis, he encouraged leading Nazis to pursue the 'Final Solution'. Hitler influenced 'ordinary' Germans through antisemitic propaganda.



War: As Germany invaded other European countries and more Jewish people came under Nazi control, the 'Jewish problem' became bigger and more pressing. Invading eastwards meant Nazi Germany used Einsatzgruppen to shoot Jewish people. Heightened wartime secrecy made it difficult for the Allied powers to know the extent of Jewish persecution. Britain saw winning the war as the best way to help the Jewish people, which was not a quick solution.



Compliance of 'ordinary' Germans: Germany democratically voted the Nazis into power. Bystanders allowed Jewish persecution to continue. Some Germans actively supported Jewish persecution, such as putting up antisemitic road signs and others profited from the confiscation of Jewish property and businesses. The work of a few individual Nazis wouldn't have been possible without mass compliance.

Justice? Trials at Nuremberg convicted 161 Germans between 1946-49 but 99% of perpetrators never faced justice. Post-war de-Nazification removed Nazi influence in Germany.



Emigration Having lost their homes and families in Europe, many Jewish survivors emigrated. The USA, UK, Canada and Israel were popular destinations to try and build new lives.

What is the legacy of the Holocaust?



Impact on Jewish communities 6 million Jewish people were murdered. Diversity of pre-war Jewish life disappeared. There was a void left by the contributions these people could have made to European communities.

Survivors Many survivors could not speak about their experiences and were traumatised. Despite the challenges, many went on to build fulfilling lives, with some travelling around Britain in later years, sharing their stories in schools.



History – The Arab-Israeli Conflict

1	Which empire controlled Palestine from the c.16 th century onwards?	The Ottoman Empire
2	In what communication did the British promise to support Arab independence from Ottoman Rule?	Husayn-McMahon Correspondence
3	Which British and French agreement divided the Middle East between them?	Sykes-Picot
4	What British declaration supported a “national home for the Jewish people”	The Balfour Declaration
5	What increased after the Balfour Declaration?	Jewish immigration to Palestine
6	What was the name for Britain’s control of Palestine, beginning in 1922?	The British Mandate for Palestine
7	Why was British control of Palestine causing tensions for Palestinian Arabs?	Denied self-rule and opposed to increased Jewish immigration
8	What could happen after Jewish land purchases in Palestine?	Palestinian farmers were expelled
9	What Riots occurred in 1929 due to tensions over religious sites?	Wailing Wall Riots
10	Why did Jewish immigration to Palestine increase dramatically in 1933?	Hitler’s rise to power
11	What did increased Jewish land purchases and British rule lead to 1936-1939?	The Arab Revolt
12	Which Commission in 1937 argued for separating a Jewish and Arab state?	The Peel Commission
13	Which British policy recommended there should be a bi-national state?	The 1939 White Paper
14	What was the UN Partition Plan of 1947 also known as?	Resolution 181
15	How much land did the UN Partition Plan propose for Jews and Arabs?	Jews=55% Arabs =45%
16	When did Israel declare that its independence?	May 15 th 1948
17	How many Palestinians were expelled from their homes during the 1947-49 war?	750,000
18	What is the Palestinian name for the 1947-49 war?	Al-Nakba (‘the Catastrophe’)
19	What was the Israeli military plan to secure their new state?	Plan Dalet
20	What have some criticised the Israeli military for doing during the 1947-49 war?	Ethnic cleansing

History – The Arab-Israeli Conflict

21	Which significant massacre occurred during the 1947-49 war?	Deir Yassin
22	What percentage of Palestinian land did Israel control after the 1947-49 war?	78%
23	Which Egyptian leader nationalised the Suez Canal?	Gamal Abdel Nasser
24	Where did Israel invade following the closing of the Suez Canal to their ships?	The Sinai Peninsula
25	Which countries joined the Arab alliance preparing to attack Israel?	Egypt, Syria, and Jordan
26	Which Palestinian group was created to conduct guerilla warfare?	Fatah
27	When did Israel launch a pre-emptive strike, beginning the Six-Day War?	June 1967
28	What was a major consequence of the Six-Day War for Israel?	Expanded occupied territory
29	Which UN Resolution called for Israel to withdraw after the Six-Day War?	Resolution 242
30	Where was occupied by Israel after the Six-Day War?	Gaza, West Bank, Golan Heights
31	Which group was formed in 1964 to unite Palestinian resistance?	The PLO
32	What tactics did Yasser Arafat use as leader of the PLO in the 1970s?	Terrorism
33	What is the name of the attack by Egypt and Syria on Israel in 1973?	The Yom Kippur War
34	What is the name for the peace settlement between Egypt and Israel in 1978?	The Camp David Accords
35	Which Islamist group emerged following the Israeli invasion of Lebanon?	Hezbollah
36	What term means 'rebellion' or 'uprising' in Arabic?	Intifada
37	When did the First Intifada begin?	December 1987
38	What was the name of the agreements signed between Israel and the PLO in 1993?	The Oslo Accords
39	Which Israeli Prime Minister was assassinated in November 1995?	Yitzhak Rabin
40	Which Islamist militant group defeated Fatah in elections in 2006 to control the Gaza Strip?	Hamas

History – The Arab-Israeli Conflict



Balfour Declaration – The Declaration in 1917 was a critical show of support for an independent Jewish State by the British. It encouraged increased Jewish migration to Palestine who were escaping Pogroms in Eastern Europe. Arabs had been promised independence from the Ottoman Empire if they supported the British in WW1, but the Sykes-Picot agreement with France had betrayed this. The British Mandate of Palestine followed and the British struggled to manage the needs and rights of both Jewish and Palestinian Arabs, the growing nationalist movements and new settler communities.



UN Partition Plan – Palestinian Arab attempts to oppose British rule failed and Zionists were left unhappy with the British government White Paper in 1939 calling for a bi-national state. With rising tensions and British failure, the United Nations came up with a plan to partition Palestine into a Jewish and Arab state, although 55% of the land was given to the Jewish state, despite only constituting one third of the population. In the following 8 months, 750,000 Palestinians and 20,000 Jews were expelled from their homes as Israel carried out Plan Dalet to secure the new Jewish state. Some argue this was 'ethnic cleansing'.



Six-Day War – Following the nationalisation of the Suez Canal and the blocking of Israeli ship, Gamel Abel Nasser's Egypt, supported by Syria and Jordan, began to prepare an attack on Israel. The militant Palestinian group, Fatah, was armed and trained to conduct guerilla warfare against Israel. Israel pre-emptively attacked and defeated the Arab Alliance, leading to their occupation of Gaza, the West Bank, the Golan Heights, and East Jerusalem. UN Resolution 242 called for Israel's withdrawal, however they retained the land and expanded settlements, argued as part of Israel's security against threats. The occupation and subsequent settlement building by Israel led to increased support for the PLO.



The Peace Process and Intifadas – The Camp David Accords of 1978 led to peace between Israel and Egypt after a tumultuous decade in the region which saw the Yom Kippur War of 1973 and increased acts of Palestinian terrorism carried out by groups affiliated with the PLO. The First Intifada or uprising broke out in December 1987 and led to violent clashes between Palestinians and Israelis, this ended with the signing of the Oslo Accords in 1993 which focused on the establishment of Palestinian self-governance in the West Bank and Gaza Strip. However, the assassination of Yitzhak Rabin and the growing influence of hardliners in Israel was a major setback to the peace process. Attempts to get the peace process back on track failed and in September 2000 the second Intifada broke out, this lasted until 2005 and caused the deaths of 1000 Israelis and 3,200 Palestinians, it also led to the construction of the West Bank barrier by Israel.



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Mathematics

Mathematics – Number

Key Term	Definition
Ascending	Increasing in size (or numerical value)
Compare	To look at two or more numbers and say what is similar or different.
Composite Numbers	A positive integer with more than two factors.
Consecutive	Describing things which follow each other in a particular order.
Cube Numbers	The result of multiplying a number by itself twice. 1, 8, 27, 64, 125, 216, 343, 512, 729, 1000
Decimal Places	The number of digits to the right of a decimal point in a decimal number.
Degree of Accuracy	Describing how precise or accurate a value is, in terms of number of decimal places or significant figures.
Denominator	The bottom number of a fraction. Must be an integer.
Descending	Decreasing in size (or numerical value)
Difference	The result of a subtraction.
Divisible	One number is divisible by another if it is capable of being divided exactly, without a remainder.
Equivalent	Of equal value.
Estimate	To find an approximate answer to a calculation by rounding the numbers involved, commonly to 1 significant figure.
Evaluate	To find the numerical value of.
Factor	An integer that divides another integer exactly, without a remainder.
Factor Pair	A set of two factors that have a particular product.
Fraction	A number which represents part (or parts of) a whole.
Highest Common Factor	The largest number that divides exactly into two or more numbers.

Key Equivalents		
FDP Conversion	$1 = \frac{1}{1} = 100\%$	$0.75 = \frac{3}{4} = 75\%$
	$0.5 = \frac{1}{2} = 50\%$	$0.2 = \frac{1}{5} = 20\%$
	$0.1 = \frac{1}{10} = 10\%$	$0.\dot{3} = \frac{1}{3} = 33.\dot{3}\%$
	$0.25 = \frac{1}{4} = 25\%$	

Key Term	Definition
Improper Fraction	A fraction where the numerator is larger than the denominator.
Indices	The power of a number which shows how many times the number is multiplied by itself.
Inequality	The relationship between two numbers that are not equal to each other, shown using the symbols $<$, $>$, $\leq$, $\geq$ or $\neq$.
Integer	A whole number including positive and negative numbers and zero.
Lowest Common Multiple	The smallest number which appears in the list of multiples for two or more numbers.
Mixed Number	A number formed of both an integer (whole number) and a fraction.
Multiple	The result of multiplying a number by an integer, i.e. the times tables of a number.
Numerator	The top number of a fraction. Must be an integer.
Order of Operations	BIDMAS—Brackets, Indices, Division & Multiplication and Addition & Subtraction.
Power of 10	The product of multiplying 10 by itself, a number of times.
Prime Number	A positive integer with only two factors, 1 and itself. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29
Product	The result of a multiplication.
Proper Fraction	A fraction in which the numerator is less than the denominator.
Remainder	In division, the amount leftover when a number does not divide exactly.
Square Numbers	The result of multiplying a number by itself. 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225
Square Root	The particular factor of a number which can be multiplied by itself to produce that number.
Sum	The result of an addition.
Unit Fraction	A proper fraction with a numerator of 1.
Significant figures	The significant figures of a number are the digits which carry meaning (i.e. are significant) to the size of the number. The first significant figure of a number cannot be zero .

Mathematics – Number

Key Definition		Definition
Equivalent Fractions		Fractions which have different numerators and denominators but represent the same value.
Percentage Increase/Decrease		Calculating a percentage of an amount and either adding this onto (increasing) or subtracting this from (decreasing) the original amount.
Percentage Change		To calculate the percentage change, use the following: $\frac{\text{difference}}{\text{original}} \times 100$
Percentage Multiplier		The number you multiply a quantity by to increase or decrease it by a percentage. E.g. to increase by 10% the multiplier is 1.1.
Write number in standard form		A way of writing large or small numbers.
Product of prime factors / Prime factorisation		Finding which prime numbers multiply together to make the original number. Should be written as primes multiplied together e.g. $20 = 5 \times 2 \times 2$ or as index form $20 = 5 \times 2^2$
Simple Interest		Interest calculated as a percentage of the original amount.
Compound Interest		Interest calculated as a percentage of the current value.
Cube Root		The particular factor of a number which can be multiplied by itself twice to produce that number.
Key units of measurement	Time 1 hour = 60 minutes 1 minutes = 60 seconds 1 hour = 3600 seconds	Length 1 cm = 10mm 1m = 100cm 1km = 1000m
	Mass 1kg = 1000g 1 tonne = 1000kg	Area $1\text{cm}^2 = 100\text{mm}^2$ $1\text{m}^2 = 10000\text{cm}^2$

Notes to add examples:

Mathematics – Algebra

Key Term	Definition
Algebra	A branch of mathematics in which letters are used to represent numbers.
Coefficient	A constant value which multiplies a variable. Always written before the variable.
Constant	A fixed number on its own.
Equation	A mathematical statement in which two expressions with equal values are connected by an equals sign.
Expand	To remove the brackets from an expression by multiplying terms and simplifying as necessary.
Expression	An algebraic expression is made up of two or more terms combined by operators.
Factorise	To rewrite an expression in brackets. Completed by finding the highest common factor, placing this outside the bracket and dividing by this to get an expression for inside the bracket.
Formula	An equation that shows the relationship between two or more variables.
Identity	An equation that is true for all values.
Linear	Contain only variables with a power of one, such as x
Simplify	To write an expression or fraction in a more concise form using the rules of algebra.
Solution	The value or values that can be substituted for the unknown in an equation to make it true.
Solve	To find the solution(s) to an equation by isolating the unknown.
Subject	The dependant variable in a formula or equation, identifiable by being on its own on one side of the equals sign.
Substitution	The process by which symbols are replaced by numbers in order to evaluate an expression or formula.
Term	A constant, variable or coefficient and one or more variables.
Unknown	A value that is not known in an equation.
Variable	A symbol, often a letter, whose value can vary.

Key Term	Definition												
Inverse operation	The opposite operation that is being performed on a variable.												
Term	A constant, variable or coefficient and one or more variables.												
Inequality	<table border="1"> <thead> <tr> <th colspan="2">Inequality Symbols</th></tr> </thead> <tbody> <tr> <td>$\neq$</td><td>not equal</td></tr> <tr> <td>$<$</td><td>less than</td></tr> <tr> <td>$\leq$</td><td>less than or equal to</td></tr> <tr> <td>$>$</td><td>greater than</td></tr> <tr> <td>$\geq$</td><td>greater than or equal to</td></tr> </tbody> </table>	Inequality Symbols		$\neq$	not equal	$<$	less than	$\leq$	less than or equal to	$>$	greater than	$\geq$	greater than or equal to
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Key Term	Definition	Examples
Inequalities on a Number Line	Inequalities can be shown on a number line. Open circles are used for numbers that are less than or greater than. ($<$ or $>$) Closed circles are used for numbers that are less than or equal or greater than or equal ($\leq$ or $\geq$)	$x \geq 0$ $x < 2$ $-5 \leq x < 4$

Key Term	Definition
Direct Proportion	If two quantities are in direct proportion, as one increases, the other increases by the same percentage.
Inverse Proportion	If two quantities are inversely proportional, as one increases, the other decreases by the same percentage.
Scale Factor	A factor by which a shape is enlarged
Ratio	Comparing the size of one part to another. The ratio of a to b is written as a:b.
Equivalent ratio	Equivalent ratios are found by multiplying/dividing all parts of the ratio by the same value.

Mathematics – Algebra

Key Term	Definition
Quadratic	A quadratic expression is of the form $ax^2 + bx + c$ where a, b and c are numbers, $a \neq 0$

Key Term	Definition
Function machine	Shows the relationship between two variables, the input and the output.

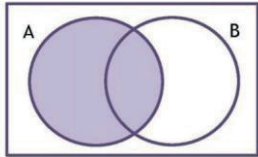
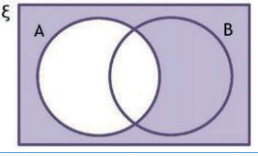
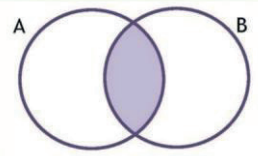
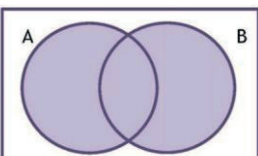
Key term	Definition
Multiplication Index Law	When multiplying with the same base (number or letter), add the powers . $a^m \times a^n = a^{m+n}$
Division Index Law	When dividing with the same base (number or letter), subtract the powers . $a^m \div a^n = a^{m-n}$
Brackets Index Laws	When raising a power to another power, multiply the powers together. $(a^m)^n = a^{mn}$
Notable Powers	$p^0 = 1$ $p^1 = p$

Key Term	Definition
Linear Sequence	A number pattern with a common difference.
Term	Each value in a sequence is called a term.
Term-to-term rule	A rule which allows you to find the next term in a sequence if you know the previous term.
nth term	A rule which allows you to calculate the term that is in the nth position of the sequence. Also known as the 'position-to-term' rule. n refers to the position of a term in a sequence.

Notes to add examples:

Mathematics – Statistics & Probability

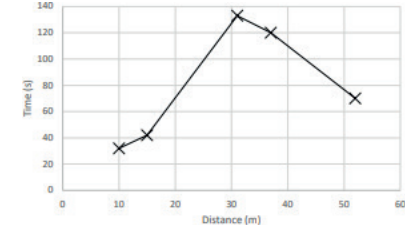
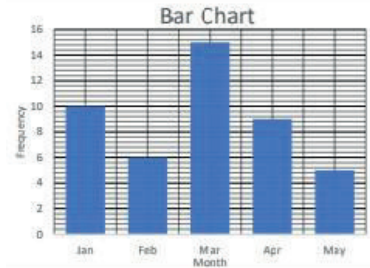
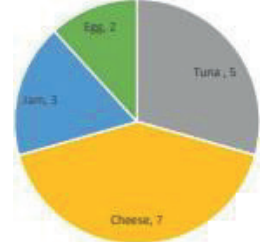
Key Term	Definition
Basics	Probabilities add to 1.
Probability Scale	Impossible will definitely happen 0 Unlikely Likely 1 ↓ ↑ ↑ ↓
Relative Frequency	$\text{frequency} \div \text{total trials}$
Independent Events	Independent events: one event doesn't impact the other.
Expected Outcome	Expected outcome = probability x number of trials

Key Term	Definition
A	Everything in the set A 
A'	Complement. Everything not in set A 
A ∩ B	Intersection of set A and set B. ξ i.e. In A and in B 
A ∪ B	Union of set A and set B. i.e. In A or in B 

Key Term	Definition
Linear Sequence	A number pattern with a common difference.
Term	Each value in a sequence is called a term.
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Mathematics – Statistics

Key term	Definition
Average	A single number or value that is used to represent a set of data. There are three main averages we focus on: mode, median and mean.
Data	Information in the form of facts and numbers.
Data point	A single item from a data set.
Data Set	A collection of data which all refers to the same category or topic.
Intersection	The numbers of elements that belong to both/all sets. In a Venn Diagram, this is where the circles overlap.
Mean	The sum of all the values in a data set, divided by the number of values in the data set.
Median	The middle value in an ordered list.
Mode	The most common value. It is possible to have more than one mode
Qualitative Data	A type of data that can be grouped under named categories, often described as data that can be described.
Quantitative Data	Types of data that can be represented numerically, often described as data that can be counted.
Range	The difference between the smallest and largest value.
Two-way Table	A diagram in which frequencies for two categories may be organised; one variable in rows and the other in columns.
Venn Diagram	A diagram in which circles are used to illustrate the relationships between different sets. Must have a box drawn around it.

Key term	Definition	Examples																					
Frequency Table	A table showing how often something occurs. Can include tally charts.	<table border="1"> <thead> <tr> <th>Score</th><th>Tally</th><th>Frequency (f)</th></tr> </thead> <tbody> <tr> <td>1</td><td> </td><td>4</td></tr> <tr> <td>2</td><td> </td><td>9</td></tr> <tr> <td>3</td><td> </td><td>6</td></tr> <tr> <td>4</td><td> </td><td>8</td></tr> <tr> <td>5</td><td> </td><td>3</td></tr> <tr> <td>6</td><td> </td><td>1</td></tr> </tbody> </table>	Score	Tally	Frequency (f)	1		4	2		9	3		6	4		8	5		3	6		1
Score	Tally	Frequency (f)																					
1		4																					
2		9																					
3		6																					
4		8																					
5		3																					
6		1																					
Line Graph	Uses lines to join points on a graph to represent a data set.																						
Bar Chart	A way of displaying data using horizontal or vertical bars which are the same width and have gaps between them.																						
Pie Chart	A method of displaying proportional information by dividing a circle up into different-sized sectors.																						

Statistics	Definition
Frequency	How many times something occurs.
Continuous data	Data that can take any value. E.g. height, weight, length.
Discrete data	Data that can only take certain values. E.g. shoe size.

Mathematics – Geometry & Measure

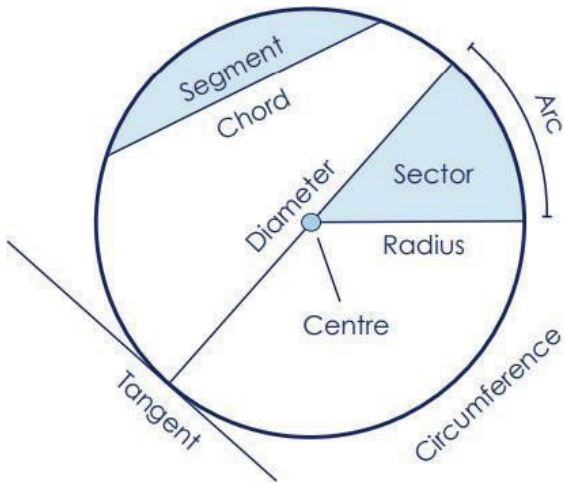
Key Term	Definition
Acute Angle	An angle less than 90°.
Adjacent	Next to, or near.
Area	A measure of the space inside a closed two-dimensional shape.
Axes	The straight lines on a graph used to define the position of a point. The x-axis goes across (horizontal). The y-axis goes up (vertical).
Centimetre (cm)	A metric unit of length equal to one hundredth of a metre. 100cm = 1m
Compound Shape	A shape made up of two or more geometric shapes.
Coordinate	An ordered pair of points that show an exact position on a set of axes. Written (x, y).
Exterior Angle	An angle between one side of a shape and a line extending from an adjacent side.
Irregular Polygon	A polygon with unequal length sides and angles.
Kilometre (km)	A metric unit of length equal to one thousand metres. 1km = 1000m
Line of Symmetry	A line that can divide a shape into identical halves, which are mirror images of each other.
Metre (m)	The base unit of length in the international system of units.
Midpoint	The point exactly halfway between two points.
Millimetre (mm)	A metric unit of length equal to one thousandth of a metre. 10mm = 1cm
Obtuse Angle	An angle measuring between 90° and 180°.
Order of Rotation	The number of times that a shape appears identical during a turn of 360°.
Origin	The point with coordinate (0, 0).
Parallel	Two lines that will never cross and that will remain the same distance apart.
Perpendicular	Two lines that meet at an angle of 90°.

Key term	Definition
Perpendicular	Two lines that meet at an angle of 90°.
Perimeter	The total distance around the outside of a closed two-dimensional shape.
Polygon	A closed two-dimensional shape made up of all straight edges.
Protractor	An instrument used to measure angles.
Quadrilateral	A two-dimensional shape with four sides.
Reflex Angle	An angle measuring between 180° and 360°.
Regular Polygon	A polygon with sides of equal length and angles of equal size.
Right-angle	A 90° angle.
Rotational Symmetry	A symmetry in which a shape may be rotated about a central point and appears identical after a turn of less than 360°.
Square Units	Units used to measure area.
Triangle	A two-dimensional shape with three sides.
Vertex	A point on a polygon at which two lines meet to form an angle.

Key terms	Definition
Angles around a point	Angles around a point sum to 360°.
Angles on a straight line	Angles on a point on a straight line sum to 180°.
Angles in a triangle	Angles in a triangle sum to 180°.
Angles in a quadrilateral	Angles in a quadrilateral sum to 360°.

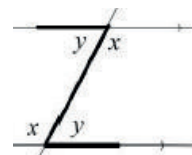
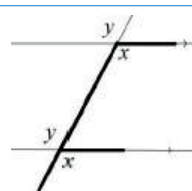
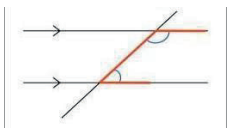
Key terms	Definition
Area of a rectangle or square	Length x width
Area of a parallelogram	Length x perpendicular height
Area of a triangle	$\frac{b \times h}{2}$ Where b is the base and h is the perpendicular height.
Area of a trapezium	$\frac{a+b}{2} \times h$, where a and b are parallel sides. h is the perpendicular height.

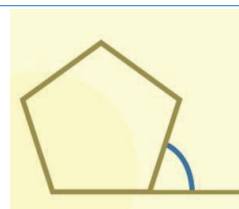
Mathematics – Geometry & Measure

Key Term	Definition
Parts of a circle	
Arc	A section of the circumference.
Sector	The area bounded by two radii and an arc.
Chord	A straight line joining any two parts of the circumference.
Circumference	The distance around the outside of the circle.
Diameter	A straight line going from one end of the circle to another passing through the centre.
Segment	The area bound by the circumference and a chord
Tangent	A straight line that touches the circumference at a single point.
Pi (π)	The ratio of a circle's circumference to its diameter.

Key Term	Definition
Circumference	The perimeter of the circle. $C = \pi d$
Radius	$diameter \div 2$
Diameter	$2 \times radius$
Perimeter of semi-circle	$p = \frac{\pi d}{2} + d$
Perimeter of quarter circle	$p = \frac{\pi d}{4} 2r$
Perimeter of three-quarter circle	$p = \frac{3}{4} \pi d + 2r$
Area of a circle	$A = \pi r^2$
Area of a semi-circle	$A = \frac{\pi r^2}{2}$
Area of a quarter-circle	$A = \frac{\pi r^2}{4}$
Area of three-quarter circle	$A = \frac{3\pi r^2}{4}$
Sector	Sectors are sections of a circle that are created by two radii and an arc
Arc	A portion of the circumference
Area of sector	$Area\ of\ a\ sector = \frac{\theta}{360} \pi r^2$
Length of arc	$length\ of\ arc = \frac{\theta}{360} \pi d$

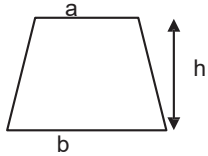
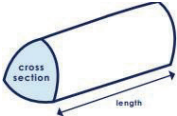
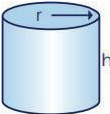
Mathematics – Geometry & Measure

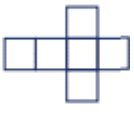
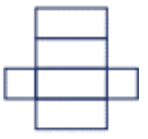
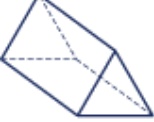
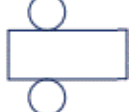
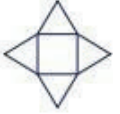
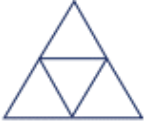
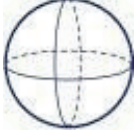
Key Term	Definition
Vertically Opposite Angles	Vertically opposite angles are equal. 
Alternate Angles	Alternate angles are equal. 
Corresponding Angles	Corresponding angles are equal. 
Co-Interior Angles	Co-Interior angles add up to 180° . 

Key Term	Definition
Sum of all angles in Polygons	n is the number of sides. $(n - 2) \times 180$
Internal angle in regular polygon	$\frac{(n - 2) \times 180}{n}$
External angle	The angle between a side of a polygon and an extended adjacent side.
Exterior angle regular polygon	 $\frac{360}{n}$

Key term	Definition
Translation	Translate means to move a shape. The shape does not change size or orientation.
Column Vector	In a column vector, the top number moves left (-) or right (+) and the bottom number moves up (+) or down (-)
Rotation	The size does not change, but the shape is turned around a point.
Reflection	The size does not change, but the shape is 'flipped' like in a mirror. Line $x = ?$ is a vertical mirror line. Line $y = ?$ is a horizontal mirror line. Line $y = x$ is a diagonal mirror line.
Enlargement	The shape will get bigger or smaller in relation to a centre of enlargement. Multiply each side by the scale factor.
Scale factor	The multiplier for the length of each side of a shape when carrying out an enlargement.
Centre	Used in rotations and enlargements as the centre for the transformation.

Mathematics – Geometry & Measure

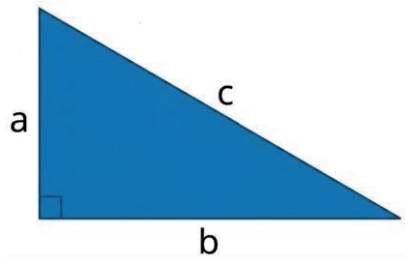
Key Term	Definition	
Area of a trapezium	$\frac{a+b}{2} \times h$	
Face	A face is a single flat surface.	
Edge	An edge is a line segment between two faces.	
Volume	The amount of 'space' a solid object occupies. Units: mm^3, cm^3, m^3, etc. The volume of a prism $V = \text{Area of Cross Section} \times \text{Length}$  The volume of a cylinder $= \pi r^2 h$ 	
Volume of a cube / cuboid	Length x width x height	
Prism	A 3D shape with a constant cross-section.	
Cross-section	The 2D shape that is consistent throughout the prism	
Volume conversions	1 L = 1000 cm^3 0.5 L = 500 cm^3	

Key Term	Definition	Shape	Net
Cube	6 square faces 12 edges 8 vertices		
Cuboid	6 rectangular faces 12 edges 8 vertices		
Triangular Prism	5 faces 9 edges 6 vertices		
Cylinder	3 faces 2 edges 0 vertices		
Square-based Pyramid	5 faces 8 edges 5 vertices		
Triangular-based Pyramid	4 faces 6 edges 4 vertices		
Cone	2 faces 1 edge 1 vertex		
Sphere	1 face 0 edges 0 vertices Half a sphere is known as a hemisphere.		

Mathematics – Geometry & Measure

Key Term	Definition
Properties of Solids	Faces = flat surfaces Edges = sides/lengths where faces meet Vertices = corners where edges meet
Plans and Elevations	This takes 3D drawings and produces 2D drawings.
Plan View	from above
Side Elevation:	from the side
Front Elevation	from the front

Key Term	Definition
Surface Area	The total area of all the faces of a 3D shape.
Surface area of a cylinder	$A = 2\pi rh + 2\pi r^2$
Volume of a Prism	$V = \text{Area of Cross Section} \times \text{Length}$

Key Term	Definition
Right-angled triangle	A triangle that contains a 90° angle
Hypotenuse	The longest side – opposite the right angle
Pythagoras' theorem	For any right-angled triangle, the area of the square of the longer length (the hypotenuse) is equal to the area of the squares of the shorter lengths added together. $c^2 = a^2 + b^2$ $a^2 = c^2 - b^2$ $b^2 = c^2 - a^2$ 

Notes to add examples:



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French

French – Unit 9 Tu t'entends bien avec ta famille?

RELATIONSHIP	FAMILY MEMBER		REASON	
Je m'entends bien avec <i>I get on well with</i> Je m'amuse avec <i>I have a laugh with</i>	ma (belle) mère	<i>my (step) mum</i>	car il/elle est... optimiste	because he/she is... optimistic
	mon (beau) père	<i>my (step) dad</i>	honnête	honest
	mon (demi) frère	<i>my (step) brother</i>	travailleur(euse)	hard-working
	ma (demi) soeur	<i>my (step) sister</i>	sérieux(euse)	serious
	mon grand-père	<i>my granddad</i>	généreux(euse)	generous
	ma grand-mère	<i>my grandma</i>	amusant(e)	funny
Je ne m'entends pas bien avec <i>I don't get on well with</i> Je me dispute avec <i>I argue with</i>	mon oncle	<i>my uncle</i>	bavard(e)	chatty
	ma tante	<i>my aunt</i>	gentil(le)	kind
	mon cousin	<i>my cousin</i>	car on... a beaucoup en commun	because we... have lots in common
	ma cousine	<i>my cousin</i>	discute de tout	talk about everything
			sort ensemble	go out together
			partage tout	share everything
			car il/elle me fait rire	because he/she makes me laugh
			car il/elle est... pessimiste	because he/she is... pessimistic
			bête	silly
			sérieux(euse)	serious
			paresseux(euse)	lazy
			car on... se dispute trop	because we ... argue too much
			n'a rien en commun	have nothing in common
			car il/elle m'énervé	because he/she annoys me

French – Unit 10 Quelles fêtes sont célébrées en France?

TIME PHRASE (1)	VERB (2)	EVENT (3)	ACTIVITY (4)		OPINION (5)
Normalement <i>Normally</i>	je fête <i>I celebrate</i>	Noël. <i>Christmas.</i>	On offre des cadeaux.	<i>We give gifts.</i>	Parce que c'est... <i>Because it's...</i> traditionnel. <i>traditional.</i> amusant. <i>fun.</i> important dans ma/sa culture. <i>important in my/his/her culture.</i> un événement important. <i>an important event.</i> un spectacle magnifique. <i>a wonderful show.</i>
Quelquefois <i>Sometimes</i>	on fête <i>we celebrate</i>	La fête des mères. <i>Mother's day.</i>	On fête dans les rues.	<i>We celebrate in the streets.</i>	
Chaque année <i>Every year</i>	ma famille fête <i>my family celebrates</i>	La fête nationale. <i>Bastille Day.</i>	On décore le sapin.	<i>We decorate a tree.</i>	
Chaque décembre <i>Every December</i>	mon ami fête <i>my friend celebrates</i>	La fête nationale. <i>Bastille Day.</i>	On va à l'église.	<i>We go to church.</i>	
Chaque janvier <i>Every January</i>		Les jours fériés. <i>Bank holidays.</i>	On va à la mosquée.	<i>We go to the mosque.</i>	
		La Saint-Sylvestre. <i>New Year's Eve.</i>	On mange un grand repas.	<i>We eat a big meal.</i>	
		Le jour de l'an. <i>New Year's Day.</i>	Il y a des feux d'artifice.	<i>There are fireworks.</i>	
		Pâques. <i>Easter.</i>	Il y a des chars.	<i>There are tanks.</i>	
		Mon anniversaire. <i>My birthday.</i>	Il y a beaucoup de lumières.	<i>There are lots of lights.</i>	
		Son anniversaire. <i>His/her birthday.</i>	On allume une bougie.	<i>We light a candle.</i>	
			On va au théâtre.	<i>We go to the theatre.</i>	
			Il y a des défilés.	<i>There are military parades.</i>	
			On mange un gâteau d'anniversaire	<i>We eat birthday cake.</i>	
			Il y a des concerts.	<i>There are concerts.</i>	

French – Unit 11 Qu'est-ce que tu aimes manger?

TIME PHRASE (1)	VERB (2)	FOOD (3)		CONNECTIVES (4)	REASONS/EXTRA INFORMATION (5)
Au petit-déjeuner <i>At breakfast</i>	Je grignote <i>I snack on</i>	des céréales	<i>cereal</i>	parce que <i>because</i>	c'est délicieux. <i>It's delicious.</i>
Au déjeuner <i>At lunch</i>	Je mange <i>I eat</i>	de la pizza	<i>pizza</i>	car <i>as</i>	c'est savoureux. <i>It's tasty.</i>
Au dîner <i>At dinner</i>	Je bois* <i>I drink</i>	de la viande	<i>meat</i>	cependant <i>however</i>	c'est dégoûtant. <i>It's disgusting.</i>
Pour le goûter/casse-croute <i>For a snack</i>	Je prends <i>I have (take)</i>	des légumes	<i>vegetables</i>	aussi <i>also</i>	J'aime manger équilibré. <i>I like to eat a balanced diet.</i>
Vers midi <i>Around midday</i>		du riz	<i>rice</i>	donc <i>therefore</i>	Je préfère un plat à emporter. <i>I prefer a takeaway dish.</i>
Vers dix-huit heures <i>Around 6pm</i>	Mon plat préféré c'est un/une/le/la <i>My favourite dish is...</i>	du poulet	<i>chicken</i>		J'aime manger sainement. <i>I like to eat healthily.</i>
		des frites	<i>chips</i>		J'adore manger en famille. <i>I love eating as a family.</i>
		des pâtes à la sauce tomate	<i>pasta in tomato sauce</i>		J'aime le thon/le saumon. <i>I like tuna/salmon.</i>
		du poisson	<i>fish</i>		Je suis végétarien(ne). <i>I am vegetarian.</i>
		des gaufres	<i>waffles</i>		
		des moules-frites	<i>mussels and chips</i>		
		un jus d'orange*	<i>orange juice</i>		
		un thé/un café*	<i>a tea/coffee</i>		
		un pain au chocolat	<i>a pain au chocolat</i>		
		un repas végétarien	<i>a vegetarian meal</i>		

French – Unit 12 Qu'est-ce qu'il y a dans ta région?

VERB PHRASE (1)	LOCATION (2)		CONNECTIVE (3)	VERB PHRASE (4)	LOCATION (5)	
Dans ma ville, il y a <i>In my town, there is/are</i>	une piscine	<i>a swimming pool</i>	mais <i>but</i>	il n'y a pas de... <i>there isn't/aren't ...</i>	piscine	<i>a swimming pool</i>
	une gare	<i>a train station</i>			gare	<i>a train station</i>
	une gare routière	<i>a bus station</i>	cependant <i>however</i>	Il y a beaucoup de... <i>There are lots of ...</i>	gare routière	<i>a bus station</i>
	une boulangerie	<i>a bakery</i>	aussi <i>also</i>		boulangerie	<i>a bakery</i>
	une bibliothèque	<i>a library</i>			bibliothèque	<i>a library</i>
	une mairie	<i>a town hall</i>	et <i>and</i>		mairie	<i>a town hall</i>
	un hôtel de ville	<i>a town hall</i>			hôtel de ville	<i>a town hall</i>
	un musée	<i>a museum</i>			musée	<i>a museum</i>
	un parking	<i>a carpark</i>			parking	<i>a carpark</i>
	un centre commercial	<i>a shopping centre</i>			centre commercial	<i>a shopping centre</i>
	un supermarché	<i>a supermarket</i>			supermarché	<i>a supermarket</i>
	un cinéma	<i>a cinema</i>			cinéma	<i>a cinema</i>
	un commissariat	<i>a police station</i>			commissariat	<i>a police station</i>
	un parc d'attractions	<i>a theme park</i>			parc d'attractions	<i>a theme park</i>



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Spanish

Spanish – Unit 9 ¿Te llevas bien con tu familia?

RELATIONSHIP	FAMILY MEMBER/FRIEND		CONNECTIVE	INTENSIFIERS	ADJECTIVES	
Me llevo bien con <i>I get on well with</i> Me llevo mal con <i>I get on badly with</i> Me divierto con <i>I have a good time with</i> Me peleo con <i>I argue with</i> Discuto con <i>I argue with</i>	mi madre mi padre mi hermano mayor mi hermana menor mi abuelo mi abuela mi tío mi tía mi primo mi prima mi hermanastro mi hermanastra mi medio hermano mi media hermana mi padrastro mi madrastra	<i>my mum</i> <i>my dad</i> <i>my older brother</i> <i>my younger sister</i> <i>my granddad</i> <i>my grandma</i> <i>my uncle</i> <i>my aunt</i> <i>my cousin(m)</i> <i>my cousin(f)</i> <i>my step-brother</i> <i>my step-sister</i> <i>my half brother</i> <i>my half-sister</i> <i>my step-dad</i> <i>my step-mum</i>	porque es <i>because he/she is</i> ya que es dado que es puesto que es	muy <i>very</i> un poco <i>a little</i> bastante <i>quite</i> demasiado <i>too</i>	optimista pesimista trabajador/a perezoso/a hablador/a tímido/a divertido/a serio/a gracioso/a generoso/a fiel estricto/a estúpido/a honesto/a amable molesto/a egoísta	<i>optimistic</i> <i>pessimistic</i> <i>hard-working</i> <i>lazy</i> <i>chatty</i> <i>shy</i> <i>fun</i> <i>serious</i> <i>funny</i> <i>generous</i> <i>loyal</i> <i>strict</i> <i>stupid</i> <i>honest</i> <i>nice</i> <i>annoying</i> <i>selfish</i>
(person) me fastidia <i>I get annoyed with</i>						
Me llevo bien con <i>I get on well with</i>	mi mejor amigo mi mejor amiga	<i>my best friend (m)</i> <i>my best friend (f)</i>	porque <i>because</i> ya que dado que puesto que		me ayuda me apoya me conoce bien me acepta me hace reír me dice la verdad tenemos mucho en común compartimos todo	<i>he/she helps me.</i> <i>he/she supports me.</i> <i>he/she knows me well.</i> <i>he/she accepts me.</i> <i>he/she makes me laugh.</i> <i>he/she tells me the truth.</i> <i>we have a lot in common.</i> <i>we share everything.</i>

Spanish – Unit 10 ¿Qué comes?

FREQUENCY	TIME	VERB	FOOD		DRINK	
El fin de semana <i>At the weekend</i>	a la una <i>at 1 o'clock</i>	desayuno <i>I have for breakfast</i>	un huevo un yogur un pastel un bocadillo una hamburguesa bistec chorizo marisco pescado pollo carne ensalada fruta sopa tortilla cereales churros galletas patatas fritas tostadas verduras arroz pasta queso atún	<i>an egg</i> <i>a yogurt</i> <i>a cake</i> <i>a sandwich</i> <i>a hamburger</i> <i>steak</i> <i>spicy sausage</i> <i>seafood</i> <i>fish</i> <i>chicken</i> <i>meat</i> <i>salad</i> <i>fruit</i> <i>soup</i> <i>omelette</i> <i>cereal</i> <i>fried doughnuts</i> <i>biscuits</i> <i>chips</i> <i>toast</i> <i>vegetables</i> <i>rice</i> <i>pasta</i> <i>cheese</i> <i>Tuna</i>	agua café té zumo de naranja leche refresco	<i>water</i> <i>coffee</i> <i>tea</i> <i>orange juice</i> <i>milk</i> <i>soft drink</i>
A veces <i>Sometimes</i>	a las dos <i>at 2 o'clock</i>	almuerzo <i>I have for (early) lunch</i>				
A menudo <i>Often</i>	a las tres <i>at 3 o'clock</i>	como <i>I eat/ I have for lunch</i>				
De vez en cuando <i>From time to time</i>	a las tres y cinco <i>at 3:05</i>	meriendo <i>I snack</i>				
Una vez a la semana <i>Once per week</i>	a las tres y diez <i>at 3:10</i>	ceno <i>I have for dinner</i>				
Alrededor del mediodía <i>At about midday</i>	a las tres y cuarto <i>at 3:15</i>	tomo <i>I have (I eat and drink)</i>				
Todos los días <i>Every day</i>	a las tres y media <i>at 3:30</i>	bebo <i>I drink</i>				
Nunca/jamás <i>Never</i>	a las cuatro menos cuarto <i>at 3:45</i>					
Siempre <i>Always</i>	a las cuatro menos veinte <i>at 3:40</i>					
Al volver a casa <i>When returning home</i>			una dieta equilibrada una comida una comida para llevar mi plato favorito	<i>a balanced diet</i> <i>a meal</i> <i>a takeaway</i> <i>my favourite meal</i>		

Spanish – Unit 11 ¿Cómo es tu zona?

HOME	LOCATION	OPINION	DESCRIPTION	ACTIVITIES	
Vivo en <i>I live in</i> Vivimos en <i>We live in</i>	Está... <i>It is</i> ...	pienso que es... <i>I think that it's...</i>	porque (no) hay... <i>because there is (not)/are (not)...</i>	hay mucho que hacer. <i>there is lots to do.</i>	no hay nada que hacer. <i>there is nothing to do.</i>
un pueblo que se llama... <i>a town called</i> una ciudad que se llama... <i>a city called</i> una región que se llama... <i>a region called</i>	en el sur <i>in the south</i> en el norte <i>in the north</i> en el este <i>in the east</i> en el oeste <i>in the west</i>	grande <i>big</i> pequeño/a <i>small</i> moderno/a <i>modern</i> anciano/a <i>old</i> Industrial <i>industrial</i> turístico/a <i>touristy</i> feo/a <i>ugly</i> bonito/a <i>pretty</i> hermoso/a <i>beautiful</i> ruidoso/a <i>noisy</i> limpio/a <i>clean</i> sucio/a <i>dirty</i> abarroado/a <i>busy</i>	..mucha contaminación/ basura por el suelo. <i>..lots of pollution/ rubbish on the ground.</i> ..mucho tráfico/grafiti. <i>..lots of traffic/graffiti.</i> ..muchos jóvenes/ancianos. <i>..lots of teenagers/old people.</i> ..muchas tiendas/fábricas. <i>..lots of shops/factories.</i> ..muchos restaurantes/parques/ contenedores. <i>..lots of restaurants/parks/bins.</i> ..muchos monumentos/castillos/ ríos. <i>..lots of monuments/castles/ rivers.</i>	se puede(n)...you can... no se puede(n)... you can't... visitar monumentos/castillos/ catedrales/galerías de arte <i>visit monuments/castles/cathedrals/art galleries</i> dar un paseo en el parque/en la playa/ en el campo/en el bosque/al lado del río <i>go for a walk in the park/the beach/the countryside/the forest/next to the river</i> ir de compras <i>go shopping</i> ir al estadio/acuario/museo/cine/parque de atracciones <i>go to the stadium/aquarium/museum/cinema/theme park</i> ir a la heladería/isla de Brownsea/playa <i>go to the ice cream shop/Brownsea island/beach</i> hacer deportes acuáticos <i>do water sports</i> hacer ciclismo/natación/equitación/alpinismo <i>do cycling/swimming/horse riding/rock climbing</i> hacer turismo <i>do sightseeing</i> ver un espectáculo <i>see a show</i>	
en una casa <i>in a house</i> en un piso <i>in a flat</i> en un apartamento <i>in an apartment</i> en una granja <i>on a farm</i> en un bungalow <i>in a bungalow</i>	en la costa <i>in the coast</i> en el campo <i>in the countryside</i> en las montañas <i>in the mountains</i> en el centro <i>in the centre</i> en la ciudad <i>in the city</i> en el pueblo <i>the town</i> en las afueras <i>the suburbs</i>				

Spanish – Unit 12 ¿Qué problemas medioambientales hay?

PLACE	VERB	INTENSIFIER	PROBLEMS	INTENSIFIER	PROBLEMS
En mi región <i>In my region</i>	hay <i>there is/are</i> no hay <i>there isn't/aren't</i>	mucho <i>a lot of</i>	tráfico <i>traffic</i>	demasiado <i>too much</i>	tráfico <i>traffic</i>
En mi ciudad <i>In my city</i>			ruido <i>noise</i>		ruido <i>noise</i>
En mi pueblo <i>In my town</i>			dióxido de carbono <i>carbon dioxide</i>		dióxido de carbono <i>carbon dioxide</i>
En mi zona <i>In my area</i>		mucha <i>a lot of</i>	basura <i>rubbish</i>	demasiada <i>too much</i>	basura <i>rubbish</i>
			contaminación del agua/aire <i>water/air pollution</i>		contaminación del agua/aire <i>water/air pollution</i>
		muchos <i>a lot of</i>	espacios verdes <i>green spaces</i>	demasiados <i>too many</i>	espacios verdes <i>green spaces</i>
muchas <i>a lot of</i>			bolsas de plástico <i>plastic bags</i>		demasiadas <i>too many</i>
	fábricas <i>factories</i>	fábricas <i>factories</i>			



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Dance

PHYSICAL SKILLS		EXPRESSIVE SKILLS		TECHNICAL SKILLS	
POSTURE	The way the body is held	PROJECTION	The energy the dancer uses to connect with and draw in the audience.	ACTION CONTENT	Performing the movements in the choreography such as travelling, turning, gesture and floor-work accurately.
ALIGNMENT	Correct placement of body parts in relation to each other.	EYE FOCUS	Use of the eyes to enhance performance or interpretative qualities.	DYNAMIC CONTENT	Accurately performing the quality of the movements such as soft, strong, sharp, gently.
BALANCE	A steady or held position achieved by an even distribution of weight.	SPATIAL AWARENESS	Consciousness of the surrounding space and its effective use.	SPATIAL CONTENT	Accurately performing the actions in the correct place e.g.. levels, directions, pathways, shapes, designs and patterns.
COORDINATION	The efficient combination of body parts	FACIAL EXPRESSION	Use of the face to show mood, feeling or character.	RELATIONSHIP CONTENT	Accurately portraying the ways in which dancers interact; the connections between dancers.
CONTROL	The ability to start and stop movement, change direction and hold a shape efficiently.	PHRASING	The way in which the energy is distributed in the execution of a movement phrase.	TIMING CONTENT	Accurate use of time or counts when matching movements to sound and/or other dancers.
FLEXIBILITY	The range of movement in the joints (involving muscles, tendons and ligaments).	MUSICALITY	The ability to make the unique qualities of the accompaniment evident in performance	RHYTHMIC CONTENT	Repeated patterns of sound or movement performed accurately.
MOBILITY	The range of movement in a joint; the ability to move fluently from action to action.	SENSITIVITY TO OTHER DANCERS	Awareness of and connection to other dancers.	STYLISTIC ACCURACY	Performing the choreography in a way which highlights the key features of the chosen style/s
STRENGTH	Muscular power.				
STAMINA	Ability to maintain physical and mental energy over periods of time				
EXTENSION	Lengthening one or more muscles or limbs.				
ISOLATION	An independent movement of part of the body.				

Dance – Year 9

Key Terms

AURAL SETTING		CHOREOGRAPHIC DEVICES		RELATIONSHIPS	
Song	A piece of music with someone singing lyrics	MOTIF & DEVELOPMENT	A movement phrase encapsulating an idea that is repeated and developed using relationships and choreographic devices throughout the dance.	LEAD & FOLLOW	When one dancer begins a phrase of movement and a second dancer or group of dancers repeat the phrase after the lead dancer.
Instrumental	A piece of music which has no sung or spoken words.			MIRRORING	When two or more dancers perform the same phrase of movement on the opposite side, as if a reflection of each other.
Orchestral	A piece of music performed by a full orchestra	REPETITION	Performing the same action or phrase again.	ACTION & REACTION	One/Group of Dancer/s performs an action or series of actions and another dancer/dancers perform a different action in response.
Spoken Word	The use of a speech/poem/story spoken out loud (this could be over music)	CONTRAST	Movements or shapes that have nothing in common.	ACCUMULATION	When a dancer performs a series of movements and others join in at different times until all perform in unison.
Silence	No audible sound	HIGHLIGHTS	Important moments of a dance.		
Natural Sound	Use of sounds created by nature (birdsong, wolf howl, rain etc)	CLIMAX	The most significant moment of the dance.	COMPLIMENT & CONTRAST	Perform actions or shapes that are similar to but not exactly the same as another dancer's followed by movements or shapes that have nothing in common (or vice versa).
		MANIPULATION OF NUMBER	How the number of dancers in a group is used.	COUNTERPOINT	When dancers perform different phrases simultaneously
Found Sound	A 'non-musical' sound used creatively in a piece of music	UNISON & CANON	A combination of two or more dancers performing the same movement at the same time and same movements overlapping in time.	CONTACT	When two or more dancers perform whilst physically connected to each other.
Body Percussion	Using the human body to create percussive sounds	FRAGMENTATION	Use of parts of a phrase or motif.	FORMATIONS	Shapes or patterns created in space by dancers
		RETROGRADE	Reversing a movement phrase.		

Benefits of warming up Prevents injury Prepares the mind Prepares the body	Physical changes in the body during the warm-up Increase in body temperature, heart rate and breathing rate. Increased elasticity of the muscles, tendons and ligaments. Increased Production of Synovial fluid (lubricant in the joints) Messages travel faster through the nerves between the muscles and the brain.	Benefits of stretching Increases the range of motion in the body, increases the athletic performance of the body, increases the blood flow to the muscles making them work more efficiently and reduces the risk of injury.
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WARMING UP STRUCTURE

PULSE RAISER	This section increases the heart rate by gradually increasing the amount of energy the dancer is using.	Marching, Jogging, High-Knees, Jumping, Skipping, Walking Running, Burpees, Heel-Kicks, Sprinting
JOINT MOBILISATION	This section is about using the full range of movement in each of your joints. This is increased gradually to allow the muscles, tendons and ligaments to relax.	Head-turns, arm/ankle/wrist circles, open/close hips, leg swings, rolling up/down through the spine, upper body twisting/tilting shoulder rolls
STRETCHING	This section is designed to extend each muscle to its full length, allowing the dancer a better range of movement and preventing muscles from 'pulling' during the lesson.	Legs- Touching Toes , lunges, calf stretches, hurdle stretch, Downward dog, plie in 2nd Back – Bridge, touching toes, cobra stretch, cat stretch.

PHYSICAL SKILLS DEVELOPMENT

STRENGTH	Muscular power.	Crunches – Straight, twisting, side, Press-ups – wide, narrow, full, knees, Plank – From elbows, hands, up and down, side etc, Lunges - with jumps, without jumps, Squats – with jumps, without jumps	To increase the difficulty of skills exercises, you can: • Increase the length of time • Increase the number of repetitions • Increase the number of sets • Add weight or resistance • Increase intensity/speed • Reduce rest period between sets • Combine exercises
COORDINATION	The efficient combination of body parts.	Any combination of body parts moving in different ways at the same time.	
STAMINA	The ability to maintain physical and mental energy over long periods of time	Jogging – high knees, heel kicks, Jumping – Star, tuck, straight, Burpees, Squat thrusts, Skipping – free or with rope, Galloping or side steps	
ISOLATION	An independent movement of a part of the body.	Rib isolations, head turns, shoulder shrugs, wrist flips, hip circles etc	
BALANCE	A steady or held position achieved by the even distribution of weight.	Rises on one foot, arabesque, pivots, developpes, Ronde de jambes a l'aire.	

Golden Rules of Stretching • Warm-up first • Avoid pain • Stretch slowly • Stretch the correct muscle • Only work the necessary joint	Cool Down – A series of activities which gradually reduce the heart rate at the end of an exercise period. It typically has 3 parts. • Exercising at a very reduced intensity and diaphragmatic breathing exercises (deep breathing using the diaphragm) • Low-intensity, long-hold static stretching (very gentle self massage or foam rolling is also helpful) • Re-hydrate and re-fuel.
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How to identify Improvements

- Get a friend/teacher to watch you dance
- Watch yourself in the mirror
- Get a friend to film you and watch it back.

SAFE PRACTICE

Appropriate Dancewear	Safe Execution	General Practice
Freedom of movement & modesty	Hands First	Warm-up & Cool-down
Hair tied up	Soft knees	Stretch out
No jewellery	Build up speed slowly	Nutrition
Bare feet - NO SOCKS	Use mats when learning lifts etc	Hydration

DEVELOPING A MOTIF

Change the Space	Add in actions	Change Dynamics	Fragmentation	Retrograde	Repetition	Change the Order
• Level • Direction • Size • Shape • Floor pattern	• Jump • Roll • Travel • Turn • Stillness • fall	• Speed • Weight • Energy • Flow • Accent/stress	Break up the motif by only performing a small section of it, doing something new, then completing the motif.	Perform the Motif in reverse (back to front)	Repeating the whole motif or smaller sections	Mix up the order that the actions happen in.

DANCE STRUCTURES

Binary (AB)	A dance with 2 clear sections with different themes OR dynamic qualities OR music	A		B			
Ternary (ABA1)	A dance with 3 clear sections. 2 with different themes OR dynamic qualities OR music and the 3 rd is a repeat of the 1 st with some developments.	A	B		A1		
Arch (ABCBA)	A dance with 3 clear sections but the first 2 are repeated in reverse order.	A	B	C	B	A	
Rondo (ABACAD)	A dance that keeps returning to the original section after each new section.	A	B	A	C	A	D
Narrative (Tells a story)	Think about a classic story arch. This is usually a seamless piece of dance.						
Episodic (Clear sections with different themes)	Each section has a new feel and is not connected to the previous sections.	A	B	C	D		



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Drama

Drama – Skills

Vocal Skills	
Term	Definition
Accent	The way a character pronounces words according to their location or social class
Emphasis	Adding stress to a word or phrase to enhance importance and communicate meaning
Pace	How quickly or slowly a person speaks
Pause	A moment of silence whilst speaking that can build tension or communicate another meaning
Pitch	How high or deep the voice is
Volume	How loud or quite the voice is
Tone	The way a character speaks to show emotion
Projection	The distance a voice travels
Clarity	How clearly the voice can be heard
Key Terminology	
Term	Definition
Ensemble	A group of musicians, actors, or dancers who perform together.
Script	The written text of a play, film, or broadcast.
Improvise	To create and perform (music, drama) spontaneously or without preparation
Character	A person portrayed in a drama, novel, or other artistic piece.
Fourth Wall	The imaginary wall at the front of the stage separating the audience from the performers.
Ensemble	A group of musicians, actors, or dancers who perform together.
Script	The written text of a play, film, or broadcast.
Improvise	To create and perform (music, drama) spontaneously or without preparation

Physical Skills	
Term	Definition
Hand Gestures	Use of the hands to communicate meaning
Body Language	Use of the body to communicate meaning
Facial Expressions	Use of the face (Eye brows, Mouth and Eyes) to communicate meaning and emotion to the audience
Posture	Use of the back to show status or age
Gait	How an actor walks to show emotion or character
Eye Contact	Use of the eyes to show relationship towards another character
Proxemics	The distance between characters to show relationships
Levels	Use of different heights to show status
Control	How well you use your body during a performance to stay in character
Types of Staging	
Term	Definition
End on	The audience is seated along one end of the stage, directly facing it.
Traverse	The audience is on two sides of the stage, facing towards each other.
In the round	The stage is completely surrounded by the audience.
Promenade	Performance area may be set in various locations in a venue. Audience follows the action on foot, moving from one location to another.
Thrust	The audience are sitting on three sides of the action of the play.
End on	The audience is seated along one end of the stage, directly facing it.
Traverse	The audience is on two sides of the stage, facing towards each other.

Drama – Monologues/Duologues

Monologue Vs Duologues

Monologue	Duologue
One Actor	Two Actors
Shows a character's thoughts and emotions	Shows characters relationship and interaction
Controlled by one actor	Requires timing and balance

Strong Monologue		Strong Duologue	
Skill	What to do	Skill	What to do
Voice	Vary pitch, pace and volume	Listening	React naturally to your partner
Movement	Use purposeful movement rather than pacing randomly	Eye Contact	Use appropriate eye contact
Facial Expression	Show clear emotions	Timing	Avoid speaking over each other unless scripted
Focus	Look at different imagined people or places	Proxemics	Use distance to show relationships
Character	Stay in role from start to finish	Status	Show who has power in the scene
Example		Example	
A Nervous person giving a speech	Use shaky hands, pauses, a quiet voice at first, then gradually become more confident.	Two friends arguing	Stand close at first, then move apart as the argument becomes more intense.

Common Mistakes

Monologues	Duologues
Speaking in one tone	Ignoring your partner
Forgetting to move	Facing the audience the entire time
Looking at the floor	Laughing out of character
Rushing lines	Talking over each other unintentionally

Drama – Costume Writing

Costume Terminology		
Feature	Things to Consider	Example
Character	What is your character like? Think about their personality, age, job, interests and status	A king may wear rich fabrics and a crown. Every costume choice should tell the audience something about the character.
Colour	Colours can suggest emotions, personality or themes.	Red = anger, love or danger. Black = mystery or power. White = innocence or purity.
Status	Does the costume show whether the character has power or wealth?	Expensive fabrics and jewellery suggest high status. Clothing can immediately communicate a character's place in society.
Hair and Make up	Can help show age, personality, occupation or mood.	Messy hair for a stressed character or scars to show past experiences.
Time Period	When is the play set?	Victorian dresses, modern school uniform or futuristic clothing.





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Music

Music – Musical Theatre and Film Music

Tempo Italian terms	
Tempo	The speed of the music
Adagio	Slowly
Andante	At a walking pace
Allegro	Quite fast
Vivace	Quick and lively
Accelerando	Gradually speeding up
Rallentando	Gradually slowing down

Musicals Key Terms	
Jukebox Musical	A musical made up of existing songs, usually from one band or artist or one style or genre.
Vamp	A repeated phrase of music that bridges dialogue with a song. Usually played under the speaking as an introduction to the next musical number.
Pedal	A long held notes that creates tension and suspense, can be used for the same purpose as a vamp.
Animated Musical	A musical that is based around a story that uses animation or live action.
Modulation	A key change. When a piece of music changes all the pitches so there is a new tonic.
Mega Musical	A large scale musical that became popular in the 80s. Uses large scale set designs and lighting.
Compound Time Signatures	A time signature that is created by using triplet feel. Examples are 6/8, 9/8, 12/8.
Lin Manuel Miranda	Composer of Hamilton
Hip hop	Style of music that mixes loops, samples and rapping.
Vocal Inflections	Small flicks in the voice that move a note around to create more emphasis on particular lyrics or words.

Elements of music	
Term	Definition
Dynamics	How loud or quiet the music is
Duration	The length of the notes
Harmony	The accompaniment to the melody
Melody	The tune
Pitch	How high or low a sound is
Rhythm	The pattern of beats in a piece of music
Sonority	The instrument's tone colour or sound FX used
Texture	The layers in a piece of music

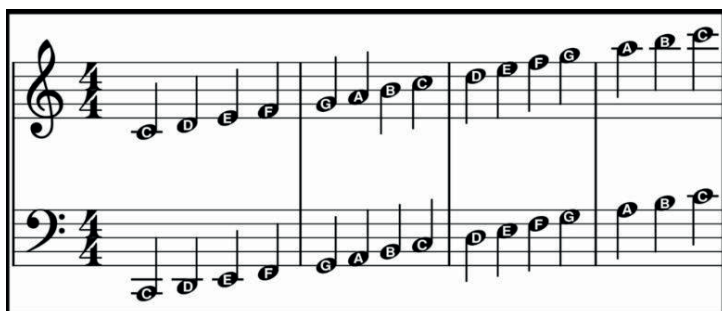
Film music key terms	
Diegetic	Music that is part of the action. The characters can hear the music.
Non-diegetic	Music that is not part of the action, the characters in the film cannot hear it. It is just for the audience.
Dissonant chords	Chords that are clashing in sound and are neither major or minor in tonality. Used to create a sense of unease.
Pedal	A long held note or chord that is used to create tension. It means that the harmony is static.
Ostinato	A short repeating pattern used to create tension or accompany a repeated movement on screen eg: running or cycling.
Underscore	Where the music is played at the same time as the action/ dialogue.
Stab Chords	Dissonant chords that are played staccato and off beat to mirror on screen action.
Leitmotif	A short musical idea that represents a character in a film score.
Tremolo	An instrument playing a shaking or quivering effect, usually seen on string instruments
Pizzicato	String instruments are plucked rather than bowed (arco) to create short notes.
Chromatic	Notes moving by semitone either up or down in pitch.
Perfect 5th	A leap in pitch of 5 notes.

Music – Jazz and Blues and Music Technology and EDM

Minimalism key terms

Cell	Short musical ideas used and developed as the basis of minimalism composing
Phase Shifting	Moving a musical idea forward by a beat or beats to create the feeling of an
Inversion	A musical idea that is flipped upside down
Retrograde	A musical idea that is reversed
Note Addition	Adding notes to a musical cell
Note Diminu-	Removing notes from a musical cell

Treble and Bass Clef Notation



Primary and Secondary Chords

Primary			Primary	Primary	
1	2	3	4	5	6
Major	minor	minor	Major	Major	minor

C Dm Em F G Am

Primary Secondary Secondary Primary Primary Secondary

Jazz and Blues key terms

Term	Definition
Blues	A style of music originating at the beginning of the 20th century in the southern states of America.
Call and Response	An instrument plays a musical idea and another instrument plays something back similar.
Syncopation	Off-beat rhythms.
Blues Scale	A scale used in Blues and Jazz music, contains flattened notes.
Improvisation	Musical ideas made up on the spot.
Extension Chords	Triads with added notes e.g.: 9ths, 7ths 13ths.
32 bar Song Structure	A structure used in Jazz and Blues music: AABA
Swing Rhythm	Rhythm that sounds like a dotted rhythm used in Jazz music.

Music Technology and EDM key terms

MIDI	Musical Instrument Digital Interface, is a technical standard that allows electronic musical instruments, computers, and other devices to
DAW	Digital Audio Workstation, the software that is used to create electronic music.
Sequence	To draw in pitches and note lengths into a DAW to create music.
Sample	A short snippet of music or sound that is reused and inserted into a new piece of computer-generated music. Sometimes this sample is 'treated' by being changed in some way, so it sounds different from the original.
Loop	A short musical idea such as a drum pattern that is then copy and pasted for a section / sections of music
Panning	Moving the sound from left to right or right to left speakers. Positioning each track in the 'mix' from left to right.
Synthesiser	A musical instrument that creates sound electronically.
EQ	EQ (equalization) in music tech is the process of adjusting the levels of different frequencies in an audio signal to shape the overall sound.



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Physical Education

Year 9 Physical Education

Curriculum	
PE Vision	To develop competent and confident performers who continue to maintain healthy active lives beyond their academic career.
Competence	The ability to do something successfully or efficiently.
Confidence	Feelings / belief in abilities and qualities.
Fit to Lead	Develop communication, cooperation, confidence, leadership and understanding of tactics. Activities Studied- Badminton, Netball
Fit to Perform	Develop actions, skills and techniques. Activities Studied- Handball, Basketball
Fit for Life	The importance of a balanced, healthy, active lifestyle. Activities Studied- Health Related Fitness (HRF)
Keywords	
SMART targets	Help you set goals that are specific, measurable, achievable, relevant, and time-bound.
Extrinsic	An extrinsic risk of injury is a risk caused by external factors, such as the environment, equipment, clothing, or actions of other players.
Intrinsic	An intrinsic risk of injury is a risk that comes from inside the body, such as poor fitness, muscle imbalance, lack of flexibility, or previous injuries.
Psychological Factors	Things that affect how your mind works, like confidence, motivation, focus, or anxiety.
Physiological Factors	Things that affect how your body works, like fitness, strength, flexibility, or tiredness.
Nutrition	Affects your energy levels, recovery, and ability to train or play sport effectively.
Progressive overload	When you slowly increase how hard you train to get fitter or stronger.

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Warm Up	
Warm- Up	Simple exercise routine that is performed before a workout session. Exercises to prepare the body for exercise so that the chances of injury are reduced
Pulse Raiser	The starting activity of a warm-up. It consists of exercises that slowly increase the heart rate and body temperature. This is performed at low intensity
Pulse Raiser Activity	Gentle jog, skipping. Jog, weave, twist, turn. (If the activity has another way of moving apart from running, use that form of movement e.g., swimmers = slow swim, cyclists = short bike ride).
Mobiliser	Activities that take the joints through their range of movement starting with small movements and making these bigger as the warm-up progresses.
Mobiliser activities	Open the gates, ankle rotations, wrist rolls, arm rotations/circles, skipping, side steps, High knees, heel flicks
Preparation Stretches	Stretching that takes place before the training session or match takes place
Preparation Stretching Activities	Hamstring sweeps, deltoid stretch, tricep stretch, lunges, quadricep stretch.
Game Related/Skill rehearsal	The last phase of a warm-up. Practicing the actions that are about to be used in the game or activity. This is performed at high intensity
Game related/skill rehearsal activities	Finger tag, stuck in the mud, splat, end-zone, passing drills

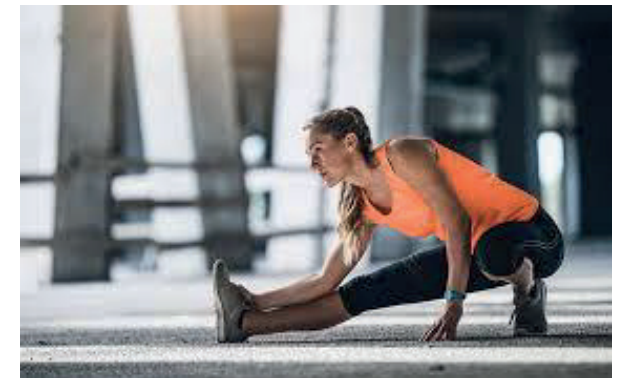
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Warm-up Benefits

Increase muscle temperature	Help the muscles to be more elastic and flexible, reducing the risk of injury.
Increase heart rate	Help to speed delivery of oxygen to working muscles.
Increase flexibility	Stretching will help to increase how much movement can happen at joints
Increase speed of muscle contraction	Help the muscles to work quicker and reduce reaction time.
Increase motivation	Thinking about the task will increase the performers drive to perform well
Increase concentration	Thinking about the task will help the performer to focus and concentrate on the activity
Increase confidence	Practicing skills in a warm-up will improve confidence and speed up reaction time.

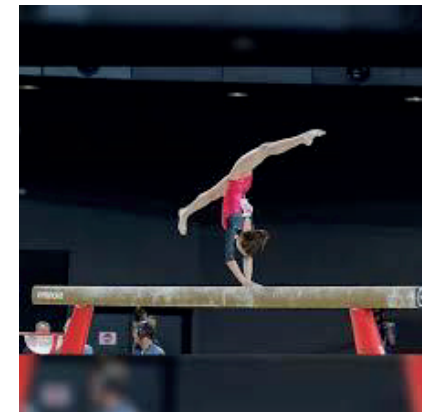
Cool Down

Cool down	Easy exercise done after an activity to allow the body to return to a resting condition
Pulse lowering (first part of cool-down)	Gradually lowering the heart rate and body temperature. A slow walk or jog
Stretching (second part of cool-down)	Return muscles that have been used back to their normal length



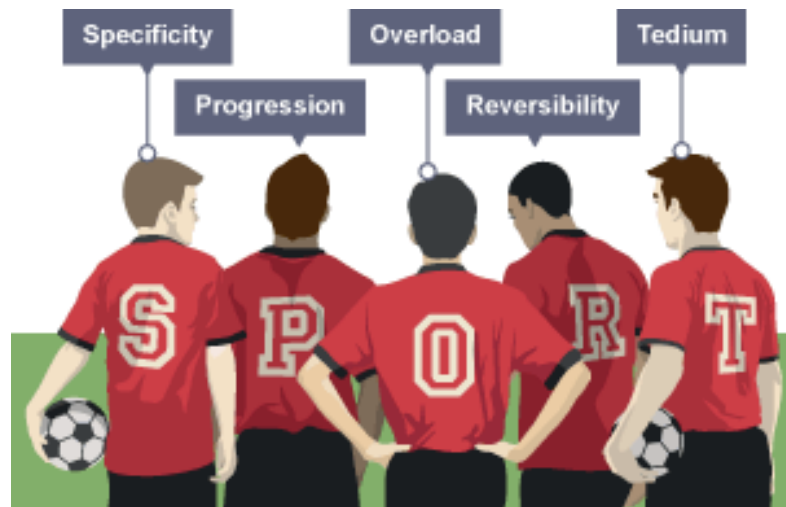
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Components of Fitness	
Body Composition	The percentage of body weight which is fat.
Cardiovascular Fitness	The ability of the heart, lungs and blood to transport oxygen.
Flexibility	The range of motion at a joint.
Muscular Endurance	The ability to use voluntary muscles repeatedly without tiring.
Strength	The amount of force a muscle can exert against a resistance.
Agility	The ability to change the position of the body quickly and control the movement.
Balance	The ability to maintain the body's centre of mass above the base of support.
Coordination	The ability to use two or more body parts together.
Power	The ability to perform strength performances quickly.
Reaction time	The time taken to respond to a stimulus.
Speed	The ability to put body parts into motion quickly.



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Principles of Training	
Specificity	The training must be relevant to the individual by tailoring the training towards their sport, position or muscles groups.
Progressive overload	Gradually increase how often, how hard, how long, or what type of exercise you do to keep challenging your body and avoid performance plateaus or injuries.
FITT Principle	Frequency: Train more often. Intensity: Train harder (lift heavier weights or increase heart rate). Time: Train longer or reduce rest times. Type: Mix different types of exercises.
Individual needs	Tailor training to each athlete's age, gender, injury status, and fitness level to keep them motivated and successful.
Rest and recovery	Physical improvements happen during rest. Ensure enough rest, good sleep, and proper nutrition, including protein, to repair muscles.
Reversibility	If training stops or is reduced, fitness levels drop. Keep training consistently to stay motivated and avoid losing progress.
Overtraining	Without enough rest, the body can't adapt, leading to decreased fitness and higher risk of illness or injury.

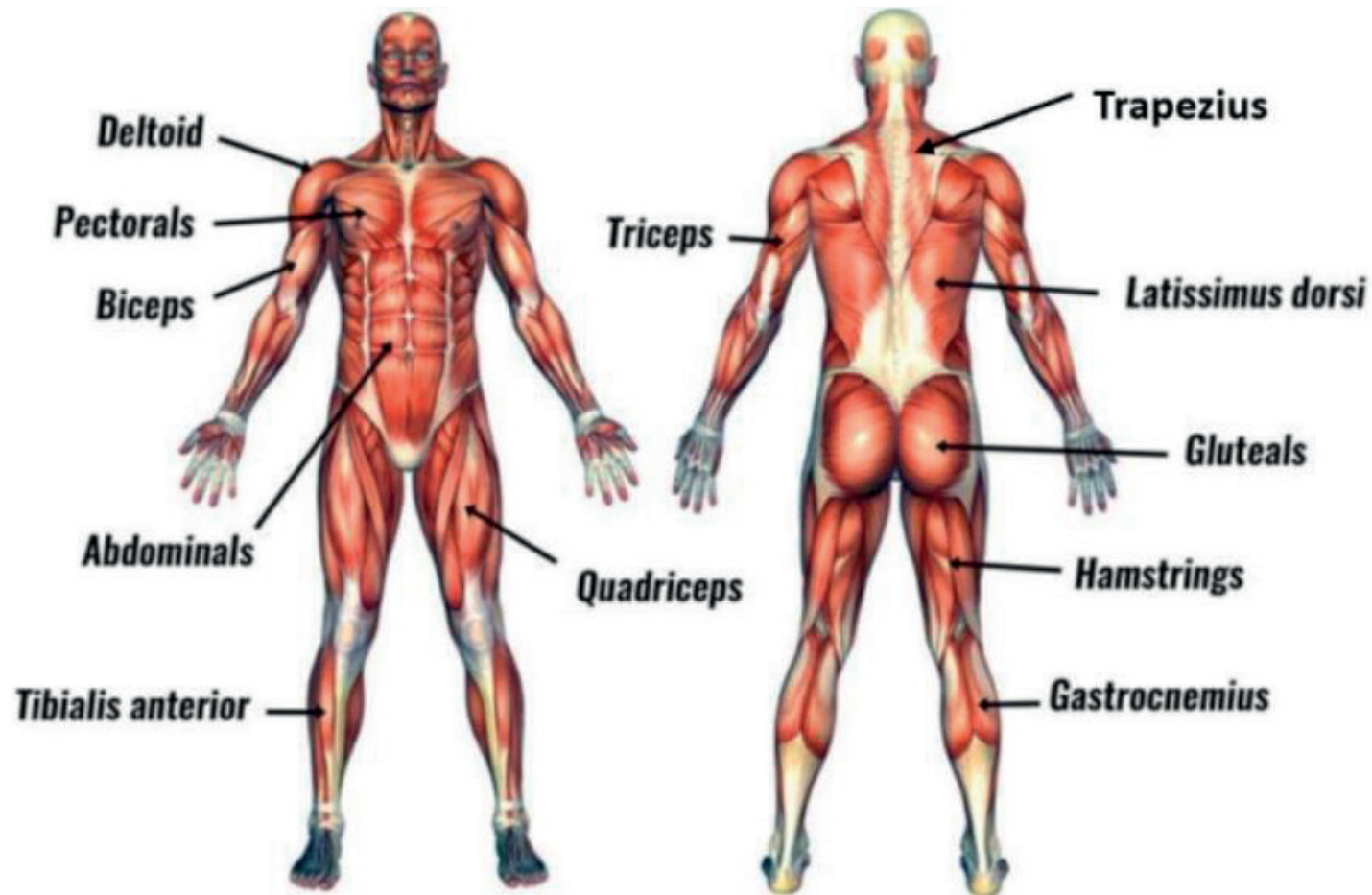


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Nutrition	Function	Sources	In Sport
Nutrition	Substances in food that the body needs to grow, stay healthy, and function properly.		
Balanced Diet	A diet that includes the right amounts of all the necessary nutrients from different food groups.		A balanced diet helps an athlete have the energy to play well by eating lots of different healthy foods.
Vitamins & Minerals	Essential nutrients that help keep the body healthy and support different body functions.	leafy greens, citrus fruits, eggs, fish, and beans	An athlete eats a variety of fruits and vegetables to get vitamins and minerals that help their muscles and bones stay strong.
Fats & Oils	Foods that give you energy and help keep your body warm.	Butter, olive oil, nuts, avocado	A basketball player eats avocado and nuts for healthy fats that give long-lasting energy.
Hydration	Drinking enough water to keep your body working properly.	Water, fruit juice and Tea	Helps keep your body cool, gives you energy, helps your muscles work properly and replaces fluid lost from sweat.
Protein	Nutrients that help the muscles grow and repair itself, found in meat, eggs, beans, and nuts.	Chicken, fish, eggs, beans, lentils	A gymnast eats chicken and beans after training to help their muscles grow and recover.
Carbohydrates	Foods that give you energy, like bread and fruit.	Bread, rice, pasta, potatoes	A runner eats pasta the night before a race to get lots of energy for running.
Vegetables	They give you vitamins, help you stay strong, and keep your body working well.	Apples, bananas, carrots, broccoli	A football player eats a banana and some salad before a match to get vitamins and stay healthy.
Dairy	help keep your bones strong.	Milk, cheese, yogurt	A swimmer drinks milk after practice to help build strong bones and teeth.

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Major Muscles of the Body





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Science

Science – Cellular Respiration

Respiration involves using glucose to release energy in living cells

The energy is needed for:

- growth and repair
- movement
- control of body temperature in mammals/birds

Respiration happens in all living cells, including plant and animal cells.

Respiration **does not produce energy** from glucose, it releases energy from glucose.

Do not confuse respiration with breathing (which is called **ventilation**).

Aerobic respiration

Aerobic respiration involves glucose and oxygen react to produce carbon dioxide and water and release energy;

The equation for aerobic respiration is:



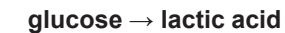
Respiration takes place in the **mitochondria** of the cell.

	Aerobic	Anaerobic
Needs oxygen?	Yes	No
Needs glucose	Yes	Yes
Product(s) formed	Carbon dioxide and water	Lactic acid
Energy released	More	Less

Anaerobic respiration In humans:

Aerobic respiration involves reactions of glucose to release energy without using any oxygen.

The equation for anaerobic respiration in humans is:

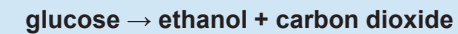


- Lactic acid builds up in the muscles;
- Causing pain and tiredness (fatigue);
- Can lead to cramp;
- Lactic acid is broken down when you start aerobic respiration again.

Fermentation

Fermentation is anaerobic respiration when it happens in microbes (eg bacteria, fungi) to release energy they need from glucose.

The equation for anaerobic respiration in yeast is:

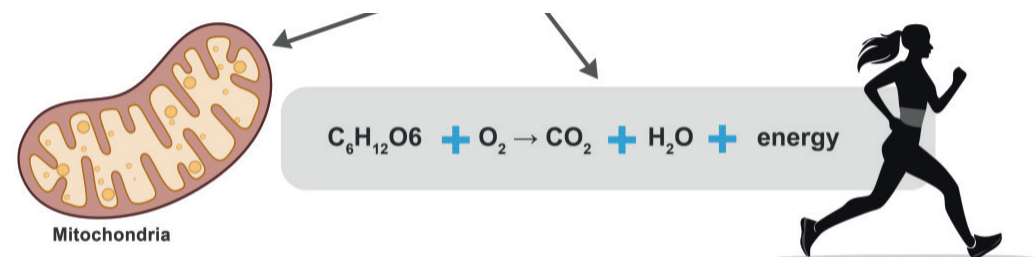


Yeast (unicellular fungi) can carry out an anaerobic process called fermentation;

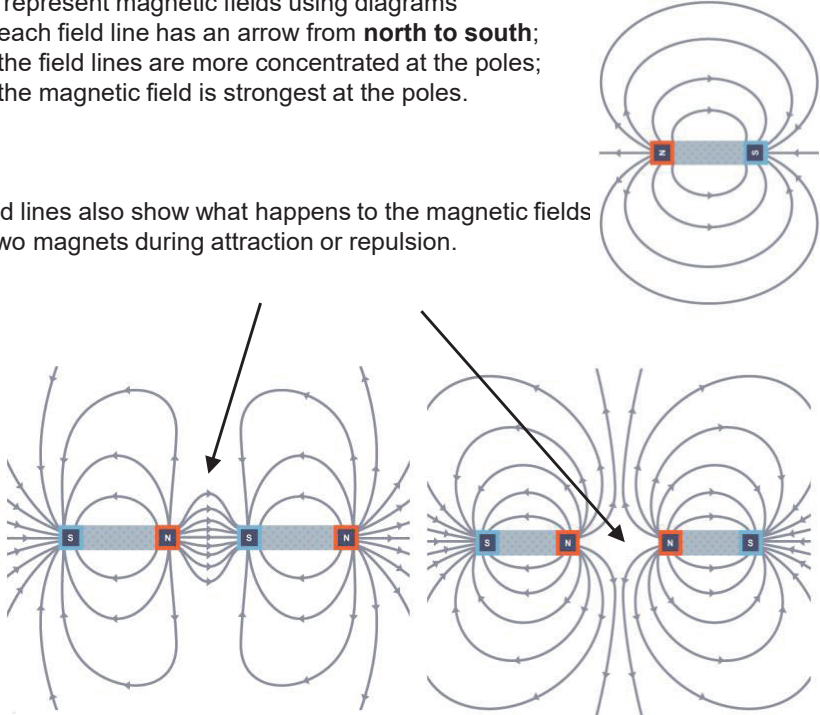
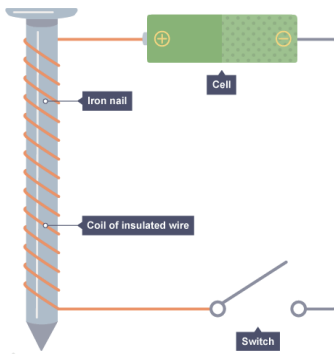
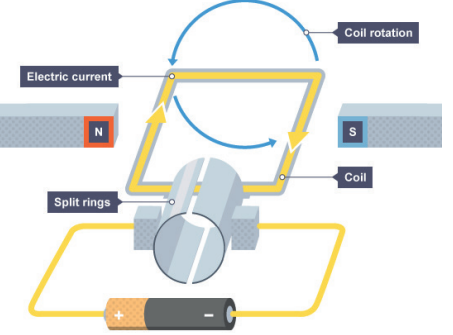
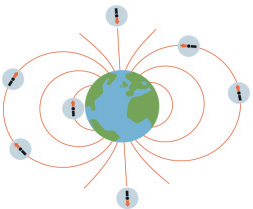
Ethanol (alcohol) is produced;

The ethanol is used to make beer and wine;

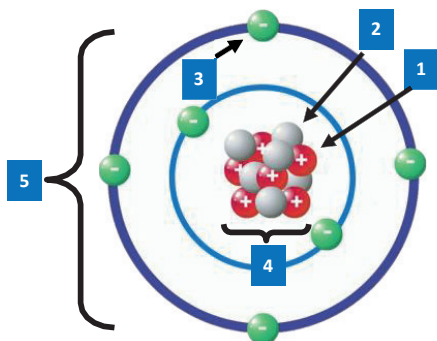
The carbon dioxide helps bread rise.



Science – Magnetic fields and electromagnets

Magnetic fields	Electromagnets	DC motors
A magnet creates a magnetic field around it (you cannot see a magnetic field) A non-contact force is exerted on a magnetic material brought into a magnetic field. It is non-contact force because the magnet and the material do not have to touch each other. We represent magnetic fields using diagrams - each field line has an arrow from north to south; - the field lines are more concentrated at the poles; - the magnetic field is strongest at the poles. Field lines also show what happens to the magnetic fields of two magnets during attraction or repulsion. 	When an electric current flows in a wire, it creates a magnetic field around the wire. The magnetic field around an electromagnet is the same as around a bar magnet. We can make the electromagnet stronger by: - wrapping the coil around a piece of iron (such as an iron nail) - adding more turns to the coil - increasing the current flowing through the coil Too much current can cause heating. Advantages of electromagnets: - they can be turned on and off - the strength of the magnetic field can be varied - reversing the current (turning the battery around), reverses the direction of the field (swaps the poles) 	Passing an electric current through a wire in a field will make the wire move. This is called the motor effect. The diagram shows a simple electric motor: - there is an electric current in the coil of wire - this generates a magnetic field; - which interacts with the fixed magnets; - this makes the coil rotate The speed of the motor can be increased by: - increasing the strength of the magnetic field increasing the current flowing through the coil 
The Earth's magnetism		
The Earth's magnetism The Earth behaves as if it contains a giant bar magnet. Its magnetic field lines are most concentrated at the poles. This magnetic field can be detected using magnetic materials or magnets.		The compass A compass comprises: - a magnetic needle mounted on a pivot (so it can turn freely) - a dial to show the direction If the needle points to the N on the dial, you know that the compass is pointing north. 

Science – Atoms and elements



	Name	Relative Mass	Relative Charge
1	Proton	1	+1
2	Neutron	1	0
3	Electron	very small	-1
4	Nucleus	A	+ Z
5	Atom	A	0

Term	Definition
Atom	A neutral particle consisting of protons, neutrons and electrons. Number of protons = number of electrons
Mass number, A	Total of number of protons and neutrons in the nucleus of an atom
Atomic number, Z	Number of protons in the nucleus of an atom; determines the identity of the element
Atomic radius	Distance from the centre of an atom's nucleus to the electrons (approx. 10^{-10}m or 0.1nm)
Isotopes	Atoms of the same element (i.e. same number of protons) with different number of neutrons
Nucleus	The positively charged centre of an atom made of protons and neutrons. Approximately 10 000 times smaller than the atom (approx. 10^{-14}m)
Subatomic	Smaller than the size of an atom

		Determined by....
23	a Relative atomic mass	mean mass of nucleus taking into account relative abundance of isotopes
Na	b Element symbol	element name
Sodium	c Element name	number of protons
11	d Atomic number	Number of protons

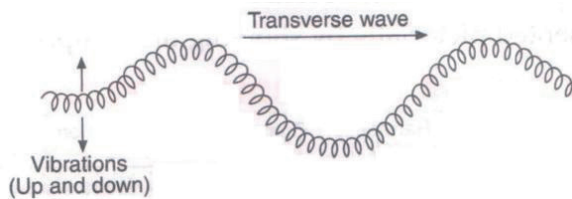
Term	Definition
Element	Substance that contains only one type of atom
Mixture	Two or more elements and/or compounds not chemically combined together
Compound	Contains two or more different elements chemically combined
Group	Columns on the periodic table, informs us of the number of electrons in the outer shell of the atom. Contain 'families' of elements with similar properties
Period	Rows on the periodic table, informs us of the number of electron shells in an atom
Reactants	The substances that take part in a chemical reaction
Products	The substances that are made in a chemical reaction
Electronic structure	Pattern of electrons in shells. Shells fill from the inside; 1 st shell max 2, 2 nd shell max 8, 3 rd shell max 8, 4 th shell max 2
Ion	An atom with an overall positive or negative charge due to the loss or gain of electrons

Scientist	Contribution
Rutherford	Disproved 'plum pudding' model. Replaced with 'Nuclear model' Atom mostly empty space, nucleus positive where almost all the mass is concentrated
Bohr	Modified the 'Nuclear' model: central nucleus with orbiting electrons at <u>specific distances</u> .
Chadwick	After the proton was discovered, provided experimental evidence for existence of neutrons.

Science – Waves

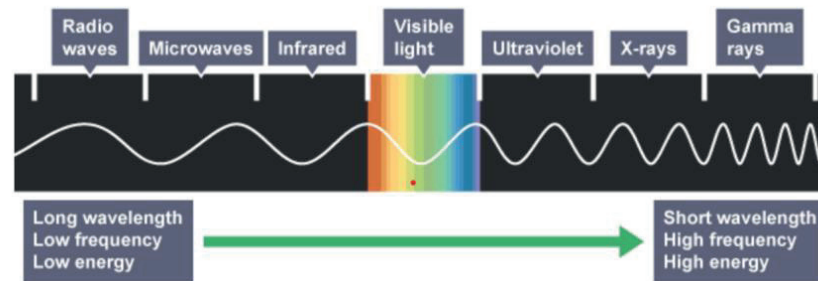
Transverse waves

- Light waves are emitted from luminous objects and transfer **energy**.
- Light waves are caused by vibrations that are **perpendicular** (at a right angle) to the direction of the wave travel.
- They are **transverse** waves



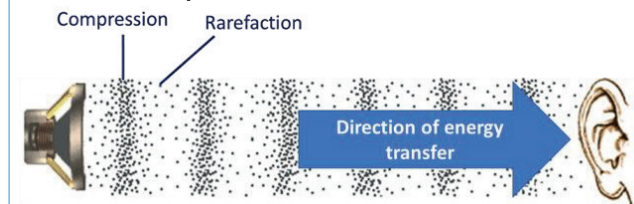
Electromagnetic spectrum

Electromagnetic waves are caused by vibrating electric and magnetic fields and they are transverse waves. Electromagnetic waves travel at very high speeds: **the speed of light**. The speed of light in a vacuum is around **300,000,000 m/s**



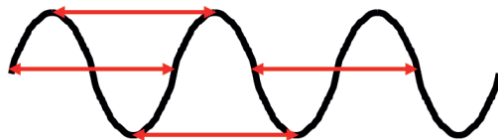
Longitudinal waves

- Sound waves are a good example of a **longitudinal** wave.
- **Energy** is transferred from a source to the air particles.
- This causes the air particles to **vibrate**.
- These vibrations are passed on to other air particles.
- Longitudinal waves are where the vibration causing the wave is **parallel** to direction the wave travels.



Wavelength

Wavelength is the distance between two identical points on a wave.



Amplitude

Amplitude is the maximum height of a wave from rest.

The higher the amplitude, the louder the sound.

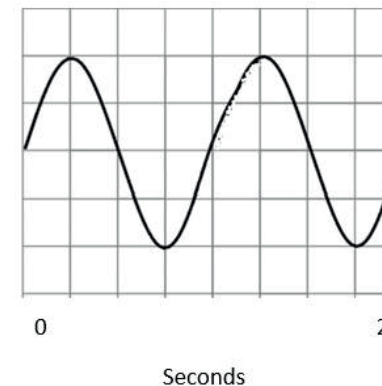


Frequency

- Frequency is the number of waves that pass a particular point in one second.
- The unit for measuring frequency is Hertz (Hz).
- 1 Hertz = 1 wave per second

If the diagram represents 2 seconds, how many waves will there be per second?

1. Count how many waves occur in the time shown (2 seconds)
2. Scale up appropriately to work out number of waves per second



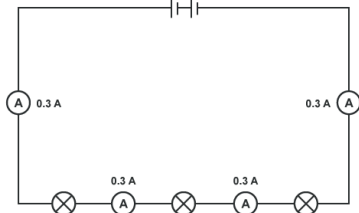
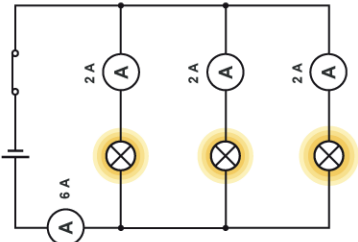
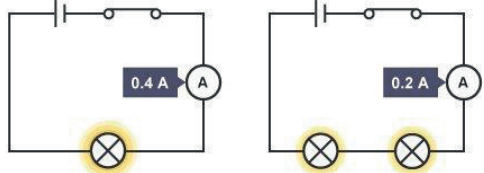
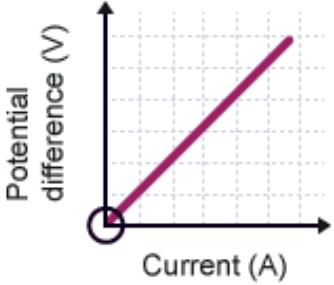
- Higher frequency waves are a higher pitch sound. The range of human hearing is approximately 20Hz to 20 kHz (20,000 Hz).
- We cannot detect sounds lower or higher than this.
- Frequencies above this are called ultrasound and below are called infrasound.
- Different animals can detect different frequencies.



Science – Health and Disease

Health and disease		Risk factors for disease	
Definitions		Risk factors	
Health	is a state of physical and mental wellbeing.	Smoking	CHD, lung cancer, other cancers, emphysema
Disease	is when physical or mental health is compromised.	Poor diet	CHD, obesity, type 2 diabetes, cancer
Communicable disease	are caused by a pathogen –bacteria, virus, fungus, parasite etc. They can be spread from person to person.	Ionising radiation	Cancer
Non-communicable diseases	are NOT caused by a pathogen – they cannot be spread from person to person.	Obesity	Type 2 diabetes, CHD, arthritis
		Drinking alcohol	Liver and brain damage
Cancer		Drinking/smoking during pregnancy	Low birth weight, development, brain damage
a non-communicable disease caused by uncontrolled cell growth and division (via mitosis), resulting in a tumour. These tumours are either benign (contained, non-cancerous) or malignant (cancerous, spread via blood to form secondary tumours).		Lack of exercise	CHD, cancers
Non – communicable diseases		Communicable diseases	
Coronary Heart Disease	Heart Attacks	Viruses	Bacterial Diseases
What is it? •Arteries supplying the heart are blocked •Less blood can get to the heart •Less oxygen for respiration •Heart attack What causes it? •Diet •Alcohol •Smoking •Obesity •Lack of exercise Treatments • Stents • Statins • Lifestyle changes • Bypass surgery • Heart transplant • Valve replacement	•Arteries supplying the heart are blocked •Less blood can get to the heart •Less oxygen for respiration •Heart attack Pathogens Are microbes capable of making us ill. We can reduce their spread by • Cooking food thoroughly • Mosquito nets • Avoiding (in)direct contact	HIV is a virus that infects the cells that normally fight off infection – the white blood cells. Tobacco mosaic virus (TMV) is a plant pathogens. It gives a ‘mosaic’ pattern of discolouration on the leaves which affects growth, due to a lack of photosynthesis. •Measles virus is spread by inhalation of droplets from sneezes and coughs. Fungal and Protist Diseases Rose black spot is a fungal disease where purple or black spots develop on leaves reducing photosynthesis. Malaria is a protist (a single celled organism that contains a nucleus). Malaria is spread by female mosquitoes	Salmonella food poisoning is spread by bacteria ingested in/ on food. Symptoms are fever, abdominal cramps, vomiting and diarrhoea and these are caused by the bacteria and the toxins they secrete. In the UK, poultry are vaccinated against Salmonella to control the spread. Gonorrhoea is a sexually transmitted disease (STD) with symptoms of a thick yellow or green discharge from the vagina or penis and pain on urinating. It is caused by a bacterium and was easily treated with the antibiotic penicillin until many resistant strains appeared. Gonorrhoea is spread by sexual contact.

Science – Electricity

Electric charge and current	Series circuits	Parallel circuits												
Electric charge Some particles carry an electric charge. In electric wires these particles are electrons. Electric current An electric current is a flow of charge, and in a wire this will be a flow of electrons. We need two things for an electric current to flow: - something to transfer energy to the electrons, such as a battery or power pack - a complete circuit for the electrons to flow through	In a series circuit, the components are connected in series (one after the other) on a single loop of wires. The current is the same everywhere in the circuit. Current is not used up by the components. Adding cells, increases the current. 	In a parallel circuit, the components are connected on different branches of the wire. When components are connected in parallel, the current is shared between the components. If a bulb breaks in a parallel circuit, the other bulb will remain lit. 												
Current	Resistance													
Current The more charge that flows, the bigger the current. Current is measured in amperes (A). This can be shortened to amps. Measuring current We measure current using an ammeter. It is connected in series. Potential difference Potential difference is a measure of the difference in energy between two parts of a circuit. The bigger the difference in energy, the bigger the potential difference. Potential difference is measured in volts (V). It is sometimes called voltage. Measuring potential difference Potential difference is measured using a device called a voltmeter. It is connected in parallel.	Resistance Wires and the components in a circuit reduce the flow of charge. This is called resistance. The unit of resistance is the ohm (Ω). Adding components The resistance increases when you add more components in series. Calculating resistance To find the resistance of a component, you need to measure: - the potential difference across it; - the current flowing through it. The resistance is the ratio of potential difference to current. We use this equation to calculate resistance Resistance (Ω) = potential difference (V) / current (A) <table border="1" data-bbox="1035 1242 1656 1446"> <thead> <tr> <th></th><th>Current</th><th>Potential difference</th></tr> </thead> <tbody> <tr> <td>Unit</td><td>ampere, A</td><td>volt, V</td></tr> <tr> <td>Measuring device</td><td>Ammeter in series</td><td>Voltmeter in parallel</td></tr> <tr> <td>Circuit symbol of measuring device</td><td></td><td></td></tr> </tbody> </table>  			Current	Potential difference	Unit	ampere, A	volt, V	Measuring device	Ammeter in series	Voltmeter in parallel	Circuit symbol of measuring device		
	Current	Potential difference												
Unit	ampere, A	volt, V												
Measuring device	Ammeter in series	Voltmeter in parallel												
Circuit symbol of measuring device														

Science – Reactivity and rates

Catalysts	Oxidation	Rate of reaction	Thermal Decomposition	Combustion
- Speed up reactions - Are not used up during reactions - Are chemically unchanged after the reaction completes - Work by reducing the energy needed to start a reaction (activation energy). In industry, using catalysts often results in lower temperature being used in industry, saving money and cutting the use of fossil fuels and their subsequent emissions Car exhausts have catalytic converters. - They reduce amount of toxic gases released - They contain platinum and rhodium as catalysts.	In oxidation reactions, a substance gains oxygen. Metals and non-metals can take part in oxidation reactions (be oxidised). Examples: - Magnesium reacts with oxygen to produce magnesium oxide $\text{magnesium} + \text{oxygen} \rightarrow \text{magnesium oxide}$ $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ - Carbon reacts with oxygen to form carbon dioxide: $\text{carbon} + \text{oxygen} \rightarrow \text{carbon dioxide}$ $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$	Reacting particles must collide with a minimum amount of energy (activation energy) for a chemical reaction to happen.  How quickly a reaction happens is called the rate of reaction, and always involves a time measurement. We can increase reaction rate by: Increasing the concentration of liquid reactants as it increases the frequency of collisions Increasing the surface area of solid reactants as it increases the frequency of collisions - Using a catalyst as it decreases the energy that particles need to collide with for a successful reaction <u>Some ways to measure the rate of a reaction</u> - Time taken for a reactant to disappear - Time taken for the reaction mixture to change colour - Measure the number of bubbles produced in a certain time - Measure the volume of gas produced in a certain time. - Measure the change in mass in a certain time	This is the breaking down of a substance using heat, to form two or more products. Many metal carbonates take part in thermal decomposition reactions. For example, copper carbonate: copper carbonate is green; copper oxide is black. $\text{copper carbonate} \rightarrow \text{copper oxide} + \text{carbon dioxide}$ $\text{CuCO}_3 \rightarrow \text{CuO} + \text{CO}_2$ Other metal carbonates decompose in the same way. When they do, they follow this equation: $\text{metal carbonate} \rightarrow \text{metal oxide} + \text{carbon dioxide}$ For example, calcium carbonate: $\text{calcium carbonate} \rightarrow \text{calcium oxide} + \text{carbon dioxide}$ $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ Thermal decomposition is an example of an endothermic reaction. Energy must be supplied constantly for the reaction to keep going.	Combustion is another name for burning fuels. - It is an exothermic reaction - It is an example of an oxidation reaction. Complete combustion Fuels contain hydrocarbons which react with oxygen when they burn - With enough oxygen, complete combustion happens: - the hydrogen atoms combine with oxygen to make water vapour, H_2O - the carbon atoms combine with oxygen to make carbon dioxide, CO_2 - the maximum amount of energy is released. The equations for the complete combustion of methane. $\text{methane} + \text{oxygen} \rightarrow \text{water} + \text{carbon dioxide}$ $\text{CH}_4 + 2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{CO}_2$ Incomplete combustion - Happens when there is not enough oxygen. - Water vapour and carbon dioxide are still produced; - Two other products are also produced: carbon monoxide, CO; colourless toxic gas. - particles of carbon (soot/smoke); causes breathing problems. - the maximum amount of energy is NOT released.
Identification tests				
Lime water – colour change from colourless to cloudy when carbon dioxide Glowing splint – will relight when placed in oxygen. Blue cobalt chloride paper– colour change from blue to pink with water Cobalt chloride paper – colour change from blue to pink with water				

Science – Floating and sinking

Atmospheric pressure

The atmosphere exerts a downward pressure on you, and everything around you.

Atmospheric pressure changes with altitude. The higher you go:

- the lower the weight of the air above you;
- the lower the atmospheric pressure.

Objects float in the air when they are less dense than the surrounding air or when they displace a weight of air greater than their own weight, this is known as buoyancy.

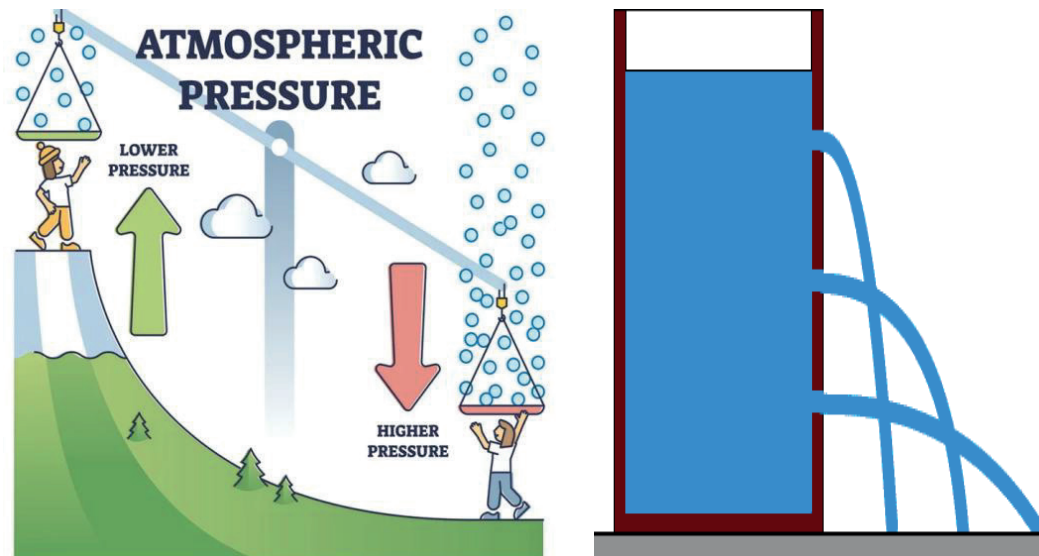
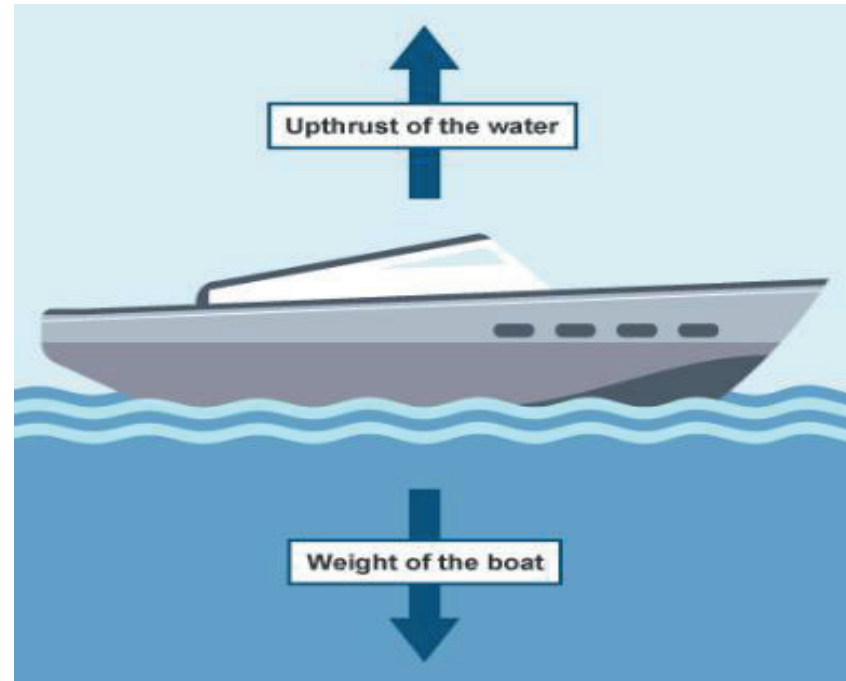
Pressure in liquids

Just like the atmosphere, liquids exert pressure on objects.

The pressure in liquids changes with depth. The deeper you go:

- the greater the weight of liquid above
- the greater the liquid pressure

Objects float in liquids when they are less dense than the liquid or when they displace a weight of liquid equal to their own weight, creating an upward force called buoyancy.



Floating and sinking

Liquid pressure is exerted on surfaces of objects in liquids;

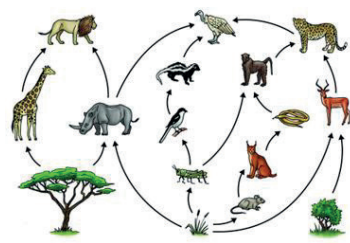
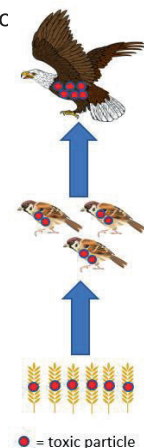
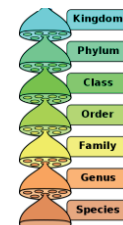
This causes **upthrust**;

When an object sinks, the pressure increases and so the upthrust increases;

It will continue to sink if weight is greater than maximum upthrust;

When an object floats, the upthrust is **equal and opposite** to the object's weight.

Science – Ecosystems

Food chains	Food Webs	Decay	Bioaccumulation									
A food chain shows the different species of an organism in an ecosystem, and what eats what. A food chain always starts with a producer. A food chain ends with a consumer. Here is an example of a simple food chain:  <table><tr><td>Consumer</td></tr><tr><td>Secondary consumer</td></tr><tr><td>carnivore</td></tr><tr><td> </td></tr><tr><td>Consumer</td></tr><tr><td>Primary consumer</td></tr><tr><td>herbivore</td></tr><tr><td> </td></tr><tr><td>Producer</td></tr></table>	Consumer	Secondary consumer	carnivore		Consumer	Primary consumer	herbivore		Producer	When all the food chains in an ecosystem are joined up together, they form a food web.  Food webs are just several food chains joined together. Some of the food chains in this food web are: Tree → giraffe → lion Tree → rhino → lion Grass → rhino → eagle Grass → grasshopper → small bird → racoon → eagle	When dead plant and animal materials are broken down by decomposers, it is called decay. Decay releases the nutrients locked up in the dead material, back into the ground, so that it can be used for new plant growth. This is important because there is only a finite amount of nutrients on our planet. Decay means that the nutrients can be constantly recycled. The ideal conditions for decay are: 1) Plenty of oxygen, so that decomposers can respire. 2) Warm temperatures so that decomposers are more active. 3) Some moisture as this allows important chemical reactions to take place.	Bioaccumulation is the build up of toxic material through a food chain, often with devastating effects for the top carnivore  ● = toxic particle
Consumer												
Secondary consumer												
carnivore												
Consumer												
Primary consumer												
herbivore												
Producer												
Classification												
Classification is the sorting out of organisms into groups based on their similarities. Today's classification system is designed by Carl Linnaeus. Organisms were divided into kingdoms. Each kingdom was then subdivided into smaller groups (phylum) and these into even smaller groups (class), so on and so forth. Species are the smallest group.  Many organisms with few similar characteristics  One type of organism, with many similar characteristics												
Factors that can affect the population of individual organisms												
• Temperature (land/water) • Seasonal changes • Rainfall • Increased predation/hunting • Deforestation • pH of soil/water • Use of chemicals in farming • Disease • Pollution • New predators  Might lead to: • a shortage of food • loss of habitat • lack of partners to reproduce with • Less water												
Estimating populations												
Method: Count the numbers of a species within a small section of the area being sampled by: 1. Using a quadrat to make multiple random small samples. 2. A mean is then calculated and multiplied up to the whole area.												

Science – Ecosystems

Adaptations

Adaptations are features that help organisms compete better and survive in their environment.

For example:

Polar bear



White coat → camouflage
Big feet → spread weight to reduce pressure on snow/ice
Thick layer of fat → insulation & food store
Greasy fur → water runs off easily after swimming

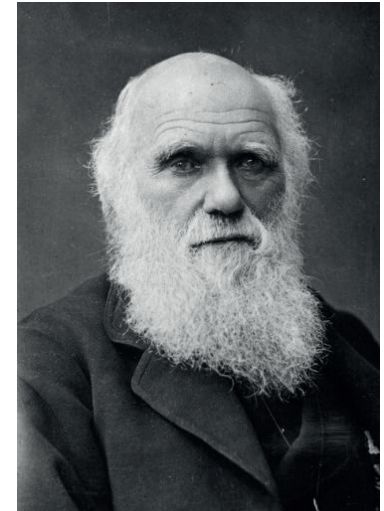
Camel



Hump that stores fat → reduce heat loss over rest of the body
Sandy colour → camouflage
Big feet → spread weight to reduce pressure on sand

Natural selection

- Natural selection is a theory proposed by the scientist **Charles Darwin**.
- Individuals in a species show a wide range of **genetic variation** due to mutations.
- Individuals who are best adapted to the environment are **more likely to survive and reproduce**.
- The **genes** that allow these individuals to be successful are **inherited** by their offspring.
- Over many generations these small differences add up to the new evolution of species.

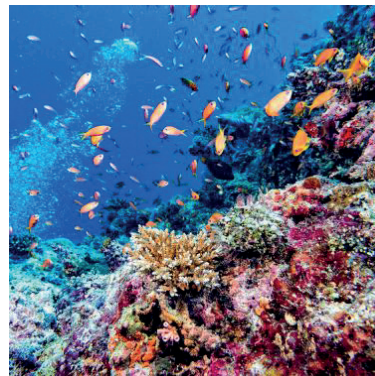


Biodiversity

It is important to conserve the variety of living organisms on Earth because:

- moral and cultural reasons;
- In the future, plant species might be identified for medicines;
- keeps damage to food chains and food webs to a minimum;
- protects our future food supply.

Seeds are carefully stored in **seed banks** so that new plants may be grown in the future. Seed banks are an example of a **gene bank**. Gene banks are used to preserve genetic animals and plant material for the future.



Extinction

Changes in the environment may leave individuals less well adapted to compete for resources (eg food, water and mates).

If an entire species is unable to compete successfully and reproduce it will lead to extinction.

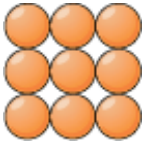
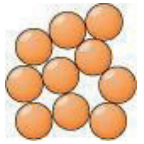
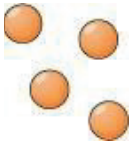
Here are some of the changes in the environment that can cause a species to become extinct:

- a new disease;
- a new predator;
- a change in the physical environment (eg climate change);
- competition (from another species that is better adapted, including competition from humans).

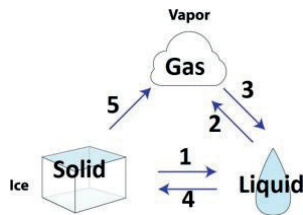


Science – P3 – Particle Model

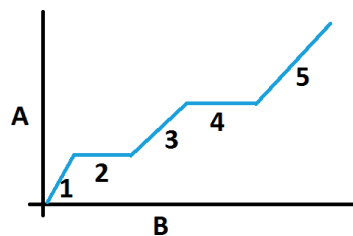
Particle model

			
Organisation (Pattern)	Regular pattern	No pattern, random arrangement	No pattern, random arrangement
Spacing (Touching?)	All touching, close together	Close together but may still be touching	Wide spaces between, far apart
Motion (Movement of molecules)	Vibrate in a fixed position	Move and slide around each other	Move quickly in all directions

1. Melt
2. Boil
3. Condense
4. Freeze
5. Sublimate



1. Solid
2. Melting
3. Liquid
4. Boiling
5. Gas



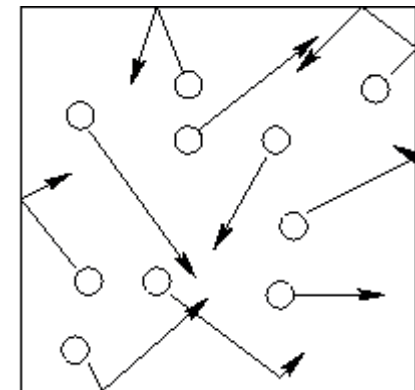
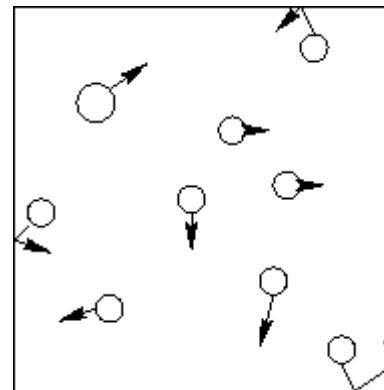
A. Temp.
B. Heat absorbed

Key Terms

Term	Definition
Internal energy	The total kinetic energy and potential energy of all the particles (atoms and molecules) that make up a system
Changes of state	Physical changes, the material recovers its original properties if the change is reversed
specific heat capacity	The amount of energy required to raise the temperature of one kilogram of the substance by one degree Celsius
specific latent heat	The amount of energy required to change the state of one kilogram of the substance with no change in temperature
Specific latent heat of fusion	Change of state between solid and liquid
Specific latent heat of vaporisation	Change of state between liquid and gas / vapour
Pressure	Pressure is caused by the force exerted by particles in a gas when they collide with the walls of a container
Density	The mass per unit volume
Mass	The amount of matter

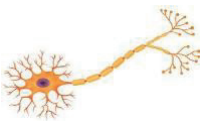
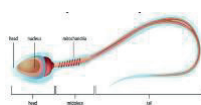
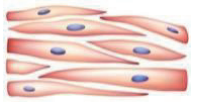
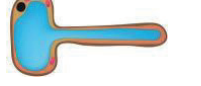
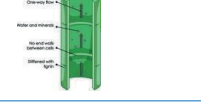
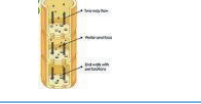
Pressure in gases

Particles in a gas are constantly moving – so they store **kinetic energy**. They collide with the walls of their container, and exert a force when they do. The total force exerted on a certain area of the wall is the **gas pressure**.

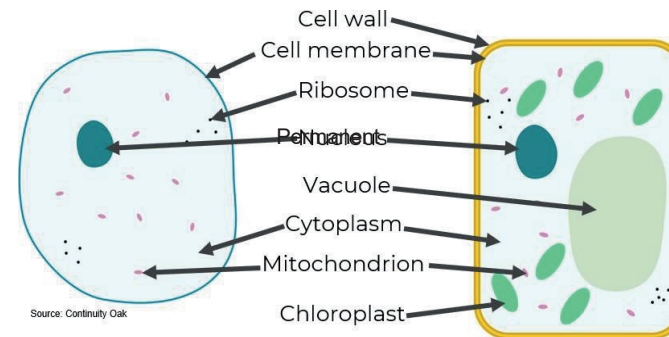


Science – B1 – Cell Biology

Key words	
DNA	The molecule that holds the genetic information in a cell
Plasmid	A small loop of DNA, only found in prokaryotic cells (bacteria)
Eukaryotic cell	DNA contained within nucleus (plant and animal)
Prokaryotic cell	DNA not contained in nucleus (bacteria)
Cell differentiation	Cells become specialised by developing different sub-cellular structures to help them function
Chromosomes	Found in nucleus of a cell, made of DNA. Usually found in pairs. Humans have 46 chromosomes (23 pairs) in a body cell

Specialised cells		
Specialised cell	Image	How the structure relates to the function
Nerve cell		Elongated axon to transmit electrical impulses over a distance; large dendrites; fatty sheath covering the axon for insulation, to speed up transmission
Sperm cell		Has a long tail to allow it to swim; contains many mitochondria to release lots of energy; streamlined head containing enzymes
Muscle cell		Lots of mitochondria to release energy for muscle contraction; elastic fibres to allow the muscle to contract and relax
Root hair cell		Has a large surface area and thin cell wall for water and mineral absorption
Xylem cell		Strengthened walls by lignin for the transport of water and dissolved ions
Phloem cell		Sieve plates to allow the transport of dissolved sugars

Sub-cellular structures	Function
Nucleus	Controls the cell's activities and contains genetic material
Cell membrane	Controls the movement of substances into and out of the cell
Cytoplasm	Jelly-like substance where chemical reactions take place
Mitochondria	The site of aerobic respiration
Ribosome	Site of protein synthesis (proteins are made)
Cell wall	Strengthens the cell, made of cellulose
Chloroplast	Site of photosynthesis (contains chlorophyll, a green pigment which absorbs light)
Permanent Vacuole	Filled with cell sap to help keep the cell turgid (stiff) to provide support



Mitosis – cell division	
Stage	Description
1	Cell grows, number of sub-cellular structures (e.g. ribosomes and mitochondria) increases and DNA replicates to form two copies of each chromosome
2	Nucleus divides and one set of chromosomes is pulled to each end of the cell
3	Cytoplasm and cell membranes divide to form two identical cells

