



Knowledge Organisers

Year 8

Spring 2024

Knowledge Organisers

Some subjects like Design Technology organise the curriculum on a carousel, as such all the organisers for that subject are in the Spring Term booklet.

Contents

An introduction to Knowledge Organisers

Art

Computing

Drama

Design Technology (DT)

English

Geography

History

Mathematics

MFL

Music

PSHE

Religion, Ethics and Philosophy (REP)

Science

*Some subjects have Knowledge Organisers which last two terms or a year, therefore it will be the same as the Autumn Term.

An Introduction to Knowledge Organisers

What is a Knowledge Organiser?

A knowledge organiser is a document, usually one side of A4, occasionally two, that contains key facts and information that children need to have a basic knowledge and understanding of a topic, or in some cases a series of topics.

Students are expected to bring their Knowledge Organiser Booklet to school every day. Students will be issued with a new booklet to bring each term. However, it is important they keep the old booklets to help with revision for end of year exams.

What are the benefits of knowledge organisers?

The main benefit of knowledge organisers is that they give students and parents the 'bigger picture' of a topic or subject area. Some topics can be complicated, so having the essential knowledge, clear diagrams, explanations and key terms on one document can be really helpful.

Research shows that our brains remember things more efficiently when we know the 'bigger picture' and can see the way that nuggets of knowledge within that subject area link together. Making links, essentially, helps information move into our long-term memory.

How can the students use them?

As mentioned earlier, students are expected to bring their Knowledge Organiser Booklet to school everyday. In lessons they can be used in a number of ways, for example, to look up the meaning of key words, spell words correctly and do some additional work if they have finished classwork.

At home knowledge organisers can be used to support homework, independent work and revise for tests and exams. Two quick and easy ways to do this are:

1. Look, cover write, check – look at part of the knowledge organiser, cover it, write as much as you can remember and then check it
2. Word up – Pick out any words you don't understand. Use a dictionary or thesaurus to find the meaning. If they don't help ask your teacher.

The more often you do this the better. YouTube has some clips on them; search 'Mr Garner look, cover, write, and check' and 'Mr Garner word up'

How can parents use them?

- Read through the organiser with your son/daughter – if you don't understand the content then ask them to explain it to you – 'teaching' you helps them to reinforce their learning.
- Test them regularly on the spellings of key words until they are perfect. Get them to make a glossary (list) of key words with definitions or a list of formulae.
- Read sections out to them, missing out key words or phrases that they have to fill in. Miss out more and more until they are word perfect.

How the booklet is organised

The knowledge organisers are in alphabetical order by subject.

YEAR 8 Knowledge Organiser

Mexican Culture Day of the Dead

KEYWORDS

Culture	Tone/value
Pattern	Gradient
Symbolism	Colour
Ceramic	3D Design
Calaveras	Symmetry

Throughout this project you will learn about the Mexican festival 'Day of the Dead'.

You will learn:

- About the festival and Mexican Culture
- About the significance of symbols
- How to create your own Calavera design

For your final piece you will learn how to produce a clay slab Calavera



SKILLS

- To develop work from the design stage into clay
- To learn how to develop ceramic skills (score and slip, incise, apply and add clay, carve, impressing)
- Manipulate different materials
- Observation in drawing
- Painting techniques
- Colour mixing
- Developing imagination to create meaningful artworks
- Developing intentions and ideas
- Presentation skills

Clay Vocabulary

HOW TO ATTACH CLAY

1. **SCORE**
(Scratch clay piece & clay surface with tool)
2. **SLIP**
BRUSH ON WITH FINGER
(use a little bit on each)
slip = clay glue piece
3. **COMPRESS!**
Stick clay piece onto the surface you want to attach to & press 'til it sticks

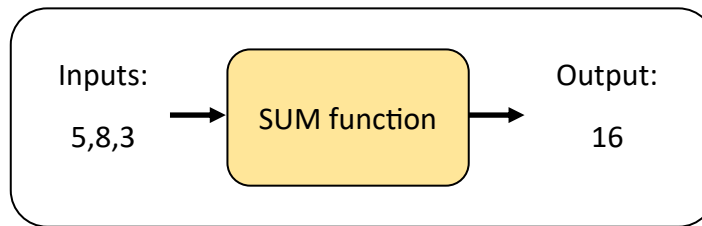
CLAY VOCABULARY



Computing: Spreadsheet software for data analysis

A range of **functions** can be used to analyse data.

A function can be thought of as a machine that takes in some data and converts it into something else.



	A	B
1	Name	Grade
2	Student 1	6
3	Student 2	8
4	Student 3	8
5	Student 4	3
6	Student 5	8
7	Student 6	6
8	Student 7	5
9	Student 8	8
10	Student 9	9
11	Student 10	9
12	Student 11	7
13	Student 12	7
14	Student 13	8
15	Student 14	7

Here is a list of students and their grades. There are 205 students in the list. The last name is in cell A206. Their grade is in B206.

Functions with a single input

These functions take either a single cell, or range of cells as the input:

- `=AVERAGE(B2: B206)` would find the *mean* grade.
- `=MODE(B2: B206)` would find the most common grade.
- `=MIN(B2: B206)` and `=MAX(B2: B206)` find the lowest and highest grades.
- `=COUNT(B2: B206)` tells you how many cells have numbers in; useful for finding missing data.

Functions with more than one input

These functions have their inputs separated by a comma:

- `=COUNTIF(B2: B206, ">6")` would find the number of grades that met specified criteria. In this case, all grades higher than 6.
- `=IF(B2>3, "Target met", "Target not met")` would check whether a the value in C2 is greater than 3. This is a Boolean expression. If the result is *true*, "Target met" is output. If the value is *false*, "Target not met" is output.
- `=VLOOKUP(B2, D2: E5, 2)` would look in range D2:E5 for student 1's grade and return a value from the second column. B2 is between 4 and 7, so Pass is returned.

	A	B	C	D	E
1	Name	Grade		Grade	Description
2	Student 1	6		0	Fail
3	Student 2	8		4	Pass
4	Student 3	8		7	Merit
5	Student 4	3		9	Distinction



Blood Brothers

- Willy Russel wrote the play Blood Brothers in the 1970's.
- The main characters are Edward and Mickey; two twins separated by birth.
- Mrs Johnstone and Mrs Lyons demonstrate the class divides in Liverpool at the time. They are both the parents of the boys.
- Linda is both brothers' best friend and Mickey's future wife.
- Prologue - Piece of text before the action explaining what is about to happen.
- Musical theatre- Theatre created with song.


- Greek theatre - Chorus, amphitheatre, masks and movement.
- Medieval - trades, biblical stories and guild.
- Commedia - Exaggeration, masks, body language, characterisation,
- Kabuki - Dance, design, set, costume and make-up.
- Victorian theatre - Stock characters, Melodrama, Shakespeare, globe theatre.
- Naturalism - Stanislavsky, emotional memory, relaxation, character building.
- Brecht - Epic theatre, non- naturalism, placards, alienation.

- Verbatim Theatre
- Using theatre to explore a real-life story
- Exploring the background of characters in order to build on and adapt the characterisation that we use.
- Exploring capital punishment and the Pros/Cons
- Cross-cutting
- Teacher in Role
- Conscious Alley
- Non-naturalism

A midsummers night dream

Key Words

Employability

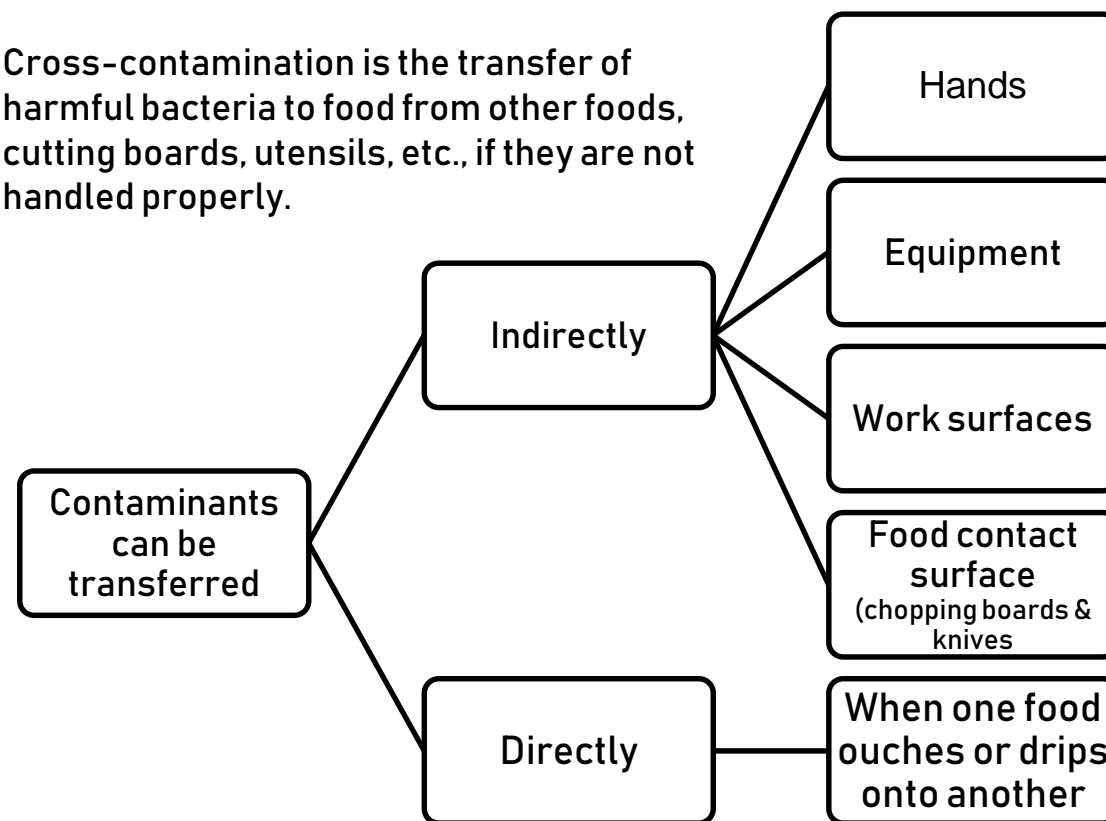
<ul style="list-style-type: none"> • A Mid Summers Night Dream is a play written by William Shakespeare. • Key characters of Egeus, the fairies and Helena and Hermia. • Stage combat- BEDPAN • Actioning- Actioning is when an actor uses a verb to describe how the character would deliver the line. Each line could have a different action word • Proxemics- Using space/distance to show the relationship between characters on stage. • Animal instincts- a naturalistic techniques, using animal mannerism to help develop a character. 	<ul style="list-style-type: none"> • Pitch • Pace • Pause • Volume • Tone • Diction • Choral Speaking • Role on the wall • Gait • Body Language • Facial Expression • Posture • Cross - cutting • Marking the moment • Direct Address • Interpretation of text • Genre • Style <p><u>Important Practitioner:</u></p> <p>➤ Bertolt Brecht</p> 	<ul style="list-style-type: none"> • Team work • Collaboration • Listening Skills • Creative Thinking • Leadership • Focus • Concentration • Positivity • Confidence • Self-Belief • Problem solving • Reflection • Refining work • Independence
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Year 8 Cooking & Nutrition Knowledge Organiser

Food Hygiene

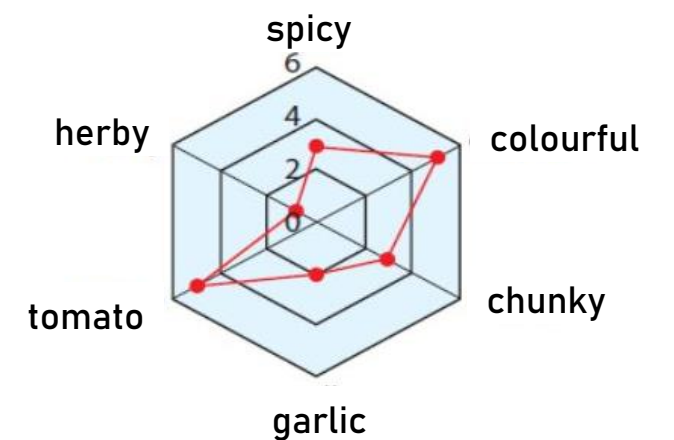


Cross-contamination is the transfer of harmful bacteria to food from other foods, cutting boards, utensils, etc., if they are not handled properly.



Sensory Testing/Star Profile Charts

- These kind of tests can be used to find out what people particularly like about a food product to help build up a profile of it according to a range of sensory qualities such as saltiness, smoothness, crispiness, flavour.
- Star profile – This type of test gets testers to describe the appearance, taste and texture of a food product on a star chart.



Hygiene & Safety Rules

Tie up long hair
Wear an apron
Tuck tie in
Wash hands
No running
Use oven gloves when necessary
Clean practical equipment thoroughly

Example Time Plan

Time	Process	Hygiene & Safety
8:50 – 9:00	Collect all equipment and ingredients. Wash hands.	Is fridge 0°C – 4°C?
9:00 – 9:15	Dice onion, peppers and mushrooms.	Use a green chopping board. Use bridge and claw techniques.
9:15 – 9:30	Thread vegetables onto a skewer. Make dressing.	Ensure skewer has been soaked in cold water.

Strategies for Choosing Recipes

1. Pick recipes based on common ingredients that are easy to get.
2. Cook things you really want to eat.
3. Check if you have the correct equipment required for making.
4. Do you have the skills to make the dish?
5. Do you have the time to make the dish?

Bread Production Flow Chart



Flour and Other Ingredients

↓
Weighing

↓
Mixing → Resting

↓
Kneading ←

↓
Dividing/Moulding

↓
Proofing

↓
Baking → Cooling → Slicing

↓
Packaging

Key vocabulary










Design Brief	An written outline which explains the aims and objectives and milestones of a design project.
Task Analysis	Breaking a design brief down to understand the requirements of the task.
Target Audience	The person or people most likely to be interested in your design or product.
Mediterranean Cuisine	Food from the countries that surround the Mediterranean Sea.

Year 8 Product Design Knowledge Organiser

Picture Frame Clock Design

Key Skills

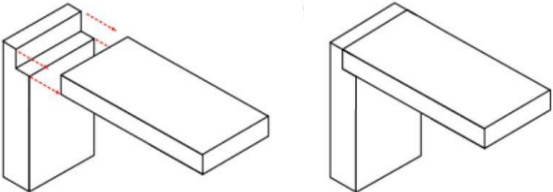
- Responding to a Design Brief & identifying an audience
- Developing CAD skills using 2D Design tools to create a clock face design appropriate for a target audience
- Applying Health & Safety procedures and PPE in the workshop environment
- Identify specific workshop tools and equipment
- Developing practical skills to create lap & rebate joints to join materials
- Knowledge of specific timbers & their origins
- Inserting a clock mechanism
- Prototype modelling including finishing & presentation skills
- Evaluating the manufacturing process

Tools for working with Timber	
 Try square	 Bench vice
 Steel rule	 Marking gauge
 Tenon saw	 File
 Belt & Disc Sanders	 Coping Saw
 Bench hook	 Pillar drill



Joining materials – construction techniques

Lap & Rebate joints

A lap or rebate joint is where two pieces of material overlap. This joint can be used to join wood, plastic, or metal.



Key vocabulary

Function	What a product does, how it works and what it will be used for?
Target Audience	The person or people most likely to be interested in your design or product.
Wood grain	Wood grain is the pattern made by the wood fibres in trees when it grows.
Materials	What something is made from.
Clock mechanism	This is the engine of a watch that makes the clock and its functions work.
Finishing	The process of applying a finish to preserve or protect a material & improve aesthetics.
Modelling	To present ideas in 2D & 3D to the user (target audience) or client.
Prototype	A prototype is a model that is built to test to see if it is successful or whether it needs further modification or improvements.
PPE	Personal protective equipment are items
Timber is a natural material with imperfections, knots and grain – always sand with the grain	
Softwood 	From coniferous trees that are evergreen, which are faster to grow and are less expensive than hardwoods. Softwoods are a sustainable material as the resource can be regrown and not depleted. Softwoods are strong and easy to work with.
Manufactured boards are timber produced by gluing wood layers or wood fibres together.	
Medium Density Fibreboard 	Medium Density Fibreboard or also known as MDF is made from wood fibres which are glued together. MDF has a smooth even surface which makes it easier to work than natural timber.

Year 8 Product Design Knowledge Organiser

Pizza Cutter

Key Skills

- Responding to a Design Brief
- Identifying a target audience and product function
- Applying Health & Safety procedures and PPE in the workshop environment
- Developing practical skills to shape and manipulate acrylic and aluminium
- Become confident in joining methods suitable for plastics and metals
- Develop an ergonomic design for users
- Identifying specific workshop tools and equipment
- Manufacturing a prototype model
- Finishing materials
- Presentation skills
- Evaluating the manufacturing process

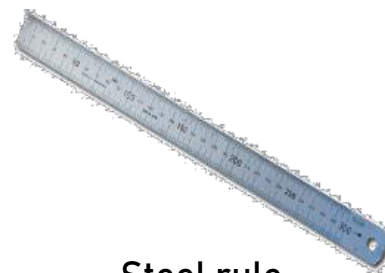
Tools for working with metal and plastic



Ball Pein Hammer



Bench vice



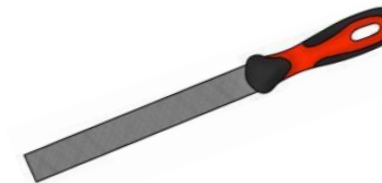
Steel rule



Scriber



Center Punch



File



Metalworking Lathe



Abrasive Paper



Buffing Wheel

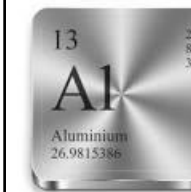


Pillar drill

Key vocabulary

Ergonomics	Ergonomics aims to make sure that tasks, equipment, information and the environment fit each worker.
Turning	Turning is the process of using lathes to remove material from the outer diameter of a rotating workpiece.
Diameter	In geometry, a diameter of a circle is any straight line segment that passes through the center of the circle and whose endpoints lie on the circle.
Materials	What something is made from.
Tolerance	Engineering tolerance is the permissible limit or limits of variation in: a physical dimension; a measured value or physical property of a material, manufactured object, system, or service; other measured values
Finishing	The process of applying a finish to preserve or protect a material & improve aesthetics.
Prototype	A prototype is a model that is built to test to see if it is successful or whether it needs further modification or improvements.
PPE	Personal protective equipment are items such as goggles and aprons.

Aluminium



Aluminium is the most abundant metal in the Earth's crust (8.1%) but is rarely found un-combined in nature. It is usually found in minerals such as bauxite and cryolite. These minerals are aluminium silicates.

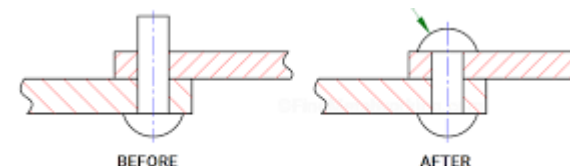
Acrylic



Acrylic is a transparent plastic material with outstanding strength, stiffness, and optical clarity. Acrylic sheet is easy to fabricate, bonds well with adhesives and solvents, and is easy to thermoform. It has superior weathering properties compared to many other transparent plastics.

Joining materials – construction techniques

A rivet is a permanent mechanical fastener. Before being installed, a rivet consists of a smooth cylindrical shaft with a head on one end. The end opposite to the head is called the tail.



Year 8 Textiles Knowledge Organiser

Sustainable Children's Toy

Key Skills

- Responding to a Design Brief
- Analysing existing products
- Identifying a target audience
- Designing & annotating to include a range of a range of decorative and construction techniques
- Demonstrating ability to complete decorative techniques:
 - Tie dye
 - Appliqué
 - Hand embroidery stitches (running stitch, blanket stitch)
- Using a range of construction techniques:
 - 3D features
 - Inserting wadding
 - Applying buttons & googly eyes
 - Sewing seams on the sewing machine
- Understanding the properties of materials:
 - Natural fibres & organic fabrics



Product features	
Consideration of a specified target market	Appliqué or reverse appliqué
Engaging & stimulating	Creative & individual
Recycled materials & components as decoration	Features are in proportion to the body shape
Organic Cotton fabric	Accurate machine stitches
3D features	Seam allowance
Hand embroidery	Sustainable

Health & safety
Follow teacher instructions
Move slowly around the room do not run
Tie long hair back
Hold scissors or shears correctly when walking around the room.
Only one person operating a sewing machine at one time
Never use a sewing machine unless supervised by a teacher/ technician
Turn off the sewing machine when not in use.
Report any injuries or breakages to the teacher immediately

Key vocabulary	
Design Context	The circumstances, problem or setting in which a product will be used.
Design Brief	An written outline which explains the aims and objectives of a project.
Target Audience	The person or people most likely to be interested in your design or product.
Function	What a product does, how it works and what it will be used for? Is it sensory or educational or both?
Sustainable	Conserving an ecological balance by avoiding the depletion of natural resources.
Organic Cotton	Cotton that is produced without the use of chemical fertilizers, pesticides, or other artificial chemicals that cam pollute the environment and be harmful to the producer.
Fairtrade	When producers in developing countries are paid a fair price for their work.
Materials	What the product is made from?
Components	The parts/materials/threads needed to make a product.
Interactive	Components or features that can be attached/detached or have different textures
3D features	Use of wadding to make a feature stand up or raised off the backing fabric
Aesthetics	How a product or design looks .
Embroidery	Even stitch widths and lengths completed by hand sewn stitches
Reverse appliqué	A decorative technique whereby a fabric is sewn on the reverse of the top fabric and is visible from the front
Appliqué	A decorative technique whereby one material is sewn on top of another by machine
Tie dye	Patterns in cloth created by tying parts so its resists the dye.

Key Knowledge	Definition
Soliloquy	A speech delivered by one person on stage showing their inner thoughts spoken out loud
Denouement	The final part of a play, film, or narrative in which the strands of the plot are drawn together and matters are explained or resolved
Masculinity	Qualities or attributes regarded as characteristic of men or boys
Tragedy	A play dealing with tragic events and having an unhappy ending, especially one concerning the downfall of the main character
Stage directions	an instruction in the text of a play indicating the movement, position, or tone of an actor, or the sound effects and lighting
Patriarchy	A system of society or government in which men hold the power and women are largely excluded from it
Climax	The most intense, exciting, or important point of something
Femininity	Qualities or attributes regarded as characteristic of women or girls
Loyalty	A strong feeling of support
Fate	Be destined to happen, turn out, or act in a particular way
Honour	High respect; great esteem
Duty	A responsibility
Prologue	An opening to a story that establishes the context and gives background details
Exposition	The early part of a play in which the audience learns where and when the play takes place, who the main characters are, and what the central conflict of the play will be
Hamartia	A fatal flaw leading to the downfall of a tragic hero or heroine

Romeo and Juliet

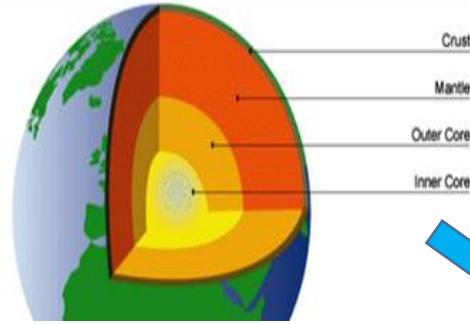


William Shakespeare was a renowned English poet, playwright, and actor born in 1564.

Romeo and Juliet is a tragedy written by William Shakespeare early in his career about the romance between two Italian youths from feuding families, the **Capulets** and **Montagues**.

Layers Of The Earth

Year 8 Geography Unit 2: Tectonic Landscapes



Lesson 1-2 To identify Volcanoes and Earthquakes as hazards and to understand the structure of the Earth.

Vols and Equakes can cause different and similar general effects – For example volcanoes can create fires but so can earthquakes. However so effects are different. For example Earthquakes can create buildings to collapse but Vols can cover towns in super hot gases and ash.



The Earth has 4 basic layers to it. CRUST, MANTLE, OUTER CORE AND INNER CORE. All have different thicknesses, temperatures and made from different materials. It is hottest at the core which is a solid ball of Iron and Nickel while the only fully liquid layer is the Outer Core. The mantle is the thickest layer and the crust is the coolest and thinnest.

KEYWORDS



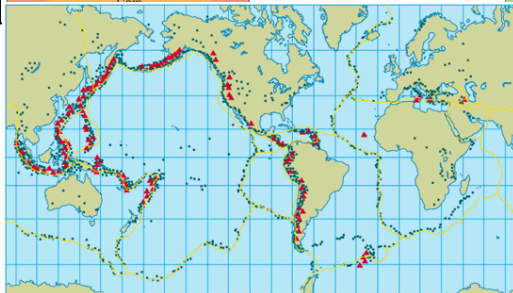
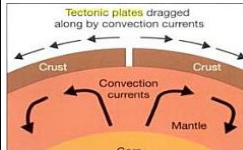
	Definition
Primary Effects	The effects of a disaster that happen immediately. For example People are trapped under rubble in an Earthquake.
Secondary Effect	These are effects that happen a while after the a disaster. For example In an Earthquake fires can start and burn houses down.
Plate Boundary	This is where there is a crack in the earth's crust, it is a dividing line. The plates can move.
Responses	Prediction, planning and protection can be put in place so we know how to react/respond to a disaster.

Lesson 3-4: The Theory of plate tectonics and the location patterns of Vols and Equakes.



Did the continents ever fit together? Wegner said they did and they have drifted apart....

Evidence has found that convection cells move the plates in different directions....

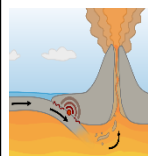


Lesson 4: Locations and patterns

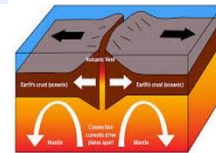
Vols and Equakes are found in LINEAR patterns often near to each other. They often occur on the edges of continents where plate boundaries are found

Lesson 6

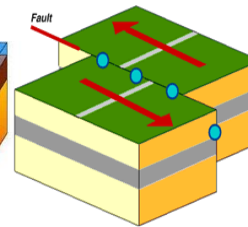
Plate boundaries: DESTRUCTIVE, CONSTRUCTIVE, CONSERVATIVE AND COLLISION



Destructive Oceanic vs Continental

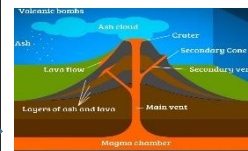


oceanic away from oceanic



continental sliding past continental

Lesson 10-Composite and Shield differences, and the key parts to volcano



Crater, Cone
Vent, Ash
Magma Chamber
Lava,

Lesson 11- 14

LIC Example: Volcanic eruption in the Congo – Nyiragongo

HIC Example: Mt Etna in Italy.

Lessons 7-9

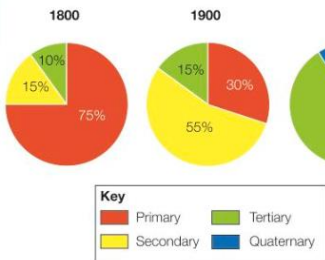
Two examples of Earthquakes – LIC Haiti 2010 in the Caribbean and a HIC example of Japan in 2011. Both had severe effects however, Haiti was less prepared and the damage was more serious due to it being very poor. Japan coped better even though it was a big event. It was prepared and buildings were stronger.

Year 8 Geography

Unit 3: Economic Activities



KEYWORDS



A The UK's changing employment structure

Lesson 1-2: Economic activities are split into 4 categories, primary, secondary, tertiary, quaternary.

Lesson 17:

- In the past, the UK's economy was based on farming. Two types- arable and pastoral farming
- During industrialisation, the UK moved to the secondary sector
- De-industrialisation (factories and industry moving to elsewhere)
- The UK then moved into tertiary and quaternary sectors

Lesson 2-4: When choosing a site for a factory to locate, the following factors need to be considered:

Raw materials- These are the things that are made into something

Labour- These are the workers who work at the factory

Power- This is the energy used to make the factory work

Transport- This is how the natural resources and finished products are moved

Market- This is the place where the finished products are sold

Site- This is where the factory is located

Lessons 10-15: Shopping patterns, high street change and Altrincham fieldwork.



Out of town shopping centres (like the TC) led to a decline in UK high streets, especially Altrincham, resulting in many empty shops. Altrincham has changed its high street to attract more people back to it.

Methodologies carried out during Alt. fieldwork. These were presented as a bi-polar graph and bar chart.

	HOW?	WHY?	POSITIVES?	NEGATIVES?
Land Use Mapping				
Environmental Quality				
Pedestrian Counts				

Lesson 5-6:
'Made in China'
China now produces goods for the world. This has given China much more money, but has harmed the environment



Lesson 16: High tech industries:

These are advanced industries, that develop new things. They are located near business/science parks and Universities so they can recruit a highly skilled workforce.

The M4 corridor is the most famous UK EG



Lesson 18: Modern industries, like quarries, can be made more sustainable. This means that the damage they do to the environment can be reduced. One way to do this is by turning old quarries into nature reserves.



	Definition
Primary	collecting or producing raw materials e.g coal miner, farmer
Secondary	making something using the processed raw materials. Manufacturing products. e.g a joiner
Tertiary	Selling services or skills. e.g banking or retail jobs
Quaternary	Providing information services. E.g. research and development jobs, government



Wellington History Year 8 HT 3 Knowledge Organiser

How did the Western World impact China's Qing Dynasty?

Disease, massacres and the taking of land? How did the British Empire change the World?



- ✓ What and why? You will learn about why the British began to conquer colonies and our legacy on the modern world.
- Stop, think and link: The Roman Empire.
- ❖ Change extended writing: What kinds of change did the Empire create?

❖ Want to explore further?

Book: China's Last Empire: The Great Qing (by William T Rowe)

Book: The rise and fall of the British Empire by Aaron Wilkes

Book: We need to talk about the British Empire by Afua Hirsch

Book: Barmy British Empire by Terry Deary

Websites:

<https://www.historyhit.com/who-was-empress-dowager-cixi/>

<https://www.natgeokids.com/uk/discover/history/general-history/british-empire-facts/>

<https://www.bbc.co.uk/bitesize/guides/zf7fr82/revision/1>

<https://www.bbc.co.uk/bitesize/guides/zf7fr82/revision/1>

Key Questions

- How was China's Qing Dynasty changed by contact with the western world?
- Where and when did the British Empire grow?
- What was life like in British colonies?
- How did the British keep control of their Empire in the 18 and 19th Centuries?
- How should we remember the Empire?

Keywords

Empire: When one country rules land outside of it's own borders

Dynasty: A series of rulers who are all from the same family.

Manchu: The people who originally lived in Manchuria, in northeast China.

Ethnicity: The cultural identity of a group, often based on shared ancestry, language, and culture

Rebellion: When a group with less power rises up against a person or group in power.

Colony: Lands belonging to an Empire

Trade: The exchange of money and goods

Nationalism: Thinking your country is better than all others

Indigenous: People who originally live in a land

Independence: Being free to run your own affairs

Missionary: Someone who wishes to convert others to their religion

Imperial: An adjective for anything to do with an Empire

Legacy: What you leave behind for future generations

Multi-Cultural: A society made up of different peoples

Atrocity: A terrible crime

Key events and Key People

1600 East India Company granted a royal charter to trade with the East.

1606 Virginia Company granted a royal charter to set up first British colony in America, Virginia.

1627 Barbados Company granted a royal charter to set up colony in Barbados

1636 The Qing Dynasty begins

1756-1763 The Seven Years' War between France and England over colonies.

1757 The Battle of Plassey ends with increased British control of India

1759 Britain wins the Battle of Quebec and secures control of Canada

1770 Captain Cook claims Australia for Britain

1776: The United States of America declare independence from Britain and win independence in 1783 after war.


1788 The first fleet of 11 convict ships reaches Australia

1838-1842: The First Opium War in China

1856-1858 The Second Opium War

1911 Republican Revolution ends the Qing Dynasty





Wellington History: Year 8 HT 4 Knowledge Organiser – Revolution & Enslavement

What did the French Revolution achieve? What was the impact of the slave trade?

How significant was the Haitian Revolution? How did the Industrial Revolution change people's lives? (4)



<p>✓ What and why? You will learn about how the French Monarchy was overthrown by unhappy citizens and the change created by this event. You will also consider the impact that this event created around the world.</p> <p>✓ You will learn how the transatlantic slave trade began, how Britain came to dominate it, what it was like to be enslaved and resistance to enslavement</p> <p>○ Stop, think and link: Why was the Monarchy restored after Cromwell's death? How did English Monarchs avoid revolution in the Middle Ages? What stopped the Peasants' Revolt? Why were the British so keen to build an empire? How did the British Empire change the world? How significant was Mansa Musa?</p> <p>Want to explore further? Book: In the Reign of Terror: A Story of the French Revolution by G.A. Henty Book: Black and British: A short, essential history by David Olusoga YouTube: https://www.youtube.com/watch?v=PBn7iWzrKoI YouTube: https://www.youtube.com/watch?v=zBTKGf1nFIA Websites: http://www.understandingslavery.com/ https://www.liverpoolmuseums.org.uk/history-of-slavery/europe</p>	<p>Key Questions</p> <ul style="list-style-type: none"> Why were the French so angry by the end of the 18th Century? Why did the French revolution last for a decade? Was Emperor Napoleon that different to the French Kings that ruled before him? Were the people that fought for revolution really happy with its outcomes? Did the French Revolution improve the lives of French people? What was Africa like before the slave trade? How & why did the slave trade begin? How did people in Britain benefit from slavery? How were enslaved people caught and transported? What were conditions for enslaved people like? Should we use the term 'The Middle Passage'? How did the captured resist slavery? What was an auction like? What was work on a plantation like? What was the legacy of slavery? 		<p>Keywords</p>	
			Aristocracy	The highest class in certain societies, normally people of noble birth
			Revolution	Overthrowing a government or social order, in favour of a new system, often by force
			Monarchy	A country or state which has a royal family at its head
			Republic	A country or state with no monarchy
			Transatlantic	Crossing the Atlantic Ocean
			Merchant	Person/company who trades with foreign countries
<p>Key events and Key People</p> <p>1555: A group of Africans help the English break the monopoly that the Portuguese have over the African trade</p> <p>1562-9: John Hawkins becomes the first Englishman definitely known to have traded in Africans</p> <p>1672: The Royal African Company is formed in order to regulate the English slave trade</p> <p>1698: The trade is opened to private traders</p> <p>1760: Slave revolts in Jamaica last for several months</p> <p>1783: 133 Africans are thrown overboard alive from the slave ship Zong so that the owners can claim compensation</p> <p>1784: Cotton from America was first imported into Britain</p> <p>1791: A slave uprising triggers the Haitian Revolution</p> <p>1804: St Domingue declared the Republic of Haiti, the first independent black state outside of Africa.</p>			Enslaved	The action of taking someone prisoner
			Plantation	Estate where crops are grown e.g. sugar
			Auction	Public sale of goods/property
<p>Key events and Key People</p> <p>1789 June 17th - The Third Estate (commoners) declares the National Assembly.</p> <p>July 14th - The French Revolution begins with the Storming of the Bastille.</p> <p>August 26th - The National Assembly adopts the Declaration of the Rights of man and of the Citizen.</p> <p>1792 September 22nd – First French Republic founded.</p> <p>1793 January 21st - King Louis XVI is executed by guillotine.</p> <p>1799 November 9th – Napoleon establishes the French Consulate with Napoleon as leader of France. This brings an end to the French Revolution.</p> <p>Louis XVI – King of France and believer in absolute power.</p> <p>Maximilien Robespierre – Radical leader of the revolution.</p> <p>Napoleon – Prominent military leader, statesman and leader of the revolution.</p>				

Key Stage 3 Topic 9: Equations and Inequalities

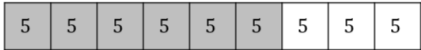
Topic/Skill	Definition/Tips	Example	Non-example
1. Solving linear equations	An inverse operation is the mathematical 'opposite' operation.	The inverse of addition is subtraction. The inverse of multiplication is division.	The inverse of adding 4 is not dividing by 4. The inverse of multiplying by 2 is not dividing by -2.
	When solving equations, we use the inverse operation. We solve them in the reverse order. We use fractional form for divisions which don't divide exactly.	$4x - 3 = 8$ $\quad +3 \quad +3$ $4x = 11$ $\quad \div 4 \quad \div 4$ $x = \frac{11}{4}$	$\frac{x + 5}{3} = 9$ $\quad -5 \quad -5$ <p>(Wrong order)</p> $\frac{x + 5}{3} = 9$ $\quad \div 3 \quad \div 3$ <p>(Not inverse)</p>
2. Solving linear equations involving expanding brackets	<p>This follows the exact same procedure as above.</p> <p>You can either divide first (to avoid multiplying out the brackets)</p> <p style="text-align: center;">or</p> <p>Expand the brackets first and then proceed as normal.</p> <p>Dividing first sometimes simplifies the problem, sometimes it makes it more challenging.</p>	$5(x + 4) = 23$ $5x + 20 = 23$ $\quad -20 \quad -20$ $5x = 3$ $\quad \div 5 \quad \div 5$ $x = \frac{3}{5}$ $7(x - 3) = 56$ $\quad \div 7 \quad \div 7$ $x - 3 = 8$ $\quad +3 \quad +3$ $x = 11$	$4(x + 2) = 14$ $\quad -2 \quad -2$ <p>(Need to either expand the brackets or divide by 4 first)</p>

<p>3. Solving linear equations with unknowns on both sides</p>	<p>This follows the same techniques as above, however first we must get all the unknowns on one side.</p> <p>It doesn't matter which side – look to add values where possible.</p>	<div data-bbox="846 268 1060 478"> $\begin{array}{rcl} 7x - 8 & = & 10 - 2x \\ +2x & & +2x \\ 9x - 8 & = & 10 \\ +8 & & +8 \\ 9x & = & 18 \\ \div 9 & & \div 9 \\ x & = & 2 \end{array}$ </div> <div data-bbox="846 527 1060 768"> $\begin{array}{rcl} 7x + 5 & = & 13x - 2 \\ -7x & & -7x \\ 5 & = & 6x - 2 \\ +2 & & +2 \\ 7 & = & 6x \\ \div 6 & & \div 6 \\ x & = & \frac{7}{6} \end{array}$ </div>	$ \begin{array}{rcl} 10x - 1 & = & x + 7 \\ \div x & & \div x \end{array} $ <p>(Dividing by x will not remove it from both sides)</p>
<p>4. Solving linear inequalities</p>	<p>This follows the same procedure as solving equations, except we write the inequality symbol instead of an equals sign.</p> <p>*Note: there is another difference but we will not cover this yet*</p>	<div data-bbox="846 819 1060 1081"> $\begin{array}{rcl} 8 - 3x & \geq & 4 + 2x \\ +3x & & +3x \\ 8 & \geq & 4 + 5x \\ -4 & & -4 \\ 4 & \geq & 5x \\ \div 5 & & \div 5 \\ \frac{4}{5} & \geq & x \end{array}$ </div>	<div data-bbox="1187 819 1401 1018"> $\begin{array}{rcl} 6x + 25 & < & 14x - 23 \\ -6x & & -6x \\ 25 & < & 8x - 23 \\ +23 & & +23 \\ 48 & < & 8x \\ \div 8 & & \div 8 \\ x & < & 6 \end{array}$ </div> <p>(Be careful with the final step).</p>

Key Stage 3 Topic 10: Fractions, Decimals and Percentages

Topic/Skill	Definition/Tips	Example	Non-example
1. Fractions to decimals	Some conversions should be known.	$\frac{1}{2} = 0.5, \frac{1}{4} = 0.25, \frac{3}{4} = 0.75$	
	Harder fractions can be written using place value. (Denominators of 10, 100, 1000 etc.)	$0.67 = \frac{67}{100}$ $0.009 = \frac{9}{1000}$	$0.28 \neq \frac{1}{28}$
	Some fractions can't easily be converted using place value. In that instance, division needs to be utilised.	$\begin{array}{r} 0.1428571 \\ 7 \overline{) 1.0000000} \end{array}$	
2. Fractions to decimals to percentages	<p><u>Percent</u> means 'out of one hundred'.</p> <p>To convert a fraction or decimal to a percentage, write it as a fraction with a denominator of 100.</p>	$0.8 = \frac{8}{10} = \frac{80}{100} = 80\%$ $\frac{5}{8} = \frac{625}{1000} = \frac{62.5}{100} = 62.5\%$	$0.4 \neq 4\%$
3. Percentages to decimals to fractions	To convert a percentage to a fraction or decimal, write the percentage as a fraction with a denominator of 100.	$30\% = \frac{30}{100} = \frac{3}{10}$ $2.4\% = \frac{2.4}{100} = \frac{24}{1000} = 0.024$	$50\% \neq \frac{1}{50}$
4. Using a calculator	Familiarity with your calculator is essential. The S \Leftrightarrow D button will convert between fractions and decimals for you.		

Key Stage 3 Topic 14: Ratio

Topic/Skill	Definition/Tips	Example	Non-example
1. Introduction	A <u>ratio</u> is a way of comparing the relative size of two or more quantities.	$20:40$ $1:5:4$ $\frac{1}{2}:5:61.3$	$\frac{3}{7}$
	Ratios are in their <u>simplest form</u> when the terms are coprime integers.	$4:5$ $3:6:8$ $25:16$	$1:\frac{1}{2}$ $36:12:48$
2. Unit Ratios	Ratios can be written so that one part is 1, typically $1:n$ or $n:1$. When written as a unit, ratios may not be written in their simplest form.	$1:4$ $\frac{5}{2}:1$ $1:20.2$	$16:4$ $\frac{1}{3}:\frac{1}{2}$
3. Sharing Ratios	Quantities can be shared into a ratio. We must look at the total number of parts and then share the quantity amongst them.	Share £45 in the ratio 6:3. $45 \div 9 = 5$ $6 \times 5 = 30 \quad 3 \times 5 = 15$  $£30:£15$	Share £210 in the ratio 7:3. $210 \div 7 = 30$ $210 \div 3 = 70$ $£30:£70$
4. Proportional Reasoning	Two quantities are in proportion if there is a multiplicative relationship. This typically involves a scale factor.	A film character is 160cm tall. A toy company makes a doll of them that is 12cm tall. How tall would the toll be of a character that is 180cm? $S.f. = \frac{12}{160} \quad \frac{12}{160} \times 180 = 13.5$	
5. Maps and Scales	When using ratios with maps, remember that each term must be in the same units.	A distance on a map is 3cm. The scale is 1:10 000. What is the actual distance in km? $3 \times 10000 = 30000cm = 300km$	

Year 8 French Knowledge **Organiser HT3 - Mon identité**

Intensifiers

vraiment	really
très	very
assez	quite
trop	too
un peu	a bit

Giving an opinion

je pense que	I think that
à mon avis	in my opinion
je préfère	I prefer
je trouve ça	I find it
je suis d'accord	I agree
je ne suis pas d'accord	I don't agree

Relationships

On s'amuse	We have fun
On se chamaille	We squabble
On se confie des secrets	We tell each other secrets
On se dit	We tell each other
On se dispute	We argue
On s'entend	We get on
On se fâche	We get angry

Mon caractère

Je suis	I am
Je pense que je suis	I think that I am
Je ne suis pas	I am not
Je ne suis pas du tout	I am not at all
Mon meilleur ami/	

Ma meilleure amie est...

	My best friend is
adorable	adorable
arrogant(e)	arrogant
amusant(e)	funny
casse-pieds	annoying
curieux/se	curious
débrouillard(e)	resourceful
drôle	funny
égoïste	selfish
gentil(le)	nice
intelligent(e)	intelligent
optimiste	optimistic
paresseux/se	lazy
patient(e)	patient
pessimiste	pessimistic
rigolo(te)	funny
sociable	sociable
sympa	nice

les vêtements **Clothes**

Normalement, je porte...	Normally, I wear
Des baskets	trainers
Des bottes	boots
Des chaussures	shoes
Une chemise	a shirt
Un chapeau	a hat
Un jean	jeans
Une jupe	a skirt
Un pantalon	trousers
Un pull	a jumper
un sweat à capuche	a hoodie
un tee-shirt	a T-shirt
une veste	a jacket

Verbes essentiels **Key verbs**

Je vais	I am going/I go
Tu vas	You go/You are going
Il/elle va	He/She is going/He/S he goes
On va	We are going/we go

Using the past tense

Hier	Yesterday
La semaine dernière	Last week
Je suis allé(e)	I went
J'ai regardé	I watched
J'ai dansé	I danced
C'était	It was...

Using the present tense

Normalement	Normally
D'habitude	Usually
Je vais	I go
Je regarde	I watch
Je danse	I dance
C'est	It is

Using the future tense

Ce weekend	This weekend
Cet été	This summer
Je vais aller	I'm going to go
Je vais regarder	I'm going to watch
Je vais danser	I'm going to dance
Ça va être	It's going to be

Les couleurs

Beige	beige
Blanc(he)	white
Bleu turquoise	turquoise
Gris(e)	grey
Marron chocolat	chocolate brown
Noir(e)	black
Orange	orange
Vert kaki	khaki

Les mots essentiels **High frequency words**

Avec	with
Bien	well
Comme d'hab	as usual
En général	in general
En plus	in addition
Ensemble	together
Même	same
Ou	or
Partout	everywhere
Plutôt	rather
Quand	when
Sinon	otherwise
Surtout	especially
Souvent	often
Tout(e)	all, every
Tout le temps	all the time
Vraiment	really

Year 8 French
Knowledge Organiser HT4
T'es branché ?

Intensifiers

vraiment	really
très	very
assez	quite
trop	too
un peu	a bit

Giving an opinion

je pense que à mon avis	I think that in my opinion
je préfère	I prefer
je trouve ça	I find it
je suis fan de of	I am a fan of
j'ai horreur de	I hate
ça me fait rire laugh	it makes me laugh
ça me fait pleurer me cry	it makes me cry

Present tense key verbs

Je regarde	I watch
Tu regardes	you watch
il/elle regarde	he/she watches
nous regardons	we watch
vous regardez	you (formal) watch
ils/elles regardent	they watch
je vais	I go

tu vas	you go
il/elle va	he /she goes
nous allons	we go
vous allez	you go
ils /elles vont	they go

je fais	I do
tu fais	you do
il/elle fait	he/she does
nous faisons	we do
vous faites	you do
ils/elles font	they do

Weather

Il fait beau	it is nice
Il pleut	it is raining
Il fait chaud	it is hot
Il fait froid	it is cold

On TV

les dessins animés	cartoons
les infos	the news
les jeux télévisés	game shows
la météo	the weather
les séries	series
les documentaires	
les émissions de sport	
les émissions de télé-réalité	

Internet

Je fais des achats en ligne	
	<i>I do online shopping</i>
Je fais des recherches	

I do searches

J'envoie	<i>I send</i>
Je mets à jour	<i>I update</i>
Je joue à des jeux en ligne	
	<i>I play games on line</i>

Time phrases: When?

le weekend	at the weekend
le matin	in the morning
l'après midi	in the afternoon
le soir	in the evening/at night
<u>samedi</u> matin	on Saturday morning
<u>dimanche</u> après-midi	on Sunday afternoon

Past tense

J'ai discuté	I discussed
J'ai écouté	I listened
J'ai envoyé	I sent
J'ai joué	I played
J'ai posté	I posted
J'ai regardé	I watched
J'ai surfé	I surfed
J'ai tchatté	I chatted
J'ai téléchargé	I downloaded

Connectives and sequencers

cependant	however
aussi	also
puis	then
d'abord	firstly
ensuite	next

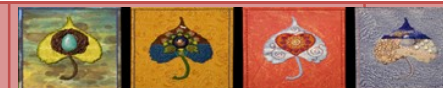
après	after
avant	before

Adjectives

ennuyeux	boring
rasant	boring
barbant	boring
passionnant	exciting
amusant	fun/funny
confortable	comfortable
douillet	cosy
assez bien	quite good
chouette	excellent
effrayant	frightening
émouvant	moving
passionnant	exciting
pratique	practical

VARIATIONS

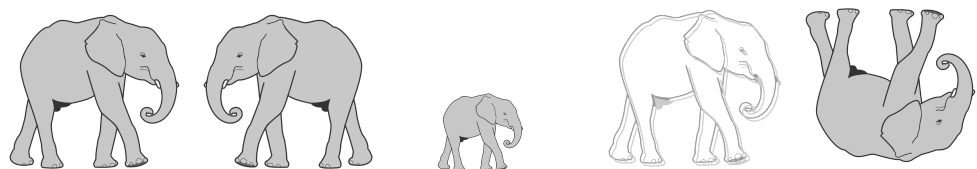
Exploring ways to develop musical ideas



A. Theme and Variations Key Words

MELODY – A tune or succession of notes, varying in pitch, that have an organised and recognizable shape. Often called the main **TUNE** or **THEME** of a piece of music or song and easily remembered.

VARIATION – Where a **THEME** is altered or changed musically, while retaining some of the primary elements, notes and structure of the original. **VARIATION FORM:**



A (Theme) A1 (Variation) A2 (Variation) A3 (Variation) A4 (Variation)

B. Augmentation and Diminution – Note Values and Duration

AUGMENTATION – the process of **DOUBLING** the note values (**DURATION**) of a theme as a means of variation.



DIMINUTION – the process of **HALVING** the note values (**DURATION**) of a theme as a means of variation.

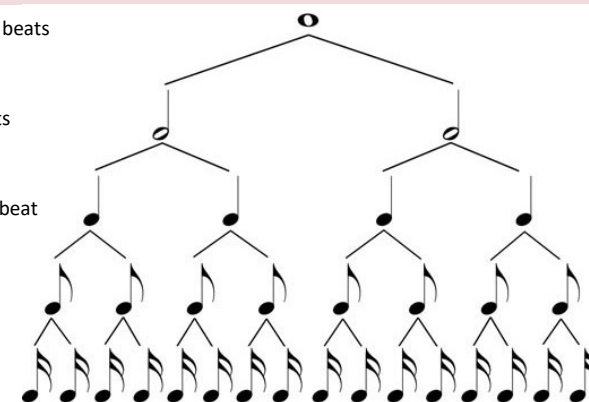
SEMIBREVE = 4 beats

MINIM = 2 beats

CROTCHET = 1 beat

QUAVER
= ½ beat

SEMIQUAVER
= ¼ beat



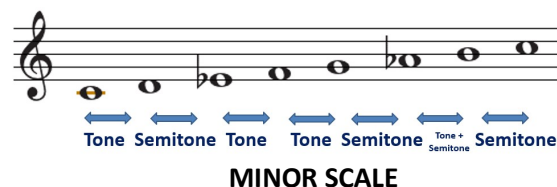
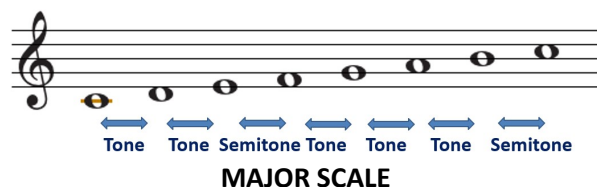
C. Variation Techniques

PITCH – Change the highness or lowness of the theme – play the same notes, but at different pitches e.g. in different OCTAVES .	TEMPO – Change the speed of the theme – play it faster or slower.	DYNAMICS – Change the volume of the theme – play it louder or softer.	TEXTURE – Change the amount of sound we hear – play as a SOLO , add an ACCOMPANIMENT or CHORDS , add a COUNTER-MELODY (an ‘extra’ melody that is played or sung at the same time as the main melody, often higher in pitch and sometimes called a DESCANT).	TIMBRE AND SONORITY – Change the SOUND of the theme – play it on a different instrument.	ARTICULATION – Change the way the theme is played – smoothly (LEGATO – shown by a SLUR) or short, detached and spiky (STACCATO – shown by a dot).	PEDAL – A long (often very long!) note in the bass line of the music over which other parts, including the theme or a variation of the theme can be played. Also called a PEDAL NOTE or PEDAL POINT and often the TONIC note (but can be the DOMINANT or other notes).	DRONE – A long or series of repeated (often long) notes using the TONIC and DOMINANT notes together (a FIFTH).	MELODIC DECORATION – Adding extra notes or embellishments to the theme such as trills, turns, mordents (ORNAMENTS) or PASSING NOTES (extra notes between the main melody notes).	OSTINATO – Adding a repeated musical pattern (rhythmic or melodic) to the main theme as a form of variation.	CANON/ROUND – A song or piece of music in which different performers sing or perform the same THEME starting one after the other.	GROUND BASS – A repeated musical pattern in the bass part upon which chords, and melodies can be performed and varied “over the top” of.
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D. Tonality – Major and Minor



TONALITY refers to whether a **THEME** or **MELODY** is in a **MAJOR** or **MINOR** key. Changing the tonality from major to minor or minor to major is one way of providing a variation on the theme of melody. Major and minor scales follow a certain pattern of tones and semitones:



E. Inversion and Retrograde

INVERSION – Changing the **INTERVALS** between the notes of a theme so that they are upside down from the original.

RETROGRADE – A variation technique created by arranging the main theme backwards.

RETROGRADE INVERSION – Arranging the “inverted” variation of the theme backwards!



Year 8 Unit 2: Relationships

KNOWLEDGE

R7. how the media portrays relationships and the potential impact of this on people's expectations of relationships

R9. to clarify and develop personal values in friendships, love and sexual relationships

R11. to evaluate expectations about gender roles, behaviour and intimacy within romantic relationships

R12. that everyone has the choice to delay sex, or to enjoy intimacy without sex

R18. to manage the strong feelings that relationships can cause (including sexual attraction)

R20. to manage the influence of drugs and alcohol on decision-making within relationships and social situations

R24. that consent is freely given; that being pressurised, manipulated or coerced to agree to something is not giving consent, and how to seek help in such circumstances

R25. about the law relating to sexual consent

R26. how to seek, give, not give and withdraw consent (in all contexts, including online)

R27. that the seeker of consent is legally and morally responsible for ensuring that consent has been given; that if consent is not given or is withdrawn, that decision should always be respected

R42. to recognise peer influence and to develop strategies for managing it, including online

R43. the role peers can play in supporting one another to resist pressure and influence, challenge harmful social norms and access appropriate support

R44. that the need for peer approval can generate feelings of pressure and lead to increased risk-taking; strategies to manage this

SKILLS

1. Engage with and reflect on different ideas, opinions and beliefs to help develop personal opinion.

2. Can express and explain opinions through discussion and written work.

3. Develop empathy with others and an understanding of how to safely and respectfully interact.

4. Is reflective about the knowledge and skills needed for setting realistic targets and personal goals.

5. Work individually and with others to negotiate, plan and take action.

6. Can recognise and reduce risk, minimising harm and getting help.

7. Develop skills of enquiry and advocacy via research and group work





Y8: Unit 2 Islam

Islam is the second largest religion in the world with over 1 billion followers worldwide and probably, the most misunderstood. There are around 2 million Muslims in Britain with accounts for around 2.7% of the population. In this unit of work you will explore Islamic beliefs, practices and how the religion of Islam influences the lives of people everyday. This opens a wider debate on issues such as the use of violence, what happens when we die and whether places of worship are actually important and needed in the 21st century.

Curriculum Organiser

Lessons 1-2

Islam: what are the foundations of faith?

Islam is the second largest faith in the world – what are some of the key elements?

Should the 5 Pillars be compulsory for all?

The 5 pillars are fundamental teachings for Muslims – but would the world be a better place if they were teachings that we ALL followed?

Lessons 7-8

Halal and Haram: what is it?

Muslims have guidelines about things they can and cannot do. What is permissible and what is seen as not permissible and why?

How are teachings of Islam portrayed in the media?

Exploring Islamophobia in the media – why does it happen? How can we challenge this in every day life?

Lessons 3-4

Allah and Muhammad – why are they important?

Great focus is placed on Allah and Muhammad by Muslims – what are their beliefs?

Muhammad: how do his teachings influence Muslims today?

Muhammad was a prophet of Allah and an influential figure. What were some of this teachings and how are they influential to Muslims today?

Lessons 9-10

Akhirah – what are Muslim views towards life after death?

Death is a certainty in life – What are some of the key beliefs held by Muslims and how do Muslims view the next life?

P4C Life after Death – is it realistic?

Would you say it is a realistic belief about what may happen after our death? Is there compelling evidence?

Can you think of arguments on each side of the debate?

Lessons 5-6

Mosques – are they more than just a place of worship?

Mosques form a focal point in Muslim communities – what do they contain and why?

Why is a mosque important?

How does the mosque feature in the wider community? Case study – Iftar in Old Trafford. If we had to design a mosque for the local community – what should it feature?

Lesson 11-12

End of unit assessment on Judaism and feedback

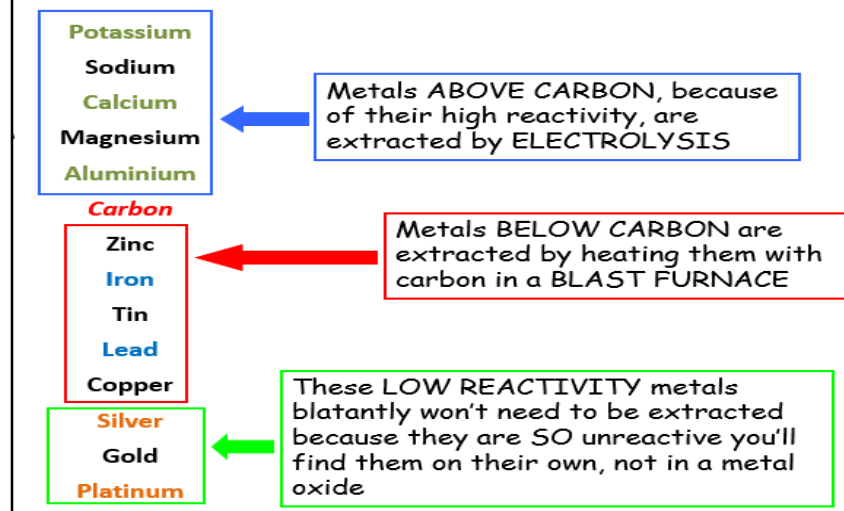
8C2 Metals

Properties of metals and non-metals

Property	Metals	Non-metals
Appearance	Shiny	Dull
State at room temp	Solid (except mercury)	Half are solids, half are gases, one is liquid (bromine)
Density	High	Low
Strength	Strong	Weak
Malleable or brittle	Malleable (can bend without breaking)	Brittle (will shatter when hammered)
Conduction (heat/electricity)	Conduct both well	Poor (graphite only non-metal conductor)
Magnetic	Only iron, cobalt and nickel	None

Metal		Reaction with AIR	Reaction with WATER	Reaction with ACIDS
Potassium	K	Burn vigorously to form metal oxides	React with cold water $\text{H}_2\text{O (l)}$ to form $\text{H}_2\text{(g)}$ and $(\text{metal})\text{OH}_{(\text{aq})}$	Strong reaction with diluted acid (aq) to form $\text{H}_2\text{(g)}$. Metal replaces H in compound to form a salt.
Sodium	Na			
Calcium	Ca	Burn with decreasing vigour down the series to form metal oxides	Only reacts with steam $\text{H}_2\text{O(g)}$ to form $\text{H}_2\text{(g)}$ and metal oxide	
Magnesium	Mg			
Aluminium	Al			
Zinc	Zn			
Iron	Fe			
Lead	Pb	React slowly (when heated) to form an oxide layer	No reaction	React with concentrated acid (l) . Metal replaces H to make a salt. Some of the acid decomposes into $\text{NO}_{2(\text{g})}$ and $\text{H}_2\text{O (l)}$.
Copper	Cu			
Mercury	Hg			
Silver	Ag	No reaction		No reaction
Gold	Au			

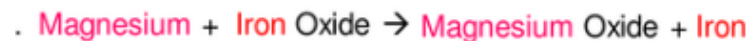
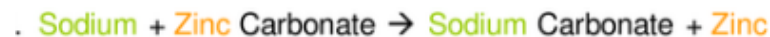
How metals are extracted



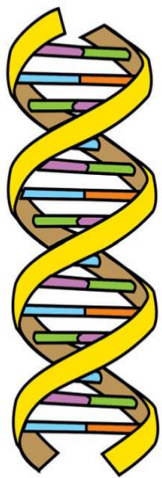
General Equations for metal reactions



Displacement- When a more reactive metal will displace a less reactive metal from solutions of its compounds



Advantages of Recycling	Disadvantages of Recycling
<ul style="list-style-type: none"> Conserves raw materials. Less energy is used so less fossil fuels are used. Reduces waste in landfill. Avoids the use of mining for ores. Less damage to habitats. Less energy needed to melt and reform metals than to extract them. Produces less carbon dioxide. 	<ul style="list-style-type: none"> Carbon dioxide is a greenhouse gas. Greenhouse gases cause global warming. Electricity for electrolysis is expensive and usually comes from fossil fuels.



- Adenine
- Thymine
- Cytosine
- Guanine
- Sugar-phosphate backbone

In DNA, the complementary base pairs are held together by hydrogen bonds.

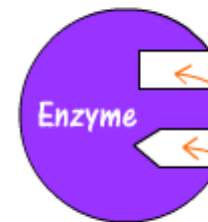
DNA is the molecule which controls our characteristics. It makes up 'genes' which code for proteins

Year 8 Knowledge Organiser : 8A – Genes and inheritance

carbohydrase	=	breaks carbohydrate into sugar molecules
lipase	=	breaks fat into glycerol and fatty acids
protease	=	breaks protein into amino acids

Enzymes

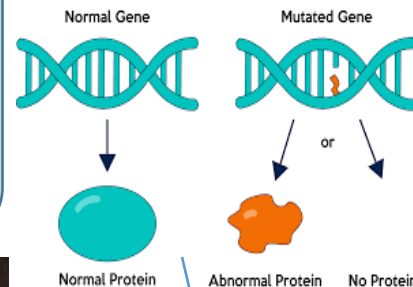
Enzymes are biological catalysts. They speed up chemical reactions within the cell.



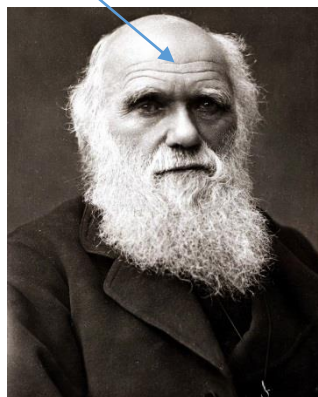
Active sites

Enzymes are found in the cells of all living things

They are protein machines.

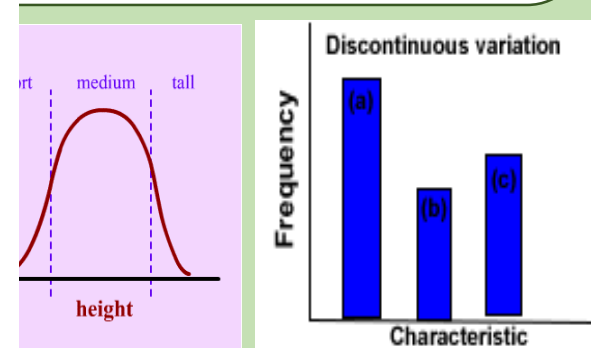


Charles Darwin proposed the theory of 'natural selection' to explain evolution



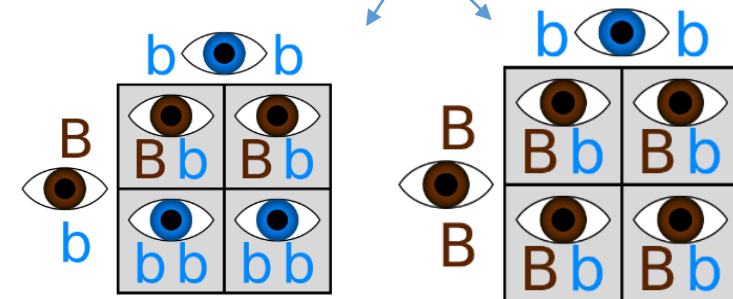
Mutation is the change in the base sequence of DNA.

Variation is the difference between members of the same species. It can be caused by environmental or genetic factors.



Term	Description
Species	A group of individuals that are physically similar that can produce fertile offspring
Variation	The presence of differences between living things of the same species
Competition	Interaction between groups of organisms seeking to access limited supplies of factors required for life e.g. light, space, food
Natural selection	A process that causes populations to change over time.
Evolution	The change in species over long periods of time
Gene	The basic units of genetic material inherited from our parents. A gene is a section of DNA which controls part of a cell's chemistry - particularly protein production.

Punnett squares are used to help you determine what genes the child of two parents will have. Everyone has 2 copies of a certain gene (called an **allele**): 1 copy comes from your mum and 1 copy comes from your dad. But since your mum and dad each have 2 copies, how do you know which ones you will get?



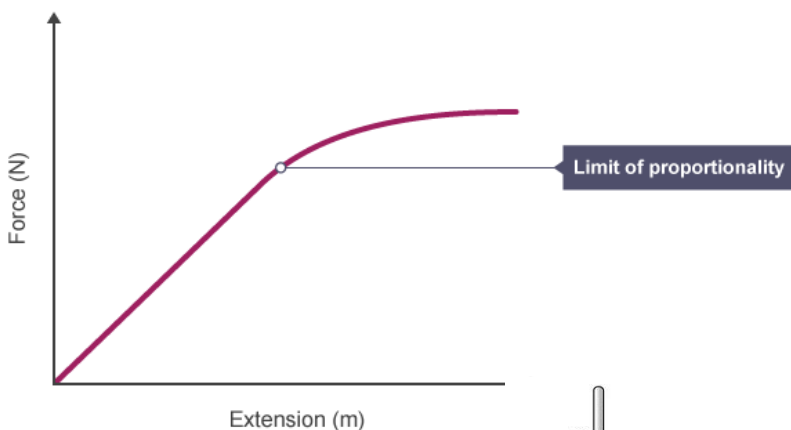
8P2 – Pressure knowledge Organiser

Hooke's law

Extension happens when an object increases in length, and compression happens when it decreases in length. The extension of an elastic object, such as a spring, is described by Hooke's law:

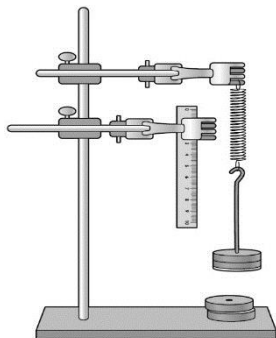
$$f = k \times x$$

force = spring constant \times extension



Deforming

After going past their elastic limit, a spring or rubber band will not return to its original shape and therefore will behave differently.



Measuring density

You need to know two things to measure the density of a substance:

- the mass of a sample of some of it
- the volume of that sample

The mass is measured using a balance. The volume of a liquid is easily measured using a measuring cylinder. The volume of a solid can be measured by:

- measuring the side of a cube or block of the substance, then using mathematics to calculate its volume, or
- using a displacement can (also called a eureka can) – the sample is lowered into a container of water and the volume of water it displaces or pushes out of the way is the same as the volume of the object

Density Properties

Solids

The particles in solids are very close together. They are tightly packed, giving solids high densities.

Liquids

The particles in liquids are close together. Although they are randomly arranged, they are still tightly packed, giving liquids high densities. The density of a substance as a liquid is usually only slightly less than its density as a solid.

Water is different from most substances: it is less dense as a solid than as a liquid, because its particles move apart slightly on freezing. This is why ice cubes and icebergs float on liquid water.

Gases

The particles in gases are very far apart, so gases have a very low density.

Pressure on surfaces

You may have been warned about swinging around on one leg of a chair. Apart from the risk that you will damage the chair or hurt yourself, the chair leg can damage the floor. This is because it puts too much pressure on the floor.

Calculating pressure

To calculate pressure, you need to know two things:
the force or weight exerted
the surface area over which the force or weight is spread

Example

A force of 20 N acts over an area of 4 m². Calculate the pressure.

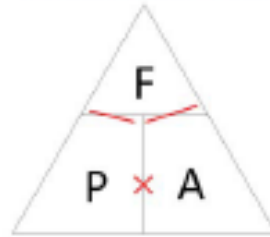
pressure = force ÷ area

= 20 N ÷ 4 m² = 5 N/m²

Notice that the unit of pressure here is N/m² (newtons per square metre). Sometimes you will see another unit being used. This is called the pascal and it has the symbol Pa.

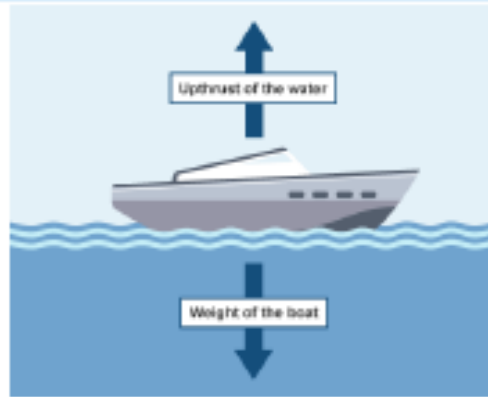
1 Pa = 1 N/m², so in the example above the pressure is 5 Pa.

Pressure = Force ÷ Area



Pressure in liquids

Liquid pressure is exerted on the surface of an object in a liquid. This pressure causes upthrust. An object placed in a liquid will begin to sink. As it sinks, the liquid pressure on it increases and so the upthrust increases. For a floating object, the upthrust is equal and opposite to the object's weight. An object will continue to sink if its weight is greater than the maximum upthrust.



Pressure in fluids

Liquids and gases are fluids. A fluid is able to change shape and flow from place to place. Fluids exert pressure on surfaces, and this pressure acts at 90° to those surfaces – we say that it acts normal to the surface.

$$p = \rho \times g \times h$$

*Pressure
= density x gravity x height*

Density = $\frac{\text{Mass (kg)}}{\text{Volume (m}^3\text{)}}$

