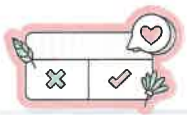
Year 9 Knowledge Organiser Term 1

Choose any of the following activities to complete your homework

	LOOK, COVER, WRITE, CHECK	DEFINITIONS TO KEY WORDS	FLASHCARDS	PICTURES
STAGE 1	Look at & study an area of your knowledge organiser 	Write down the key words & definitions 	Write key words, dates/formulae, equations/quotes on one side & answers on the other	Draw pictures/diagrams/ cartoon strips 
STAGE 2	Cover up your knowledge organiser and write everything you remember 	Cover up the definitions. How many can you remember? Repeat. 	Include pictures or diagrams if it helps. Read through them. 	Label your pictures/diagrams/ cartoon strips 
STAGE 3	Check. Correct mistakes in green and add anything you missed. Repeat 	Check. Correct mistakes in green pen. Which ones do you find hard to remember? 	Test yourself and get someone to test you. 	Explain out loud to yourself or family/friend what your images show 

	SELF QUIZZING	MINDMAPS	PAIRED RETRIEVAL	SPEAK, COVER, WRITE, CHECK
STAGE 1	Use your knowledge organiser to create quiz questions. 	Create a mindmap of everything you can remember from your knowledge organiser 	Give a family member/friend the knowledge organiser to hold 	Read out loud the information from the knowledge organiser several times. 
STAGE 2	Write down the answers to your quiz 	Check your knowledge organiser & use a green pen to make any corrections. 	Get them to test you using the knowledge organiser 	Cover up your knowledge organiser and write everything you remember 
STAGE 3	Keep self-quizzing until you get all the answers correct 	Add additional information to your mindmap or make connections to other knowledge 	Write down your answers to their questions 	Check. Correct mistakes in green and add anything you missed. Repear. 

Dual coding example

LEARN TO STUDY USING...

Dual Coding

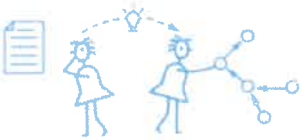
COMBINE WORDS AND VISUALS

LEARNINGSCIENTISTS.ORG

HOW TO DO IT

Look at your class materials and find visuals. Look over the visuals and compare to the words.

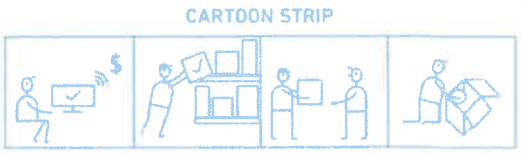
Look at visuals, and explain in your own words what they mean.



Take information that you are trying to learn, and draw visuals to go along with it.

HOLD ON!

Try to come up with different ways to represent the information visually, for example an infographic, a timeline, a cartoon strip, or a diagram of parts that work together.



Work your way up to drawing what you know from memory.

RESEARCH

Read more about dual coding as a study strategy

Mayer, R. E., & Anderson, R. B. (1992). The instructive animation: Helping students build connections between words and pictures in multimedia learning. *Journal of Educational Psychology, 4*, 444-452.

Content by Yana Weinstein (University of Massachusetts Lowell) & Megan Smith (Rhode Island College) | Illustrations by Oliver Caviglioli (teachinghow2s.com/cogsci)
Funding provided by the APS Fund for Teaching and Public Understanding of Psychological Science

Elaboration

LEARN TO STUDY USING...

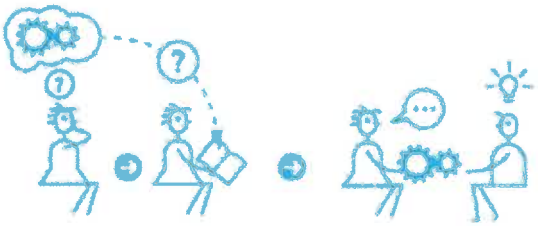
Elaboration

EXPLAIN AND DESCRIBE IDEAS WITH MANY DETAILS

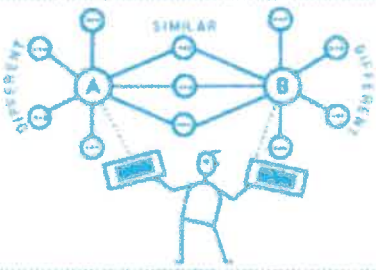
LEARNINGSCIENTISTS.ORG

HOW TO DO IT

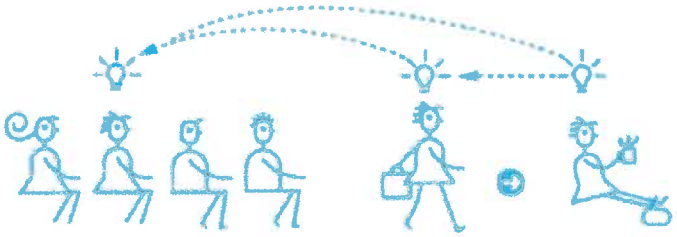
Ask yourself questions while you are studying about how things work and why, and then find the answers in your class materials and discuss them with your classmates.



As you elaborate, make connections between different ideas to explain how they work together. Take two ideas and think of ways they are similar and different.



Describe how the ideas you are studying apply to your own experiences or memories. As you go through your day, make connections to the ideas you are learning in class.



HOLD ON!

Make sure the way you are explaining and describing an idea is accurate. Don't overextend the elaborations, and always check your class materials or ask your teacher.

Work your way up so that you can describe and explain without looking at your class materials.

RESEARCH

Read more about elaboration as a study strategy

McDaniel, M. A., & Donnelly, C. M. (1996). Learning with analogy and elaborative interrogation. *Journal of Educational Psychology, 88*, 508-519.

Wong, B. Y. L. (1985). Self-questioning instructional research: A review. *Review of Educational Research, 55*, 227-268.

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LEARN TO STUDY USING...

Interleaving

SWITCH BETWEEN IDEAS WHILE YOU STUDY

LEARNINGSCIENTISTS.ORG

HOW TO DO IT

Switch between ideas during a study session. Don't study one idea for too long.

Go back over the ideas again in different orders to strengthen your understanding.

Make links between different ideas as you switch between them.

HOLD ON!

While it's good to switch between ideas, don't switch too often, or spend too little time on any one idea; you need to make sure you understand them.

Interleaving will feel harder than studying the same thing for a long time. But don't worry - this is actually helpful to your learning!

RESEARCH

Read more about interleaving as a study strategy

Rohrer, D. (2012). Interleaving helps students distinguish among similar concepts. *Educational Psychology Review, 24*, 355-367.

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Knowledge Organizer – Year 9 Art

Toys

Examples of final outcomes:

You will learn:

Skills to produce two accurate still life studies of toys using pencil shading and oil pastels. You will then produce your own final outcome using layers and paper cutting.

Why am I learning this?

The foundation skills in this project will enable you to tackle the varied concepts, artists, techniques and processes throughout Year 7.
You will build on your knowledge and skills with each project as they increase in difficulty, enabling you to express yourself in a confident way.

Contextual knowledge:

Sarah Graham

Jeff Koons

Jeff Koons uses themes and subjects from popular culture in his work including toys, ornaments and advertising.

Sarah Graham paints in a photorealistic style. Colour and composition are often the focus on her work. She enjoys painting objects that evoke a sense of childhood and joy.

Keywords

Proportion	The relationship of one part of a whole to other parts.
Tone	The lightness or darkness of something – this could be shade, or how dark or light a colour appears.
Mark-making	Different lines, patterns and textures.
Shape	A shape is an area enclosed by a line. It is 2 dimensional and can be geometric or organic.
Form	Forms are 3 dimensional shapes. They occupy space, like people!
Photography	A photograph is an image produced by the action of light onto light sensitive paper.

Homework tasks:

Tick when complete ✓

1. Creative toy photoshoot.
2. Retro toys drawing.
3. Sarah Graham copy.
4. Homework 4.
5. Homework 5.
6. Homework 6.

How well am I doing?

My Progress in Year 9 Art

Name:			Project: Term 1 & 2 - Toys				Target Grade:
Targets							Date Complete
Pencil tonal study		Draw the toy accurately showing good proportions and form.					
		Show a variety of dark and light shading to suggest form (3D) and texture.					
		Develop areas of textural shading to show texture in the toy e.g., smooth/shiny surfaces, hair/fur.					
Oil pastel study		Draw the toy accurately showing good proportions and form.					
		Use oil pastels to develop layers of colours and tone in your toy drawing.					
		Show a variety of different oil pastel techniques to create form, texture, and tone.					
Mixed Media Final Outcome		Show skilled and accurate application of paint to show tone in your toy final outcome.					
		Show accurate paper cutting skills and overlaying of mixed media.					
		Complete a detailed, colourful, and accurate final outcome include an image of a toy with a paper overlay.					
						End of Project Grade:	

How to make your drawings appear 3D:
https://youtu.be/aFEZtGrVAdw

Year 9 Computing – Python Turtle – Knowledge Organiser

Summary

Programming is writing computer code to create a program, in order to solve a problem. Programs consist of a series of instructions to tell a computer exactly what to do and how to do it. An algorithm is a set of instructions that describes how to get something done. It is crucial that the steps in an algorithm are sequenced and performed in the right order - otherwise the algorithm will not work correctly.

Python is a general purpose and high-level programming language. You can use Python for developing desktop GUI applications, websites and web applications. Also, Python, as a high-level programming language, allows you to focus on core functionality of the application by taking care of common programming tasks

Key Words	
Shell	This is the window where you type in the commands
Loop	A concept called loop, which helps in executing one or more statements up to a desired number of times.
Function	A function is a block of organized, reusable code that is used to perform a single, related action.
Variable	Variables are used to store information to be referenced and manipulated in a computer program. They also provide a way of labelling data with a descriptive name, so our programs can be understood more clearly by the reader and ourselves. It is helpful to think of variables as containers that hold information.

Mistake!	Key Words continued	Correct!
Import turtle		import turtle
wn=turtle.Screen		wn=turtle.Screen()
Bob=Turtle()		Bob=turtle()
wn.bgcolour("lightgray")		wn.bgcolour("lightgray")
Bob.color(red)		Bob.color("red")
bob.pensize(2)		Bob.pensize(2)
Bobforward(200)		Bob.forward(200)
Bob.left(90		Bob.left(90)
Bob.forwards(200)		Bob.forwards(200)

Improve the code	

Import turtle
wn=turtle.Screen()
turtle.forward(200)
turtle.right(90)
turtle.forward(200)
turtle.right(90)
turtle.forward(200)
turtle.right(90)
turtle.forward(200)
turtle.right(90)
turtle.reset()
	import turtle
	wn=turtle.Screen()
	def line():
	  turtle.forward(200)
	def angle():
	  turtle.right(90)
	for i in range(4):
	  line()
	  angle()

Drama – Year 9 Term 1

PRACTITIONERS

For comp 1 and 2 of the GCSE, you need to show that you are able to include aspects of work from different theatre practitioners. We are looking at Brecht, Stanislavski and Artaud

Bertold Brecht 1898-1956

Verfremdungseffekt (Veffect):
The process of 'making strange'. This is where the audience experience something familiar, but it is presented in an unrecognisable way or context .The audience then have to reach a new understanding in order to 'move past' the strangeness.

This effect can be created through the use of:

Direct Address	Narration
Placards	Montage
Multi-rolling	Speaking stage directions
Music/song	Props table / costumes change on stage

Naturalism was at its peak, but Brecht thought that theatre should be political and be a force for change. He wanted his audiences to remain objective and distant from emotional involvement, so that they could make considered and rational judgements about the issues in the play – this is called **Epic Theatre**

Constantin Stanislavski 1863-1938

A Russian actor and theatre director, he created The System of 'method acting'. As a reaction to the melodramatic acting of the late 19th century, he developed methods to help actors create the illusion of reality on stage – **Naturalism.**

Objectives: The actor needs to know what their character wants in each unit of the play – what are they trying to achieve?
Super Objective: The character's ultimate goal over the whole play – each objective should 'link in' and help the character achieve this goal.
The Magic If: How would the actor react/behave if they were in the same situation as the character?
Units – Dividing a play or scene into different units of action.
Emotional Memory: Relating the actors own personal and motional experience to that of their character.

"If we can tell you're acting, you're not doing it right."

Antonin Artaud 1896-1948

Famous for "Theatre of Cruelty." Wanted his audiences to experience and FEEL the pieces not just watch them. He felt that theatre should be cathartic-taboo subjects explored on stage, so that audience members didn't need to go and do these things in "real life."
Extremes – Artaud would portray the extremes and put his actors through extremes before performances. This was to access their "visceral" reactions and emotions.
"Attack the senses." He believed that performances should be seen, heard, felt, smelt and tasted . The audience were always made to feel uncomfortable.
Universal language- He felt that all "writing is garbage" so he used a series of grunts, groans, noises and physical gesture to communicate meaning with an audience. This way, everyone could understand.

Brecht said that in naturalistic theatre " audiences hang up their brains with their hats in the cloakroom." what do you think he was saying here?
How could using placards in a scene, change the meaning for an audience?
How could Stanislavski's techniques help you to develop a naturalistic character?
What makes a successful, naturalistic performance?
In an Artaudian performance of Little Red Riding Hood, HOW would you play to all 5 senses?

KS3 YEAR 9 D&T RESISTANT MATERIALS METALS

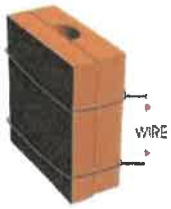
Tools and Equipment

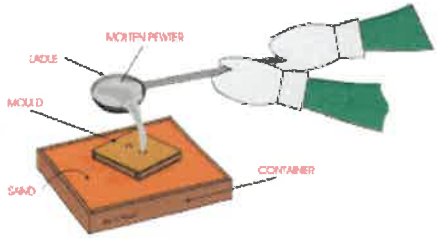
Measuring and marking

Steel rule		An accurate tool for measuring and marking out
Try square		A tool used to check right angles on wood or plastic
Template		A template is a tool used to mark out shapes repeatedly

Cutting

Hack saw		A general purpose metal work saw
Metal vice		Supports work whilst cutting or finishing
Pillar drill		A machine used to make holes in materials
Laser cutter		CAM: Laser cutting is the use of a high-powered laser to cut, etch and engrave your material





Metals and Alloys

Ferrous Metals: ***these*** *metals contain iron*
Low Carbon Steel
High Carbon Steel
Cast Iron

Non-ferrous Metals: *these are pure metals*
Aluminium
Copper
Tin
Zinc

Alloys: a mix of one pure metal and another *element*
Brass
Stainless steel
High speed steel

Shaping and finishing

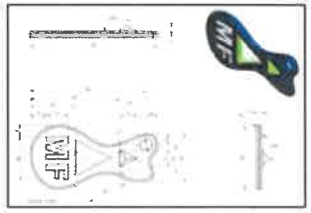
Metal file		Used to shape or smooth wood, metal or plastic
Wet and Dry Paper		An abrasive paper used to smooth the surface or edges of plastic
Draw filing method		A technique used to produce a fine filed surface
Cross Filing method		A technique used to produce a fine filed surface
Pewter casting mould		Heating metal into liquid form and pouring it into a mould

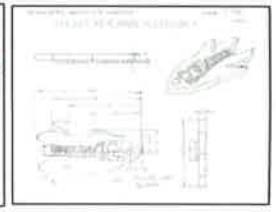
Manufacturing

Brazing Hearth		Raises metal to high temperatures using a blow torch
Welding		Fusing together two metals of the same type using a filler
Brazing		Fusing together two metals using **spelter** (a type of filler)
Annealing		The process of softening metals to make it workable
Casting		Heat metal to liquid and pour into a mould

Keywords

Ideation	Evaluation
Specification	Orthographic
Research	Pewter
Manufacture	Mould
Design	Sprue





What is good design?

Clear ideas
Annotations
Measurements
Content
Presentation
Balance

Maths in DT:

Multiplication
Divide
Add / Subtract
Measurement conversion
Ratios
Percentages
Surface area

Health and Safety in DT:

- Listen to your teacher's instructions
- Always wear an apron
- Long hair should be tied back
- Don't use equipment you are not trained on
- Always stand up during practical lessons
- When using machines, always wear safety glasses
- Only use the stop button in an emergency
- Work quietly and be sensible and careful at all times

KS3 YEAR 9 D&T RESISTANT MATERIALS

Tools and Equipment

Measuring and marking

Steel rule		An accurate tool for measuring and marking out
Try square		A tool used to check right angles on wood or plastic
Template		A template is a tool used to mark out shapes repeatedly

Shaping and finishing

Metal file		Used to shape or smooth wood, metal or plastic
Wet and Dry Paper		An abrasive paper used to smooth the surface or edges of plastic
Disc sander		A machine used to smooth the edges of materials

Polymers

Thermoform Polymer

A polymer which can be reheated and moulded.

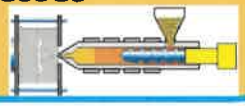
Acrylic
High impact polystyrene (HIPS)
Polypropylene (PP)

Thermosetting Polymer

A polymer which cannot be re moulded.

Epoxy resin (ER)
Melamine Formaldehyde (MF)
Urea Formaldehyde (UF)

Polymer processes

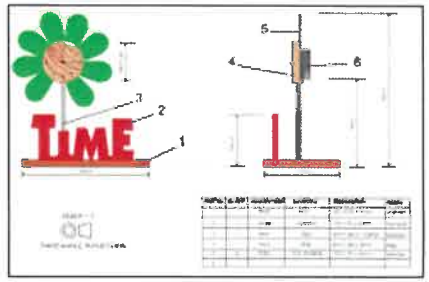


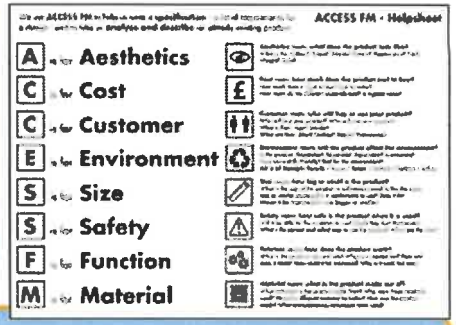
Injection moulded
Extrusion
Vacuum formed

Memphis Design Movement

Ettore Sottsass

Orthographic Drawing





Cutting

Coping saw		A hand saw used to cut complex shapes in wood and plastic
Scroll saw		A machine saw used to cut complex shapes in wood and plastic
Vice		Supports work whilst cutting or finishing
Pillar drill		A machine used to make holes in materials
Laser cutter		CAM: Laser cutting is the use of a high-powered laser to cut, etch and engrave your material

What is good design?

Clear ideas
Annotations
Measurements
Content
Presentation
Balance

Maths in DT:

Multiplication
Divide
Add / Subtract
Measurement conversion
Ratios
Percentages
Surface area

Keywords

Template
Polymer
Tensol Cement
Modelling
Acrylic
Specification
Research
Design
Evaluation
6Rs
Sustainable
Manufacture

Health and Safety in DT:

- Listen to your teacher's instructions
- Always wear an apron
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- Work quietly and be sensible and careful at all times

POLYMERS

Year 9 Food Knowledge Organiser.

Key Practical Skills

- **Flaky Pastry – Lamination**. The dough is rolled and folded to produce layers. Fat is placed in between the layers and this melts, leaving a space that is filled with steam from the water and fat added to the pastry. Trapped expand between the causing light crisp layers of pastry to develop. **(Sausage rolls)**
- **Short Crust pastry – Shortening**. The fat is rubbed into the flour with fingertips. It coats flour to prevent the long gluten strands from forming. This is called shortening. **(Cheese and Onion Pasties)**
- **Whisking Method – Mechanical Raising Agents.** When the eggs and sugar are whisked together this traps air bubbles as the protein from the egg stretches and surrounds the air bubbles to form an air-in-liquid foam. This is a mechanical raising agent. **(Swiss Roll)**
- **Fruit and Vegetable preparation** – Water soluble vitamins (B group &C) are easily damaged or lost during preparation and cooking. Correct preparation and cooking will minimise these losses. **(Thai Curry, Bolognaise/chilli, Carrot Cake)**
- **Presentation skills** – presenting and styling food is very important at GCSE. Decorations on savoury food are called garnish and decoration on sweet foods. (Samosas, Cheesecake)

Key Topics

Food and the environment :

Food waste – Manufacturers, retailers and consumers waste millions of tonnes of food a year for a variety of reasons

food poverty -defined as the inability to acquire or consume an adequate or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so

Food provenance – food that is grown, food that is caught, food that is reared. E.g. organic

Food miles – how far food has travelled from farm to fork

Food and Nutrition:

Nutrition – main nutrients , functions and sources

Food Choices – There are many reasons why we choose the food we eat, but they can often be related to religion and culture, ethical and moral beliefs, medical conditions or personal preference. This affects the diets they eat

Food intolerance – a reaction to a specific food

Allergen – A substance in food that may cause an allergic reaction

Personal Skills

- Confidence
- Organisation
- Teamwork
- Time management

Nutrient	Functions	Examples
Carbohydrates & Fibre	• Energy • Aids Digestion • Fills us up	• Pasta, Rice, Bread, Cereals, potatoes
Vitamins & Minerals	• Keeps us healthy • Protect from illness • Each vitamin and mineral has a specific job	• Most foods we eat contain at least one vitamin and/ a mineral. • Such as - Meat, fish, alternatives, fruit, vegetables, dairy, cereals, bread pasta
Proteins	• Repairs and replaces worn and old cells and tissues. • Builds muscle and makes us strong • growth	• **Meat** – lamb, pork, beef • **Fish** – cod, tuna, sardines • **Pulses and beans** – lentils, chick peas, beans, peas • **Alternatives** – soya, tofu, Quorn • **Dairy products** – milk, cheese, yoghurt
Fats	• Give us energy • Protect our bodies • Insulate • Needed to use fat soluble vitamins	Saturated fats –meat, lard, cheese, cream, eggs Unsaturated – oily fish, avocado's, oils such as sunflower, olive, rapeseed vegetable

Nutritional Analysis

Evaluate the nutritional content of some of our practical outcomes using explore food which is an online nutritional analysis tool. Adapt recipes and compare.

Keywords

- Nutrients
- Carbohydrate
- Protein
- Lamination
- Shortening
- Garnish
- Food miles
- Food Provenance
- Saturated and unsaturated fats
- vegetarian

THE CORSHAM SCHOOL

Y9 POETRY

FIGURATIVE LANGUAGE DEFINITIONS

Personification: the attribution of a personal nature or human characteristics to something non-human, or the representation of an abstract quality in human form.

Metaphor: a metaphor is a figure of speech that describes an object or action in a way that isn't literally true, but helps explain an idea or make a comparison.

Simile: a comparison using 'like' or 'as'.

Alliteration: the occurrence of the same letter or sound at the beginning of adjacent or closely connected words.

Sibilance: use of the 's' sounds in quick succession.

Onomatopoeia: words that sound like the noise they describe.

Hyperbole: Exaggeration.

WW1 POETS – FURTHER READING

Isaac Rosenberg
Francis Ledwidge
David Jones
Ivor Gurney
Margaret Postgate Cole
May Wedderburn Cannan
May Sinclair

"Dulce et decorum est Pro patria mori."

This Latin phrase is taken from the Roman poet, Horace and means: "It is sweet and fitting to die for one's country."

STRUCTURAL FEATURES DEFINITIONS

Rhythm: the beat and pace of a poem, created by the pattern of stressed and unstressed syllables in a line or verse.

Rhyme: the correspondence of two or more words with similar-sounding final syllables placed so as to echo one another.

Rhyming couplet: two consecutive lines that end with the same sound.

Form: the overarching structure or pattern of the poem - how it looks on the page.

Structure refers to what the poem is made up of, how it is presented to the reader, and the technical aspects, like line length and rhyme scheme.

Stanza: a division of a poem consisting of two or more lines arranged together as a unit. More specifically, a stanza usually is a group of lines arranged together.

Open form: a structure that doesn't have to follow traditional or specific patterns.

Closed form: poems written in specific patterns.

HISTORICAL CONTEXT

- **28 June 1914:** Tensions rise across Europe. Franz Ferdinand, heir to the Austro-Hungarian throne, is shot dead in Sarajevo, capital of the Austrian province Bosnia. Franz Ferdinand's killer, Gavrilo Princip, is backed by Serbian terrorist group 'the Black Hand'.
- **28 July 1914:** Backed up by Germany, Austria-Hungary declares war on Serbia on 28 July. Russia quickly steps in to protect the small nation and mobilises its army. Germany responds by declaring war on Russia. France is Russia's ally and begins mobilizing its forces. As the armies mobilise, war becomes almost inevitable.
- **4 August 1914:** Britain and the other great powers of Europe guarantee to protect Belgium's borders. Belgium appeals to Britain and Britain declares war. After Britain's entry to the war, the German army lays waste to the country. The British Empire is also dragged into the conflict and the war in Europe starts to expand across the globe
- **23 August 1914:** The German Kaiser orders the destruction of Britain's 'contemptible little army' and 70,000 British soldiers are attacked by 160,000 German troops. Outgunned and outnumbered Britain's tiny Expeditionary Force suffers heavy casualties and is forced to retreat.
- **10 October 1914:** Britain calls on its Empire and 1.5 million Indian soldiers and 1.3 million Canadians, Australians, New Zealanders and South Africans fight on the allied side. France also draws on its colonies in Africa.
- **3 January 1915:** Both sides experiment with tear gas in the first winter of the war. Its effect is devastating, terrifying soldiers and causing uproar at home.
- **25 April 1915:** The Gallipoli campaign: Bogged down in a stalemate on the Western Front, the Allies attack Germany's allies in the Middle East, the Ottoman Turks. Almost a third of the New Zealand troops are killed and there are 28,000 Australian casualties. The Turks suffer 200,000 casualties.
- **27 January 1916:** By 1916 heavy losses on the Western Front mean Britain's volunteer army needs reinforcements. On 27 January the government introduces conscription. All single men aged 18 to 41 can now be sent to war, although thousands are exempted because they have vital jobs in industry which are important to the war effort.
- **1 July 1916:** The Battle of the Somme is one of the largest and bloodiest conflicts of World War One. Nearly 20,000 British soldiers die on the first day.
- It is part of a massive joint offensive by the Allies on their fronts in France, Italy and Russia. British Commander-in-Chief General Haig hopes to end the deadlock on the Western Front at the Somme. By November the Allies have advanced five miles. There are over half a million casualties on each side.
- **6 April 1917:** In February the Germans restart their U-boat campaign against commercial ships headed from America to Britain and many American civilians lose their lives. In April, President Woodrow Wilson persuades Congress that America should declare war on Germany
- **11 November 1918:** Before the Allied armies can invade Germany, an armistice is signed, bringing the war on the Western Front to an end. In a train carriage at Compiègne in northern France, the Germans surrender and agree to withdraw their forces from France and Belgium. Many German soldiers feel betrayed. The fighting ceases at 11am on 11 November 1918, which for Britain, France and America becomes the time when the war dead are honoured. In 1919 The Treaty of Versailles imposes harsh terms on Germany forcing them to accept the blame for the war and pay huge reparations.

Year 9 Geography: Tectonic Hazards

Causes of Earthquakes

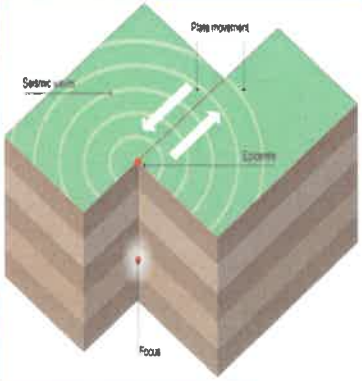
Earthquakes are caused when two plates become locked causing stress energy to build up. Eventually the stress energy will become to great and one plate will lurch forward/up/down. This movement releases energy in the form of seismic waves, which travel out from the focus in all directions. As a result, the crust shakes.

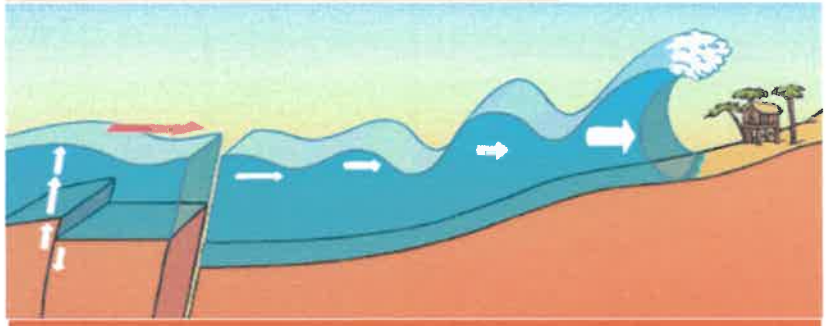
Labelling an earthquake

The point directly above the focus, where the seismic waves reach first, is called the **EPICENTRE**

SEISMIC WAVES (energy waves) travel out from the focus.

The point at which pressure is released is called the **FOCUS**.





Earthquake Hazards

Ground shaking	Violent ground shaking can cause buildings and other infrastructure to collapse, trapping and crushing people. It can also block evacuation routes and emergency responses.
Liquefaction	The ground becomes saturated as ground water is forced to the surface. This means that ground that was once solid acts like a liquid. This can cause buildings to collapse.
Tsunami	When the focus is at sea it can trigger a tsunami. This is a giant wave that increases in height as it approaches land. Due to its power it can destroy coastal towns and will travel far inland.

Earthquake Management

PREDICTING

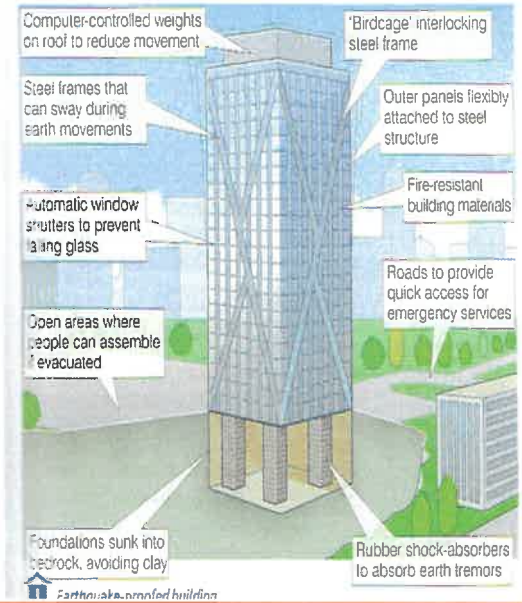
Methods include:

- Radon gas sensor (radon gas is released when plates move so this finds that)
- Seismometer
- Water table level (water levels fluctuate before an earthquake).
- Scientists also use seismic records to predict when the next event will occur.

PROTECTION

You can't stop earthquakes, so earthquake-prone regions follow these three methods to reduce potential damage:

- Building earthquake-resistant buildings
- Raising public awareness
- Improving earthquake prediction



Earthquake proof buildings ideas

1. Counter-weights to the roof to help balance any swaying.	2. Roof made from reinforced cement concrete.
3. Foundations made from reinforced steel pillars, bail-bearings or rubber.	4. Windows fitted with shatter-proof glass to reduce breakage.
5. Lightweight materials that cause minimal damage if fallen during an earthquake.	6. Ensure gas pipes have an automatic shut off to prevent risk of fire.

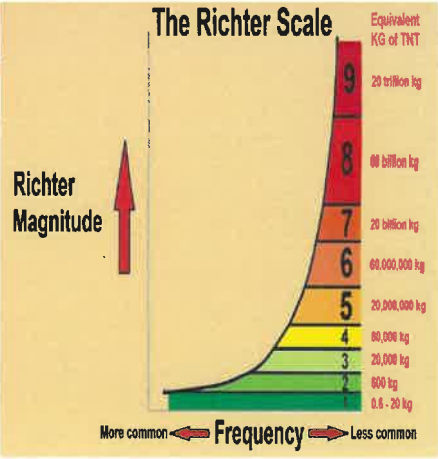
How do we measure earthquakes?

Mercalli Scale

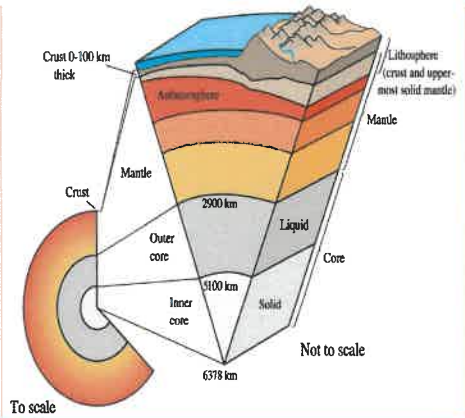
- Measures how much damage is caused, based on observations, not scientific instruments.
- Base from 'Instrument' and 'Weak' to 'Extreme' and 'Cataclysmic'.
- Limitations is that its subjective due to it being based on perception.

Richter Scale

- Is a scientific measurement based on the energy released.
- Measured by seismometers using measurement from 1 – 10
- Logarithmic – each point up the scale is 10 times greater than the one before.



The structure of the Earth



The inner core is radioactive, generating it's own heat at 5000 degrees. The outer core surrounds the inner core and moves.

The mantle is between the cores and the crust and this is where convection currents occur.

The crust is what we stand on and is divided into many tectonic pates.

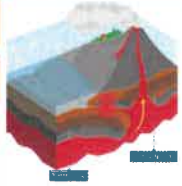
The lithosphere is the crust and upper mantle and this sits on top of the asthenosphere which is the part of the mantle that moves.

How convection current in the mantle moves the plates

The core heats the mantle above it, this makes that part of the mantle less dense and form a "plume of magma" which starts to rise to the surface. When it reaches the lithosphere (solid mantle and crust) it spreads out sideways and drags the lithosphere with it. (this causes the plates to move). The plume then cools down and sinks back to the core where it is re-heated.

Types of Plate Margins

Destructive Plate Margin



Two plates move towards each other, one plate (the oceanic plate) is denser and so subducts and melts beneath the other. Volcanoes and earthquakes occur on this boundary.

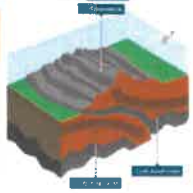
Constructive Plate Margin

Two plates are moving apart causing new magma to reach the surface through the gap. Volcanoes form along this crack, creating a submarine mountain range (Mid Atlantic Ridge). Small earthquakes also occur here.

Conservative Plate Margin

Occurs where plates slide past each other in opposite directions, or in the same direction but at different speeds. This is responsible for earthquakes. E.g. along the San Andreas Fault, USA.

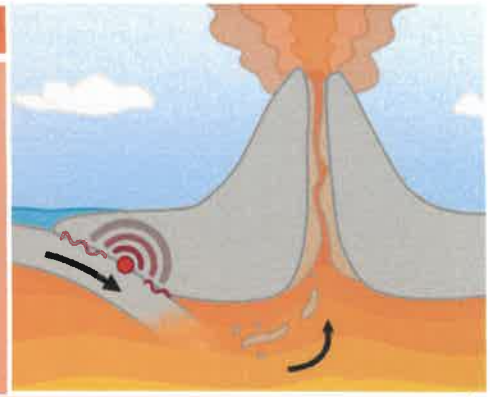
Collision Zones

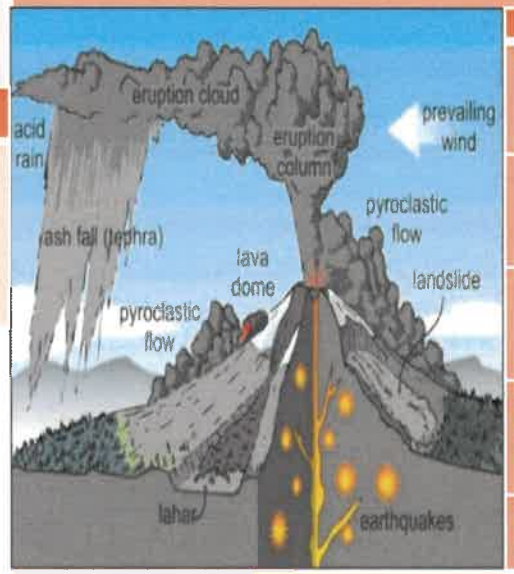


Form when two continental plates collide. Neither plate is forced under the other, and so both are forced up and form fold mountains. These zones are responsible for shallow earthquakes in the Himalayas.

How a volcano is formed

At a destructive plate boundary 1 plate subducts under the other because it is more sense.
The subducting plate melts and forms magma in a magma chamber.
Due do constant subduction, pressure increases in the magma chamber.
The magma rises through weaknesses in the Earth's crust and erupts explosively.





Volcanic Hazards

Ash cloud	Small pieces of pulverised rock and glass which are thrown into the atmosphere.
Gas	Sulphur dioxide, water vapour and carbon dioxide come out of the volcano.
Lahar	A volcanic mudflow which usually runs down a valley side on the volcano.
Pyroclastic flow	A fast moving current of super-heated gas and ash (1000°C). They travel at 450mph.
Volcanic bomb	A thick (viscous) lava fragment that is ejected from the volcano.

Managing Volcanic Eruptions

Warning signs	Monitoring techniques
Small earthquakes are caused as magma rises up.	Seismometers are used to detect earthquakes.
Temperatures around the volcano rise as activity increases.	Thermal imaging and satellite cameras can be used to detect heat around a volcano.
When a volcano is close to erupting it starts to release gases.	Gas samples may be taken and chemical sensors used to measure sulphur levels.

Preparation

Creating an exclusion zone around the volcano.	Being ready and able to evacuate residents.
Having an emergency supply of basic provisions, such as food	Trained emergency services and a good communication system.

Enquiry: Why did the Allies win WW2?

Outline: For much of the Second World War, it was unclear that the Allies would emerge victorious, but there are many key events that acted as key turning points in the war.

Date	Event	Description
May 1940	Dunkirk	British forces were rescued from France after becoming trapped by the German advance.
July-October 1940	Battle of Britain	Combat in the skies between the RAF and the Luftwaffe to prevent the German invasion of Britain.
December 1941	Pearl Harbor	Japan's attack on the USA that brought the US into the War.
1942-3	Battle of Stalingrad	Soviet forces defeated the Wehrmacht and began to push the Germans back from the east.
6 June 1944	D-Day	The Allied invasion of France to push Germany back from the west.
1945	Dresden	City in Germany which was bombed by the Allies.
6-9 August 1945	Atomic bombs	USA used nuclear weapons to end the war by dropping two on Japan.

History – Year 9
Knowledge Organiser
Topic 1

Key individuals

Joseph Stalin. Communist leader of the USSR. Stalin was a dictator who originally supported Hitler until Germany invaded the USSR.

Franklin D. Roosevelt. President of the USA during WW2. Roosevelt helped the Allies before the USA joined the War.

Winston Churchill. UK Prime Minister who led Britain during WW2. he made many inspiring speeches to keep morale high.

Adolf Hitler. Leader of Germany. He was a dictator who was elected In 1933. Hitler planned to make Germany great through Invasions of other countries.

Key vocabulary:

Blitzkrieg: lightning war where Germany took over countries quickly using a combination of armed forces.
Communism: left-wing political ideas where the ideal is to share out resources in a country.
Dictator: a ruler of a country who rules through fear and doesn't allow basic freedoms.
Enigma machine: the British invention which cracked the German code during WW2.
Fascism: right-wing political ideas that use strong leadership and limit freedom as seen in Germany and Italy.
Luftwaffe: German airforce.
Manhattan Project: USA's project to design and make nuclear weapons from 1942.
Morale: the spirit of a nation or people that keeps people happy.
Nazi: someone who followed Hitler and the Nazi government in Germany.
Operation Barbarossa: Germany's campaign to take over the USSR.
Operation Overlord: The Allied campaign to invade Europe and free it from Nazi German occupation.
Total war: using any means possible to win
USSR: name for the Soviet Union which was an empire with Russia as the main country.
Wehrmacht: German army

Main Participating Countries

ALLIED POWERS			AXIS POWERS		
Country	Date Joined	Flag	Country	Date Joined	Flag
FRANCE	3rd Sep, 1939		GERMANY	1st Sep, 1939	
UK	3rd Sep, 1939		ITALY	10th Jun, 1940	
SOVIET UNION	22nd Jun, 1941		BULGARIA	1st Mar, 1941	
USA	8th Dec, 1941		JAPAN	7th Dec, 1941	

Furthering learning

Want to find out more about WW2?

Historical skill focus: using evidence

How USEFUL are the sources?

What is the purpose of the source?

Why was the source made at that time?

Prior learning?
Y7: how to win a battle
Y8: WW1 key events

Year 9 – Reasoning with algebra...

Straight Line Graphs

What do I need to be able to do?

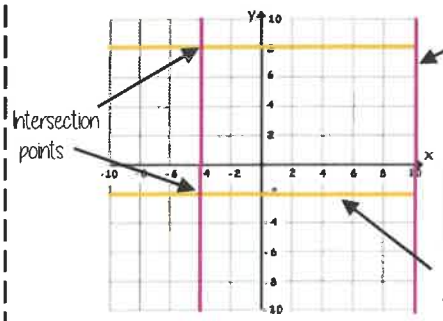
By the end of this unit you should be able to:

- Compare gradients
- Compare intercepts
- Understand and use y= mx + c
- Find the equation of a line from a graph
- Interpret gradient and intercepts of real-life graphs

Keywords

Gradient: the steepness of a line
Intercept: where two lines cross. The y-intercept: where the line meets the y-axis.
Parallel: two lines that never meet with the same gradient.
Co-ordinate: a set of values that show an exact position on a graph.
Linear: linear graphs (straight line) – linear common difference by addition/ subtraction
Asymptote: a straight line that a graph will never meet.
Reciprocal: a pair of numbers that multiply together to give 1.
Perpendicular: two lines that meet at a right angle.

Lines parallel to the axes (R)



All the points on this line have a x coordinate of 10

'a' can be ANY positive or negative value including 0

Lines parallel to the **y axis** take the form **x = a** and are **vertical**

Lines parallel to the **x axis** take the form **y = a** and are **horizontal**

All the points on this line have a y coordinate of -2

e.g (3, -2) (7, -2) (-2, -2) all lay on this line because the y coordinate is -2

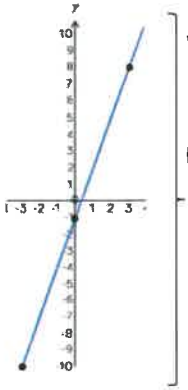
Plotting y = mx + c graphs (R)

$y = 3x - 1$ → 3 x the x coordinate then – 1

x	-3	0	3
y	-10	-1	8

Draw a table to display this information

This represents a coordinate pair (-3, -10)



You only need two points to form a straight line

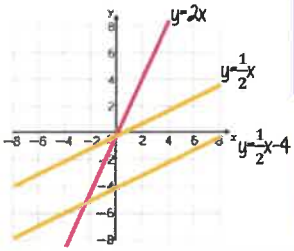
Plotting more points helps you decide if your calculations are correct (if they do make a straight line)

Remember to join the points to make a line

Compare Gradients

$y = mx + c$

The **coefficient** of x (the number in front of x) tells us the gradient of the line



The **greater** the gradient – the **steeper** the line

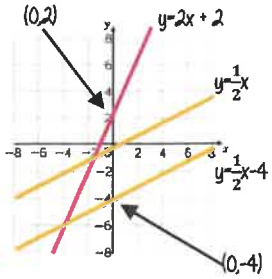
Parallel lines have the **same** gradient

Positive gradients

Negative gradients

Compare Intercepts

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis **Y intercept**



The coordinate of a y intercept will always be (0,c)

Lines with the **same** y-intercept cross in the **same** place

y = mx + c

The **coefficient** of x (the number in front of x) tells us the gradient of the line

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis **Y intercept**

y and x are **coordinates**

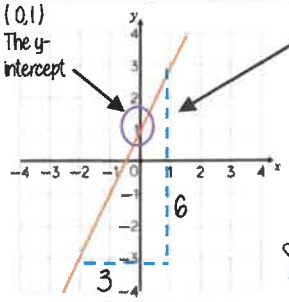
The equation of a line can be rearranged E.g

$y = c + mx$

$c = y - mx$

Identify which coefficient you are identifying or comparing

Find the equation from a graph



The Gradient $\frac{6}{3} = 2$

$y = 2x + 1$

The direction of the line indicates a positive gradient

Positive gradients

Negative gradients

Real life graphs

A plumber charges a £25 callout fee, and then £12.50 for every hour. Complete the table of values to show the cost of hiring the plumber.

Time (hr)	0	1	2	3	8
Cost (£)	£25				£125

The y-intercept shows the minimum charge. The gradient represents the price per mile

In real life graphs like this values will always be positive because they measure distances or objects which cannot be negative

Direct Proportion graphs To represent direct proportion the graph must start at the origin

When you have 0 pens this has 0 cost. The gradient shows the price per pen

A box of pens costs £2.30
Complete the table of values to show the cost of buying boxes of pens.

Boxes	0	1	2	3	8
Cost (£)		£2.30			

Year 9 – Reasoning with algebra...

Forming and Solving Equations

What do I need to be able to do?

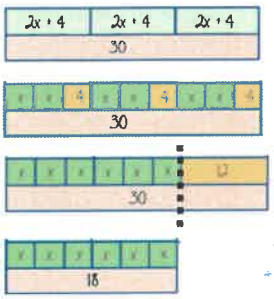
By the end of this unit you should be able to:

- Solve inequalities with negative numbers
- Solve equations with unknowns on both sides
- Solve inequalities with unknowns on both sides
- Substitute into formulae and equations
- Rearrange formulae

Keywords

Inequality: an inequality compares who values showing if one is greater than, less than or equal to another
Variable: a quantity that may change within the context of the problem
Rearrange: Change the order
Inverse operation: the operation that reverses the action
Substitute: replace a variable with a numerical value
Solve: find a numerical value that satisfies an equation

Solve equations with brackets (R)



$3(2x + 4) = 30$

Expand the brackets

$6x + 12 = 30$

$-12 \quad -12$

$6x = 18$

$\div 6 \quad \div 6$

$x = 3$

Form and solve inequalities (R)

Two more than treble my number is greater than 11

Find the possible range of values

$3x + 2 > 11$

Solve

$x \leftarrow -3 \leftarrow -2 \leftarrow 11$

$x > 3$

Inequalities with negatives

Method 1 Make x positive first

$2 - 3x > 17$

$+3x \quad +3x$

$2 > 17 + 3x$

$-17 \quad -17$

$-15 > 3x$

$\div 3 \quad \div 3$

$-5 > x$

x is true for any value smaller than -5

Smaller ← → Bigger

-7 -5 -3

✓ CHECK IT!
$2 - 3(-6) = 20$
TRUE/ CORRECT

Method 2 Keep the negative x

$2 - 3x > 17$

$-2 \quad -2$

$-3x > 15$

$\div -3 \quad \div -3$

$x > -5$

x is true for any value bigger than -5

This cannot be true...

$x < -5$

When you multiply or divide x by a negative you need to reverse the inequality

Equations with unknown on both sides

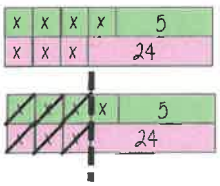
$4x + 5 = 3x + 24$

$-3x \quad -3x$

$x + 5 = 24$

$-5 \quad -5$

$x = 19$



Inequalities with unknown on both sides

Solving inequalities has the same method as equations

$5(x + 4) < 3(x + 2)$

$5x + 20 < 3x + 6$

$2x + 20 < 6$

$2x < -14$

$x < -7$

Check it!

$5(-8 + 4) < 3(-8 + 2)$

$5(-4) < 3(-6)$

$-20 < -18$

✓ -20 IS smaller than -18

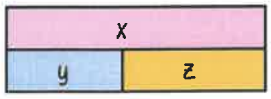
Formulae and Equations

Substitute in values

Formulae – all expressed in symbols

Equations – include numbers and can be solved

Rearranging Formulae (one step)



$x = y + z$

Rearrange to make y the subject.

$y = x - z$

$y \rightarrow +z \rightarrow x$

$y \leftarrow -z \leftarrow x$

Using inverse operations or fact families will guide you through rearranging formulae

Rearranging can also be checked by substitution.

Language of rearranging...

Make XXX the subject

Change the subject

Rearrange

Rearranging Formulae (two step)

In an equation (find x)

$4x - 3 = 9$

$+3 \quad +3$

$4x = 12$

$\div 4 \quad \div 4$

$x = 3$

In a formula (make x the subject)

$xy - s = a$

$+s \quad +s$

$xy = a + s$

$\div y \quad \div y$

$x = \frac{a + s}{y}$

The steps are the same for solving and rearranging

Rearranging is often needed when using $y = mx + c$

e.g Find the gradient of the line $2y - 4x = 9$

Make y the subject first $y = \frac{4x + 9}{2}$

Gradient $= \frac{4}{2} = 2$

Year 9 – Reasoning with algebra...

Testing conjectures

What do I need to be able to do?

By the end of this unit you should be able to:

- Use factors, multiples and primes
- Reason True or False
- Reason Always, sometimes never true
- Show that reasoning
- Make conjectures about number
- Expand binomials
- Make conjectures with algebra
- Explore the 100 grid

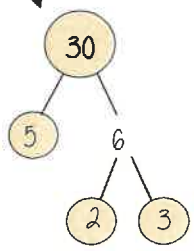
Keywords

Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number.
Prime: an integer with only 2 factors.
HCF: highest common factor (biggest factor two or more numbers share)
LCM: lowest common multiple (the first time the times table of two or more numbers match)
Verify: the process of making sure a solution is correct
Proof: logical mathematical arguments used to show the truth of a statement
Binomial: a polynomial with two terms
Quadratic: a polynomial with four terms (often simplified to three terms)

Factors, Multiples and Primes

R

Multiplication part-whole models



All three prime factor trees represent the same decomposition

HCF – Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

30: 1, 2, 3, 5, 6, 10, 15, 30

Common factors are factors two or more numbers share

LCM – Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

Common multiples are multiples two or more numbers share

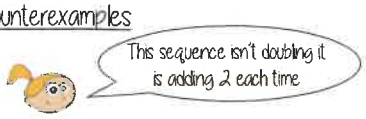
True or False?

Conjecture

A pattern that is noticed for many cases

1, 2, 4, ...
The numbers in the sequence are doubling each time

Counterexamples



Only **one** counterexample is needed to disprove a conjecture

Always, Sometimes, Never true.

Always – Every value always supports the statement

Sometimes – Examples show the statement being true and counter examples to show when it is false

Never – No example supports the statement

Examples to try
- 0 and 1
- Fractions
- Negative numbers

Show that

Numerical verification – Show the stages to a solution with numerical values

Algebraic verification – Show algebraic properties of the solution
You may want to use pictorial images to support this

Proof – Simple proofs using algebra

Compare the left hand side of an equation with the right hand side – are they the same or different?

Conjectures

Even $(2n)$ – Multiple of 2

Odd $(2n+1)$ – One more than any even

Use numerical verification first
Use pictorial verification – the representations of numbers of odd and even

Expanding binomials

$2(x+2) \equiv 2x+4$

Algebra tiles can represent a binomial expansion
Has two terms

Algebra tiles

Positive values

$(x+3)(x+3) \equiv x^2+6x+9$

This is a quadratic
It has four terms which simplified to three terms

The order of the binomial has no impact on the outcome
eg $(x+3)(3+x)$

Exploring the 100 square

In terms of 'n' is used to make generalisations about relationships between numbers

Positions of numbers in relation to n form expressions
Eg one space to the right of n
$n+1$

Eg One row below n
$n+10$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The size of the grid for generalisation changes the relationship statements

À Paris • In Paris

J'ai gagné un concours.	*I won a competition.*
J'ai passé une semaine à Paris.	*I spent a week in Paris.*
J'ai visité la tour Eiffel.	*I visited the Eiffel Tower.*
J'ai mangé au restaurant.	*I ate in a restaurant.*
J'ai admiré la Pyramide du Louvre.	*I admired the Louvre Pyramid.*
J'ai regardé le feu d'artifice.	*I watched the fireworks.*
J'ai acheté des souvenirs.	*I bought some souvenirs.*
J'ai rencontré un beau garçon/une jolie fille.	*I met a good-looking boy/a pretty girl.*
J'ai envoyé des cartes postales.	*I sent some postcards.*
J'ai pris des photos.	*I took some photos.*
J'ai vu la *Joconde*.	*I saw the Mona Lisa.*
J'ai attendu le bus.	*I waited for the bus.*
J'ai très bien dormi.	*I slept very well.*
Je n'ai pas visité Notre-Dame.	*I didn't visit Notre-Dame.*
On a fait les magasins.	*We went shopping.*
On a bu un coca.	*We drank a cola.*
On a fait un tour de la ville en segway.	*We did a tour of the town by segway.*
On a fait une balade en bateau-mouche.	*We went on a boat trip.*

Quand? • When?

aujourd'hui	*today*
hier	*yesterday*
avant-hier	*the day before yesterday*
(mardi) dernier	*last (Tuesday)*

C'était comment? • What was it like?

C'était ...	*It was ...*
J'ai trouvé ça ...	*I found it ...*
bien	*good*
bizarre	*weird*
cool	*cool*
cher	*expensive*
effrayant	*scary*
ennuyeux	*boring*
fabuleux	*wonderful/fantastic*
génial	*great*
horrible	*horrible/terrible*
intéressant	*interesting*
marrant	*funny/a laugh*
nul	*rubbish*
Ce n'était pas mal.	*It wasn't bad.*

Des informations touristiques • Tourist information

horaires d'ouverture	*opening times*
ouvert du (mardi) au (dimanche)	*open from (Tuesday) to (Sunday)*
de 10h00 à 17h00	*from 10 a.m. to 5 p.m.*
fermé (le lundi et les jours fériés)	*closed (on Mondays and bank holidays)*
tarifs d'entrée	*admission prices*
plein tarif	*full price*
tarif jeune	*price for young people*
gratuit (pour les enfants jusqu'à 13 ans)	*free (for children up to 13 years old)*
visites guidées	*guided tours*
(pas de) toilettes	*(no) toilets*

Tu as voyagé comment? • How did you travel?

en avion	*by plane*
en bus	*by bus*
en car	*by coach*
en métro	*by underground*
en train	*by train*
en voiture	*by car*
à vélo	*by bicycle*
à pied	*on foot*

Un voyage • A journey

Je suis allé(e) (à Paris).	*I went (to Paris).*
Je suis parti(e)/arrivé(e) à (dix heures).	*I left/arrived at (ten o'clock).*
Le train est parti/arrivé à (huit heures).	*The train left/arrived at (eight o'clock).*
Je suis sorti(e).	*I went out.*
Je suis resté(e) (chez moi).	*I stayed (at home).*
Je suis rentré(e) (chez moi).	*I went/got home.*
Je suis monté(e).	*I went up.*

Qui a volé la *Joconde*? • Who stole the *Mona Lisa*?

Tu as visité le Louvre quand?	*When did you visit the Louvre?*
Tu es allé(e) avec qui?	*Who did you go with?*
Tu es allé(e) comment?	*How did you get there?*
Tu es arrivé(e)/parti(e) à quelle heure?	*At what time did you arrive/leave?*
Après, tu es allé(e) où?	*Afterwards, where did you go?*
Tu es resté(e) combien de temps?	*How long did you stay?*
Qu'est-ce que tu as fait?	*What did you do?*
Est-ce que tu as volé la *Joconde*?	*Did you steal the Mona Lisa?*

Les mots essentiels • *High-frequency words*

à quelle heure?	*at what time?*
quand?	*when?*
combien?	*how much/how many?*
combien de temps?	*how long?*
comment?	*how?*
où?	*where?*
qui?	*who?*
avec qui?	*who with?*
alors	*so, therefore*
donc	*so, therefore*
car	*because*
parce que	*because*
dernier/dernière	*last*
beaucoup (de)	*a lot (of)*
d'abord	*first of all*
ensuite	*next*
après	*afterwards*
finalement	*finally*

Learning method: Choose from below or use your own ideas. Show your teacher what you have done.

1. Create a collage of 10 vocab items and meanings
3. Design 'memes' for at least 10 of the vocab items
4. Produce flashcards for at least 10 items of vocab
5. Write a quiz of at least 15 questions where the answers are vocab items

Mnemonics

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

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

Look at the 13 verbs on page 129 and link them to all the letters in *Ms. Van der Tramp*. Or even better, make up your own mnemonic.

Turn to page 130 to remind yourself of the *Stratégies* you learned in *Studio 1*.

Regular perfect tense verbs

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

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

(e.g. *manger*) → *mangé*
(e.g. *finir*) → *fini*
(e.g. *attendre*) → *attendu*

1 Write out the six parts of each of these regular verbs in the perfect tense.

Example: j'ai caché (I hid/I have hidden)
tu as caché
il/elle...

cacher (to hide) **choisir** (to choose) **vendre** (to sell)

Irregular verbs

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

boire (to drink) → *j'ai* ***bu***
faire (to do) → *elle a* ***fait***
prendre (to take) → *nous avons* ***pris***
voir (to see) → *ils ont* ***vu***

2 Copy and complete the sentences using the perfect tense. Translate the sentences into English.

Example: **1** J'ai gagné un concours! J'ai ...

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

1 *J'___ ___ un concours! J'___ ___ des vacances à Paris. (gagner, passer)*
2 *Tu ___ ___ la Joconde, au musée du Louvre? (voir)*
3 *Ma sœur ___ ___ un beau garçon français. (rencontrer)*
4 *On ___ ___ Notre-Dame et on ___ ___ des photos. (visiter, prendre)*
5 *Nous ___ ___ les magasins et j'___ ___ des souvenirs. (faire, acheter)*
6 *Vous ___ ___ des cartes postales à vos amis? (envoyer)*
7 *Au café, ils ___ ___ des sandwichs et ils ___ ___ du coca. (manger, boire)*
8 *Le 14 juillet, elles ___ ___ le feu d'artifice. (regarder)*

Using negatives in the perfect tense

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

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

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

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

3 Rewrite the sentences from exercise 2, making them negative.

Example: **1** Je n'ai pas gagné de concours! Je n'ai pas passé de vacances à Paris.

The perfect tense with *être*

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

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

One female person: *je suis/tu es/elle est sortie.*
All male or mixed male/female group: *on est/nous sommes/ils sont partis.*
All female group: *on est/nous sommes/elles sont arrivées.*

4 Put the correct part of *être* in each gap and choose the correct form of the past participle. Then translate the phrases.

1 *je ___ partie/partis*
2 *tu ___ arrivé/arrivés*
3 *il ___ sorti/sortie*
4 *elle ___ resté/restée*
5 *nous ___ allé/allés*
6 *ils ___ partis/parties*
7 *elles ___ sorties/sorties*

5 Copy and complete the postcard, using the perfect tense.

Asking questions in the perfect tense

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

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

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

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

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

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

6 Write the questions to go with these answers.

Example: **1** Tu es arrivé quand?

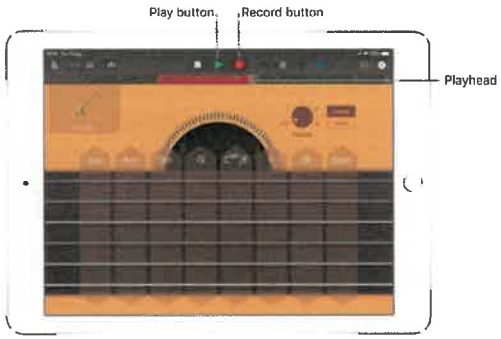
1 *Je suis arrivé hier.*
2 *Je suis parti à huit heures et demie.*
3 *Je suis allé à la tour Eiffel à pied.*
4 *Non, je n'ai pas visité Notre-Dame.*
5 *J'ai acheté un tee-shirt.*
6 *Je suis resté deux heures au Louvre.*
7 *Après, je suis allé au Centre Pompidou.*

Year 9 music term 1

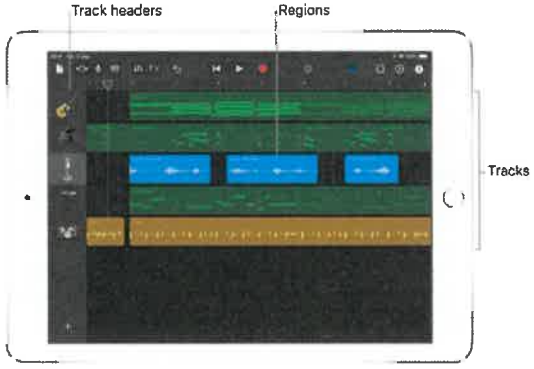
Syncing	Matching events on screen to recorded sound.
Theme music	Theme music is music that represents a tv show, place or character.
Lite motif	A short musical idea that represents a character, feeling or place.
Diegetic sound	Diegetic sound is sound that a character would be able to hear if they were in that location.
Non diegetic sound	Diegetic sound is sound that a character would NOT be able to hear if they were in that location.
Soundtracking	Sound tracking is using pre-existing pieces of music in a film.
Foley	Foley is all of the non-musical diegetic sound that is recorded. It is recorded by a foley artist.

Record a Touch Instrument

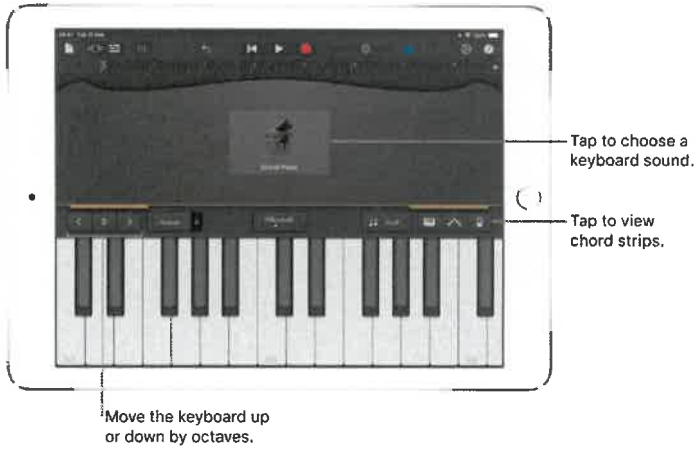
1. Tap the Record button ● in the control bar.



Recording starts at the current position of the playhead. The ruler shows red.



2. Play the Touch Instrument (or, for the Audio Recorder or Amp, sing or play).



Play chords or bass notes with chord strips

- *Play chords higher or lower:* Tap one of the five upper segments of a chord strip.
- *Play a bass note or sets of bass notes:* Tap one of the three lower segments of a chord strip.
- *Play chords and bass notes together:* Tap an upper segment and a lower segment at the same time.

You can add your own custom chords to play.

Open the My Songs browser

- Tap the My Songs button in the control bar.

  The default view shows songs in their current location on your iPad. Tap Recents in the sidebar to show songs you last worked on.

Create a new song

- In the My Songs browser, tap the Add Song button + in the top-right of the screen.

  The Sound browser opens, where you can choose a Touch Instrument to use in the song.

Absolutism: The belief that there is a right course of action which is correct in *all* situations.

Agape: Selfless, sacrificial, unconditional love. Christians believe Jesus is the perfect example of this.

Deontological: To do with moral obligations, duties and ethics.

Ethics: Moral principles that govern a person's behaviour.

Eudaimonia

Morality: The distinction between right and wrong or good and bad behaviour.

Relativism: The belief that the right course of actions depends on a variety of things and may *differ* from person to person.

Teleological: focuses on the consequences or outcomes of the actions being classed as right or wrong

Utilitarianism: ethical theory that suggests actions are right if they are useful or for the benefit of a majority.

Virtue Ethics

Virtue ethics is a philosophy developed by Aristotle. It is the quest to understand and live a life of moral character.

This character-based approach to morality assumes that we acquire virtue through practice. By practicing being honest, brave, just, generous, and so on, a person develops an honorable and moral character. According to Aristotle, by honing virtuous habits, people will likely make the right choice when faced with ethical challenges.

So, virtue ethics helps us understand what it means to be a virtuous human being. And, it gives us a guide for living life without giving us specific rules for resolving ethical dilemmas.

https://youtu.be/NMblKpkKYao

The principal virtues and vices

Sphere of feeling or action	Excess (vice)	Mean (virtue)	Deficiency (vice)
Fear and confidence	Rashness	Courage	Cowardice
Pleasures and pains	Self-indulgence	Temperance	Insensibility (rare)
Getting and spending (minor)	Prodigality	Liberality	Meanness
Getting and spending (major)	Tastelessness	Magnificence	Niggardliness
Honour and dishonour (major)	Vanity	Proper pride	Pusillanimity
Honour and dishonour (minor)	Ambition	Proper ambition	Lack of ambition
Anger	Irascibility	Good temper	Lack of spirit
Self-expression	Boastfulness	Truthfulness	Mock modesty
Conversation	Buffoonery	Wittiness	Boorishness
Disposition to others	Obsequiousness	Friendliness	Cantankerousness
Shame	Bashfulness	Modesty	Shamelessness
Indignation	Envy	Proper indignation	Spite

Utilitarianism

Utilitarianism is all about choosing '*the greatest good for the greatest number*'.

This makes it a teleological ethical theory.

Everyone has an equal right to happiness, so utilitarian's say we should consider how a decision will affect everyone involved, not just ourselves.

It seems sensible to base ethics on producing **happiness** and reducing unhappiness.

It seems easy to understand and to be based on common sense.

https://youtu.be/-FrZI22_79Q

Absolute morality

If you believe in absolute morality you will have faith that there is a right course of action to take in a moral dilemma, which is true in all situations regardless of culture, religious tradition, time or age.

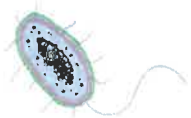
How would a follower of this sort of morality respond to the commandment You shall not murder? They would try to make sure that they were not involved in any killing, which would affect their views on issues such as war, abortion and euthanasia. They would say that these actions are wrong in all circumstances.

Are there universal moral rules?

Infection and Response Knowledge Organiser – Foundation and Higher

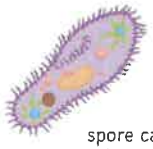
Communicable Disease

Pathogens are **microorganisms** that enter the body and cause communicable disease (infectious). Plants and animals can be infected by them.

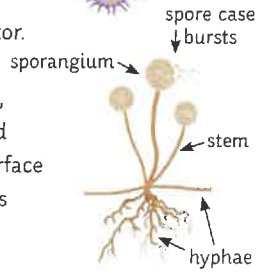


Bacteria are small cells that can reproduce very quickly in the body. They produce **toxins** that make you feel ill, damaging your cells and tissues.

Viruses are much smaller than bacteria; they can also reproduce quickly in the body. Viruses live inside your cell where they replicate. They then burst out of the cell, releasing new viruses.



Protists are eukaryotes (multicellular). Some are parasites which live on or inside other organisms, often carried by a vector.



Fungi are sometimes single celled, others have hyphae that grow and penetrate human skin and the surface of plants. They can produce spores which can spread to other plants.

How Pathogens Are Spread

Pathogens can be spread in many ways, for example:

Water – by drinking dirty water, e.g. cholera.

Air – carried by air and breathed in, e.g. influenza.

Direct contact – touching contaminated surfaces including the skin, e.g. athlete's foot.

Viral Diseases

Measles is spread by droplets of liquid from sneezes and coughs etc., symptoms include a red rash on the skin and a fever. Measles can be serious or even fatal, it can lead to pneumonia. Most people are vaccinated against measles when they are very young.

HIV is spread by sexual contact or exchanging body fluids. HIV can be controlled be antiviral drugs; this stops the viruses replicating. The virus attacks the cells in the immune system. If the immune system is badly damaged, the body cannot cope with other infections. This is the late stage and is called aids.

Tobacco mosaic virus affects plants, parts of the leaves become discoloured. This means plants cannot carry out photosynthesis; this will affect the plants growth.

Fungal and Protist Diseases

Fungal

Rose black spot shows as black spots on the leaves of the plant, this means less photosynthesis occurs. As a result, the plant does not grow as well. It is spread by the wind or the water. They can be treated by using fungicides and taking the leaves off the infected plant.

Protists

Malaria is caused by a protist, mosquitoes are the vectors. They become infected when they feed on an infected animal. The protist is inserted into the blood vessel. Malaria can cause fever, it can also be fatal.

Bacterial Diseases

Salmonella bacteria causes food poisoning. Symptoms include fever, stomach cramps, vomiting and diarrhoea. The symptoms are caused by the toxins produced by the bacteria. Food contaminated with salmonella can give you food poisoning. Most poultry in the UK will have had a vaccination against salmonella.

Gonorrhoea is a sexually transmitted bacterial disease, passed on by sexual contact. Symptoms include pain when urinating and thick yellow/green discharge from the vagina or penis. To prevent the spread, people should be treated with antibiotics and use a condom.

How to prevent the spread:

Being hygienic –

washing hands thoroughly.

Destroying vectors –

killing vectors by using insecticides or destroying their habitat.

Isolation –

isolating an infected person will prevent the spread.

Vaccination –

people cannot develop the infection and then pass it on.

Infection and Response Knowledge Organiser – Foundation and Higher

Fighting Diseases

Defence System

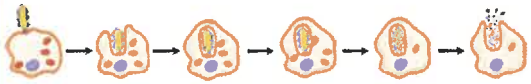
1. The skin acts as a barrier to pathogens.
2. Hairs and mucus in your nose trap particles.
3. The trachea and bronchi secrete mucus to trap pathogens. They also have cilia which move backwards and forwards to transport the mucus towards the throat. This traps any pathogens and the mucus is usually swallowed.
4. The stomach contains hydrochloric acid to kill any pathogens that enter the body via the mouth.

The Immune System

This kills any pathogens that enter the body.

White blood cells:

- **Phagocytosis** is when white blood cells engulf pathogens and then digest them.
- They produce **antitoxins** to neutralise the **toxins**.
- They also produce **antibodies**. Pathogens have **antigens** on their surface, antibodies produced by the white blood cells lock on to the antigen on the outside of the pathogen. White blood cells can then destroy the pathogens. Antibodies are specific to one antigen and will only work on that pathogen.



Vaccinations

Vaccinations have been developed to protect us from future infections. A vaccination involves an injection of a **dead** or **weakened** version of the pathogen. They carry antigens which cause your body to produce antibodies which will attack the pathogen. If you are infected again, the white blood cells can produce antibodies quickly.

Pros	Cons
Helps to control communicable diseases that used to be very common.	They don't always work.
Epidemics can be prevented.	Some people can have a bad reaction to a vaccine – however, that is very rare.

Fighting Disease – Drugs

Painkillers relive the pain and symptoms, but do not tackle the cause.

Antibiotics kill the bacteria causing the problem, but do not work on viruses. Viruses are very difficult to kill because they live inside the body cells.

Developing Drugs

There are three main stages in drug testing:

Pre-clinical testing:

1. Drugs are tested on human cells and tissues.
2. Testing carried out on living animals.

Clinical testing:

3. Tested on healthy human volunteers in clinical trials. Starts with a very low dose, then tested on people with the illness to find the optimum dose.

Placebo is a substance that is like the drug, but does not do anything.

Placebo effect is when the patient thinks the treatment will work even though their treatment isn't doing anything.

Blind trial is when the patient does not know whether they are getting the drug or the placebo.

Double-blind trial is when both the doctor and the patient do not know whether they are getting the drug.

Drugs from Plants

Chemicals produced by plants to defend themselves can be used to treat human diseases or help with symptoms.

Drug	Plant/Microorganism
aspirin	willow
digitalis	foxglove
penicillin	mould - penicillium

New drugs are now made by chemists, who work for the pharmaceutical industry, in laboratories.

Key Vocabulary

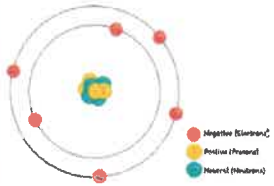
antibodies
antigens
antitoxins
bacteria
blind trial
double-blind
fungus
microorganism
phagocytosis
placebo
protist
toxins
vaccination
vector
virus

Atomic Structure and the Periodic Table – Foundation and Higher

Atoms

Contained in the nucleus are the **protons** and **neutrons**. Moving around the nucleus are the **electron** shells. They are negatively charged.

Particle	Relative Mass	Charge
proton	1	+1
neutron	1	0
electron	Very small	-1



Overall, atoms have no charge; they have the same number of protons as electrons. An ion is a charged particle - it does not have an equal number of protons to electrons.

Atomic Number and Mass Number

Elements

Elements are made of atoms with the same atomic number. Atoms can be represented as symbols.

N = nitrogen **F** = fluorine **Zn** = zinc **Ca** = calcium

Isotopes – an isotope is an element with the **same number of protons** but a **different number of neutrons**. They have the same atomic number, but different mass number.

Isotope	Protons	Electrons	Neutrons
$^{1}_{1}H$	1	1	1 - 1 = 0
$^{2}_{1}H$	1	1	2 - 1 = 1
$^{3}_{1}H$	1	1	3 - 1 = 2

Compounds – a compound is when two or more elements are chemically joined. Examples of compounds are carbon dioxide and magnesium oxide. Some examples of formulas are CO_2, NaCl, HCl, H_2O, Na_2SO_4. They are held together by chemical bonds and are difficult to separate.

Equations and Maths

To calculate the relative atomic mass, use the following equation:

relative atomic mass (A_r) =

$$\frac{\text{sum of (isotope abundance} \times \text{isotope mass number)}}{\text{sum of abundances of all isotopes}}$$

Balancing Symbol Equations

There must be the same number of atoms on both sides of the equation:

$CH_4 + 4O_2 \rightarrow 2H_2O + CO_2$

C = 1

O = 4

H = 4

Chemical Equations

A chemical reaction can be shown by using a **word equation.**

e.g. magnesium + oxygen → magnesium oxide

On the left-hand side are the reactants, and the right-hand side are the products.

They can also be shown by a **symbol equation.**

e.g. $2Mg + O_2 \rightarrow 2MgO$

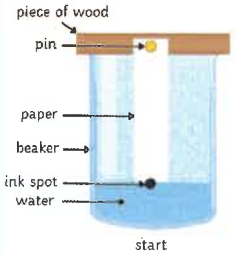
Equations need to be **balanced,** so the same number of atoms are on each side. To do this, numbers are put in front of the compounds.

$CH_4 + \mathbf{4}O_2 \rightarrow \mathbf{2}H_2O + CO_2$

Mixtures, Chromatography and Separation

Mixtures – in a mixture there are no chemical bonds, so the elements are easy to separate. Examples of mixtures are air and salt water.

Chromatography – to separate out mixtures.



Filtration – to separate solids from liquids.

Evaporation – to separate a soluble salt from a solution; a quick way of separating out the salt.

Crystallisation - to separate a soluble salt from a solution; a slower method of separating out salt.

Separating out salt from rock salt:

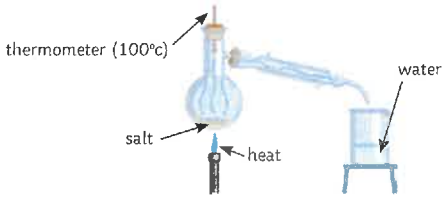
1. Grind the mixture of rock salt.
2. Add water and stir.
3. Filter the mixture, leaving the sand in the filter paper
4. Evaporate the water from the salt, leaving the crystals.

Atomic Structure and the Periodic Table – Foundation and Higher

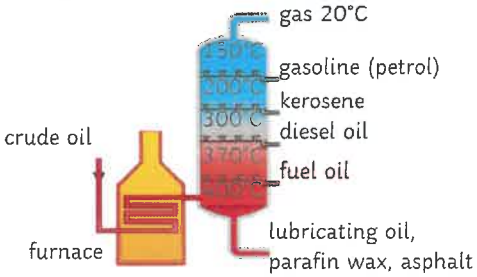
Distillation

To separate out mixtures of liquids.

1. **Simple distillation** – separating a liquid from a solution.



2. **Fractional distillation** – separating out a mixture of liquids. Fractional distillation can be used to separate out crude oil into fractions.



Metals and Non-metals

They are found at the **left** part of the periodic table. Non-metals are at the **right** of the table.

Metals

Are strong, malleable, good conductors of electricity and heat. They bond metallically.

Non-Metals

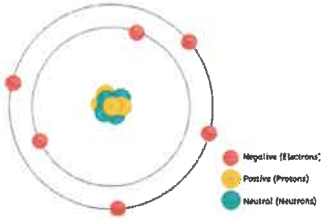
Are dull, brittle, and not always solids at room temperature.

History of the Atom

Scientist	Time	Discovery
John Dalton	start of 19th century	Atoms were first described as solid spheres.
JJ Thomson	1897	Plum pudding model – the atom is a ball of charge with electrons scattered.
Ernest Rutherford	1909	Alpha scattering experiment – mass concentrated at the centre; the nucleus is charged. Most of the mass is in the nucleus. Most atoms are empty space.
Niels Bohr	around 1911	Electrons are in shells orbiting the nucleus.
James Chadwick	around 1940	Discovered that there are neutrons in the nucleus.

Electronic Structure

Electrons are found in shells. A maximum of two in the most inner shell, then eight in the 2nd and 3rd shell. The inner shell is filled first, then the 2nd then the 3rd shell.



Group 7 Elements and Noble Gases

Halogens

The halogens are **non-metals**: fluorine, chlorine, bromine, iodine. As you go down the group they become less reactive. It is harder to gain an extra electron because its outer shell is further away from the nucleus. The melting and boiling points also become higher.

Noble Gases

The **noble gases** (**group 0** elements) include: **helium**, **neon** and **argon**. They are un-reactive as they have full outer shells, which makes them very stable. They are all colourless gases at room temperature.

The boiling points all increase as they go down the group – they have greater intermolecular forces because of the increase in the number of electrons.

Development of the Periodic Table

In the early 1800s, elements were arranged by atomic mass. The periodic table was not complete because some of the elements had not been found. Some elements were put in the wrong group.

Dimitri Mendeleev (1869) left gaps in the periodic table. He put them in order of **atomic mass**. The gaps show that he believed there was some undiscovered elements. He was right! Once found, they fitted in the pattern.

The Modern Periodic Table

Elements are in order of **atomic mass/proton number**. It shows where the metals and non-metals are. **Metals** are on the **left** and **non-metals** on the **right**. The **columns** show the **groups**. The **group number** shows the number of **electrons** in the **outer shell**. The rows are **periods** – each period shows another full shell of electrons.

The periodic table can be used to predict the reactivity of elements.

Alkali Metals

The alkali metals (**group** 1 elements) are soft, very reactive metals. They all have **one electron** in their **outer shell**, making them **very reactive**. They are **low density**. As you go down the group, they become more reactive. They get bigger and it is easier to lose an electron that is further away from the nucleus.

They form ionic compounds with non-metals.

The react with water and produce hydrogen.

E.g.

lithium + water → lithium hydroxide + water

$2Li + 2H_2O \rightarrow LiOH + H_2$

They react with chlorine and produce salt.

E.g.

lithium + chlorine → lithium chloride

$2Li + Cl_2 \rightarrow 2NaCl$

They react with oxygen to form metal oxides.

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Global Energy Resources

AQA ENERGY – part 2

National Grid

Transport	*Petrol, diesel, kerosene produced from oil*	Used in cars, trains and planes.
Heating	*Gas and electricity*	Used in buildings.
Electricity	*Most generated by fossil fuels*	Used to power most devices.

Using renewable energy will need to increase to meet demand.

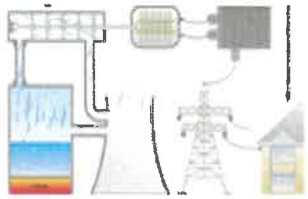
Renewable energy makes up about 20% of energy consumption.

Fossil fuel reserves are running out.

Energy demand is increasing as population increases.

Power station – NB: You need to understand the principle behind generating electricity. An energy resource is burnt to make steam to drive a turbine which drives the generator.

Power station	*Generates electricity*	Fuel burnt releasing thermal energy →	Water boils into steam →	Steam turns turbine →	Turbine turns generator →	Generator induces voltage
National Grid	*Transports electricity across UK*	Power station →	Step-up transformer →	Pylons →	Step-down transformer →	House, factory



Using fuels

Energy resources

Non-renewable energy resource	*These will run out. It is a finite reserve. It cannot be replenished.*	e.g. Fossil fuels (coal, oil and gas) and nuclear fuels.
Renewable energy resource	*These will never run out. It is an infinite reserve. It can be replenished.*	e.g. Solar, Tides, Waves, Wind, Geothermal, Biomass, Hydroelectric

Energy resource	*How it works*	Uses	Positive	Negative
Fossil Fuels (coal, oil and gas)	*Burnt to release thermal energy used to turn water into steam to turn turbines*	Generating electricity, heating and transport	Provides most of the UK energy. Large reserves. Cheap to extract. Used in transport, heating and making electricity. Easy to transport.	Non-renewable. Burning coal and oil releases sulfur dioxide. When mixed with rain makes acid rain. Acid rain damages building and kills plants. Burning fossil fuels releases carbon dioxide which contributes to global warming. Serious environmental damage if oil spilt.
Nuclear	*Nuclear fission process*	Generating electricity	No greenhouse gases produced. Lots of energy produced from small amounts of fuel.	Non-renewable. Dangers of radioactive materials being released into air or water. Nuclear sites need high levels of security. Start up costs and decommission costs very expensive. Toxic waste needs careful storing.
Biofuel	*Plant matter burnt to release thermal energy*	Transport and generating electricity	Renewable. As plants grow, they remove carbon dioxide. They are 'carbon neutral'.	Large areas of land needed to grow fuel crops. Habitats destroyed and food not grown. Emits carbon dioxide when burnt thus adding to greenhouse gases and global warming.
Tides	*Every day tides rise and fall, so generation of electricity can be predicted*	Generating electricity	Renewable. Predictable due to consistency of tides. No greenhouse gases produced.	Expensive to set up. A dam like structure is built across an estuary, altering habitats and causing problems for ships and boats.
Waves	*Up and down motion turns turbines*	Generating electricity	Renewable. No waste products.	Can be unreliable depends on wave output as large waves can stop the pistons working.
Hydroelectric	*Falling water spins a turbine*	Generating electricity	Renewable. No waste products.	Habitats destroyed when dam is built.
Wind	*Movement causes turbine to spin which turns a generator*	Generating electricity	Renewable. No waste products.	Unreliable – wind varies. Visual and noise pollution. Dangerous to migrating birds.
Solar	*Directly heats objects in solar panels or sunlight captured in photovoltaic cells*	Generating electricity and some heating	Renewable. No waste products.	Making and installing solar panels expensive. Unreliable due to light intensity.
Geothermal	*Hot rocks under the ground heats water to produce steam to turn turbine*	Generating electricity and heating	Renewable. Clean. No greenhouse gases produced.	Limited to a small number of countries. Geothermal power stations can cause earthquake tremors.