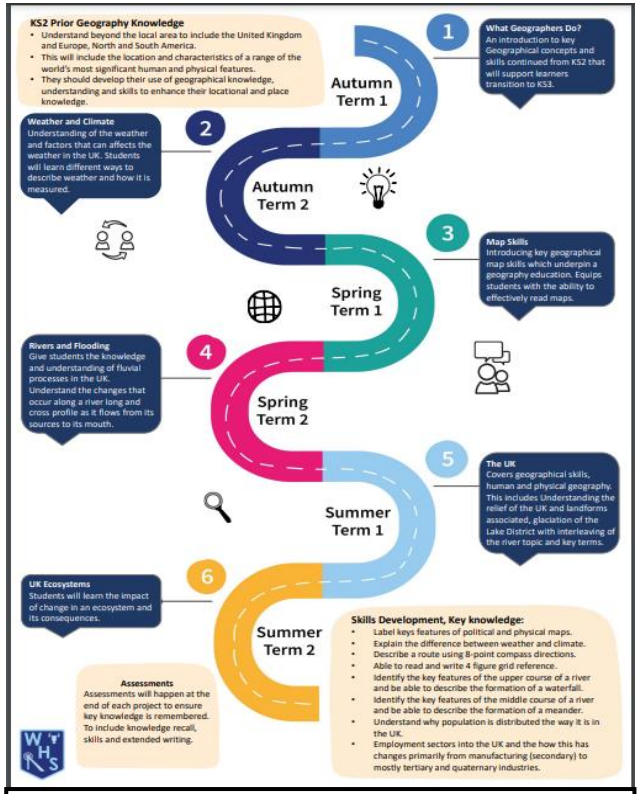
Westhoughton High School

Year 9 – Spring Term - Knowledge Organisers

Name: ..... **Form Tutor:** ..... **Form Group** .....

Introduction

The curriculum in each of your subjects at WHS has been carefully planned to help you learn new things, building upon what you know and preparing you for learning in the future. This is mapped out as a learning journey which each teacher will share with you, so you understand how your learning fits together as a whole. Each subject's roadmap is here: https://www.westhoughton-high.org/subjects/.

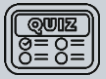
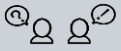
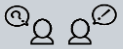


An example of a subject road map found on our website.

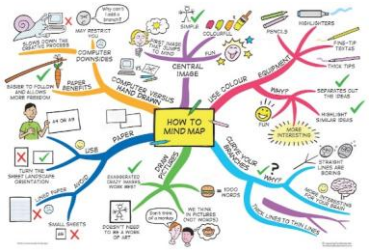
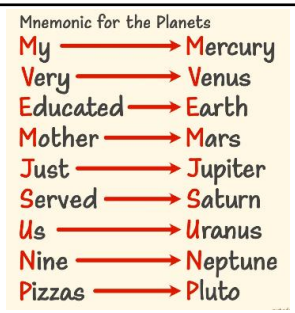
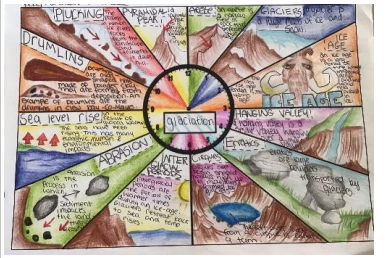
This booklet contains knowledge organisers for all the topics you will study in each subject this term. These give an overview of the essential knowledge that you MUST remember to be as successful as possible in Year 7 and as you move through each year of school. **You must bring your booklet to school every day and keep it safe at the end of each term as you will continue to use it to support ongoing revision.**

Learning Techniques to use with KOs

using them regularly is vital to make knowledge stick in your long-term memory (remember you need to revisit information at least 10 times before it is embedded in your memory). Try using these ideas, choose different techniques to learn small sections of knowledge each day.

	Look, Say, Cover, Write, Check	Key Word Definitions	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
STEP 1	Look at and read aloud a specific area of your KO. 	Write down the key words and definitions in two columns.	Use your KO to condense and write down key facts or information onto flash cards. 	Use your KO to create a mini quiz. Write down your questions relating to the information. 	Create a mind map with the information on your KO. 	Ask a partner, friend or family to use the KO or your flash cards. 
STEP 2	Cover or flip the KO over and write down everything you remember. 	Repeat the above but don't look at your KO 	Add pictures that might help you remember. Then self-quiz using the flash-cards. 	Answer the questions, remember to use full sentences. 	Check your KO to make sure there are no mistakes on your mind map. 	Make sure they test you on different sections of the KO and also on previous topics.
STEP 3	Check what you have written down. Correct any mistakes and add anything you missed in green pen. 	Use a green pen to check and correct your work 	Ask a friend or family member to quiz you on your knowledge. 	Ask a friend or family member to quiz you using the questions. 	Try to make more connections, link the information together where you can.	Repeat this regularly so that you are frequently looking at KOs past and present. 

How to make learning stick…

Mind Mapping	Flash Cards	Look, Say, Cover, Write, Check	Key Word Mnemonics	Revision Clocks
				
Mind mapping is a great way of representing key information from a topic in a visual way. Use colour and images to represent the knowledge you need to learn. Keep writing to a minimum; use only keywords/phrases. Watch the clip for more tips and advice.	Make flash cards using your KO. Write a question on one side and the answer on the other or record key-words and definitions. Test yourself frequently. For more advice scan the code.	This technique is one that has been well used from primary school upwards. It is useful for rehearsing keywords, definitions and spellings. Look at the information, read it aloud, cover it up, write it down and then check it is correct.	A mnemonic is a sentence you make up where each word begins with the same letter as the word you want to remember. It is a useful technique for remembering a group of facts/words in a certain order.	Draw a basic clock and break your KO down into 12 chunks. Make notes on each chunk in the 12 clock sections, use colour and images to make it memorable. Revise each section for 5 minutes, turn over and test how much you can recall. Watch the clip for more tips and advice.

How will your work be marked?

These are the marking literacy symbols that teachers will use to mark your work and cover the basics of good literacy skills.

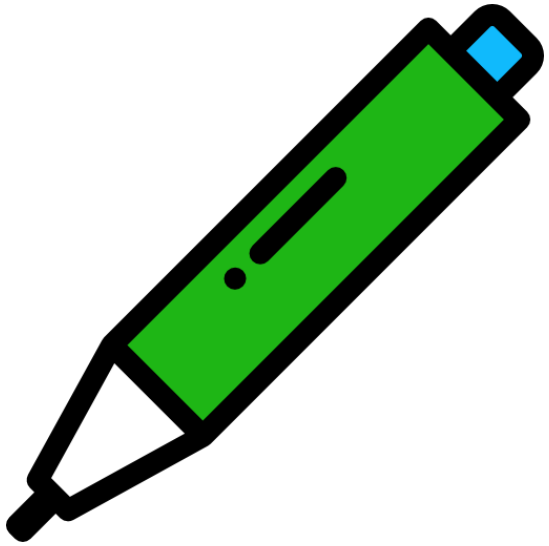
It is important that when you receive a piece of assessed work you do not just look at the score but also look at what literacy mistakes you made.

Teachers will also correct your work during a lesson.

Action you need to take:

When your teacher has highlighted a mistake, you need to correct these in green pen. For spelling mistakes you need to re-write the correct spelling 3 times.

Ultimately, improving your literacy skills falls on you, take the feedback from your teachers, amend them and improve your skills.



Literacy Marking Symbols	
Cl	Capital letter error
Sp	Spelling mistake
P	Punctuation error
Exp	Expression is unsuitable or could be improved
ww	Wrong word used
//	Start a new paragraph

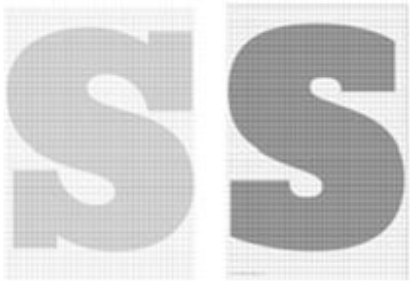
Year 9 Art Knowledge Organiser -Term 2

Drawing for Design

Design drawings, often the first visual representation of a project, are preliminary sketches and plans meticulously crafted by architects and engineers. These drawings encompass a range of details, from broad conceptual ideas to intricate specifications, all aimed at bringing a vision to life on paper.

Circus Font

Examples of font styles



Relief

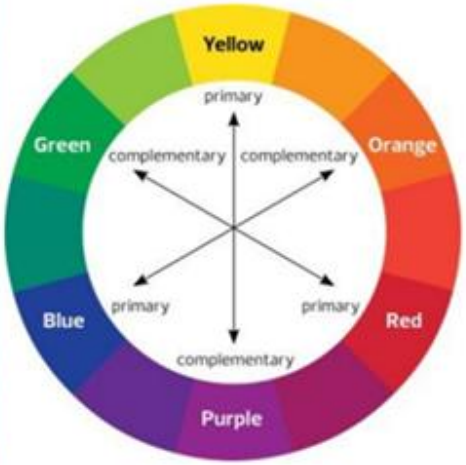
Embellish

Template

Harmonious Colours

Harmonious colours sit next to each other on the colour wheel. These colours work well together and can be blended into each other.

Complementary Colours



Key Terms

Design: a concept or proposal for an object, process or system.

Complementary Colours: Opposite on the colour wheel.

Acrylic Paint: A fast drying paint made of pigment suspended in acrylic polymer emulsion.

Template: A design, mould or model used as a guide to create the same design or shape with precision.

Score: To cut or mark with a line, scratch, notch 'I scored the line with a knife'

Relief: Is a sculpture with figures that protrude from a background, but are still attached to it.

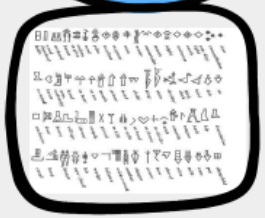
Embellish: make (something) more attractive by the addition of decorative details.

Year 9 Talking with Type: Typography/ Graffiti Timeline

Prehistoric Visual Communications Petroglyphs

3300 BCE

Archaic cuneiform



2900 BCE

Chinese Characters

1300 BCE

Darryl McCray ('Cornbread')

1960's Philadelphia

Shepard Fairey Political graffiti

1980's-present:USA

Claw is female graffiti writer in New York

1980's-present: USA

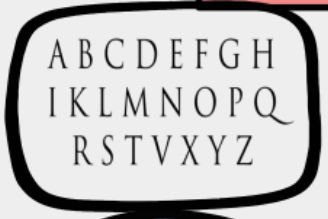
Ben Eine Typography Artist

1980's-present: UK

3200 BCE

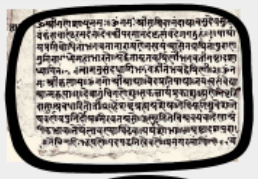
Egyptian hieroglyphs

700 BCE



Latin alphabet, also known as the Roman alphabet

7th century BCE to present ADE



Devanagari is one of the official scripts of India

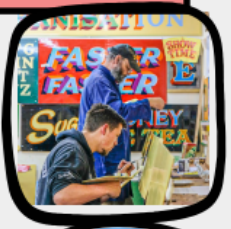
1970'S New York

Jean-Michel Basquiat was a graffiti artist

1980's-present: USA

Barbara Kruger

1980's-present: UK



Joby Carter Fairground Sign writer

Prehistoric - Egyptian - Chinese - Roman

Indian - Graffiti Art - Neo Expressionism - PostModernism -Contemporary Typography

Computing: Graphics - Photopea

Tool	Use
Image Editing/Graphics Software	Software programs that allow you to manipulate digital images.
Spot Healing Brush	The spot healing brush can be used to clone areas from an image and blend the pixels from the sampled area seamlessly with the target area. The basic principle is that the texture from the sample area is blended with the colour and luminosity surrounding wherever you paint.
Clone	The clone tool is used in digital image editing to replace information for one part of a picture with information from another part. In other image editing software, its equivalent is sometimes called a rubber stamp tool or a clone brush.
Text	This tool allows text to be typed onto the current layer using the Primary colour. The Text Controls in the Tool Bar can be used to change the font.
Gradient	The Gradient tool creates a gradual blend between multiple colours. You can choose from pre-set gradient fills or create your own. Note: You cannot use the Gradient tool with bitmap or indexed-colour images. To fill part of the image, select the desired area.
Adjust white balance levels	White balance is the adjustment of a digital photograph to make its colours appear more realistic
Face Remixing	Mix faces together in different combinations.
Adjustment Layers	An adjustment layer applies colour and tonal adjustments to your image without permanently changing pixel values.
File Formats for digital Graphics	PSD, TIFF, PNG, JPEG, GIF
Best file for printing	TIFF
Best file for online use	PNG/JPEG

Computing - Python

Python: A programming language
Programming Code: The process of writing computer programs . The instructions that you write to program a computer
Sequence: Parts of the code that run in order
Selection: Selects pathways through the code dependent on conditions
Iteration: Code is repeated (looped) while something is true or for a number of times
Algorithm: A set of rules / instructions
Variable: A value that can be changed (speed, lives, score)
Function: Inbuilt code that performs a specific task
String: A sequence of characters that can include letters, numbers, symbols
Integer: Whole numbers, no decimal point
Boolean: Can only output the result of True or False
Float: Decimal Numbers
Concatenation: Operation that joins two string together ('Tall + 'Giraffe")
Data Type: Format in how data is stored (float, integer, string)
Indentation: Moves code inwards to show it belongs to the same subsection of code.
Syntax: Spelling and grammar of a programming language so that the computer can understand it
Comparison Operator: When comparing data, a comparison operator is used to test the condition
Compiler: Collects every line of code together and checks for errors before executing.

Arithmetic Operators	Comparative Operators
+ Addition — Subtraction * Multiplication / Division / / Integer division % Remainder * * Exponent	== Equal to != Not equal to < Less than >= Greater than or equal to <= Less than or equal to

Python to English

```
Fname = "Paul"
Sname = "Smith"
print(Fname+Sname)
```

print('Hello')	Prints Hello on the screen
input('')	Inputs a value into the computer
x=input('')	Inputs a value and stores it into the variable x
if name == 'Fred':	'Checks to see if the variable 'name' has a value that is equal to 'Fred'
else:	The other option if the conditions for an if statement are not met (e.g.. name = 'Bob' when it should be Fred)

Variables
can hold a value that can be changed. We can assign a value to a variable by using an equals(=) sign.
We can add 2 strings together using +, this is known as concatenating.
We can get a keyboard input from the user using the input function. This example will ask the user for their name and store it in the "name" variable. We can then
Print that value. Combine the inputs with other strings to print a clear message.

```
name = input("What is your name")
print("Your name is "+name)
```

A **while loop** will keep repeating code until a certain condition is met. For example repeat until lives do not equal 0

Subject: Design and Technology

Once tree's are **felled** and converted into **Stock Forms** they are known as **'Timber'.** Timber comes in 2 main types: **Rough Sawn** and **Planed All Round (PAR).** Timbers are **seasoned** to reduce the moisture in them. This is done by drying them naturally or using a furnace. Uneven evaporation of the moisture causes **warping.** Timber can be a **sustainable resource** if it is **harvested responsibly and ethically.** Use this sheet for revision and for further research into timber based materials.

SOFTWOODS

Softwoods come from coniferous trees, a tree that usually has needles and cones rather than broad leaves. These trees are commonly referred to as **evergreens** as most of them keep their leaves all year round. Softwoods are **fast growing** and can reach full maturity within 25 years. Softwoods generally have a more **porous structure**. This means that if they are left unprotected, they can **absorb moisture** and begin to rot more quickly. Softwoods don't come in as many colour varieties as Hardwoods however, they are very **easy to stain** to make them look like their more expensive counterparts.

PINE

Properties: Lightweight, Easy to work, Can split easily.
Common Uses: Interior construction, Cheap furniture and Decking

CEDAR

Properties: Good strength to weight, Durable and Resistant to decay.
Common Uses: Construction, Boxes, Boats, Cladding and Musical Instruments.

LARCH

Properties: Durable, Tough, Good water resistance, Good surface finish.
Common Uses: Electrical fittings, casings, buttons and handles.

SPRUCE

Properties: Easy to work, high stiffness,
Common Uses: Construction (Interior/Exterior), Furniture and Musical Instruments

FIR

Properties: Machines well, Durable, Stiff and Good strength to weight.
Common Uses: Construction, Veneers.

HARDWOODS

Hardwoods come from **deciduous trees**. These are trees which **lose their leaves** in winter. Hardwoods take a **long time to grow**. In fact, if you were to plant a hardwood tree today, you would need to wait between 80-120 years for it to grow to full maturity. Hardwoods tend to be **less porous and more dense** which makes them **less prone to wearing and rotting.** Hardwoods come in a **variety of colours** and are known for their **aesthetic appeal.**

OAK

Properties: Tough, Hard, Durable, High quality finish.
Common Uses: Flooring, Furniture, Railway Sleepers and Veneers.

MAHOGANY

Properties: Easy to work, Durable, Excellent finish.
Common Uses: High end furniture, Joinery, Veneers.

BEECH

Properties: Fine finish, Tough and Durable.
Common Uses: Children's toys, Models, Furniture and veneers

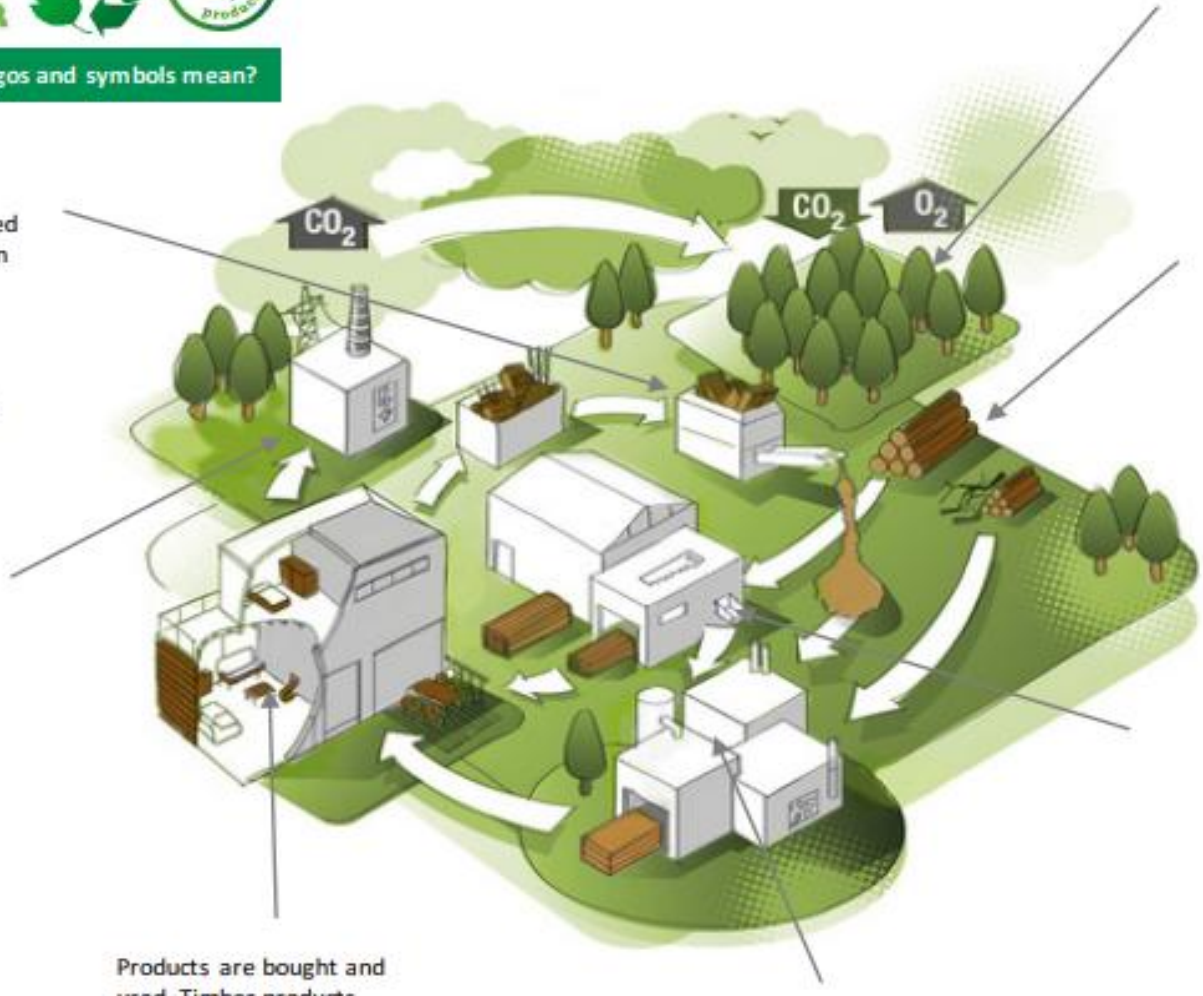
TIMBER LIFE CYCLE

The timber lifecycle shows how timbers start out as trees and end up as products which are then disposed of. Each stage of the life cycle has an impact on the environment.

What do the above logos and symbols mean?

Trees absorb CO2 and give out oxygen. This helps **to prevent Global Warming** and provides us with oxygen to breathe.

Some timber based products can be stripped down and the wood can be **'reclaimed'.** These materials are usually ground down and **converted to manufactured boards.**



Trees are felled. New seeds should be planted to ensure future generations have a **sustainable** supply of timber. If trees are not replanted and the land is used for urban development, this is known as **Deforestation.**

At the end of the products' life, the timber can be **used as fuel in power stations.** This gives off CO2, contributing to Global Warming.

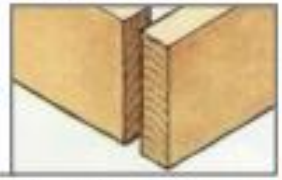
Products are bought and used. Timber products don't tend to have an **impact on the environment** when they're being used.

Waste materials from the mill, as well as reclaimed timber from old products is used to produce **Manufactured Boards.** This allows us to create more materials without the need to cut down more trees.

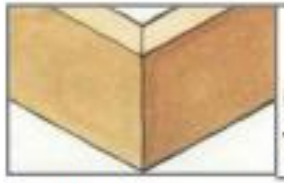
Trees are processed in a **mill** and cut to useful sizes known as **Stock Forms.** Machinery is commonly used for this process. The Machines require a **large amount of energy** to run, usually from fossil fuels (electricity). This gives off **CO2** which contributes to **Global Warming.**

JOINING METHODS

BUTT JOINT



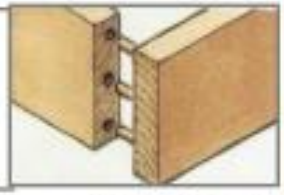
Two pieces stuck together using only wood glue. **Low Strength.**



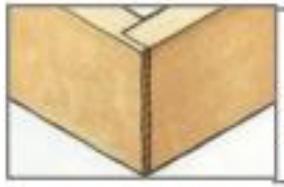
MITRE JOINT

Pieces cut at 45°. Stuck together with wood glue. **Low Strength.**

DOWEL JOINT



Dowel used to provide stability and strength. **High Strength.**



LAP JOINT

Glued. Aesthetically pleasing. Neat. **Medium Strength.**

COMB JOINT

Interlocking sections. Aesthetic and **High Strength.**

DOVETAIL JOINT

Interlocking sections at angles. Aesthetic. **Strongest joint.**

DRILLING

PILLAR DRILL

Good for **accuracy** when drilling timbers. The Pillar Drill is **powerful** enough to drill large holes through thick material. Selecting the correct **drill bit and speed is very important.**

HAND DRILL

Hand Drills are good for smaller tasks. As they are manual, they provide **better accuracy** than their powered counterparts.

CORDLESS DRILL

Very adaptable. The Cordless Drill has variable speeds and a clutch which prevents over tightening fixtures and fittings. They are **ergonomically designed.**

ABRADING

DISC SANDER

Mechanical machine which removes more material than hand methods.

RASP

A 'file like' tool with **rough teeth** for fast removal of material. Different profiles available.

SAND PAPER

Best for 'hard to reach areas. Different grades available. **Good for surface preparation.**

WIRE WOOL

Used for a **high quality surface preparation** before finishing. Produces a very smooth surface.

CUTTING/SHAPING

TENON SAW

Used for cutting timber in **straight lines.** Thick blade prevents the blade from deviating.

COPING SAW

Used for cutting **unusual and difficult shapes** with thin a blade.

BAND SAW

Mechanically powered. Adults only. Can cut sections, boards and sheets to specific sizes. Used for larger jobs where a more powerful saw is required.

WOOD PLANE

Shaves the surface of the wood to **reduce the thickness** of material. Can be adjusted to take more or less material.

ONE OFF PRODUCTION

In one-off production a **single product** is designed and made to a client's specification. **Labour and material costs are high**, and a high level of design and manufacturing skills are needed. Prototypes are classed as one-off's.

MASS PRODUCTION

Mass production is the industrial scale manufacture of **large quantities** of products, usually on a **production line**. Standardised production methods mean it is suitable for products that are not redesigned very often.

BATCH PRODUCTION

In batch production **set quantities** of a product are made to order. Materials are cost-effective and manufacturing **costs are lower**. Seasonal items are usually Batch produced.

CONTINUOUS PRODUCTION

Continuous production is the manufacture of an item **24/7 – 365.** The system is usually completely **automated using a production line.** Due to the scale on which the items are manufactured, they are **extremely cost effective.**

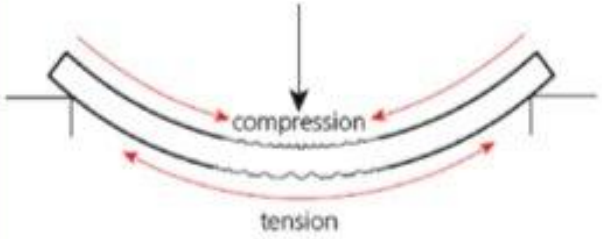
Various timbers are used in a range of products.. In their everyday use, these products are regularly having forces applied to them. These forces affect the way the product operates and its overall function and safety. Designers and manufacturers need to ensure that the materials they select for their products are able to withstand the forces and stresses the product will be subjected to. If they get this wrong it could have serious consequences.

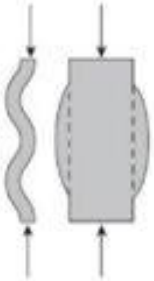
TYPES OF FORCES AND STRESSES

Tension forces are **pulling** forces that cause an object to be stretched or pulled apart.

Bending forces act at an angle to an object and make it bend.

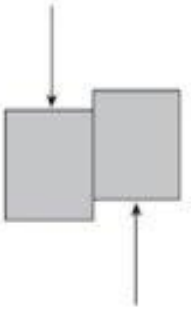
When an object **bends** it is under **compression** and **tension** at the same time. See below...





Compression forces are **pushing** forces that squeeze an object. Imagine a 'crushing' motion.

Shearing forces act **across** a material by creating a shearing action. Scissors are a good example.



Torsion forces are twisting forces that are applied to an object.

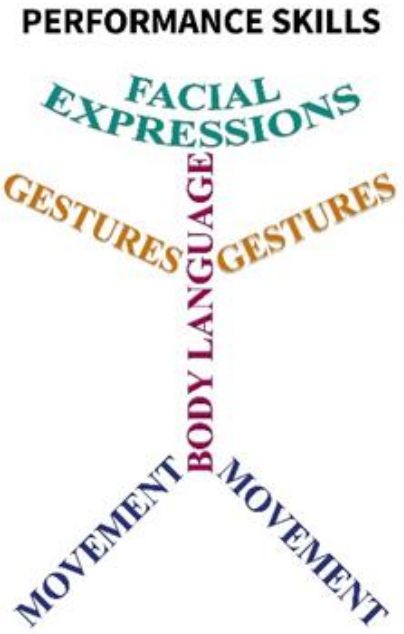
Drama: Real Life

You will learn about the technique of Mantle of the Expert and apply this to performance work based around a criminal investigation, exploring the different job roles involved within this area.

Tasks for this topic:

- Exploring how you use voice to suit a professional environment
- Using voice to sound like an expert in a particular field when you are not
- Creating performance work based on a process, following the procedure of the justice system.

Performance Techniques	
Mantel of the Expert	Taking on the role of an expert
Realism	Representational of the real world
Articulation	The formation of clear and distinct sounds in speech
Adapt	To make or become suitable



ENGLISH: OUR WORLD
POETRY AND NON-FICTION

Rhyme Scheme: *The pattern / order of rhyming words in a poem. This example follows ABA*

Flag by John Agard

What's that fluttering in a breeze?
It's just a piece of cloth
that brings a nation to its knees.

What's that unfurling from a pole?
It's just a piece of cloth
that makes the guts of men grow bold.

What's that rising over a tent?
It's just a piece of cloth
that dares the coward to relent.

What's that flying across a field?
It's just a piece of cloth
that will outlive the blood you bleed.

How can I possess such a cloth?
Just ask for a flag, my friend.
Then blind your conscience to the end.

Stanza
A group of lines in a poem.

Enjambment
The continuation of a sentence onto the next line without punctuation.

Caesura
A break or pause shown by punctuation.

Rhyming Couplet
A rhyming pair of successive lines

'WORLD' – OUR PERSUASIVE WRITING STRUCTURE	
Part	**Key Features**
INTRODUCTION: A HELLISH WORLD 	• Your introduction begins your persuasive piece • Use an 'imagine' sentence to put your reader in a hellish world • Include pathos: emotive language and rhetorical questions • Finish with your opinion on the topic
MAIN BODY: OUR REALITY 	• Your main paragraphs should include a problem, example and a solution • You are aiming for three main paragraphs • Begin with a topic sentence to establish the problem • Include ethos, logos and pathos • Use real-world examples • End with a concluding sentence that gives a solution
CONCLUSION: A HEAVENLY WORLD 	• Your conclusion ends your persuasive piece • Use a 'now imagine' sentence to put your reader into a heavenly world • Include pathos • Finish with your final opinion on the topic

Headline

Introduction: A Hellish World

Subheading

Main Body: our reality

Paragraph One

Subheading

Main Body: our reality

Paragraph Two

Subheading

Main Body: our reality

Paragraph Three

Conclusion: A Heavenly World

OUR WORLD
POETRY AND NON-FICTION

Universal Themes

Love	Suffering	Good vs Evil
		

Big Ideas

Demonisation
The act or process of portraying something / someone as wicked and threatening.

Identity
The fact of being who a person is / what they are made up of (background, culture, family).

Inclusivity
Providing equal access to opportunities and resources for everyone.

Representation
The description of someone / a group of people in a particular way.

Tolerance
Willing to accept other people's behaviour and opinion even if you do not agree with them.

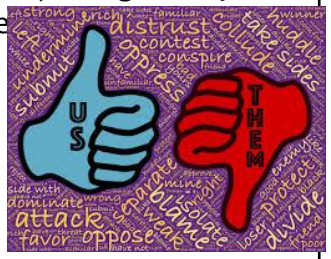
Social Division
Divisions in society associated with social groupings, often causing conflict, inequality and disadvantage.

Context – We must understand the influences of the world when examining texts.

Critical Theory: A critical theory is a lens that scholars use when reading a text.

E.G. Marxism and capitalism, displacement, the panopticon, nihilism, otherness, critical race theory, heteronormativity and critical gender theory.

Otherness
Otherness is a critical theory that investigates the presentation of 'others' ('them') by the dominant group ('us') to perpetuate (continue) a single story about 'others'/ 'the'. 'Otherness' uses real or imagined differences as a tool to stigmatise, discriminate and stereotype.

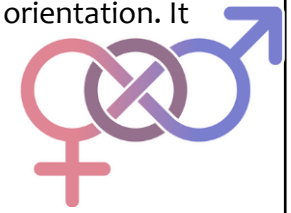


Critical Race Theory & Eurocentrism
Critical race theory investigates how people are portrayed and represented based on their race (physical characteristics) and ethnicity (where people are from).

Eurocentrism explores how Europe has shaped world history from a European perspective, often meaning that it is biased and excludes a wider world view.

Pronunciation: euro / sen / tr / ism

Heteronormativity
A worldview that promotes heterosexuality as the normal, natural and preferred sexual orientation. It assumes that everyone is heterosexual unless they state otherwise.



Pronunciation: hetero / norm / a / tiv / ity

Critical Gender Theory
Critical gender theory examines how people are portrayed and represented based on the characteristics that are stereotypically associated with their gender (masculinity and femininity).

YEAR 9 SPRING TERM KNOWLEDGE ORGANISER: OUR WORLD
TECHNICAL ACCURACY & KEY DEVICES

Device / Feature

Direct Address
Speaking directly to the audience / reader 'you'

Rhetorical question
A question that does not require an answer

Alliteration
Words beginning with the same sound

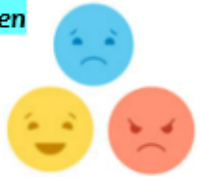
Triple
Three related words or phrases e.g. I came, I saw, I conquered

Hyperbole
Exaggeration

Quote
A quote from a reputable person or source

Anecdote
A short, personal story

Emotive Language
Words chosen to evoke an emotional response in the reader



Fact
Something that is proven to be true

Statistics
Numerical data e.g. percentages or fractions

Imperative
A command

Simile
Comparing something to something else: 'as', 'like'

Metaphor
Describing something by stating it is something else

Personification
Giving living qualities to something non-human

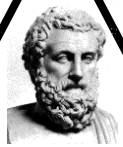
Symbolism
Objects, colours, sounds, places

Juxtaposition
Contrasting ideas / images

Ethos

Trust, credibility, experience

e.g. Quotes, anecdotes



Aristotle's Rhetoric Triad

Logos

Logic, proof and reason

e.g. Facts, statistics

Pathos

Empathy and values

e.g. Emotive language, similes, metaphors

Word Classes

Adjective
Describes a noun or pronoun.
Blue / young / powerful

Adverb
How, when or where something happens.
Furiously / yesterday / here

Preposition
Where something is; the time, direction or cause of something.
On / under / above

Pronoun
Words that replace nouns or noun phrases.
She / he / they

Noun
Person, place, thing, idea or state of being.
Manchester / cat / love

Verb
An action or state of being.
Jump / write / be

Common Homophones

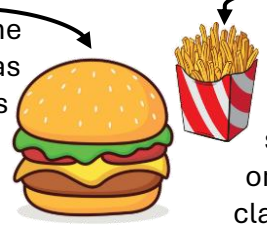
There	They're	Their
Your		You're
Its		It's
Which		Witch

ENGLISH: OUR WORLD - TECHNICAL ACCURACY & KEY DEVICES

Sentences are created by using different types of clauses

Main clause

A main clause contains one subject and one verb. It has one main idea and it forms a complete sentence (it makes sense on its own).



Subordinate clause

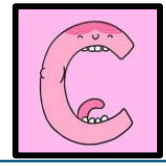
A subordinate clause adds extra information to a sentence and does not function as a complete sentence (it does not make sense on its own). It depends on the main clause to make sense and is usually separated by a comma.

Sentence Structure	Example
Simple sentence: one main clause	The prisoner escaped.
Compound sentence: two main clauses linked with a connective / conjunction 	The prisoner escaped and he never returned.
Complex sentence: one or two main clauses with embedded dependent / subordinate clauses 	The prisoner escaped despite the elaborate security system.
2V/3V: use two or three verbs	The prisoner anxiously sprinted, jumped and climbed over any barrier.
2A/3A: use two or three adjectives 	The road was long, empty and bewildering.
Fronted adverbial: begin your sentence with an adverb 	Quickly, he leapt over the wall.
As / When / Although: use any of these words at the beginning of your sentence to introduce a subordinate clause	Although sweat trickled down her face, she continued to climb.

Punctuation

Capital Letters

- Start of a sentence
- Proper nouns: names of places, people or things
- The pronoun 'I'
- Months and days of the week



Commas

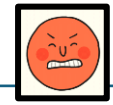
- Separate three or more items in a list
- After a fronted adverbial
- Before and after a subordinate clause (like brackets)
- After subordinate clauses and phrases that begin a sentence
- Separate question tags
- Separate direct speech from non-speech

Apostrophes

- To show that letters are missing in a word
- To show possession

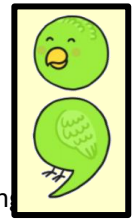
Full Stops

- To end a sentence



Semicolons

- Separate two main clauses that are closely connected to each other but could stand alone as two separate sentences
- To replace a coordinating conjunction
- To break up a list using longer phrases to signal which items are together

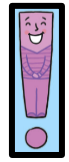


Colons

- At the end of a clause to elaborate / give more details
- At the end of a clause to give an explanation
- At the end of a clause to show an answer

Exclamation Mark

- To show strong feelings
- To show a raised voice

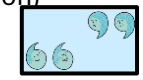


Question Mark

- After a direct question

Speech Marks

- Around direct speech (after the punctuation)



Subject: Food Technology

Topic: Food Production Methods

Food is sourced, processed and sold in different ways. Geography, seasonality, weather and climate influence the availability of food and drink.

Seasonality

Fruit and vegetables naturally grow in cycles and ripen during a certain season each year. Some meat and fish can also be seasonal. Advantages of buying food in season include:

- it is fresh; flavour, colour and texture;
- optimal nutritional value;
- best supports local growers;
- lower cost;
- reduced energy needed to transport.

All food must be grown, reared or caught

In the past food was grown, prepared and cooked at home or sold by small-scale producers or merchants.

Some people still grow food at home or on allotments. Food can also be bought from a wide range of sources, including:

- cafes/coffee shops
- convenience stores
- farmers markets
- farm shops
- markets

Food availability

Some ingredients or foods are available throughout the year because they have been imported from other countries where they are in season at different times of the year.

Climate and terrain are two key factors that affect food availability and where food is grown, reared and caught

Food processing is any deliberate change to food that happens to a food before it is available to eat. Processing makes food safer to eat by killing existing bacteria and slowing bacterial growth.
Food is processed to: extend shelf life; add variety; for convenience.
Innovations in food processing have led to the development of functional foodse.g. dairy products containing probiotic bacteria.

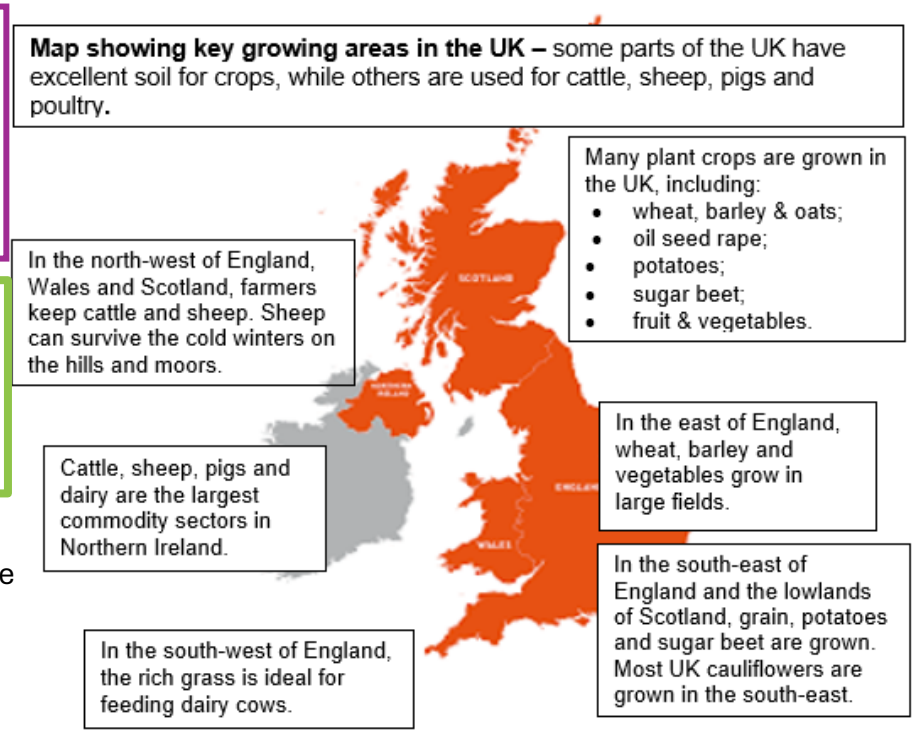
Food provenance

Food provenance is about where food is grown, caught or reared, and how it was produced. Food certification and assurance schemes guarantee defined standards of food safety or animal welfare. There are many in the UK, including: marine sustainability & The British Lion stamp for eggs.

Food security: exists when everyone has access to enough affordable, safe and nutritious food to keep them healthy, in ways the planet can sustain in the future.

Climate Change: There is worldwide concern about global warming and the increased number of extreme or unusual weather conditions.
Changes in temperature can affect plant growing seasons and livestock conditions. It is very likely to affect food security at all levels.

Map showing key growing areas in the UK – some parts of the UK have excellent soil for crops, while others are used for cattle, sheep, pigs and poultry.



Subject: Food Preparation and Nutrition **Topic: Food Science**

Functions of ingredients
Ingredients provide a variety of functions in recipes.

Carbohydrate, protein and fat
Carbohydrate, protein and fat all have a range of properties that make them useful in a variety of food products.

Carbohydrates perform different functions in food.
They can:
- help to cause the colour change to bread, toast and bakery products (dextrinisation);
- contribute to the chewiness, colour and sweet flavour of caramel;
- thicken products such as sauces and custards (gelatinisation).

Gelatinisation
When starch is mixed with water and heated, the starch granules swell and eventually rupture, absorbing liquid, which thickens the mixture. On cooling, if enough starch is used, a gel forms.

Proteins perform different functions in food products.
They:
- aerate foods, e.g. whisking egg whites;
- thicken sauces, e.g. egg custard;
- bind ingredients together, e.g. fishcakes;
- form structures, e.g. gluten formation in bread;
- gel, e.g. lime jelly.

Liquid animal oils

Visible animal oils: cod liver oil, oily fish
Foods containing invisible animal oils:
- Milk/cream
- egg yolk

Coagulation
Coagulation follows denaturation. For example, when egg white is cooked it changes colour and becomes firmer (sets).
The heat causes egg proteins to unfold from their coiled state and form a solid, stable network.

Fats performs different functions in food.
They help to:
- add 'shortness' or 'flakiness' to foods, e.g. shortbread, pastry;
- provide a range of textures and cooking mediums;
- glaze foods, e.g. butter on carrots;
- aerate mixtures, e.g. a creamed cake mix;
- add a range of flavours.

Solid animal fats
Visible animal fats: butter, lard, suet, ghee, fat on meat

Foods containing invisible animal fats
-Cheese
Butter in cakes
Meat products i.e. sausages

Liquid plant oils
Visible plant oils: Nut and seed oils (sunflower, olive, almond)

Foods containing invisible plant oils:
- Seeds
- -nuts
- Fruits- avocado
- Fried foods- chips
- - processed ready meals and takeaways

Solid plant fats

Visible plant fats: white vegetable fats, vegetable fat spreads, cocoa butter

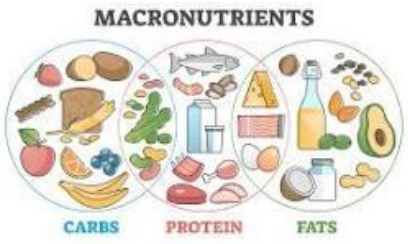
Foods containing invisible plant fats:
- Processed foods- ready made

curries, fried chicken, ready meals
- -Chocolate
- Pastries, cakes, biscuits and some breads

Aeration
Products such as creamed cakes need air incorporated into the mixture in order to give a well-risen texture. This is achieved by creaming a fat, such as butter or baking spread, with sugar. Small bubbles of air are incorporated and form a stable foam.

Subject: Food Preparation and Nutrition Topic: Macro and Micro Nutrients

Nutrients can be split into two categories:
Macronutrients & Micronutrients



Macronutrients are the nutrients we need in larger quantities that provide us with energy. The three macronutrients are fat, protein and carbohydrate.

Micro nutrients are needed in small amount in the body

- They provide the body with essential vitamins and minerals.
- Vitamins and minerals can found in a variety of food sources including fruits an vegetables.

Our body needs vitamins and minerals in small amounts; they help use other nutrients efficiently. You can usually get enough vitamins and minerals from a balanced diet that includes plenty of fruit and vegetables.

How much do you need?
Everyone needs the same vitamins and minerals, but the amounts you need vary with age and sex.
• A teenage boy needs 1.0 g of calcium every day, but an adult man needs just 0.70 g. This is because the boy is growing but the man is not.
• A teenage girl needs 0.015 g of iron daily, but a teenage boy needs just 0.011 g. This is because girls lose blood, which contains iron, during menstruation (periods).

Vitamin A	Cheese, eggs, oily fish	Fighting infection, better vision, keeping skin healthy
Vitamin B1	Peas, bananas, oranges, nuts	Releasing energy from food
Vitamin B2	Milk, eggs	Healthy skin, eyes and nervous system, releasing energy from food
Vitamin B12	Meat, fish, milk, cheese, eggs	Make red blood cells, release energy from food
Vitamin C	Citrus fruits	Healthy skin, blood vessels, bones and cartilage

Micro nutrients can be lost during cooking processes, especially water soluble vitamins.
Minimal Loss (Best Retention)
Steaming: Food does not touch the water, so water-soluble vitamins are not dissolved and lost. Only about 9-15% of vitamin C may be lost.
Moderate Loss
Roasting/Baking: High temperatures over a longer period can destroy heat-sensitive vitamins (C and B vitamins), but since it is a dry-heat method, water-soluble vitamins are not lost.
High Loss (Worst Retention)
Boiling/Simmering/Poaching: As water-soluble vitamins (C and B vitamins) dissolve in the water, significant amounts are lost, often poured down the drain. Up to 50% of vitamin C in some vegetables.

Freezing

Freezing is an excellent way to **preserve food** as it STOPS any bacterial growth as the water in the food is frozen solid.
The temperature of a freezer is a minimum of -18°C (often around -23°C).

Blanching

Blanching is **heating** fruit or vegetables in **boiling water** for a **short time** to **destroy** the **enzymes** before plunging into **cold** water to stop the cooking process.
When some fruit and vegetables are prepared for freezing they need to be blanched to destroy the enzymes.

Year 9 Topic 2 Part 2: Les vacances - Holidays

Key ideas
Daily routine
Weather in Paris
Describing where I like to go
Describing what I like to do
Future holidays
At the cafe

Weather in Paris
À Paris – In Paris
au printemps – in the spring
en été – in summer
en automne – in autumn
en hiver – in winter
quand – when
s' (si) – if
il fait beau – it's nice weather
il fait mauvais – it's bad weather
il fait chaud – it's hot
il fait froid – it's cold
il y a du soleil – it's sunny
il y a du vent – it's windy
il pleut – it rains
il neige – it snows

Activities I might do
je fais du vélo – I do cycling
je fais de la danse – I do danse
je fais de l'équitation – I do horse-riding
je fais de la natation – I do swimming
je chante – I sing
j'écoute de la musique – I listen to music
je joue de la guitare – I play the guitar
je joue au foot – I play football
je prends des photos – I take photos

Daily routine
je me prépare – I get ready
je me réveille – I wake up
je me lève – I get up
je me douche – I have a shower
je me lave – I wash
je me lave les dents – I clean my teeth
je me brosse les dents – I brush my teeth
je me brosse les cheveux – I brush my hair
je m'habille – I get dressed
je me parfume – I put perfume/aftershave on
je me maquille – I put makeup on
je me regarde dans la glace – I look at myself in the mirror
je me couche – I go to bed
Je ne me parfume pas
I don't put on perfume/aftershave
Je ne me maquille pas
I don't put makeup on
Demain je vais m'habiller – Tomorrow I am going get dressed
Quand je serai plus grand(e), je vais me parfumer – When I am older, I am going to put on perfume/aftershave

What I like to do
J'aime… - I like…
faire du vélo – to do cycling
faire de la danse – to do danse
faire de l'équitation – to do horse-riding
faire de la natation – to do swimming
chanter – to sing
écouter de la musique – to listen to music
jouer de la guitare – to play the guitar
jouer au foot – to play football
prendre des photos – to take photos

Where I like to go
J'aime aller… - I like to go…
…au café - …to the café
…au centre commercial - … to the shopping centre
…au centre de loisirs - …to the leisure centre
…au château - …to the castle
…au cinéma - …to the cinema
…au marché - …to the market
…au parc - …to the park
…au restaurant - …to the restaurant
…au stade - …to the stadium
…à la piscine - …to the swimming pool
…aux magasins - …to the shops
…aux musées - …to the museums
…au concert - …to the concert

At the café
une glace au chocolat
A chocolate ice-cream
un croque-monsieur
a ham and cheese toastie
une crêpe
A pancake
un chocolat chaud
a hot chocolate
un café
a coffee
un thé (au lait)
A tea (with milk)

Future holidays
À l'avenir / Dans le futur - In the future
je vais aller… - I am going to go…
Je voudrais aller… - I would like to go

Year 9 Topic 2 Part 2: Transferable language

To The

à = to
au – masc. (à + le = au)
à la – fem. (à + la = à la)
à l' – vowel sound (à + l' = à l')
aux – plural (à + les = aux)

Partitive Article – Some

du - masc. (de + le = du)
de la - fem. (de + la = de la)
des - plural (de + les = des)
de l' - vowel sound (de + l' = de l')

Using French in real life!

Vous désirez, monsieur/madame?
What would you like, sir/madam?
Je voudrais… / J'aimerais…
I would like…
S'il vous plait
please (formal)
C'est combien?
How much is it?
Merci beaucoup
Thank you very much

Using a range of language improves the quality of our speaking and writing and allows us to access more challenging texts!

Definite Article – The

le – masculine
la – feminine
les – plural
l' – starts with a vowel sound

When using verb phrases to give opinions and refer to the future, the second verb in the phrase, must be in it's infinitive form.

In English, the infinitive has "to" in front of the verb.

In French, the verb will end in –er, ir or –re.

For example:
J'aime aller au concert – I like to go to the concert
Je voudrais faire de la danse – I would like to do dance

Time phrases

Il y a deux mois – Two months ago
Samedi matin – Saturday morning
Dimanche après-midi – Sunday afternoon
Jeudi soir – Thursday evening
Tout d'abord / D'abord - Firstly
Puis - Then
Ensuite - Next
Après - After
Enfin / Finalement – Finally
Normalement – Normally
D'habitude – Usually
Quelquefois - Sometimes

Reflexive verbs

Se préparer – to get ready
Se lever – to get up
S'habiller – to get dressed

Se disputer – to argue

Je me dispute – I argue
Tu te disputes – You argue (sing. / informal)
Il se dispute – He argues
Elle se dispute – She argues
On se dispute – We argue
Nous nous disputons – We argue
Vous vous disputez – You argue (plural / polite)
Ils se disputent – They argue (m / m+f)
Elles se disputent – They argue (f)

Opinions

À mon avis – In my opinion
Je pense que – I think that
Je crois que – I believe that
Je dirais que – I would say that
Selon moi – According to me

C'est – it is
Je trouve ça – I find it/that
Ce sera – it will be
Ce serait – It would be

très – very
assez – quite
vraiment – truly
réellement – really
un peu – a bit
peu – little
trop – too
extrêmement – extremely
tellement – so

ennuyeux / barbant – boring
nul – rubbish
assez bien – quite good
amusant / marrant – funny
passionnant – exciting
intéressant – interesting
génial – great
pratique – practical
cher – expensive

Year 9 Topic 3: Transferable language

Using a range of language improves the quality of our speaking and writing and allows us to access more challenging texts!

Adverbs
Heureusement – Fortunately
Malheureusement – Unfortunately

Partitive Article – Some
du - masc. (de + le = du)
de la - fem. (de + la = de la)
des - plural (de + les = des)
de l' - vowel sound (de + l' = de l')

Time phrases
En général – In general
De temps en temps – From time to time
Une fois par semaine – Once a week
Deux fois par semaine – Twice a week
Souvent – Often
Quelquefois – Sometimes
Tout d'abord / D'abord - Firstly
Ensuite – Next
Puis – Then
Finalement – Finally

Definite Article – The
le – masculine
la – feminine
les – plural
l' – starts with a vowel sound

To The

à = to

au – masc. (à + le = au)
à la – fem. (à + la = à la)
à l' – vowel sound (à + l' = à l')
aux – plural (à + les = aux)

Reflexive verbs
Se casser – to break
Se faire mal à – to hurt
Se couper – to cut

Se casser – To break (+ a body part)
Je me suis cassé (la jambe) – I broke (my leg)
Tu t'es cassé – You broke (sing. / informal)
Il s'est cassé – He broke
Elle s'est cassé – She broke
On s'est cassé – We broke
Nous nous sommes cassé – We broke
Vous vous êtes cassé – You broke (plural / polite)
Ils se sont cassé – They broke (m / m+f)
Elles se sont cassé – They broke (f)

Key verbs in the perfect, present and future tenses
J'ai mangé – I ate
J'ai bu – I drank
J'ai joué – I played
J'ai fait – I did / made
Je suis allé(e) – I went
J'ai evité – I avoided
Je mange – I eat
Je bois – I drink
Je joue – I drink
Je fais – I do / make
J'évite – I avoid
Je vais manger – I am going to eat
Je mangerai – I will eat
Je vais boire – I am going to drink
Je boirai – I will drink
Je vais jouer – I am going to play
Je jouerai – I will eat
Je vais faire – I am going to do / make
Je ferai – I will do / make
Je vais aller – I am going to go
J'irai – I will go
Je vais éviter – I am going to avoid
J'éviterai – I will avoid

Le week-end dernier – Last weekend
La semaine dernière – Last week
Normalement – Normally
Chaque semaine – Each week
Le week-end prochain – Next week
La semaine prochaine – Next week

When using verb phrases to give opinions and refer to the future, the second verb in the phrase, must be in it's infinitive form.

In English, the infinitive has "to" in front of the verb.

In French, the verb will end in –er, ir or –re.

For example:
J'aime manger en famille – I like to eat as a family
Je vais jouer au foot - I am going to play football
Je voudrais faire de la danse – I would like to do dance

Talking about meals
Mon repas préféré, c'est... - My favourite meal is...
(Pour) le petit déjeuner - (For) breakfast
(Pour) le déjeuner - (For) lunch
(Pour) le dîner - (For) tea/dinner...
une bouteille de... - A bottle of...
une boîte de... - a tin/can of...

Conversation in a pharmacy

Ça va? - How are you?
Ça ne va pas - I am not well
Je suis malade - I am ill
Quel est le problème?
- What's the problem?
J'ai mal à la jambe - I have a sore leg
J'ai mal à la main - I have a sore hand
J'ai mal à la tête - I have a headache
J'ai mal à la gorge - I have a sore throat
J'ai mal à la bouche
- I have a sore mouth
J'ai mal à l'oreille - I have earache
J'ai mal au ventre
- I have a stomach ache
J'ai mal au cœur - I feel sick
J'ai mal au dos - I have a bad back
J'ai mal au bras - I have a sore arm
J'ai mal au doigt - I have a sore finger
J'ai mal aux pieds - I have sore feet
J'ai froid - I am cold
J'ai chaud - I am hot
Je n'ai pas faim - I am not hungry
J'ai soif - I am thirsty
J'ai de la fièvre - I have a fever
Je suis fatigué(e) – I'm tired
Je suis enrhumé(e) - I have a cold
J'ai de la grippe - I have flu

Year 9 Topic 3: La santé - Health

Depuis combien de temps?
- How long for?
Depuis un jour - For a day
Depuis deux jours - For two days
Depuis une semaine - For a week
Depuis un mois - For a month

Allez chez le médecin
- Go to the doctor's
Restez au lit - Stay in bed
Buvez de l'eau - Drink some water
Prenez du sirop
- Take some syrup/medicine
Prenez de l'aspirine - Take some aspirin

Talking about being healthy

Je suis en bonne forme / Je suis sain(e) – I am healthy
Je ne suis pas en bonne forme / Je ne suis pas sain(e)
– I am not healthy
Pour être en forme, … - To be healthy, …
je mange… - I eat…
je ne mange pas de/d'… - I don't eat…
je ne mange jamais de/d'… - I never eat…
je bois… - I drink…
je ne bois pas de/d'… - I don't drink…
je ne bois jamais de/d'… - I never drink…
je ne mange pas (assez) de légumes
- I don't eat (enough) vegetables
je mange beaucoup de fruits
- I eat lots of fruit
je bois beaucoup d'eau – I drink lots of water
je ne bois jamais de coca – I never drink coke
je fais souvent du sport – I often do sport
C'est bon / mauvais pour la santé
– It is good / bad for the health

Giving recommendations for being healthy

Pour rester en forme, …
- To stay healthy, …
il faut…
- you must…
il ne faut pas…
- you must not…
il ne faut jamais…
- you must never…
manger bien
- eat well
manger moins/plus de…
- eat more/less of
boire beaucoup d'eau
- drink lots of water
faire beaucoup d'exercice
- do lots of exercise
faire du sport
- do sport
aller au gymnase
- go to the gym
manger assez de (légumes)
- eat enough (vegetables)
boire de l'alcool
- drink alcohol
boire du coca
- drink coke
dormir huit heures par nuit
sleep 8 hours per night
éviter le stress - avoid stress
c'est bon/mauvais
pour la santé
- It's good/bad
for your health

Key ideas

At the pharmacy
What happened?
Am I healthy?
Recommendations

Talking about what happened

Je jouais (au foot)
- I was playing (football)
Je faisais (de la boxe)/(un curry)
- I was (boxing)/I was making (curry)
Je rentrais du collège
- I was coming/came home from school
quand – when
je me suis fait mal au *dos*
- I hurt my *back*
je me suis fait mal à la *bouche*
- I hurt my *mouth*
je me suis fait mal à l'*oreille*
- I got *earache*
je me suis fait mal aux *pieds*
- I hurt my *feet*
je me suis cassé le *doigt*
- I broke my *finger*
je me suis cassé la *jambe*
- I broke my *leg*
je me suis cassé l'*épaule*
- I broke my *shoulder*
je me suis cassé les *bras*
- I broke my *arms*
Je me suis coupé le/la/l'/les…
- I cut my…
J'ai pris un coup de soleil
- I got sunburnt

Year 9 - Manchester

Urban area	Towns and cities
Settlement	A place where people live e.g. city
Migration	When people move somewhere new to live and work
Industrial Revolution	When machines changed people's way of life as well as how we make things.
Deindustrialisation	When a country moves away from manufacturing to service industries. Factories shut.
Land Use	How the land of an area is used. For example, housing, shops, offices, recreation.
Inequality	The state of not being equal. May refer to rights or opportunities.
Regeneration	To renew an area aiming to fix social and economic problems.
Demographics	The characteristics of an area's population. E.g. gender, age, religion, wealth, education level
Deprivation	The state of being without something important. E.g. adequate housing or education
sustainability	Using the Earth's resources in a way that ensures they will be available for future generations

Urban Change in Manchester

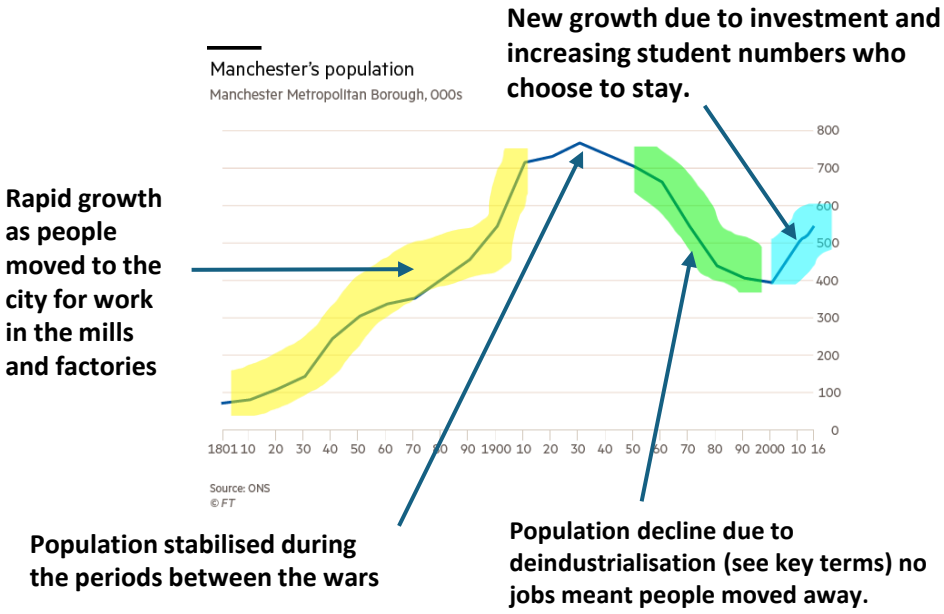
Manchester is a city that is changing. After a period of deindustrialisation, regeneration of the city is now taking place at pace!

If you visit the city centre you will see lots of cranes building sky scrapers and shiny new glass buildings as the government and companies continue to invest in the city!

- Manchester is in the **northwest of England**. Manchester's population has increased by 9.7% since 2011 to **551,900**.
- Manchester was a reasonably small town until the early 1800s, when it grew rapidly. The unplanned growth was due to the growth of textile manufacturing during the Industrial Revolution.

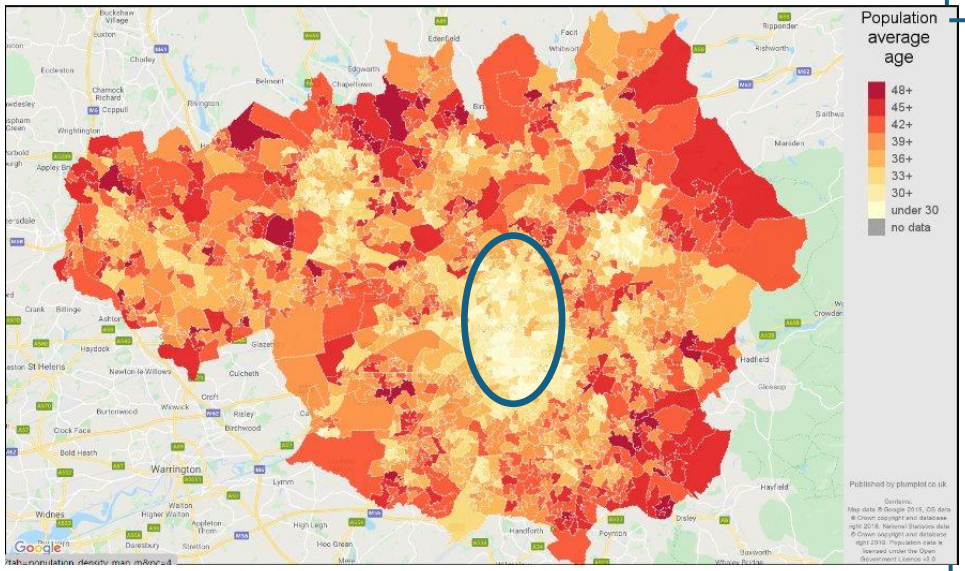
Why is Manchester special?

- **Economic importance:** Manchester accounts for 10% of all employment in the UK.
- **Education importance:** Manchester has two major universities
- **Cultural importance:** Manchester is known as the music capital of the UK. It is home to a range of venues for music as well as many bands such as The Stone Roses, The 1975, Oasis, The Happy Mondays and The Smiths. Manchester is also famous for sports with two hugely successful football teams plus Lancashire Cricket Club.
- **Historical importance:** Manchester became known as 'Cottonopolis' as the textile industry became its primary source of income. During the industrial revolution which led to world firsts like a ship canal and the worlds first passenger railway line.



Who lives in Manchester? Demographics..

- **Demographics are the study of statistics that tell us about the population and people** in a place.
- For example, the population of Greater Manchester has increased by 200,000 since 2011. That is an increase of 7.5%.
- Manchester's population is increasing as the number of jobs available increase.
- In addition, the average wage in Greater Manchester is £35,000 whereas the UK average is £38,200.
- Conversely the average age is 38 whereas the average age for the whole of the UK is 40. This is because many students choose to stay in Manchester after university.
- We can use demographics to help us understand places and learn about potential opportunities and challenges.
- The **choropleth map below shows us the average of people in different parts of Greater Manchester.**
- The ellipsis shows the city centre and the university quarter which is predominantly younger than the edge of the city. We can ascertain that many younger people live in the flats in the city whereas older people tend to live on the edge of the towns near more rural areas.



What challenges does Manchester face?

Social deprivation is the degree to which an individual or an area is deprived of services, decent housing, adequate income and local employment. This is a problem because ideally, we would like everyone to have access to the same level of services and therefore the same life chances.
The map below (**red square**) shows that there is very little deprivation in Westhoughton but people in Bolton can experience more social deprivation. This can affect education, health services, access to public transport and also jobs that pay higher wages.

Mapping Deprivation in Greater Manchester

What will it take for Manchester to thrive?

Manchester needs to become a sustainable city. What does this mean?
Sustainable urban strategies include:

- Providing a range of employment (jobs)
- Conserving cultural, historical and environmental sites and buildings
- Minimising the use of greenfield sites by using brownfield sites instead.
- Increasing provision and use of public transport
- Providing Green Spaces to improve air quality and people's moods.
- Recycling and re-using waste
- Reducing reliance on fossil fuels
- Increasing use of renewable energy
- Minimising water waste entering local rivers and seas

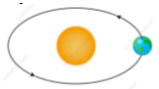
Geography: Climate Change

- **Climate** is the average weather conditions over a long period of time. It is usually expressed as the temperature and the amount of rainfall.
- **Climate Change** is change in the global or regional climate over an extended period. In particular a change apparent from the mid 20th century whereby increased levels of carbon dioxide and methane produced by humans has led to the earth getting warmer (global warming).

Natural causes of climate change: The earths climate has been changing for over 4 billion years. Scientists have attributed some natural changes in earths climate to three main theories:

Orbital Theory

The earths orbit is sometimes circular and sometimes an ellipse (oval) meaning sometimes we are closer to the sun and other times further away. This affects the amount of energy we receive and temperature.



Sunspot Theory

The suns energy output is not constant but variable. When there are lots of sun sports the earths temperature can temporarily increase.

Eruption Theory

Volcanic eruptions produce ash and sulpher dioxide which is circulated by high level winds. The blanket of ash and gas can block the suns energy temporarily reducing the earths temperature.

Impacts of Climate Change in the Maldives

- In the Maldives the coral in the reefs are bleaching. This is due to the algae in them disappearing, taking the bright vivid colours away, leaving it white.
- Corals are found where there is salty, shallow, clear water that is over 18 degrees Celsius.
- Corals are considered the 'rainforests of the sea' meaning that they support very high biodiversity.
- Climate change is causing the sea temperature to rise meaning more bleaching events and areas of coral are dying.
- This will have huge impacts on coastal flooding as the coral reefs protect the islands from destructive waves but also will hit tourism on the islands too as many people visit to see the coral reefs.

Human causes of climate change: The enhanced greenhouse effect

- First it is important we understand the greenhouse effect is a natural process that keeps heat inside our planets atmosphere which means life can flourish. Without it the earth would be like Mars.
- But... about 50 years ago scientists discovered that our actions were having a significant effect on the earth's atmosphere.
- Human action such as the burning of **fossil fuels** (coal, oil and gas) were adding excess gases into the atmosphere which is trapping more heat. This is known as **global warming**.
- Scientists were able to prove this by measuring levels of carbon dioxide and methane in the atmosphere over time. The main human causes of global warming are below.

Burning Fossil Fuels – car engines burn petrol/diesel which is a form of oil. The exhaust releases carbon dioxide which is a fossil fuel. Furthermore power stations traditionally burnt coal, oil & gas to produce electricity.

Farming – raising cattle and growing rice can release large amounts of methane which is also a greenhouse gas that contributes to a thicker layer of greenhouse gases trapping heat.

Impacts of climate change in Bangladesh

- Bangladesh is a low lying country in Asia. To the south is the Indian Ocean and to the North are the Himalayan Mountains.
- As it is low lying it is very vulnerable to sea level rise and coastal flooding is becoming much more frequent making land unusable due to the high salt content of the sea.
- In addition as winters become warmer more ice is melting in the Himalayas making river flooding events more common also.
- This is causing people to become internally displaced in Bangladesh. When people are displaced from their homes in Bangladesh they are affected both economically and socially. They lose their houses and have to re start their lives in another place.


Impacts of climate change in the UK

- We are now seeing weather patterns change in the UK as we have recorded 10 of the hottest summers on record within the last 15 years. Including the hottest temperature ever recorded in July 2022.
- Scientists believe that extreme weather events in the UK will become more common these include increased floods in Winter and Spring and increased droughts and heatwaves in summer.
- As global sea levels continue to rise we are also likely to experience more coastal erosion.
- Impacts of these events could be water shortages due to heatwaves and droughts.
- More insurance claims due to flooding
- Changes to crop yields for farmers as plants can be seriously effected by both too much rain in Spring and not enough rain in summer.
- Although warmer and drier summers is likely to attract more tourists.

My carbon footprint- What can I do to try and reduce it?

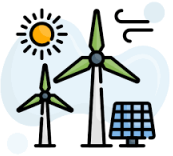
Factors that add to a person's carbon footprint include their diet (how far their food has travelled- this is referred to as food miles). Also how much energy they use within their household e.g. to heat their homes. If fossil fuels are being used instead of renewable energy sources they will be adding to their carbon footprint. In addition the transport people use will also add to this, cars emit C02 into the atmosphere.

Food Miles- *Food miles are the distance food is transported from the time of its making until it reaches the consumer.*

Everyone can do something to help reduce global greenhouse emissions the most common being reduce, refuse and recycling of our waste. In addition being more energy conscious making sure we try to reduce our consumption by turning off lights, walking or cycling instead of getting lifts where appropriate and being conscious of the products we buy.

Strategies to reduce climate change/global warming

There are a number of ways we can reduce the impacts of global warming and climate change, we call these **mitigation** strategies.



Renewable Energy Sources – wind, solar and hydroelectric power does not release carbon dioxide. This will reduce the amount of greenhouse gases being released into the atmosphere slowing temperature rises.

Planting Trees – this is a simple way to reduce the amount of carbon dioxide in the atmosphere as trees absorb and store carbon dioxide. Though many millions of trees are needed.

Carbon Capture – this is the removal and storage of carbon dioxide from waste gases before it gets to the atmosphere. Through an issue with this is that we will have to store the carbon dioxide somewhere.

Year 9 Knowledge Organiser: The Holocaust

What do I need to know?
- ✓ Why Jews have been persecuted throughout history?
- ✓ What were the key stages in the persecution of the Jews in Nazi Germany?

KEY VOCABULARY

Antisemitism	Racism against Jewish people including prejudice, discrimination and hostile behaviour.	**Persecution**	Unfair or cruel treatment over a period of time- usually because of race or religion.
Scapegoat	A person or group who is blamed for the mistakes of others.	**Citizenship**	Being a citizen of a country and so having rights e.g. to vote and to be protected by the law.

Why have Jews been persecuted throughout history?

People often think that the persecution of the Jews was unique to Nazi Germany but this is not true. In fact, Jews have been persecuted throughout history and in many different countries.

Why?
- ❑ The Christian Church portrayed Jews as the killers of Christ.
- ❑ Many Jews were wealthy and people envied them. It was said that rich Jews were part of a conspiracy to take over the world.
- ❑ Governments often made Jews scapegoats for problems in their country.

Where?
- ❑ In France in 1348, Jews were burned to death for causing the Black Death.
- ❑ In England in 1290, more than 250 Jews were hanged because they were seen as having more money than other English people.
- ❑ In Russia in the 1800s, Jews were blamed for the failure of the harvest because a few rich Jewish farmers have not suffered as much as others.
- ❑ In the 1920s, Jews were blamed for Germany losing the First World War.

Stage 1: The passing of anti-Jewish laws

As soon as the Nazis came to power in 1933, they started to pass laws that were intended to make the lives of Jewish people more difficult.

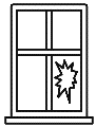
The 1935 Nuremberg Laws included:
- ❑ Law for the Protection of German Blood and Honour: Marriages between Jews and German citizens are forbidden.
- ❑ Reich Citizenship Law: No Jew can be a German citizen.

Soon these laws were extended to include all aspects of Jewish life:
- ❑ September 1937 - Large numbers of Jewish businesses were confiscated.
- ❑ 1938 - Aryan and non-Aryan children are forbidden to play together.
- ❑ June 1938 - Jewish doctors, lawyers and dentists were forbidden to treat Aryans.
- ❑ August 1938 - Jews forced to use Jewish forenames, Israel for men and Sara for women.
- ❑ October 1938 - Jews had to have a red letter 'J' stamped on their passports.
- ❑ April 1939 - Jews can be evicted from their homes without reason being given or without notice.
- ❑ September 1939 - Jews were no longer allowed to leave their homes after 8pm.

KEY VOCABULARY			
Ghetto	Walled off areas of cities were Jews were forced to live.	**Holocaust by Bullets**	The mass murder of 2 million Jews by the SS Einsatzgruppen (special action groups).
Final Solution	The plan to kill all of the Jews in Europe.	**Dehumanise**	To take away human qualities by treating someone in an inhuman way.

Stage 2: Kristallnacht (The Night of Broken Glass), November 1938

A Jewish man went to the German embassy in Paris, where he shot and killed a Nazi official. Kristallnacht was the punishment of all Jews for his actions.



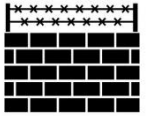
- ❑ Josef Goebbels organised anti-Jewish demonstrations which involved attacks on Jewish property.
- ❑ 7,500 Jewish homes, businesses and synagogues were destr
- ❑ Over 100 Jews were killed and 26,000 healthy male Jews were round up and sent to concentration camps.
- ❑ Jews were fined 1 billion Reichmarks for the damage caused.
- ❑ This event signaled a major change in the persecution of the Jews. Up to this point the persecution had been largely non-violent.

Stage 5: The Final Solution

The Final Solution was the plan to kill all Jews in Europe.

- ❑ 6 extermination camps were built in Poland including Auschwitz- Birkenau and Sobibor.
- ❑ Each camp had purpose-built gas chambers. Each of the gas chambers at Auschwitz-Birkenau could hold up to 2,000 Jews and the gas, Zyklon B, could kill them within 20 minutes.
- ❑ Jews were transported to the camps in cattle trucks. Upon arrival a selection took place. The elderly, the disabled and young children were sent straight to the gas chambers.
- ❑ Some Jews were kept alive to be used as slave labour. They would be worked to death in a process known as 'destruction through work'.

Stage 3: Life in the ghettoes



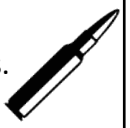
Ghettoes or 'Jewish districts' were set up in Poland to isolate Jews from the main population. These were walled off areas of cities were Jews were forced to live. Any Jews caught leaving could be shot. The Warsaw ghetto was the largest.

- ❑ It was run by the Judenrat, a Jewish council who carried out Nazi orders.
- ❑ It had a population of over 400,000 people living in a very small area – the ghetto was overcrowded.
- ❑ On average 7 – 8 people shared a room.
- ❑ Houses were unheated and dirty water entered the water supply leading to diseases such as typhus and typhoid fever.
- ❑ There was a limited food supply – each person received a bowl of watery soup and 300g of black bread twice a day.
- ❑ Dead bodies were often seen in the streets until they were removed by garbage men.
- ❑ Over 92,000 Jews died due to starvation, disease and cold.

Stage 4: The Holocaust by Bullets

In June 1941, Germany invaded Russia. Russia was home to many Jews; they now came under Nazi control.

- ❑ The German army was followed by the SS Einsatzgruppe. This was a special force, whose job was to murder all the Jews – men, women and children – it could find.
- ❑ Whole communities were rounded up and shot into mass graves.
- ❑ Altogether, it murdered over two million people.



November 1938 Kristallnacht → **October 1939 The start of the move to ghettoes** → **June 1941 The start of the Holocaust by bullets** → **January 1942 The Wannsee Conference is held to plan the Final Solution**

KEY VOCABULARY

Resistance	An act of opposing or fighting back against something or someone.
Liberation	The act of freeing people from a place of imprisonment or oppression.
Perpetrator	Someone who carries out and is responsible for a crime or immoral act.
Collaborator	Someone who works with people they know are committing crimes or immoral acts.
Bystander	Someone who is present when a crime or immoral act of committed but does not take part.

How were the camps liberated?

Auschwitz was liberated on January 27, 1945, by Soviet troops. In the weeks beforehand the Nazis began to destroy evidence of their crimes.

- ❑ Auschwitz prisoners were forced to march westward in what would become known as death marches.
- ❑ Jews who had worked in Auschwitz's gas chambers and crematoria were murdered. The gas chambers were destroyed.
- ❑ Prisoners were ordered to tear down buildings and destroy many of the meticulous records of camp life.
- ❑ The belongings they had looted from the Jews they murdered were moved elsewhere.
- ❑ When they entered the camp, Soviet soldiers found over six thousand emaciated prisoners alive. These prisoners greeted the soldiers as their liberators.

How did Jewish people resist?

Jewish people resisted the Nazis in various ways, some violent and some non-violent. Examples include:

- ❑ In April-May 1943, Jews in the Warsaw ghetto rose in armed revolt. The Germans were able to end the major fighting within a few days but it took them nearly a month before they were able to completely pacify the ghetto.
- ❑ In October 1943, over 300 Jewish prisoners escaped from Sobibor extermination camp. This was the most successful uprising in any of the camps.
- ❑ The Bielski partisans rescued Jews from extermination and fought against the Nazis. They blew up railway lines and attacked supply lines.
- ❑ Some Jews published underground newspapers and leaflets. They continued to observe Jewish religious holidays.
- ❑ The Frank family went into hiding in the annex above the factory owned by Otto Frank. Here they hid for two years, helped by who brought them food and other things that they would needed.

Who was to blame for the Holocaust?

The answer to this question seems to be simple: Hitler. The truth is more complicated.

Perpetrators – people who carried out the Holocaust

- ❑ Heinrich Himmler was head of the SS. The SS were the people who ran the death camps.
- ❑ Irma Grese was a guard at Belsen concentration camp. She shot Jews and helped select victims for the gas chambers.

Collaborators – people who worked with the Nazis

- ❑ Jaqueline Hering her husband owned a furniture company and would buy Jewish hair from the camps to stuff their products with.
- ❑ Charlotta Elias was a Polish woman who told SS officers about a Jewish family hiding in the woods close to her home.

Bystanders – those people who witnessed it but did not take part

- ❑ German citizens who watched as a Jewish shopkeeper cleared up the smashed glass from his shop window after Kristallnacht.
- ❑ The Allies knew about the transportation of Jews to Auschwitz but doing nothing to stop it.

April – May 1943
Uprising in the Warsaw ghetto

→

October 1943
Escape from Sobibor

→

January 1945
Liberation of Auschwitz

Proportion

Component Knowledge

- Find the value of 1 item (unitary method)
- Use proportion to work out which item is best value for money
- Use proportion to solve problems involving exchange rates
- Use proportion to solve problems involving recipes

Key Vocabulary

Proportion	2 or more quantities that change by a related amount in the same ratio.
Exchange rate	The amount of money in a different currency that your currency will buy or sell for.
Best buy	Comparing the cost of 2 or more items and interpreting the values.
Unitary method	Finding the value of 1 item.
Direct proportion	A relationship between two quantities such that as one increases, the other increase (or as one decrease, the other decreases) at the same rate.

Unitary method

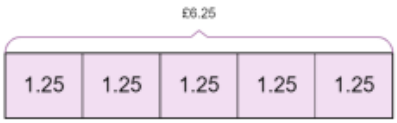
Finding the value of a single unit and then finding the necessary value by multiplying the single unit value.

Example

If 3 ice creams cost £3.75, how much does 1 ice cream cost?

1.25

£3.75 ÷ 3 = £1.25. 1 ice cream costs £1.25.



How much do 5 ice creams cost? (use the cost of 1 ice cream to find this)

£1.25 × 5 = £6.25. 5 ice creams cost £6.25.

Best buys

Find the unit cost by dividing the price by the quantity (unitary method). The lowest number is the best value.

	Shop A	Shop B
	4 cans for £1.20	3 cans for 93p
	£1.20 ÷ 4	£0.93 ÷ 3
Cost per item	1 can is £0.30 Or 30p	1 can is £0.31 Or 31p

Best value is the most product for the lowest price per unit

Shop A is the better value.

You can also compare using multiples. Multiply both amounts until you have the same number of items (12 in this case). Then compare the costs to find the lowest.

Eat Fresh

4 for 46p

46p × 3 = £1.38 for 12

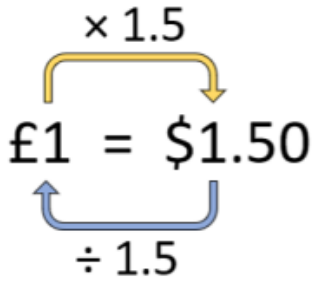
CHEAPEST

Max-Mart

6 for 75p

75p × 2 = £1.50 for 12

Exchange rates



For every £1, you can buy $1.50 US dollars
This is the price of one pound, expressed in dollars
i.e. the £/$ exchange rate

To change an amount of £ into $, multiply by 1.50

To change an amount of $ into £, divide by 1.50

Examples

Change £200 into US dollars. £200 × $1.5 = $300

Change $75 into British Pounds $75 ÷ $1.5 = £50

A watch costs £45 in Manchester. The same watch costs $68 in New York. In which place is the watch cheaper? (Both prices need to be in the same currency)

£45 × $1.5 = $67.50. (Both in US dollars)

The watch is cheaper in Manchester.

Recipes

Non calculator

A recipe to make **10 cupcakes:**

100 g of butter
100 g of sugar
100 g of flour
2 eggs

How much of each ingredient is needed to make **15 cupcakes?**

To get from 10 to 15, divide by 2 and then multiply by 3

÷ 2

5 cupcakes:
50 g of butter
50 g of sugar
50 g of flour
1 egg

× 3

15 cupcakes:
150 g of butter
150 g of sugar
150 g of flour
3 eggs

Calculator

A recipe to make **10 cupcakes:**

100 g of butter
100 g of sugar
100 g of flour
2 eggs

How much of each ingredient is needed to make **15 cupcakes?**

Use the unitary method, divide by 10 to find how much 1 cupcake needs and then multiply by 15

1 cupcake:
10g of butter
10g of sugar
10g of flour
0.2 of an egg

15 cupcakes:
150 g of butter
150 g of sugar
150 g of flour
3 eggs

Online clips

M478, M681, U610

Area of 2-D shapes

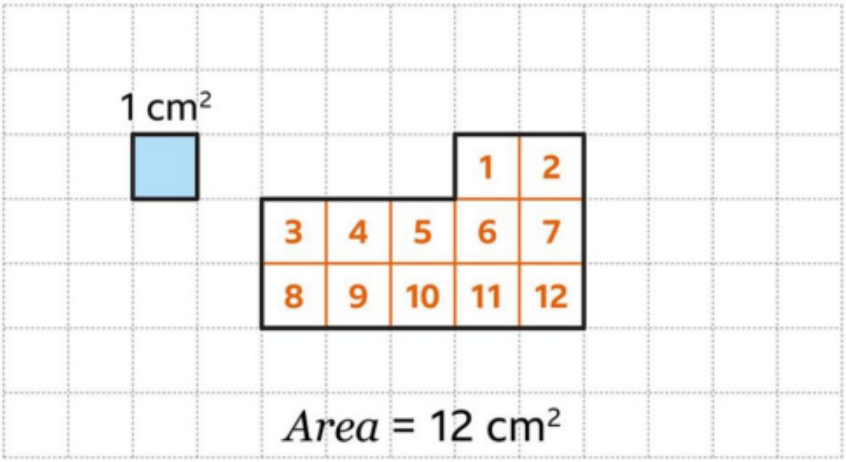
Component Knowledge

- Identify the relevant dimensions
- Identify the correct formula for area
- Use the correct formula to calculate the area of rectangles, triangles, parallelograms and trapeziums.
- Express the answer in the correct units

Key Vocabulary

Area	The amount of squared units that fit inside a shape
Dimension	The lengths of the sides of the shape
Unit of measure	This can be length (cm, mm, m) or area (cm^2, mm^2)
Compound shape	A 2-D shape composed of key 2-D shapes

Area is how much space fits inside a shape. We usually measure it in cm^2, this means how many 1cm squares can fit inside the shape.



Squares and rectangles:

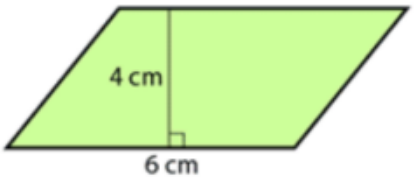
The formula is the same for both shapes: **A = Length x Width**

A = 3 x 3
= 9cm²

A = 10 x 4
= 40cm²

Parallelograms:

The formula is similar to a rectangle but instead of width we use the height. **A = Length x Height**



A = 6 x 4
= 24cm²

Sometimes the length is referred to as the base.

Terms and notations of 3D shapes

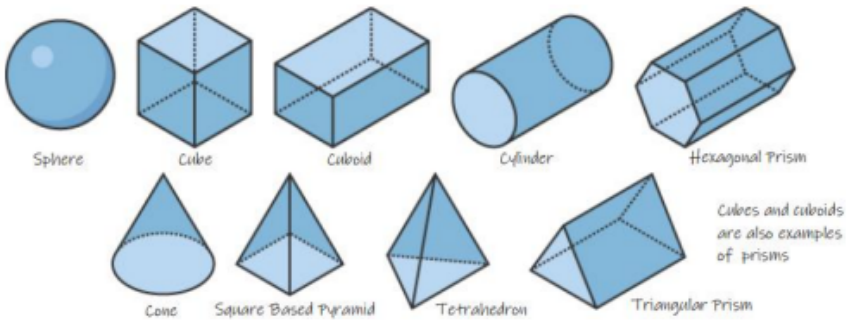
Component Knowledge

- Be able to name 3D shapes
- Identify edges, faces and vertices on 3D shapes
- Recognise nets of 3D shapes

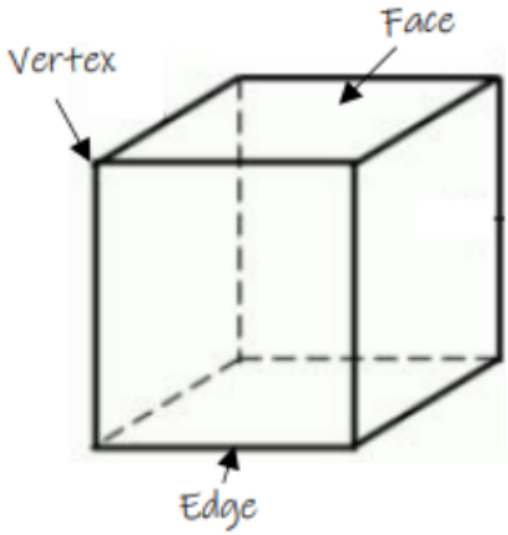
Key Vocabulary

3 dimensional	Having 3 dimensions such as height, width and depth
Vertices	Where edges meet to form a point
Edge	Where two faces meet
Face	A flat surface
Net	A flat 2D shape which can be folder to create a 3D shape
Prism	A type of 3D shape with two ends that are the same shape and size.

Names of 3D shapes



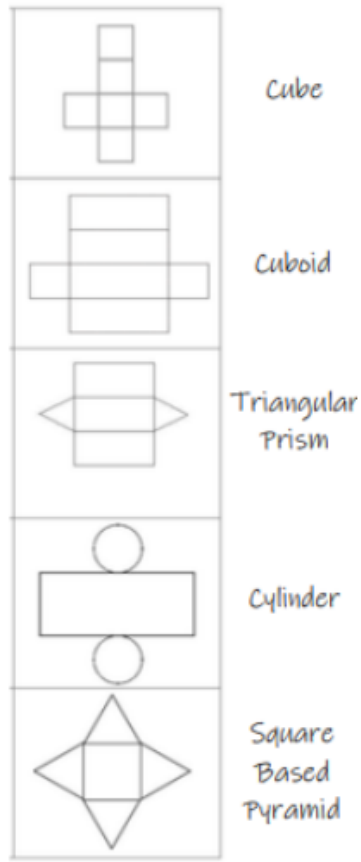
Properties of 3D shapes



A cube has 6 faces, 8 vertices and 12 edges.

You may not be able to see all the faces, edges and vertices on a shape but the hidden ones are still counted

Nets of 3D shapes



A net only works if you have no overlapping pieces once your 3D shape has been formed

Online clips

Q675, Q711, Q971

Volume

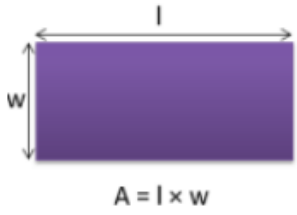
Component Knowledge

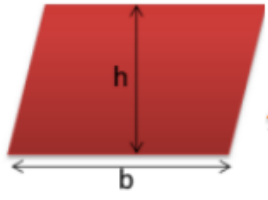
- To be able to calculate the volume of a prism
- To be able to calculate the volume of a sphere
- To be able to calculate the volume of a cone
- To be able to calculate the volume of a pyramid

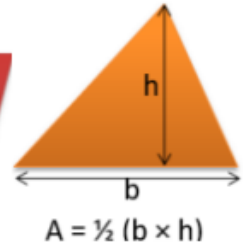
Key Vocabulary

Volume	The amount of space that a shape occupies
Prism	A prism is a solid object with identical ends and flat faces. And the same cross section all along its length.
Length	How long a shape is.
Cross-section	A cross section is the shape made by cutting straight across an object
Face	The flat part of a 3D solid.
Pyramid	A 3D shape with a flat base and its sides meet at a single vertex. It's volume is a third of the volume of its prism.

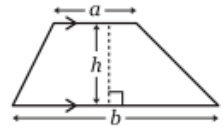
Area - recap



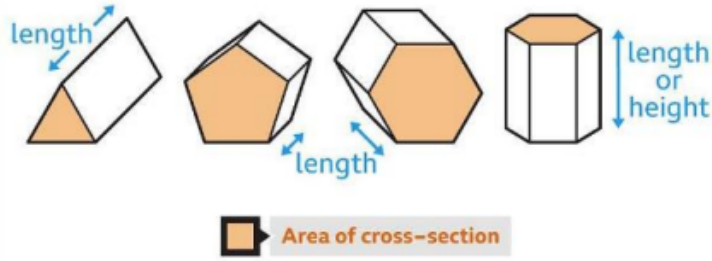




$$A = \frac{1}{2}(a + b)h$$

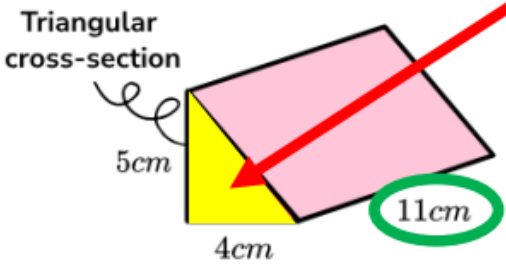


Volume of a prism = Area of the cross section x Length



Example of volume of a prism

First start by finding the area of the cross section, which in this example is a triangle



$$Area\ of\ triangle = \frac{1}{2}(b \times h)$$

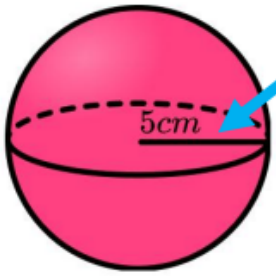
$$Area = \frac{1}{2}(4 \times 5) = \frac{1}{2}(20) = 10cm^2$$

$$volume = area\ of\ cross \times length$$

$$volume = 10 \times 11 = 110cm^3$$

Volume of a sphere

$$Volume = \frac{4}{3}\pi r^3$$



Here the radius is 5cm

$$Volume = \frac{4}{3} \times \pi \times r^3$$

$$Volume = \frac{4}{3} \times \pi \times 5^3$$

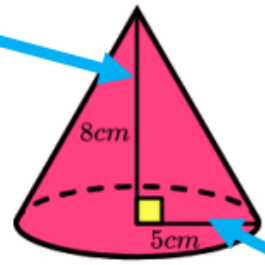
$$Volume = \frac{4}{3} \times \pi \times 125$$

$$Volume = 523.6\ cm^3$$

Volume of a cone

$$Volume = \frac{1}{3}\pi r^2 h$$

Here the height is 8cm



Here the radius is 5cm

$$Volume = \frac{1}{3} \times \pi \times r^2 \times h$$

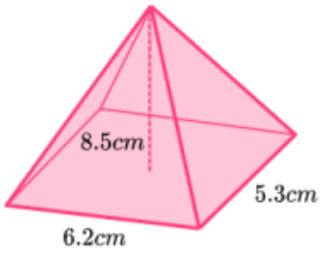
$$Volume = \frac{1}{3} \times \pi \times 5^2 \times 8$$

$$Volume = \frac{1}{3} \times \pi \times 25 \times 8$$

$$Volume = 209.4\ cm^3$$

Volume of a pyramid

$$Volume = \frac{1}{3} \times base\ area \times height$$

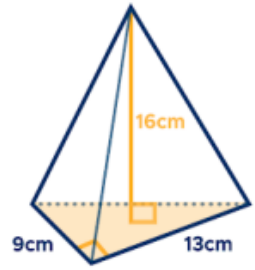


Here the base is a rectangle

$$Base\ area = b \times h = 6.2 \times 5.3 = 32.86\ cm^2$$

$$Volume = \frac{1}{3} \times 32.86 \times 8.5$$

$$Volume = 93.1\ cm^3$$



Here the base is a triangle

$$Base\ area = \frac{b \times h}{2} = \frac{13 \times 9}{2} = 58.5\ cm^2$$

$$Volume = \frac{1}{3} \times 58.5 \times 16$$

$$Volume = 312\ cm^3$$

Online clips

M765, M722, M697, U484, U116, U617

Surface Area

Component Knowledge

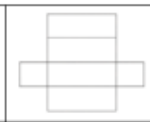
- To be able to calculate the surface area of cuboids, prisms, cones, spheres and composite shapes.

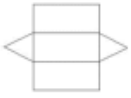
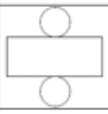
Key Vocabulary

Surface area	The space needed to cover the outside of a 3D shape.
Face	The flat part of a 3D shape.
Cuboid	A 3D object made up of 6 rectangular faces.
Prism	A 3D object in which the two ends are identical.
Cone	A 3D object which tapers from a circular or roughly circular base to a point.
Sphere	A round 3D object.

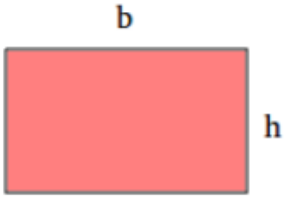
Prior knowledge required:

A net of a 3D shape is useful in calculating its surface area. The shape can be unfolded to form a net. This helps us identify the lengths of the sides so we can calculate the area of all the faces. Some common nets are shown below.

Cuboid		6 rectangles	
Cube		6 squares	

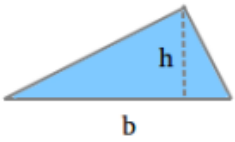
Triangular prism		2 triangles 3 rectangles	
Cylinder		1 rectangle 2 circles	

Area formulae which may be useful are shown below



$A = bh$

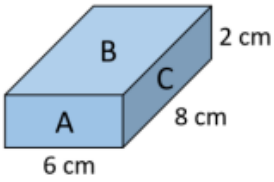
$A = \pi r^2$

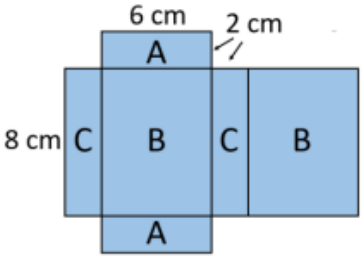


$A = \frac{b \times h}{2}$

Surface Area- cuboids

Find the surface area:





A: b x h
$6 \times 2 = 12cm^2$

B: b x h
$6 \times 8 = 48cm^2$

C: b x h
$2 \times 8 = 16cm^2$

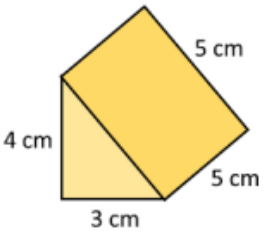
Find the areas of all the faces using the net.

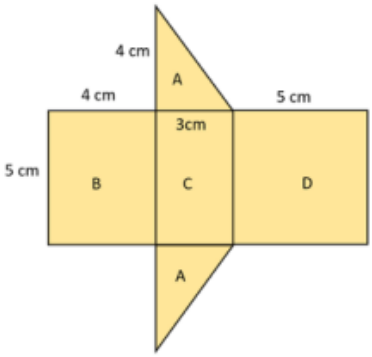
Add all the areas to find the total surface area.

Total surface area
=12+12+48+48+16+16
$= 152cm^2$

Surface Area- prisms

Find the surface area:





Working out

A: $\frac{b \times h}{2} = \frac{3 \times 4}{2} = 6cm^2$

B: b x h = 4 x 5 =$20cm^2$

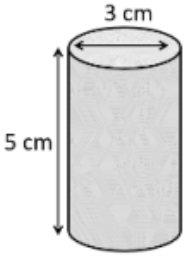
C: b x h = 3 x 5 = $15cm^2$

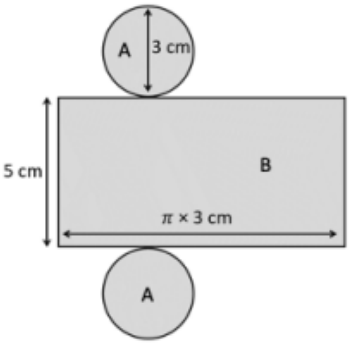
D: b x h = 5 x 5 = $25cm^2$

Total Surface Area = 6+6+20+15+25= $\underline{72cm^2}$

Surface Area- cylinders

Note: the base of the rectangle is equal to the circumference of the circle as it wraps around the curved edge.





Working out

A: $A = \pi r^2 = \pi(3)^2 = 9\pi$

B: b x h = 3π x 5 = 15π

Total Surface Area = $9\pi + 9\pi + 15\pi = 33\pi$

$= 103.6725576cm^2$

$\underline{= 103.67\ cm^2\ (2dp)}$

Surface Area- cylinders

Online Clips

Similar shapes

Component Knowledge

- Identify similar shapes
- Work out missing sides and angles in similar shapes
- Use parallel lines to find missing angles in similar shapes
- Understand similarity & congruence

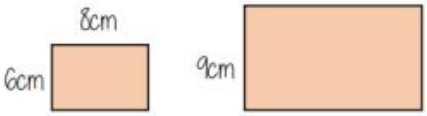
Key Vocabulary

Enlarge	Make a shape bigger (or smaller) by a given multiplier (scale factor)
Scale factor	The multiplier of enlargement
Similar	When one shape can become another through a reflection, rotation, enlargement of translation
Corresponding	Items that appear in the same place in two similar situations

Identifying similar shapes

Angles in similar shapes do not change.
e.g if a triangle gets bigger the angles can not go above 180^0

Similar shapes

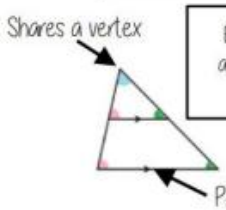


Scale Factor
Both sides on the bigger shape are 1.5 times bigger

Compare sides: 6 : 9 = 2 : 3 ; 8 : 12 = 2 : 3

Both sets of sides are in the same ratio

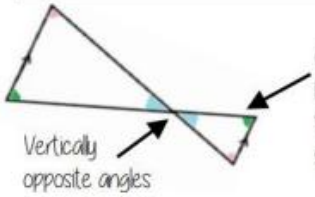
Similar triangles



Because corresponding angles are equal the highlighted angles are the same size

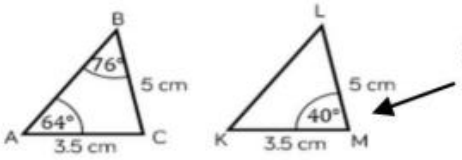
Parallel lines – all angles will be the same in both triangle

As all angles are the same this is similar – it only one pair of sides are needed to show equality

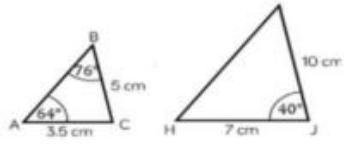


Congruence & similarity

Congruent shapes are identical – all corresponding sides and angles are the same size

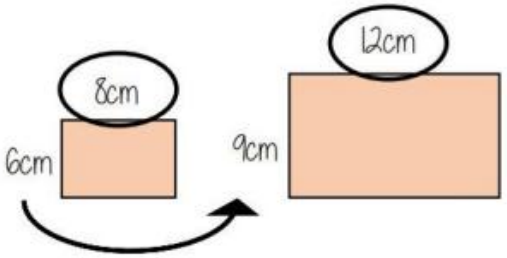


Because all the angles are the same and AC=KM BC=LM triangles ABC and KLM are **congruent**



Because all angles are the same, but all sides are enlarged by 2 ABC and HIJ are **similar**

Information in similar shapes



Compare the equivalent side on both shapes

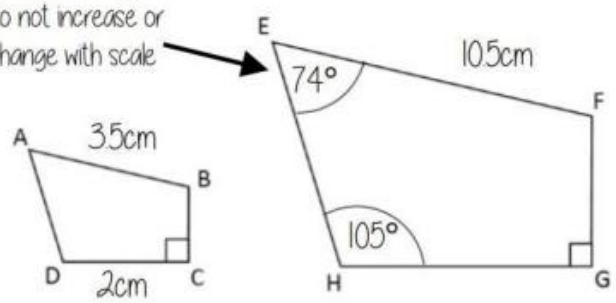
Scale Factor is the multiplicative relationship between the two lengths

Shape ABCD and EFGH are similar

Notation helps us find the corresponding sides

AB and EF are corresponding

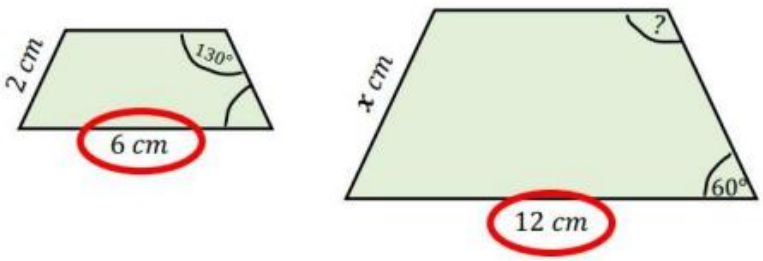
Remember angles do not increase or change with scale



Further example

Don't forget that properties of shapes don't change with enlargements or in similar shapes

The two trapezium are similar find the missing side and angle



Corresponding sides identify the scale factor $\frac{12}{6} = 2$ Scale Factor = **2**

Calculate the missing side Length (corresponding side) x scale factor

$2cm \times 2$

$x = 4cm$

Enlargement does not change angle size

Calculate the missing angle Corresponding angles remain the same

$130°$

Online clips

M124, M377, M324, M606

Enlargement

Component Knowledge

- Enlarge a rectilinear shape by a given positive scale factor
- Enlarge a rectilinear shape, given a positive integer scale factor and a centre
- Enlarge a rectilinear shape, given a positive fractional scale factor and a centre
- Describe an enlargement in terms of scale factor and centre

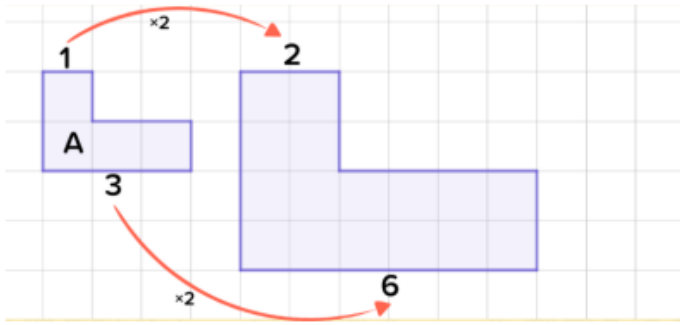
Key Vocabulary

Enlargement	A transformation of a shape in which all dimensions are multiplied by the same number
Scale factor	The number by which dimensions are multiplied in an enlargement
Centre of enlargement	The point from which distances to the *object* and the *image* of an enlargement are measured

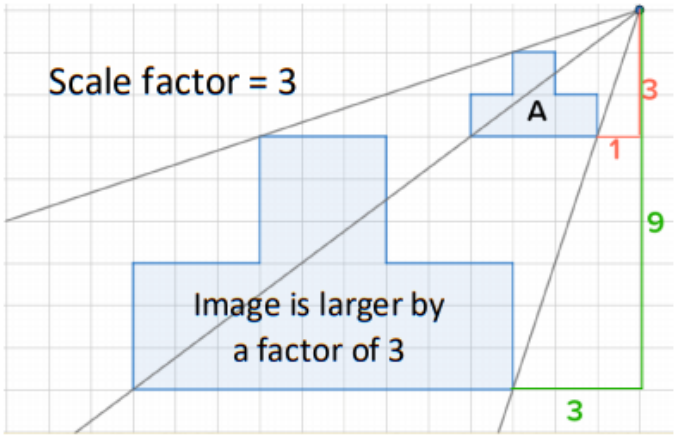
Enlarging by a scale factor

In an *enlargement* all dimensions are multiplied by the same number, called the **scale factor**. In this example shape A has been enlarged by scale factor 2.

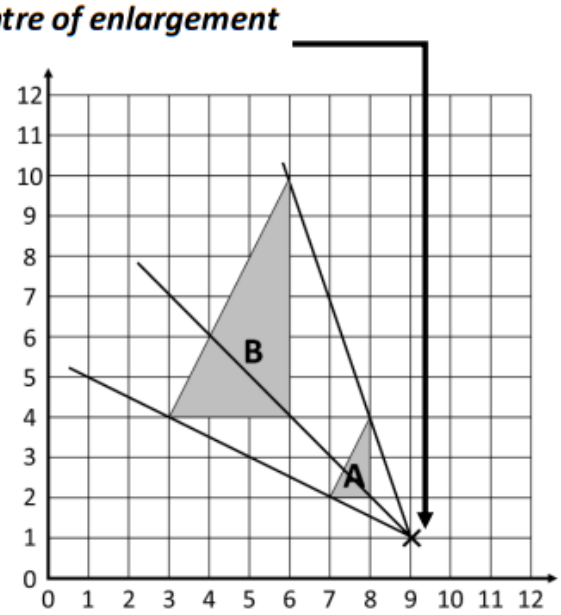
If the scale factor is smaller than 1 the dimensions are in fact reduced (divided), although the transformation is still called an enlargement! (See next page)



Enlarging by a positive *integer* scale factor from a centre



Measure the distance from the centre of enlargement to each vertex of the *object* shape A; the corresponding vertex in the *image* is triple that distance in the **same** direction

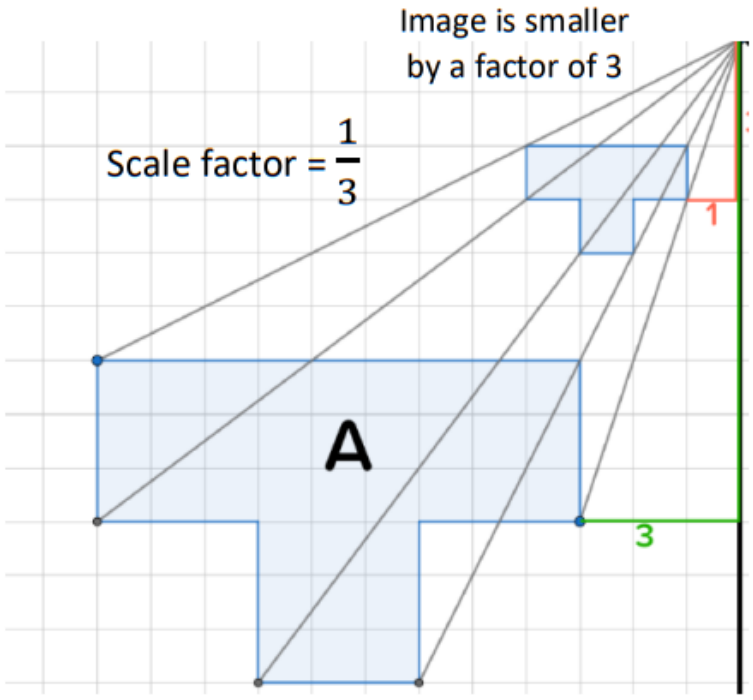


If the object shape is drawn on a coordinate grid, the centre may be specified by coordinates (here the centre is (9,1))

Enlarging by a positive *fractional* scale factor from a centre

A positive scale factor that is smaller than 1 reduces the dimensions of the object shape.

Here the distance from the centre of enlargement to each vertex of the object shape A is measured and then **divided** by 3 to find the corresponding vertex in the image (still in the same direction)



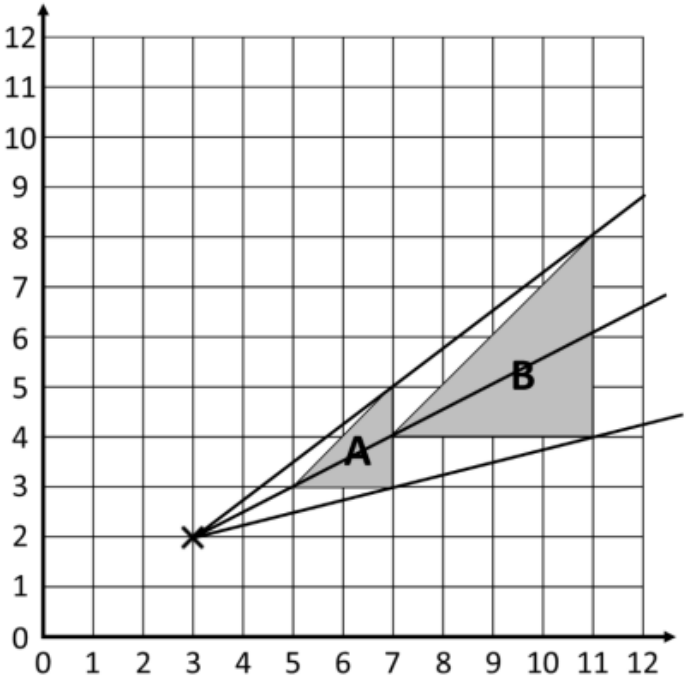
Describing an enlargement

An enlargement is easily identified as such by the change in dimensions.

To determine the scale factor, calculate the ratio of the lengths of corresponding sides in the object and its image.

For the centre, draw lines through two pairs of corresponding vertices and find their point of intersection (thus retracing the steps of the process of enlarging)

The enlargement shown here – from A to B – has scale factor 2 and centre (3,2)



Online clips

M178, U519

Time and Timetables

Component Knowledge

- Be able to add on times to solve worded problems
- Be able to read and interpret different timetables

Key Vocabulary

Time	The ongoing sequence of events taking place
Timetable	A table of information showing when things will happen
Journey	An act of travelling from one place to another
Hour	A period of time equal to a twenty-fourth of a day (1 hour = 60 mins, 1 day = 24 hours)
Second	The basic unit of time. There are 60 seconds in 1 minute and 3600 seconds in an hour
Minute	A unit of time equal to 60 seconds. There are 60 minutes in an hour

Analogue and Digital Clocks

There are **24 hours** in **one day**, but the day can be measured by splitting it into two halves.

The first 12 hours of the day – **from midnight to midday** – are called **AM**, and the next 12 hours are called **PM**.

Each hour has 60 minutes, each minute has 60 seconds.

We use analogue and digital clocks to tell the time.

Analogue clocks show time passing by moving hands. Digital clocks show the time numerically.

Timetables

An important life skill is that we know how to read and understand information offered to us in a variety of different formats and styles eg train and bus timetables.

Bus Timetable					
Thornton Interchange	06:00	06:15	06:30	06:45	07:00
Main Road	06:10	06:25	06:45	07:00	07:10
Crossley Street	06:18	06:33			07:18
Western Road	06:25	06:40	06:57	07:12	07:25
Thornton Drive	06:32	06:47	07:04	07:19	07:32
Saltwell Common	06:40	06:55	07:12	07:27	07:40
Legrams Lane	06:48	07:03			07:48
Thornton Interchange	07:05	07:20	07:28	07:43	08:05

Example

Josh wants to travel from Newcastle to Edinburgh. He wants to leave close to 1pm. Which train will he catch and how long will the journey take?

Josh will catch the 12.54 train from Newcastle which arrives at 14.21

The journey will take 1 hour and 27 minutes

Some train times between Newcastle and Edinburgh	
Leaves Newcastle	Arrives Edinburgh
12:39	14:13
12:54	14:21
13:35	15:09
13:45	15:16
13:52	15:19
14:21	15:47
14:43	16:15
14:55	16:22

Online clips

Q283, Q547, Q291, Q760, Q303, Q493

Measures

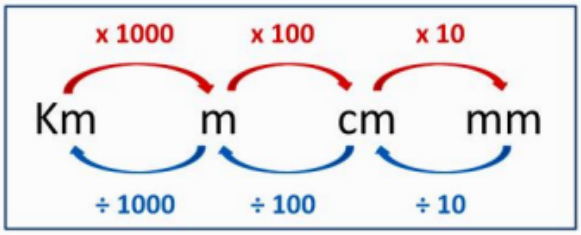
Component Knowledge

- Convert between units of length
- Convert between units of capacity
- Convert between units of mass
- Convert between units of time

Key Vocabulary

Convert	To change from one unit to another such as from centimetres to millimetres, or litres to millilitres, etc.
Unit	A quantity used as a standard of measurement
Length	The measurement of something from end to end
Capacity	The maximum amount that something can contain
Mass	The weight of an object
Time	A numerical quantity that represents the duration between two events.

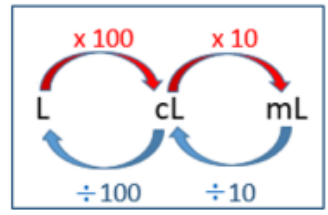
Units of length



5km = ? m **Need to x 1000** 5 x 1000 = **5000m** ✓

120cm = ? m **Need to ÷ 100** 120 ÷ 100 = **1.2m** ✓

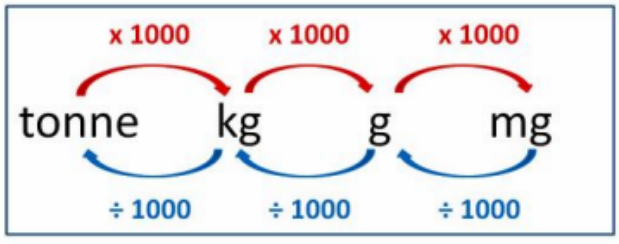
Units of capacity



5L = ? cL **Need to × 100** 5 × 100 = 500 cL

750 mL = ? cL **Need to ÷ 10** 750 ÷ 10 = 75 cL

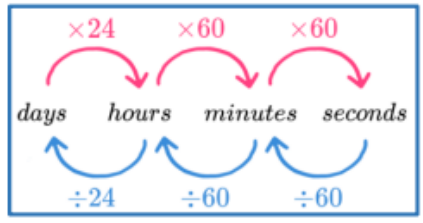
Units of mass



Mass conversions use 1000's, and usually create fairly large results.

1.6 tonne = ? kg **Need to x 1000** 1.6 x 1000 = **1600 kg** ✓

Units of time



2 mins = ? secs need to × 60 2 × 60 = 120 secs

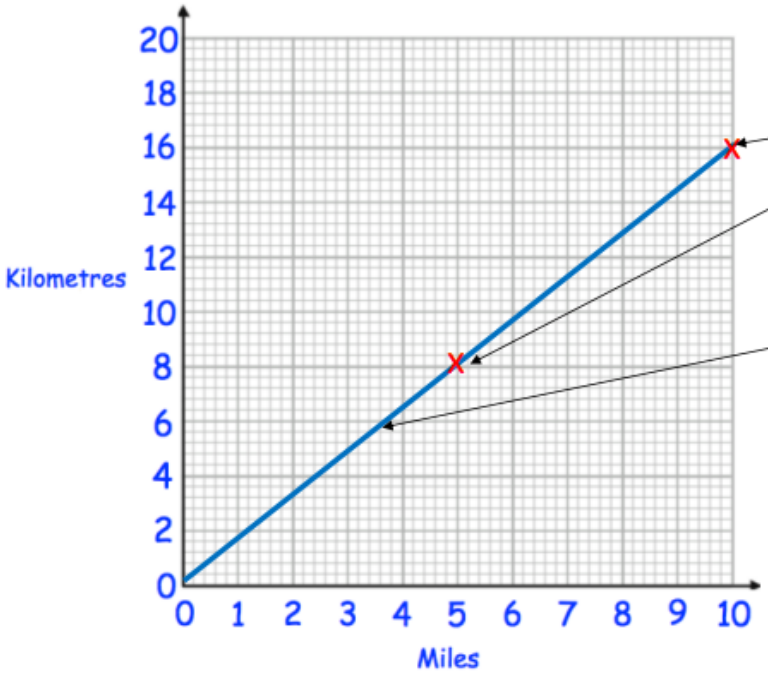
96 hrs = ? days need to ÷ 24 96 ÷ 24 = 4 days

Online clips

M772, M761, M530, M774, M627, M515

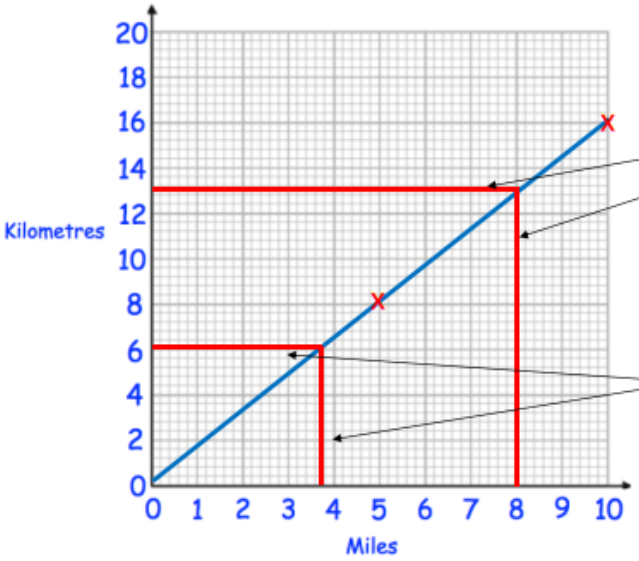
Plotting conversion graphs

Use the fact 5 miles = 8 kilometres to draw a conversion graph on the grid.



Mark a cross at 5 miles and 8 kilometres and then another one at 10 miles and 6 kilometres.

Join these points up from (0,0).



Use your graph to convert 8 miles to kilometres

Draw a line up from 8 miles until it meets the diagonal line. Then draw from the diagonal line to the left until it reaches kilometres on the y axis. Then read the number from the axis. In this example 8 miles is 12.8 kilometres.

Use your graph to convert 6 kilometres to miles

Draw a line to the right from 6 kilometres until it meets the diagonal line. Then draw from the diagonal line, down until it reaches miles on the x axis. Then read the number from the axis. In this example 6 kilometres is 3.8 miles.

Online clip

U610

Compound units of measure

Component Knowledge

- Be able to convert compound units of measure
- Calculate speed, density and pressure

Key Vocabulary

Speed	How fast something is moving. Measured as distance travelled per unit of time
Density	A measure of how much matter is in a certain volume
Pressure	The force per unit of area
Measure	To find a number that shows the size or amount of something
Convert	To change a value or expression from one form to another

Speed, density and pressure are examples of compound measures which means they are made up of two or more other measures. For example, speed is measured using distance and time (mph, m/s etc)

To convert the units of compound measures, convert the individual units separately

Useful conversions to know

1cm	10mm
1m	100cm
1km	1000m
1g	1000mg
1kg	1000g
1 hour	3600 secs
1 hour	60 mins
1 min	60 secs

Example

The maximum speed of a racing car is 340 km/h. Convert this speed into m/s (give your answer to one decimal place)

First convert kilometres into metres

1km – 1000m

340 x 1000 = 340000m

Next convert hours into seconds

1h = 3600 s

Finally combine the two unit conversions

$$340\ km/h = \frac{340000}{3600} m/s$$

= 94.4 m/s

Example

Convert 19.3 g/cm^3 to kg/m^3

1m^3 = 1000000cm^3 so 19.3 g/cm^3 = 19300000 g/m^3

1000g = 1kg so 19300000 g/m^3 = 19300 kg/m^3

Online clips

M627, M515, M774

Measures

Component Knowledge

- Convert between units of length
- Convert between units of capacity
- Convert between units of mass
- Convert between units of time

Key Vocabulary

Convert	To change from one unit to another such as from centimetres to millimetres, or litres to millilitres, etc.
Unit	A quantity used as a standard of measurement
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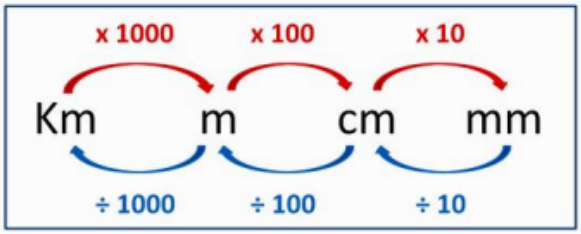
Units of length



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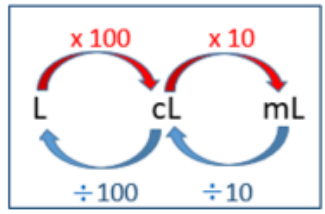
120cm = ? m Need to ÷ 100 120 ÷ 100 = 1.2m ✓

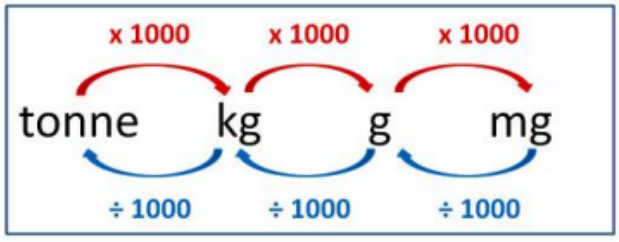
Units of capacity



5L = ? cL Need to × 100 5 × 100 = 500 cL

750 mL = ? cL Need to ÷ 10 750 ÷ 10 = 75 cL

Units of mass



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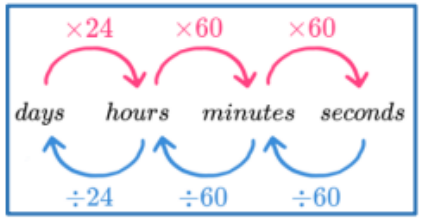
1.6 tonne = ? kg Need to x 1000 1.6 x 1000 = 1600 kg ✓

Units of time



2 mins = ? secs need to × 60 2 × 60 = 120 secs

96 hrs = ? days need to ÷ 24 96 ÷ 24 = 4 days

Online clips

M772, M761, M530, M774, M627, M515

Year 9 – The Blues

ELEMENTS OF MUSIC:
MELODY - The tune, whether the PITCH goes up or down.
ARTICULATION - How a note is articulated - short and spiky or smooth.
DYNAMICS - The VOLUME of the music.
TEXTURE - How many layers of sound – thick/thin.
STRUCTURE - How the music is organised.
HARMONY - When more then one pitch is heard at once.
INSTRUMENTATION - The type of sound heard (also called TIMBRE)
RHYTHM - A pattern of long and short notes.
TIME SIGNATURE - The amount, and type, of beats in each bar.

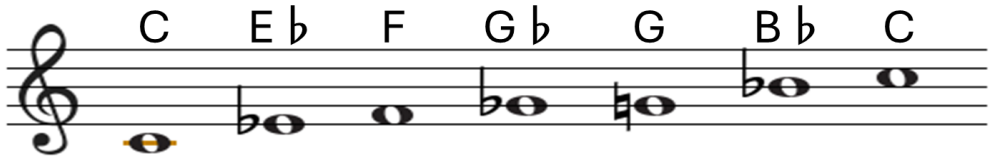
MUSICAL VOCABULARY:
12 BAR BLUES CHORD SEQUENCE - A pattern of chords played over 12 bars that is popular in Blues music.
RIFF – a catchy repeated musical phrase.
WALKING BASS – a moving bass part that plays on every crotchet beat, using notes from the 12 Bar Blues chord sequence.
MELODY – the tune.
IMPROVISATION – making up the music as you go along.
LYRICS – the words to a song.

12 BAR BLUES CHORD SEQUENCE.

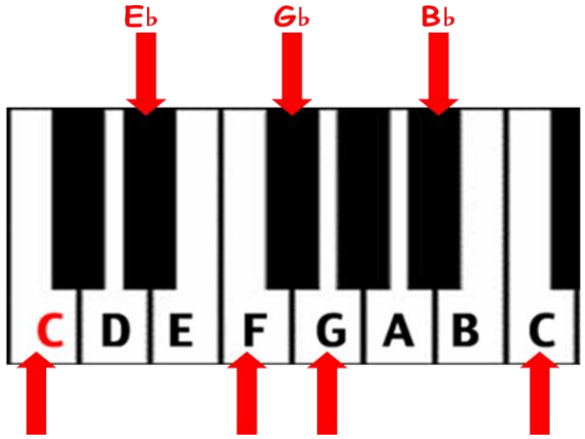
This is one of the most widely used chord sequences in Blues music – it is the one used in 'You ain't nothing but a Hound Dog'. It is also used in modern day Blues songs like Duffy's 'Mercy' and 'Faith' by Arianna Grande.

1 C	2 C	3 C	4 C
5 F	6 F	7 C	8 C
9 G	10 F	11 C	12 C

The Blues Scale:



The Blues scale is a specific set of notes that is used when **improvising** a Blues melody.
It includes 'Blue' notes which are flattened, sad sounding notes.



KS3 PE KNOWLEDGE ORGANISER – ACTIVITY: BADMINTON

Skills and Techniques:

➔ **Clear:** Shot played high to the back of the opponent's court, a defensive shot.

➔ **Drop shot:** Delicate shot played just over the net into the space. Gets your opposition out of position to attempts a smash or clear.

➔ **Grip**: V shape down the handle. (Shake its hand)

➔ **Smash:** Most attacking shot. Hitting the shuttle cock at its highest point with power, trying to get the shuttlecock to hit the floor on the opponent's side as quickly as possible

➔ **Flick Serve:** Short serve which is played typically in doubles. Aim is to get the shuttlecock to stay low over the net and land just over the service line.

➔ **Underarm serve:** Serve typically played in singles. Aim is to get the shuttles as high as you can towards the backline. Gets you opposition to the back of the court

Scoring:

➔ Serve Diagonal and land across the service line.

➔ Play to 21 points (2 clear points to win).

➔ Whoever wins the point, their team serve.

➔ Serve on the right when the score is even, on the left when it is odd.

➔ Long and thin for doubles, short and fat for singles.

➔ You cannot touch the net Serve must be at waist height or below.

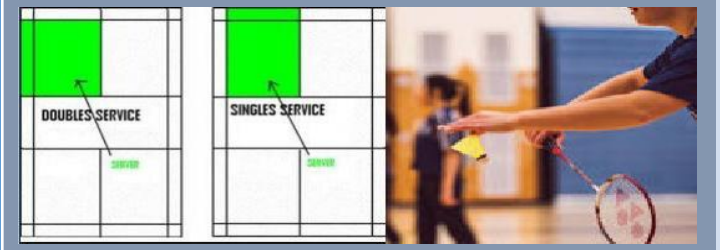
Rules:

➔ The aim of badminton is to hit the shuttle with your racket so that it passes over the net and lands inside your opponent's half of the court.

➔ Whenever you do this, you have won a rally; win enough rallies, and you win the match. Your opponent has the same goal.

➔ They will try to reach the shuttle and send it back into your half of the court. You can also win rallies from your opponent's mistakes: if they hit the shuttle into or under the net, or out of court, then you win the rally.

➔ If you think your opponent's shot is going to land out, then you should let it fall to the floor. If you hit the shuttle instead, then the rally continues. Once the shuttle touches the ground, the rally is over.



Key Words:

Ready position
Forehand and backhand serve.
Defensive clears Forehand drop shot
Basic backhand Outwitting opponents Leadership skills
Scoring system
Rules and regulation Court lines dimensions
Equipment familiarisation
Movement

Tactics:

➔ Doubles – front/back or side to side.

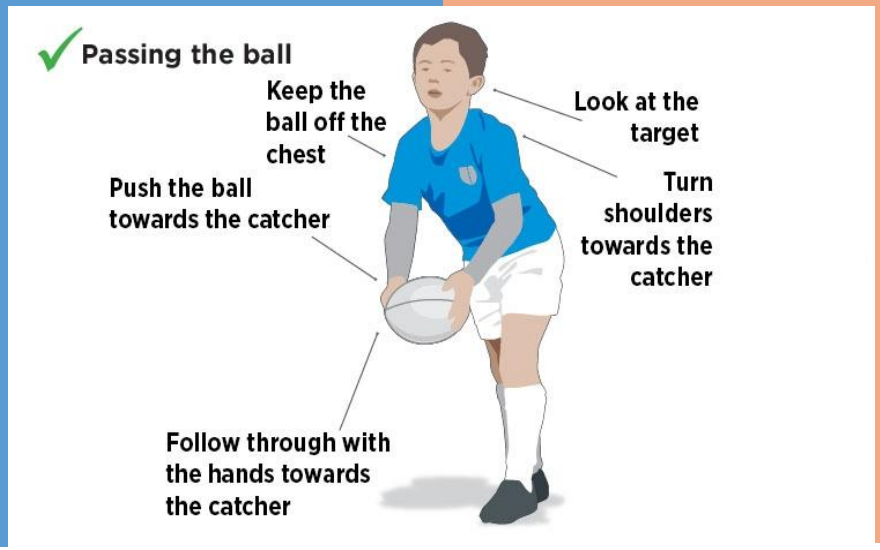
➔ Hitting into space.

➔ Targeting opponents' weakness-Shot selection.

ACTIVITY: RUGBY

Passing:

- Hold the ball in two hands with your fingers spread across the seam, with your chest facing forward.
- Draw the ball back across one hip, keeping your elbows slightly bent, as you turn your chest away from the target.
- Sweep the ball off your hip as you swing your hands through an arc, keeping your elbows close to your body.
- Release the ball with a flick of the wrists and fingers.
- Follow through with your fingers pointing to the target - chest high in front of the receiver.



Catching

- Call for the ball
- Keep eyes on the ball
- Hands up and make W shape
- Reach over the side of the body
- Catch with ten points of contact (both hands)
- Continue running with ball in both hands

Tackling

- Position your body to the opponent's right-hand side (safe side).
- Position your left foot forward into a slight opposition.
- Make contact by putting your right shoulder into the opponent's mid-right thigh.
- Make sure your head is on the other side of the ball carrier so their body is between your shoulder and head.
- Bring your arms up and wrap them around the ball carrier, just above their knees (
- Squeeze your arms and pull the ball carrier into your body.
- Push your shoulder into the ball carrier, as though you are trying to push him away with your head.
- Continue pushing until both you and the ball carrier fall to the ground.

Playing the Ball (Rugby League)

- After the tackle, lift the ball clear of the ground, face their opponent's goal line and roll it under their foot to the player behind them, the acting half back.
- The ball has to always travel backwards.
- A player can play the ball to themselves by heeling it backwards, stepping over the ball and then picking it up to run with it or to pass to another player.

Presenting the ball (Rugby Union)

- ‘Eyes up’ to keep head and neck inline
- Enter the ruck from behind the player (through the gate)
- Keep head and shoulders above hips at all times
- Make contact by binding on a player using the whole arm

ACTIVITY: RUGBY

Rugby League

Rules

➔ Game starts and restarts with a kick off.

➔ Three officials- Referee and two touch judges.

➔ Passing from the hand must travel level or backwards to the receiver.

➔ Tackling must be below shoulder

➔ If a player knocks on (drops the ball forward) the opposing side will gain possession via a scrum.

➔ When referee calls that the tackle is complete you must stand up and play ball between your legs to a player behind

➔ You must be behind the kicker when the ball is kicked to be onside

Positions

- 1 Full back
- 2 Right wing
- 3 Right centre
- 4 Left centre
- 5 Left wing
- 6 Stand-off half
- 7 Half-back
- 8 Prop
- 9 Hooker
- 10 Prop
- 11 Second Row
- 12 Second Row
- 13 Loose Forward

Points System:

4 points = TRY

2 Points = Penalty/Conversion

1 Point = Drop goal

Tactics in possession:

- 6 tackles (or chances to score), kick on 5th.
- If the ball goes out of play after such a kick, play restarts with a six-player scrum.

Rugby Union

Positions

- 1 Loosehead Prop
- 2 Hooker
- 3 Tighthead Prop
- 4 Second Row
- 5 Second Row
- 6 Blindside Flanker
- 7 Openside Flanker
- 8 Number 8
- 9 Scrum Half
- 10 Fly Half
- 11 Left Wing
- 12 Inside Centre
- 13 Outside Centre
- 14 Right Wing
- 15 Fullback

Points System:

5 points = TRY

3 Points = Penalty and Drop goal

2 Point = Conversion

Rules

➔ Game starts and restarts with a kick off.

➔ Three officials- Referee and two touch judges.

➔ Passing from the hand must travel level or backwards to the receiver.

➔ Tackling must be below waist (sternum)

➔ If a player knocks on (drops the ball forward) the opposing side will gain possession via a scrum.

➔ You may not tackle a player in the air. You must enter a ruck from the back foot of your side of the ruck.

➔ Any player in front of a player kicking must wait for the kicker to pass or they will be offside.

Tactics in possession:

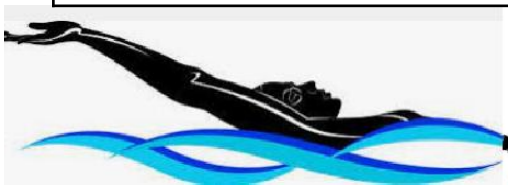
- Unlimited tackles
- Attacking side continue until they lose ball or concede penalty
- If the ball is kicked out of play restarted with a lineout Scrum used for knock-ons, forward pass restarts

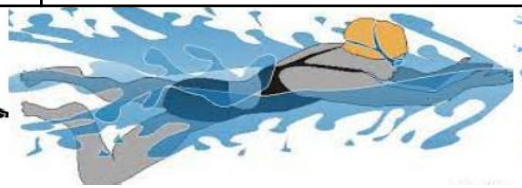
Key Words:

Pass
Run
Tackle
Ruck
Maul
Scrum
Penalty
Free-kick Knock-on
Forward pass
High tackle
Defensive line
Scissor
Loop

KS3 PE KNOWLEDGE ORGANISER – ACTIVITY: SWIMMING

Skills and techniques: back crawl	Skills and techniques: front crawl	Skills and techniques: breaststroke	Skills and techniques: butterfly
Body position - horizontal streamlined head still Eyes looking upward hips close to surface Leg action - Continuous up and down motion legs close together Relaxed ankles Arm action - Thumbs leave the water first little finger entry	Body position - Flat and streamlined Eyes looking forwards and downwards Leg action - Continuous and alternating starts from the hip. Ankles relaxed Arm action - Thumb enter the water first enter between the head line and shoulder line Elbow exits first Breathing - Head rolls to the side to breath bilateral breathing	Body position - As horizontal as possible shoulders horizontal Leg action - Starts in glide position heels drawn towards the seat. Feet turned out kick backwards with a circular whipping action Arm action - From glide position, hands turn outwards. Pull downwards and outwards to inline with shoulders Arms meet in the centre of the body and drive out to glide position	Body position horizontal, with a wave like movement from head to toe shoulders kept level Leg action - Legs close together ankles relaxed toes pointed action starts from the hips. Kick up and down with a bend at the knee Arm action - Thumb first entry entry shoulder width apart Pull downwards, with bent elbows hands leave the water little finger first arms clear the water just above the surface Breathing - Lift head and push chin forwards head lowered quickly but smoothly

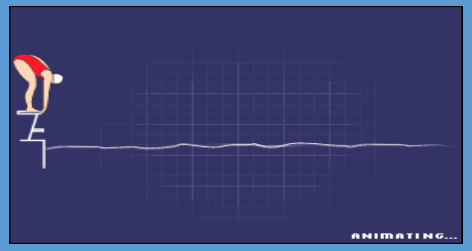




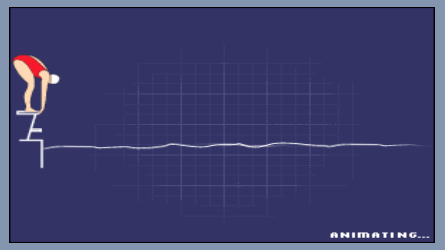

KS3 PE KNOWLEDGE ORGANISER –SWIMMING ACTIVITY:

Start: Back

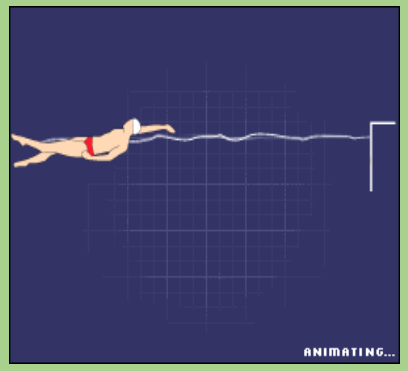
Start: Racing Dive



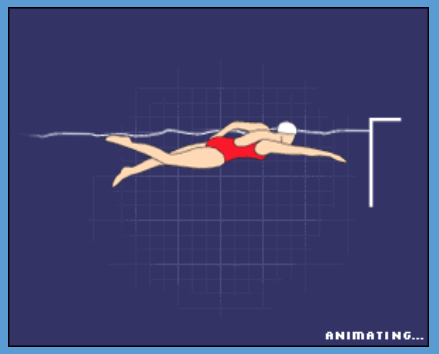
Start: Racing Dive



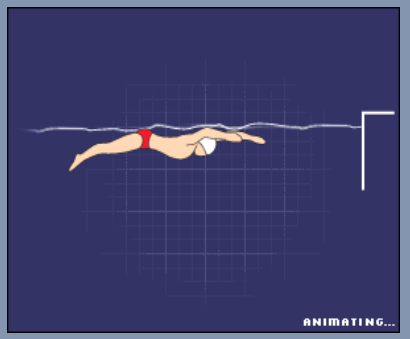
Turn: Tumble



Turn: Tumble



Turn: Two Handed



Tumble turns

Stage one

- Swim toward the turning wall.
- Ensure you breathe on the last stroke before turning.
- On the last stroke, bring both arms down and next to the hips.
- Keeping the body straight, hold feet approximately 20 cm under the water surface.

Stage two

- Bring the arms up and swing over the head whilst brushing the upper arms against the ears.
- Tuck chin into chest and begin rotating body forward.
- On complete rotation, push against the wall with the balls of the feet and kick a minimum of four times to generate pace.
- Complete one full stroke before returning to breathing pattern.

Racing start-Front crawl, breaststroke and butterfly

1: Chin and chest
2: Arm above head, squeeze ears
3: Tip forward
4: Hips high
5: Stretch out

Scoring

Success in swimming is judged on times and places.

Start of the race

Races are started with electronic pistols and are only sounded again if an athlete makes a false start.

Finish the race

In all races swimmers must strike a pressure pad at the end of their lane to stop the clock.

Key words

Splits, Pacing,
Negative spilt, positive split, Even split, False start, Technical official,

KS3 PE KNOWLEDGE ORGANISER – ACTIVITY: TABLE TENNIS

Serve:

➔**Serve:** The first shot to begin a rally. The serve is alternated between the two players, after two serves the service goes to the opposite player regardless of the winning shot.
➔There are different types of serving.
➔Forehand and Backhand serves
➔Short and Long serves.
➔Topspin and Backspin serves
➔When serving in Table Tennis, if the ball hits the net but still bounces on the opponents side of the table, the point is a let (which means it needs to be replayed).

Backhand Push:

➔ **Backhand push:** The ball is played on the backhand side, with a flat bat face to push the ball over the net.
➔The Backhand push shot is a controlled shot.
➔Step into the shot with your strongest foot with the paddle facing towards where you want to ball to be placed.

Forehand Push:

➔ **Forehand push:** The ball is played on the forehand side, with a flat bat face to push the ball over the net.
➔The Forehand push shot is a controlled shot.
➔Step into the shot with your weakest foot with the paddle facing towards where you want to ball to be placed.
➔Make sure our body is opened to make the shot.

Forehand and Backhand Chop:

Start the paddle from the top of your body and move across your body to get that chopping position. Forehand, move from right to left, in an upwards and downwards movement. Backhand chop, move from left to right, in an upwards and downloads movement.

Forehand and Backhand Drive:

Forehand/Backhand drive: A shot played on the forehand side, contact cuts on an angle (closed bat position) to the ball to make it move differently,

Key Words:

Table
Ball
Bat
Open/Closed/ Neutral Grip Position
Service
Drives
Push
Smash
Lob
Block
Net

KS3 PE KNOWLEDGE ORGANISER – ACTIVITY: TABLE TENNIS

Tactics

➔ Play on your opponent's weaknesses.
➔ Play consistently and don't make unforced errors.
➔ Move your opponent around the table.
➔ Vary your strokes.
➔ Vary the speed, spin and direction of your strokes.

Rules:

➔ A serve MUST bounce on both sides of the table.
➔Players cannot volley the ball, it must always bounce first.
➔A player can serve in any direction, it does not have to be diagonal.
➔You cannot touch the table with any part of your body during a point,
Service rules:
➔ Must serve behind the white line.
➔ The ball must be presented to your opponent.
➔ you must toss the ball up 6 inches and hit the ball on the way back down.

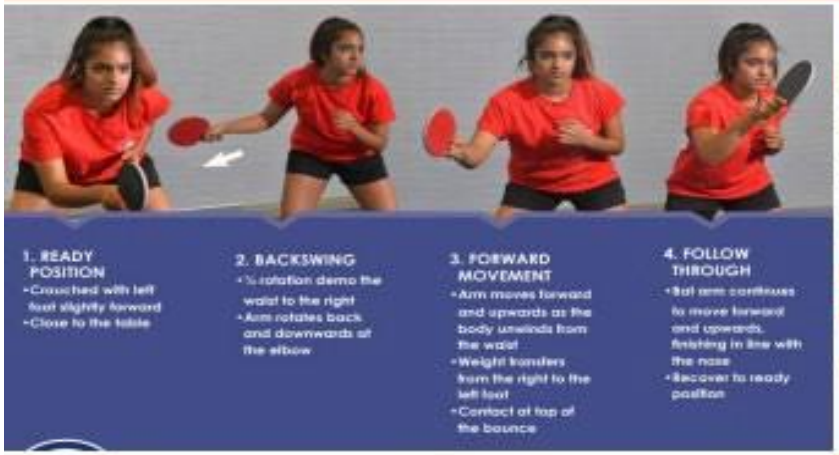
Scoring System:

- **Scoring system to 21.**
- **Two serves each**
- **You score a point by your opponent not returning the shot or your opponent not being able to return the shot correctly.**
- **You need to beat your opponent by two clear points.**

Positions:

Ready Position

The ready position is a key starting point when fielding. It provides you with the best opportunity to catch and/or stop the ball and allows you to move into position quickly. This is done by being on your toes with your body weight slightly towards where the ball is coming from with hands ready.



Forehand Drive

Hip to lip (start and finish points for the bat)

Finish with your index finger pointing towards the target (like a gun)

Backhand Push

Making an L shape with your elbow on the backswing and push your arm forwards to an I on the swing

Finish with your index finger pointing towards the target

Year 9
Term 2: Health
Knowledge Organiser

USER GROUPS in Sport/Fitness

- Young children
- Teenagers
- People with disabilities
- Parents (singles or couples)
- People who work
- Unemployed/economically disadvantaged people
- Gender
- People from different ethnic groups
- Retired people/people over 60
- Families with children
- Carers
- People with family commitments

Barriers faced by user groups

☐ Employment and unemployment
☐ Family commitments
☐ Lack of disposable income
☐ Lack of transport
☐ Lack of positive sporting role models
☐ Lack of positive family role models or family support
☐ Lack of appropriate activity provision
☐ Lack of awareness of appropriate activity provision
☐ The lack of equal coverage in media in terms of gender and ethnicity by the media

SOLUTIONS TO BARRIERS

•Appropriate programmes
•Specific sessions
•Suitable activities
•Appropriate timings
•Targeted promotions
•Use of role models
•Access to facilities
•Appropriate pricing
•Access to transport
•Initiatives

OPEN 24 HOURS

sky sports

Key Vocabulary: Veins Arteries Circuit Plyometric Interval Continuous Weight Fartlek Water Safety User Groups

BALANCED DIET/NUTRITION

A balanced diet is essential for maintaining overall health and providing your body with the nutrients it needs to function effectively. Here's a breakdown of the key components:

1. Macronutrients

•**Carbohydrates)**: The body's main source of energy. Focus on complex carbohydrates like whole grains, fruits, and vegetables. Limit refined sugars and highly processed carbs.

•**Proteins:** Essential for building and repairing tissues. Include lean meats, fish, eggs, legumes, nuts, and dairy products.

•**Fats)**: Necessary for hormone production, nutrient absorption, and brain health. Prioritize healthy fats from sources like avocados, nuts, seeds, and olive oil while limiting saturated and trans fats.

2. Micronutrients

These are vitamins and minerals needed in smaller amounts but are crucial for various bodily functions.

•**Vitamins**:: B vitamins (like B12 and folate) and vitamin C, Vitamins A, D, E, and K.

•**Minerals**: Key minerals include calcium, potassium, iron, magnesium, and zinc.

•**Fibre:** Fibre is important for digestive health and helps regulate blood sugar levels. Aim for whole grains, fruits, vegetables, and legumes to increase fibre intake.

WATER SAFETY

1.Floating: The ability to float on your back helps conserve energy and breathe more easily while waiting for rescue.

2.Treading Water: This skill involves moving your arms and legs to keep your head above water, allowing you to stay in one place without sinking.

3.Swimming for Distance: Knowing how to swim at least 25 meters can help you reach safety or a shore if needed.

4.Controlled Breathing: Practicing proper breath control allows you to stay calm, conserve energy, and avoid panic in emergency situations.

Year 9
Term 2: Health
Knowledge Organiser

Swimming rules

- No running:
- Supervise children:
- No diving in shallow water:
- Shower before entering:

Hydration

Hydration is essential in a balanced diet because water supports nearly every bodily function, including digestion, nutrient absorption, temperature regulation, and waste elimination. Staying properly hydrated helps maintain energy levels, promotes healthy skin, lubricates joints, and ensures that cells function optimally.

Key Vocabulary: Veins Arteries Circuit Plyometric Interval Continuous Weight Fartlek Water Safety User Groups

Health Knowledge Organiser

TRAINING METHODS:

1.Circuit Training: A form of exercise where participants cycle through a series of exercises, targeting different muscle groups, with minimal rest between each station.

2.Continuous Training: Involves sustained, steady-state activity, like running or cycling, for an extended period without rest, designed to build cardiovascular endurance.

3.Weight Training: A form of strength training using weights (dumbbells, barbells, or machines) to build muscle strength and endurance.

4.Fartlek Training: A type of running workout that blends continuous and interval training by varying pace and intensity over different terrains or set times.

5.Interval Training: Alternates between periods of high-intensity effort and low-intensity recovery, improving speed and cardiovascular fitness.

6.Plyometric Training: Focuses on explosive movements, like jumps or bounds, to increase power and strength in muscles, particularly useful for athletes.

HEART RATES:

Self check: take your own pulse

Find your pulse | Count your heartbeat for 30 seconds | Double it

Antagonistic pairs:

Antagonistic pairs refer to pairs of muscles that work against each other to create movement. When one muscle contracts (agonist), the other relaxes (antagonist). IE Bicep/Tricep

TRAINING METHODS:

1. Circuit Training

Positives: Variety keeps workouts interesting, Adaptable for all fitness levels.

Negatives: Can be tiring; risk of fatigue. Poor form may lead to injuries. Limited strength gains compared to traditional weight training.

2. Continuous Training

Positives: Builds cardiovascular endurance. Simple and accessible. Can be mentally relaxing.

Negatives: Monotonous over time. Risk of overuse injuries. Less effective for strength building.

3. Weight Training

Positives: Effective for building strength. Boosts metabolism. Improves bone health.

Negatives: Requires equipment or gym access. Learning proper technique can be needed. Time-consuming for significant gains.

4. Fartlek Training

Positives: Engaging and varied workouts. Improves both speed and endurance. Easy to adapt to different fitness levels.

Negatives: Lacks structure; can be confusing. Risk of overtraining if not managed. May require some experience to implement effectively.

5. Interval Training

Positives: Time-efficient with quick results. Effective for fat loss. Versatile across different exercises.

Negatives: High intensity may overwhelm beginners. Requires recovery time. Risk of injury if form is poor.

6. Plyometric Training

Positives: Builds power and explosiveness. Improves agility and coordination. High caloric burn.

Negatives: High impact; can stress joints. Not suitable for everyone. Needs space and possibly equipment.

Key Vocabulary: Veins Arteries Circuit Plyometric Interval Continuous Weight Fartlek Water Safety User Groups

REDISTRIBUTING BLOOD

Vasoconstriction
•**Definition**: Narrowing of blood vessels.
•**During Exercise**:
- Decreases blood flow to less active areas (like the digestive system).
- Redirects blood to active muscles and vital organs.

Vasodilation
•**Definition**: Widening of blood vessels.
•**During Exercise**:
- Increases blood flow to active muscles.
- Enhances oxygen and nutrient delivery and waste removal.

Vascular Shunting
•**Definition**: Redistribution of blood flow.
•**During Exercise**:
- Prioritises blood to working muscles while reducing flow to non-essential organs (like the stomach).

Term 2: Health Knowledge Organiser

Blood Cells- What do they do?

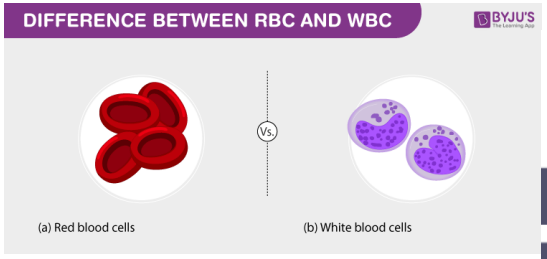
Red blood cells (RBCs)
- Carry oxygen from the lungs to the rest of the body and return carbon dioxide back to the lungs for exhalation. They contain hemoglobin, a protein that binds to oxygen, enabling this vital gas exchange.

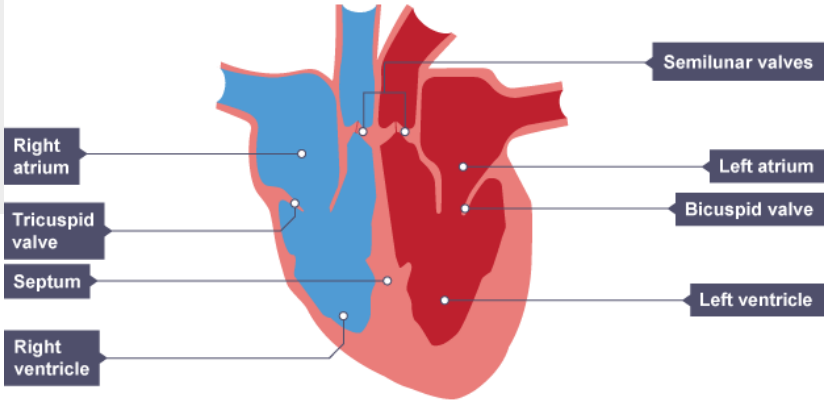
White blood cells (WBCs)
- Are part of the immune system and help the body fight infections and other diseases. They identify and attack pathogens like bacteria, viruses, and harmful invaders to protect the body from illness.

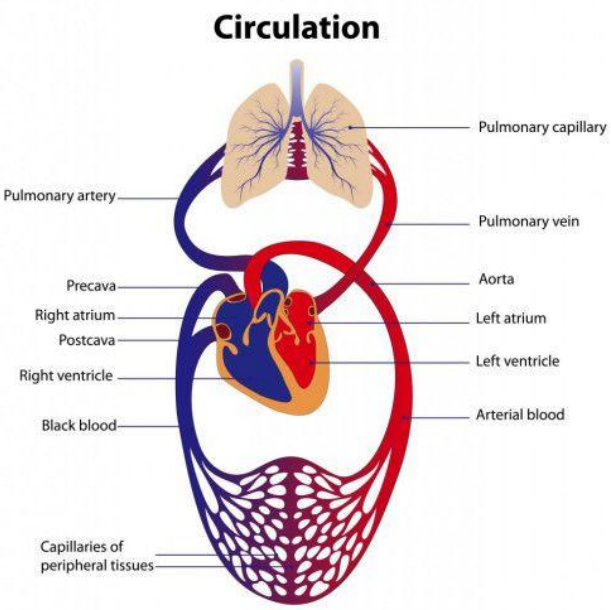
CARDIOVASCULAR SYSTEM

Veins
- Veins are blood vessels that return deoxygenated blood from various parts of the body back to the heart, where it can be reoxygenated.

Arteries
- Arteries are blood vessels that carry oxygen-rich blood away from the heart to tissues and organs throughout the body, ensuring they receive the oxygen and nutrients needed for proper function.







Key Vocabulary: Veins Arteries Circuit Plyometric Interval Continuous Weight Fartlek Water Safety User Groups

Life Lessons – Summer Term KS3 – Sex and Relationships	
Who can help?	**How can they help?**
Westhoughton High School	• Speak to **your trusted adult** in school if you have any questions or concerns relating to any of the topics we discuss in Life Skills. • Our **school nurse** is called Alison Clarke. You can speak to her if you have any health related concerns. You can contact her on 01204 463307.
childline ONLINE, ON THE PHONE, ANYTIME	**Childline:** • www.childline.org.uk • 0800 1111 • Childline provides a **free, confidential helpline** for children and young people under 19 in the UK to talk about any issue they are facing, such as mental and emotional health, bullying, self-harm, or family problems. It offers support 24/7 via phone, 1-2-1 chat, and email, and its trained counsellors listen, provide advice, and help children make positive changes.
brook	**Brook:** • www.brook.org.uk • Provides a variety of support for teenagers, including free and confidential **sexual health services**, advice on sexual health and relationships, and 1-2-1 targeted support for those needing more personalized help with topics like consent and emotional wellbeing.
HEALTH FOR TEENS	**Health for teens:** • www.healthforteens.co.uk • bite-sized health information and quizzes for teens on topics including **physical health, emotional wellbeing, and lifestyle.** It covers a wide range of subjects like sexual health, anxiety, nutrition, and online safety.
FORTALICE	**Fortalice**: • Fortalice is a charity based in Bolton, UK, that provides support and services for people affected by **domestic abuse and violence**. It offers frontline services including refuge accommodation, crisis support, counselling, and group work for women, children, and young people

Year 9 Religion & Society - What Really Matters?
Unit 2: Religious Education – Introduction to Ethics
What does it mean to be good?
How do we make big ethical decisions?

Lesson 1 – Why do we make the decisions that we make?

- There is disagreement about the meaning of the word 'good' and whether it is an absolute or relative concept.
- Moral evil is evil caused by human choice and natural evil is caused by natural events or forces.
- There are different philosophical, psychological and sociological perspectives on whether humans are inherently good.
- History gives us examples to support both the inherent goodness and the inherent evil of humans.

KEY TERMS:

- **Philosophy-** study of Knowledge
- **Ethics-** the study of what is right and what is wrong. (Ethics is sometimes called morality)
- **Dilemma**- a difficult decision
- **Ethical**- morally correct
- **Unethical**- not morally correct

Lesson 2 - What is Utilitarianism and the greater good?

- Utilitarianism aims to produce the greatest good for the greatest number of people.
- The good is equated with happiness and actions are considered right if they lead to more happiness than pain.
- Utilitarianism can be critcised, e.g., it is difficult to calculate how much happiness an action would produce.

Common misconception - Utilitarianism does not argue that any action is acceptable as long as it makes the majority happy.

- Utilitarianism considers both the positive and the negative outcomes to determine which action produces the best overall consequences for the greatest number of people.

KEY TERMS:

- **Utilitarianism**- an ethical theory that says we should focus on the consequence of an action,
- **Greatest good** - actions produce the most happiness for the most people
- **Jeremy Bentham** - an 18th-century philosopher who developed utilitarianism

Lesson 3 – What is the trolley problem and how would we react?

- The trolley problem was proposed by Philippa Foot in 1967 and explores moral decisions in a thought experiment. "A runaway trolley (train carriage) is heading toward five people tied to the track. You stand by a lever that can switch the trolley to another track, where one person is tied down. The dilemma is whether to pull the lever."
- Many people would like to believe they could pull the lever and take a utilitarian approach of making a decision that leads to the greatest good for the greatest number in this situation.
- We would describe this type of approach to ethical dilemmas as relativist because choosing the right action would depend on what would lead to the best outcome in that situation.
- However, some people might freeze or be unable to pull the lever which some scholars take as evidence that there are certain actions (eg like killing) that are universally wrong to do irrespective of the circumstances or the outcomes. We would describe this approach to ethics as absolutist.

Year 9 Religion & Society - What Really Matters?
Unit 2: Religious Education – Introduction to Ethics
What does it mean to be good?
How do we make big ethical decisions?

Lesson 4 - What is Deontology? - Action and duty based • Deontology means we should act in ways that could be good rules for everyone, like always telling the truth. • Deontology means intentions are more important than results; doing something because it's right is what counts. • Deontology encourages us to think about what's right for everyone, not just what benefits us personally. • Kant's deontology teaches that doing the right thing means following certain duties or rules, no matter the outcome. • Kantian ethics can be criticised in a number of ways, e.g., it ignores acting on the basis of certain motives. **Common misconception - Kant's deontology means that actions such as killing are always wrong.** The categorical imperative doesn't mean the same in every situation because it takes the context into account, e.g., killing is generally wrong it can be justified where the intention is to protect life.	**KEY TERMS:** • **Deontology** - (Duty-based) ethics that are concerned with what people do, not with the consequences of their actions • **Duty -** Obligations or responsibilities • **Immanuel Kant -** Philosopher associated with deontology • **Divine Command** What is moral is commanded by God.
Lesson 5 - Situation Ethics – how to different Christians make decisions? • Christians use different methods for making ethical decisions, including using deontological approaches & virtue ethics. • Joseph Fletcher introduced situation ethics in the 1960s as an alternative approach for Christians. • The fundamental belief in situation ethics is that agape love is the only intrinsic good. • Situation ethics is teleological because it means focusing on the situation & deciding which is the most loving action. • One criticism is that people have different ideas about what is the most loving action.	**KEY TERMS:** • **Agape love** - the selfless, unconditional love • **Joseph Fletcher** - a theologian who developed situation ethics • **Situation ethics** - an ethical theory which argues that the most loving action should guide decisions in each situation
Lesson 6 - What is virtue ethics and how useful is it? • Aristotle's virtue ethics focuses on achieving eudaimonia through the development of moral character. • A virtue is the golden mean, which means a balance between two extremes of deficiency and excess known as vices. • Philippa Foot is a modern thinker who emphasises that virtues are gained through practical experience. • One criticism of virtue ethics is that it does not provide clear guidance in specific situations.	**KEY TERMS:** • **Eudaimonia** - the state of living well and flourishing • **Golden mean** - the virtue that lies between two vices • **Philippa Foot** - The philosopher who developed virtue ethics

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Year 9 Religion & Society - What Really Matters?
Unit 3: Religious Education – Evaluating Ethics
What are the big ethical issues to do with life and death in the UK today?

Lesson 4 – What is Abortion and the Law behind it?

- **Abortion is legal in the UK up to 24 weeks of pregnancy** if two doctors agree it would be better for the physical or mental health of the mother or existing children.
- **Abortion can be carried out after 24 weeks only in exceptional cases**, such as serious risk to the mother's life or severe fetal abnormality.
- **Ethical issues around abortion include questions about when life begins, women's rights over their own bodies, and the moral status of the fetus.**
- **Pro-life viewpoints believe that the fetus has a right to life from conception**, so abortion is morally wrong except in rare circumstances.
- **Pro-choice viewpoints believe that women should have the right to decide whether to continue a pregnancy**, especially when their health, wellbeing, or personal circumstances are affected.

KEY TERMS:

Viability - The stage in pregnancy when a fetus could survive outside the womb, usually around 24 weeks. This is why the UK legal limit for most abortions is set at this point.

TFMR – Termination for medical reasons.

Lesson 5 - What are different viewpoints on Abortion

- Many Christians believe in the sanctity of life and are generally pro-life, especially Catholics.
- Some Christian groups like the Church of England accept abortion in difficult situations, such as risk to the mother.
- Islam generally forbids abortion, especially after ensoulment at 120 days, but may allow it if the mother's life is in danger.
- Atheists often support pro-choice views, focusing on personal autonomy and human rights rather than religious teachings.
- Views differ within every group, showing that abortion is a complex moral issue with no single "religious" or "non-religious" opinion.

KEY TERMS:

Relativitist - Decides on what is right or wrong depending on the circumstance.

Absolutist - Decides on what is right or wrong depending on rules that should be seen tobe followed.

Y9 Atomic Structure and the Periodic Table

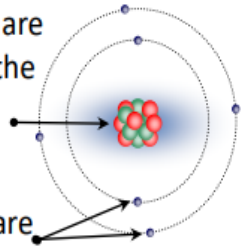
An **atom** is the smallest part of an element that cannot be broken down chemically.

An **element** is made up of one type of atom and is found in the Periodic Table.

A **compound** consists of 2 or more different types of atoms chemically joined together and are difficult to separate.

A **mixture** is made up of two or more elements **NOT** chemically joined together. They can be separated easily.

Protons and neutrons are found in the nucleus



Electrons are found in shells

Particle	Mass	Charge
proton	1	+1
neutron	1	0
electron	almost 0	-1

Properties of metals and non-metals

Metals

- normally good **conductors of heat** and **electricity**
- **shiny** when cut
- **Malleable**
- **dense** and **sonorous**
- most have **high melting points**

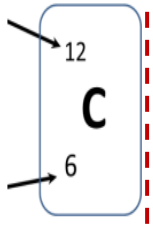
Non-Metals

Often have properties the opposite of metals

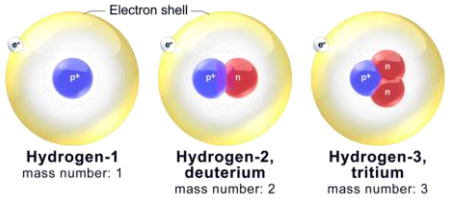
- **low boiling points**, so are gases at room temperature
- **poor conductors** of **electricity and heat**
- **dull** in appearance
- **low density**
- **brittle** and **not sonorous**

Mass number = Number of protons + neutrons

Atomic number or proton number = Number of protons



Isotopes



Isotopes are different forms of elements that have the **same** number of protons, but **different** number of neutrons.

The **relative atomic mass** of an element is an average value that takes account of the abundance of the isotopes of the element.

The **number of electron** is always equal to the **number of protons** for a given element. Atoms have no overall charge.

Atoms are very small. Their radius is 1×10^{-10} m. The radius of the nucleus is 1/10 000 the size of an atom.

Keywords

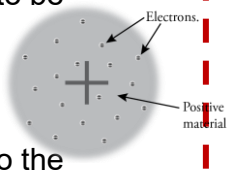
- Periodic Table
- Element
- Groups
- Periods
- Alkali Metals
- Transition Metals
- Halogens
- Noble Gases
- Atoms
- Electrons
- Protons
- Neutrons
- Nucleus
- Electron Shells
- Properties

Y9 Atomic Structure and The Periodic Table

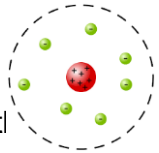
Atomic Model Development

- New experimental evidence and technology may lead to scientific models being changed.
- Before the electron was discovered, atoms were thought to be tiny solid spheres that could not be divided.

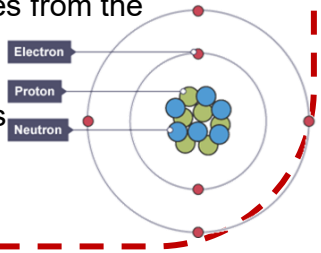
- When JJ Thomson discovered the electron, he modified the atomic model to the Plum Pudding Model.
- The Plum Pudding model suggested the atom to be a solid positive sphere with negative electrons embedded throughout it.



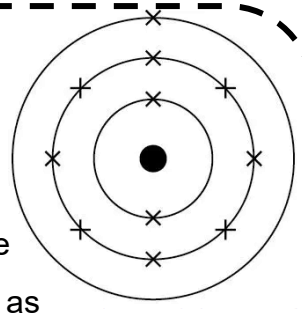
- Rutherford's Alpha Scattering Experiment led to the conclusion that the mass of an atom is concentrated at the centre (nucleus) and that the nucleus was positively charged.
- The Nuclear Atomic model replaced the Plum Pudding Model.



- Neils Bohr adapted the nuclear model to suggest tl electrons were held at specific distances from the nucleus, creating the Planetoid Model.
- Further experiments identified neutrons as a particle found within the nucleus.



Electron Structure



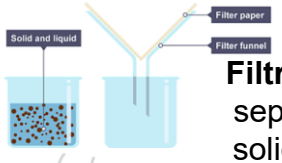
- Electrons in an atom occupy the lowest Available energy level (shell).
- The electronic structure of an atom can be represented by numbers or by a diagram, as shown on the right (Sodium).

2, 8, 1

- This shows that 2 electrons fill the lowest energy level 8 the second, and one in the third energy level.

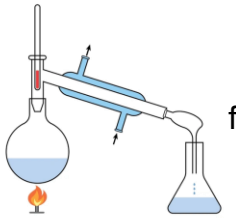
Separating Techniques

Mixtures are easily separated by the following physical processes which do not involve chemical reactions, and no new substance is made.

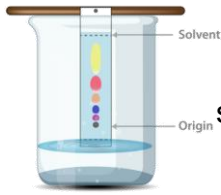


Filtration – separating solid using filter paper

Crystallisation – liquid is evaporated leaving a solid crystal



Distillation – separating liquids from liquids based on different boiling points. This can be simple distillation (ink and water) or fractional distillation (crude oil)



Chromatography – separating coloured substances (e.g. food colourings) based on molecular size.

Y9 Atomic Structure and The Periodic Table

The Periodic Table

1	2											3	4	5	6	7	0
								1 H hydrogen 1									4 He helium 2
7 Li lithium 3	9 Be beryllium 4											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
23 Na sodium 11	24 Mg magnesium 12											27 Al aluminium 13	28 Si silicon 14	31 P phosphorus 15	32 S sulfur 16	35.5 Cl chlorine 17	40 Ar argon 18
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[98] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[261] Rf rutherfordium 104	[262] Db dubnium 105	[266] Sg seaborgium 106	[264] Bh bohrium 107	[277] Hs hassium 108	[268] Mt meitnerium 109	[271] Ds darmstadtium 110	[272] Rg roentgenium 111	Elements with atomic numbers 112 – 116 have been reported but not fully authenticated						

Key: relative atomic mass; atomic symbol; name; atomic (proton) number

* The Lanthanides (atomic numbers 58 – 71) and the Actinides (atomic numbers 90 – 103) have been omitted.

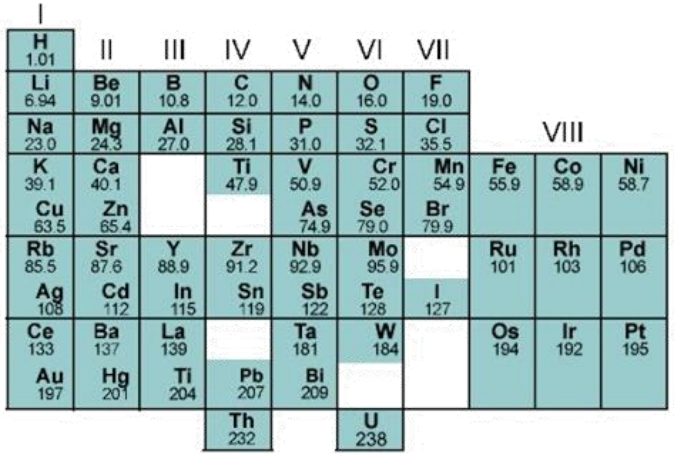
Relative atomic masses for **Cu** and **Cl** have not been rounded to the nearest whole number.

The **Periodic Table** consists of every known element.

- The modern periodic table is arranged according to increasing **atomic number**.
- It is called Periodic Table because similar properties occur at regular intervals (periodically).
- Columns of elements are called **groups** and have the same number of electrons on their outer shell.
- Groups of elements have similar properties.
- Rows of elements are called **periods** and have the same number of electron shells.

Development of the Periodic Table

- Before protons, electrons, and neutrons were discovered, scientists tried to organize the known elements.
- In the early Periodic Tables elements were largely arranged in atomic weight but the tables were largely incomplete (many elements were still undiscovered).
- Some elements were placed in the wrong groups.
- Dimitri Mendeleev overcame some of the problems by leaving gaps where he though undiscovered elements might lay. He also changed the order of some of the elements.



- Elements that Mendeleev predicted were discovered and filled the gaps.
- When isotopes were discovered, they explained why the order of elements was not strictly according to atomic weight but atomic mass.

Y9 Atomic Structure and The Periodic Table

The Periodic Table Properties

Li Lithium
Na Sodium
K Potassium
Rb Rubidium
Cs Cesium
Fr Francium

- **GROUP 1** elements are the **Alkali Metals**
- They have 1 electron on the outer shell, making them all highly reactive.
- Reactivity increases going down the group.

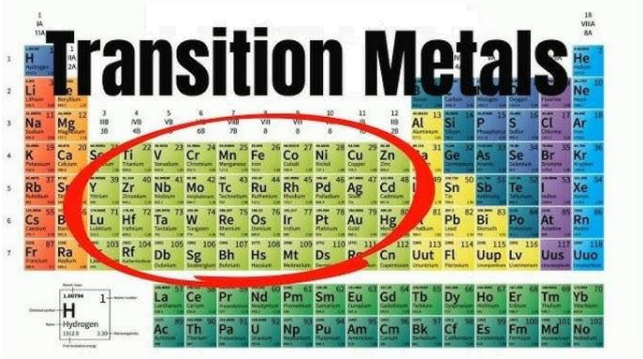
GROUP 7 elements are called the **Halogens** and are non-metals.

- They have seven electrons on their outer shell.
- Reactivity decreases going down the group.
- Relative molecular mass, melting and boiling points increase going the group.
- A more reactive halogen can displace a less reactive halogen from an aqueous solution of its salt.

19 F 9 Fluorine
35 Cl 17 Chlorine
80 Br 35 Bromine
127 I 53 Iodine
210 At 85 Astatine

He
Ne
Ar
Kr
Xe
Rn

- **GROUP 0** are called the **Noble Gases** and a full outer electron shell.
- They are largely unreactive and do not easily form molecules.
- They have 8 electrons on their outer shell, except Helium that has 2.
- The boiling points increase with increasing relative atomic mass (going down the group).



- The transition metals are the central block of metals on the Period Table, and all have similar properties, which are different to Group 1 metals.
- They do not show group trends like other groups.

Physical Properties

- Good conductors of heat and electricity
- Malleable (can be hammered) and ductile (can be deformed without losing their toughness)
- Very high melting points (except Mercury)
- Usually hard and tough

Chemical Properties

- Less reactive than Alkali metals.
- Form coloured ions of different charges.
- Can be very unreactive (e.g. silver, gold, and platinum).
- Many can be used as catalysts.

Y9 Energy Resources

8 Energy Stores


Chemical


Elastic


Gravitational potential


Nuclear


Kinetic


Magnetic


Thermal


Electrostatic

Energies that are always transferred:
Light and Sound

Conservation of Energy

Energy cannot be created or destroyed. Energy can only be **stored**, usefully **transferred**, or **dissipated**.

The total energy before and after a change in a **system** is constant.

A **system** is an object or group of objects where the net energy change is 0J.

Keywords

- Energy store
- Transfer
- System
- Dissipation
- Efficiency
- Biomass
- Geothermal
- Energy
- Insulation
- Fossil Fuel
- Renewable
- Non-renewable
- Power
- Work done
- Temperature
- Thermometer

Energy Transfers

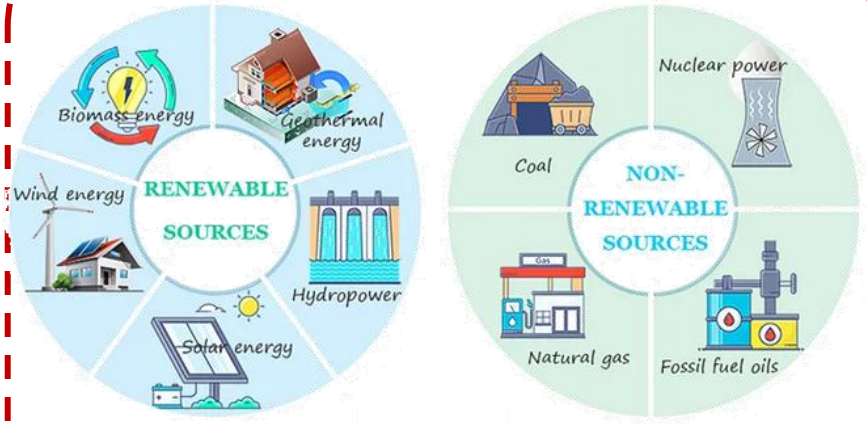
Energy is transferred when it moves from one store to another.

For example, when a ball rolls down a hill, gravitational potential energy transfers to the kinetic energy store.

Reducing unwanted transfers

- Energy that is transferred to the surroundings has been dissipated.
- Insulation, lubrication, sound proofing can all reduce energy dissipation.

SOURCES OF ENERGY



Renewable: replenished as quickly as they are used

Non-renewable: Finite resources, will eventually run out.

Y9 Energy Resources

Required Practical 2:

Insulation Material Thickness method:

1: Wrap 2 layers of newspaper around small beaker and use a rubber band to keep it in place. **Do not** cover the bottom.

2: Boil 80cm^3 of water and place into the beaker.

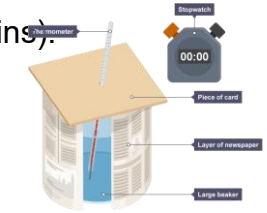
3: Add cardboard lid with hole for thermometer and record starting temperature.

4: Start the timer.

5: Record temperature every 3 minutes for 15 minutes.

6: Repeat steps 2-6 adding 2 layers of newspaper each time to a maximum of 8 layers.

7: Plot graph Temperature (°C) against time (mins).



Power

Power is the rate energy is transferred. It is measured in WATTS (W).

$$Power\ (W) = \frac{Energy\ transferred\ (J)}{time\ (s)}$$

$$Power\ (W) = \frac{Work\ done\ (J)}{time\ (s)}$$

Efficiency

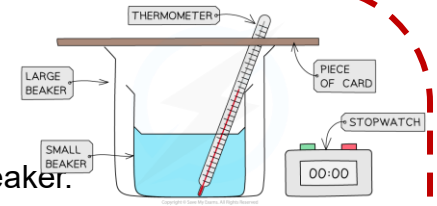
The ratio of the useful energy (or power) output from a system to its total energy (or power) input.

$$efficiency = \frac{useful\ energy\ output}{total\ energy\ input}$$

$$efficiency = \frac{useful\ power\ output}{total\ power\ input}$$

Required Practical 1

Insulation Material method:



1: Put small beaker in a large beaker.

2: Boil 80cm^3 water and place in small beaker.

3: Use a cardboard lid with a hole for the thermometer and record the starting temperature.

4: Start the timer.

5: Record temperature every 3 minutes for 15 minutes.

6: Repeat steps 2-6, placing different insulation materials between beakers.

7: Plot graph Temperature (°C) against time (mins).

Renewable energy resources

Advantages:

- Renewable
- No CO_2 gas released
- Not reliant upon Earth's natural resources

Disadvantages:

- Destroy habitats
- Many are weather dependent (wind, solar)
- Expensive to build and run

Non-renewable energy resources

Advantages:

- High energy stored
- Readily available

Disadvantages:

- Releases greenhouse gases
- Finite (will run out)
- Makes Radioactive waste (nuclear only)

Year 9 Topic 3 Part 1: Las vacaciones – Holidays

Key ideas
Past holidays
Opinions

Where did you go?

¿Adónde fuiste?
– Where did you go?
El año pasado – Last year
El verano pasado – Last summer
fui a Inglaterra – I went to England
fui al Reino Unido
– I went to the United Kingdom
fui a España – I went to Spain
fui a Europe – I went to Europe
fui a las Islas Canarias
– I went to the Canary Islands
fui a las Islas Baleares
– I went to the Balearic Islands
fui a América Latina / Latinoamérica
– I went to Latin America

Who with?

¿Con quién fuiste? – Who did you go with?
Fui con mi familia – I went with my family
Fui con mis padres – I went with my parents
Fui con mis amigos – I went with my friends
Fui con mi clase – I went with my class

How did you get there?

¿Cómo fuiste? – How did you get there?
Fui en autobús – I went by bus
Fui en autocar – I went by coach
Fui en coche – I went by car
Fui en tren – I went by train
Fui en barco – I went by boat

Past opinions

¿Cómo te fue? – How was it for you?
Me gustó – I liked it
Me encantó – I loved it
No me gustó – I didn't like it
porque – because
hizo buen tiempo – it was good weather
comí algo malo y vomité – I ate something bad and I vomited
llovió – it rained
perdí mi pasaporte – I lost my passport
perdí mi móvil – I lost my mobile

What did you do?

¿ Qué hiciste en tus vacaciones de verano?
– What did you do during your summer holidays?
El último día de tus vacaciones, ¿qué hiciste?
– On the last day of your holidays, what did you do?
bailé – I dances
compré una camiseta – I bought a t-shirt
descansé en la playa – I relaxed on the beach
mandé mensajes / SMS – I wrote messages / SMS
monté en bicicleta – I rode my bike
monté a caballo – I rode a horse
nadé en el mar – I swam in the sea
hice natación – I did swimming
saqué fotos – I took photos
colgué fotos – I posted photos
subí fotos – I uploaded photos
tomé el sol – I sunbathed
visité monumentos – I visited monuments
bebí una limonada - I drank a lemonade
comí paella – I ate paella
conocí a un chico guapo – I met a good-looking boy
conocí a una chica guapa – I met a good-looking girl
escribí mensajes / SMS – I wrote messages / SMS
salí con mi hermano / hermana – I went out with my brother / sister
vi un castillo interesante – I saw an interesting castle
no bailé – I didn't dance

Year 9 Topic 3 Part 1: Transferable Knowledge

Opinion openers
En mi opinión – In my opinion
Creo que – I believe that
Pienso que – I think that
Diría que – I would say that

The preterite (past) tense

Ir – to go	**Ser – to be**
Fui – I went	**Fui – I was**
Fuiste – You went (singular / informal)	**Fuiste – You was (singular / informal)**
Fue – He/She went	**Fue – He/She/It was**
Fuimos – We went	Fuimos – We were
Fuisteis – You went (plural / informal)	Fuisteis – you were (plural / informal)
Fueron – They went	Fueron – They were

Opinions
¡Qué fantástico! – How fantastic!
¡Qué interesante! – How interesting!
¡Qué divertido! – How fun!
¡Qué aburrido! – Ho boring!
¡Qué guay! – How cool!
¡Qué rico! – How rich!
¡Qué suerte! – How lucky!
¡Qué mal! – How bad!
Fue fantástico – It was fantastic
Fue interesante – It was interesting
Fue divertido – It was fun
Fue aburrido –It was boring
Fue emocionante – It was exciting

Intensifiers
muy – very
bastante – quite
un poco – a bit
poco – few/little
realmente – really
demasiado – too
simplemente – simply
especialmente – especially
totalmente – totally
completamente – completely
absolutamente – absolutely

Time expressions
allí – there
el primer día – on the first day
el último día – on the last day
otro día – another day
por la mañana – in the morning
por la tarde – in the afternoon
primero – first
luego – then
más tarde – later
después – afterwards

Using a range of language improves the quality of our speaking and writing and allows us to access more challenging texts!

Year 9 Topic 3 Part 2: Las vacaciones – Holidays

Weather
en primavera – in spring
en verano – in summer
en otoño – in autumn
en invierno – in winter
cuando – when
si – if
hace buen tiempo – it's nice weather
hace mal tiempo – it's bad weather
hace calor – it's hot
hace frío – it's cold
hace sol – it's sunny
hace viento – it's windy
llueve – it rains
nieva – it snows

Activities I might do
hago ciclismo– I do cycling
bailo – I danse
monto en bici – I ride my bike
monto a caballlo – I horse-ride
hago natación – I do swimming
canto – I sing
escucho música – I listen to music
juego al fútbol – I play football
saco fotos – I take photos

What I like to do
Me gusta... - I like...
hacer ciclismo – to do cycling
bailar – to do danse
montar a caballo – to horse-ride
hacer natación – to do swimming
cantar – to sing
escuchar música – to listen to music
jugar al fútbol – to play football
sacar fotos – to take photos

Key ideas
Weather on holiday
Describing where I like to go
Describing what I like to do
Future holidays

Where I like to go
Me gusta ir... - I like to go...
...al centro comercial - ... to the shopping centre
...al centro de deporte - ...to the sports centre
...al castillo - ...to the castle
...al cine - ...to the cinema
...al mercado - ...to the market
...al parque - ...to the park
...al restaurante - ...to the restaurant
...al estadio - ...to the stadium
...a la piscina - ...to the swimming pool
...a las tienda - ...to the shops
...a los museos - ...to the museums
...al concierto - ...to the concert

Future holidays
En el futuro - In the future
Voy a ir...
- I am going to go...
Me gustaría ir...
- I would like to go...
...al centro comercial - ... to the shopping centre
...al centro de deporte - ...to the sports centre
...al castillo - ...to the castle
...al cine - ...to the cinema
...al mercado - ...to the market
...al parque - ...to the park
...al restaurante - ...to the restaurant
...al estadio - ...to the stadium
...a la piscina - ...to the swimming pool
...a las tienda - ...to the shops
...a los museos - ...to the museums
...al concierto - ...to the concert

Year 9 Topic 3 Part 2: Transferable Knowledge

Opinion openers
En mi opinión – In my opinion
Creo que – I believe that
Pienso que – I think that
Diría que – I would say that

Opinions
¡Qué fantástico! – How fantastic!
¡Qué interesante! – How interesting!
¡Qué divertido! – How fun!
¡Qué aburrido! – Ho boring!
¡Qué guay!
¡Qué rico!
¡Qué suerte!
¡Qué mal!
Será fantástico – It will be fantastic
Será interesante – It will be interesting
Será divertido – It will be fun
Será aburrido –It will be boring
Será emocionante – It will be exciting
Sería fantástico – It would be fantastic
Sería interesante – It would be interesting
Sería divertido – It would be fun
Sería aburrido –It would be boring
Sería emocionante – It would be exciting

The near (immediate) future tense

Ir – to go

Voy a *ir* – I am going *to go*
Vas a *ir* – You are going *to go* (singular / informal)
Va a *ir* – He/She is going *to go*
Vamos a *ir* – We are going *to go*
Vais a *ir* – You are going *to go* (plural / informal)

Van a *ir* – They are going *to go*

Intensifiers
muy – very
bastante – quite
un poco – a bit
poco – few/little
realmente – really
demasiado – too
simplemente – simply
especialmente – especially
totalmente – totally
completamente – completely
absolutamente – absolutely

The – Definite Article
El – masculine singular
La – feminine singular
Los – masculine plural
Las – feminine plural

To the
al – masculine (a + el contracted)
a la - feminine
a los – masculine plural
a las – feminine plural

Time expressions
allí – there
aquí - here
el primer día – on the first day
el último día – on the last day
otro día – another day
por la mañana – in the morning
por la tarde – in the afternoon
primero – first
luego – then
más tarde – later
después – afterwards

Using a range of language improves the quality of our speaking and writing and allows us to access more challenging texts!

Subject: Year 9 Design and Technology Topic: Textiles and Fabrics

Natural Fibres

Fibres are fine hair like structures that are either short (staple) or long (filament).

Fibres are converted into yarns or fabrics which can be used to make a variety of textile-based products.

Synthetic Fibres

Synthetic fabrics have many different qualities including some not achievable with natural fibres.

Synthetic fabric can provide waterproof fabrics and elastic fabrics for swimwear and underpants. Depending on the synthetic fabric, various added chemicals can make it softer, wrinkle free, flame-resistant, water-resistant, stain-resistant, or moth-repellent.

While all these qualities are desirable, the processes can harm the environment, wildlife, and people's health.

Examples of synthetic fabrics are Nylon, Polyester, spandex.

Blended Fibres:

A blended fibre is a combination of two or more fibres spun together when the yarn is made. The most common example of this is the cotton polyester blend.

Cotton is a cool, soft, strong and comfortable fabric.

Polyester is hardwearing, lightweight, a poor absorber and elastic.

By combining these together into one new fabric we can have the comfort and cool feel of cotton but with the hardwearing, quick drying and crease resisting properties of polyester.

Plant based fibre	*Where it comes from*
Cotton	Cotton comes from the fine hairs on the seeds in a ripe seed pod of a cotton plant.
Linen	Linen comes from the fibrous stem of a flax plant
Other vegetable fibres	Kapok hair cells come from the kapok fruit, hemp fibres come from the help plant
Animal based fibre	*Where is comes from*
Wool	Wool comes from the hair of sheep; this hair is often known as its coat or fleece.
Silk	Silk is a fibre from the cocoon of a silkworm, these are unravelled to form fibres.
Other animal hairs	Cashmere comes from a goats fine undercoat, camel hair is collected from camels, mohair is from the angora goat and angora hair is from the angora rabbit.

Fabrics are made up of fibres.

These fibres have either been twisted into yarns and then knitted or woven together to make a length of fabric.

Alternatively they can formed into a web and heat pressed of glued together as a non-woven fabric.

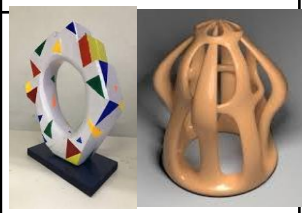
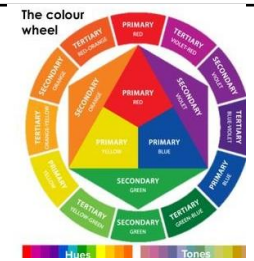
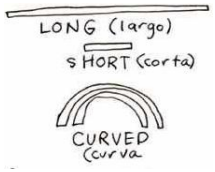
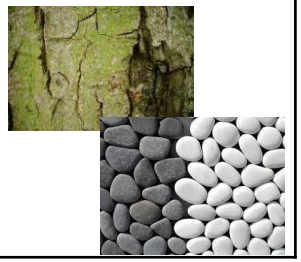
Mixed Fibres:

A mixed fibre is where one type of yarn is mixed with another in the production of fabric.

A common example is the mix of cotton yarns with lycra yarns to give extra stretch and comfort to denim jeans, fitted shirts and swimwear.

Mixes can be made for aesthetic reasons such as in two tone fabrics, for example silk taffeta using red and black yarns to give a desired effect or denim jeans with blue and white yarns to adjust the colour tone.

Design Principles

S C L P T	
S = Shape	
C = Colour	
L = Line	
P = Pattern	
T = Texture	

Key Terminology

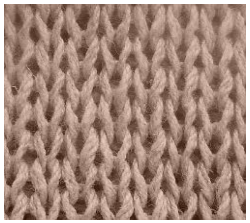
- Natural Fibre
- Synthetic Fibre
- Twisting/ Spun
- Blended Fibres
- Mixed Fibres
- Woven Fibres
- Knitted Fabrics
- Warp/Weft
- Selvedge
- Yarn

Woven Fabrics

Woven fabrics are produced by interlacing two sets of yarns at right angles to each other on a machine called a loom.

- The **warp yarns** run the length of the fabric.
- The **weft yarns** run across the width of the fabric.

At the edge where the weft yarns turn round a finished edge called a selvedge is formed. The selvedge runs down the length of the fabric.



Advantages of natural fibres:

- Breathable fabric
- They can shrink in the wash
- They wrinkle and crease easily
- They are more comfortable to wear

Disadvantages of natural fibres:

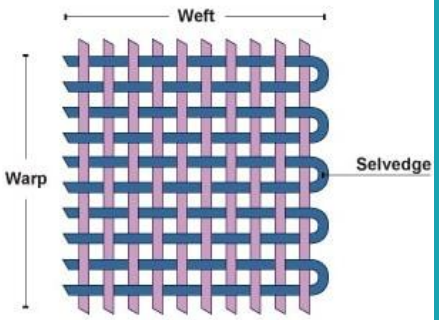
- They can shrink in the wash
- More expensive to buy

Advantages of synthetic fibres:

- Stain-resistant, flame resistant
- Wrinkle free
- Synthetic fibres are man made
- Waterproof fabrics
- Added chemicals make them softer

Disadvantages of synthetic fibres:

- Use plastics to manufacture them which makes them harder to recycle and not as environmentally friendly
- Can be warmer when wearing as the fabric is not as breathable.



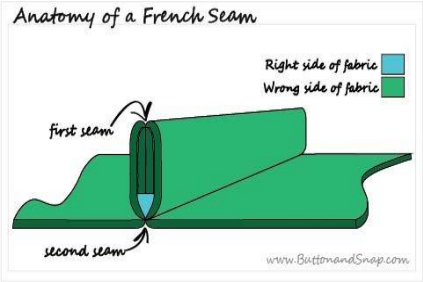
Knitted Fabrics:

Knitted fabrics are made in very different ways from woven fabrics, as the yarns do not interlace with each other. Instead, the yarns are looped together to make a looser, more flexible fabric.

The two main types of looping make weft knit fabrics and warp knit fabrics.

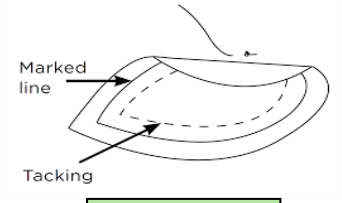
The loops help by allowing the fabric to stretch considerably. This can be increased when the yarns are made from elastic fibres

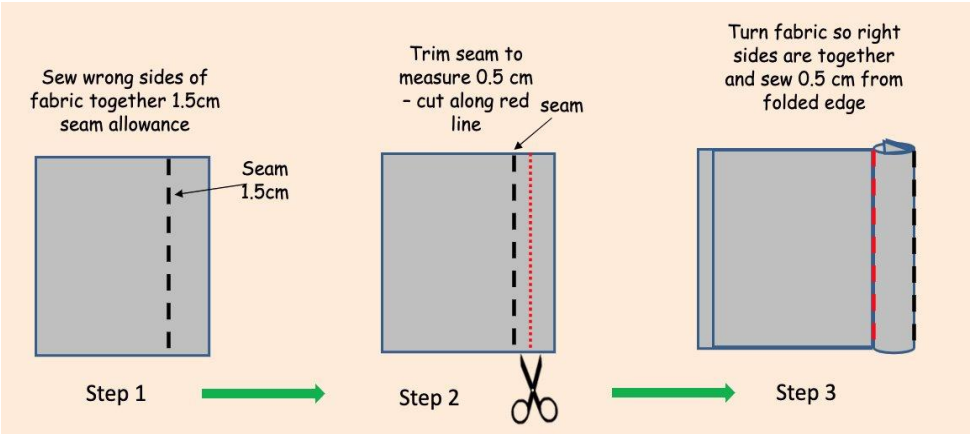
FRENCH SEAM

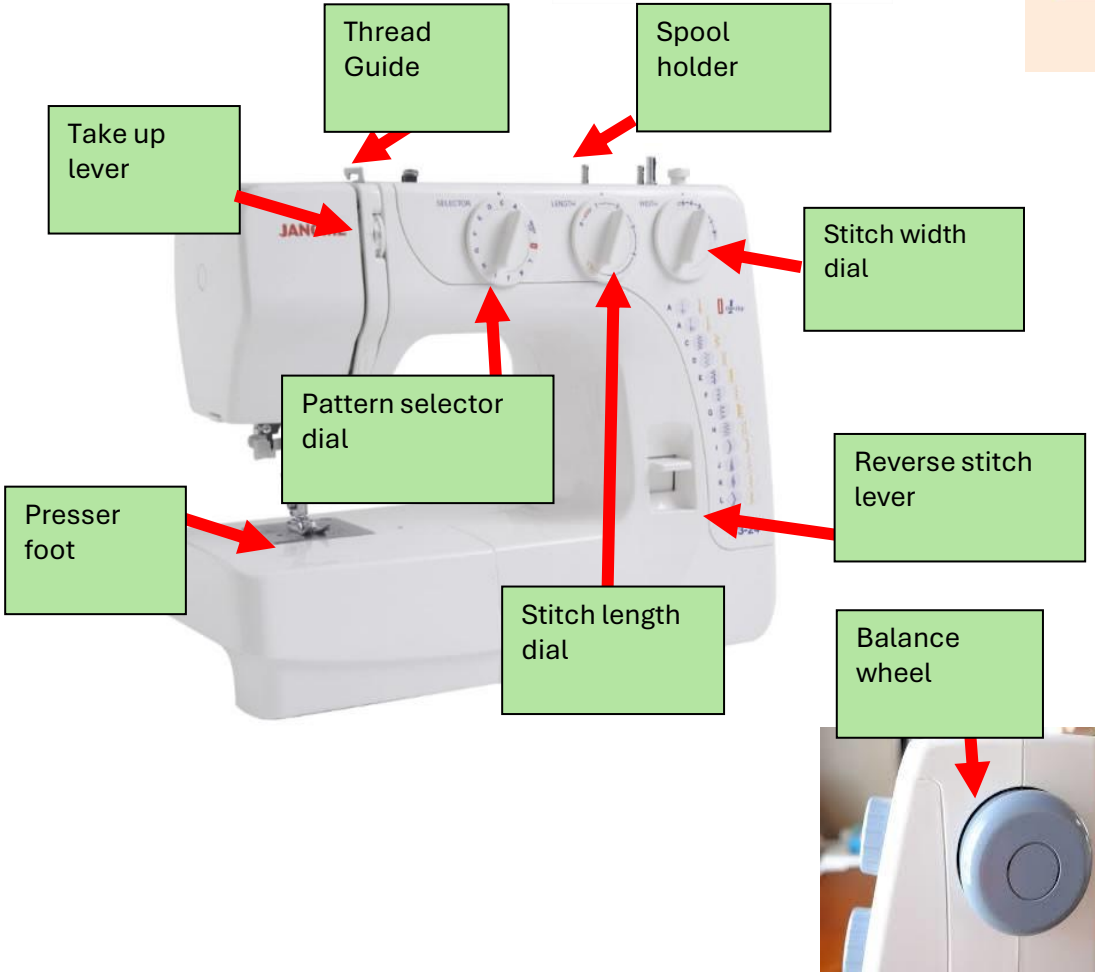


APPLIQUE

pieces of fabric are sewn or stuck on to a larger piece to form a picture or pattern.







Sewing Machine

1. Sharp needle
2. Take-up lever pulls the thread through the machine
3. Different types of stitch patterns
4. Used to sew lots of different types of fabrics
5. Balance wheel can move the position of the needle