



Westhoughton High School

Year 7 – Autumn Term -



**“EDUCATION
IS THE MOST POWERFUL
WEAPON WHICH YOU CAN USE TO
CHANGE THE WORLD.”**

**NELSON
MANDELA**



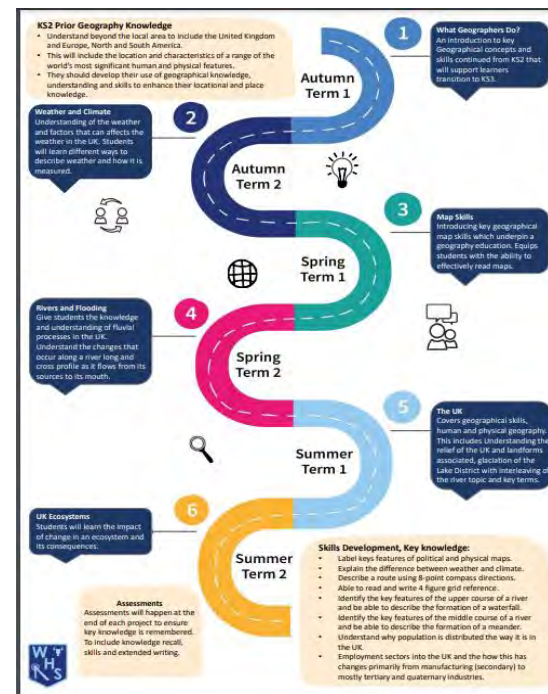
the **“Knowledge”** pyramid



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Introduction

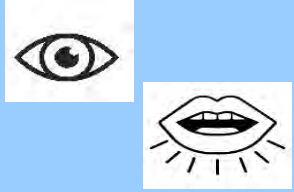


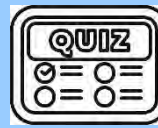











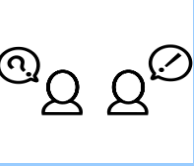


The curriculum in each of your subjects at WHS has been carefully planned to help you learn new things, building upon what you know and preparing you for learning in the future. This is mapped out as a learning journey which each teacher will share with you so you understand how your learning fits together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









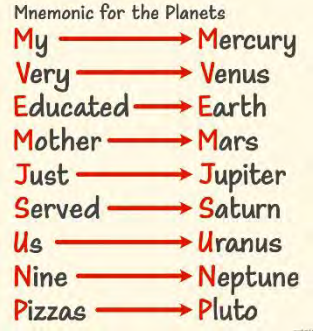



This booklet contains knowledge organisers for all the topics you will study in each subject this term. These give an overview of the essential knowledge that you MUST remember to be as successful as possible in Year 7 and as you move through each year of school. Your teachers will expect you to use them during lessons to find out about what you are going to be learning in a new topic, to retrieve information during a connect activity – connecting your brain to what you are going to learn that lesson and to test yourself or others to recall knowledge. You will also use them to complete home learning activities, to regularly revise from so that you begin to remember more knowledge over time, to discuss what you have been learning with family and friends and to catch up on any learning you might have missed due to absence. 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	<p>Look at and read aloud a specific area of your KO.</p> 	<p>Write down the key words and definitions in two columns.</p> 	<p>Use your KO to condense and write down key facts or information onto flash cards.</p> 	<p>Use your KO to create a mini quiz. Write down your questions relating to the information.</p> 	<p>Create a mind map with the information on your KO.</p> 	<p>Ask a partner, friend or family to use the KO or your flash cards.</p> 
STEP 2	<p>Cover or flip the KO over and write down everything you remember.</p> 	<p>Repeat the above but don't look at your KO</p> 	<p>Add pictures that might help you remember. Then self-quiz using the flash-cards.</p> 	<p>Answer the questions, remember to use full sentences.</p> 	<p>Check your KO to make sure there are no mistakes on your mind map.</p> 	<p>Make sure they test you on different sections of the KO and also on previous topics.</p> 
STEP 3	<p>Check what you have written down. Correct any mistakes and add anything you missed in purple pen.</p> 	<p>Use a purple pen to check and correct your work</p> 	<p>Ask a friend or family member to quiz you on your knowledge.</p> 	<p>Ask a friend or family member to quiz you using the questions.</p> 	<p>Try to make more connections, link the information together where you can.</p> 	<p>Repeat this regularly so that you are frequently looking at KOs past and present.</p> 

How to make learning stick...

Mind Mapping	Flash Cards	Look, Say, Cover, Write, Check	Key Word Mnemonics	Revision Clocks
 <p>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.</p> <p>Watch the clip for more tips and advice.</p> 	 <p>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.</p> 	 <p>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.</p> 	 <p>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.</p> 	 <p>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.</p> <p>Watch the clip for more tips and advice.</p> 

Knowledge Organiser : Skill Building Tool Box

Baseline drawing project:



Rationale: We want you to become familiar with some of the basic techniques of drawing help you to look closely at the smaller things; understand keywords that will help you express yourself when commenting on your own work and that of others.

Throughout this mini project you will learn:

About the techniques & materials that artists use to create amazing tonal drawings!

How to experiment with pencil line to create your own tonal drawing of an eye.



WAGOLL

CEAIG: watch this:

<https://www.youtube.com/watch?v=QRiTwuDww4>



Try out these techniques at home:

<https://www.youtube.com/watch?v=FmsSbpbB5Vs>
<https://www.youtube.com/watch?v=zqNZ9df0tho>



Read this:

<https://www.bbc.co.uk/bitesize/guides/zc7sfnd/revision/2>

Key words & Definitions

1	Accurate	Careful and precise.
2	Blend	To become mixed together
3	Fleck	A small patch of light or colour.
4	Iris	The coloured part of the eye
5	Layer	A section that alternates
6	Observational	Looking closely
7	Pressure	A steady force upon a surface
8	Pupil	Black hole in the centre of iris
9	Refine	To make better/improve
10	Radiate	To spread out in many directions
11	Review	To look back over something
12	Shading	To darken
13	Sketch	A quick light outline; no detail
14	Texture	The feel or look of a surface
15	Tone/Tonal	The shade of a colour
16	Technique	A particular way of doing something

COMPUTING — Digital Citizenship

What are the hazards ?



Rules of a computing lab

1	No Food
2	Drinks are allowed, as long as they are in no-spill containers
3	Keep your password safe
4	Computers and peripherals are not to be moved around
5	Do not install software on the computers
6	Do not display or print sexually explicit graphics
7	No Mobile Phones
8	Behaviour and activities that disrupt other users or disrupt the learning in the computer labs is not allowed
9	Remember to log out whenever you are done using your computer.
10	Each person may use one computer at a time, unless otherwise instructed.

Key Terms

Password	A secret word or phrase which allows access to a computer system or service.
Computing Lab	A computer lab is a space which provides computer services to a defined community.
Screen Time	Time spent using a device such as a computer, television, or games console. Messages distributed by electronic means from one computer user to one or more recipients via a network.
Email	
Email Recipient	An email recipient is an individual who has opted-in to receive email from either an individual or a business
Email Subject	An email subject line is the first text recipients see after your sender name when an email reaches their inbox. It is important to keep an email subject line informative, catchy, and brief.
CC / Carbon Copy	(Carbon Copy) - Put the email address/es here if you are sending a copy for their information (and you want everyone to explicitly see this)
BCC/ Blind Carbon copy	(Blind Carbon Copy) - Put the email address here if you are sending them a copy and you do not want the other recipients to see that you sent it to this contact
Etiquette	The way you behave online
Sexting	To send (someone) sexually explicit photographs or messages via mobile phone.
Cyber bullying	The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature.
Digital Footprint	A digital footprint is a trail of data you create while using the Internet. It includes the websites you visit, emails you send, and information you submit to online services.
Presentation Software	A software application that is specifically designed to allow users to create a presentation of ideas
Audience	A group of people who your presentation would be aimed at

Year Term

What are Online Activities

- Socialising online on a range of social apps
- Watching TV online through YouTube
- Gaming

Reporting Online Abuse

- Report abuse on the CEOP site
- Child line
- Talk to a trusted adult, Tell a teacher
- Report behavior to the social media site



Email Etiquette

- Include a clear subject matter
- Always use an appropriate greeting.
- Consider the purpose of your **email**.
- Do not use emojis

What makes an effective presentation?

- Only Text Prompts are used (Keywords)
- Text is kept to a minimum
- All images used are relevant and appropriate to the subject

Characteristics of a strong Password

- At least 8 characters - the more characters, the better. A mixture of both uppercase, lowercase letters,, numbers and symbols e.g., ! @ # ?]

Copyright Law

The Copyright, Designs and Patents Act 1988, is the current UK copyright law. It gives the creators of literary, dramatic, musical and artistic works the right to control the ways in which their material may be used.

Types of work covered - Literacy/Dramatic/Musical/Artistic / Magazines / Sound Recording /Films

“Copyright infringement can lead to substantial penalties.”

Penalties can include: **A fine up to £50,000** and/or **a jail sentence of up to 6 months**

Evaluating and recording the credibility of a source

Check the author and the source / What’s the purpose of the article? / Check when the article was written / Check the facts

Article/website title	WHY IS THE PLASTIC WASTE IN OUR WATERWAYS INCREASING?
URL	http://www.itsgettinghotinhere.org/go-green/why-is-the-plastic-waste-in-our-waterways-increasing/
Notes/quotations/who to credit or cite	“It is estimated that the current population has produced a 320 million tonnes of plastic waste ! And if we carry on as we are and do not change, this figure could double by 2034”
Evaluate the credibility of the source. How can you prove that this is a reliable source?	<ul style="list-style-type: none"> Written in June last year These facts also appear on other websites







Key Terms

Credibility	the quality of the source from where the information is gathered
Source	a place, person, or thing from which facts or information can be obtained.
Audience	A group of people of whom your project/work would be aimed at
Plagiarism	The process or practice of using another person’s ideas or work and pretending that it is your own
Referencing	When you provide (a book or article) with citations of sources of information.
Citation	A word or piece of writing taken from a written work
Paraphrase	To repeat something written or spoken using different words, often in a humorous form or in a simpler and shorter form that makes the original meaning clearer
Blog	A regularly updated website or web page

Microsoft Word - Tools

Tool icon	Tool name	Brief description
	BOLD	Changes the text to be bold, i.e. thicker and more noticeable
	FONT	Allows you to change the style/appearance of the text
	CENTRE ALIGN	Moves the text so that it is in the middle of the page, rather than having a margin on the left- or right-hand side of the page
	TEXT COLOUR	Allows you to change the colour of the text
	BULLETED LIST	Allows you to create a bullet-pointed list

Different Software and their uses

Icon	Software Name	Description
	Spreadsheet software	Made up of rows, columns and cells. Used mainly for holding formulas to automatically complete calculations. Real-world use: A building company would use this software to add in all of the materials and costs for a project in order to give their invoice/bill to the customer.
	Word processing software	A modern-day typewriter used for typing text and changing the appearance of the text (such as making text bold or changing the colour). Real-world use: A supermarket would use this software to write a letter to their customers to let them know of new offers that they have in store.
	Email software	Software that allows you to read and compose electronic messages that are sent between recipients across the network (usually the internet). You can send messages to multiple people at the same time and include attachments (such as files for people to open, read or edit). Real-world use: A teacher would use this software to send homework as an attachment to all members of the class. Each member of the class would then have their own copy of the worksheet.
	Image editing software	Software that allows you to create or edit images. It includes tools such as overlaying text, cropping and recolouring. Real-world use: A Publisher would use this software to create the front page of a magazine.
	Presentation software	Software that allows you to present information in the form of a slide show. The presenter would use this to provide a visual aid to support what they are saying. Real-world use: A history teacher would use this software to show examples of castles so that learners can understand the key parts of the castle that the teacher is discussing
	Web authoring software	Software that creates web pages/websites without you having to write code. You can write, edit and position text, add images and embed videos. The software will write the required code for it. Real-world use: A start-up business would use this software to build a website to promote their services and display their contact details.

- To look at
- To examine in detail to explain and interpret



ANALYSE

- In Year 7 you will be Analysing 2 different Design Movements.
- You will analyse both the Arts & Craft and Memphis Design movements.
- Your analysis will help you when you Design.

Memphis 1980's Design

Gaudy ornamental and decorative products

Founder's Philosophy:

Ettore Sottsass, the movement's leader, aimed to break free from conventional design rules and encourage individuality and creativity.

Design History

- Art Nouveau: fluid, curves, floral
- Art Deco: geometry, streamlining, patterns

Inspiration

Memphis took its inspiration from Pop Art, Art Deco (patterns) and 1950's kitsch. Their main aim was to reinvigorate Design and develop a new creative approach to design.

Impact

Many people found the products tasteless, but others considered them groundbreaking in SCLPT. (Shape, Colour, Line, Pattern, Texture)

Legacy:

Memphis design remains influential and is often revisited in contemporary design, particularly in the postmodern and avant-garde design movements. It continues to inspire designers worldwide.

Key Products:

Iconic Memphis design products include the "Cartoon" bookshelf by Ettore Sottsass, the "Super" lamp by Martine Bedin, and various furniture pieces characterized by bold patterns and eccentric forms.

Global Reach:

While it originated in Milan, the Memphis design movement quickly gained international recognition, shaping design trends worldwide.

Relevance Today:

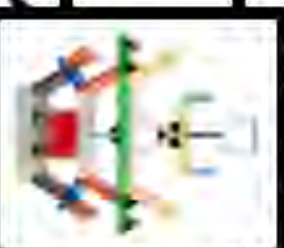
Memphis design remains a symbol of rebellion against design norms and continues to captivate designers and collectors seeking unique and expressive creations.

Design in the style of Memphis

Bold Colours:
Memphis designs often feature vibrant and contrasting colours, such as primary and neon hues.



Geometric Patterns:
Use of geometric shapes and patterns, including triangles, circles, and zigzags.



High visual impact.
"Less is a bore."
Visual impact with minimum regard to function.



Asymmetry: Rejecting traditional symmetry. Memphis designs embrace irregular and asymmetrical shapes.

Playfulness:
Incorporates a sense of humour and whimsy into design elements.

Kitsch
Decorative, tacky, without style or purpose but enjoyed as they are fun.



To put together
Practical activity

1. Assemble
2. Build
3. Construct



MAKE

In Year 7 we will be making a Blockhead.
You will use tools to make the parts.
It will be made from pine.

Key Concepts	
<ul style="list-style-type: none"> • Alignment • Aligned • Align 	My features are aligned; this means they have been placed in a straight line.
<ul style="list-style-type: none"> • Assembled • Assemble • Assembly 	My body parts have been assembled; this means they have been joined together using a dowel joint.
<ul style="list-style-type: none"> • Accuracy • Accurate 	My parts are the same size and shape this means they have been made with no errors.



- Standard of making**
- High Quality**
- The very best
 - Highest standard
- Quality**
- The grade of excellence
- How good something is / looks
 - How well it is made

Material = Pine

1. Evergreen tree
2. Softwood; easy to cut and shape
3. Softwood; easily dented
4. Wood grain can enhance appearance of a product
5. The life rings within pine are closer together as it grows quickly



- Skillful**
- Confident to undertake the task without support
 - Task completed correctly

Skill

- An ability that comes from training
- Something you can get better at

1. Measuring
2. Marking Out
3. Wasting (Removal of materials); Cutting Drilling; Shaping

When measuring use Steel Rule

1. Starts at 0mm
 2. Measures in millimetres. 10mm = 1cm
 3. Not used to project lines
-

When measuring angles use a Try Square

1. Use to project a line at 90 degrees
2. Align the edge flush against the wood
3. Use a sharp pencil to project the 90 degree line
4. Use to check the angle of cut parts

When cutting use a Tenon Saw

1. Steel blade
2. Teeth point away from the handle
3. Cuts on the push
4. Used to cut Pine and other Timbers
5. Spine helps the blade to not bend when cutting

When shaping use a Rasp then a flat file

1. The rasp is rough to remove materials
 2. The surface texture looks like a raspberry
 3. Use the face of the rasp to remove the material
 4. The flat file removes smaller finer amounts of material
-



TEXTILES

- In Year 7 we will DESIGN a Pattern for the front of the pencil wrap
- You will DESIGN a stencil to use as a repeat template

A plan or drawing produced to show the look and function of a product.
a decorative pattern

1. Pattern
2. Motif
3. Arrangement

PATTERN



- Pattern**
- Repeat: Is the amount of space from where a pattern begins, and then begins again.
 - Types of pattern repeat: Block Repeat, Half Drop Pattern Repeat, Brick Pattern Repeat, Random Pattern Repeat.



Block Repeat



Half Drop Pattern Repeat



Brick Pattern Repeat



Random Pattern Repeat



Block Repeat



Block Repeat



Quality

- The grade of excellence
- How good something is
- How good it looks
- How well the pattern repeats



High Quality

- The very best
- Highest standard

Skilful

- Confident to undertake the task without support
- Task completed correctly

Skill

- An ability that comes from training
 - Something you can get better at
- The skills in this project are:
Drawing 2D shapes, pattern repeats, applying colour.



When Designing a pattern:

1. Extract 2D organic and geometric shapes
2. Create a template of the shape to be repeated
3. Consider how the pattern will repeat i.e. Block, 1/2 drop etc
4. Think about the type of product the pattern will be used on

- To look at
- To examine in detail to explain and interpret



TEXTILES

1. Psychedelic intense colours
2. wiggling lines
3. blending of objects that appear to be melting and oozing into each other

ANALYSE

- In Year 7 we will ANALYSE a the designer MILTON GLASER
- You will ANALYSE his designs to create a pattern design of your own

Psychedelic design is an art form that tends to have intense colours, free-flowing lines, and kaleidoscopic patterns

Milton Glaser Design

Bold Colours:

Milton often used vibrant and contrasting colours.



Organic Patterns:
Use of Organic shapes and patterns, including wavy and curved lines.



Founders Philosophy:

Milton Glaser, felt that as a designer he was in the business of persuasion and could bring about change. He aspired to put his skills towards a worthy cause, even if success was not guaranteed.

History

Milton was born in The Bronx, New York City. His parents, were Hungarian Jewish immigrants. The family resided in the South Bronx. His father owned a dry-cleaning and tailoring shop; his mother was a homemaker.

Inspiration

Italian painter Giorgio Morandi, influenced Glaser. "Morandi was one of those artists who, the longer you look at him, the more you grow in your appreciation, the more you understand," Glaser said

Impact

Milton Glaser is credited for the creation of the famous Push Pin movement which is characterized by strong outlines, bright colours, and slightly exaggerated forms.

Legacy:

One of Glaser's most recognizable works is his 'I Love New York' logo. Its aim was to increase tourism as New York was seen to be a dangerous place to visit.

Key Products:

In 1966, Glaser designed a poster for *Bob Dylan's Greatest Hits*. It was one of Glaser's first posters. The poster shows the profile of Dylan's face with psychedelic, swirly hair, with "Dylan" written at the bottom in Baby Teeth, one of Glaser's typefaces.

Global Reach:

Throughout his career, Glaser has been a creator of posters and prints. His artwork has been featured in exhibits worldwide, including one-man shows at both the Centre Georges Pompidou in Paris and the Museum of Modern Art in New York.

Relevance Today:

Again and again, he stressed the importance of continuing to learn. "We are all born with genius," he said. "It's like our fairy godmother. But what happens in life is that we stop listening to our inner voices, and we no longer have access to this extraordinary ability to create."

To put together
Practical activity



- In Year 7 we will be making a Pencil Wrap
- You will use tools to make the parts
- It will be made from Cotton

1. Assemble
2. Build
3. Construct

TEXTILES

MAKE

- Cotton**
- Natural
 - Grows on a plant
 - Absorbent; will soak up liquid
 - Can be dyed lots of different colours



- Pencil wrap**
- Parallel: My pouches are parallel; this means the sewn lines are the same distance apart
 - Seam allowance: The main parts have been sewn using a seam allowance of 1.5cm; this means they are strong and won't come apart



- High Quality**
- The very best
 - Highest standard



- Quality**
- The grade of excellence
- How good something is
 - How good it looks
 - How well it is made

- Skilful**
- Confident to undertake the task without support
 - Task completed correctly



- Skill**
- An ability that comes from training
 - Something you can get better at
- The skills in this project are:
Measuring / Sewing in a straight line,
sewing 90-degree corners, Hand sewing

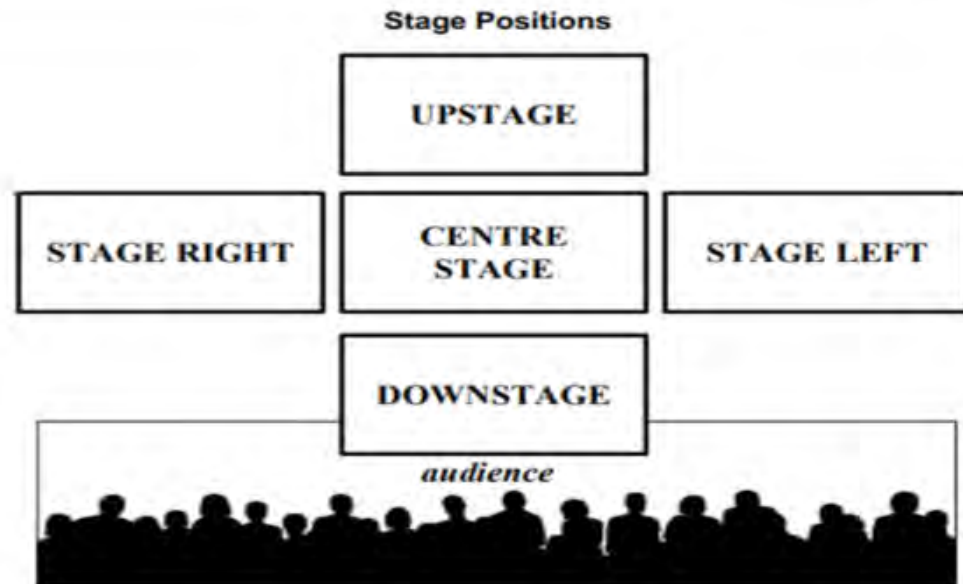
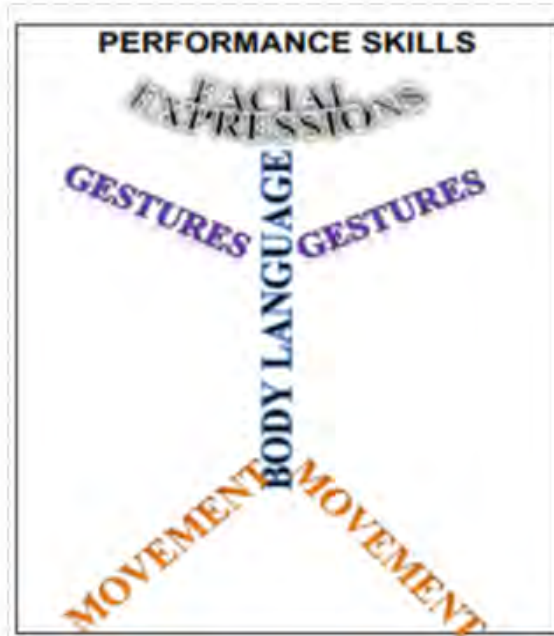
- When sewing use a;**
Sewing Machine
1. Sharp needle
 2. Take-up lever pulls the thread through the machine
 3. Different types of stitch patterns
 4. Used to sew lots of different types of fabrics
 5. Balance wheel can move the position of the needle



Year 7 Drama Knowledge Organiser – Stage Craft



Performance Techniques	
Freeze Frame	A frozen moment used to end the performance neatly
Mime	When all the action is shown just through physical skills. There is no talking during a mime.
Hot Seating	When you answer questions of people in character
Thought Tracking	A character's thoughts/feelings said out loud to an audience
Rehearsal	A practice or trial performance of a play.



Year 7 Drama Knowledge Organiser – Superheroes

Background Information to Superheroes

A superhero or superheroine is a stock character that possesses abilities beyond those of ordinary people, who typically uses their powers to help the world become a better place, or is dedicated to protecting the public, and stopping evil. Superhero fiction is the genre of fiction that is centred on such characters, specially in American comic books since the 1930s (and later Hollywood films), as well as in Japanese media since the 1930s.

Performance Techniques	
Melodrama	A sensational dramatic piece with exaggerated characters and exciting events intended to appeal to the emotions.
Stance	The way in which someone stands
Posture	The position of a person's body when standing or sitting
Slapstick	Comedy based on deliberately clumsy actions and humorously embarrassing events
Slow motion	Moving slowly in order to highlight parts of scene to an audience



Tasks for this topic:



- Exploring the difference in body language between a superhero and their secret identify
- Using exaggerated acting skills as seen in superhero films
- Representing a transformation from a secret identity to a superhero
- Using slow motion and movement to music to created stylised and engaging work
- Using slapstick skills to entertain an audience and portray different character




**YEAR 7 AUTUMN TERM KNOWLEDGE ORGANISER:
FIRE STARTERS
GREEK MYTHOLOGY, FAIRY TALES AND LEGENDS**

MYTHS involve gods, goddesses or other religious figures. They are fictional and tell us stories about creation.

LEGENDS are based on true events but have some fictional (untrue) elements to the tale.

Myth	Plot Summary	Legend	Plot Summary
<p>Prometheus</p> 	<ul style="list-style-type: none"> Prometheus was a Titan God. He created man from earth, blood and clay. Prometheus and Zeus opposed each other. Zeus tortured Prometheus by driving a spike through his chest and sent an eagle to feed on his liver. One trick included Zeus eating a pile of bones. As punishment, Zeus took fire from mankind, which left them cold and in the dark. Prometheus secretly climbed Mount Olympus to steal the fire. He gave it to the humans. Zeus swore his revenge. 	<p>King Arthur: The Sword in the Stone</p> 	<ul style="list-style-type: none"> Merlin, the wizard, told the Archbishop that a new king was needed for England. All of the knights were ordered to come to London. When they arrived at the church, the Archbishop showed the knights a stone with a sword stuck in the middle of it. It read: 'Only the king can take the sword from the stone.' Every knight tried to pull out the sword but none were successful. Only a young boy, named Arthur, was able to pull out the sword. He became king.
<p>Pandora's Jar</p> 	<ul style="list-style-type: none"> The story of Pandora follows Prometheus' stealing of the fire. Zeus vowed to have his revenge on Prometheus and mankind. His revenge was Pandora. He asked the Gods and Goddesses to create the first woman: Pandora. She was given as a gift to Prometheus' brother, Epimetheus. Pandora became curious of the jar (sometimes described as a box) and opened it. When Pandora opened the jar (box), evil, hard work and diseases were placed on mankind. Only Hope remained inside. 	<p>King Arthur: The Lady of the Lake</p> 	<ul style="list-style-type: none"> During a battle with a knight, King Arthur's sword, Excalibur, breaks in two. Merlin takes King Arthur to be treated for his battle wounds. They stop at a lake. The Lady of the Lake appears and returns Excalibur to King Arthur if he promises a gift to her in the future. King Arthur accepts. Years pass and the Lady of the Lake appears at King Arthur's castle. She asks for another knight's head (Sir Balin) as her gift. Sir Balin finds out. He cuts the Lady of the Lake's head off instead!

FAIRY TALES are fictional stories, involving magic and supernatural elements, aimed to teach children moral lessons.

Fairy Tale	Plot Summary
<p>The Little Mermaid</p> 	<ul style="list-style-type: none"> On her fifteenth birthday, the Little Mermaid is allowed to sit on the rocks at moonlight to watch the ships as they sail by. The Little Mermaid witnesses a shipwreck and saves the prince onboard. However, he does not remember her. Wishing to join the mortal (human) world, she makes a deal with the sea-witch to swap her voice for human legs. The Little Mermaid meets the prince on land. However, he does not realise that she saved him from the shipwreck. He marries a princess. Upset, the Little Mermaid vows to kill the prince and his bride. Before she can kill them, hundreds of beautiful transparent beings persuade her to let go of her anger and join them as a daughter of the air. The Little Mermaid agrees. The daughters of the air watch over mortal children's behaviour. After 300 years, they will float to heaven.

**YEAR 7 AUTUMN TERM KNOWLEDGE ORGANISER:
FIRE STARTERS
GREEK MYTHOLOGY, FAIRY TALES AND LEGENDS**

Key Symbols

Fire



Pandora's Jar



Water



Context – Myths, legends and fairy tales teach their readers moral messages.



Moral Message: A message or lesson a story teaches the reader. For example, in the story of The Boy who Cried Wolf, the story teaches the reader to always tell the truth; otherwise, people won't believe you when it matters.

Big Ideas

Creation

Bringing something into existence; the creation of the universe by a God.



Influence

To have an effect on someone or something; the power to shape something or someone.



Classical Literature: The literature of ancient Greece and Rome (1200 BC – 455 AD). These tales were spoken aloud and recited from memory, then written onto papyrus scroll many years later. We still have fragments of original scrolls today.

Writers attempted to make the universe understandable to us, as humans. Greek mythology includes



stories that tell us how the world was created and the nature of the universe.

Greek Gods and Goddesses: Greek mythology includes stories that tell us how the world was created and the nature of the universe, which were based around the Titans and Olympians (Greek Gods) who were said to live on Mount Olympus – the highest mountain in Greece. Each God is associated with particular stories, powers and symbols.



Fate

Events that are destined to happen, often regarded (thought of) as predetermined by a supernatural power and outside a person's control.



Morality

Social standards for good or bad behaviour and character.



Twisted Fairy Tales: The original versions of popular fairy tales were much darker than today's versions. Originating in European folk stories, often designed to be parables with a moral twist: they featured painful punishments, sadistic parents and children being devoured by wild beasts – hardly the stuff of bedtime stories. Instead, they were as much warnings for children to behave themselves as anything else – discipline instilled through fear.



The Original Sin: The belief that when Adam and Eve disobeyed God, they 'fell' from perfection and brought evil into a perfect world.

God told Adam that he could do anything he wanted, except eat the fruit of the tree of the knowledge of good and evil. Eve was tricked by the serpent into eating the forbidden fruit. She gave some of the fruit to Adam and he ate it too. Adam and Eve realised that they were naked and hid in shame. God banished them from the Garden of Eden into the harsh world outside and death entered the world.


























Power

The ability or capacity to do something or act in a particular way; the ability to influence the behaviour of others or events.



YEAR 7 AUTUMN TERM KNOWLEDGE ORGANISER: FIRE STARTERS

TECHNICAL ACCURACY & KEY DEVICES

'FOUR FOR MORE'-THE 4-PART SUCCESS STORY		Device / Feature		Tenses
Part	Key Features			
SETTING 	<ul style="list-style-type: none"> Introduce your story by focusing on the setting Describe the weather / environment / surroundings / objects / décor DEVICES: Personification / pathetic fallacy / symbolism / prepositions / foreshadowing 	Simile Comparing something to something else: 'as', 'like' 	Metaphor Describing something by stating it is something else 	<div style="background-color: #c8e6c9; padding: 5px; text-align: center; font-weight: bold;">PAST</div> Something that has already happened Had / went / said / walked
CHARACTER 	<ul style="list-style-type: none"> Describe your character(s) within your setting One or two characters – keep it minimal Craft their actions / behaviour to reflect their personality and emotions DEVICES: Sensory language / similes / metaphors / minimal dialogue 	Symbolism Objects, colours, sounds, places 	Sensory language Five senses 	<div style="background-color: #c8e6c9; padding: 5px; text-align: center; font-weight: bold;">PRESENT</div> Something that is currently happening Have / go / say / walk
FLASHBACK 	<ul style="list-style-type: none"> Include a flashback to teach the reader something about your character and / or their world Begin this section with a trigger This memory should contrast your character's current situation DEVICES: Sensory language / juxtaposition / light imagery / similes / metaphors / symbolism 	Punctuation		<div style="background-color: #c8e6c9; padding: 5px; text-align: center; font-weight: bold;">FUTURE</div> Something that will happen Will have / will go / will say / will walk
RETURN TO THE SCENE 	<ul style="list-style-type: none"> Begin this section with a trigger that forces your character back to their current world Offer a glimpse of change / a subtle change to end your story Return to something that you described in your opening paragraph to create a cyclical structure DEVICES: Sensory language / personification / pathetic fallacy / symbolism / cyclical structure 	Capital Letters - Start of a sentence - Proper nouns: names of places, people or things - The pronoun 'I' - Months and days of the week 	Commas - Separating 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 	Common Homophones 
		Apostrophes To show that letters are missing in a word To show possession 	Full Stops To end a sentence 	The e a The r They're
				Your  a You're
				Its  i h a It's
				Which  ? Witch 
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 

To put together
Practical activity

FOOD & NUTRITION

In Year 7 we will be making a dough.
You will use equipment to make.
It will be made following a recipe.

1. Assemble
2. Mix
3. Stir

MAKE

Knife Skills and Techniques



Bridge Method: Make a bridge with your fingers and thumb, place the knife underneath and cut downwards, repeat to cut ingredients to size.



Claw Method: Make a claw with your hand by curling your fingers and then place the knife near your claw sliding it away from the knife as you slice each piece










Hygiene rules in the food room

Wash your hands with anti-bacterial soap
Wear a clean apron
Tie the hair up
Make sure your nails are clean and nail varnish
Cover cuts and sores with a blue plaster
Clean work surfaces with sanitiser
Use clean dishcloths and tea towels
Make sure all equipment has been cleaned thoroughly in hot soapy water










Vegetable cuts

	battons – 5.6:5cm long x 1 cm square		dice – 1cm square
	julienne/match stick – 5: 6.5:5cm long x 3 mm square		fine julienne – 5:6.5:5cm long x 1.5mm square

Bread making processes	Bread making ingredients	Equipment used
<p>Weighting and measuring to ensure accurate quantities</p> <p>Sifting to aerate the flour</p> <p>Combining to dissolve the liquid throughout the dry ingredients.</p> <p>Stretching to stretch the gluten, add more as you stretch the dough</p> <p>Proofing to allow the carbon dioxide to develop building through the dough and expanding it</p> <p>Stretching back to remove large air bubbles</p> <p>Shaping to form the dough ready for baking</p> <p>Glazing to give any ingredients in the dough, to give a golden colour and shiny appearance</p> <p>Baking to cook the dough and deactivate the starch</p>	<p>Strong bread flour</p> <p>In the state (largest ingredients and has a higher gluten content to support the framework of the bread)</p> <p>Fast action yeast is the right agent and adds volume</p> <p>Sugar is used to feed and activate the yeast</p> <p>Salt acts against the yeast</p> <p>Oil keeps the bread moist</p> <p>Warm water activates the yeast and binds the dough together</p>	<p>Digital scales used to weigh accurately</p> <p>Sieve for sifting the flour</p> <p>Plastic knife used to cut the dough into the dry ingredients</p> <p>Rolls stand on the head of the hand used to stretch the dough</p> <p>Rolling pin can be used to roll out the dough into an even shape</p> <p>Freshly washed used to apply milk to surface products</p> <p>Oven tray and parchment paper to catch bread rolls on, the paper is to prevent sticking</p>
<p>To activate, yeast needs:</p> <p>Food</p> <p>Liquid</p> <p>Warmth</p> <p>Time</p>	<p>Gluten is the protein in wheat, barley and rye, it gives to form the structure of baked products. Gluten needs liquid, kneading and heat to allow some proteins are able to give structure etc.</p>	        



Key Terms	Description	
Gluten	A protein found in wheat flours, that make doughs elastic.	
Yeast	A microorganism that can spoil food but is used as a raising agent in baking. Requires food, warmth, time and moisture to release carbon dioxide.	
Kneading	Stretching the dough to develop the gluten and create an elastic dough.	
Proving	The dough is left to rise to allow the yeast to ferment.	
Fermentation	The process of fermentation is where yeast is given food, time, warmth and moisture to grow and produce carbon dioxide gas.	
Baking	During baking the heat sets the gluten and stops the yeast from working which allows the bread to set and hold its shape.	
Knocking back	When you knock back a dough you are creating a evenly textured dough by releasing some gas before leaving to prove again.	

To review
To look back at

1. Discuss
2. Compare
3. Judge



**FOOD
&
NUTRITION**

EVALUATE

In Year 7 we will be evaluating
your cooking skills

You will evaluate the nutritional
information linked to your dishes



Fruit and vegetables

- This group should make up just over a third of the food eaten each day
- Aim to eat at least five portions of a variety each day
- Choose from fresh, frozen, canned, dried or juiced.
- A portion is around 80g (3 heaped tbs)
- 30g of dried fruit or 150ml glass of fruit juice or smoothie count as a max of 1 portion each day

Potatoes, bread, rice, pasta or other starchy carbohydrates

- Base meals around starchy carbohydrate food
- This group should make up just over a third of the diet
- Choose higher-fibre, wholegrain varieties

Dairy and alternatives

- Good sources of protein and vitamins.
- An important source of calcium, which helps to keep bones strong.
- Should go for lower fat and lower sugar products where possible.

To find out more, go to
<https://bit.ly/2QzUw1t>

The Eatwell Guide

- Comprises 5 main food groups
- Is suitable for most people over 2 years of age
- Shows the proportions in which different groups of foods are needed in order to have a well-balanced and healthy diet
- Shows proportions representative of food eaten over a day or more

Beans, pulses, fish, eggs, meat and other protein

- Sources of protein, vitamins and minerals
- Recommendations include to aim for at least two portions of fish a week, one oily, and people who eat more than 90g/day of red or processed meat, should cut down to no more than 70g/day.

Oil and spreads

- Unsaturated fats are healthier fats that are usually from plant sources and in liquid form as oil, e.g. olive oil.
- Generally, people are eating too much saturated fat and need to reduce consumption.

Foods high fat, salt and sugar

- Includes products such as chocolate, cakes, biscuits, full-sugar soft drinks, butter and ice cream
- Are high in fat, sugar and energy and are not needed in the diet.
- If included, should be had infrequently and in small amounts.

8 tips for healthier eating

These eight practical tips cover the basics of healthy eating, and can help you make healthier choices.

1. Base your meals on starchy carbohydrates.
2. Eat lots of fruit and veg.
3. Eat more fish – including a portion of oily fish.
4. Cut down on saturated fat and sugar.
5. Eat less salt (max. 6g a day for adults)
6. Get active and be a healthy weight.
7. Don't get thirsty.
8. Don't skip breakfast.

Hydration

- Aim to drink 6-8 glasses of fluid every day.
- Water, lower fat milk and sugar-free drinks including tea and coffee all count.
- Fruit juice and smoothies also count but should be limited to no more than a combined total of 150ml per day

Fibre

- Dietary fibre is a type of carbohydrate found in plant foods
- Food examples include wholegrain cereals and cereal products; oats; beans; lentils; fruit; vegetables; nuts; and, seeds.
- Dietary fibre helps to: reduce the risk of heart disease, diabetes and some cancers; help weight control; bulk up stools; prevent constipation; improve gut health
- The recommended average intake for dietary fibre is 30g per day for adults.

Comment t'appelles-tu ? – What are you called?

Je m'appelle *Jean* – I am called *Jean*

Comment ça s'écrit ? – How is it spelt?

Ca s'écrit... - It is spelt...

le cinéma – cinema

le foot – football

le racisme – racism

le sport – sport

le tennis – tennis

le théâtre – theatre/ drama

la danse – dancing

la discrimination – discrimination

la musique – music

la télé – TV

la violence – violence

les animaux – animals

les araignées – spiders

les chats – cats

les chiens – dogs

les consoles de jeux – games consoles

les gâteaux – cakes

les jeux vidéo – video games

les maths – maths

les pizzas – pizzas



Year 7 Topic 1: C'est parti! – We're off!

Qu'est-ce que tu as dans ton sac ? – What do you have in your bag?

Dans mon sac j'ai (une trousse) – In my bag I have (a pencil case)

Qu'est-ce que tu as dans ta trousse ? – What do you have in your pencil case?

Dans mon trousse j'ai... – In my pencil case I have...

Je n'ai pas de (trousse) – I don't have a (pencil case)

Je n'ai pas d'(appareil photo) – I don't have a (camera)

(un) appareil-photo – a camera

(un) portable – a mobile phone

(un) paquet de chips – a packet of crisps

(une) barre de céréales – a cereal bar

(une) bouteille d'eau

(de l') argent – money

(des) clés – keys

(des) lunettes de soleil – sunglasses

(des) bonbons – sweets

(des) devoirs – homework

(une) trousse – a pencil case

(un) stylo – a pen

(un) crayon – a pencil

(une) gomme – a rubber

(une) règle – a ruler

(un) cahier – an exercise book

(un) livre – a book

(un) agenda – a planner/ diary

(un) bâton de colle – a gluestick



Où habites-tu ? – Where do you live?

J'habite à (Westhoughton) – I live in (Westhoughton)

J'habite en Angleterre – I live in England

J'habite en France – I live in France

J'habite au Canada – I live in Canada

J'habite en Europe – I live in Europe

Tu es de quelle nationalité ? – What nationality are you?

Je suis anglais / anglaise – I am English

Je suis français / française – I am French

Je suis canadien / canadienne – I am Canadian

Je suis européen / européenne – I am European

A / An / Some

Un – a/ an (masculine)

Une – a/ an (feminine)

Des – some (plural)



Year 7 Topic 1: Transferable Knowledge



The

Le – masculine

La – feminine

Les – plural

L' - Noun starts with a vowel sound

Bonjour – Hello / Good day / morning

Salut – Hi / Hello / Bye

Coucou – Hiya / Peekaboo

Bonsoir – Good evening

Bonne nuit – Good night

Au revoir – Goodbye

Ça va ? – How are you?

Ça va (très) bien – I am (very) good

Ça va – I am alright

Comme ci-comme ça – I am ok

Je suis fatigué(e) – I am tired

J'ai chaud – I am hot

J'ai froid – I am cold

J'ai faim – I am hungry

J'ai soif – I am thirsty

et – and

mais – but

aussi – also

parce que – because

car – because

puisque – since

cependant – however

Qu'est-ce que tu aimes ? – What do you like?

Qu'est-ce que tu n'aimes pas ? – What do you not like?

Tu aimes...? / Est-ce que tu aimes...? – Do you like...?

J'aime... – I like...

J'adore... – I love...

Je préfère... – I prefer...

Je n'aime pas... – I don't like...

Je déteste... – I hate...

Avoir – to have

J'ai – I have

Tu as – You have (singular / informal)

Il a / Elle a / On a – He has / She has / We have

Nous avons – We have

Vous avez – You have (plural / polite)

Ils ont / Elles ont – They have

Être – to be

Je suis – I am

Tu es – You are (singular / informal)

Il est / Elle est / On est – He is / She is / We are

Nous sommes – We are

Vous êtes – You are (plural / polite)

Ils sont / Elles sont – They are

pour moi – for me

c'est... – It is...

très – very

assez – quite

vraiment – truly

réellement – really

un peu – a bit

bien – good

cool – cool

génial – great

ennuyeux – boring

nul – rubbish

important – important

important – important

essentiel – essential

Habiter – to live

J'habite – I live

Tu habites – You live (singular / informal)

Il habite / Elle habite / On habite – He lives / She lives / We live

Nous habitons – We live

Vous habitez – You live (plural / polite)

Ils habitent / Elles habitent – They live

S'appeler – to be called

Je m'appelle – I am called

Tu t'appelles – You are called (singular / informal)

Il s'appelle / Elle s'appelle / On s'appelle – He is called / She is called / We are called

Nous nous appelons – We are called

Vous vous appelez – You are called (plural / polite)

Ils s'appellent / Elles s'appellent – They are called

What Geography did I learn in Primary School?

WHAT IS GEOGRAPHY

"Geography is the study of the Earth's landscapes, peoples, places and environments. It is, quite simply, the study of the world we live in."

Geography is part of your everyday life; you use it every day without even realizing!

TYPES OF GEOGRAPHY

HUMAN GEOGRAPHY The impact of people on the earth

PHYSICAL GEOGRAPHY The natural world without people

ENVIRONMENTAL GEOGRAPHY Human interaction with nature

Continents and Oceans



WHAT'S THE DIFFERENCE BETWEEN...



GREAT BRITAIN

- + SCOTLAND
- + ENGLAND
- + WALES

UNITED KINGDOM

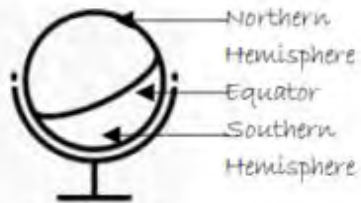
- SCOTLAND
- ENGLAND
- WALES
- + N. IRELAND

BRITISH ISLES

- SCOTLAND
- ENGLAND
- WALES
- N. IRELAND

REPUBLIC OF IRELAND

Locational Knowledge

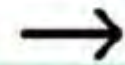


Map Skills and Compass Directions

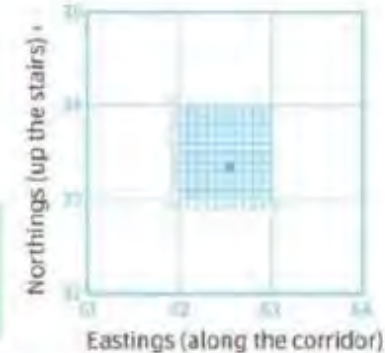
Key			
	river		church
	railway		pub
	railway station		post office
	bridge		Sch. school
	main road		buildings
	secondary road		woods
	minor road		fields
	track/drive		
	public path		
	valley (bank embankment)		



Map symbols



Reading 4 and 6-figure grid references



Compass Directions



What Geographers do...

Key Terms:

The terms highlighted in bold are essential knowledge.

Environmental Geography – Environmental Geography is the area of geography where human and physical geography link together.

Describe – This is saying what you know or what you can see on a map, photograph or graph.

Explain – This when you use your knowledge to say why. Why did something happen? Using the connective because or this means that helps us explain.

Suggest - This is when you give ideas. We suggest things after looking at maps, photographs or graphs.

Political Map – These maps show countries, cities and urban areas.

Physical Map – These show mountains, hills, rivers and the names of seas.

Choropleth Map – This is a map of a place that is shaded to show different information about that area.

GIS – Geographical Information system. This is an online map that contains different layers and give you the ability to zoom in and out and read data about places.

Field sketch – a simple drawing of a landscape that is annotated to show important features.

Annotating Photographs – this is when we add short sentences to a photograph using a ruled line to describe or suggest information about the photograph.

TEA (Trend, Evidence, Anything Else?) – Trend: What stands out? Evidence: what numbers can you use from the graph to support the trend? Anything Else: Is there anything else you can add that stands out.

Describing Locations

The map opposite is a political map that shows the countries and some of the major cities in the UK.

To describe the location of a place on the map we you should use the names of places but also remember to use compass directions and say if it is inland or at the coast.

For example: Manchester is in North West England. It is east of Liverpool and inland from the coast.

Explaining Using Maps

The map opposite is a physical map of the UK that shows the hills and mountains (red/brown)

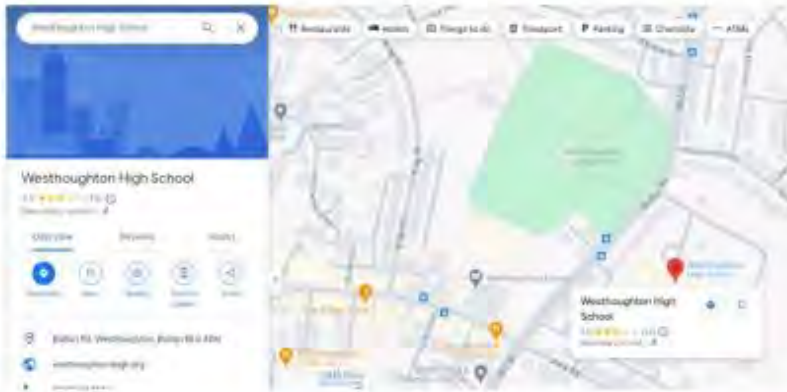
As Geographers it is important we use all the data available to use. We can use the two maps together to answer questions such as my are all Scottish cities near the coast?

Answer: All large Scottish cities are located near the coast because the physical map opposite shows that there are lots of hills and mountains. It is difficult to build cities on hills and mountains.



Geographic Information Systems (GIS)

Geographic Information Systems (GIS) enables users to add layers to show different information and zoom in and out to different scales. Google Earth uses GIS to provide further information about places on maps.



The map to the west is an example of how Google use GIS. It shows the location of the school and all local features can be clicked on to find out more information about them.

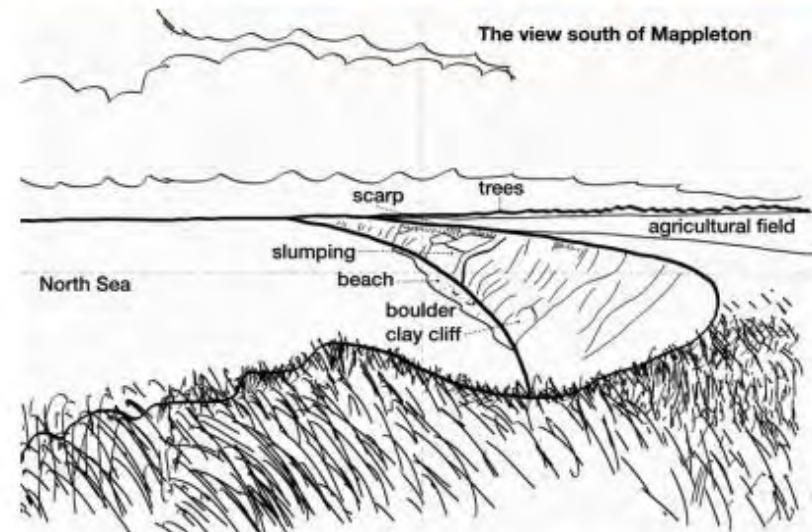
The map to the east shows land ownership. Different colours have been used to show who owns what land.



More information can be found if you google [BBC Bitesize Geographical information systems](#)

Field Sketching

A field sketch is a simple diagram of a landscape that can be drawn quickly and labelled to show the important features. The photograph shows a south facing view of the Mappleton Coast. A Geographer has sketched this view and labelled the important Geographical Features. An excellent example of field sketching can be found by googling '[Internet Geography Field Sketching](#)'



Year 7 Geography - Weather and Climate Knowledge Organiser

Key Terms

Weather - The day to day conditions of the atmosphere. Example: wind, rain, snow.

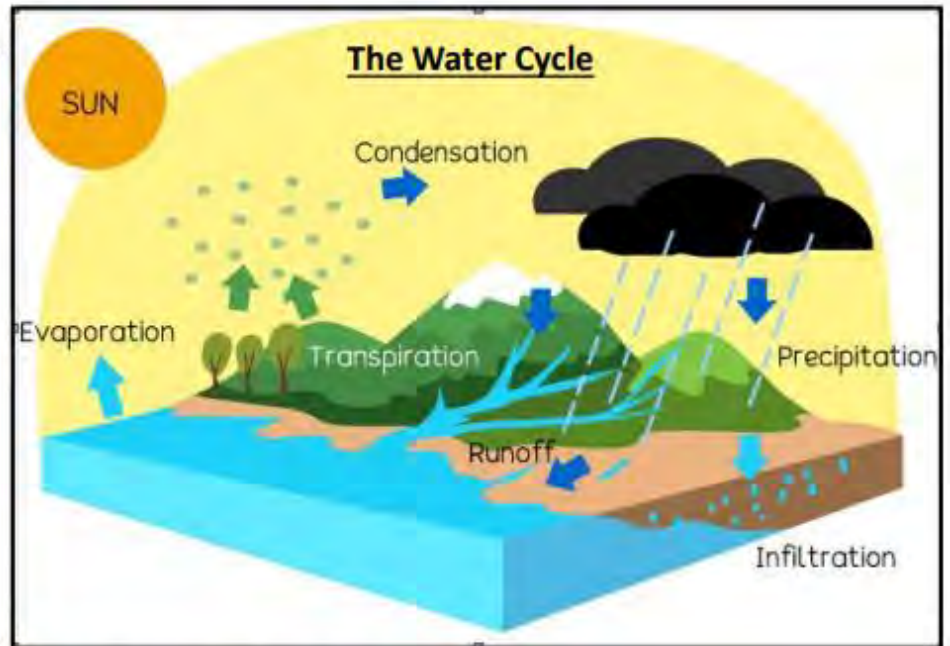
Climate - The changes of the atmospheric conditions on a long term scale. They are the average conditions over a number of years .Example: you go Spain in summer because you expect it to be hot.

Precipitation - Any moisture that falls to earth. Example: rain, snow, sleet, hail etc.

Meteorology - The scientific study of weather. Meteorologists are scientists that study the weather.

Forecast – this is when meteorologists use data, maps and satellite to predict what the weather will be like

Microclimate – How the climate in an area can change due to different factors. For example tarmac stores the suns energy making it warmer. Buildings can cast shade making the area underneath cooler.



Describing the Weather

The map shows weather in England to be mostly cloudy with sunny spells. With temperatures ranging from 6 – 9 degrees Celsius.

In Scotland heavy rain is forecast and northerly winds blowing at 14 – 17 mph.

Wales will be mostly cloudy with dark clouds to the west. The temperature will be between 9-10 degrees Celsius.

Light rain shower (day)	Drizzle	Light rain
Heavy rain shower (night)	Heavy rain shower (day)	Heavy rain



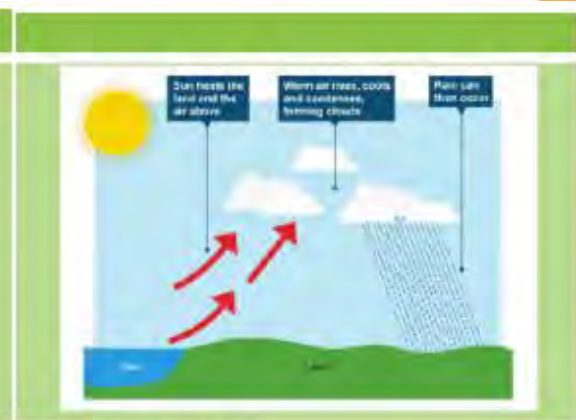
Describing the Water Cycle

- Energy from the Sun heats the surface of the Earth and water **evaporates** from the sea/lakes. The air rises as it is less dense.
- **Condensation** occurs when water vapour is turned back into water droplets as it cools down forming clouds.
- **Precipitation** (rain or snow) occurs as water droplets get bigger and heavier, then they begin to fall.
- When the water falls back to earth...
- Some gets **intercepted** by plants and trees which in turn can evaporate and go back into the sky. This is known as **transpiration**.
- Some water will land on the ground and run across the surface to rivers or lakes.
- Some will soak into the ground and become ground water this is known as **infiltration**.

Measuring the Weather	
Temperature	Temperature is a degree of hotness or coldness the can be measured using a thermometer.
Wind Direction & Wind Speed	Wind direction is reported by the direction from which it originates. Wind speed is measured in km/h. Measured using an Anemometer
Rain Gauge	A device for collecting and measuring the amount of rain which falls
Barometer	An instrument measuring atmospheric pressure, used especially in forecasting the weather
Okta Scale	An okta is a unit of measurement used to describe the amount of cloud cover at any given location such as a weather station. Sky conditions are estimated in terms of how many eighths of the sky are covered in cloud.



Relief Rainfall
Prevailing winds bring warm, moist air to western Britain. Air is forced to rise over high areas. Air cools and condenses. Clouds form and it rains. Air descends on the other side of the mountains. It warms up and therefore becomes drier.



Convective rainfall
When the land warms up, it heats the air above it. This causes the air to expand and rise. As the air rises it cools and condenses. If this process continues then rain will fall. This type of rainfall is very common in tropical areas but also in areas such as South East England during warm sunny spells.

What affects climate?	
Altitude	The higher you are above sea level, the colder it is. The temperature falls by about 1°C every 100 meters. This is why sometimes there is snow on top of Ben Nevis up until late spring.
Prevailing wind	Prevailing wind is the most common wind direction. If the prevailing wind direction is over water (sea/ocean), it brings rain. If the prevailing wind direction is over land, it brings dry air. In the UK, the prevailing wind is from the SW, over the Atlantic Ocean = moist (wet) air which is why we have lots of rain.
Latitude	Latitude means how far a place is from the equator. Far from the equator (e.g. poles) it is very cold. This is because the sun's energy travels further and is diffused (spread out) by the angle it hits the poles. At the equator it is very hot. This is because there is direct sunlight which shines directly onto a small area = hot.

UK Extreme Weather: Heatwave 2022	
Cause	The jet stream (the high altitude east to west winds) stayed further north over Iceland the UK allowing a high pressure system to move up from the tropics bringing prolonged hot and dry weather to the UK.
Effect	<ul style="list-style-type: none"> • Lots of sales of parasols and paddling pools. • Campsites fully booked and more people holidaying in the UK instead of going abroad. • Some animals died in the heat. Especially after being locked in hot cars. • Supermarkets ran out of BBQ foods due to a high meat demand.
Response	<ul style="list-style-type: none"> • People educated and reminded to stay hydrated. Free water was given out in some areas. • Hosepipe bans in place to preserve water. • Paramedics deployed in public areas to help ill people.

Key things I need to know
✓ How chronology works and how to work out centuries
✓ Who invaded England before 1066?
✓ What was similar and different in England during the different invaders?


Chronology basics

Chronology works similar to negative numbers; BC dates are the biggest number and then goes to the smallest numbers starting with AD.

What happened at Maiden Castle?

Maiden Castle is one of the largest Iron Age hill forts in Britain. It is in Dorset in the south of England and historians believe it was built almost 3,000 years ago. The fort is on top of a large hill which is 914 metres long. In the Iron Age, hundreds of people lived there. They built the fort to protect themselves. They could see attackers better from high up. In Roman times, these people were called the Durotriges tribe, meaning 'hill fort-dwellers'.


Two skeletons were found near the site and historians have used both contemporary and secondary evidence to work out what happened at Maiden Castle.

Key Concepts 	
1. Chronology	The study of time
2. Cause	The reason something happens
3. Change	Differences between different periods of the past
4. Continuity	Things that stay the same in different periods of the past
5. Similarity	Something that is the same or similar to something else
6. Difference	Something that is different to something else

Working out centuries

The rule for working out centuries is to cover the last 2 numbers of the year given and add 1 to what number is left. This works for every year.

Example: 1939

1 – Cover the last 2 numbers: 19 

2- Add 1 to the remaining number: 19+1

3 – 19 + 1 = 20. So the century is 20th

This still works for years with only 2 numbers: AD10 = 1st Century

Why did the Romans want England in its empire?

An empire is a collection of areas of land that are ruled over and controlled by one leading country. The Romans had an empire that stretched across the world. In AD43 the Romans successfully made Britain part of its empire. There are several reasons why Rome wanted Britain such as:

- Rome needed money which could be collected through taxes.
- Rome wanted an empire to gain resources from the rest of the empire. This included food, iron, lead, zinc copper, silver and gold.
- Rome needed a supply of slaves for the rich Romans that did not do hard work.
- Generals wanted an empire because it brought fame.
- Rome used its empire to trade helping sell its expensive jewelry and pottery. It also connected with different areas through its trade.

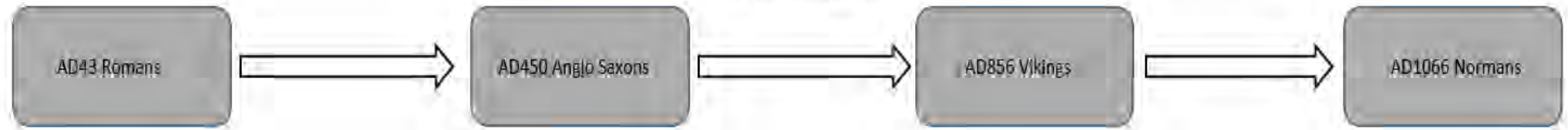
How do historians find out what happened in the past?

Historians use evidence (clues about the past) to understand the past and there are two main types:

Contemporary evidence – evidence made at the time of the event.

Secondary evidence – evidence made after the event

Who invaded England?



Resistance to the Romans

The Romans told tribal leaders that they could keep their power, as long as they accepted the rule of Rome. One such tribe were the Iceni in East Anglia, whose leaders, Prasutagus and his wife Boudicca.

However, when Prasutagus died, the Romans took the lands away from the Iceni. When Boudicca said she disliked this, the Romans whipped her and her daughters by AD 61 Boudicca had become the leader of a violent revolt against them.






The Roman fighters were distracted with dealing with trouble in Wales, allowing Boudicca and her armies to destroy the Roman towns of Colchester, London and St Albans. It is said her armies killed over 80,000 people. In AD 61, Boudicca prepared for a battle with a much smaller Roman army in the 'Battle of Watling Street'. Seeing that she had lost, some sources claim that Boudicca poisoned herself and her daughters rather than face capture.

Keywords



Empire	A collection of areas of land that are ruled over and controlled by one leading country.
Resistance	An act of opposing or fighting back against something or someone.
Invasion	When one country used its army to enter and take control of another country by force.

How did life change or stay the same under the rule of different invaders?

Category	Roman	Anglo-Saxon	Norman Britain
Work 	<ul style="list-style-type: none"> Farmers Traders 	<ul style="list-style-type: none"> Farmers Traders Weavers and brewers 	<ul style="list-style-type: none"> Farmers Builders Soldiers
Homes 	<ul style="list-style-type: none"> Made of brick and tiles in the towns. Outside of the towns people lived in roundhouses made of wood and thatch. 	<ul style="list-style-type: none"> Thatched roofs and wooden walls. 	<ul style="list-style-type: none"> Wooden houses made with mud, dung and straw.
Religion 	<ul style="list-style-type: none"> Many different Roman gods and adopted some British gods. Some gods include the sun and moon. The emperor was worshipped as a god. 	<ul style="list-style-type: none"> Started pagan and became Christian over time. 	<ul style="list-style-type: none"> The Normans were Christian and built new churches and cathedrals.
Government 	<ul style="list-style-type: none"> Roman Emperor. 	<ul style="list-style-type: none"> Ruled by a king several kings at first but in the 10th century England became one country ruled but one king. 	<ul style="list-style-type: none"> Ruled by a king, King William of Normandy. Lords were appointed to areas who ruled over areas of England.
Language 	<ul style="list-style-type: none"> People in the town spoke Latin however most Britons continued to speak their local British language. 	<ul style="list-style-type: none"> Language started with Germanic language but with changes it became English. 	<ul style="list-style-type: none"> The Normans spoke French but the English continued to speak their own language. The English borrowed some words from the Normans such as 'dinner'.

Key things I need to know

- ✓ Why did William, duke of Normandy become king of England?
- ✓ Why did William, duke of Normandy win the Battle of Hastings?
- ✓ What changes did the Normans make to England?

Key Concepts



1. Cause	The reason something happens
2. Consequence	A result of something happening (can be good or bad).
3. Succession	When a new king replaces the old king.
4. Heir	The person who is next in line for the throne.
5. <u>Normanisation</u>	The attempt to make life in England more like life in Normandy

Why was there a succession crisis in 1066?

In January 1066, the king of Anglo-Saxon England, Edward the Confessor died without leaving an heir. Four different men thought that they should be the next king:

- Harold Godwinson
- William, duke of Normandy
- Harald Hardrada
- Edgar Atheling



Why did the Battle of Stamford Bridge and the Battle of Hastings happen?

The Witan (the king's council) were in charge of naming the next king after Edward. No matter which man the witan chose the others would try to fight for their claim.

The Battle of Stamford Bridge?

Stamford Bridge was located in the north of England near York, which at the time was populated by Vikings who sailed over from Scandinavia.

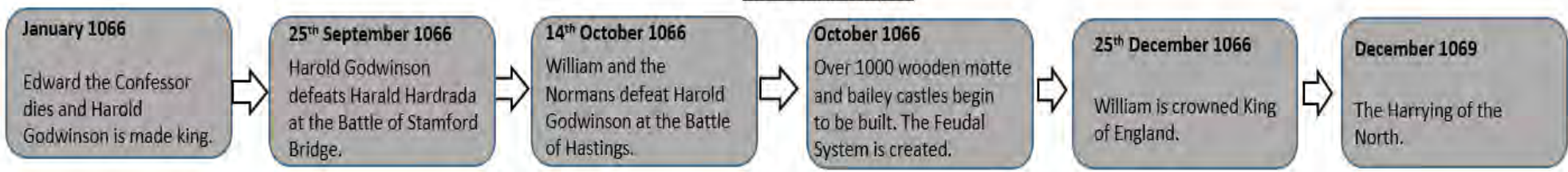
In the days before the Battle of Stamford Bridge, the Norwegians won a battle at Gate Fulford. After the victory Hardrada and his army camped at Stamford Bridge to rest. Upon learning of the Viking invasion Harold Godwinson assembled an army of 15,000 men including 3,000 of his elite troops and marched 190 miles in 5 days to fight Hardrada.

On the 25th September 1066 Harold Godwinson defeated Harald Hardrada and his Viking army despite a powerful Viking berserker holding the bridge separating the two armies and is believed to have killed up to 40 Anglo-Saxons! The Viking holding the bridge was only killed when clever Anglo-Saxon soldiers floated along the river underneath the bridge and thrust a spear from below the Viking.

However, this was not the end of Harold Godwin's problems as William, duke of Normandy landed in the south at Pevensey Bay whilst Harold was up north.



The Norman Conquest



However, despite Harold Godwinson being victorious at the Battle of Stamford Bridge, this was not the end of his problems as William, duke of Normandy landed in the south at Pevensey Bay whilst Harold was up north.

Why did William win the Battle of Hastings?

William's strategy and strength	Harold's decisions and weaknesses	Luck
<ul style="list-style-type: none"> William had 2,000 cavalry (knights on horseback). William also had other soldiers such as infantry and archers that were well equipped and trained. They used the feigned retreat, this was when William's army pretended to retreat to draw Harold's army out of their shield wall. 	<ul style="list-style-type: none"> Harold had a smaller army and lost lots of his elite troops in the previous battle so was left with 2,500. Harold's army was made up of the <u>fyrð</u> who were untrained, part-time soldiers. The Anglo-Saxons formed a shield wall at the top of Senlac Hill but was eventually broken. Harold did not rest for long enough after the Battle of Stamford Bridge so his army were exhausted before fighting William. 	<ul style="list-style-type: none"> When William originally wanted to sail to England, strong winds prevented him from doing so and the invasion was delayed. During this time Harold Godwinson had to travel to the north of the country and fight Hardrada. Once the wind changed and William was able to sail, Harold was unprepared and still in the north.



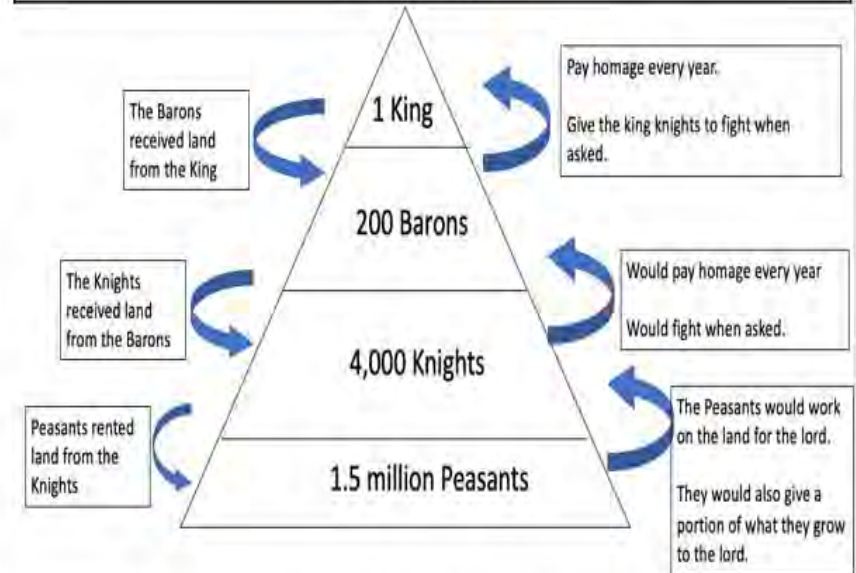
How did William establish control over England?

William was faced with rebellions in the north of England. He had to crush these brutally by murdering men, women and children along with killing animals and even putting salt in the ground. This was an event known as the Harrying of the North and resulted in 100,000 dead.

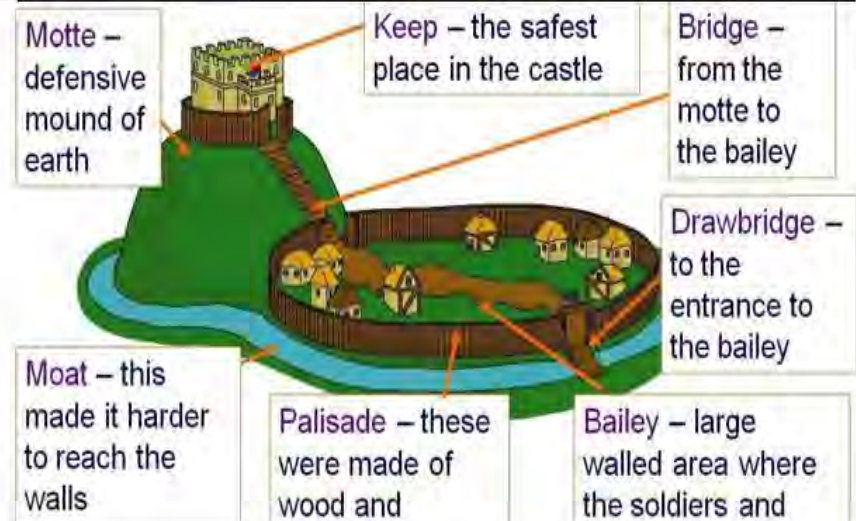
William built motte and bailey castles all over England. These were constant symbols of Norman power and also created a base to defend areas of the country from invaders and rebellions.

The Feudal System was a way of controlling England through land and creating a hierarchy. If people did not follow what they should, the king would punish them by taking their land.





The Feudal System





Motte and bailey castle



How did the Normans change life in England?

Category	Changes
Law 	<ul style="list-style-type: none"> • New Forest Laws meant anyone caught hunting in the Royal Forest could be fined, blinded or even executed! • New 'Murdrum Fines' meant that if a Norman was killed, the people living in the area where the crime took place were heavily fined. However, King William kept much of the old Anglo-Saxon legal system- but it was run by the Normans
Land Ownership 	<ul style="list-style-type: none"> • Before the Norman invasion, a few Anglo-Saxon earls owned huge areas of land. William split these earldoms up into smaller pieces of land and gave them to French-speaking Normans. • For ordinary peasants, this had little impact. They just had a new lord to work for
Church 	<ul style="list-style-type: none"> • The Normans set about gradually replacing the small wooden Anglo-Saxon churches with large stoner ones: • The new stone churches were more imposing to show their authority in religion. • Most of the important church roles were held by Normans. • Norman churches would have been painted inside with religious art.
Language 	<ul style="list-style-type: none"> • The Normans spoke French while ordinary peasants continued to speak the English that they were used to. • Over time, French words crept into the everyday use for example- armour, baron, judge and market.

What was it like living in a village and town under the Normans?

Village	Town
<ul style="list-style-type: none"> • Working life changed very little, the majority of people were still farmers. • The church was the most important building in villages where peasants would spend the majority of their time as services ran not just on Sundays. • Some peasant's land was cleared to make space for a castle. • Peasants were often charged higher rent than before the Normans arrival. • Villages had a Norman lord who replaced an Anglo-Saxon lord. • Peasants usually got up half an hour before sunrise and ate a form of porridge. 	<ul style="list-style-type: none"> • A town's freedom was written on a Town Charter – this gave the townspeople that chance to run the town themselves. • Held markets once or twice a week where people sold items such as eggs, cheese and butter. • The town guild met at the Guildhall where traders met to discuss rules, prices and training. • Entrance gates were guarded by sentries 24 hours a day • Built in front of a castle where the castle walls would surround the town. • Guard towers across the town walls. 

Place Value



Component Knowledge

- Identify the value of digits within a number
- Write a number in words
- Write a value in figures from words

Key Vocabulary

Digit	The symbols 0, 1, 2, 3, 4, 5, 6, 7, 8 & 9 used to build numbers
Number	The value of a single/string of digits derived from their position in the string
Place value	The relative value of each position in a number
Place value table	A table with columns for each value to allow
Integer	Whole numbers

Place value table:

Integer values: "Write in words the number 32 406 059"

Trillions		Billions		Millions		Thousands		Units		Decimals	
Hundred Trillion		Hundred Billion		Hundred Million		Hundred Thousand		Hundred		Tenths, $\frac{1}{10}$	
Ten Trillion		Ten Billion		Ten Million	3	Ten Thousand	2	Ten	0	Unit	9
Trillion		Billion		Million		Thousand	4	Thousand	0	Tenths, $\frac{1}{10}$	
							0	Hundred	6	Hundredth, $\frac{1}{100}$	
							6	Ten	0	Thousandth, $\frac{1}{1000}$	
							0	Unit	5	Ten thousandths, $\frac{1}{10000}$	
							5	Tenths, $\frac{1}{10}$	9	Hundredth, $\frac{1}{100}$	
							9	Ten		Thousandth, $\frac{1}{1000}$	
								Unit		Ten thousandths, $\frac{1}{10000}$	
								Tenths, $\frac{1}{10}$			
								Hundredth, $\frac{1}{100}$			
								Thousandth, $\frac{1}{1000}$			
								Ten thousandths, $\frac{1}{10000}$			

In words: Thirty-two million, four hundred and six thousand and fifty-nine

Fractional values: "Write the value of the 4 in the number 27.104"

Trillions		Billions		Millions		Thousands		Units		Decimals	
Hundred Trillion		Hundred Billion		Hundred Million		Hundred Thousand		Hundred		Tenths, $\frac{1}{10}$	
Ten Trillion		Ten Billion		Ten Million		Ten Thousand		Ten	2	Unit	7
Trillion		Billion		Million		Thousand		Thousand	0	Tenths, $\frac{1}{10}$	1
								Hundred		Hundredth, $\frac{1}{100}$	0
								Ten		Thousandth, $\frac{1}{1000}$	4
								Unit		Ten thousandths, $\frac{1}{10000}$	
								Tenths, $\frac{1}{10}$			
								Hundredth, $\frac{1}{100}$			
								Thousandth, $\frac{1}{1000}$			
								Ten thousandths, $\frac{1}{10000}$			

Value: Four thousandths

Online clips

M763, M704, M522



Powers of 10

Component Knowledge

- Multiply and divide by powers of 10.
- Understand what a square and a cube number is.

Key Vocabulary

Index	The index of a number says how many times to use the number in a multiplication
Power	Another word for an 'index'. These include square/cube

Powers of 10: We can use index form to write powers of 10 to a positive power.

$$10000 = 10 \times 10 \times 10 \times 10$$

$$= 10^4$$

We are multiplying 10 by itself 4 times

$$100 = 10 \times 10$$

$$= 10^2$$

We are multiplying 10 by itself 2 times or '10 squared'.

We can also use index form to write powers of 10 to a negative power

$$\frac{1}{10} = 10^{-1}$$

We are dividing by 10

$$\frac{1}{1000} = 10^{-3}$$

We are dividing by 10x10x10 or we are dividing by 10³

Powers of 10 and calculations

Powers of 10: Using place value we know the value of each column is ten times greater than the column to the right.

Multiplying by 10, means the number is ten times greater, and moves one column to the left

Example:

$$6.7 \times 10^2 = 670$$

This means that 6.7 is 10 times and then 10 times bigger (or moves two columns to the

Millions	Thousands	Units	Decimals
		6	7
		6	7
		0	0
		3	5
		2	1
		1	9
		3	5
		2	1
		1	9

Place Value

Example: 6.7×10^2

Example: 35219×10^{-3}

Example:

$$35219 \times 10^{-3} = 35.219$$

This means that 35219 is 10 times, then 10 times and then 10 times smaller (or moves three columns to the right)

Online Clip

M113



Ordering Positive and Negative Numbers

Key Vocabulary

Positive number	A number with a value greater than zero.
Negative number	A number with a value less than zero.
Ascending order	To list numbers from lowest value to highest value.
Descending order	To list numbers from highest value to lowest value.

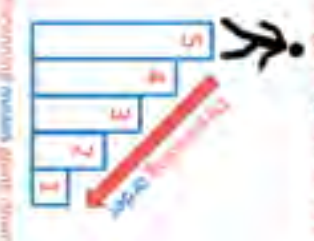
Component Knowledge

- Use a number line to order positive and negative numbers.
- Understand a number line is symmetrical about zero.

Ascending
Smallest to largest



Descending
Largest to smallest



Number lines can help us place numbers correctly so we can order them. They may be horizontal like this.



Write the integers -2, 6, 2, -5, -9 and 5 in order from smallest to largest.



So, the integers in order are:

-9, -5, -2, 2, 5, and 8

Online clips

Q976, M527

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10
-11
-12
-13
-14
-15
-16
-17
-18
-19
-20

Some number lines can be vertical like this one. They are helpful when ordering temperatures or heights.

Manchester

Lisbon
Berlin

Prague	-4°C
Lisbon	5°C
Vienna	-2°C
Helsinki	-5°C
Berlin	3°C
Manchester	14°C

List these cities from lowest temperature to highest.

Vienna
Prague
Helsinki

The answer is

Helsinki, Prague, Vienna,
Berlin, Lisbon, Manchester.

Adding & Subtracting



Directed Number

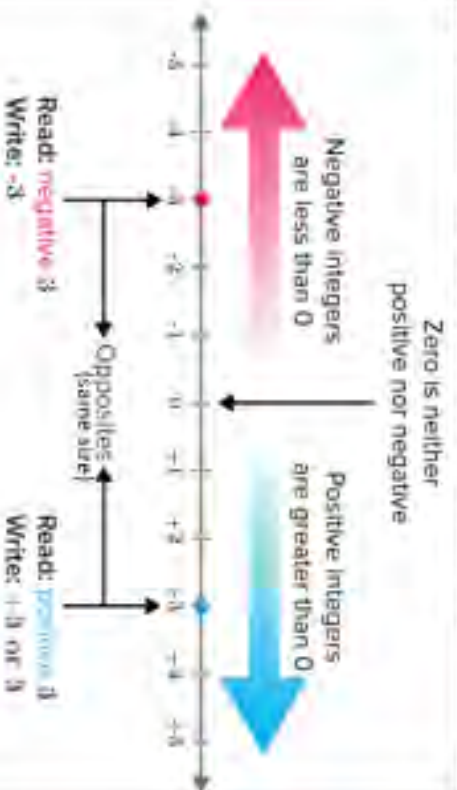
Integer	A whole number
Positive number	A number that has a value greater than zero
Negative number	A number that has a value less than zero
Zero pair	A set of two numbers that when added together equal zero.
Starting value	The starting value in a calculation
Ascending order	Numbers in order from smallest to largest
Descending order	Numbers in order from largest to smallest

Key Vocabulary

Component Knowledge

- Order positive and negative numbers
- Addition of positive and negative numbers
- Subtraction of positive and negative numbers
- Multiplication of positive and negative numbers
- Division of positive and negative numbers

Representations of Directed Numbers



positive 1 (+1) negative 1 (-1)

Zero pairs

$+1 + -1 = 0$
 $+2 + -2 = 0$



Adding with Directed Number

$$3 + 2 = 5$$



$$-5 + 3 = -2$$



Adding positive numbers to the starting value increases the overall value.

$$3 + -2 = 1$$



$$-2 + -5 = -7$$



Adding negative numbers to the starting value decreases the overall value. This has the same effect as subtracting positive numbers.

Subtracting with Directed Number

Sometimes we can directly subtract from the starting value.

$$4 - 3 = 1$$



$$-4 - -3 = -1$$



Sometimes we need to add zero pairs to be able to subtract from the starting value.

$$3 - 5 = -2$$



$$-2 - -4 = 2$$



$$3 - -2 = 5$$



$$-2 - 3 = -5$$



Subtracting positive numbers to the starting value decreases the overall value.

Subtracting negative numbers to the starting value increases the overall value.

Online clips

M527, M106

Four operations



Component Knowledge

- Multiply 2- and 3-digit numbers.
- Use bus stop method to divide numbers.
- Addition and subtraction.
- Know what the inverse of each of the four operations are.

Key Vocabulary

Multiplication	Adding a number to itself repeatedly.
Division	Splitting a number into equal parts.
Addition	The action or process of adding something to something else.
Subtraction	The process or skill of taking one amount from another.
Inverse	The opposite. The Reverse.

Multiplication Methods

Grid Method

$$14 \times 26 = 364$$

x	10	4	
20	200	80	
6	60	24	
			364

Column method

$$\begin{array}{r} 625 \\ \times 26 \\ \hline 3750 \\ 12500 \\ \hline 16250 \end{array}$$

Add these two lines to get the final answer.

Remember to put a zero here as a place holder.

Chinese Method

$$34 \times 56$$

	3	4	
1	1	2	2
5	5	2	0
8	8	4	4
9	1	1	6

3 x 5 = 15

8 + 2 + 0 = 10
The one is carried.

Add up along the diagonals and carry where necessary.

Division

$$186 \div 6 =$$

$$\begin{array}{r} 031 \\ 6 \overline{) 186} \\ \underline{18} \\ 0 \\ \underline{0} \\ 0 \end{array}$$

Carry the 1 over

3 x 6 = 18

1 x 6 = 6

4	4	0 + 5	5 ÷ 12 = 0 r5
12	5	2 + 8 = 10	52 + 12 = 4 r4
		6 + 0 = 6	48 + 12 = 4
			6 ÷ 12 = 0 r6

Addition/Subtraction

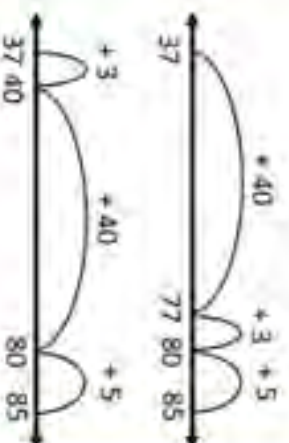
Column Method

$$\begin{array}{r} 5864 \\ + 3497 \\ \hline 9361 \\ \text{111} \end{array}$$

- Starting with the ones, add each column in turn.
- Carry over tens, hundred and/ or thousands as required.

Number line

$$37 + 48$$



Column Method

Borrow tens, hundred and/ or thousands as required.

$$\begin{array}{r} 5\overset{6}{\cancel{7}}\overset{1}{\cancel{4}}2 \\ - 3476 \\ \hline 2266 \end{array}$$

- Starting with the ones, subtract each column in turn.

Number line



$$\text{Calculate } 6000 - 3617 = 2383$$

Inverse operation

Operation	Inverse
+	-
-	+
X	÷
÷	X

Using Inverse



$3476 - 744 = 2732$ can't be checked using $2732 + 744 = 3476$

This part of the whole shows the inverse calculations using these three numbers.



$7549 - 2668 = 4237$	$2668 + 7549 = 4237$
$4237 - 1549 = 2668$	$4237 - 2668 = 1549$

Online clips

M928, M347, M187, M354, M873, M262

Powers & roots



Component Knowledge

- Write repeated multiplication as a power
- Calculate small powers (powers of 2, 3 or 4) of any number by repeated multiplication
- Identify square and cube numbers
- Calculate square and cube roots

Key Vocabulary

Power	A notation and word used to show repeated multiplication of the same number
Index	Another term used for power
Square	Squaring a number means multiplying by itself (e.g. 2×2)
Square number	A square number is the result of squaring another number (e.g. 4 is a square number)
Cube	Cubing a number means multiplying by itself and itself again (e.g. $3 \times 3 \times 3$)
Cube number	A cube number is the result of cube another number (27 is a cube number – it's 3 cubed)
Square root	The number that when squared gives the answer wanted
Cube root	The number that when cubed gives the answer wanted

Notation

This is how powers are written.

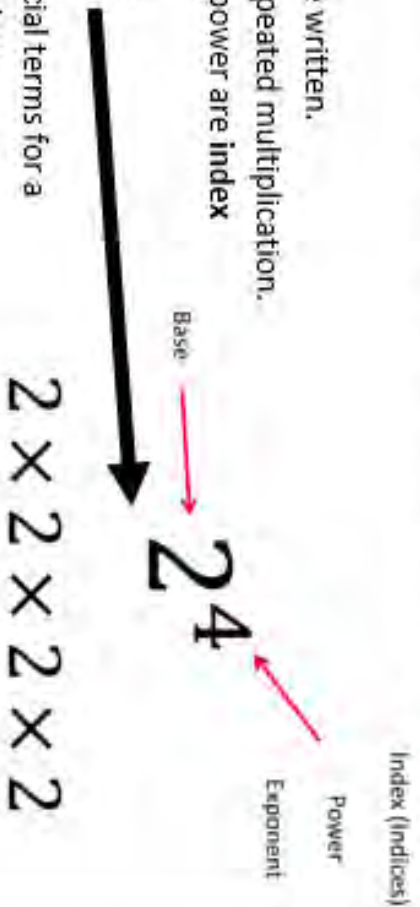
It is a shorthand for repeated multiplication.

Other words used for power are **index** and **exponent**.

We read the power as

'2 to the power of 4'

But there are also special terms for a power of 2 or 3. See below.



Squares

A square number is a number multiplied by itself.
As an example, 4 is a square number as $2 \times 2 = 4$
This can be written as 2^2 and read as "2 squared"
The 2 symbol is how we write "squared"

*Now Call them "Square numbers"
because you can arrange them
to make perfect squares.*

$$2 \times 2 = 4$$



$$3 \times 3 = 9$$



$$4 \times 4 = 16$$



$$5 \times 5 = 25$$



$$6^2 = 36$$

$$7^2 = 49$$

$$8^2 = 64$$

$$9^2 = 81$$

$$10^2 = 100$$

$$11^2 = 121$$

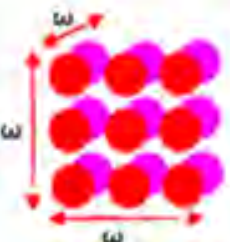
$$12^2 = 144$$

Cubes

A cube number is a number multiplied by itself 3 times. As an example, 8 is a cube number as $2 \times 2 \times 2 = 8$

This can be written as 2^3 and read as "2 cubed".

We call them "cube numbers" because we can arrange them to make perfect cubes.



$$1^3 = 1$$

$$2^3 = 8$$

$$3^3 = 27$$

$$4^3 = 64$$

$$3 \times 3 \times 3 = 27 \quad 5^3 = 125$$

Roots of Squares and Cubes

The opposite of a square number is a square root.

Since 3^2 is 9, the square root of 9 is 3.

$$9 = 3^2$$

$$\sqrt{9} = 3$$

$$8 = 2^3$$

$$\sqrt[3]{8} = 2$$

The opposite of a cube number is a cube root.

Since 2^3 is 8, the cube root of 8 is 2.

Other examples:

$$\sqrt{25} = 5 \text{ because } 5^2 = 25$$

$$\sqrt{64} = 8 \text{ because } 8^2 = 64$$

$$\sqrt[3]{216} = 6 \text{ because}$$

$$6 \times 6 \times 6 = 216$$

This is read:
"the square root of 2"
"the cube root of 8"

Not all square roots are whole numbers. For example 110 is not a square number because $10^2 = 100$ and $11^2 = 121$. To find $\sqrt{110}$ you would use a calculator:
 $\sqrt{110} = 10.488 \dots$

Online clip

M135



(BIDMAS) Order of operations

Component Knowledge

- Understand what order operations are completed and why that order is used.
- Understand how the order of operations can affect the answer.
- Apply order of operations to solve problems.

Key Vocabulary

Priority	The order of importance of something
Order	The rules that say which calculations comes first in an expression
Operation	A mathematical process
Brackets (Parentheses)	A pair of marks () that enclose figures or words
Index/Indices (Power)	The power (or exponent) of a number says how many times to use the number in a multiplication
Divide/Division	The process of separating something into parts
Multiply/ Multiplication	The process of grouping numbers
Addition	The process of adding two or more numbers together
Subtraction	The process of taking away one number from another

B	Brackets	$10 = (4 + 7) + 10 \times 8 = 60$
I	Indices	$5 + 2^2 + 5 + 4 = 9$
D	Division	$10 \div 6 + 2 + 10 \div 3 = 13$
M	Multiplication	$10 - 4 \times 2 = 10 - 8 = 2$
A	Addition	$10 + 4 = 7 + 60 + 7 = 67$
S	Subtraction	$10 - 2 - 3 = 5 - 3 = 2$

When performing calculations, you must follow the correct order of operations as shown in the table.

Note: BIDMAS may also be known as BODMAS or PEMDAS.

B Brackets	()	P Parenthesis
O Order	or x^2	E Exponent
D Division	\div	M Multiplication
M Multiplication	\times	D Division
A Addition	$+$	A Addition
S Subtraction	$-$	S Subtraction

Basic examples involving operations, brackets and indices:

- a) $7 + 6 \times 3$
 $= 7 + 18$
 $= 25$
- b) $22 - 12 \div 4$
 $= 22 - 3$
 $= 19$
- c) $(8 + 3) \times 9 - 3$
 $= 11 \times 9 - 3$
 $= 99 - 3$
 $= 33$
- d) $2 \times 3^2 \div 3$
 $= 2 \times 9 \div 3$
 $= 18 \div 3$
 $= 6$
- e) $(40 - 15) + (15 \div 3)$
 $= 25 \div 5$
 $= 5$

Examples involving fractions:

- a) $\frac{5+7 \times 4}{16-5}$
 $= \frac{31}{11}$
 $= 3$
- b) $\frac{4 \times 12 \div 6}{14-6 \times 2}$
 $= \frac{11}{2}$
 $= 4$

Problem Solving:

Add brackets to make the following calculation correct

- a) $18 - 3 + 4 \times 2 = 22$ $(18 - (3 + 4)) \times 2 = 22$
- b) $18 - 3 + 4 \times 2 = 7$ $18 - (3 + 4 \times 2) = 7$
- c) $3 \times 16 \div 4 + 2 + 1 = 16$ $3 \times 16 \div (4 + 2 + 1) = 16$

Online clips

M521

Factors, multiples & primes



& primes

Key Vocabulary

Factor	Numbers that we can multiply together to get another number
Multiple	The result of multiplying a number by an integer
Prime	A number that only has two factors 1 and itself
Highest common factor	The greatest number that is a factor of 2 (or more) other numbers
Lowest common multiple	The smallest positive number that is a multiple of two or more numbers
Product	The answer when two or more values are multiplied together
Factorisation	Writing a number as a product of two or more smaller numbers
Integer	A whole number

Component Knowledge

- Identify factors and multiples
- Identify a prime number
- Complete a prime factor tree and write the number in index form
- Calculate HCF and LCM of 2 values using an appropriate method.

Multiples: The result of multiplying a number by an integer. It is the times table of a number.

Multiples of 4: 4, 8, 12, 16, 20 ...
 Multiples of 5: 5, 10, 15, 20, 25 ...

Multiples are the list of times tables

Factors: A number that divides exactly into another number without a remainder. It is often helpful to write them in pairs.

Write them in pairs first so you don't miss any!

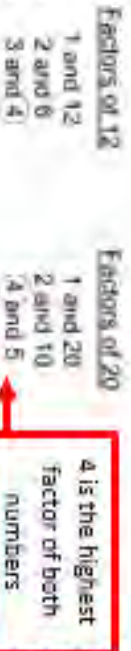


Factors of 20 = 1, 2, 4, 5, 10, 20

HCF & LCM

Highest common factor

Find the HCF of 12 and 20



Lowest common multiple

Find the lowest common multiple of 4 & 6

Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32 ...
 Multiples of 6: 6, 12, 18, 24, 30, 36 ...

12 is the lowest number that appears in both times tables.

Prime Numbers

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

Prime numbers

Prime Factorisation

Write 72 as a product of its prime factors



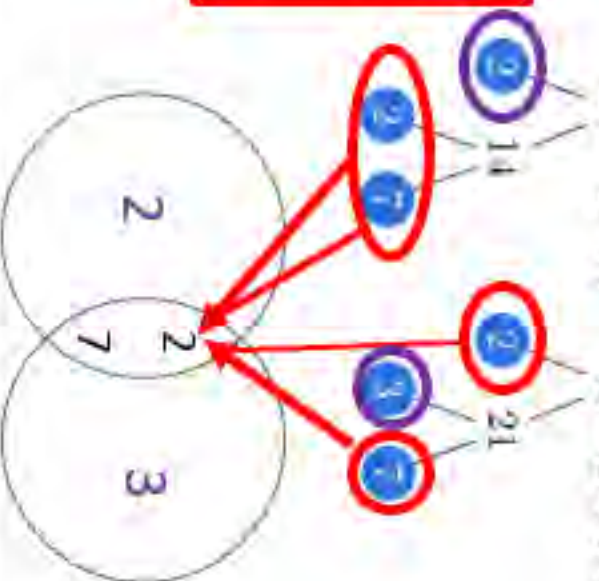
HCF & LCM using prime factors

Find the HCF and LCM of 28 and 42

First start by finding the prime factors of 28 and 42

$$28 = 2^2 \times 7 \quad 42 = 2 \times 3 \times 7$$

Both trees have a 2 and 7 so those numbers go in the middle of the Venn diagram as they are shared



The remaining numbers in the tree go in outside circles of the Venn

HCF – the highest common factor is found by multiplying the centre shared part of the Venn diagram

$$\text{HCF} = 2 \times 7 = 14$$

LCM – the lowest common multiple is found by multiplying all the numbers in the Venn diagram

$$\text{LCM} = 2 \times 2 \times 3 \times 7 = 84$$

Online clips

M823, M322, M108, M227, M698, M365

Measures

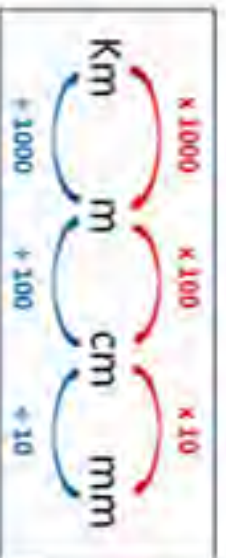


- Component Knowledge**
- Convert between units of length
 - Convert between units of capacity
 - Convert between units of mass
 - Convert between units of time

Key Vocabulary

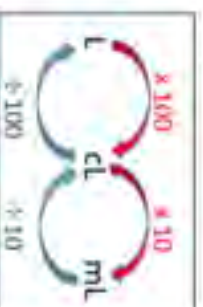
Convert	To change from one unit to another such as from centimetres to millimetres, or litres to millilitres, etc.
Unit	A quantity used as a standard of measurement
Length	The measurement of something from end to end
Capacity	The maximum amount that something can contain
Mass	The weight of an object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

Units of length



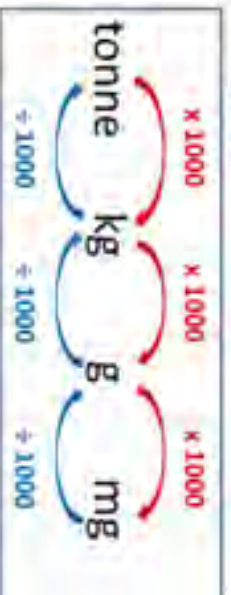
Same = 7 m **Need to ÷ 1000** $5 \times 1000 = 5000\text{m}$ ✓
 $120\text{cm} = 7 \text{ m}$ **Need to ÷ 300** $120 \div 100 = 1.2\text{m}$ ✓

Units of capacity



SI = 7 cl **Need to x 100** $5 \times 100 = 500 \text{ cl}$
 $750 \text{ mL} = 7 \text{ cl}$ **Need to ÷ 10** $750 \div 10 = 75 \text{ cl}$

Units of mass



Must convert one 1000s, and usually create the other result.
 $1.6 \text{ tonne} = 7 \text{ kg}$ **Need to x 1000** $1.6 \times 1000 = 1600 \text{ kg}$ ✓

Units of time



2 mins = 7 secs **need to x 60** $2 \times 60 = 120 \text{ secs}$
 $96 \text{ hrs} = 7 \text{ days}$ **need to ÷ 24** $96 \div 24 = 4 \text{ days}$

Online clips

M772, M761, M530, M774, M627, M515

Properties of 2D



shapes

Component Knowledge

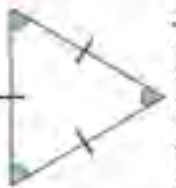
- Identify different types of triangles
- Describe the properties of different types of triangles
- Identify different quadrilaterals
- Describe the definitions and properties of quadrilaterals.

Key Vocabulary

Polygon	Is a flat two dimensional (2D) shape with straight edges that are all joined up.
Quadrilateral	Is a polygon that has four sides (edges), four angles and four corners (vertices).
Right angle	Is an angle of 90 degrees
Parallel	Two lines that stay the same distance apart for their entire length.
Perpendicular	A straight line is at 90° to another given line or surface
Line of Symmetry	A line that cuts a shape exactly in half. If you were to fold the shape in half both the sides would match exactly.

Properties of Triangles: There are 4 types of triangles:

Equilateral triangle:



All sides are the same length.
All internal angles are the same (60°)

Isosceles triangle:



An isosceles triangle has two sides of equal length and two angles of equal sides.

Scalene triangle



A scalene triangle has no equal sides or angles.

Right-angled triangle



A right-angled triangle always has one 90° angle.
It can be isosceles or scalene

(Equal sides are shown on a diagram by a dash.)

Lines of symmetry may be horizontal, vertical or diagonal. Some 2D shapes will have no lines of symmetry and some 2D shapes will have multiple lines of symmetry.

An equilateral triangle has 3 lines of symmetry



An isosceles triangle has one line of symmetry



Properties of Quadrilaterals:

Equal sides are shown by a dash (/), if there are two sets of equal sides the second is shown by two dashes (//)

Parallel sides are shown by a set of arrows. (>)



A square has four sides of equal length and four right angles (90°). It has two pairs of parallel sides. A square is also a special case of a rectangle, a rhombus and a parallelogram.



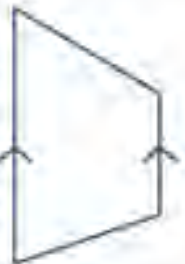
A rectangle has two pairs of parallel, equal sides and four right angles. A rectangle is also a parallelogram.



A parallelogram has two pairs of parallel, equal sides and opposite equal angles.



A rhombus has four sides of equal length and opposite equal angles. A rhombus is also a parallelogram.



A trapezium only has one pair of opposite parallel sides.



A kite has two pairs of adjacent equal sides and one pair of opposite equal angles.

A square has four lines of symmetry



A rectangle has two lines of symmetry



A parallelogram has no lines of symmetry



Online clips

M814, M276, M523



Perimeter

Key Vocabulary

Perimeter	The total distance around the outside of a shape.
Base	The bottom line of a shape
Height	The line from the bottom to the top of a shape
Compound shape	A shape made up of a combination of other known shapes put together.
2D shape	A two-dimensional (2D) shape can be defined as a flat figure or a shape that has two dimensions – base and height.

Component Knowledge

- Calculate the perimeter of a 2D shape.
- Calculate the length of a missing length of a side when given the perimeter of a 2D shape.
- Calculate the perimeter of a compound shape.

To calculate the perimeter of a shape, add the lengths of all the sides of the shape together.



Remember the units need to be in the answer

When calculating the perimeter of a rectangle remember that parallel sides are equal.



Perimeter $= 38\text{cm}$

To calculate the perimeter of a compound shape you made need to calculate the length of missing sides.



Form an equation:

$$x + x + 14 + 14 = 80\text{ cm}$$

$$2x + 28 = 80\text{ cm}$$

$$2x = 52\text{ cm}$$

$$x = 26\text{ cm}$$

Online clips

M920, M635, M690



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, and parallelograms.
- 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 cm², 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**

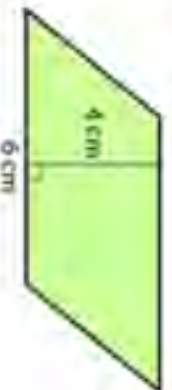
3cm  $A = 3 \times 3 = 9\text{cm}^2$

4cm  $A = 10 \times 4 = 40\text{cm}^2$

3cm  $A = 3 \times 3 = 9\text{cm}^2$

Parallelograms:

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



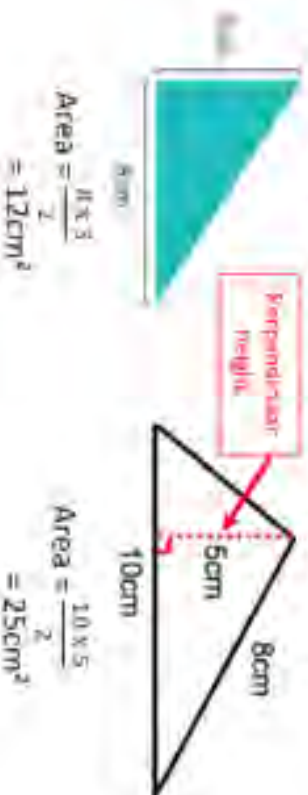
$A = 6 \times 4 = 24\text{cm}^2$

Sometimes the length is referred to as the base.

Triangles: To find the area of a triangle we use the following formula:

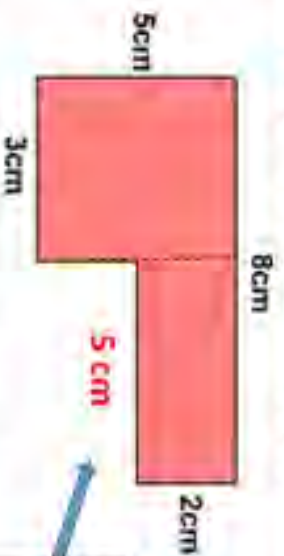
$$\text{Area} = \frac{\text{Base} \times \text{perpendicular height}}{2}$$

The formula is very similar to a rectangle but we must divide by 2 because a triangle is half the size of a rectangle.



Compound shape example

A compound shape is a shape made up of other shapes.



$$\begin{aligned} \text{Area} &= (5 \times 3) + (2 \times 5) \\ &= 25\text{cm}^2 \end{aligned}$$

You must determine any missing dimensions, e.g. $8 - 3 = 5\text{cm}$

Online clips

M900, M390, M291, M610, M269, M996

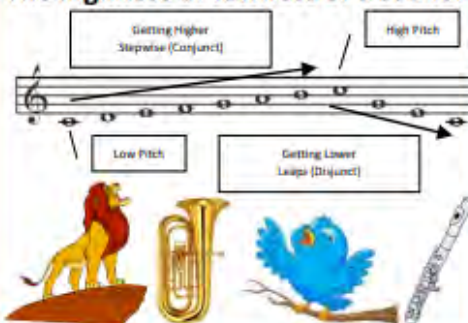
BUILDING BRICKS

Exploring the Elements of Music



A. Pitch

The **highness** or **lowness** of a sound.



B. Tempo

The **speed** of a sound or piece of music.

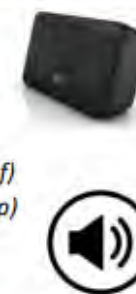
FAST: *Allegro, Vivace, Presto*
SLOW: *Andante, Adagio, Lento*
GETTING FASTER –
Accelerando (accel.)
GETTING SLOWER –
Ritardando (rit.) or Rallentando (rall.)



C. Dynamics

The **volume** of a sound or piece of music.

VERY LOUD: *Fortissimo (ff)*
LOUD: *Forte (f)*
QUITE LOUD: *Mezzo Forte (mf)*
QUITE SOFT: *Mezzo Piano (mp)*
SOFT: *Piano (p)*
VERY SOFT: *Pianissimo (pp)*
GETTING LOUDER: *Crescendo (cresc.)*
GETTING SOFTER: *Diminuendo (dim.)*



D. Duration

The **length** of a sound.



E. Texture

How much sound we hear.

THIN TEXTURE: (*sparse/solo*) – small amount of instruments or melodies.



THICK TEXTURE: (*dense/layered*) – lots of instruments or melodies.

F. Timbre or Sonority

Describes the **unique sound or tone quality** of different instruments voices or sounds.



Velvety, Screechy, Throaty, Rattling, Mellow, Chirpy, Brassy, Sharp, Heavy, Buzzing, Crisp, Metallic, Wooden etc.

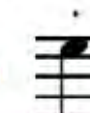
G. Articulation

How individual notes or sounds are **played/techniques**.

LEGATO – playing notes in a long, smooth way shown by a **SLUR**.



STACCATO – playing notes in a short, detached, spiky way shown by a **DOT**.



H. Silence

The opposite or absence of sound, **no sound**. In music these are **RESTS**.



I. Notation

How music is **written** down.

STAFF NOTATION – music written on a **STAVE** (5 lines and spaces)



GRAPHIC NOTATION/SCORE – music written down using shapes and symbols to represent sounds.



J. How Music Works

Music can create an **atmosphere** or **ambience** e.g., *supermarkets and restaurants*.

Music can create an **image** e.g., *in response to art, a story, a poem, a character, a situation* – this is called **PROGRAMME MUSIC**.

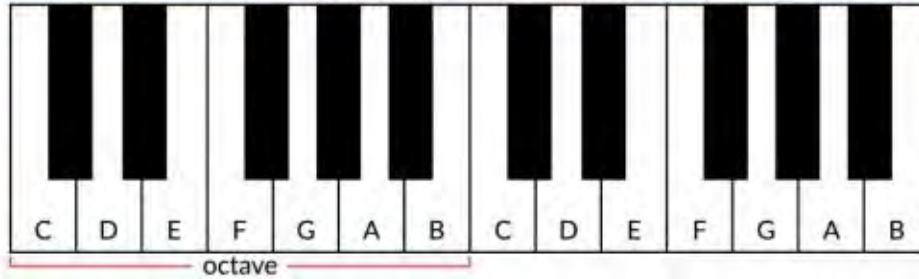
Music can be **calming** e.g., *end of an evening in clubs and bars*.

Music can be used for **spiritual reasons** e.g., *worship, meditation, reflection, hymns and chants, yoga, and spiritual reflection*.

Music can be used for **commercial purposes** e.g., *advertising, TV themes*.

KEYBOARD SKILLS

A. Layout of a Keyboard/Piano



A piano or keyboard is laid out with **WHITE KEYS** and **Black Keys** (see section G). C is to the left of the two Black Keys and the notes continue to G then they go back to A again. Notes with the same letter name/pitch are said to be an **OCTAVE** apart. **MIDDLE C** is normally in the centre of a piano keyboard.

D. Keyboard Functions



E. Left Hand/Right Hand (1-5)



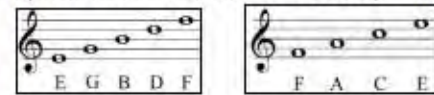
Exploring Treble Clef Reading and Notation

B. Treble Clef & Treble Clef Notation

A **STAVE** or **STAFF** is the name given to the five lines where musical notes are written. The position of notes on the stave or staff shows their **PITCH** (how high or low a note is). The **TREBLE CLEF** is a symbol used to show high-pitched notes on the stave and is *usually* used for the right hand on a piano or keyboard to play the **MELODY** and also used by high pitched instruments such as the flute and violin. The stave or staff is made up of 5 **LINES** and 4 **SPACES**.



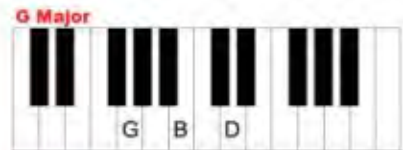
Every Green Bus Drives Fast. Notes in the SPACES spell "FACE"



Notes from **MIDDLE C** going up in pitch (all of the white notes) are called a **SCALE**.



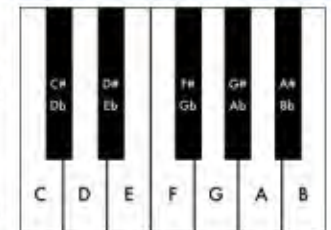
C. Keyboard Chords



Play one – Miss one – play one – miss one – play one

F. Black Keys and Sharps and Flats

There are five different black notes or keys on a piano or keyboard. They occur in groups of two and three right up the keyboard in different pitches. Each one can be a **SHARP** or a **FLAT**. The # symbol means a **SHARP** which raises the pitch by a semitone (e.g. C# is higher in pitch (to the right) than C). The b symbol means a **FLAT** which lowers the pitch by a semitone (e.g. Bb is lower in pitch (to the left) than B). Each black key has 2 names – C# is the same as Db – there's just two different ways of looking at it! Remember, black notes or keys that are to the **RIGHT** of a white note are called **SHARPS** and black notes to the **LEFT** of a white note are called **FLATS**.



Westhoughton High School – ACTIVITY: Basketball

Passing:

Chest pass/Bounce pass:

- W shape with hands on the back of the ball
- Bring hands to chest.
- Step in push ball to partners chest or into floor for bounce pass

Shoulder pass:

- Start with the arm back behind the shoulder.
- Arm goes straight over the shoulder. Arm follows follow the path of the ball.

Overhead pass

- Two hand on the ball above your head.
- Take a step toward the teammate with your dominant foot.
- Step forward with the back foot, release the ball forward, and follow through.

Dribbling

- Keep your head up. Don't look at the ball.
- Bend knees for low centre of gravity
- Extend your arm and snap your wrists to send the ball into the ground.
- Use your fingers, not your palm, to control the ball.
- Bounce the ball to hip height and to the side of the body. That will give you more control over the ball make it harder for defenders to steal the ball.
- Use your body and your non-dribbling arm to shield the ball from defenders



Shooting:

BEEF:

- Balance- feet shoulder width apart, bend knees.
- Elbow- 90 degree angle and under ball
- Eyes- Always looking at the target (basket)
- Follow through- Shoot ball by straightening arm, wrist points downwards

Lay up:

- Dribble to the side of net.
- Place the non-shooting hand on the side of the ball, and shooting hand on top of the ball.
- The last step before the lay-up jump should ensure that take off foot is opposite to the shooting hand (left foot/right hand).
- extend the shooting knee and raise the ball up.
- Direct the wrist and fingers straight at the basket and release the ball at the highest point.

Defending

Man to Man:

- Each player marks their opposing player



Zonal:

- Each player has a zone on the court they must defence



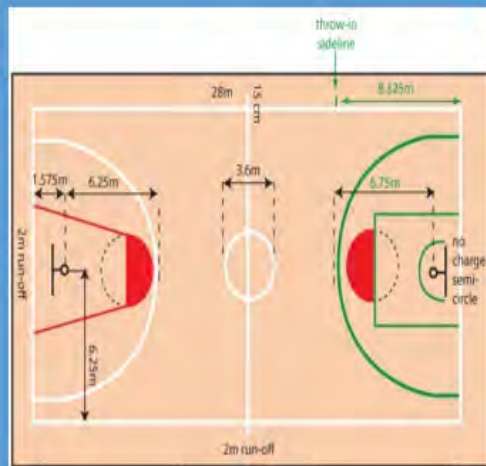
Both defence types can be done full court or half court

- Full court = applying pressure across the entire court.
- Half Court = Drop back to your own half before applying pressure.

Westhoughton High School– ACTIVITY: Basketball

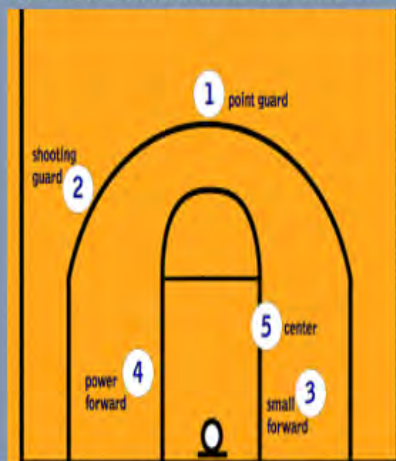
Rules:

- Each team can have a maximum of 5 players on the court at any one time
- The ball can only be moved by either dribbling (bouncing the ball) or passing the ball.
- Violations in basketball include travelling (taking more than one step without bouncing the ball), double dribble (picking the ball up dribbling, stopping then dribbling again with two hands)



Positions:

- **Point guard** direct play going forward and decide which moves the team should make.
- **Shooting guard** are the main shooter in the team but it is usually from long distance.
- **Small forward** is normally the tallest player, shooting is a large part of their game.
- **Centre** will look to score from close to the basket and also block shots and deal with rebounds
- **Power Forward** specialises on the rebounds and defence.



Scoring System:

→ Inside three-pt line

Any baskets not scored from the free throw line or from outside the three-point line will be worth two.

→ Outside the three-pt line

These baskets will be rewarded with 3 points, your feet have to be behind the 3 point line for it to count.

→ Free throw line

A free throw from the free-throw line is worth one point. It is an unchallenged shot at the basket. This is awarded after a technical foul, or a personal foul on a player in the act of shooting.



Tactics:

- Defending tactics- Full court and half court press
- Attacking tactics - rebounding and manipulating speed of play.



Key Words:

- Chest Pass
- Bounce Pass
- Shoulder Pass
- Intercept
- Marking
- Defensive Third
- Centre Third
- Attacking Third
- Goal Circle
- Net
- Attacking
- Defending
- Centre Pass

WESTHOUGHTON HIGH SCHOOL - PE and Sport Dance knowledge organiser



Skills and Techniques:	Choreographic devices:	Positions and groupings:	Performance skills:	Key Words:
<p>→ Actions (eg travel, turn, elevation, gesture, stillness, use of different body parts, floor work, transfer of weight)</p> <p>→ Dynamics (eg fast/slow, sudden/sustained, strong/light, flowing/abrupt)</p> <p>→ Space (pathways, levels, directions, size of movement, patterns, spatial design)</p> <p>→ Relationships - lead and follow, mirroring, action and reaction,, complement and contrast, formations)</p> <p>→ Timing</p> <p>→ Rhythm</p>	<p>→ Motif and development</p> <p>→ Repetition</p> <p>→ Contrast</p> <p>→ Highlights</p> <p>→ Climax</p> <p>→ Changes in numbers of dancers</p> <p>→ Unison and canon.</p> <p>→ Chance Choreography</p>	<p>Solo</p> <p>Duet</p> <p>Trio</p> <p>Group</p> <p>Centre stage</p> <p>Upstage</p> <p>Downstage</p> <p>Stage Left</p> <p>Stage Right</p> <p>Onstage</p> <p>Offstage</p>	<p>→ Posture</p> <p>→ Alignment</p> <p>→ Balance</p> <p>→ Coordination</p> <p>→ Control</p> <p>→ Flexibility</p> <p>→ Mobility</p> <p>→ Strength</p> <p>→ Stamina</p> <p>→ Extension</p> <p>→ Focus</p>	<p>Choreography</p> <p>Pathways</p> <p>Direction</p> <p>Level</p> <p>Speed</p> <p>Extension</p> <p>Timing</p> <p>Phrase</p> <p>Stimulus</p>
				

Passing/ Receiving

- Head down and eye on the ball.
- Ensure that non-kicking foot is planted alongside the ball.
- Side footed pass- strike the ball in the centre of the ball.
- Laces pass- strike the ball with the top of your boot to ensure ball stays along the floor.
- Chip pass- strike ball slightly under the ball to gain height.
- Follow through in the direction you want the ball to go.
- When receiving the ball, ensure head is up.
- Eye contact with the passer to receive the ball.
- On the balls of your feet.
- Check shoulder to see of any defenders

Dribbling

- Keep the ball close to your feet.
- Use the inside and outside of your foot
- Keep head up.
- Use your body to throw the defenders off balance to create space.
- Look for spaces to move the ball into.

Moving with the ball

- Big touches.
- Use the laces to knock the ball forwards so you can run onto it.
- Accelerate into the run and keep speed up

Shooting

- Lean forward when you go to kick the ball.
- Make sure your leg is fully extended.
- Lock your ankle into the kick.
- Kick the ball in the centre of the ball.

Attacking Play

- Using different tactics to beat your opponent.
- Working on attacking overloads i.e 2v1 or 3v1.
- Breaking on set plays i.e Corners or Free kicks to gain advantage.

Heading

- Use the middle of your forehead to head the ball.
- Aim for the centre of the ball.
- Attacking heading and defensive headers.

Defensive Play

- Jockeying your opponent, don't dive in and be patient.
- Force the attacker on their weaker foot.
- Be on your toes.
- Keep your eye on the ball.

Key Words:

Side foot pass
Lofted pass
Corner
Free Kick
Throw-in
Dribble Shoot
Heading
Tackle Jockey
Marking
Attacking
Defending
Crossing



WESTHOUGHTON HIGH SCHOOL KS3 PE KNOWLEDGE ORGANISER – ACTIVITY: FOOTBALL

Tactics:

- Teams attack and defend together
- Create width to create more space
- Tactics are also used in different formations and how best they suit different teams.
- 4-3-3, This formation is great with having the extra midfielder in the middle of the pitch which can add that overload system.
- 5-3-2, This formation gives more a defensive option but allows the two wing backs to push forward, giving more attacking options.



Rules:

- The Game is started by one team in the middle of the pitch
- One referee officiates the game with the help of two assistant referees
- Players are not allowed to use their hands or arms to control the ball unless they are the goalkeeper
- Usually a game consists of 45 minutes each half
- Depending on the level of football will depend on how many substitutes you can use



Positions:

1. Goalkeeper
 2. Left Back
 3. Right Back
 4. Centre Back
 5. Centre Defensive Midfielder
 6. Centre Attacking Midfielder
 7. Left Wing
 8. Right Wing
 9. Striker/ Number 9
- Year 7's will play 9 a side which will consist of different formations such as: 3-3-2 or 2-4-2. Year 7 will also play 30 minute games.
 - Year 8-11 will be 11 a side games. 35-40 minute games.

Scoring System:

- To score a goal, the ball must be put over the line into the goal
- The team with the most goals at the end of the game wins.
- In case of a cup game and both teams have scored the same, it will then go to extra time and penalties



Key Words:

Side foot pass
Lofted pass
Corner
Free Kick
Throw-in
Dribble
Shoot
Heading
Tackle
Jockey
Marking
Attacking
Defending
Crossing

WESTHOUGHTON HIGH SCHOOL KS3 PE KNOWLEDGE ORGANISER – ACTIVITY: NETBALL

Skills and Techniques:

→ Catching:

Hands form W shape behind ball. Catch at speed, catch with one hand and catch a ball at different heights

→ Passing:

Perform different types of passes selecting the right pass under pressure. Place throwing hand behind ball, move opposite foot in front of body. Full extend arm when passing, following through with pass.

→ Footwork:

Land correctly with one foot landing or two-foot landing. Pivot to send the ball in a different direction. Turn in the air where you want to send the ball.

Running pass

→ Shooting:

Ball on fingertips, use non-throwing hand to steady ball. Bend knees and elbows, lifting ball up to net.

Rules:

→ Game is started by centre pass within the centre third inside the centre circle

→ Two umpires officiate the game and do 1 line each

→ Players are not allowed to travel with the ball

→ Players can only travel in their designated zones.

→ A defending player must stand three feet (1m) away from the person with the ball. Feet before arms.

→ No contact -penalty pass awarded or penalty shot if it occurs in the attacking D.



Positions:

GK - Goalkeeper

GD - Goal Defence

WD - Wing Defence

C - Centre

WA - Wing Attack

GA - Goal Attack

GS - Goal Shooter

7 players in total

Tactics

-Set plays from back lines, throw ins and centre passes
 -Move with purpose
 -Defending-3rd stage defending-
 limit opponents' availability

Scoring System:

→ To score a goal, the ball must be put through the opposition's goal ring

→ The team with the most points at the end of the game wins.

Tactics:

→ Quick Passing
 → Dodging and changing speed to receive ball
 → Seeing, reading and exploiting space

Key Words:

Chest Pass
 Bounce Pass
 Shoulder Pass
 Intercept
 Marking Defensive
 Third Centre Third
 Attacking Third
 Goal Circle
 Net
 Attacking
 Defending
 Centre Pass
 Pivot
 Possession

NETBALL POSITIONS



Fitness Components

Strength = The maximum force that can be generated by a muscle or muscle group.

Muscular Endurance = The ability of muscles to continually contract over a period of time against a light to moderate resistance load.

Power = The product of strength and speed.

WARM-UP

1. Pulse Raising Activity

- ❖ Pulse raising activities gently raises the heart rate.
- ❖ E.g. Jogging, cycling, skipping.



2. Stretches

- ❖ Stretches should be dynamic (moving, not held). They prepare the muscles.
- ❖ E.g. High knees to stretch the hamstrings, heel flicks to stretch the quadriceps.



3. Skill-Based Activity

- ❖ This is the final part of the warm-up.
- ❖ This is where you familiarise yourself with the skills and actions that will be needed in the session.
- ❖ E.g. Passing the ball in rugby.



Muscular system

Arms-Biceps and Triceps

Legs- Quadriceps and Hamstrings



Year 7 Term 1: Health Knowledge Organiser

Sedentary lifestyle

A sedentary lifestyle is one with no or irregular physical activity and an excessive amount of daily sitting.

Consequences of a Sedentary lifestyle-obesity, Depression, Type 2 diabetes, Poor muscle tone, osteoporosis.

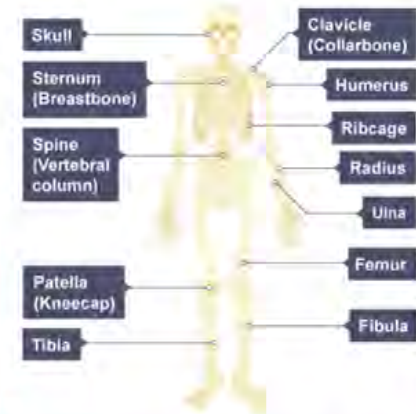


Short term effects of exercise

on HR and breathing rate =increase
Long term effect of exercise =decrease

Skeletal System

Arms-Humerus, ulna and radius
Legs-Femur, Patella, Tibia and Fibula



Key Vocabulary: Pulse raiser Sedentary. Triceps Biceps Humerus Radius. Ulna Femur Patella Tibia Fibula

KS3 Knowledge Organiser - Health

Physical Health

Impacts of poor nutrition and/or lack of exercise:

Short term:

- stress
- tiredness
- limit capacity to work

Long term:

- being overweight or obese
- tooth decay
- high blood pressure
- high cholesterol
- heart disease and stroke
- type-2 diabetes
- osteoporosis
- some cancers
- depression
- eating disorders.

The importance of sleep:

Teenagers need 8-10 hours of sleep every night.

Not enough sleep causes:

- Increased risk of obesity
- Increased risk of injury
- Increased risk of mental health issues
- Mood instability
- Forgetfulness
- Weakened immune system

How much exercise should you do?



- Jogging or running
- Racewalking
- Hiking uphill
- Cycling more than 10 miles per hour or steeply uphill
- Swimming fast or lap swimming
- Aerobic dancing, fast dancing, step aerobics
- Heavy gardening with digging, hoeing, shoveling heavy snow, moving or pushing heavy objects, carrying loads of 50 pounds on level ground or 25 pounds or more upstairs.
- Martial arts
- Playing sports with lots of running such as basketball, hockey, soccer
- Singles tennis
- Court sports such as handball, racquetball, squash

Mental Health

Good mental health means:

1. You feel relatively confident in yourself and have positive self-esteem
2. You feel and express a range of emotions
3. You can build and maintaining good relationships with others
4. You engage with the world around you
5. You can live and work productively
6. You can cope with the stresses of daily life
7. You can adapt and manage in times of change and uncertainty

Take care of your mental wellbeing:

	Talk to someone you trust		Take care of your physical health
	Do activities you enjoy		Focus on your surroundings for two minutes
	Don't be afraid to say "No"		Tell yourself that everything will be fine

Things to Remember:

- Everyone experiences stress and anxiety at points in their lives. Only a Doctor or Mental Health Professional can diagnose Chronic Stress or an Anxiety Disorder.
- There are treatments available and coping mechanisms.
- Having a stress or anxiety disorder is not a sign of weakness and is more common than people think.

Anxiety Disorders:

- Anxiety is an evolutionary and survival mechanism which is often linked to the flight or fight response. The brain responds to a perceived threat or danger by releasing stress hormones such as adrenaline and cortisol which cause the physical symptoms of anxiety. Once the threatening situation has stopped, the body will usually return to normal. But if someone has an anxiety disorder these feelings of fear and danger can be ongoing and interrupt their daily routine long after the threat has gone. They can make them feel like things are worse than they are.
- **Symptoms can include:**
Racing thoughts, feelings of dread, heightened alertness, problems with sleep, Changes in appetite, wanting to escape from the situation you are in, sweating, hot flushes, fast heartbeat, extreme tiredness and nausea.

Chronic stress:

- Some stress is good as it can motivate people however too much can be detrimental, especially if over a long period of time.
- **Signs and symptoms of chronic stress can include:** irritability, which can be extreme, fatigue, headaches, difficulty concentrating, rapid, disorganized thoughts, difficulty sleeping, digestive problems and changes in appetite, a perceived loss of control, frequent infections or illnesses.

Where to get more help and support:

- Parents and trusted family
- School Staff and Wellbeing Team
- GP or Practice Nurse.
- MIND - <https://www.mind.org.uk> Help line - 0300 123 3393 open 9am to 7pm, Monday to Friday or Text: 86463
- Young Minds - <https://youngminds.org.uk> Text: 85258 or Parents Helpline: 0808 802 5544
- Stem4 - <https://stem4.org.uk/>



Where to get more help and support:

- Parents and trusted family School Staff and Wellbeing Team
- NHS Eat Well: <https://www.nhs.uk/livewell/eat-well/>
- British Nutrition Foundation: <https://www.nutrition.org.uk/healthyliving/lifestages/teenagers.html>
- Kids Health: <https://kidshealth.org/en/teens/dieting.html>

The Eat Well Plate



KS3 Knowledge Organiser - Health

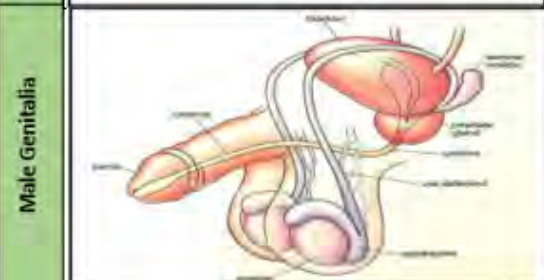
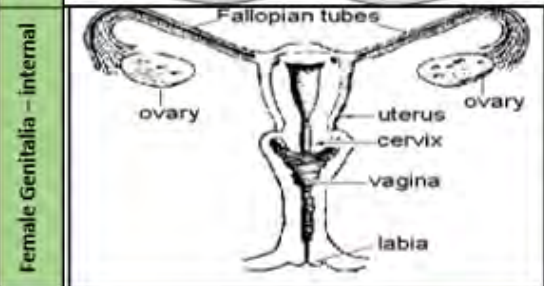
Puberty

Key words:

- **Puberty:** The process of physical maturity in a person that takes place in adolescence
- **Menstruation:** Also known as a period. The process in a woman of discharging blood and other material from the lining of the uterus at intervals of about one lunar month from puberty until the menopause, except during pregnancy.
- **Hormones:** A chemical substance produced in the body that controls and regulates the activity of certain cells or organs.
- **Wet Dream:** An involuntary ejaculation that occurs whilst a person is asleep.

Things to Remember:

- Puberty begins at different times for different people.
- Changes will happen at different rates and in a different order for different people
- Everyone goes through puberty, you are not alone.
- A good diet and exercise can help deal with some of the physical changes.
- Puberty is normal despite feeling very abnormal.



Physical changes during puberty

Boys Only	Starts between 10-12
	<ul style="list-style-type: none"> • Facial hair • Voice breaking • Erections • Wet dreams • Widening of chest & shoulders
Girls Only	Starts between 9-10
	<ul style="list-style-type: none"> • Menstruation/periods begin • Breast growth • Stretch marks • Cellulite • Hips widen
Both	<ul style="list-style-type: none"> • Grow taller • Sweat more • Changes to hair and skin • Spots and pimples

Where to get more help and support:

- Parents and trusted family School Staff and Wellbeing Team
- NSPCC Helpline: 0808 800 5000 (24 hours, every day) www.nspcc.org.uk
- Childline Helpline: 0800 1111(24 hours, every day) <https://www.childline.org.uk>
- NHS Live Well Website www.NHS.UK/Livewell

Personal Hygiene

- **Hair:** Puberty causes the oil glands in the hair to produce more oil which can make hair more oily meaning that it needs to be washed more regularly.
- **Face:** During and after puberty people can be more prone to spots and acne. This can be managed using daily face washes. Exfoliants should be used twice weekly to remove dead skin cells.
- **Oral Care:** Brushing teeth twice a day, flossing and using a mouth wash can prevent bad breath and dental issues. Regular visits to the dentist are also important.
- **Body Odour:** Due to puberty, sweat glands not only become more active than before, but they also begin to secrete different chemicals into the sweat that has a stronger smelling odour. Daily washing is essential. Anti perspirant's will reduce the amount of sweat you produce whereas deodorants cover the smell and odour.
- **Body Hair:** Body hair in new places is something you can count on. You may want to start shaving some places where body hair grows, but whether you do is up to you. Some guys who grow facial hair like to let it develop into a moustache and beard. Some girls may decide to leave the hair on their legs and under their arms as is. It's all up to you and what you feel comfortable with.
- **Genital Hygiene Women:** The inside of the vagina never needs cleaning with the use of soap. It has a natural balance of substances that can become disturbed by washing causing any bacteria that enter to have the potential of developing into an infection. The labia should only need cleaning once a day using a mild soap and water. The area should also be cleaned following sexual intercourse. Over cleaning of the genital area can be harmful and lead to infections such as thrush.
- **Genital Hygiene Men:** The penis, scrotal area and anus, should only need cleaning once a day. No attempt should be made to try and clean the inside of the urethra; this can cause serious damage. Special care should be taken by uncircumcised men to make sure the head of the penis is cleaned. This can be done by allowing the warm water to act as a lubricant and the foreskin should be gently pulled back. Failure to clean this area properly will result in smegma collection, causing bad odours and an increased risk of infection. The area should be cleaned after sex, even if wearing a condom, to prevent bacterial build-up and unpleasant smells arising.

Menstrual Hygiene:

- Wash your hands before and after using a menstrual product.
- Change your sanitary pad or tampon every 4 hours.
- Use the lowest absorbency product needed.
- Wear breathable (cotton) clothing, especially underwear.
- Keep your genital area clean.
- Use unscented hygiene products.



KS3 Knowledge Organiser - Harm

Eating Disorders

Symptoms:

- Symptoms of eating disorders will vary between individuals and type of eating disorder. Not matching the symptoms exactly does not mean that someone does not have an eating disorder, however, some common symptoms include:
- eating very little food or eating large amounts of food in a short time in an uncontrolled way
- having very strict habits, rituals, or routines around food
- Spending a lot of time worrying about your body weight and shape
- Changes in mood
- Deliberately making yourself ill after eating
- Avoiding socialising when food may be involved
- Withdrawing from social groups, hobbies you used to enjoy or from family life
- Physical signs such as digestive problems or weight being very high or very low for someone of your age and height.

Where to get more help and support:

- Parents and trusted family or school staff and Wellbeing Team
- Your GP, Practice Nurse, or School Nurse
- Youth Access - www.youthaccess.org.uk
- The Mix - www.themix.org.uk Freephone: 0808 808 4994 (13:00-23:00 daily)
- B-eat - www.b-eat.co.uk Helpline: 0808 801 0711 (Daily 3pm-10pm)
- Men Get Eating Disorders Too - www.mengettedstoo.co.uk
- Anorexia & Bulimia Care - www.exiabulimiacare.org.uk Helpline 03000 11 12 13 (option 1: support line, option 2: family and friends)

Self Harm

- **Self-harm** - deliberate injury to oneself, typically due to an overwhelming negative mental state.

Symptoms:

- Injuries observed on more than one occasion
- Injuries that appear too neat or ordered to be accidental
- Injuries on areas of the body that can be easily concealed with clothing
- Secrecy or disappearing at times of high emotion
- Negative self-talk – feeling worthless, hopeless or aimless

Self-harm cycle



Where to get more help and support:

- Parents and trusted family or school staff and Wellbeing Team
- Your GP, Practice Nurse, or School Nurse
- Ring HOPELINEUK on 0800 068 4141 or the Samaritans on 116 123
- Text SHOUT to Shout's [textline](http://www.shouttextline.com) on 85258
- Stem4 - Calm Harm- www.stem4.org.uk

Female Genital Mutilation

FGM: Female Genital Mutilation (FGM) comprises all procedures that involve partial or total removal of the external female genitalia, or other injury to the female genital organs for nonmedical reasons.

Why is FGM performed?

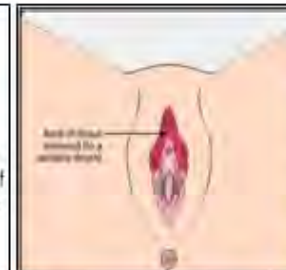
- Preservation of virginity and chastity
- Religion, in the mistaken belief that it is a religious requirement
- To ensure the girl is marriageable or to improve marriage prospect
- Belief that it increases the sexual pleasure for the male
- Mistaken belief that it enhances fertility

FGM and the Law:

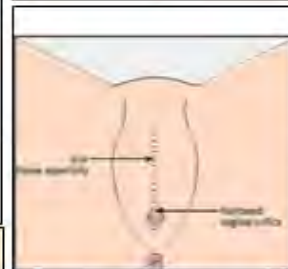
- Over 24,000 girls under the age of 15 living in the UK are at risk of undergoing the most severe form of FGM at any one time.
- Female Genital Mutilation Act 2003 makes it illegal for FGM to be performed in the UK or anywhere in the world on UK citizens or permanent residents of any age.
- If you carry out or help in carrying out FGM or if you arrange for someone to undergo FGM you face up to 14 years in prison.
- It is also illegal to take a British national or permanent resident abroad for FGM or to help anyone trying to do this.



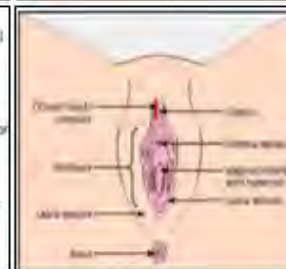
Type 1 - Clitoridectomy: partial or total removal of the clitoris and, in very rare cases, only the prepuce (the fold of skin surrounding the clitoris).



Type 2 - Excision: partial or total removal of the clitoris and the labia minora, with or without excision of the labia majora (the labia are the 'lips' that surround the vagina).



Type 3 - Infibulation: narrowing of the vaginal opening through the creation of a covering seal. The seal is formed by cutting and repositioning the inner, or outer, labia, with or without removal of the clitoris. Sometimes referred to as **Pharaonic circumcision**.



Type 4 - Other: all other harmful procedures to the female genitalia for non-medical purposes, e.g. pricking, piercing, incising, scraping and cauterising the genital area.

Where to get more help and support:

- Parents and trusted family or school staff and Wellbeing Team
- NSPCC Helpline: 0808 800 5000 (24 hours, every day) www.nspcc.org.uk
- CEOPS - <https://www.ceop.police.uk/safety-centre/>

KS3 Knowledge Organiser - Harm

Drug	Analgasic	Hallucinogen	Stimulant	Depressant
Caffeine			✓	
Cocaine			✓	✓
Heroin	✓			✓
Cannabis		✓		✓
Crack Cocaine			✓	
Amphetamines		✓	✓	
Ecstasy			✓	
Alcohol				✓
Inhalants		✓	✓	
Tobacco				✓
LSD		✓		
Magic Mushrooms		✓		
Steroids	✓			

Drugs

How cannabis affects the body:








- Reduces the effectiveness of the hippocampus, this causes memory problems.
- Slows your reaction time, coordination, and reflexive responses.
- Weakens your immune system.
- Impairs judgement
- Increases heart rate and expands blood vessels (resulting in bloodshot eyes).

	Example	Sentence for Possession	Sentence for Dealing
Class A	Ecstasy, heroin, cocaine, magic mushrooms.	Up to 7 years in prison and/or an unlimited fine.	Up to life in prison and/or an unlimited fine.
Class B	Amphetamines, methylphenidate (Ritalin)	Up to 5 years in prison and/or an unlimited fine	Up to 14 years in prison and/or an unlimited fine.
Class C	Tranquilizers, Cannabis, GHB, Ketamine	Up to 2 years in prison and/or an unlimited fine.	Up to 14 years in prison and/or an unlimited fine.

Alcohol

It is against the law:

- To sell alcohol to someone under 18 anywhere.
- For an adult to buy or attempt to buy alcohol on behalf of someone under 18.
- For someone under 18 to buy alcohol, attempt to buy alcohol or to be sold alcohol.
- For someone under 18 to drink alcohol in licensed premises,
- To give children alcohol if they are under five.

1 UNIT	1.5 UNITS	2 UNITS	3 UNITS	9 UNITS	30 UNITS
					
				Government advises alcohol consumption should not regularly exceed:  	

Definitions:

- **Stimulant:** causes a person to feel like they have more energy.
- **Depressant:** causes a person to feel calmer or lethargic.
- **Hallucinogen:** causes a person to experience sensations that are not there. This could be visual, auditory, or physical.
- **Analgasic:** reduces the feeling of pain.

Smoking & Vaping

Facts about Nicotine:

- Nicotine is both a stimulant and a depressant.
- When a body is exposed to nicotine, the individual experiences a "kick." This is partly caused by nicotine stimulating the adrenal glands, which results in the release of adrenaline

Smoking and the law:

It's illegal:

- For shops to sell you cigarettes if you are under 18
- For an adult to buy you cigarettes if you are under 18
- To smoke in all public enclosed or substantially enclosed area and workplaces.
- To smoke in a car with a child.

Risks from Smoking



Facts about vaping

- Users inhale e-cigarette aerosol into their lungs. Bystanders can also breathe in this aerosol when the user exhales it into the air. E-cigarette aerosol is NOT harmless "water vapor."

Vaping and the law:

It's illegal:

- The e-cigarette aerosol that users breathe from the device and exhale contain harmful and potentially harmful substances, including:
 - Nicotine
 - Ultrafine particles that can be inhaled deep into the lungs
 - Flavouring such as diacetyl, a chemical linked to a serious lung disease
 - Volatile organic compounds C
 - Cancer-causing chemicals
 - Heavy metals such as nickel, tin, and lead

Vaping and the law:

It's illegal:

- For shops to sell you vapes if you are under 18
- For an adult to buy you vapes if you are under 18
- To vape in public areas if the property owner has banned it.
- To vape while you're driving (can result in a £2,500 fine).

Where to get more help and support:

- Parents and trusted family or school staff and Wellbeing Team
- Your GP, Practice Nurse, or School Nurse
- Drink Aware 0300 123 1110 (weekly 9am - 8pm, weekends 11am - 4pm) <https://www.drinkaware.co.uk>
- Al-Anon Family Group 0800 0086 811 from 10 am - 10 pm, 365 days a year <https://www.al-anonuk.org.uk/>
- AddAction <https://www.addaction.org.uk>

Year 7 Religion & Society - Where do we belong?

Unit 1: Religious Education – Introduction to RE at WHS What makes us diverse and what brings us together?



<p>1. What is community, culture and cultural diversity?</p> <ul style="list-style-type: none"> • A community is a unified body of individuals with similar characteristics or interests. • Culture refers to the ideas, customs, traditions and behaviours of a particular group or community. • We are all members of different communities, which gives us a stronger sense of purpose and belonging. • Strong, positive communities also help us to develop the <u>tools</u> we need for life's journey and <u>support</u> us. • Cultural diversity is the idea that a community has lots of different ideas, customs, traditions and behaviours. • Four ways in which the UK is culturally diverse: <ol style="list-style-type: none"> (1) Different regions. (2) Different countries. (3) Different ethnic groups. (4) Different religious groups. • The census takes place every 10 years in England and Wales; it asks questions about every household which helps to build a detailed snapshot of our society. • Learners explore their own ideas of 'Belonging' to a community as well as their understanding 'Britishness'. • Learners also explore the risks associated with belonging, such as peer pressure and grooming. 	<p>2. How did the UK become a multicultural nation?</p> <ul style="list-style-type: none"> • The UK has been culturally influenced by different groups who have settled in the UK and brought their cultural traditions and values through: <ul style="list-style-type: none"> • Invasion - e.g. Romans, Anglo Saxons, Vikings and the Normans all invaded this island. • Empire, Colonisation and Commonwealth – Between the 1700s and 1900s, Britain built a huge Empire across the world which led to citizens from other countries settling in the UK to live and work. • The slave trade – was a feature of the British Empire that led to some former slaves settling in the UK. • Historic labour shortages - many men died during WW2, and the UK appealed for more workers from its former Empire, now known as the Commonwealth. • Ongoing labour shortages - every year in the UK there are sectors that do not have enough workers to meet the country's needs which has led to ongoing economic migration to the UK. The NHS is a good example, relying heavily on foreign workers. • Protecting the innocent - The UK also has a proud record of welcoming refugees from warzones European Union and freedom of movement. • In conclusion, the UK has always been a mongrel nation and the vast majority of us are descendants of people who arrived on boats in search of a better life.
<p>3. What are the benefits of cultural diversity?</p> <p>People being able to come and live, study or work in the UK from abroad can lead to:</p> <ul style="list-style-type: none"> • A more exciting and interesting society. • New ideas and solutions to problems we have • More skilled workers and less labour shortages • More jobs being created through investment from big global companies. • A more tolerant and inclusive community. • Learners can apply these ideas to Manchester. 	<p>4. What are the challenges of cultural diversity?</p> <p>A culturally diverse community might experience:</p> <ul style="list-style-type: none"> • Pockets of prejudice and discrimination • Hate crime - e.g. story of Naveed Yasir • Complex sense of identity – especially if a young person is brought up in a home with several contrasting cultural influences (e.g. religious belief) • Learners can apply these ideas to the story of Ramlila Ali, a female boxer and Olympian originally from war torn Somalia in Africa who fled to the UK as a child
<p>5. What cultural traditions bring communities together?</p> <ul style="list-style-type: none"> • Community Cohesion is where a community has a shared sense of belonging and purpose. • A cultural tradition is an event, ritual, custom or tradition that brings people together. • Examples in the UK include: Remembrance Day, Bonfire Night, Comic Relief, Mother's Day / Father's Day, The London Marathon. • Learners can explain how two examples of cultural traditions can strengthen community cohesion 	<p>5. What shared values bring communities together?</p> <ul style="list-style-type: none"> • Shared values are the beliefs and principles (rules for life) that brings a community together. • We have some shared values in our school that brings our school community together: LEARN • We also have some shared values in the UK which give us a strong sense of belonging and purpose, such as: rule of the law, representative democracy, personal freedom and equal opportunities. • Students can explain each value and give examples of key features to do with this value in the UK.

Year 7 Religion & Society - Where do we belong?

Unit 1: Citizenship – Identity & Diversity What religions and worldviews shape the UK?



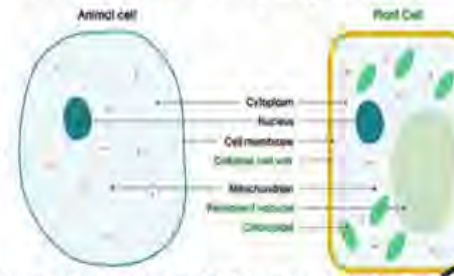
<p>1. What is a worldview and how are they formed?</p> <ul style="list-style-type: none"> • Our worldview relates to the beliefs, values and stories that collectively inform the way we live and behave. • We all have a worldview even if we are not religious or don't believe in God, as we all stand somewhere. • A person's worldview can be formed by beliefs about: <ul style="list-style-type: none"> • The purpose of life - What we mean by a 'good life' - • The values we should live by and the skills and qualities that we should have – How we should spend our time - • How we should treat loved ones - How to treat strangers or enemies - How to treat animals, the earth and the environment - God, religion, spirituality, ghosts • Views about life, death, afterlife - Views about wealth, poverty, charity - Views about the laws of the land and how the communities we live in should be run. • A person's worldview can be influenced by many different factors including: age, family and upbringing, friends, where they live, culture, life events and experiences, education, media and religion. • One aspect of a person's worldview is whether, or not, they believe in a God. We might describe ourselves as: <ul style="list-style-type: none"> • Theist - Someone who believes in God(s) • Atheist - Someone who does not believe in God(s) • Agnostic - Someone who is unsure if there is a God(s) 	<p>2. What is a religion and how do we study them?</p> <ul style="list-style-type: none"> • From the Latin <i>religio</i>, meaning to bind or connect • Historically, humans have always asked big questions about their place in the universe and what it means to live a good life whilst we are here in this world. • Over time, religion has developed in response to these big questions about life, truth and meaning. • Religion, at its heart, is supposed to be a great uniter that enables all who participate in it to seek and experience a sense of truth, purpose and belonging. • There are many famous examples of individuals and groups inspired by the religious faith who have been a force for good in the world in which we live. • However there has also been examples of where individuals and groups have come into conflict with one another due to contrasting religious beliefs. • Consequently, religious belief can significantly shape a person's worldview and the way they live their lives. • Though hard to define, religion seems to be a universal experience and need. • Of the nearly 7 billion people on Earth only just over 1 billion people say they do not believe in a God or do not believe in a specific religion. • The study of religion is made up of several branches of knowledge: theology, philosophy, social sciences.
<p>3. What are the Abrahamic Faiths?</p> <ul style="list-style-type: none"> • Judaism (1st - 1500BCE - 3500 years ago) • Christianity (2nd - 30CE - 2000 years ago) • Islam (3rd - 610 CE - 1400 years ago) • Symbols of each faith <p>How are the faiths connected:</p> <ul style="list-style-type: none"> • Monotheistic – believe in 1 God • Traced back to Abraham (Patriarch) & the Hebrews • Revelations or prophecy is important • Linked through the city of Jerusalem • The person of Jesus connects the faiths • All three believe God is omnipotent (all- powerful), omniscient (all knowing), omnibenevolent (all loving) 	<p>4. What are key features of the Abrahamic Faiths?</p> <p>Judaism: Followers referred to as Jews – Famous holy book is the Torah - Founder is Abraham - Place of worship is synagogue – Festivals include Pesach & Rosh Hashanah</p> <p>Christianity: Followers referred to as Christians - Famous Holy book is the Bible – Founder is Jesus – Place of worship is a church - Festivals include Christmas & Easter.</p> <p>Islam: Followers referred to as Muslims - Holy book is Qur'an - Founder is prophet Muhammad - Place of worship is a mosque – Festivals include Eid-ul-Fitr / Adha</p>
<p>5. What are the Dharmic Faiths?</p> <ul style="list-style-type: none"> • Hinduism (1st - 2000-3000 BCE - 4k to 5k years ago) • Buddhism (2nd - 560 BCE - 2500 years ago) • Sikhism (3rd - 1500 CE - 500 years ago) • Symbols of each faith • The oldest of the 6 world religions we will study is Hinduism and the youngest is Sikhism <p>How are the faiths connected:</p> <ul style="list-style-type: none"> • All three originate from the Indian sub-continent • The concepts of Dharma, Samasara, Karma, Moksha • Celebrate similar festivals e.g. Diwali 	<p>6. What are key features of the Dharmic religions?</p> <p>Hinduism: Followers referred to as Hindus - Famous holy book is the Vedas - No known founder - place of worship is a Mandir - Festivals include Diwali & Holi.</p> <p>Buddhism: Followers referred to as Buddhists – Famous holy book is the Tripitaka – Founder is Prince Siddhartha Gautama – Place of worship is the Buddhist Temple or Monastery – Festivals include Wesak & Bodhi Day.</p> <p>Sikhism: Followers referred to as Sikhs – Famous holy book is Guru Granth Sahib - Founder is Guru Nanak - Place of worship is gurdwara - Festivals include Vaisakhi.</p>

KS3 Biology: Cells

Diffusion is the movement of a fluid (a gas or a liquid) from a high to a low concentration along a concentration gradient.



Cells. There are 2 types: 1 with a nucleus (eukaryotic, our cells), 1 without a nucleus (prokaryotic). Common components of eukaryotic cells are: cell membrane, nucleus, cytoplasm, mitochondria. Plant cells also have a cell wall, vacuole and chloroplasts.



Microscopes are used to view objects much smaller than we would be able to see with our eyes. They use 2 lenses – the eyepiece and the objective lens. We **focus** on the specimen we are looking at.



Hierarchy of organisms

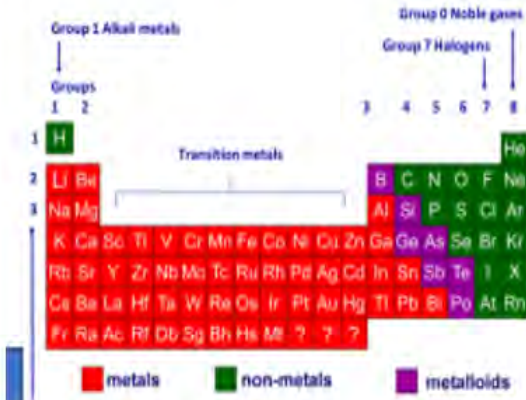
Cells are the smallest living entity. Tissues are groups of cells working together. Organs are groups of tissues. Organ systems are groups of organs. Complex organisms need these structures to allow for diffusion.



Keywords

- Diffusion
- Concentration
- Eukaryotic cell
- Prokaryotic cell
- Cell membrane
- Cytoplasm
- Nucleus
- Mitochondria
- Cell wall
- Vacuole
- Chloroplast
- Multicellular
- Tissue
- Organ
- Organ system
- Focus

KS3 Atoms, Elements and Periodic Table



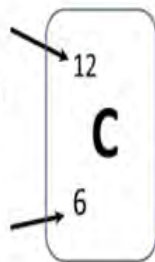
The modern periodic table is arranged according to increasing atomic number

- Columns of elements are called groups
- Groups of elements have similar properties
- Rows of elements are called periods

An **atom** is the smallest part of an element that cannot be broken down chemically. It is comprised of sub-atomic particles: protons, neutrons, and electrons.

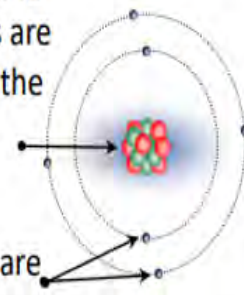
Mass number =
Number of
protons + neutrons

Atomic number or
proton number =
Number of
protons



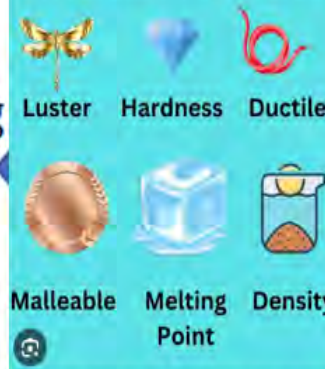
Protons and neutrons are found in the nucleus

Electrons are found in shells



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

Physical Properties



Chemical Properties



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**

Keywords

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

KS3 Energy

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
- Dissipated
- Kilocalories
- Carbohydrates
- Biomass
- Geothermal
- Energy
- Fuel
- Fossil Fuel
- Renewable
- Non-renewable
- Power
- Work done
- Temperature
- Thermometer

Energy in Food

Chemical energy is stored in food and drink.

Energy in food is measured in **kilocalories (kcal)**.

Carbohydrates and fats are the main chemical store.

Energy Basics

Energy is measured in **Joules (J)**.

Energy transfers when:

- Something moves
- Something is heated
- A waves moves
- Something is distorted
- Chemical reaction happens

SOURCES OF ENERGY



Renewable: replenished as quickly as they are used

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

KS3 Energy

Renewable energy resources

Advantages:

- Renewable
- No CO₂ 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 (fossil fuels only)
- Finite (will run out)
- Cause acid rain
- Makes Radioactive waste (nuclear only)

Fossil fuels

> Oil



> Coal



> Natural Gas



Made over millions of years from dead living things.

Cost of Energy

Power is the rate of energy transfer. Power is measured in Watts (W). Electrical devices are given a power rating depending on how quickly they transfer energy every second.

Energy companies charge users using this equation:

$$\text{Cost} = \text{power (KW)} \times \text{time (h)} \times \text{cost per KWh}$$

We can reduce energy use or use more efficient methods to reduce cost.

Making Transfers Easy

Work is the amount of energy transferred when an object moves against a frictional force.

Work done is measured in Joules (J).

Reducing the amount of work, makes moving objects easier. This can be done using:

- Levers
- Pulleys
- Lubrication

Temp vs Thermal

Temperature is the measure of how hot something is. A **thermometer** is used.

Thermal energy is the energy that makes something hot.