



LYMM  
HIGH SCHOOL

#1



NAME:

# Year 7

# Knowledge Organisers

# Autumn Term

(Half term 1 and 2)

2023-24





# A Knowledge-Rich Curriculum at Lymm High School

## *Why are we using Knowledge Organisers?*

Research around memory suggests that “knowledge is sticky”: the more factual knowledge you know, the easier it is to learn more in future! But there is a catch: If knowledge is studied just once, and not revisited or revised, it is not stored in long-term memory.

To strengthen your memory, and ensure information is stored permanently in your long-term memory, it must be revisited frequently. This means that after one lesson, or a single test, the knowledge is not fully embedded or learned unless it is studied again.

This is why your knowledge organiser is an important part of revising the essential information you learn in class!

## *Use of Knowledge Organisers for revision and in class*

As part of their home learning, students should be revising what they have learned recently, but also content they were taught previously. Therefore, as part of our strategy to ensure that knowledge is embedded over time, we have developed knowledge organisers, which contain the ‘bedrock knowledge’ necessary in each subject area. A mastery of this knowledge will ensure that students can progress comfortably to new units of learning, and can be successful in their subjects.

This information will provide the basis of our assessments and exams, and so getting into good revision habits with these resources will ensure students feel as prepared as possible.

Teachers may set specific areas of each knowledge organiser as part of homework tasks on ‘Satchel one’ – formerly ‘Show my Homework’ – however students should be using their knowledge organiser for independent revision regularly.

*For mastery of your subjects, remember:*

***“Don’t practise until you get it right. Practise until you can’t get it wrong!”***

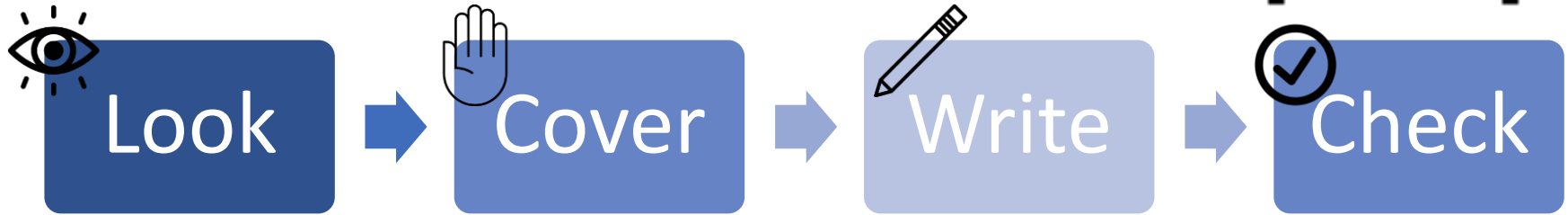
As well as supporting revision at home, this knowledge organiser should be kept in students’ bags, and brought to school each day so that it can also be used and referred to in lessons.

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# How to use your knowledge organiser:

Recommended strategies (*don't just read or highlight – get active!*):



- Create **mind maps**
- Create **flash cards**
- Write out **key points on post-it notes** and place somewhere visible so you see and review them regularly
- **Write your own quiz questions** based on your knowledge organiser – leave until the next morning, next day, or next week to see how well you have retained the information
- **Get someone else to test you**
- Use **key vocabulary** from your KO in sentences
- Use the formulae, vocabulary lists, facts, processes etc on your KO to **help you complete homework tasks**
- **Draw diagrams and flow charts** of key information
- **Summarise each section** into your own words – what are the MOST important facts or details in each box?
- **“Just a minute”** – time yourself for 60 seconds. **Can you talk about this topic or explain it to someone else without stopping for a whole minute?**
- **Draw images/symbols** to represent the different concepts and vocabulary
- **Teach someone else** about this topic. Research suggests we retain even more information when we teach a topic than when we learn it or revise it.

# Tier 2 Vocabulary – General academic vocabulary for success across all subjects

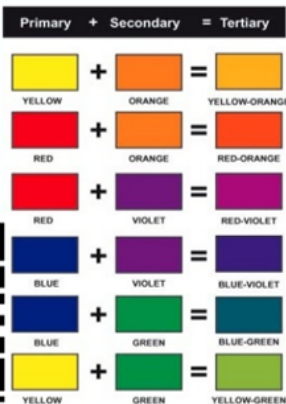
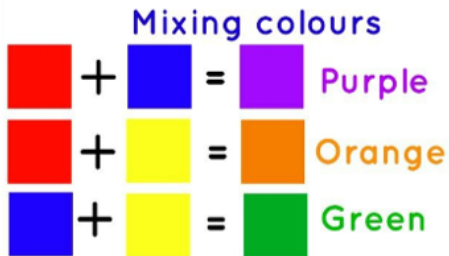
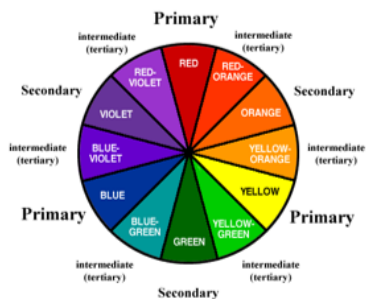


*“The limits of my language are the limits of my world” - Ludwig Wittgenstein*



List 1		List 2		List 3	
<b>approach (v)</b>	move towards/get closer	<b>factors (n)</b>	Influences/things involved in something	<b>precise (adj)</b>	exact
<b>assessment (n)</b>	test	<b>function (n)</b>	the point of something/what it does	<b>required (v, adj)</b>	needed
<b>authority (n)</b>	the person in charge/expert/power	<b>identify (v)</b>	pick out	<b>response (n)</b>	reply
<b>available (adj)</b>	free/not taken	<b>indicate (v)</b>	show	<b>sector (n)</b>	area
<b>consistent (adj)</b>	same every time	<b>issues (n)</b>	problems	<b>significant (adj)</b>	important
<b>contract (n)</b>	formal, signed agreement	<b>legislation (n)</b>	laws	<b>structure (n)</b>	how something is put together
<b>definition (n)</b>	what something means	<b>labour (n)</b>	work	<b>subsequent (adj)</b>	coming after
<b>derived (from) (v)</b>	coming from	<b>major (adj)</b>	important	<b>theory (n)</b>	An idea or belief (usually supported by evidence)
<b>denote (v)</b>	stand for	<b>method (n)</b>	way of doing something	<b>variable (n)</b>	A factor that might influence or change
<b>distribution (n)</b>	the spread of something	<b>period (n)</b>	chunk of time	<b>worthwhile (adj)</b>	worth doing
<b>economic (adj)</b>	to do with wealth and money	<b>procedure (n)</b>	Something which is done (e.g. an operation)	<b>yearn (v)</b>	To wish (usually for something you've lost)
<b>establish (v)</b>	Confirm or create something	<b>perspective (n)</b>	viewpoint	<b>youthful (adj)</b>	young

<b>The colour wheel</b>	This is a diagram that shows how colours are mixed or the relationship between colours.
<b>Primary colours</b>	Red, blue and yellow. These are colours that cant be made by mixing other colours together.
<b>Secondary colours</b>	Green, orange and purple. Mix two primary colours to create a secondary colour
<b>Tertiary colours</b>	These are colours create by mixing a primary and a secondary colour together.
<b>Complimentary colours</b>	These are colours that are opposite on the colour wheel.
<b>Harmonious colours</b>	These are colours from the same section of the colour wheel. These work well when blending.
<b>Cool colours</b>	Fall on one half of the colour wheel. Calm or soothing in nature. They are not overpowering and tend to recede in space. For this reason, they typically make a space seem larger.
<b>Warm colours</b>	Fall on the opposite side to the cool colours on the colour wheel. They are vivid or bold in nature. They tend to advance in space and can be overwhelming.



**Blending**

- Always start with the lightest colour and add the darker colour in small amounts
- Harmonious colours blend well together.
- Cross hatching is a good mark making method when blending dry materials.
- Wet materials should be mixed on a palette before blending.

Scan here to watch a step by step guide; how to blend using different materials.

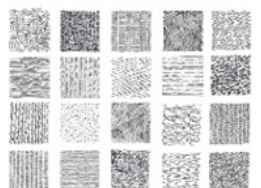
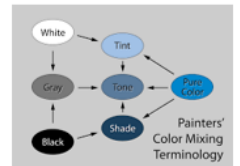


<b>Still life</b>	A collection of objects arranged together.
<b>Tone</b>	A tone is produced either by the mixture of a colour with grey, or by both tinting and shading..
<b>Shade</b>	The mixture of a colour with black, which increases darkness.
<b>Proportion</b>	Proportion refers to the relative size of parts within a whole.
<b>Tint</b>	The mixture of a colour with white, which increases lightness
<b>Mark making</b>	Different lines, patterns, and textures we create in a piece of art. It applies to any art material on any surface, not only paint on canvas or pencil on paper.
<b>Composition</b>	The position and layout of shapes on the paper.
<b>2 Dimensional</b>	Having or appearing to have length and breadth but no depth.
<b>3 Dimensional</b>	Having or appearing to have length, breadth, and depth.

**Recording from Observation**

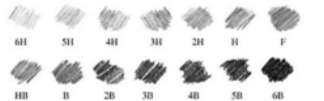
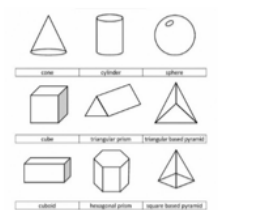
**Primary source observational drawing:** drawing something real in front of you.

**Secondary source observational drawing:** drawing something from a picture.



**MARK MAKING IDEAS**

Scan here to watch a step by step guide; how to draw 3D shapes

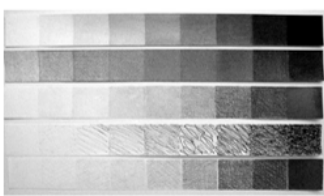


**Grades of Pencils**

Pencils come in different grades. The softer the pencil the darker the tone.

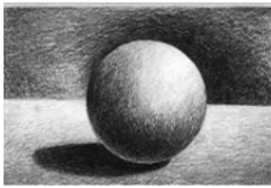
*H = hard, B = black (soft)*

In Art the most useful pencils are B, 2B and 4B. If your pencil has no grade it is likely to be an HB (hard black in the middle of the scale)



**Making something look 3D**

- To prevent objects looking flat, a range of tonal shading is essential to make objects look 3D
- Pressing harder and lighter with a pencil creates the different tones
- As a surface goes away from you the tones usually darken
- Shading straight across a surface will make an item appear flat
- Use the direction of your pencil to help enhance the 3D surface
- Including shadows will also help make objects appear 3D and separate objects from each other.



**Day of the Dead**

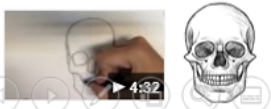
- It is a Mexican holiday celebrated throughout Mexico and around the world in other cultures.
- Dia de los Muertos: Spanish translation (language spoken in Mexico).
- It focuses on gatherings of family and friends to pray for and remember friends and family members who have died.
- It is particularly celebrated in Mexico, where the day is a bank holiday.
- The celebration takes place on October 31, November 1 and November 2, in connection with the Christian events Halloween etc
- Traditions include: Building private altars called 'ofrendas'. Leaving gifts at the grave to honour the dead (Sugar skulls, marigolds, favourite foods of the dead). They also leave possessions of the deceased.
- The main emblem for the Day of the Dead festival is the skull.



**Thaneeya McArdle** (name is pronounced "tuh-nee-yuh").

- An artist, designer and craftsperson from Florida.
- She is most well known for her use of vivid colours and intricate symmetrical pattern work.
- Draws and paints sugar skulls.
- The work she produces is inspired by her travels around the world.

<https://www.thaneeya.com> (Thaneeya McArdles personal website)  
<https://www.art-is-fun.com> (Thaneeya McArdles website in which she has hints and tips for drawing, painting and much more!)



<https://www.youtube.com/watch?v=ECL662yPMIk>  
 Watch this tutorial to learn how to draw a skull.



<b>Tone</b>	A tone is produced either by the mixture of a colour with grey, or by both tinting and shading.
<b>Scale</b>	Refers to the size of an object (a whole) in relationship to another object.
<b>Block Colour</b>	One solid colour that does not differ in tone.
<b>Line</b>	A mark formed by drawing.
<b>Symmetrical Pattern</b>	Lines and shapes that are made up of exactly similar parts facing each other or around an axis
<b>Composition</b>	The position and layout of shapes on the paper.
<b>Mono printing</b>	A form of printmaking that has lines or images that can only be made once, unlike most printmaking, which allows for multiple originals
<b>Scruffitto</b>	A form of decoration made by scratching through a surface to reveal a lower layer of a contrasting colour.
<b>Clay</b>	Clay is the raw material used in ceramics. It is a versatile material that can be transformed into a variety of shapes.

**What do I include on an artist research page?**

- Title (artist name)
- Images of the artists work.
- Facts/information and annotation (include your own opinion)
- Own drawings
- Key words
- Consider creative presentation.

Try to make the page reflect the artists style.



**Drawing accurately**  
 The easiest way to ensure an image is drawn accurately is by using a square grid. Over your image draw a grid. On a separate piece of paper, re draw the grid and start to plot out your image square by square.

**Enlarging an image by hand**  
 You can also use a grid to enlarge an image. Your second grid should be double in size so that when you plot your drawing it increases.

**What is a Diorama?**  
 A diorama is a model which represents a scene or story with three-dimensional figures.  
 Day of the Dead dioramas are based on the altars and retablos (devotional paintings) associated with the festival. They are made using tin or wood cages, known as nichos and contain collages of skeletons, skulls, flowers and photographs.



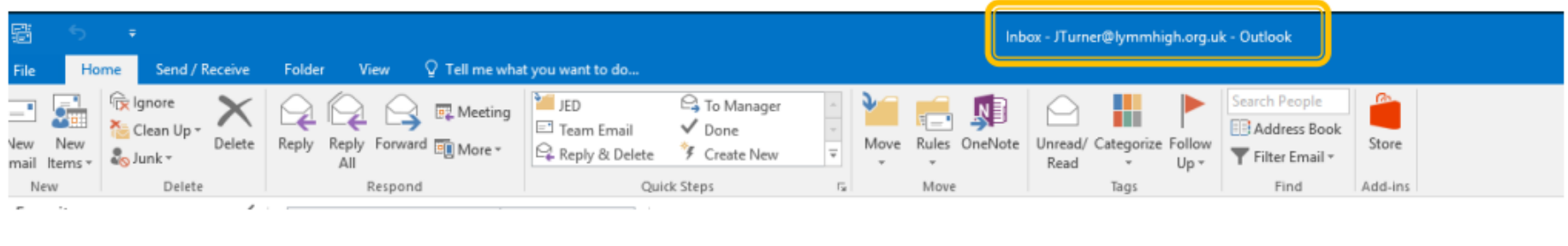
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**Mixing colours**

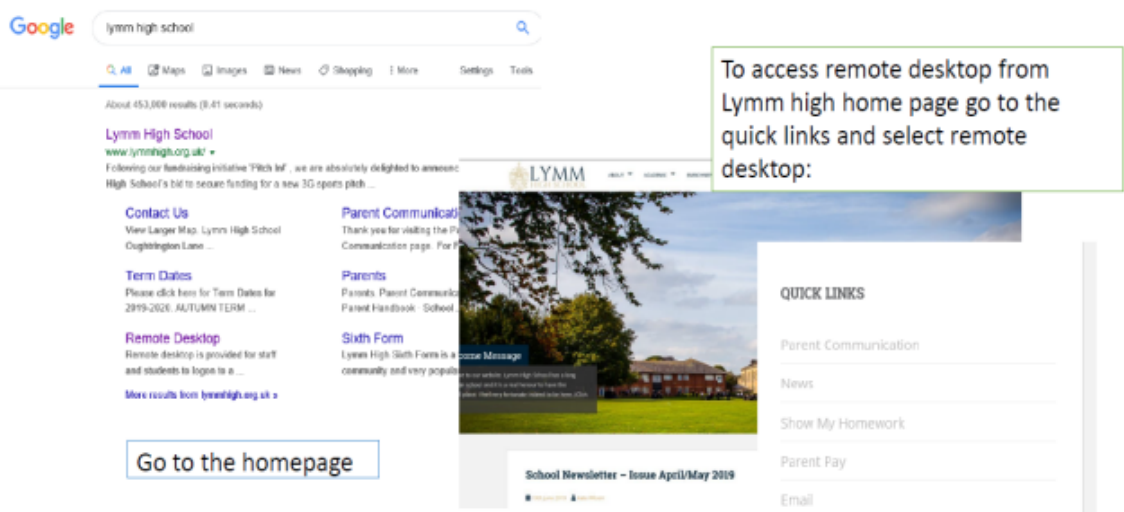
Primary	+	Secondary	=	Tertiary
Yellow	+	Orange	=	Yellow-Orange
Red	+	Orange	=	Red-Orange
Red	+	Yellow	=	Red-Yellow
Blue	+	Yellow	=	Blue-Yellow
Blue	+	Orange	=	Blue-Orange
Blue	+	Red	=	Blue-Red
Yellow	+	Green	=	Yellow-Green
Red	+	Green	=	Red-Green
Blue	+	Green	=	Blue-Green

### Finding your email address

Your email address is at the top of the application once it is open:



### To access your email from home:



On the right find the quick links and select email :

My email address is:

### Accessing Microsoft for FREE

If you do not have access to Microsoft Office on your computer, laptop, tablet, phone or any digital device

You have a **FREE** account which is connected to your school email.








### Accessing Microsoft for FREE

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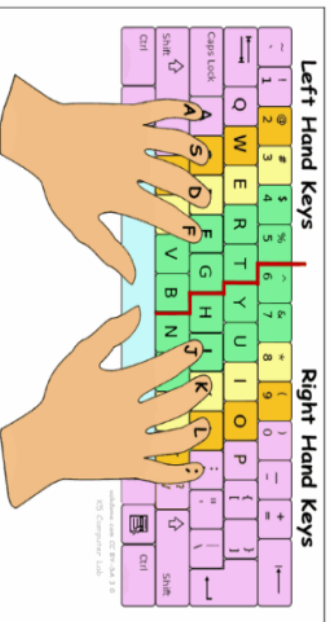
You have a **FREE** account which is connected to your school email address and this guide tells you how to do it.

Select the device that you have and follow those instructions:

	 <p>MacBook Pro</p>	 iPhone  DND3FOID  iPad
<p>Go to <a href="http://www.office.com">www.office.com</a> and if you're not already signed in, select <b>Sign in</b>. Sign in with your school emailed address and school password</p> <p>After signing in, follow the steps that match the type of account you signed in with. Install it onto your computer</p> <p>Once done it will ask you to activate it; select activate and there you have it <b>Office installed!</b></p>	<p>You can use office 365 without actually installing it onto your computer or laptop, all you need is your school email address and password. Go to <a href="https://www.office.com/apps">https://www.office.com/apps</a> Click sign in, located at the top right Then you should see all you have access to This actually saves it to the one drive rather than on your computer Therefore, you can access the document in school as well as home.</p>	<p>You will need access to the app store for this - You can install the new Office app that combines Word, Excel and PowerPoint into a single app, and introduces new mobile-centric features to view, edit and share files without the need to switch between multiple apps. Note that Office mobile app is currently available for <b>Android</b> and <b>iPhone Only</b>. To use Office on your iPad you need to install the Office apps individually on to you iPhone or iPad.</p>

# Touch Typing

## Proper Finger Placement on the Keyboard



### Types of devices

A diagram of useful devices you might have come across



### Link to the website

<https://sense-lang.org/typing/tutor/keyboarding.php>

### Website key

WPM stand for Words per minute and will show you how many words you can write in a minute without looking at the keyboard. It is OK for this to be low when you are starting out.

The tick represents the number of letters or words you got correct.

The cross represents the number of letters or words you got wrong.

At the end you will be given an overall success rating from the lesson.

You can pause this tutorial at any point.



### Useful Websites

<https://www.teach-ict.com/>

<https://www.bbc.co.uk/bitesize/subjects/zvc9q6f>

<https://senecalearning.com/en-GB/>



# Staying Safe Online

	Key vocabulary	Definition
1	E-safety	Internet safety or online safety is trying to be safe on the internet
2	Cyber bullying	Is the use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature.
3	Animated banner	Banner that moves between text and pictures.
4	Social networking	Social networking is the use of internet-based social media programs to make connections with friends, family, classmates, customers and clients.
5	Annotate	Label the diagram or print screens saying what each part is and why you have chose that design.
6	Visualisation diagram	Diagram/plan of the product you are designing.
7	Biased	Holding an opinion that often unfairly supports one argument, eg a football fan thinking that a referee's decision was wrong because it went against their team.
8	Mobile applications	Applications designed to run on mobile devices. These can be used for creating documents, taking pictures, listening to music, playing games or finding directions
9	Unauthorised access	Using a computer system without permission.
10	File	An object on a computer that stores data, information, settings, or commands used with a computer program.
11	Folder	A way to organise computer files. A folder is a storage space that many files can be placed into to group them together and organise the computer.
12	Email	Electronic mail - a method of exchanging messages between people using electronics and email addresses.
13	Security	Protecting yourself when using something that could be harmful or dangerous to you.
14	Report	A written account or an alert of an event or situation that can be used to seek help.
15	Child line	A 24 hour counselling service for children and young people where they can get help and advice on a range of issues
16	CEOP	Child exploitation and online protection centre.
17	Downloading	Transferring data from one device or network to another.
18	Internet	A communications system that connects computers and databases all around the world.

**Cyber bullying** means to try to hurt someone's feelings by using technology : the internet, email, chatrooms and texting.

**Dealing with bullying:**

- **Don't give out personal information** in chatrooms, social websites, blogs, etc.
- **Don't tell anyone, even your best friends, your passwords.** They might be your best friend now, but what if you have an argument. They might log into your account and post really mean things and make it look like it was you.
- **Don't respond** - If you receive any mean or threatening messages in the chatroom, text or email, don't ever respond. You might be tempted to delete the message but don't. Save it and show an adult - you might need the message to use as evidence against the person who sent it.
- **Contact the website** - If you find mean things have been said about you on a website, for example, Facebook, you can ask to have the comments removed. The same is true if you find out that photographs or videos have been posted without your permission.
- **Tell someone**
- Don't suffer in silence. If you are being bullied then tell your parents. If you don't feel that you can talk to them then tell a teacher or an adult that you trust. You mustn't keep it to yourself because if you do, the bully has got exactly what they want.

**S** Stay Safe  
Don't give out your personal information to people / places you don't know.

**M** Don't Meet Up  
Meeting someone you have only been in touch with online can be dangerous. Always check with an adult you trust.

**A** Accepting Files  
Accepting emails, files, pictures or links from people you don't know can cause problems.

**R** Reliable?  
Check information before you believe it. Is the person or website telling the truth?

**T** Tell Someone  
Tell an adult if someone or something makes you feel worried or uncomfortable.

Follow these SMART tips to keep yourself safe online!

- E-safety Rules**
- Never give out your password – this doesn't matter who asks!
  - Don't give out your contact details
  - Don't download any software without permissions!
  - Respect people's privacy
  - Copying and pasting could be breaking the copyright law – make sure you always reference where you got that information from!

**Chatrooms:** The main reason that your parents and teachers worry about you using chatrooms is because you can't always tell who you are talking to. Most of the time, someone you chat to will be genuine. You can have a conversation with them, have a laugh, tell each other about things and over time build up a real friendship. But, you do need to be aware that not everyone in a chatroom is really who they say they are.

**Saying safe in chatrooms:**

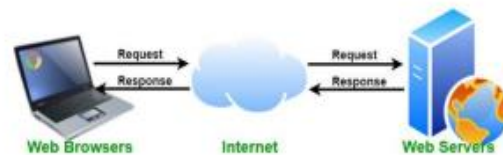
- Tell your parents if you are planning to use a chatroom.
- Use a nickname, so your real identity remains protected.
- Never give out personal details!
- Never send your picture to anyone!
- Always stay in the public chatroom
- Don't meet up in real life – if you do really want to arrange to meet someone always take a responsible adult.
- This shouldn't be a problem because you won't give anyone your email address, will you? But, if for some reason you did give it out and you find someone is sending you emails with mean or rude pictures, don't open them and tell your parents immediately



# Computer Hardware



	Key Vocabulary	Definition
1	<b>Save</b>	writing data to a storage medium, such as a CD-R, USB flash drive, or hard drive
2	<b>Storage</b>	mechanism that enables a computer to retain data, either temporarily or permanently
3	<b>Document</b>	An electronic copy of work, this could be in the form of a word document or PDF
4	<b>Office 365</b>	online version of the traditional installed version of Microsoft Office software
5	<b>Teams</b>	cloud-based team collaboration software that is part of the Microsoft 365. It allows for file sharing and electronic collaboration
6	<b>One Drive</b>	cloud service that connects you to all your files in school and at home.
7	<b>Cloud computing</b>	on-demand access, via the internet, to computing resources and applications
8	<b>Network</b>	Is a group of two or more devices connected together that can communicate
9	<b>Web Server</b>	a computer dedicated to storing web pages securely and delivering them to users when requested
10	<b>Device</b>	Any electronic equipment controlled by a CPU
11	<b>Touch Typing</b>	a method of typing without the use of the sense of sight, or simply by feeling the keyboard.
12	<b>QWERTY Keyboard</b>	The standard computer keyboard . QWERTY refers to the first six letters on the upper row of the keyboard
13	<b>Hosting</b>	Is a web server that stores and transmits the data for one or more websites
14	<b>Peripheral</b>	Is a hardware device used to transfer information into and out of a computer
15	<b>Motherboard</b>	is a computer's central communications backbone connectivity point, through which all components and external peripherals connect
16	<b>Central Processing Unit (CPU)</b>	is the most important hardware component in a computer. It has two main functions: to process data and instructions. to control the rest of the computer system.
17	<b>Random Access Memory (RAM)</b>	is volatile main memory . This means that once the computer is switched off, the data and instructions held in RAM are lost
18	<b>Hard Disk Drive</b>	Are non-volatile magnetic storage devices capable of remembering vast amounts of data.



Notes



# Design and Technology

## Year 7 Material Focus: Timber & Timber Products

### Types of wood.....

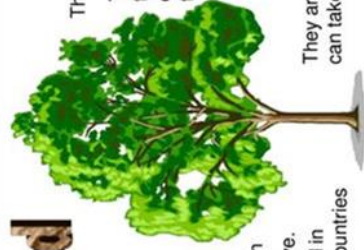
#### Hardwood

You can have evergreen hardwood trees which do not lose their leaves and Deciduous trees which lose their leaves in winter

Tend to have a tighter grain

They can be very Expensive.

Most evergreens are found in **tropical or sub-tropical** countries such as South America



These are usually quite hard.

They are broad leave trees and the seed are enclosed in the fruit that the tree produces

They generally grow in **temperate** climates including the British Isles

They are slower growing trees it can take 100 years to grow fully

#### Softwood

They mainly grow in a cooler climate like Canada

These come bearing trees are called conifers

They have a looser grain structure

They are often used as building material.



These are usually softer and easy to work

The trees grow tall and straight which makes it easier for the manufacturer to cut long straight planks of wood

Evergreen trees which means they do not lose their leaves.

These grow quite faster and so are cheaper

**Manufactured wood-** Manufactured, or man-made, wood is board produced using industrial production techniques. It consists of gluing together wood layers or wood fibres. Manufactured boards are usually made in very large sheets. Designers choose manufactured boards when they require consistency in strength, workability and texture. Their plain appearance is often disguised by more decorative material.

#### Manufactured boards (man made woods)

Type of wood	Description	Usage
MDF medium density fibre board	Smooth even surface. Easily machined and painted or stained. Also available in water and fire-resistant forms	Used mainly for furniture and interior panelling due to its machining qualities. Often veneered or painted
Plywood	A very strong board which is constructed of layers of veneer or plies which are glued at 90degrees to each other. Interior and exterior grades available	Structural panelling in building construction. Furniture making. Some grades used for boat building and exterior work
Hardboard	A very inexpensive particle board which sometimes has a laminated plastic surface	Furniture backs, covering curved structures. Door panels
Chipboard	Made from chips of wood glued together. Usually veneered or covered in plastic laminate	Kitchen and bedroom furniture when veneered or plastic laminated. Shelving and general DIY work

Scan the QR code to learn how plywood is manufactured .....



### Hardwoods

Type of wood	Description	Usage
Oak <small>American White Oak</small>	A very strong wood Light brown in colour. Open grained Difficult to work with	High quality furniture Beams used in buildings Veneers
Mahogany <small>Mahogany</small>	An easy to work with materials, Reddish brown in colour	Indoor furniture Shop fittings Bars Veneers
Beech <small>Beech</small>	A straight-grained wood with a fine texture. Light in colour Very hard but easy to work with Can be steam bent	Furniture Toys Tool handles
Teak <small>Teak</small>	A very durable oily wood Golden brown in colour. Highly resistant to moisture	Outdoor furniture Boat building Laboratory furniture and equipment

### Softwoods

Type of wood	Description	Usage
Spruce <small>Spruce</small>	Creamy-white colour Has small hard knots Not very durable	General indoor work Used mainly for kitchens and bedrooms
Scots Pine <small>Scots Pine</small>	A straight-grained wood, but knotty. Light cream/pale brown in colour Fairly strong but easy to work with. Inexpensive	Readily available for DIY Constructional work and simple joinery work
Parana Pine <small>Parana Pine</small>	Hard and straight grained. Almost knot free. Fairly strong and durable. Expensive Pale yellow in colour with red/ brown streaks	Better quality pine furniture and fittings such as doors and staircases
Yellow cedar <small>Yellow Cedar</small>	A pale yellow colour with fine even texture Light in weight but stiff and stable	Furniture, amateur aeroplane building, boat building, veneers

Scan the QR code to learn how timber is processed.....



# Manufacturing Processes

## CAD/CAM (Computer Aided Design/Computer Aided Manufacture)



Laser cutter

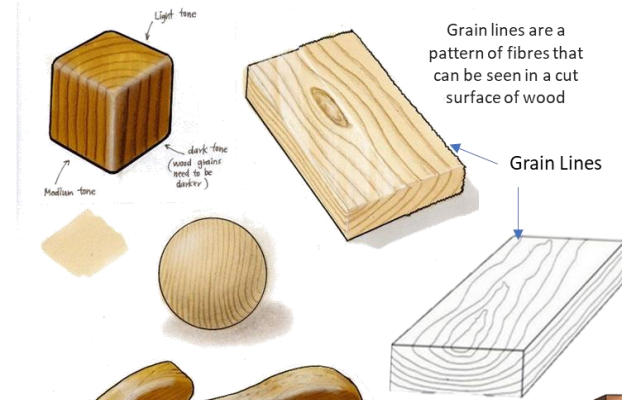


Scan the QR code to learn how laser cutters work.....

A drawing is sent from a CAD program such as 2D Design, to the laser cutter.  
A laser cutter can cut through acrylic, laser plywood and some metals.

## Shading an object to look like wood....

Shade the back ground colour of the wood first and then add the grain lines. Look at your pine wood to copy the detail of the grain lines.



Scan the QR code to learn how to shade a wooden texture.....

## Tools and Equipment.....

### Wasting Tools....

#### Cutting....



Coping Saw



Tenon Saw



Hack Saw

### Drilling....



Pillar Drill

### Shaping....



File

### Drilling....

#### Twist Drill



#### Counter Sink Drill



### Holding....



Metal Vice



Bench Vice



Machine Vice



Bench Hook

### Finishing....



Glass Paper (Wood)



Wet & Dry Paper (Plastic & Metal)



Wood Oil

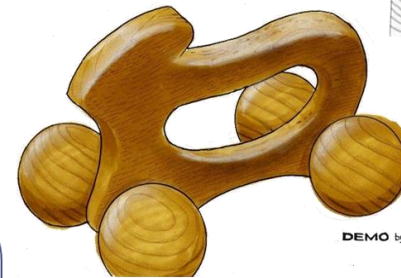
### Joining....



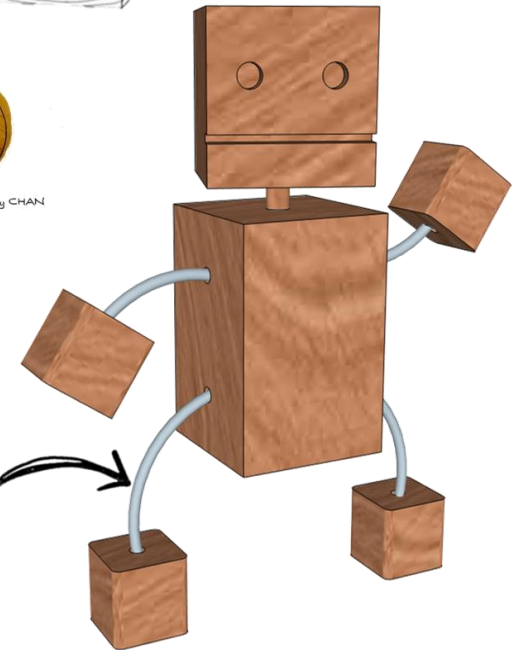
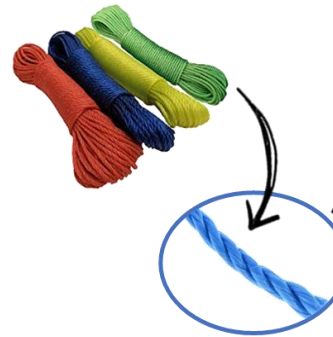
Nut and bolt



Screw



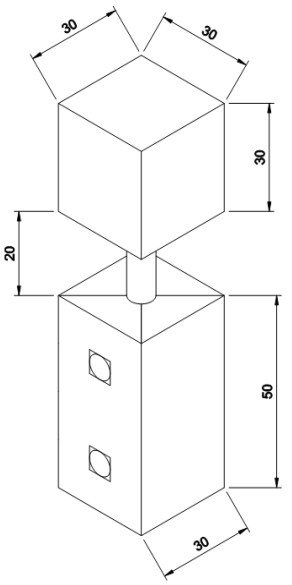
DEMO by CHAN



You will use coloured rope to join the hands and feet on to the body. Try to show what the rope will look like and shade it the colour that you would like it to be. The rope can be different colours for the arm piece and leg piece.



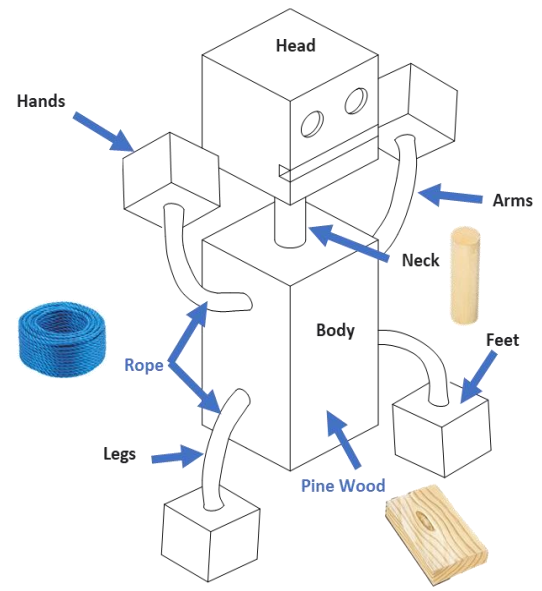
### Isometric Drawing.....



Block Bot with dimensions  
All dimensions in mm

YEAR 7

### BLOCK-BOT PROJECT



Final Block Bot Isometric Drawing

**1**

Draw the head. Then add the detail of the eyes and the mouth.

**2**

Draw the body. Leave 20mm (2cm) from the head to the body.

**3**

Then draw the neck. The neck is made from a piece of wooden dowel.

**4**

Then draw the hands and feet. They will be connected with a piece of rope to create the arms and legs.

### Product Analysis.....

#### Aesthetics

- Does the product look good?
- Does it make good use of colour and texture?
- What has inspired its appearance? (E.g. is it organic? Is it industrial?)

#### Cost

- What is the estimated cost of the product?
- What is the retail price?
- What is the relationship between the two?
- Is the product affordable?
- Does it offer value for money?
- What is the product's cost in relation to the income of potential buyers/users?

#### Customer

- Who is the product designed for?
- How and where would they use it?
- What effect will it have on their lives and relationships?
- Will it add value?
- How is the product promoted to attract customers?
- Has the designer considered how people will interact with the product?
- Does the product target a particular age group or sector of people?
- What assumptions have been made about the potential buyers/users?

#### Environment

- What is the product's impact on the environment?
- What happens to the product after use?
- How long will it last?
- What factors limit/lengthen its life span?
- Can it be repaired? Can parts be replaced?
- How easily can it be recycled?
- Who would pay for the cost of recycling?

#### Safety

- How has the designer considered safety issues in the products design?
- Think about the ways it is being used and how different parts have been joined together.
- Are there any risk assessment issues in relation to the use of the product?

#### Size

- Are the product's proportions appropriate for its use?
- If you increased or decreased the products size, would it look or function better?

#### Function

- Does the product do the job it was intended to do?
- How does it work?
- How easy is it to use?
- What effects will using it have, including those beyond intended use and user?

#### Material

- What materials are used to make the product and why?
- Would another type of material work better?
- What impact could the designers choice of material have on the environment?
- Where do the materials and other resources needed for production come from?
- Are they likely to run out?

# KS3 Design Technology Sentence Starters - Annotation Support

## Analysing Sentence Starters

I think that.....

I liked/disliked this design as.....

It would appeal to a target audience of.....

The strengths of this design are..... because.....

The weaknesses of this work are..... because.....

Aesthetically this design.....

The use of the colours..... means/allows.....

## Design Explanation Sentence Starters

I have chosen the colours..... because

This product is designed to.....

My product is made from.....

What I like about my design is.....

My design follows the theme of.....

I could improve my design further by.....

## Annotation

### Negatives:

What are the negatives about your design?

### Positives:

What parts of your design work well?

### Improvements:

What could you change and improve about your design?

### Environment:

What impact would your design have on the environment

### Manufacture:

How would your design be manufactured?

### Target Market:

Who would this design appeal to and why?

### Materials

What materials would you use to create this?

## Key Words

Design

Technology

Analysis

Investigate

Research

Generate

Develop

Model

Evaluate

Reflect

Manufacture

Sketch

Prototype

Aesthetics

Safety

Tenon saw

Coping saw

Pillar drill

Bench hook

Pine

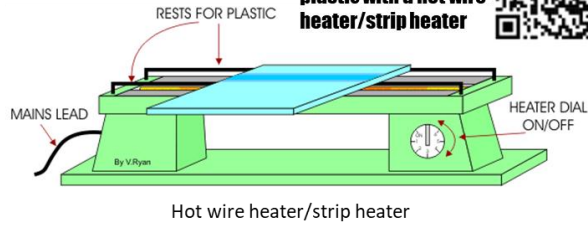
Plywood

## Describing Words

Accurate	Cheap	Curved	Fragile	Overlapping	Uneven
Attractive	Complex	Defective	Imaginative	Repeated	Smooth
Bland	Colourful	Delicate	Innovative	Rough	Subtle
Bright	Contrasting	Elegant	Interesting	Shiny	Suitable
Bulky	Creative	Geometric	Organic	Simple	Symmetrical

# Manufacturing Processes

Scan the QR code to learn how to bend plastic with a hot wire heater/strip heater



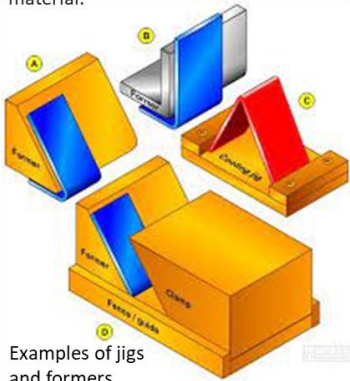
Hot wire heater/strip heater

To create bends with specific angles, a jig or former can be used.



## Line Bending....

Line bending is a process whereby a piece of plastic is bent along a narrowly defined "line". This process allows items such as display stands, leaflet dispensers, binders, POS display, garden furniture, binders, POP display products and acrylic tables to be made from flat material.



Examples of jigs and formers

1. EDGES SMOOTHED	2. MARKING OUT	3. PLACE PLASTIC ON SUPPORTS
<p>Hand files are used to smooth the edges. Wet and dry paper may also be used.</p>	<p>The position of the fold line is marked with a china-graph pencil. With this type of pencil the line can be removed easily later.</p>	<p>The plastic is placed across the rests, above the heating element.</p>
4. HEAT PLASTIC	5. USE FORMER/JIG	6. QUALITY CONTROL
<p>The strip heater is turned on and the plastic is turned over every 30 seconds - one minute. This stops the</p>	<p>Fit plastic 'jig'. The jig is made to the correct angle, in the example - 90 degrees. Plastic is held in position as it cools.</p>	<p>The quality of the formed plastic is checked.</p>

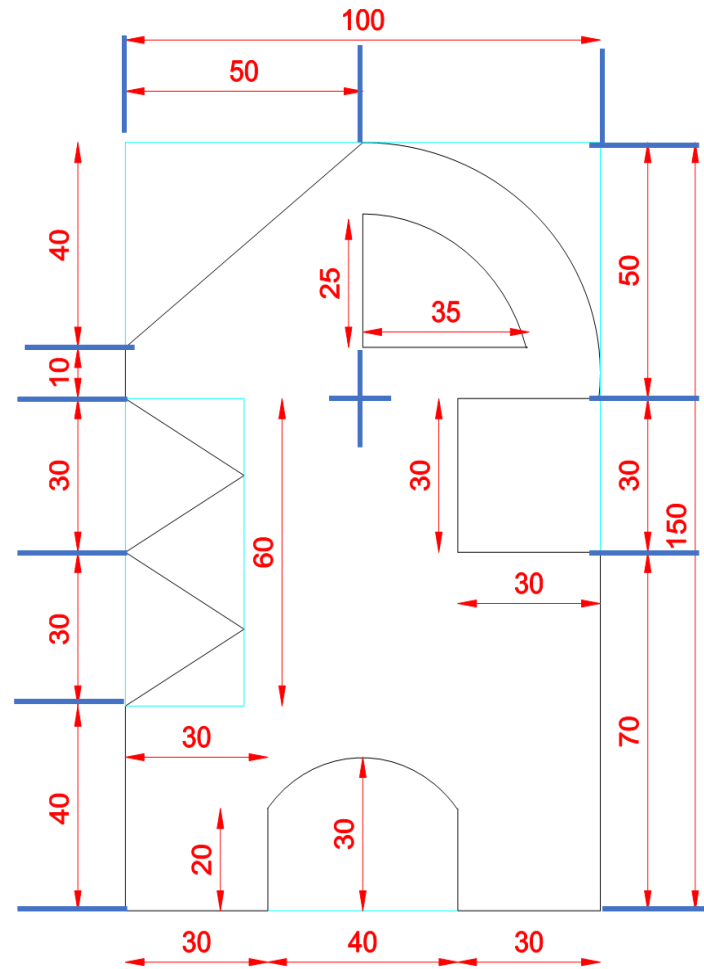
**Thermoplastic:** A type of plastic which becomes soft when heated and hard when cooled down. Acrylic, PVC and polystyrene are examples of thermoplastics.

Scan the QR code to learn how to finish plastic



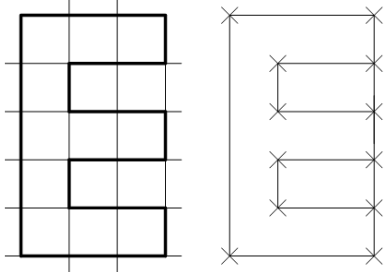
## Driving Test

Use this diagram to draw an identical copy on to the plywood



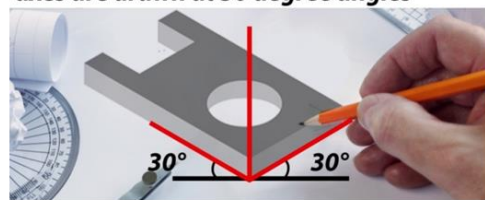
All dimensions in mm

## Drawing using construction points.....

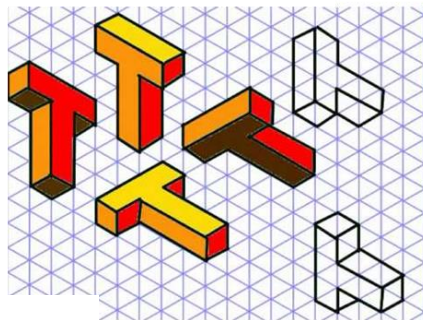


## Isometric Drawing.....

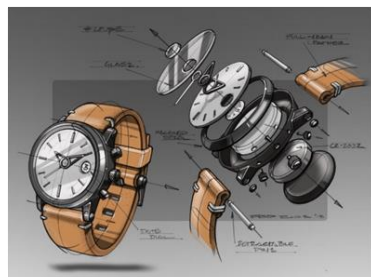
axes are drawn so that the two horizontal axes are drawn at 30 degree angles



Scan the QR code to learn how to draw simple shapes in isometric.....

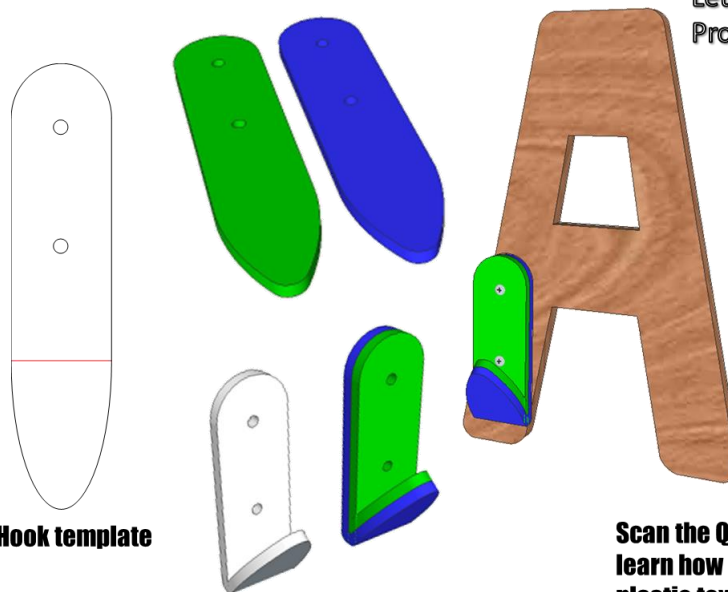


Scan the QR code to learn how to draw simple shapes in exploded isometric.....



Exploded watch drawing.....

## Letter Hook Project

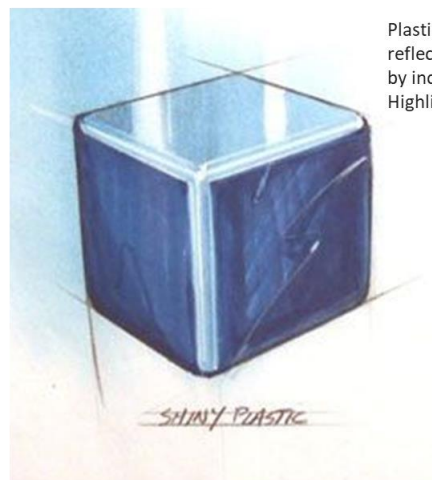


Hook template

Scan the QR code to learn how to shade a plastic texture.....



## Shading an object to look like plastic....



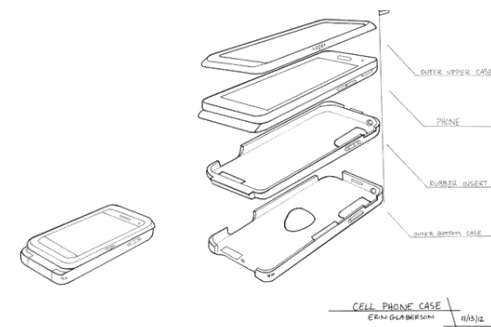
Plastics have a shiny surface that reflects the light. We show this by including 'highlights'. Highlights are white.



## Exploded Isometric.....

### Exploded views

Exploded drawings are extremely useful when explaining a design / idea. The drawing opposite is a design for an educational toy (for a young child) has been drawn with all the parts disassembled. It is important when drawing an exploded view that all the parts line up with each other when disassembled. The vertical guidelines clearly show how the various parts are in line with each other. If an exploded drawing is constructed properly anyone looking at the drawing should be able to see how the various parts go together to form the finished design/object.



Exploded phone drawing.....



# DRAMA HALF TERM 1: Mime and Melodrama

## Drama techniques

**Freeze frames/still images/tableaux** – a still ‘photograph’ showing a moment in time, actors remain frozen in a set position.

**Thought tracking** – speaking the characters’ thought aloud so the audience learn more about their emotions and reactions.

**Narration** – telling a story or commenting on the action

**Direct address** – speaking directly to the audience

**Role play** – acting in role as a character

**Mime** – using physical skills and gestures to act without speaking

**MELODRAMA STOCK CHARACTERS:** these are stereotypes<sup>1</sup> - two dimension because they are not developed as they don't change or as a result of their experiences.



**Hero:** masculine, strong, proud, courageous, wealthy, attractive, limited intelligence but essentially good, protects the heroine. (Chest out, stands upright, chin elevated.)



## Heroine:

Damsel in distress, pathetic, weak, beautiful, sweet, romantic, feminine. (Swings hips, walks on tiptoes, raised eyebrows)

**Villain:** sinister, cruel, duplicitous, wealthy, ugly, masculine, wants to capture the heroine. (Hides behind cloak, bent over, leads by his clutching hands.)

## Melodrama key facts

- Melodrama – means drama accompanied by music.
- It was prevalent in the Victorian era ( 19<sup>th</sup> century) in theatres and then became popular in silent movies where the acting style became mimed so the actors had to use exaggerated facial expressions and body language.
- The plot and characters focus on communicating emotional stories and are exaggerated – not real life.
- There are stock characters who appear in all melodrama scenes: Hero, heroine and Villain
- A pianist would play live inside the theatre or cinema to provide the dramatic music
- The live performances took place in Victorian proscenium arch theatres:



## Minor Melodrama Characters:

Villain's Side Kick – bumbling and stupid – used to create comic relief.

Old Man – often the heroine’s father, poor, pathetic and gives in easily to the Villain.

Old Woman – often the heroine’s mother, who is helpless and vulnerable.

# YEAR 7 GREEK MYTHS AND LEGENDS CREATIVE WRITING



## Ancient Greek Myths

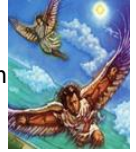
### Persephone



Forced to become the wife of Hades. Her mother Demeter was the goddess of the earth and pleaded with Zeus to have her daughter back. She won her daughter back but only for 6 months of the year (Spring) when she allows nature to flourish, and in Winter when Persephone went back to Hades, Demeter made nature die away (Winter).

### Daedalus & Icarus

Daedalus created giant wings so that together with his son Icarus, he could escape from the Minotaur's labyrinth. Icarus was too excited by the freedom of flight and flew too close to the sun which melted his wings. Consequently Icarus fell into the sea and drowned.



Prometheus is a Titan, who defies the gods by stealing fire and giving it to humanity, an act that enabled progress and civilization. As a punishment the immortal Prometheus was bound to a rock, where each day an eagle, the emblem of Zeus, was sent to feed on his liver, which would then grow back overnight to be eaten again the next day.

### Prometheus



### Theseus & the Minotaur



Theseus was the Prince of Athens and he put himself forward to fight King Minos's minotaur in his labyrinth. With the help of the King's daughter Ariadne he is successful. He is able to kill the minotaur and find his way out of the labyrinth.

### Narcissus and Echo



Echo falls in love with Narcissus, but Narcissus doesn't feel the same. Echo proceeds to pine over Narcissus until her body withers away and only her voice is left. Meanwhile, Narcissus stops for a drink at a small pond. When Narcissus sees his reflection in the water of the pool he falls hopelessly in love—with himself. He is so in love with his reflection that he dies by the side of the pond.

### Jason and Medea



In Euripides' tragedy, *Medea*, Jason divorces Medea so that he can marry Creon's daughter, GLAUCE and Creon orders Medea to leave Corinth. Medea sends her children with gifts for Glauce—a robe and a crown smeared with magic ointment that burn Glauce and Creon to death. Medea then kills the children as a final revenge on Jason.

### Pandora



Pandora was the first mortal woman in Greek mythology, she was moulded by Hephaestus and endowed with gifts by all the other Olympian gods. One of these gifts was a jar full of all the evils and diseases which exist in the world; once Pandora married Epimetheus, she lifted the lid of this jar and set them all free, thus marking the end of the Golden Age of Humanity.

### Perseus

Perseus killed the famed monster Medusa, the hideous gorgon with snakes for hair who turned anyone with the misfortune of looking into her eyes into stone. After he had slain Medusa, Perseus was said to have used her head as a weapon against his enemies, since it retained its power to turn to stone those who looked at it. Eventually, Perseus gave Medusa's head to Athena **to place on her shield**



#### 1. 1910 - 1710 BCE

**CREATION:** Eurynome lays a cosmic egg which contains all life. She gives birth to the titans.



#### 2. 1710 - 1672 BCE

**GOLDEN AGE:** Titan rule peacefully until Zeus separates Cronos & Gaia.



#### 3. 1672 - 1628 BCE

**SILVER AGE:** Olympians take rule & create humans who are wild & long lived.



#### 4. 1628 - 1460 BCE

**BRONZE AGE:** humans are warlike & unruly. Zeus kills them with a great flood.



#### 5. 1460 - 1101 BCE

**HEORIC AGE:** Heroes fight tyrants & monsters in an attempt to restore harmony.



#### 6. 1101 - 560 BCE

**IRON AGE:** The Gods abandon man. It is foretold this wicked race will destroy themselves.

Greek Mythology

300,000 BCE - 50,000 BCE

50,000 BCE - 15,000 BCE

15,000 BCE - 3000 BCE

3000 BCE - 0 CE

0 CE - 3000 CE

3000 BCE - 15,000 CE

## The Oral Tradition

Human beings have been telling stories since they first learned to speak. And even before we could speak, we managed to tell stories by drawing and painting pictures on the walls of the caves we lived in. These stories have been passed down, retold, translated, and adapted over time through the oral medium. They were passed down the generations, because everyone loves a good story! The communication is usually through speech or song and may include folktales, ballads, chants, prose or verses. In this way, it is possible for a society to transmit oral history, oral literature, oral law and other knowledge across generations without a writing system. Eventually they were written down.

Myth

**A story that has been created to teach people about something important and meaningful.** They were often used to explain the world and major events which, at the time, people were not able to understand such as earthquakes, floods and volcanic eruptions.

Legend

**A legend is usually based on a true event in the past. Legends usually have a real hero at the centre of the story and are often set in fantastic places.**







- The story will have been passed on from person to person, sometimes over a very long period of time.
- The fact that so many people have taken the trouble to keep the story alive usually tells you that it has some very important meaning for the culture or area in which the story was first told.

## Origins and purpose of Mythology

Myths had many purposes in Greek culture; many of which were to teach the Ancient Greeks about the world around them, including:

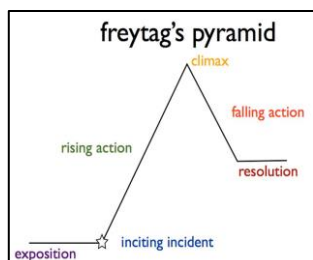
- Morality – many myths have a moral lesson.
- Good vs. Evil through the protagonist Vs Antagonist conflict.
- Teach about the Gods and Goddesses of Ancient Greece.
- To demonstrate superpowers and the supernatural.
- Attempt to understand the world and universe.

## Key Word Glossary

<b>Heroine</b>		A woman admired or idealized for her courage, outstanding achievements, or noble qualities
<b>Hero</b>		A person who is admired or idealized for courage, outstanding achievements, or noble qualities:
<b>Moral</b>		Concerned with the principles of right and wrong behaviour and the good or evil of human character
<b>Protagonist</b>		The leading character or one of the major characters in a drama, movie, novel, or other fictional text.
<b>Antagonist</b>		A person who actively opposes or is hostile to someone or something; an adversary
<b>Hubris</b>		Excessive pride or self confidence.

## Checklist for effective narratives

- An attention grabbing first sentence
- Clear description of setting
- Well described characters
- Information to establish tone/atmosphere
- Details to allow reader to understand what is happening (plot)
- Use of enigma/mystery – questions that need answering
- A hook – a way to draw the reader in to the story – could be through the use of one of the other features
- Clear sense of genre (genre means what type of story it will be e.g. mystery, horror, bildungsroman, thriller, romance etc.)
- Varied openings
- Varied sentence structure
- Upgraded or ambitious vocabulary
- A sense of pace
- A sense of action – that something is happening
- A moral purpose



## Language and Structural Features

<b>Language</b>	<b>Verb</b>	A word to describe an action or state
	<b>Dynamic verb</b>	A word that describes continuous movement
	<b>Adverb</b>	A word used to describe a verb or an adjective
	<b>Adjective</b>	A word used to describe a noun
	<b>Noun</b>	The name of a person, place or object
	<b>Simile</b>	a figure of speech involving the comparison of one thing with another thing of a different kind often using 'like' or 'as'
	<b>Metaphor</b>	Describing something as something else for effect
	<b>Personification</b>	Giving an object human qualities
	<b>Onomatopoeia</b>	Words used to create sounds. E.g. 'click'
	<b>Alliteration</b>	Words within the same sentence starting with the same letter or sound.
<b>Structure</b>	<b>Exposition</b>	The start of a text or extract
	<b>Rising Action</b>	The presentation of problems that creates suspense.
	<b>Climax</b>	The most intense, exciting part of a text.
	<b>Linear</b>	A text that is written in chronological order
	<b>Resolution</b>	The part of a text where problems are solved.

# The House with Chicken Legs

## By Sophie Anderson

### Plot Synopsis

All Marinka wants is a normal life, but this isn't easy when you live in a house with chicken legs and your grandmother is Baba Yaga, whose job is to guide the dead into the next world. And one day Marinka is expected to become the next Guardian of The Gate between this world and the next, although she just wishes that her house with chicken legs would stay somewhere long enough for her to make some friends.








But when Marinka befriends Nina, the spirit of a young girl who refuses to go through The Gate, she discovers a shocking secret that changes everything. And as her world is turned upside down, Marinka learns that the life of an ordinary girl isn't any simpler than the life of a Yaga. Can Marinka escape her destiny, or will she be able to find a new way to live between two worlds?



### Key Characters

Baba Yaga	Marinka's grandmother and Yaga (guardian of the Gate between the land of the living and the dead.)
Marinka	12 Year female protagonist and the next Yaga. Both of her parents dies when she was a baby and she lives with Baba Yaga.
Jack	Marinka's pet jackdaw and only companion.
Benjamin	A living boy that Marinka hopes will become her friend.
Chicken leg house	Baba Yaga and Marinka live in a house with legs, that has its own personality, loves and cares for the people who live in it.

### Key 'Golden' Themes

	<b>Fate and destiny</b> Marinka is destined to become the next Baba Yaga but longs to be able to choose her own path.
	<b>Supernatural</b> Baba Yaga is a supernatural being and her house with chicken legs magically moves around from place to place.
	<b>Conflict</b> Marinka has internal conflict about her future and destiny. She is inbetween the world of childhood and adulthood, and she has family conflict with her grandmother.
	<b>Life and death</b> Marinka longs to live amongst the living but her role as future Yaga means she spends all of her time with the dead as she guides them into the stars. Ultimately learning that even death can inspire us to embrace life and that death doesn't mean the end.
	<b>Loneliness</b> The only people Marinka meets are dead. Other than her grandmother, Baba Yaga, and her Jackdaw Jack, Marinka is utterly alone and desperate for friendship.
	<b>Love</b> Marinka is a young girl who is desperate for security. She feels loved by Baba Yaga but misses the love of her parents that she lost at a very young age. Marinka searches for love and security in friendship—the close friendship and love of her pet Jackdaw, briefly her friendship with and other characters she encounters on her journey to adulthood.
	<b>Betrayal</b> Marinka feels betrayed by her grandmother and is thrust into the adult world too soon. The difference between the act of betrayal and how that feels versus the feeling of being betrayed by someone you love.

## Key Terminology

Bildungsroman	A novel about growing up, or coming of age.
Symbolism	The use of images and symbols to represent other ideas
Fantasy	<b>Fantasy</b> is a <b>genre</b> of speculative <b>fiction</b> set in a fictional universe, often inspired by real-world myth and folklore.
Folklore	The traditional beliefs, customs, and stories of a community, passed through the generations by word of mouth.
Oral tradition	Or oral lore, is a form of communication where knowledge, art, ideas and cultural material is received, preserved, and transmitted by mouth.
Anti-heroine	A female central character in a story, movie, or drama who lacks conventional heroic attributes.
Allegory	A story, poem, or picture that can be interpreted to reveal a hidden meaning, typically a moral one.
Guardianship	The position of protecting or defending something.
Self-discovery	A series of events where a person attempts to determine how they feel, personally, about important issues.
Ritual	A religious or solemn ceremony consisting of a series of actions performed according to a prescribed order.
Didactic	A text that is intended to teach, particularly in having moral instruction as an ulterior motive.
Exposition	The start of a narrative, or the explanation of background information.
Protagonist	The main character of a story.

## Slavic Folklore: Baba Yaga



In **Slavic folklore**, Baba Yaga is a supernatural being (or a trio of sisters of the same name) who appears as a deformed or ferocious-looking old woman. In Slavic culture, Baba Yaga lived in a hut usually described as standing on chicken legs. Baba Yaga may help or hinder those that encounter her or seek her out. She may play a maternal role and has associations with forest wildlife.



According to **Propp's folktale morphology**, Baba Yaga commonly appears as a caregiver, as a villain, or may be altogether ambiguous. Her depictions vary greatly across tales, ranging from a child-eating monster, to helping a protagonist find his missing bride.

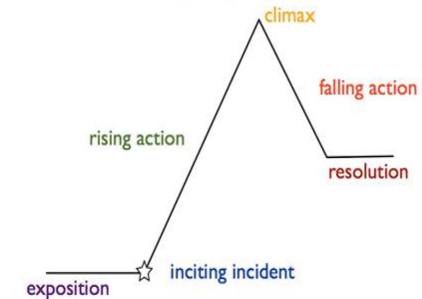


Johns identifies Baba Yaga as: "**one of the most memorable and distinctive figures in eastern European folklore**"

## Slavic countries



## freytag's pyramid



**Further reading:** Grimms Fairy-tales, The Girl Who Speaks Bear, I Shall Wear Midnight, The Girl of Ink and Stars, I Capture the Castle



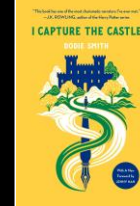
**Grimm's Fairy Tales:** A collection of original German fairy tales – responsible for the birth of... Rapunzel, Cinderella, Hansel and Gretel, Snow white and more!



**The Girl who Speaks Bear:** Found abandoned in a bear cave as a baby, Yanka has always wondered about where she is from. She tries to ignore the strange whispers and looks from the villagers, wishing she was as strong on the inside as she is on the outside...

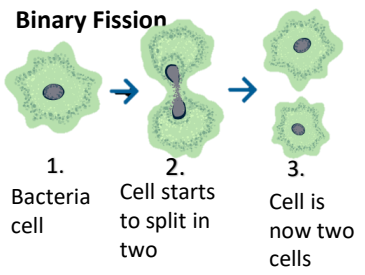


**The Girl of Ink and Stars:** Forbidden to leave her island, Isabella Riosse dreams of the faraway lands her father once mapped. When her closest friend disappears into the island's Forgotten Territories, she volunteers to guide the search.



**I capture the Castle:** 17-year-old Cassandra Mortmain keeps a journal, filling three notebooks with sharply funny yet poignant entries about her home, a ruined Suffolk castle. (J. K. Rowling recommends!)

## 1. Food Hygiene



### Before Cooking:

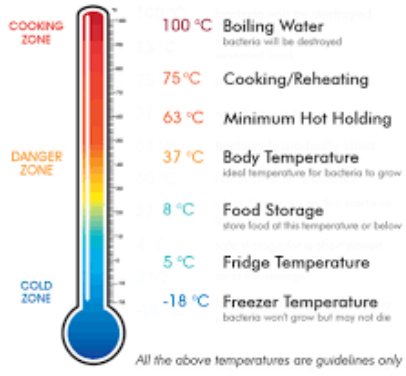
1. Put your apron on
2. Roll your sleeves up
3. If you have long hair tie it back with a bobble
4. Wash your hands with warm and soapy water
5. Dry your hands – moisture harbours bacteria

### When Cooking:

1. Keep your cooking station neat and tidy

### The Tidy Tick List:

- ✓ Clean and dry dishes
- ✓ No streaks and residue left on the glass bowls
- ✓ Clean dry work surfaces
- ✓ Clean sparkling hobs
- ✓ Clean cupboard doors and drawers
- ✓ Clean and dry sinks with no suds or residue food



## 2. Kitchen Safety

Kitchens can be dangerous places. To keep safe:

- Be aware of sharp equipment such as knives, peelers and graters- store them carefully and use the bridge hold and claw grip when chopping.
- Take care with hot equipment and food/ liquids- turn pan handles in, always use oven gloves and avoid splashes when stirring or draining foods.
- Wipe up spills quickly so you do not slip over
- Be aware of others in the kitchen
- Report any accident

### Claw Grip

Used to hold long and narrow ingredients. Knuckles are used to guide the blade while pressure is pushed downwards to hold the ingredient in place.



### Bridge Grip

Used to hold spherical and rounded ingredients. The knife can be placed safely between the arch of the hand.



Scan to view a quick clip about cleaning work surfaces.



Scan to view a quick clip on how to use an electronic scale.



Scan to view a quick clip about "Use By" and "Best Before".

## CLEANING The 4C's

- Keep yourself and your hands clean
- Wash your hands before handling food, every 30 minutes and always after going to the toilet
- Keep work surfaces, equipment & utensils clean and disinfected
- Don't forget to clean dishcloths & cleaning equipment



### Cross-contamination

Transferring bacteria from raw to ready to eat foods. Often through not washing hands or equipment after handling raw foods.

## COOKING

- Cook thoroughly
- Cook raw foods to 75 °C at the core, check it with a probe thermometer
- Reheat foods to 75 °C
- Never reheat food more than once



### Hygiene

Conditions and practices that prevent disease and illness through the act of cleanliness.

## CHILLING

- Cool cooked food products as quickly as possible to 5 °C
- Core temperature of cooked food must reach <10 °C within 150 mins of end of cooking
- Food must be protected from contamination while cooling



### Use By

The term used on products that must be eaten before or by the date stated. This term is used on high risk foods, where consumption past the stated date would cause illness.

### Best Before

The term used on products that degrade slowly and can be eaten past the date stated but may not taste or look as good.

## CROSS-CONTAMINATION

- Prevent cross-contamination
- Always separate raw-food from ready-to-eat food
- Use separate equipment, chopping boards and utensils
- Wash hands thoroughly after handling raw food before ready-to-eat food



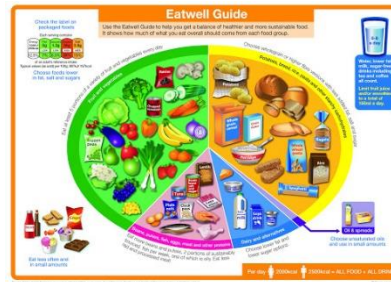
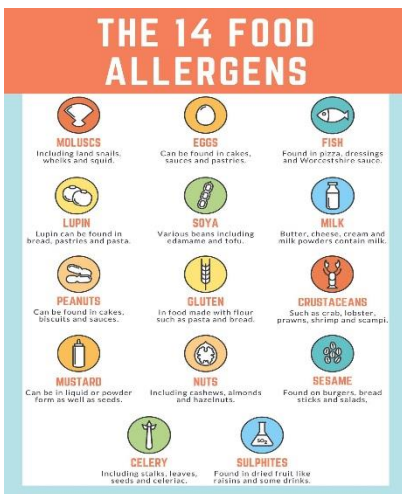
## 3. Weighing and Measuring

Weighing and Measuring For good results in most recipes, accurate weighing and measuring is essential. When you are baking with flour, sugar and liquids, you must measure accurately or your cooking will be spoiled. If you weigh out too much sugar or too little raising agent, your cakes would not rise or you could spoil the taste and/or texture. Food can be weighed in Grams (g) and there are 1000g in a Kilogram (kg). Liquid is measured in Millilitres (ml) or litres



## 4. Allergies Vs Intolerance

A true food allergy causes an immune system reaction that affects numerous organs in the body. It can cause a range of symptoms. In some cases, an allergic food reaction can be severe or life-threatening. In contrast, food intolerance symptoms are generally less serious and often limited to digestive problems.



### Fruit and Vegetables

**Nutrients-** Vitamins and minerals

**Examples-** Strawberries, apples, carrots and cauliflower

**Potatoes, bread, rice, pasta and other starchy carbohydrates** **Nutrients-** Carbohydrates

**Examples-** Cereals, wholemeal pasta, brown rice

**Dairy and dairy alternatives** **Nutrients-** Calcium, Protein **Examples-** Milk, cheese, yoghurt, almond milk

**Beans, pulses, fish, eggs, meat and other proteins** **Nutrients-** Protein **Examples-** Oily fish, chick peas, soya, eggs

**Oils and spreads**

**Nutrients-** Fats **Examples-** Olive oil, sunflower spread

## 5. Healthy Eating

What are the 8 government guidelines for healthy eating?

- 8 TIPS FOR EATING WELL.
- Base your meals on starchy foods.
- Eat lots of fruit and vegetables.
- Eat more fish.
- Cut down on saturated fat and sugar.
- Try to eat less salt- no more than 6g a day.
- Get active and try to be a healthy weight.
- Drink plenty of water.



Scan to view a quick clip about how carbohydrates help athletes when training.



Scan to view a quick clip about how protein helps athletes when training.



Scan to view a clip about how fats work.



Scan to view a clip about how fats help athletes.

## 6. Electrical Equipment

### Oven/Grill



**Hob** The hob is used for heating sauce pans, frying pans, griddle pans etc.

**Dials** The dials allow the user to change the settings of the hob, oven and grill.

**Grill** The grill uses the radiation method of cooking with food placed on a wire rack below. Heat can be increased or decreased using the dials.

**Oven** The oven uses the convection method of cooking. Food can be placed on different racks within the oven. The dials control the temperature.

### Using the Oven Safely

- Preheat the oven to the correct temperature. Use oven gloves to put food in and take food out.
- Set the timer to ensure food does not burn or under cook.
- Remove food using oven gloves.



### Salamander

A salamander is a type of grill. Electric or gas heating elements that look like pipes produce a very high heat which cooks the food placed below it. It is used in catering due to how quick it can cook food. Specific cooking techniques include; grilling, toasting, browning of gratin dishes, melting and caramelising.

### Shelf

Food is placed on a baking sheet on this shelf. Handles on the shelf make it safer and easier to place food under the grill.

### Hand Mixer

This equipment is used to mix dry and wet ingredients together. The mixer can be set to higher or lower speeds.



### Beaters

### Using the Electric Whisk Safely

- When inserting the beaters or removing them, make sure the mixer is not plugged into the mains.
- Only switch the mixer on and off when the beaters are submerged in the mixture.
- Keep hands and utensils and the electrical wire way from the beaters when in use.
- When cleaning the device, remove and wash the beaters in hot water. Wipe the body of the mixer with a damp cloth only.

### Microwave

#### Latch

Ensures the door is securely closed so that no radio waves escape.



#### Turn table

Turns the food around to ensure radiation waves are evenly distributed.

#### Dials





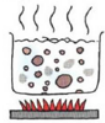
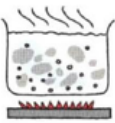

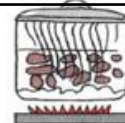



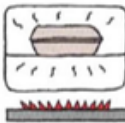
Microwaves use radiation method of cooking. Particle's in the food are made to vibrate very fast which causes heat. Metal must never be placed in a microwave.

### Food Processor



A kitchen appliance that can cut, blend, grate and mince ingredients. A food processor is different to a blender because you can change the blades to complete different tasks. You can also fit more food into a food processor. Little or no water is required to ensure the food particles move around the blade.

## 7. Cooking Methods

Braising		Deep Frying		Sautéing		Flambéing		Boiling		Simmering	
											
Wet	Slow	Dry	Fast	Dry	Fast	Dry	Fast	Wet	Fast	Wet	Fast
Pieces of food are first browned in a little fat, then cooked with some liquid in a closed pan.		Frying pieces of food in a deep pot or fryer with plenty of hot oil or fat.		Cooking small or thin pieces of food in very hot oil or fat. The frying pan is shaken constantly to stop the food from burning.		After frying, alcohol is added to the food in the frying pan and set on fire. This adds another flavour to the food.		Food is cooked in deep boiling liquid (water, stock, wine etc) in an open or covered saucepan.		Like boiling, but the liquid is kept just below boiling point in an uncovered pot.	
Steaming		Stewing		Pan-frying		Broiling/Grilling		Roasting		Baking	
											
Wet	Fast	Wet	Slow	Dry	Fast	Dry	Fast	Dry	Slow	Dry	Slow
Food is placed in a container and cooked in the steam from boiling water in a covered pan or steamer.		Cooking food in its own juices with a little additional liquid, in a covered pan at simmering point.		Frying food in a little oil or butter using a frying pan over a moderate heat.		Cooking food like steak or fish, over or under open heat, e.g. under the oven grill or on a barbeque or hot plate.		Cooking food like meat or poultry with some fat in a hot oven (between 200-240 degrees centigrade)		Cooking food like cakes, pies, bread etc. in a closed oven at a temperature of between 120-240 degrees centigrade.	

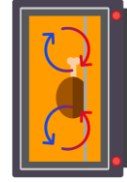
### Wet or Dry Cooking Methods

Wet or dry refers to the texture of the cooked food so baking and frying are dry cooking methods and boiling and stewing are wet methods.

### Fast or Slow Cooking Methods

Fast and slow methods refer to how long it takes. Generally less than an hour is a fast cooking method and over an hour is a slow cooking method.

### Conduction



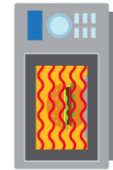
- This only happens in liquids and gases.
- The molecules of liquid or gas nearest the hot base of the pan gain heat energy, and start to rise in the pan.
- As the liquid rises to the top of the pan, it will begin to cool again, so starts to drop back to the bottom, where it will be heated up again.
- There is a convection current moving in the pan. Convection currents also happen in ovens.
- Hot air rises and cooler air falls.
- A convection oven uses a fan to move the heat around, so every part of the oven is approximately the same temperature.

### Convection



- This happens when heat is directly touching a piece of equipment, or a piece of food.
- If you put a metal pan on an electric or gas hob, the heat from the hob will heat up the base of the pan.
- There are good conductors of heat, and bad conductors of heat. Metal conducts heat very well, which is why saucepans and frying pans, along with baking trays and cake tins, are made of metal.
- Water is also a good conductor of heat, which is why boiling foods works well and cooks foods quickly. Wood, plastic, cloth and glass are poor conductors of heat.

### Radiation



- This occurs through space or air. Radiation transfers energy through space by invisible electro-magnetic waves. The waves are either infra-red or microwaves. Infra-red heat waves are absorbed by the food when they reach it, and they create heat inside the food which cooks it.
- This happens when you put food under a grill. Cooking foods in microwaves also uses radiation. The microwaves are created by a magnetron inside the oven. The microwaves are absorbed by the food, making the molecules vibrate and heat up, which then cooks the food. Microwaves pass straight through glass, china and plastic, and do not heat them up. Metal will reflect the microwaves and damage the magnetron so do not put metal object into a microwave oven.



# Year 7 Half-Term 1 French Knowledge Organiser

## Unit 1: La rentrée

### 1 – Bonjour tout le monde!

Bonjour.	<i>Hello.</i>
Salut!	<i>Hi!</i>
Comment t'appelles-tu?	<i>What is your name?</i>
Je m'appelle ...	<i>My name is ...</i>
Comment ça va? (Ça va?)	<i>How are you? (Are you okay?)</i>
Ça va (très) bien.	<i>I'm (very) well.</i>
Pas mal, merci.	<i>Not bad, thanks.</i>
Ça ne va pas!	<i>Not good!</i>
Et toi?	<i>How about you?</i>
Au revoir.	<i>Goodbye.</i>
À plus!	<i>See you later!</i>

Bonjour!



### 2 - Les nombres

un	1
deux	2
trois	3
quatre	4
cinq	5
six	6
sept	7
huit	8
neuf	9
dix	10
onze	11
douze	12
treize	13
quatorze	14
quinze	15
seize	16
dix-sept	17
dix-huit	18
dix-neuf	19
vingt	20
vingt-et-un	21
vingt-deux	21
trente	30
trente-et-un	31

### 3 - As-tu des frères et soeurs?

Oui. J'ai ...	<i>Yes, I have ...</i>
un frère.	<i>one brother.</i>
une sœur.	<i>one sister.</i>
un demi-frère.	<i>one half-/step-brother.</i>
(deux) frères.	<i>(two) brothers.</i>
(trois) demi-sœurs.	<i>(three) half-/step-sisters.</i>
Je n'ai pas de frères et soeurs	<i>I don't have any brothers or sisters</i>
Je suis fils/fille unique.	<i>I am an only child.</i>
Quel âge as-tu?	<i>How old are you?</i>
J'ai (onze) ans.	<i>I am (11) years old.</i>



### 5 - Tu es comment?

Je suis ...	<i>I am ...</i>
Je ne suis pas ...	<i>I am not ...</i>
Il est/Elle est ...	<i>He is/She is ...</i>
amusant(e)	<i>funny</i>
arrogant(e)	<i>arrogant</i>
bavard(e)	<i>talkative/chatty</i>
fort(e)	<i>strong</i>
grand(e)	<i>big/tall</i>
intelligent(e)	<i>intelligent</i>
méchant(e)	<i>nasty/bad</i>
patient(e)	<i>patient</i>
petit(e)	<i>small/short</i>
timide	<i>shy</i>

### Key verbs!

<b>avoir</b>	<i>to have</i>
j'ai	<i>I have</i>
il a / elle a	<i>he has / she has</i>
<b>être</b>	<i>to be</i>
je suis	<i>I am</i>
il est / elle est	<i>he is / she is</i>

### 4 - Décris-moi ta famille

la famille	<i>family</i>
la famille d'accueil	<i>foster family</i>
le (beau)-père	<i>(step-)father</i>
le grand-père	<i>grandfather</i>
le (demi)-frère	<i>(half/step-)brother</i>
le fils / la fille	<i>son / daughter</i>
la (belle)-mère	<i>step-mother</i>
la grand-mère	<i>grandmother</i>
la (demi)-sœur	<i>(half/step-)sister</i>
les parents	<i>parents</i>



### Phonics!


Nasel sounds	– on, en <i>bonjour, comment</i>
silent consonants	- p, s, t, x <i>deux, as</i>
un/une	<i>un frère / une soeur</i>
silent final e	<i>amusant vs. amusante</i>
j/ge	<i>janvier/j'aime</i>

### Classroom instructions!

asseyez-vous	<i>sit down</i>
écoutez	<i>listen</i>
levez la main	<i>raise your hand</i>
levez-vous	<i>stand up</i>
rangez vos affaires	<i>tidy your things</i>
regardez	<i>look</i>
répétez	<i>repeat</i>

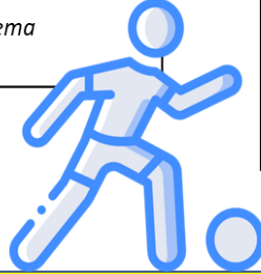
**6 - C'est quand, ton anniversaire? When is your birthday?**

Mon anniversaire, c'est ...	My birthday is on ...
le (15 mars/24 juin)	the (15th March/ 24th June)
le premier	the first
janvier	January
février	February
mars	March
avril	April
mai	May
juin	June
juillet	July
août	August
septembre	September
octobre	October
novembre	November
décembre	December





**7 - Tu aimes ...? Do you like ...?**

J'aime ...	I like ...
Je n'aime pas ...	I don't like ...
le sport	sport
le foot	football
le vélo	cycling
le collège	school
le cinéma	cinema
le poisson	fish



la danse	dance
la musique	music
les pizzas	pizzas
les serpents	snakes
les glaces	ice creams
les jeux vidéo	video games
les vacances	holidays
les BD	comics
les mangas	manga
les araignées	spiders

## Tu es comment?

## As-tu des frères ou des sœurs?

Je suis (I am)	patient(e)		un frère	Joseph		Sophie		patient(e)
Il est (He is)	arrogant (e)	J'ai	un demi-frère	Amy	et	Elliot	Il est... (he is...)	arrogant (e)
Elle est (she is)	intelligent (e)		deux sœurs	James		Lucy	Elle est... (She is...)	intelligent (e)
	de taille moyenne							de taille moyenne

## Tu aimes...?

J'aime	le foot			les pizzas
	les mangas	mais	je n'aime pas	la musique
	la danse			le vélo

# Year 7 Half-Term 2 French Knowledge Organiser

## Unit 2: En classe

### Quelle heure est-il?

### What time is it?

Il est ...	It is...
cinq heures	five o'clock
cinq heures dix/vingt	ten/twenty past five
cinq heures et quart	quarter past five
cinq heures et demie	half past five
cinq heures moins dix/vingt	ten/twenty to five
cinq heures moins le quart	quarter to five
midi/minuit	midday/midnight



### Unité 2 Qu'est-ce que tu portes?

Qu'est-ce que tu portes?	What do you wear?
je porte ...	I wear ...
on porte ...	we wear ...
l'uniforme scolaire	school uniform
un pantalon	trousers
un polo	polo shirt
un pull	jumper
un sweat	sweatshirt
un tee-shirt	tee-shirt
une chemise	shirt
une cravate	tie
une jupe	skirt
une veste	jacket/blazer
des chaussettes (f)	socks
des chaussures (f)	shoes
des baskets (f)	trainers
chic	smart/stylish
confortable	comfy/comfortable
démodé(e)	old-fashioned
pratique	practical

### Unité 1 Qu'est-ce que tu penses de tes matières?

Unité 1 Qu'est-ce que tu penses de tes matières?	What do you think of your subjects?
le français	French
le théâtre	drama
la géographie	geography
la musique	music
la technologie	technology
l'anglais	English
l'EPS	P.E.
l'histoire	history
l'informatique	I.C.T.
les arts plastiques	art
les maths	maths
les sciences	science
aimer	to like
détester	to hate
adorer	to love

### What do you think of your subjects?

### Tu aimes ... ?

j'adore ...	I love ...
j'aime ...	I like ...
j'aime assez ...	I quite like ...
je n'aime pas ...	I don't like ...
je déteste ...	I hate ...
C'est ...	It's ...
facile.	easy.
difficile.	difficult/hard.
intéressant.	interesting.
ennuyeux.	boring.
amusant.	fun/funny.
créatif.	creative.
nul.	rubbish/awful.
le/la prof est sympa	the teacher is kind
le/la prof est trop sévère	the teacher is too strict
j'ai trop de devoirs	I have too much homework

### Do you like ...?

I love ...
I like ...
I quite like ...
I don't like ...
I hate ...
It's ...
easy.
difficult/hard.
interesting.
boring.
fun/funny.
creative.
rubbish/awful.
the teacher is kind
the teacher is too strict
I have too much homework

car  
parce que because



### Voici ma salle de classe!

Voici ma salle de classe!	What is on the photo?
Qu'est-ce qu'il y a sur la photo?	On the picture, there is / are...
Sur la photo, il y a ...	a (black/white) board
un tableau (noir/blanc)	a poster
un poster	a teacher
un/une prof (professeur)	a screen
un écran	a computer
un ordinateur	a door
une porte	a window
une fenêtre	a tablet
une tablette	some tables
des tables	some pupils
des chaises	some pupils
des élèves	at the back/in the middle
au fond/au centre	on the left/on the right
à gauche/à droite	



C'est ...
sympa.
génial.
moderne.
triste.
nul.
démodé.

It's ...
nice.
great.
modern.
sad.
rubbish.
old-fashioned.

# Year 7 Half-Term 2 French Knowledge Organiser

## Unit 2: En classe

### Unité 3 Ta journée scolaire est comment?

Ta journée scolaire est comment?	<i>What is your school day like?</i>
je quitte la maison	<i>I leave the house</i>
j'arrive au collège	<i>I arrive at school</i>
je retrouve mes copains	<i>I meet (up with) my friends</i>
on commence les cours	<i>we start lessons</i>
je mange à la cantine	<i>I eat in the canteen</i>
je chante dans la chorale	<i>I sing in the choir</i>
je joue dehors	<i>I play outside</i>
on recommence les cours	<i>we start lessons again</i>
je rentre à la maison	<i>I go home</i>
à (quatre) heures	<i>at (four) o'clock</i>

### Unité 4 C'est comment, un collègue français?

Quel est ton jour préféré?	<i>What's your favourite day?</i>
Mon jour préféré, c'est le ...	<i>My favourite day is ...</i>
J'ai deux heures d'anglais.	<i>I have two hours of English.</i>
C'est ma matière préférée.	<i>It's my favourite subject.</i>
Je suis fort(e) en maths.	<i>I am good at maths.</i>
l'emploi du temps	<i>timetable</i>
la rentrée	<i>start of new school year</i>
les vacances	<i>holidays</i>



### Les jours de la semaine

lundi	<i>Monday</i>
mardi	<i>Tuesday</i>
mercredi	<i>Wednesday</i>
jeudi	<i>Thursday</i>
vendredi	<i>Friday</i>
samedi	<i>Saturday</i>
dimanche	<i>Sunday</i>

### Unité 5 Un collège super cool

Le collège est ...	<i>The school is ...</i>
grand / petit.	<i>big / small.</i>
de taille moyenne.	<i>medium-sized.</i>
Il y a 500 élèves.	<i>There are 500 pupils.</i>
On étudie ...	<i>We study ...</i>
le japonais.	<i>Japanese.</i>
la cuisine.	<i>cookery.</i>
les arts martiaux.	<i>martial arts.</i>
Il y a ...	<i>There is ... / There are ...</i>
un cinéma en 3D.	<i>a 3D cinema.</i>
une piscine.	<i>a swimming pool.</i>
des courts de tennis.	<i>tennis courts.</i>
Il n'y a pas de ...	<i>There isn't ... / aren't ...</i>
harcèlement.	<i>bullying.</i>
toilettes sales.	<i>dirty toilets.</i>
profs trop sévères.	<i>too strict teachers.</i>
on porte ...	<i>we wear ...</i>
Tu es d'accord?	<i>Do you agree?</i>
Je (ne) suis (pas) d'accord!	<i>I (dis)agree!</i>



Key verbs!	
avoir	<i>to have</i>
j'ai	<i>I have</i>
tu as	<i>you have</i>
il a / elle a	<i>he has / she has</i>
être	<i>to be</i>
je suis	<i>I am</i>
tu es	<i>you are</i>
il est / elle est	<i>he is / she is</i>
aimer	<i>to like</i>
j'aime	<i>I like</i>
tu aimes	<i>you like</i>
il aime / elle aime	<i>he likes / she likes</i>
détester	<i>to hate</i>
je déteste	<i>I hate</i>
tu détestes	<i>you hate</i>
il déteste / elle déteste	<i>he hates / she hates</i>

### Key phrases:

il y a	<i>there is</i>
c'est	<i>it is</i>
je suis	<i>I am</i>
je ne suis pas	<i>I am not</i>

### Phonics!

oi (wah)	<i>devoirs</i>
silent h	<i>histoire</i>
th (t)	<i>maths</i>
silent final e	<i>je porte / rouge</i>
silent consonants	<i>anglais / amusant / ennuyeux / grand</i>

# Year 7 Half-Term 2 French Sentence builders

## Unit 2: En classe

J'aime / J'adore / Je n'aime pas (I like / I love / I don't like)	bloguer / retrouver mes amis / chanter (blogging / meeting my friends / singing)	car c'est (because it is)	super / génial / barbant (great / brilliant / boring)		
Dans ma salle de classe (In my classroom)	Il y a (there is / are)  Il n'y a pas de (there isn't / aren't)	Un écran / une fenêtre / des chaises (a screen / a window / chairs)	au fond / à gauche (at the back / on the left)	C'est (it is)	sympa / démodé (nice / old-fashioned)
Moi perso (Personally)  Personnellement (Personally)	j'adore (I love)  j'aime (I like)	la géographie (geography)  l'anglais (English)	mais (but)  parce que c'est (because it's)	je n'aime pas (I don't like)  vraiment (really)	l'histoire (history)  facile (easy)
Dans mon collège (In my school)  En France (In France)	on porte (we wear)	une cravate noire (a black tie)  des baskets (trainers)	je pense que c'est (I think it's)	démodé (old-fashioned)  pratique (practical)	
D'abord (First of all)  Puis (Then)	je quitte la maison (I leave the house)  on commence les cours (we start lessons)	à huit heures (at 8'clock)  à huit heures vingt-cinq (at 8.25)			
Mon jour préféré (my favourite day)  Le français, (French)  Je suis fort(e) (I am good/strong)	c'est le mardi (is Tuesday)  c'est ma matière préférée (is my favourite subject)  en maths (at/in maths)				
Le collège est (The school is)  On étudie (We study)  Il y a (There is)  Il n'y a pas de (There isn't)  On porte (We wear)	grand (big)  le japonais (Japanese)  une piscine (a swimming pool)  harcèlement (bullying)  un jean et un tee-shirt (jeans and a t-shirt)	et (and)	c'est cool (it's cool)		

# INTRODUCTION TO GEOGRAPHY

Geography is... the study of the earth



We split Geography up into 3 categories:

	Definition	Examples
Human Geography	The study of how and where people live	Tourism Population How rich/poor we are
Physical Geography	The study of the earth's natural features	Rivers Earthquakes Weather
Environmental Geography	The study of how humans affect their environment	Waste Pollution Global warming

- The 7 continents of the world:
1. North America
  2. South America
  3. Europe
  4. Africa
  5. Asia
  6. Oceania/Australasia
  7. Antarctica

- Major Oceans:
- Pacific Ocean
  - Atlantic Ocean
  - Indian Ocean



Capital of England : London  
 Capital of Wales: Cardiff  
 Capital of Scotland: Edinburgh

	England	Scotland	Wales	Northern Ireland	Republic of Ireland
British Isles	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
United Kingdom	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Great Britain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		



Highest mountain in:  
 England : Scafell Pike: 978m  
 Wales: Snowdon: 1,085m  
 Scotland: Ben Nevis: 1,345m

In Geography we like to ask questions about what we are studying:

- WHO** Lived there?
- WHAT** Has happened?
- WHEN** did this happen?
- WHERE** is this house?
- WHY** is half of it missing?
- HOW** is it still standing?



## How do waves form?

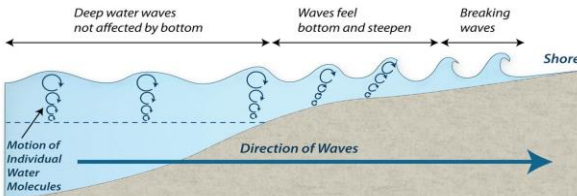
Waves are created by wind blowing over the surface of the sea. As the wind blows over the sea, friction is created - producing a swell in the water.

### Size of waves

Affected by: - Fetch how far the wave has travelled  
- Strength of the wind.  
- How long the wind has been blowing for.

### Why do waves break?

- 1 Waves start out at sea.
- 2 As waves approaches the shore, friction slows the base.
- 3 This causes the orbit to become elliptical.
- 4 Until the top of the wave breaks over.



## Types of Erosion

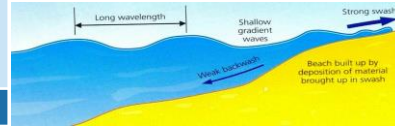
The break down and transport of rocks – smooth, round and sorted.

Attrition	Rocks that bash together to become smooth/smaller.
Solution	A chemical reaction that dissolves rocks.
Abrasion	Rocks hurled at the base of a cliff to break pieces apart or scraped against the cliff face.
Hydraulic Action	Water enters cracks in the cliff, air compresses, causing the crack to expand.

## Types of Waves

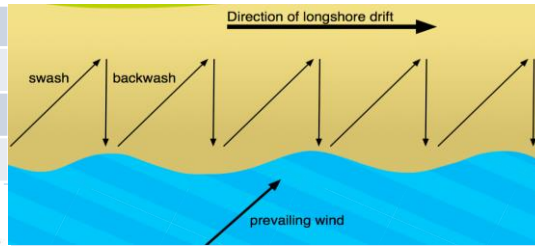
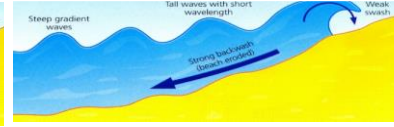
### Constructive Waves

This wave has a **swash that is stronger than the backwash**. This therefore builds up the coast.



### Destructive Waves

This wave has a **backwash that is stronger than the swash**. This therefore erodes the coast.



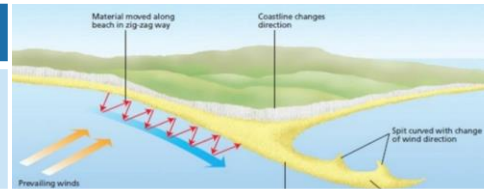
### What is Transportation?

A natural process by which eroded material is carried/transported. Material is carried along the coastline via a process called **Longshore Drift**.

# Year 7 - Coasts

### What is Deposition?

When the sea loses energy, it drops the sand, rock particles and pebbles it has been carrying. This is called deposition. Heaviest material is deposited first.



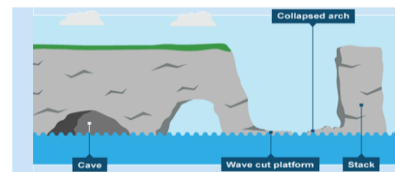
### Formation of Coastal Spits – Depositional landforms

- 1) Swash moves up the beach at the angle of the prevailing wind.
- 2) Backwash moves down the beach at 90° to coastline, due to gravity.
- 3) Zigzag movement (Longshore Drift) transports material along beach.
- 4) Coast changes direction, but transportation continues out to sea and Deposition occurs, creating a spit.
- 5) Change in prevailing wind direction (or a flowing river) forms a hook.
- 6) Sheltered area behind spit encourages deposition, salt marsh forms.

Example:  
Spurn Head, Holderness Coast.

### Erosional landforms

### Formation of Coastal Stacks



Example: Old Harry Rocks, Dorset

- 1) Hydraulic action widens cracks in the cliff face over time.
- 2) Abrasion forms a wave cut notch between high tide and low tide.
- 3) Further abrasion widens the wave cut notch to form a cave.
- 4) Caves from both sides of the headland break through to form an arch.
- 5) Weather above/erosion below – arch collapses leaving stack.
- 6) Further weathering and erosion eaves a stump.

## Coastal Defences

### Hard Engineering Defences

Groynes	Wood barriers prevent longshore drift, so the beach can build up.	<ul style="list-style-type: none"> <li>✓ Beach still accessible.</li> <li>✗ No deposition further down coast = erodes faster.</li> </ul>
Sea Walls	Concrete walls break up the energy of the wave. Has a lip to stop waves going over.	<ul style="list-style-type: none"> <li>✓ Long life span</li> <li>✓ Protects from flooding</li> <li>✗ Curved shape encourages erosion of beach deposits.</li> </ul>
Gabions	Cages of rocks/boulders absorb the waves energy, protecting the cliff behind.	<ul style="list-style-type: none"> <li>✓ Cheap</li> <li>✓ Local material can be used to look less strange.</li> <li>✗ Will need replacing.</li> </ul>
Rock Armour	Piles of large rocks based at the bottom of the cliff to absorb the waves energy	<ul style="list-style-type: none"> <li>✓ Cheap</li> <li>✓ Can be used to fish off</li> <li>✗ Can be expensive to transport</li> </ul>

### Soft Engineering Defences

Beach Nourishment	Beaches built up with sand, so waves have to travel further before eroding cliffs.	<ul style="list-style-type: none"> <li>✓ Cheap</li> <li>✓ Beach for tourists.</li> <li>✗ Storms = need replacing.</li> <li>✗ Offshore dredging damages seabed.</li> </ul>
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### Case Study: Holderness Coastline

#### Location and Background

Located on the North East coast of England. It has one of the highest rates of coastal erosion in Europe. The coast is made up of mainly Boulder clay, with a chalk headland to the north.

#### Geomorphic Processes

-1.8m of land is lost to the sea every year.

-In Great Cowden the rate of erosion is 10m per year due to management strategies further north in Mableton (groynes)

-Longshore drift travels from south from Flamborough Head to Spurn Head where it forms a spit.

#### Management - Over 11km of the coastline is managed

Mableton – 450m of coastline protected costing £2million.

- 2 rock groynes to create beach and protect town.

- rock armour along base of cliff to absorb wave power

Hornsea – Seawall and groynes

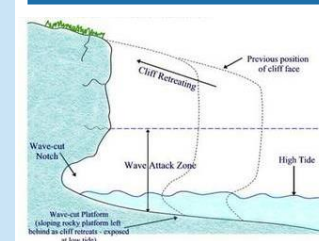
Withernsea – Sea wall, groynes and rock armour.

### Formation of Bays and Headlands



- 1) Waves attack the coastline.
- 2) Softer rock is eroded by the sea quicker forming a bay, calm area causes deposition.
- 3) More resistant rock is left jutting out into the sea. This is a headland and is now more vulnerable to erosion.

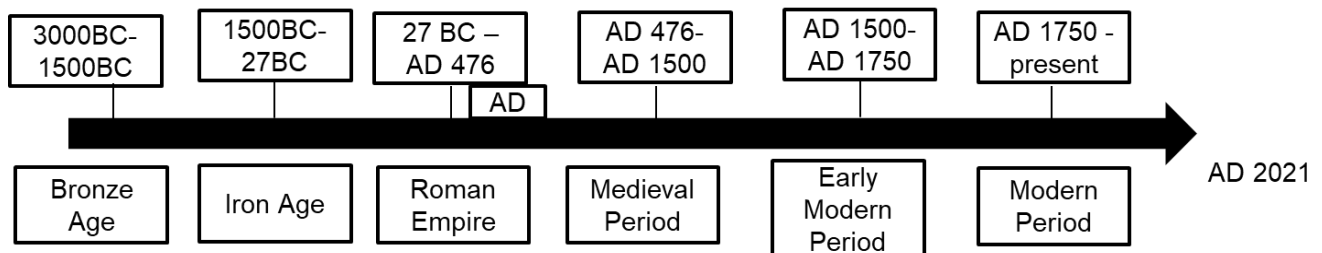
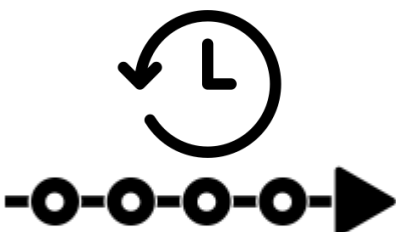
### Formation of Wave cut notches and platforms



- 1) Waves attack the coastline.
- 2) Waves cut a notch into the bottom of the cliff face
- 3) The rock above collapses.
- 4) This process repeats, leaving a wave cut platform

**Year 7: Unit 1 – What is History?**

<b>What is History?</b>	<b>History</b>	History is the study of people, places and events that have happened in the past. In History you can learn about the local community, Britain, Europe and the rest of the world.
	<b>Local History</b>	The study and understanding of the area that you live in over time.
<b>Key Skills</b>	<b>Interpretation</b>	Someone’s view of an event. These points of view can be different depending upon your experiences or situation. Historians form interpretations using sources.
	<b>Source</b>	Sources are pieces of information that help historians to learn about the past. For example, letters, diaries, photographs. They were made at the time.
	<b>Chronology</b>	This is the arrangement of dates or events in time order.
<b>Time</b>	<b>BC</b>	BC means ‘Before Christ’ and refers to the years before 1AD. Also known as BCE which stands for ‘Before Common Era’.
	<b>AD</b>	AD means ‘Anno Domini’ which is Latin for ‘in the year of our Lord’. This refers to the years after 1AD.
	<b>Decade</b>	A decade is a period of ten years in time.
	<b>Century</b>	A century is a period of one-hundred years in time.
	<b>Millennium</b>	A period of a thousand years.
	<b>Period</b>	A label used by historians to identify time between two dates. E.g. Early Modern 1500-1750
	<b>Medieval</b>	The Medieval period is also known as the ‘Middle Ages’. This was a period between the 5 <sup>th</sup> century to the 15 <sup>th</sup> century.
	<b>Early Modern Period</b>	This is usually seen as the time from the mid-15 <sup>th</sup> century, until the <b>beginning of</b> the Industrial Revolution in the late 18 <sup>th</sup> century.
	<b>Modern period</b>	This is usually considered to be 1900- present day
	<b>Industrial period</b>	This is usually considered to the 18 <sup>th</sup> & 19 <sup>th</sup> C (1700-1900). A lot of change and growth happened in towns and cities in this period.
<b>Sources</b>	<b>Primary Source</b>	This refers to a source which was made at the time of an event. For example, a diary written by a soldier during the First World War.
	<b>Secondary Source</b>	This refers to a source created after an event has happened. For example, a textbook or film created after the First World War.
	<b>Inference</b>	A conclusion that you can draw from looking at a piece of evidence e.g. something you can ‘work out’.





## Year 7: Unit 2: The Norman Conquest – How did William take control of England?

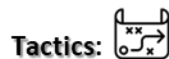
### Who wanted to be King in 1066?

<b>William, Duke of Normandy.</b>	Norman Chronicles reported that Edward had promised William the throne in 1051. William was the only blood relative of Edward, but the English throne was not hereditary. The Bayeux Tapestry shows Godwinson swearing an oath of support to William in a visit to Normandy in 1064. William was supported by the Pope.
<b>Harold Godwinson, Earl of Wessex.</b>	Harold was a rich and powerful English nobleman. According to the Anglo-Saxon Chronicle, Edward named Godwinson as his successor on his deathbed. The next day, the Witan (the royal council) declared Harold King.
<b>Harald Hardrada, King of Norway.</b>	Norwegian ruler, Hardrada, based his claim on the fact that his ancestor, King Cnut, had ruled England (1016-1035). He was helped by the brother of Harold Godwinson, Tostig. Harald did a good job leading the Vikings in wrecking northern England. However, he was killed at the Battle of Stamford Bridge by King Harold.

### Timeline

<b>4<sup>th</sup> Jan 1066</b>	The death of Edward the Confessor, King of England.
<b>6<sup>th</sup> Jan 1066</b>	Harold Godwinson was crowned King of England.
<b>25<sup>th</sup> Sept 1066</b>	The Battle of Stamford Bridge, near York. King Harold Godwinson's army defeated Harald Hardrada and his army.
<b>27<sup>th</sup> Sept 1066</b>	Duke William of Normandy set sail for England with his army.
<b>28<sup>th</sup> Sept 1066</b>	Duke William landed at Pevensey on the South Coast of England.
<b>1<sup>st</sup> Oct 1066</b>	King Harold received news of the Norman invasion. He began to march his army South to defend England from the Norman invasion.
<b>Early Oct 1066</b>	The English army arrived in the South.
<b>14<sup>th</sup> Oct 1066</b>	The Battle of Hastings began. King Harold was killed.
<b>25<sup>th</sup> Dec 1066</b>	William, Duke of Normandy was crowned King William I of England.
<b>1069-1070</b>	The Harrying of the North
<b>August 1086</b>	First draft of Domesday Book completed.
<b>9<sup>th</sup> Sept 1087</b>	William I died.

### WHY DID WILLIAM WIN THE BATTLE OF HASTINGS?



#### Tactics:

Duke William had **many years of battlefield experience**. The **feigned** retreat that his cavalry used to break the shield wall was a tactic his armies had used before in Normandy.



#### Leadership:

**William** was very successful in keeping together his large army in a foreign country. **He planned carefully** and was **experienced**. Harold's army appeared invincible for much of the battle but William and his commanders continued to fight. At important moments in the battle **he boosted his men's morale** and most importantly stayed alive.



#### Fortune:


William was also **very fortunate**, because: if he had invaded in the summer, as Harold expected him to, he would have fought an English army twice as large but, instead, **the winds stopped William from crossing the channel**. The same wind that brought Harald Hardrada from Norway to York also allowed William to cross from Normandy to Pevensey. This meant **William landed unopposed**.



#### Harold II's death was also a turning point;


if he had survived then the battle may well have restarted the following day.

**The Domesday Book**




This gave **William** an **accurate record of the state of his land**. He had to know exactly who owned what and how much it was worth, so that he **could tax them correctly**. He also wanted to know how much tax had been paid during the reign of Edward the Confessor. In **1085**, William **sent Royal Commissioners all over the country to collect this evidence**. People, animals and land were all counted so that William could see how rich or poor his subjects were.

**Harrying of the North**




The **most serious rebellion in the north of England in 1069**. The Saxons killed William’s trusted friend, Earl Robert & 900 of William’s soldiers. **The Earls Morcar & Edwin turned against William, helped by** a small force of **Vikings**. They **seized York** and threatened to set up a separate kingdom in northern England. **William ordered villages to be destroyed and people to be killed**. Herds of animals and crops were burnt. Most people who survived **starved to death**; there were stories of **people turning to cannibalism**. The **population was reduced by 75% and land was covered in salt** to prevent people growing crops in the future. William then placed loyal nobles in charge to look after his lands.

**The feudal System**



William started by saying that **all land in England belonged to him**. However, he **lent land to trusted followers** in exchange for their loyalty. The **feudal system** meant that William had a **constant supply of money and loyalty**, and still owned the land.

**Castles**



William had new, loyal **nobles** from Normandy build over **100 castles all over the country**. They were built extremely quickly, some in just eight days! From their castles, the new **Norman** lords could control the local area, and the sight of them **made it clear who was now in control**. The need for quick constructions meant materials such as earth and wood were used and although this sped up the building process, it meant they **didn’t last very long**. Over time, the more important ones were **rebuilt from stone**.

<b>Heir</b>	The person who is to be the next king or queen when the current monarch dies.
<b>Monarch</b>	The King or Queen who rules a country.
<b>Conquer</b>	To invade and take over an area by force, often using an army.
<b>Housecarls</b>	Well-trained, full-time, paid, Anglo-Saxon soldiers.
<b>Fyrd</b>	Farmers who fought for the Anglo-Saxons
<b>Cavalry</b>	Knights on horses.
<b>The Bayeux Tapestry</b>	A piece of artwork on cloth that shows the events leading up to the Norman Conquest, including the Battle of Hastings.
<b>Barons</b>	An important person who was wealthy and powerful who was below the King in the Feudal System.
<b>Knights</b>	A man of noble birth, who served his king or lord or baron in battle in return for land.
<b>Peasants/ Serfs</b>	The group of people at the bottom of the Feudal System. They would be ordinary people who would work on a knight’s land in return for land/accommodation/food.
<b>Oath</b>	A promise, usually sworn in front of God or on a holy book.



TOPIC

**KEY INFORMATION**

<p><b>Christian beliefs</b></p>	<p>Most medieval people led short lives, dying at the age of around 35. As a result of short life expectancy, most people relied on the church for answers as there was huge fear of what would happen after they died. <b>Many medieval people believed that if they lived a holy life they would be rewarded in afterlife and reach heaven.</b> Christianity was extremely dominant across Europe and Christian ideas had a significant impact on medieval ideas in all aspects of life. For most, there was a huge fear of going to hell which would be the result of committing a moral sin, such as murder. For those who had committed a sin, but had not been forgiven there was a belief that these individuals would end up in purgatory which consisted of being tortured until they had made up for their sins. The most desirable place for individuals to reach was heaven, whereby they would be welcomed by God. <b>In order to reach heaven, Catholics had to ensure all of their sins were forgiven, prayer and religious ceremonies were taken very seriously.</b></p>
<p><b>Role of priests, monks and nuns</b></p>	<p><b>Social hierarchy was very evident in the Medieval Period</b> with God sitting at the top of the feudal system. Due to the dominance of the church, priests, monks and nuns playing a very significant role within medieval society. Most villages had a priest who ran the local churches and who dedicated their life to helping his community, as well as help his parishioners get to heaven. A priest's primary job was to deliver sacraments which consisted of baptisms and marriage ceremonies, as well as hearing confessions and delivering last rites. Some men decided to become monks and some women chose to become nuns. Both monks and nuns made the vows of poverty whereby they did not own individual property. Both also followed chastity, whereby they could not marry. <b>Despite there being many different types of monks and nuns, for both, their primary role was to ensure care was provided for the sick, elderly and terminally ill, mostly through the use of prayer and provision of food .</b></p>
<p><b>Crime</b></p>	<p>Criminality was prevalent in the medieval period, with crimes ranging from drinking alcohol, fighting, stealing and adultery. <b>Sometimes medieval people asked God to judge a criminal in a trial by ordeal.</b> The accused would be asked to participate in a physical test to prove their innocence. During the trial, God would show his verdict in different ways to convey whether a criminal was guilty or not guilty. <b>There were three types of trial by ordeal which were commonly used to determine a person's innocence.</b> Trial by 'hot water' or 'hot iron', trial by 'cold water' and trial by 'combat'. <b>It was more common than not that these trials would result in death, which according to medieval people meant that the individual was guilty.</b></p>
<p><b>Warfare</b></p>	<p>Warfare was very common in the Medieval period and the church did not have the total power to stop people from fighting. In an attempt to stop people from fighting, the church came up with the idea of a 'just war'. <b>A 'just war' was a church theory which made particular wars acceptable in the eyes of God. A holy war, or crusade was considered just, but it had a religious purpose too.</b> An example of a 'just war' was in 1066, when the Pope blessed William of Normandy's invasion of England.</p>
<p><b>Science</b></p>	<p>Medieval Christians believed that God created the world. Christians believed that God set up natural laws for the world to follow, for example, chickens would lay eggs, sheep would grow wool and trees would grow apples. <b>A medieval scientist would not ask 'how' they did this, but rather 'why'. Instead of questioning 'how', scientists would explore the purpose behind God creating a particular plant or animal.</b> Instead of looking for scientific explanations, like evolution and photosynthesis, <b>medieval people looked to God for explanations.</b></p>
<p><b>Medicine</b></p>	<p>Medieval Christians believed that once God created the world, he continued to play an active role. <b>Many Christians believed that God was responsible for disease. For example, it was a common belief that diseases such as leprosy or the Black Death were sent from God as a punishment for committing a sin.</b> It was believed that God could cure a headache, give sight to the blind or help a paralysed man walk. In the hope to escape disease and sickness, Medieval people often prayed, visited shrines in the hope to prevent illness.</p>

## KEY TERMS

<b>Catholicism</b>	The Christian Church and beliefs which are followed by Catholics.
<b>Pope</b>	Head of the Catholic Church.
<b>Afterlife</b>	The experience some people believe they will have after death.
<b>Purgatory</b>	A place where medieval Christians believed they would be tortured until they had made up for their sins and bad thoughts.
<b>Soul</b>	Christians believe this is a part of a person that can exist after death.
<b>Monastery</b>	The collection of buildings that monks live in.
<b>Mass</b>	A Christian religious service performed by a Catholic priest.
<b>Ten Commandments</b>	A list of rules given to Moses by God, which Jewish and Christian people are expected to obey.
<b>Penance</b>	A punishment for a sin.
<b>Trial by ordeal</b>	The guilt or innocence of the accused was determined by subjecting them to a painful, or at least an unpleasant, usually dangerous experience.
<b>Parishioner</b>	A person who lived in a priest's parish (the area for which he provided services)
<b>Excommunication</b>	When a person is banned from church services. A medieval person thought they were at greater risk of going to hell if they were an excommunicant.
<b>Chancellor</b>	The King's chief servant.



### Timeline of the relationship between Henry II and Thomas Beckett

<b>1154:</b> King Henry II appointed Thomas Beckett as his royal chancellor. His job was to look after the church and the King's law courts. During this time Henry and Beckett were good friends and Beckett lived a luxurious life style.	<b>1162:</b> Henry asked Beckett to become the new Archbishop of Canterbury. Beckett began to live a more holy life style and studied religion. However, in the same year Beckett resigned as chancellor without Henry's permission. Beckett and Henry began to argue and their relationship weakened.	<b>1164:</b> Henry proposes limits on church power. Beckett agrees but refuses to sign the documents. Later on that year, Henry placed Beckett on trial for treason, but Beckett fled to France before his sentence was delivered.	<b>June 1170:</b> Henry ordered the Archbishop of York to crown the next king. This was usually the job of the Archbishop of Canterbury. When Thomas Beckett heard this news he was furious. Later on that year, Beckett removed Henry's supporters from the church, but continued to gain support from the Pope, with the Pope giving Beckett the power to excommunicate. Beckett exploited this power and used it against Henry	<b>November 1170:</b> After Beckett excommunicated three bishops, the bishops set sail to France to speak directly to Henry. When Henry was informed of Beckett's lack of professionalism. Henry II found out that Beckett had removed his supporters from the church. Henry was outraged by Beckett's decision to do this. Henry stated 'Will no one rid me of this troublesome priest?'	<b>29th December 1170:</b> Four knights burst into the Archbishop's Palace in Canterbury. The knights demanded Beckett leave England, however, he refused. Monks feared that Beckett's life was in danger. Once again the knights demanded Beckett leave England. Beckett refused, clinging on to a pillar. Realising he would not leave, the knights struck him five times, cutting off the top of his head. On their departure, one of the knights scooped out his brains and smeared them on the floor!
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## Order of Operations

# BIDMAS

( )  $\times^{\circ}$   $\div$  or  $\times$   $+$  or  $-$

Brackets Indices Divide & Multiply Add & Subtract

Order of Operations

## Powers and Roots:

A **Square** number is formed by multiplying a number by itself. We use the notation  $1^2, 7^2$  etc.

$$1 \times 1 = 1, \quad 2 \times 2 = 4, \quad 3 \times 3 = 9 \dots$$

A **Cube** number is made by multiplying a number by itself and again. We use the notation  $6^3, 12^3$  etc.  $1 \times 1 \times 1 = 1, \quad 2 \times 2 \times 2 = 8 \dots$

Higher powers also exist.

$$3^4 = 3 \times 3 \times 3 \times 3 = 81$$

The **square root** of 25 is 5, since  $5 \times 5 = 25$ .

We use the notation:  $\sqrt{25} = 5$

The **cube root** of 64 is 4, since  $4 \times 4 \times 4 = 64$ .

We use the notation:  $\sqrt[3]{64} = 4$

The fourth root of 16 is 2, since  $2 \times 2 \times 2 \times 2 =$

## Multiplication

$$391 \times 39$$

$$\begin{array}{r} 391 \\ \times 39 \\ \hline 3519 \\ \square 8 \square \\ \hline 11730 \\ \square \square \square \\ \hline 15249 \end{array}$$

First we multiply each of the digits 391 by 9.  
 $9 \times 1 = 9$   
 $9 \times 9 = 81$  (put the 1 down; carry the 8)  
 $9 \times 3 = 27$   
 $27 + (\text{carried } 8) = 35$

Now we multiply each of the digits 391 by 3. Because it is actually 30, not 3, we put a zero down first.  
 $3 \times 1 = 3$   
 $3 \times 9 = 27$  (put the 7 down and carry the 2)  
 $3 \times 3 = 9$  (plus the 2 which makes 11)

Last of all, we add the results of our calculations to get the answer.

$$3519 + 11730 = 15249$$

## Key Definitions:

**Factors:** The numbers we can divide by with no remainder.

The factors of 12 are:

1,2,3,4,6,12

**Multiples:** Another word for a times-table.

The first 6 multiples of 8 are:

8,16,24,32,40,48,...

**Primes:** Can only be divided by 1 and itself.

The first 8 primes are:

2,3,5,7,11,13,17,19...

(Note: 2 is the only **EVEN** prime and 1 is **NOT** prime!)

**Integers:** Another word for a whole number:

-100, -5, 0, 27, 462 etc.

Product:  $\times$

Sum/Total:  $+$

Quotient:  $\div$

Diff. Between/Subtract:  $-$

## Square Numbers

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324,

## Cube Numbers

1, 8, 27, 64, 125, 216, 343, 512, 729, 1000, 1331, 1728, 2197, ...

## Prime Numbers

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, ...

## Fractions

### Simplifying

To write a fraction in its simplest form, (cancel down), you must divide both parts by their HCF

$$\frac{14}{21} \div 7 = \frac{2}{3} \quad \frac{4}{10} \div 2 = \frac{2}{5}$$

### Add and Subtract

Look for a common denominator

Cross - Cross - Smile

$$\frac{2}{3} + \frac{4}{5} = \frac{10}{15} + \frac{12}{15} = \frac{22}{15} = 1 \frac{7}{15}$$

$$\frac{7}{8} - \frac{3}{7} = \frac{49}{56} - \frac{24}{56} = \frac{25}{56}$$

### Fraction of an Amount

Step 1: Divide by the denominator  
 Step 2: Multiply by the numerator

Find  $\frac{3}{4}$  of 20

Step 1:  $20 \div 4 = 5$

Step 2:  $5 \times 3 = 15$

### Multiplying

Multiply the numerators  
 Multiply the denominators

$$\frac{3}{7} \times \frac{2}{5} = \frac{3 \times 2}{7 \times 5} = \frac{6}{35}$$

$$1 \frac{2}{3} \times 2 \frac{4}{5}$$

$$\frac{5}{3} \times \frac{14}{5} = \frac{5 \times 14}{3 \times 5} = \frac{70}{15} = 4 \frac{10}{15} = 4 \frac{2}{3}$$

### Mixed Numbers

Improper  $\rightarrow$  Mixed

$$\frac{13}{4} = \frac{4}{4} + \frac{4}{4} + \frac{4}{4} + \frac{1}{4} = 3 \frac{1}{4}$$

Mixed  $\rightarrow$  Improper

$$3 \frac{2}{5} = \frac{3 \times 5 + 2}{5} = \frac{17}{5}$$

### Calculating

Step 1: Convert to an improper fraction

Step 2: Calculate

Step 3: Convert to a mixed number

## Division

98  $\div$  7 becomes

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \phantom{8} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

432  $\div$  5 becomes

$$\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \\ \underline{40} \phantom{2} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

496  $\div$  11 becomes

$$\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \\ \underline{44} \phantom{6} \\ 56 \\ \underline{55} \\ 16 \\ \underline{15} \\ 1 \end{array}$$

The final answer is  $45 \frac{1}{11}$ . Why?

## Adding and Subtracting Directed Numbers:

**Numbers:**

Always draw a number line if you are unsure or think of a Thermometer.

Subtract means to get colder. Add means get warmer etc.

$$5 - 7 = -2, \quad -2 - 9 = -11, \quad -3 + 9 = 6$$

$$9 - 5 = 4$$

$$-12 + 8 = -4$$

## Multiplying and Dividing Directed Numbers:

**Numbers:**

$$- \times - = + \quad + \div - = -$$

$$- \times + = - \quad - \div + = -$$

$$+ \times - = - \quad - \div - = +$$

$$-7 \times -8 = 56 \quad -42 \div 6 = -7$$

$$6 \times -12 = -72, \quad -32 \div -8 = 4$$

$$(-3)^2 = 9 \quad 9 \div -9 = -1$$

Number Line:



### Algebraic Notation:

$$ab = a \times b$$

$$5x = 5 \times x$$

$$m^2 = m \times m$$

$$t^5 = t \times t \times t \times t \times t$$

$$\frac{x}{y} = x \div y$$

$$1 \times y = y$$

$$-1 \times t = -t$$

$$x^3 y = x \times x \times x \times y$$

### Writing Expressions

John is  $x$  years old. Tom is 4 years older than John.  
 Adam is 5 years younger than John and Carl is 3 times as old as Tom. Their ages are:  
 John:  $x$ ,  
 Tom:  $x + 4$   
 Adam:  $x - 5$   
 Carl:  $3(x + 4)$

### Lowest Common Multiple (LCM)

- List the multiples (at least 10) of all numbers
  - Find the numbers in both lists
  - Select the smallest circled number
- 8: 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, ...  
 6: 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, ...  
 **$LCM(6, 8) = 24$**

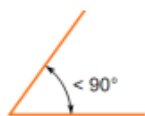
## Year 7 – Half Term 2 Core & Support

### Properties of Quadrilaterals

Quadrilateral	Properties	
Rectangle	4 right angles and opposite sides equal	
Square	4 right angles and 4 equal sides	
Parallelogram	Two pairs of parallel sides and opposite sides equal	
Rhombus	Parallelogram with 4 equal sides	
Trapezium	Two sides are parallel	
Kite	Two pairs of adjacent sides of the same length	

### Angle Properties:

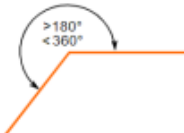
**Acute angle:** Less than  $90^\circ$



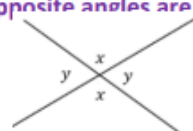
**Obtuse angle:** Greater than  $90^\circ$ , but less than  $180^\circ$



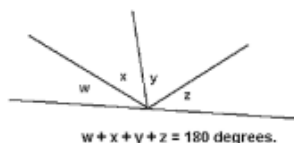
**Reflex angle:** Greater than  $180^\circ$



**Vertically Opposite angles are equal**



**Angles on a straight line add up to  $180^\circ$**

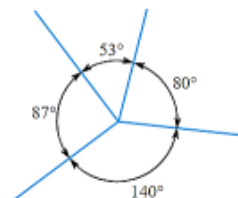


**Angles inside a triangle add up to  $180^\circ$**

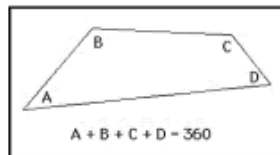


$$A + B + C = 180^\circ$$

**Angles around a point add up to  $360^\circ$**



**Angles inside a quadrilateral add up to  $360^\circ$**



### Substitution

Find the value of  $a^3 + 2b$ , when  $a = 2, b = 3$ ,

$$2^3 + (2 \times 3) = 8 + 6 = 14$$

If  $y = 5x - 7$ , find the value of  $y$  when  $x = 1$

$$y = (5 \times 1) - 7 = 5 - 7 = -2$$

Find the value of  $3xy^2$  when  $x = 2, y = 4$

$$3 \times 2 \times 4^2 = 96$$

### Names of Polygons

Triangle (3 Sides), Quadrilateral (4 Sides), Pentagon (5 Sides), Hexagon (6 Sides), Heptagon (7 Sides), Octagon (8 Sides), Nonagon (9 Sides), Decagon (10 Sides)

### Types of Triangles (3 Sided Shapes)

#### Scalene triangle

All 3 sides have different lengths. Its angles are also all different.



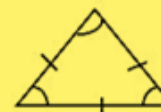
#### Isosceles Triangle

2 sides have equal lengths. 2 of its angles also measure equal.



#### Equilateral Triangle

All 3 sides are of same length. All three angles are equal,  $60^\circ$



### Highest Common Factor (HCF)

- List Factors of all Numbers
- Find the numbers in both lists
- Select the largest number in both lists

$$24: 1, 2, 3, 4, 6, 8, 12, 24$$

$$36: 1, 2, 3, 4, 6, 9, 12, 18, 36$$

$$HCF(24, 36) = 12$$

### Like Terms

Sometimes we have an expression that contains like terms. Like terms are terms that contain the same letter or symbol.

Examples of like and unlike terms

Terms	Like	Unlike
4d, d	✓	
3m, 7n		✓
x, x <sup>2</sup>		✓
7, 7b		✓
6, -8	✓	

### Collecting Like Terms

When we collect like terms the sign before the term tells you what to do with it

Examples

$$a + a + a = 3a$$

$$a + b + a = 2a + b$$

$$2y + 8y = 10y$$

$$x + x^2 + x^2 = x + 2x^2$$

Remember!

Only like terms can be collected

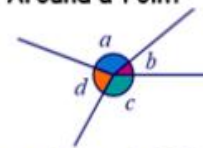
### Basic Properties

On a Straight line



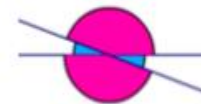
$$a + b + c = 180^\circ$$

Around a Point



$$a + b + c + d = 360^\circ$$

Vertically Opposite

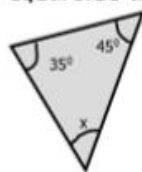


Are equal

### In Triangles - Add up to 180°

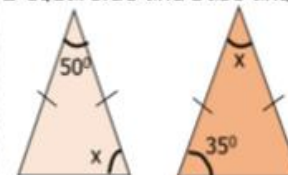
Scalene

No equal side and angles



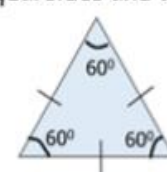
Isosceles

2 equal side and base angles



Equilateral

3 equal sides and angles



### Multiplying and Dividing terms

Example Simplify  $7b \times 9c$

Multiply the numbers  $7 \times 9 = 63$

Multiply the letters  $b \times c = bc$

Put the two together  $63bc$

Example Simplify  $72bc \div 6c$

Divide the numbers  $72 \div 6 = 12$

Divide the letters  $bc \div c = b$

Put the two together  $12b$

### Expanding Brackets

Expand everything on the outside by everything on the inside...and simplify if needed

Expanding by a single bracket

$$5(x+3) + 6(x-4) = 11x - 9$$

$$5x + 15 + 6x - 24$$

Expanding two brackets

$$(x+7)(x-4) = x^2 + 3x - 28$$

$$x^2 - 4x + 7x - 28$$

How you expand it out is your call - Crab's Claw, FOIL, ... the choice is yours

### In Quadrilaterals - Add up to 360°

Square

All corners are 90°



Parallelogram

Opposite angles in a parallelogram are equal



Kite

A kite has 1 pair of equal angles



Rectangle

All corners are 90°



Rhombus

Opposite angles in a rhombus are equal



Trapezium

A trapezium has 2 pairs of equal angles



### Factorising - aka "whack it into brackets"

#### Factorising - 1 bracket

$$5x + 15 = 5(x + 3)$$

$$10x - 12 = 2(5x - 6)$$

$$ab + ac = a(b + c)$$

$$x^2 + 6x = x(x + 6)$$

$$wig + wam = w(ig + am)$$

$$10xy + 15y = 5y(2x + 3)$$

$$8x^2y + 4xy^2 = 4xy(2x + y)$$

### Area and Perimeter

2a

Perimeter = Distance around the outside

$$2a + 3b + 2a + 3b = 4a + 6b$$

(4a and 6b can't be collected as they aren't like terms!)

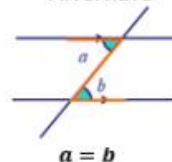
3b

Area = Space inside

$$2a \times 3b = 6ab$$

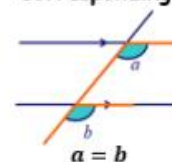
### In Parallel Lines

Alternate



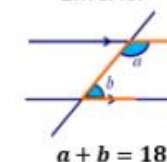
$$a = b$$

Corresponding




$$a = b$$

Interior




$$a + b = 180$$

## Y7 Music HT1 & 2 - Rhythm, Metre, and Tempo

 **Tempo** - The **tempo** is the speed of the music, whether it's fast or slow.

**Pulse** - The tempo creates a **pulse**, which is the music's heartbeat.

**BPM** – Beats per minute, the rate of the pulse.




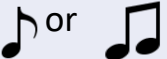

 **Rhythm** - is music's pattern in time. Rhythms tell us how many notes to play, and how long to hold each note for (duration).



**Rests** - There are rests for every rhythmic duration. So, a crotchet rest is worth one whole beat.

**Samba** - Samba is a Brazilian musical genre and dance style, often heard in street festivals. Samba music relies heavily on rhythmic drumming.





**Percussion** - A percussion instrument is a musical instrument that is sounded by being struck by a beater, by hand, or struck against another similar instrument.

Notes	Name	Value	Drink Name
	Crotchet	1	Tea
	Minim	2	Juice
	Semi-breve	4	Soup
	Quavers	½ each	Milkshake
	Semi-quavers	¼ each	Coca-Cola



## Y7 Music HT1 & 2 - Rhythm, Metre, and Tempo

**Dotted Rhythms** - A dot after a note **increases** its value by **half** of whatever the value was. So, a dotted crotchet lasts for one and a half crotchets (1.5) but a dotted minim last for one and a half minims (3).

Symbol	Name	Duration
	Dotted semi-breve	<b>6</b>
	Dotted minim	<b>3</b>
	Dotted Crotchet	<b>1 ½</b>
	Dotted quaver	<b>¾</b>

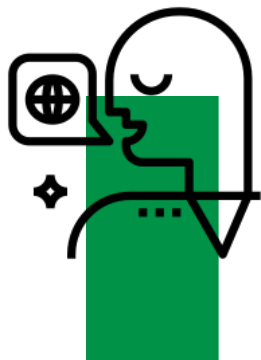


**Metre** - Pulses (beats) are often emphasised - **strong** beats. Pulses are **grouped** according to how often there is a strong beat, and we call this the metre.

**Time Signature** - When music is written down, we call the metre the Time Signature, and we use **bars** to show the grouping.



**Tempo Terms** – are Italian words to describe the speed of the music, such as **Allegro** for fast and **Lento** for very slow.



Italian Word	Meaning	BPM
<b>Largo</b>	Very Slow	Less than 60 bpm
<b>Adagio</b>	Slow	60 – 80 bpm
<b>Andante</b>	Walking Pace	80 – 100 bpm
<b>Moderato</b>	Moderately	100 – 120 bpm
<b>Allegro</b>	Fast	120 – 140 bpm
<b>Presto</b>	Very Fast	More than 140 bpm

# What is Religion, Philosophy & Ethics?

## Religion, Philosophy & Ethics - Year 7 Topic 1

*“Faith is taking the first step even when you don’t see the whole staircase”* Martin Luther King (Christian)

*“I am against religion as it teaches us to be satisfied with not understanding the world”* Dawkins (atheist)

*“Religion is the opiate of the masses”* Marx

*“The essence of all religions is one. Only their approaches are different.”* Gandhi (Hindu)



Key Terms	Definition
<b>Supreme Spiritual Being</b>	Belief in a god or gods / goddess or goddesses; supreme being or divine spiritual principles which is the focus of a religion
<b>Cult</b>	A religious, political or self-help movement often with extreme ideas that cause physical, emotional or financial harm to the person
<b>Alternative Religion</b>	A new modern religious movement with a small number of followers
<b>Atheist</b>	Someone who holds the view that there are no Gods or God
<b>Agnostic</b>	Someone who holds the view that is impossible to know the truth about something such as the existence of God
<b>Philosopher</b>	A person who seeks wisdom
<b>Ethics</b>	The study of what is right and wrong and what governs human behavior

### What is a religion?

According to UK Law, for an organisation to be defined as a religion it must have the following three features:

- Supreme Spiritual Being:** Belief in a god or gods, goddess or goddesses, a supreme being or divine spiritual principle which is the object or focus of the religion.
- Sense of Seriousness and Importance:** A relationship between the believer and supreme being or entity by showing worship and/or a sense of clear seriousness and importance.
- Positive Moral Values (set of ethical laws or rules):** An identifiable positive, beneficial, moral or ethical framework.

These key features can be easily identified in all main world religions, for example in Christianity

**Alternative religion** is a new religious movements with modern origins with a small number of followers, examples include Jediism.

- Jediism originates from the 1977 Star Wars films and books produced by George Lucas. In 2008, Daniel Jones founded the ‘International Church of Jediism’. Its core beliefs center on the idea of ‘The Force’ an energy that flows through all things and joins the universe together. They also believe that humans can tap into the Force to unlock greater potential. A census was held in 2001 and in total: 390,127 claimed they were part of the Jedi religion.
- \*Issues: Many alternative religions are ridiculed and not respected despite great importance to the believer.

### Arguments Against Religion and Religious Ethics

Some believe religion is a form of social control, this means humans created religions to control those who are poor, weak or unhappy by promising them a better life or afterlife. **Karl Marx** was a prominent **sociologist** who argued that religion is meant to create misleading fantasies for the poor. Lack of money prevents them from finding true happiness, so religion tells them this is ok because they will find true happiness in the next life.

## Why are religious, philosophy and ethics lessons important?

- To better understand the world around you and the people in it
- To develop empathy, tolerance and understanding to different situations or belief systems
- To develop your critical thinking and problem solving skills
- To improve community cohesion and prevent religious, political or other discrimination
- To help you develop your own sense of self and know what is important to you
- Because all jobs require some level of working with others and RPE educates you in how to do so well
- To develop your written and verbal communication skills
- Because the skills you learn, such as the ability to debate well and identify good ethics, means there are many jobs open to you such as doctor, lawyer, manager etc.

# What is Religion, Philosophy & Ethics?

## Religion, Philosophy & Ethics - Year 7 Topic 1

### Creativity and Spirituality

Art, music and literature have been used throughout history to express one's beliefs, and to help focus on practices such as prayer, worship and meditation. Beautiful words, images and objects have played a big part in many world religions however, some religions do not agree with some creative religious imagery.

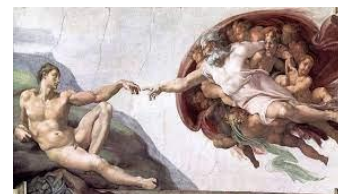
- Muslims do not use images and statues of God as part of their faith because the Qur'an teaches them to not worship false idols and in the past people have falsely worshiped such creative objects.
- However, in other faiths such as Buddhism art is important; the mandala is a picture starting in the center and expanding outwards. Buddhists believe the mandala symbolizes the entire universe and creating, viewing or imaging a mandala can help a Buddhist focus during meditation.



Above is a Buddhist mandala used to help Buddhist focus during meditation. This one is made of coloured sand but they can be made of anything or just imagined in one's head.



Muslims do not have a duty to use henna but many do as the Prophet Muhammad did. Henna is often used at time of celebration to beautify one's self



Artist Michelangelo painted the Sistine Chapel in the Vatican (center of Catholic Christian Church). His work reflects Christian beliefs and teachings four the Bible. It took four year to pain the chapel ceiling.



Banksy is a famous artist but know one knows who he or she is or what he/she uses for inspiration yet the art is famous for the powerful messages it portrays. .

### Philosophies of Life

- **Nihilist**, Friedrich Nietzsche, 19<sup>th</sup> century philosopher, believed in Nihilism. – the belief that all values are baseless and that nothing can be known. A true nihilist would believe in nothing, have no loyalties, and no purpose. Nietzsche would argue that religion is just the creation of humans desperate to give life meaning, when in fact there is no meaning at all.
- **Materialists** do not believe in the existence of non-material objects (anything you cannot directly observe e.g. a God) as such only material things can bring comfort and happiness thus material things give life purpose.
- **Hedonist** do not believe in a Gods, they believe that, in life, we should seek pleasure and not pain.
- **Existentialist** also do not believe in an Gods, they believe life is what you make of it thus we give our own life purpose. Often this means hedonists seek whatever brings them happiness.
- **Humanists** believe life is about the needs of others. They do not believe in a God but believe life is better when we are each concerned with respecting and supporting one another. To some Humanists, a life is only someone who is able to think and reason for themselves.
- **Religious** people believe their faith views them purpose – their belief in a God or set of religious teachings gives them purpose and duties in life.

## Does God exist? Religion, Philosophy & Ethics - Year 7 Topic 2

Key Terms	Definition
Creation	The action or process of bringing something into existence.
Big Bang	The scientific theory which explains the beginning of the universe 14 billion years ago.
Evolution	The process of change in a species over time which explains the existence of humans.
Literal Christians	The belief that the Bible is all historical fact including that the world was created in 7 actual days.
Design Argument	A philosophical argument which suggests God must exist and be the creator of the world because only He could design something so complex.
Causation Argument	A philosophical argument which suggests the only possible first cause of the universe is God.

*"I am against religion because it teaches us to be satisfied with not understanding the world"* Richard Dawkins (atheist)

*"Nothing can come from nothing"* St Thomas Aquinas (Christian)

*"There cannot be design without a designer"* William Paley (Christian)

*"Would you waste time and breath, by asking who shot the arrow"* written in the Tripitaka (Buddhist holy text)



Science



Religion



### Science Atheism

Atheist may argue that there is no need to believe in the existence of God because science has all the answers we need that explain how everything exists by chance.

According to atheists, the **Big Bang** was an explosion almost 14 billion years ago that caused the universe to exist. A single compressed point exploded causing atoms and particles to form that make up our universe today. Scientists evidence the Big Bang by observing "red shift" which is radiation that proves the universe's age and where the bang happened.

**Darwin's** theory of **evolution** explains how humans came to exist too. His observations in 1859, that species change over time through natural selection enabled humans to evolve to suit their environment.

### Christianity

Religious people, such as Christians, would disagree and believe we need God to explain science.

**Literalist Christians** believe the Bible is historically accurate. Because the first book of the Bible (Genesis) states God create the world in seven days God must exist and beliefs about evolution and the big bang are false.

**Most Christians** believe religion and science go together. These Christians believe the Genesis creation stories are not factual but intended to teach us about the nature of God. Most Christians believe God create the world through science – as Catholic Christian, Pope Francis said "God is not a magician" by this he meant God used science to create the world.



### Buddhism

Buddhists **do not believe in a God** nor do they know the origins of the universe. The Buddha refused to answer questions about the origins of the earth, as a result Buddhists focus on the concerns of the present and how to avoid suffering now.

**The parable of the poisoned arrow** explains that a foolish man was shot with a poisoned arrow and insisted on finding out about the person who shot the arrow before removing it, but by the time this information was known he was dead. This reminds Buddhists to focus on now and not waste time questioning things we cannot know.

## Causation Argument for the Existence of God

Christian St Aquinas is famous for basing his beliefs on the observation of cause and effect. He believed that “nothing can come from nothing” so there must be a First Cause of the universe which could only possibly be God. Many Muslims agree with this argument too.



The argument’s premises are...

- Nothing happens by itself, everything in the world needs a cause
- Anything caused to exist must have something that caused it; nothing can cause itself!
- The universe must have a cause - the First Cause.
- The only thing powerful enough to have caused the Universe is God.

**Therefore, God must exist!**

## Design Argument for the Existence of God

This argument proves the existence of God by using the order and purpose in the universe as evidence.



When we observe the universe we notice that everything works with a purpose and order that is very complex. For example, the human eye is very complex – it works in a specific orderly way with the purpose of seeing. Christians and Muslims believe that the only being capable of creating such complexity is an omnipotent (all-powerful) God thus God must exist.

William Paley, 18<sup>th</sup> century philosopher, used the ‘watch analogy’ to evidence this argument; if we had never experienced a watch but found one amongst some stones in a field we would assume it had been designed and not occurred natural due to its’ complexity. In the same way, the universe is complex and so it too must need a designer. So just as a watch needs a “watch-maker” the universe (which is hugely more complex than a watch) must need a “universe maker”.

## Religious Experience for the Existence of God



Some people believe in God due to direct or indirect revelations from God known as religious experiences..

- **Numinous feelings** - The feeling of the presence of something greater than yourself.
- **Miracles** - Something which breaks the laws of science and can only explained by the existence of God. E.g., Jesus raising from the dead in the Bible
- **Answered prayers** which can only be explained by the existence of God.
- **Vision** – seeing a direct image of God or divine representation. E.g. Muslims may believe in God because the Prophet Muhammad was taken through the heavens to meet Allah (God)

**Criticism 1.** If everything needs a cause then what caused God?

**Criticism 2.** Why must the First Cause be the God of Christianity or Islam?

**Criticism 1.** If the world is designed by God, who is omnipotent (all-powerful) why are there flaws. For examples, blind people do not have eyes that work with purpose and order?

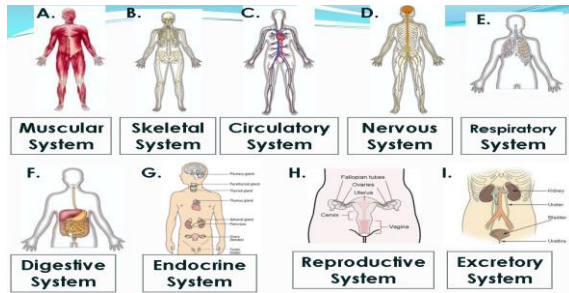
**Criticisms 2.** Evolution explains that life has adapted to survive on earth and not that life was designed for earth.

**Criticism 1.** Miracles are often only experienced by one or a small number of people, one could question the integrity of that person – were they lying, mentally unwell or drunk?

**Criticism 2.** The God Helmet experiment – the helmet manipulated the brain scientist Persinger believed to be responsible for religious experiences. Some of his volunteers saw angels and said they experienced God whilst wearing the helmet.

## 5 functions of the Skeletal System

1. Framework gives **shape & support** to the body.
2. Bones **protect** the **internal** organs.
3. Major **muscles** of the body are attached to the bones for **movement**.
4. **Blood** cells are formed in **marrow** of some bones.
5. Skeleton is a place where **calcium** and **phosphorus** compounds are **stored**.



## Muscles

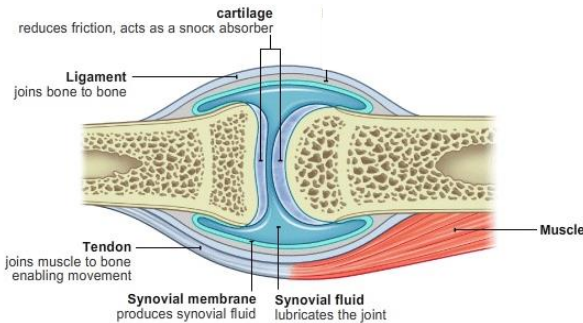
Muscles are the **organs** that **move** body parts. 2. Bones **protect** the **internal** organs.

**Two** Groups of Muscles:

**Voluntary**—You **can** control these. **Arms, legs, hands, face**

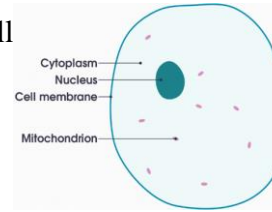
**Involuntary**—You **can't** control these; you don't have to decide to make these muscles work. Muscles around the **heart**

**Antagonistic muscles** occur in pairs. These pairs of muscles work **together** to create movement. As one muscle **contracts** (shortens) the other muscle **relaxes** (lengthens). They swap actions to reverse



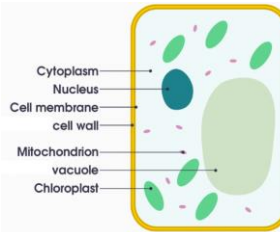
# Y7 Bio T1- Living systems

## Animal cell

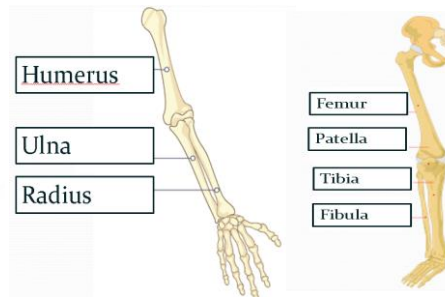


Cell Part	Function
<b>Nucleus</b>	<ul style="list-style-type: none"> <li>• <b>Controls</b> the cell</li> <li>• It contains <b>DNA</b></li> </ul>
<b>Cytoplasm</b>	<ul style="list-style-type: none"> <li>• Where <b>chemical reactions</b> take place</li> </ul>
<b>Cell membrane</b>	<ul style="list-style-type: none"> <li>• Controls the <b>passage</b> of substances into and out of the cell</li> </ul>
<b>Mitochondrion</b>	<ul style="list-style-type: none"> <li>• Where <b>energy is released</b> by <b>respiration</b></li> </ul>

## Plant cell

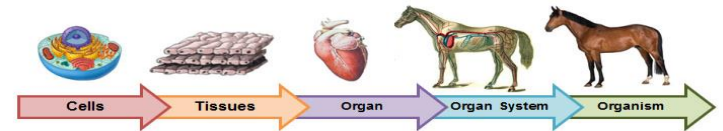


Cell Part	Function
<b>Cell wall</b>	<ul style="list-style-type: none"> <li>• Gives the cell <b>structure</b></li> </ul>
<b>Vacuole</b>	<ul style="list-style-type: none"> <li>• Contains <b>water &amp; nutrients</b></li> </ul>
<b>Chloroplast</b>	<ul style="list-style-type: none"> <li>• <b>Absorbs light</b> for <b>photosynthesis</b></li> </ul>



Drawing of the cell	Function	Specialised Features
Red blood cell	Transports oxygen around the body	-No nucleus so can carry more oxygen -A biconcave shape so is flexible to squeeze through small blood vessels
Nerve cell (neuron)	Transmits nerve impulses	-Long and thin -Contains fibres which connect to other nerve cells -Surrounded by a cover which insulates it and speeds up transmission of nerve impulse
Muscle cell	Contracts (to provide muscle movement)	-Contain many mitochondria to provide energy for movement
Sperm cell	Fertilises the female egg	-Has a long tail to swim to the egg. -The mid piece is packed with mitochondria to provide energy for movement. -Streamlined shape to help it swim -Head contains enzymes to break into the egg

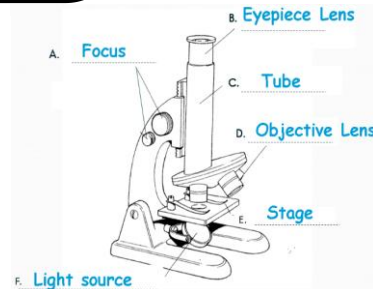
Drawing of the cell	Function	Specialised Features
Palisade cell	Absorbs light for photosynthesis	-Packed with chloroplasts which contain the pigment chlorophyll. -Packed together to absorb as much light as possible
Root hair cell	Absorbs water and minerals from the soil	-Thin membrane -Large surface area which enables the cell to absorb more water from the soil
Guard cell	Allows gases in and out the leaf	-Able to change their shape -Found in pairs
Sieve cell	Transport water, nutrients and minerals through the plant	-Hollow -Form long tubes



## Scientific Drawing rules

- Use simple clear lines
- Draw only what you see (in proportion).
- Ensure diagram is the right size.
- No shading
- Draw labelling lines using a ruler (NO crossing)
- Include a scale or magnification

$$\text{Magnification} = \frac{\text{Eyepiece lens}}{\text{Objective lens}} \times \text{Objective lens}$$



# Periodic Table of the Elements

1 <b>H</b> Hydrogen 1.01																	18 <b>He</b> Helium 4.00
3 <b>Li</b> Lithium 6.94	4 <b>Be</b> Beryllium 9.01											5 <b>B</b> Boron 10.81	6 <b>C</b> Carbon 12.01	7 <b>N</b> Nitrogen 14.01	8 <b>O</b> Oxygen 16.00	9 <b>F</b> Fluorine 19.00	10 <b>Ne</b> Neon 20.18
11 <b>Na</b> Sodium 22.99	12 <b>Mg</b> Magnesium 24.31											13 <b>Al</b> Aluminum 26.98	14 <b>Si</b> Silicon 28.09	15 <b>P</b> Phosphorus 30.97	16 <b>S</b> Sulfur 32.06	17 <b>Cl</b> Chlorine 35.45	18 <b>Ar</b> Argon 39.95
19 <b>K</b> Potassium 39.10	20 <b>Ca</b> Calcium 40.08	21 <b>Sc</b> Scandium 44.96	22 <b>Ti</b> Titanium 47.88	23 <b>V</b> Vanadium 50.94	24 <b>Cr</b> Chromium 51.99	25 <b>Mn</b> Manganese 54.94	26 <b>Fe</b> Iron 55.85	27 <b>Co</b> Cobalt 58.93	28 <b>Ni</b> Nickel 58.69	29 <b>Cu</b> Copper 63.55	30 <b>Zn</b> Zinc 65.38	31 <b>Ga</b> Gallium 69.72	32 <b>Ge</b> Germanium 72.63	33 <b>As</b> Arsenic 74.92	34 <b>Se</b> Selenium 78.97	35 <b>Br</b> Bromine 79.90	36 <b>Kr</b> Krypton 83.80
37 <b>Rb</b> Rubidium 85.47	38 <b>Sr</b> Strontium 87.62	39 <b>Y</b> Yttrium 88.91	40 <b>Zr</b> Zirconium 91.22	41 <b>Nb</b> Niobium 92.91	42 <b>Mo</b> Molybdenum 95.95	43 <b>Tc</b> Technetium 98.91	44 <b>Ru</b> Ruthenium 101.07	45 <b>Rh</b> Rhodium 102.91	46 <b>Pd</b> Palladium 106.42	47 <b>Ag</b> Silver 107.87	48 <b>Cd</b> Cadmium 112.41	49 <b>In</b> Indium 114.82	50 <b>Sn</b> Tin 118.71	51 <b>Sb</b> Antimony 121.76	52 <b>Te</b> Tellurium 127.6	53 <b>I</b> Iodine 126.90	54 <b>Xe</b> Xenon 131.29
55 <b>Cs</b> Cesium 132.91	56 <b>Ba</b> Barium 137.33	57-71 Lanthanides	72 <b>Hf</b> Hafnium 178.49	73 <b>Ta</b> Tantalum 180.95	74 <b>W</b> Tungsten 183.85	75 <b>Re</b> Rhenium 186.21	76 <b>Os</b> Osmium 190.23	77 <b>Ir</b> Iridium 192.22	78 <b>Pt</b> Platinum 195.08	79 <b>Au</b> Gold 196.97	80 <b>Hg</b> Mercury 200.59	81 <b>Tl</b> Thallium 204.38	82 <b>Pb</b> Lead 207.20	83 <b>Bi</b> Bismuth 208.98	84 <b>Po</b> Polonium [208.98]	85 <b>At</b> Astatine 209.98	86 <b>Rn</b> Radon 222.02
87 <b>Fr</b> Francium 223.02	88 <b>Ra</b> Radium 226.03	89-103 Actinides	104 <b>Rf</b> Rutherfordium [261]	105 <b>Db</b> Dubnium [262]	106 <b>Sg</b> Seaborgium [266]	107 <b>Bh</b> Bohrium [264]	108 <b>Hs</b> Hassium [269]	109 <b>Mt</b> Meitnerium [278]	110 <b>Ds</b> Darmstadtium [281]	111 <b>Rg</b> Roentgenium [280]	112 <b>Cn</b> Copernicium [285]	113 <b>Nh</b> Nihonium [286]	114 <b>Fl</b> Flerovium [289]	115 <b>Mc</b> Moscovium [289]	116 <b>Lv</b> Livermorium [293]	117 <b>Ts</b> Tennessine [294]	118 <b>Og</b> Oganesson [294]

57 <b>La</b> Lanthanum 138.91	58 <b>Ce</b> Cerium 140.12	59 <b>Pr</b> Praseodymium 140.91	60 <b>Nd</b> Neodymium 144.24	61 <b>Pm</b> Promethium 144.91	62 <b>Sm</b> Samarium 150.36	63 <b>Eu</b> Europium 151.96	64 <b>Gd</b> Gadolinium 157.25	65 <b>Tb</b> Terbium 158.93	66 <b>Dy</b> Dysprosium 162.50	67 <b>Ho</b> Holmium 164.93	68 <b>Er</b> Erbium 167.26	69 <b>Tm</b> Thulium 168.93	70 <b>Yb</b> Ytterbium 173.06	71 <b>Lu</b> Lutetium 174.97
89 <b>Ac</b> Actinium 227.03	90 <b>Th</b> Thorium 232.04	91 <b>Pa</b> Protactinium 231.04	92 <b>U</b> Uranium 238.03	93 <b>Np</b> Neptunium 237.05	94 <b>Pu</b> Plutonium 244.06	95 <b>Am</b> Americium 243.06	96 <b>Cm</b> Curium 247.07	97 <b>Bk</b> Berkelium 247.07	98 <b>Cf</b> Californium 251.08	99 <b>Es</b> Einsteinium [254]	100 <b>Fm</b> Fermium 257.10	101 <b>Md</b> Mendelevium 258.10	102 <b>No</b> Nobelium 259.10	103 <b>Lr</b> Lawrencium [262]

- Alkali Metal
- Alkaline Earth
- Transition Metal
- Basic Metal
- Metalloid
- Nonmetal
- Halogen
- Noble Gas
- Lanthanide
- Actinide

## Y7 Chem T1- Particles

### Key words

**Particle** The tiny pieces that everything is made out of.

**Pure** a substance made up of only one type of particle.

**Mixture** a substance made up of two or more different types of particles that are not chemically joined.

**Melting** when a solid changes state to a liquid.

**Freezing** when a liquid changes state to a solid.


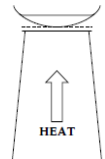
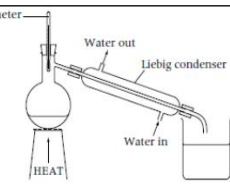
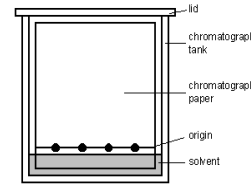
**Condensing** when a gas changes state to a liquid.

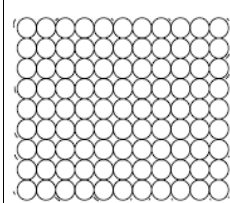
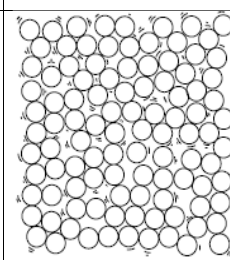
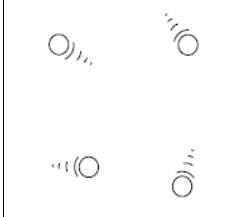
**Boiling** when a liquid changes state to a gas.

**Sublimation** a solid changing straight to a gas.

**Melting point** the temperature at which a solid turns into a liquid, this is the same as the temperature that a liquid turns in to a solid.

**Boiling point** the temperature at which a liquid turns into a gas, this is the same as the temperature that a gas turns in to a liquid.

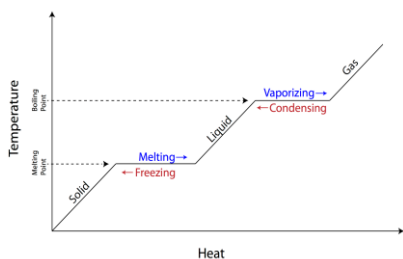
Separation technique	What it separates	diagram	How it works
Filtration	Insoluble solid from a liquid		The particles of the liquid and any dissolved particles are small enough to fit through the filter paper, however any solid particles cannot pass through and become trapped in the paper.
evaporation	Soluble solid from a liquid		The boiling point of the liquid is much lower than that of the dissolved solid, the liquid evaporates when heated and the solid is left behind.
Distillation	A liquid from a solution		The liquid is heated and evaporates, the vapours are trapped and cooled, condensed and collected.
Chromatography	A mixture of dyes or colours		The different colours in the inks have different solubilities and are transported different distances up the paper.

State	Particle arrangement	How the particles move	Properties
Solid		Particles are held in a fixed position and vibrate on the spot.	Solids cannot be squashed, do not flow, have a fixed shape and volume, and have a high density.
Liquid		Particles are free to move past each other but are still very close.	Liquids cannot be squashed, flow quite easily, and have a fixed volume but no fixed shape.
Gas		Particles are far apart and can move anywhere by themselves.	Gases are quite easy to squash, flow easily, have no fixed volume and no fixed shape.

### Changing State

Substances must be heated to make them melt or boil and cooled to make them condense or freeze.

Heating makes particles move faster and weakens the forces of attraction between the particles. Cooling slows the particles down and strengthens the forces of attraction between the particles. Substances melt and boil at different temperatures called the melting point and boiling point. These are different for each substance.



### Solutions

A **solution** is a liquid containing dissolved substances. The substance being dissolved is called the **solute** and the liquid in which it is being dissolved is the **solvent**.

**Solute + solvent → solution**

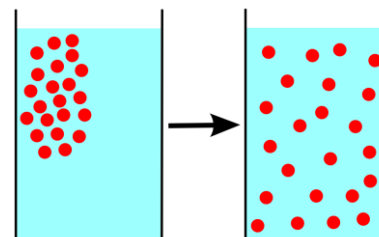
A substance that will dissolve is **soluble**, one that will not is **insoluble**.

The amount of solute that will dissolve is effected by the type of solute, the type of solvent and the temperature.

When no more of a substance will dissolve in a solvent the solution is **saturated**.

### Diffusion

Diffusion is the movement of particles from an area of high concentration to an area of low concentration. Diffusion occurs because particles in a substance are always **moving** around. Diffusion is fastest in **gases**, and slower in liquids. Diffusion in solids is extremely slow.





# Y7 Phys T1- Forces

A force is something that causes a change in the position of an object.

A force can be described as a push, a pull or a turn.

Forces have both size (magnitude) and direction.

The unit of measurement of a force is the Newton (N)

Forces can be measured using Newton meters.



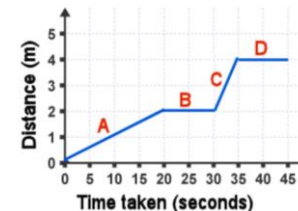
Forces can be categorised as contact or non-contact forces.

Contact forces require physical interaction for the force to be exerted (e.g. friction)

Non-contact forces can act at "a range". For example gravity and magnetism.

Distance time graphs show the distance that an object is travelling and the time it is taking to do so.

The gradient of a distance time graph (the change in the y-axis divided by the change in the x-axis) is a measurement of distance divided by time, which is speed.



Section A shows a speed of  $2\text{m} / 20\text{s} = 0.1\text{m/s}$

Section B shows no change in distance which means it is stopped.

Section C shows a greater speed than section A because the gradient of section C is steeper than section A. Section C shows  $2\text{m}$  travelled in  $5\text{s} = 0.4\text{m/s}$

Friction is a contact force. Friction occurs when an object is moving and is in contact with another substance.

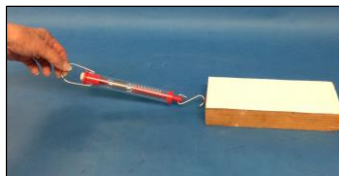
For example, if you push a book across a table, friction acts in the opposite direction to this motion.

Adding a lubricant can decrease the effect of friction. Friction can generate heat.

Air resistance is also a form of friction. When a plane flies through the air, the air particles collide with it and apply a force in the opposite direction to the motion of the plane.

Air resistance can be decreased by making an object more streamlined/aerodynamic. This works by decreasing the size of the force acting on the object.

Friction can be investigated by dragging friction blocks across a table.



Adding more mass to the block will increase the amount of friction generated. This means a greater force needs to be applied to move the block.

Changing the surface of the block and/or the table will also change the amount of friction generated.

Mass and Weight are two different things.

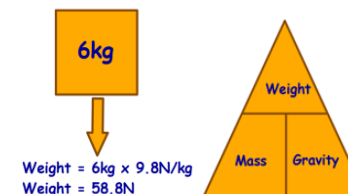
The mass of an object is its ability to resist change (inertia). Mass is measured in kilograms (kg)

The weight of an object is the force that the object exerts straight downwards because of both its mass and because of the strength of gravity.

Weight is measured in Newtons (N) because it is a force.

Weight (N) = mass (kg) x gravitational field strength (N/kg)

Gravitational field strength on earth is  $9.8\text{N/kg}$ , so to find the weight of a  $6\text{kg}$  box on earth: Weight =  $6\text{kg} \times 9.8\text{N/kg} = 58.8\text{N}$ .



Speed is a measurement of how much distance is travelled in a certain amount of time.

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

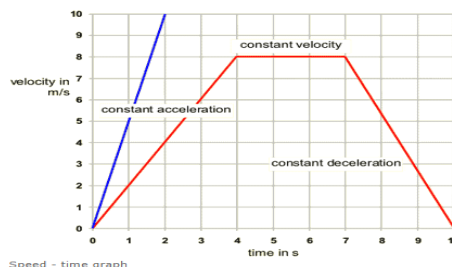


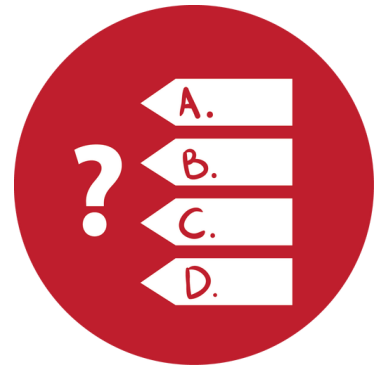
Distance is measured in metres (m)

Time is measured in seconds (s)

Speed is measured in metres per second (m/s)

Speed/velocity time graphs show how the speed of an object varies over time. The gradient (line) of the speed time graphs shows an object speeding up, slowing down or going a constant speed. This is therefore a measurement of the acceleration of the object. Acceleration is measured in  $\text{m/s}^2$







B

