CHRIST THE KING

KNOWLEDGE ORGANISER

Year 7 LENT

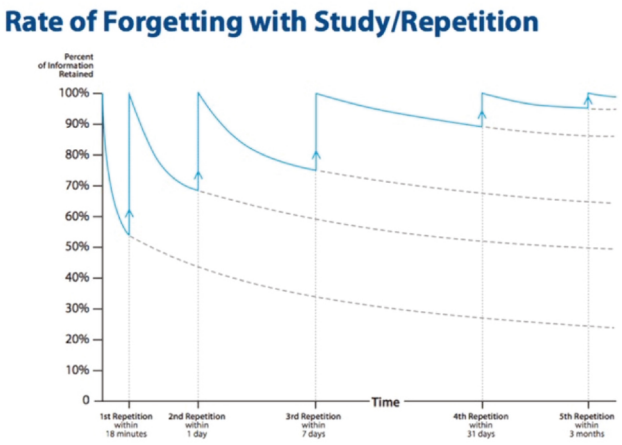
(Term 2)

#CTKCares

Knowledge Organisers

We use knowledge Organisers at Christ the King to help all students achieve. Knowledge Organisers improve your confidence by helping you to understand how to learn and revise. We are building a seven-year revision strategy that supports you to remember the core and powerful knowledge that is required to be successful in each subject.

The Ebbinghaus Forgetting Curve demonstrates that knowledge is lost over time if it is not revisited. A simple model for memory involves working memory and long term memory; working memory is limited, and can very easily become overloaded, whereas long-term memory is effectively limitless. You can support your limited working memory by storing key facts and processes in your long-term memory. Research evidence indicates that regular recall activities, known as retrieval practice, are an effective way of ensuring that knowledge is committed to long-term memory



At the start of each term, you will receive a knowledge organiser booklet that contains content for all subject areas. You will use your knowledge organiser in your lessons, in tutor time, and during homework tasks. An important aspect of your revision for assessments and end-of-year examinations will be to use the knowledge organisers for self-quizzing. If this core knowledge is secured, you will be in a strong position to use and apply this knowledge in a range of contexts. You will be given your knowledge organiser in a plastic wallet along with a homework booklet – the expectation is that you bring this to school every day – **it should be placed on your desk in every lesson**, ready to use. Geography and History highlight the essential 'golden knowledge' in yellow to support your learning.

How to use your Knowledge Organiser

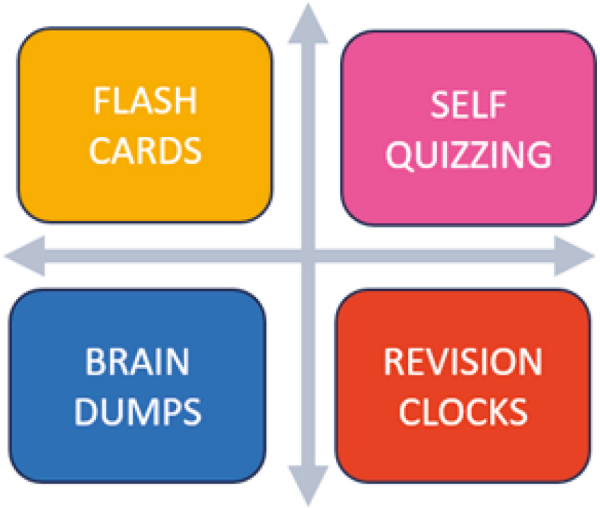
The best way to use your knowledge organisers is to regularly use one of our Core 4 Revision strategies as part of your home learning. These strategies will be explained to you in more detail in tutor time, by your class teachers and as part of your Personal Development lessons.

- **Flash Cards:** Use the information from your knowledge organiser to create flashcards – these could be double sided, with a question on one side and the answer on another, or a keyword on one side and the definition on the other.

- **Self Quizzing:** There are different ways you can self-quiz:
  - Look, cover, write, (say), check
  - Create gaps fills
  - Create questions for the information you want to learn and then answer them from memory

- **Brain dumps:** These are a small but powerful revision strategy which help makes the information 'sticky' so that it goes into your long-term memory, ready for you to recall it into your working memory. They are good to use at the end of topics. An effective brain dump involves you writing down everything you can about a topic you want to revise from your memory. You then check the information against the information on your Knowledge Organiser – you then mark your work and add any missing information onto your brain dump in a different colour pen, so that you know which information you need to revisit, either through using flash cards or self-quizzing.

- **Revision Clocks:** Revision Clocks are a blank clock shape – divided into 12 segments. In each segment put a sub-heading and then include the information linked to that. They are effective as they allow you to 'chunk' up the core knowledge from the topic into the segments. You can use colours and pictures to make the information more 'sticky'.



Homework Schedule

You should complete at least one hour of Home Learning per school day.

This will consist of:

- Knowledge Organiser and Online Learning as directed by your teachers.
- If you have no tasks set, carry out Knowledge Organiser activities as per the Knowledge Organiser timetable below.
- Two periods of 20 minute reading each week.

Week 1					
20 Minutes Per Subject	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Subject 1	English	Science	Maths (Sparx)	Maths	English
Subject 2	RE	PE	RE	Science	Geography
Subject 3	Music	History	Technology / IT	MFL	Art

Week 2					
20 Minutes Per Subject	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
Subject 1	Science	English	English	Maths (Sparx)	Science
Subject 2	RE	Maths	RE	Drama	Geography
Subject 3	Music (Practical)	History	Technology / IT	MFL	Art (Practical)

Read 20 minutes a day and you'll read 1,800,000 words per year.

Reading for 6 minutes a day reduces stress by 68%.

Children learn 4,000 to 12,000 words per year through reading,

What are the homework expectations?

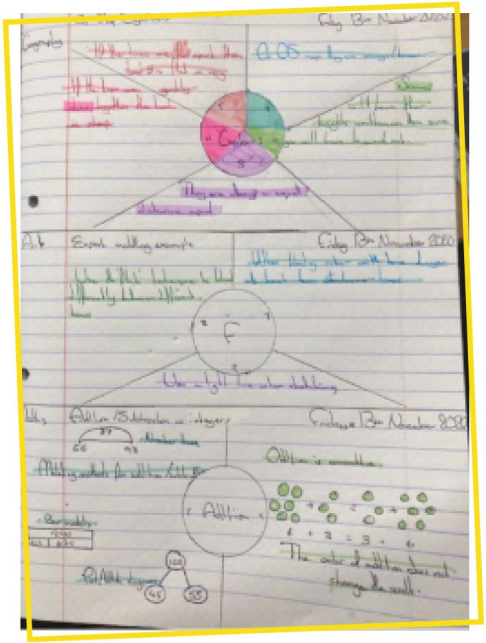
Each homework must meet the following 5 requirements:

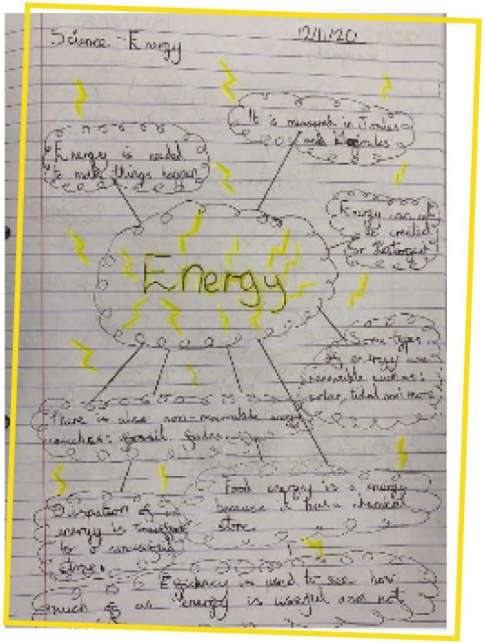
- Write the complete title and date in full *e.g Wednesday 7th June 2023* on each page and underline.
- You should include minimum of words to summarise the topic. Do not copy the words from the text.
- Make full use of the page for each topic by scaling your notes and images appropriately to use all the space.
- You must include diagrams, sketches, or cartoon doodles to visually represent the topic, try to use humour.
- Highlight key words and phrases, using underlines and highlighter pens, and explain technical terms.

How should I present my work?

Please remember that the same rules apply to the presentation of your homework as applies for your class work: **dates and titles** (which should be the name of the subject) **need to be underlined with a ruler** and you should **present your work as neatly as you are able to.**

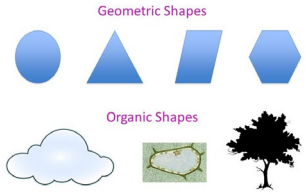
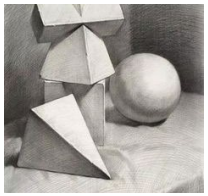
If you are self-quizzing correctly, there should be **evidence of green pen on your page**. Here are some examples of how to set out your work:





DON'T FORGET!

Always record the date, topic, and page number in your Home Learning Book!

1. Formal Elements	Definition	Visual
Colour Theory	Colour theory is the study of how colours work together and how they affect our emotions and perceptions. It helps artists, designers, and creators to help them choose the right colours for their projects.	
Shape	Shapes can be two-dimensional or three-dimensional enclosed areas. They can be geometric (circles, squares, rectangles, triangles) or organic (freeform, natural, erratic and irregular).	
Form	Form refers to the three-dimensional aspect of an object, adding depth and volume.	

2. Processes	Definition
Colour mixing	This term applies to mixing two or more colours together to create a new colour or tone.
Blend	The process of fusing two tones or colours to transition from one to another or to create a new tone or colour.

3. PABLO PICASSO ARTIST

WHAT? Pablo Picasso was born in Malaga in Spain in 1881 and died in Mougins France in 1973. He produced many pieces of art in his long career including paintings, sculptures, and drawings.

WHY? Pablo Picasso is considered to be one of the most famous Modern Artists. He is particularly famous for his Abstract artworks, especially the art style called 'Cubism'. His work has gone on to influence generations of artist and designers and his work can be seen in galleries and museums all over the world.

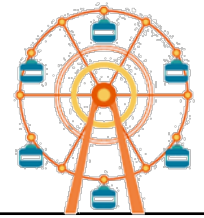
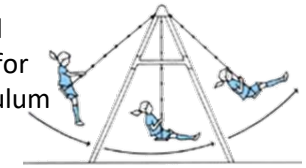
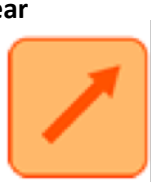
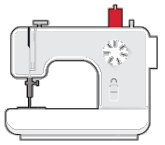
HOW? Pablo Picasso's Abstarct style was greatly influenced by African sculptures and artefacts. He was attracted to the simplified shapes, strong outlines and bold use of colour.

4. Keywords	Definition
Complimentary Colours	Two colours which are opposite of each other on the colour wheel which can create a contrast.
Abstract Art	Is artwork which does not try to represent an accurate or realistic view of the world, but instead uses colours, shapes, forms and gestural marks to achieve its effect.
Realistic Art	Is artwork which attempts to show an accurate and detailed representation of nature and life.
Portraiture	Is an artwork, often of a person's face, which may be created by using any type of medium - drawing, painting, photograph, sculpture etc.
Medium	The material used to create a piece of artwork.

D&T - Mechanisms

1. Keywords	Definition
1. Mechanism	Mechanical devices change an **input** force and movement into a desired **output** force and movement. They can change magnitude and direction of force.
2. Cam	Cam's are used to convert rotary motion in to reciprocating. A rod, known as a follower rests on the cam and rises and falls as the cam rotates.
3. Lever	A lever is a mechanical device used to transmit and transform the effect of forces. The input force is transferred through the lever to move a load.
4. Linkage	Levers can be joined together to make linkages. Linkages can change an input motion + force into an output motion + force.
5. Pully and Belt	Pulleys use mechanical advantage, similar to levers, to lift up loads.
6. Gear train	*Gear trains* are when two or more gears are joined together. In a simple gear train, the *drive gear* causes the *driven gear* to turn in the opposite direction.

3. Types of motion – There are 4 basic types of motion:

Rotary 	Moving in a circular direction, for example a wheel turning.	
Oscillating 	Moving back and forth in an ARC, for example a pendulum swinging.	
Linear 	Moving ONE way in a straight line for example using a paper trimmer.	
Reciprocating 	Moving back and forth in a straight line, for example a needle in a sewing machine.	

2. System Diagrams

A system is made up of several parts that work together as a whole, to carry out a function. They require and **input**, a **process** and an **output**. A mechanism can make a force bigger or smaller and can change movement direction. The diagram below shows the mechanical process for riding a bike.

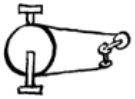
Input

Force and movement are the input into a mechanism.

Force is applied by the rider's feet.

Process

The mechanism converts or transmits the input force and movement.

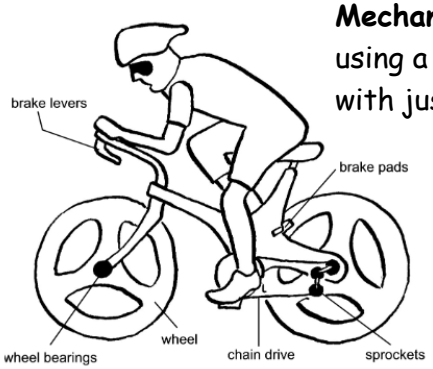


The chain and gear convert the force.

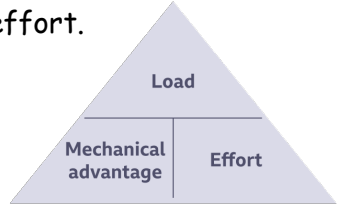
Output

The mechanism produces an output force & movement.

The wheels turn causing the bike to go forward..



Mechanical advantage is the amount of help you get using a machine in comparison to doing something with just human effort.



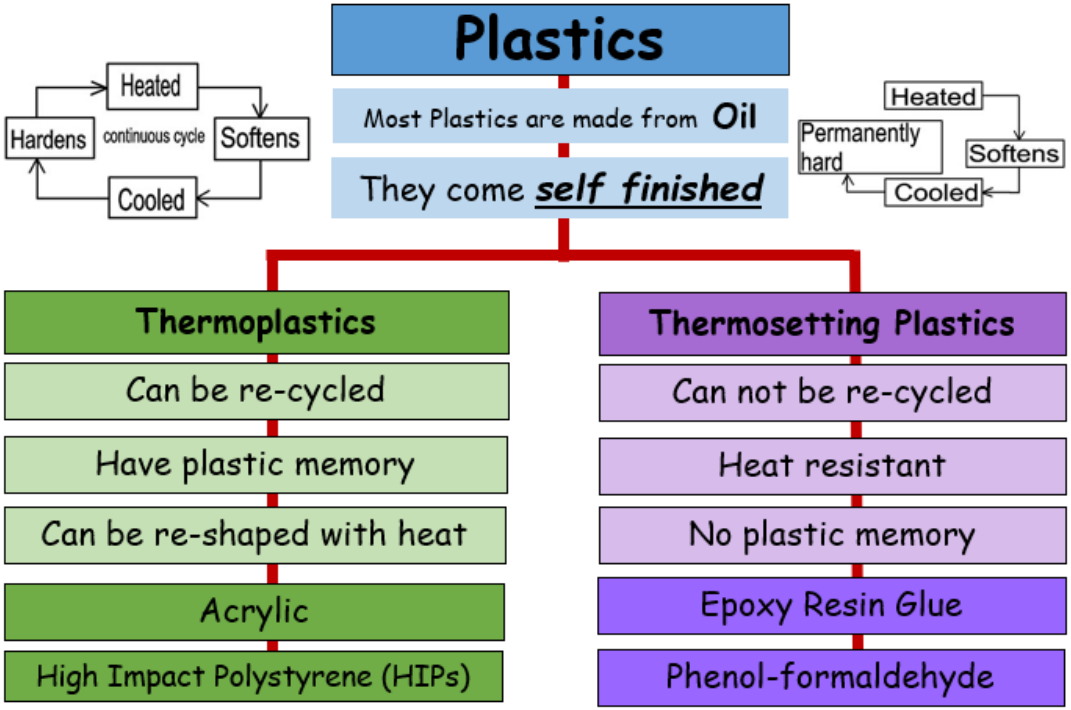
- **mechanical advantage** = load ÷ effort
- **load** = mechanical advantage × effort
- **effort** = load ÷ mechanical advantage

D&T – Plastics and Health & Safety

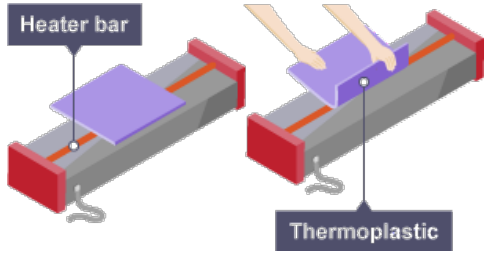
Key words	
1. Thermoplastic	Polymers that can be softened through heating before being processed and then left to cool and harden. Once cooled, they show no changes in chemical properties, meaning they can be re-melted and re-used several times.
2. Thermoset	A polymer-based material that is insoluble and non-melting
3. Acrylic	A clear, strong, stiff plastic. Acrylic is available in many colours.
4. Jig	A device that holds a piece of work.
5. Marking out	the process of marking lines and positions on piece of work.

Tools		
Try Square		Used for marking out and checking 90° angles on wood, metal or plastic.
Coping Saw		A saw used to cut wood and plastic. Its think blade makes it ideal for cutting curved lines.
File		A file is a tool used to remove fine amounts of material from a piece of work.

Know your safety signs



Line bending:
Once the acrylic is cut it can be bent. It needs to be heated to around 150 to 170 °C to bend without cracking, after cooling the bend produced remains the same. A Jig an be used to ensure the bend is accurate.



Process of converting oil to plastic	
Extraction	Raw materials, such as crude oil, are extracted from the ground.
Transportation	Transport oil to the refinery.
Refined	Crude oil is separated into liquids and gases.
Polymerisation	Polymerization occurs, which is just a term for converting gases into polymers.
Compounding	The last step is compounding, where different materials are blending together to make plastics.

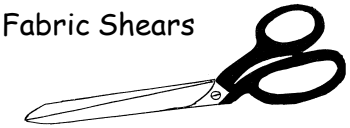
1. Key word	Definition
1. Fibre	A fibre is the smallest element of a fabric; it looks like a human hair.
2. Fabric	Textile fabrics are woven or knitted from **yarn**, which is made from **fibres.**
3. Seam	This is the join where two or more pieces of fabric meet. An unfinished seam leaves the edges open to fraying.
4. Renewable	This means that it can replaced by new growth so that it does not run out.
5. Fossil fuels	Non-renewable sources such as coal, coal products, natural gas, crude oil and petroleum products.
6. Sustainable	They are replaced at a rate equal to or greater than the rate at which they are used).
7. Bio-degradable	The ability for a material to be broken down naturally by the organisms in an ecosystem.
8. Degradable	They can be broken down into very small parts.
9. Standard components	These are a range of components that can be bought ready made such as zips, buttons and Velcro.

2. Equipment

Embroidery Scissors

Iron

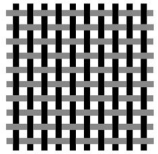
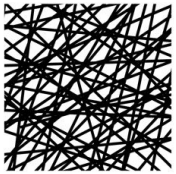
Fabric Shears



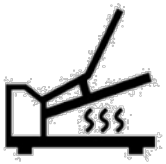
Needle

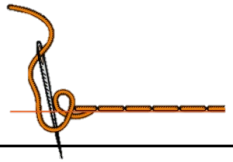
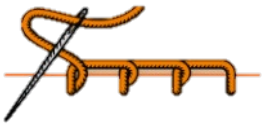
3. Fibres come from several sources and can be either:

Natural 	From plants or animals. 	**Plants** – Cotton and Linen. **Animals** - Silk and Wool.	They are renewable, sustainable and biodegradable. 
Synthetic 	Manmade from **fossil fuels** -coal, oil and gas.	Nylon, Polyester, acrylic.	Cannot be replaced, does not decompose and contributes to environmental problems if they end up in landfill.

Construction	Description	Properties and Examples
Weaving  woven	**Woven fabrics** are made by interlacing two sets of yarn at 90º angles to each other. The **weft** runs along the width of the fabric and the **warp** runs along the length of the fabric.	Woven Fabrics are **strong** and **stable** they are used to make: 
Knitting  knit	**Weft knitting** can be made by hand or machine using yarn that forms interlocking loops across the width of the fabric. **Warp knitting** is made by machine that forms vertical interlocking loops.	Knitted fabrics are **stretchy, comfortable** and **warm to wear** they are used to make: Clothing, such as jumpers and cardigans. 
Bonded  non-woven	**Bonded** fabric is made from webs of fibres that are bonded together with glue, heat, stitches or needle punching. **Felt** is made from matting wool fibres together using moisture, heat and pressure.	Bonded fabrics **do not fray** but are **weak,** they are used to make: 

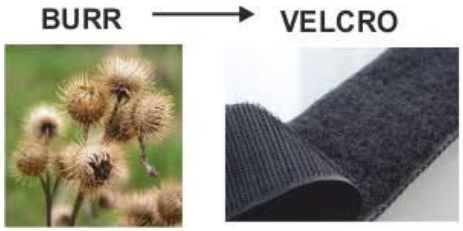
Adding Colour to Fabric:
Most fabrics start out as beige or white (loomstate).
There are 2 main ways to add colour to textiles – **Printing and Dying**

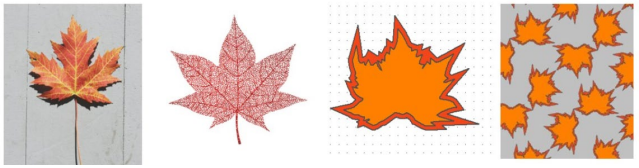
Printing 	Printing involves pressing a pattern directly on to the fabric. This can be done by machine or by hand.	There are many ways to do this: • Block Printing • Screen Printing • Roller Printing • Transfer Printing • **Sublimation Printing** 
Dyeing 	Fabric dyeing involves soaking fabric in a dye bath so that it absorbs the colour into the fibre.	There are many ways to do this: • **Tie dye** • Batik • Dip dye 

Embroidery	Description	Image
Running Stitch	This is a small even stitch that runs back and forth through the cloth, without overlapping.	
Back Stitch	Individual stitches are made backwards to the general direction of sewing. It is more durable than running.	
Cross Stitch	A type of counted embroidery that uses little crosses or 'x's to create a tiled pattern or design.	
Blanket Stitch	This stitch reinforces the edges of fabrics to prevent them from fraying. It is also used to provide a decorative finish.	

Applique
Applique is where fabric is sewn on to another piece of fabric using hand or machine stitches. It is mainly used to add decoration and colour, but can also have a function, for example to strengthen or repair the knee area on children's trousers.

Biomimicry
Biomimicry involves looking at nature for inspiration to solve engineering problems and to develop innovative new designs for products and architecture.





We can also be inspired by nature when considering the patterns and shapes of products.

Fairtrade
Cotton is one of the world's biggest crops. As many as **100 million rural households** (90 percent of them in lower-income countries) rely on cotton production for their livelihoods.

Fairtrade ensures that farmers in lower-income countries get a fair price for their produce. It also aims to improve pay, working conditions, rights for workers as well as more environmentally friendly and sustainable products.

FAIRTRADE FOUNDATION

Material Properties		
Cotton - Natural	Grows on a cotton plant in a ball called a boll, fibres are combed and spun into a yarn.	Takes dye well, soft, strong, absorbent, recyclable, used in clothing.
Polyester - synthetic	Can be woven or knitted, thick or thin and available in a variety of colours, can be blended with other fibres for better properties.	Strong and versatile, it holds colour and washes well.

WHAT AM I DOING WELL ?

WHAT DO I NEED TO DO TO IMPROVE ?

AM I ABLE TO USE INDEPENDENT LEARNING TO IMPROVE MY KNOWLEDGE OF DRAMA ?

YEAR 7
MOVEMENT AND STORYTELLING

DRAMA TECHNIQUES

SEVEN LEVELS OF TENSION
1. NO TENSION - COMA
2. THE RELAXED - A LITTLE TENSION
3. THE NEUTRAL - COOL
4. ALERTNESS - EFFICIENT
5. SUSPENSE - TEN MINUTES TO GET THERE
6. PASSIONATE - LATE
7. EXPLODING - FEAR/EXCITEMENT

FLASHBACKS/FLASHFORWARDS
TECHNIQUES USED TO SHOW ACTION THAT HAS HAPPENED IN THE PAST, PRESENT OR FUTURE

SOUND
USING MUSIC AND SOUIND EFFECTS CREATE MOOD AND ATMOSPHERE FOR THE AUDIENCE

TRANSITIONS
TRANSITION IS MOVING FLUENTLY FROM ONE SCENE TO ANOTHER.

MONOLOGUE
ONE CHARACTER SPEAKS TO THE AUDIENCE AND SHARES THEIR FEELINGS OR POINT OF VIEW

KEYWORDS

MOVEMENT
moving your body with fluency to tell a story

STIMULUS
ta starting point for ideas to create a performance

DEVISING
creating a play from scratch using a stimulus for ideas

CHARACTERISATION
changing your voice and body language to become a character

PROJECTION
using your voice to speak loudly and clearly

TEMPO AND RHYTHM
the tempo and rhythm of speech and action you apply to character to gain audience interest

CHORAL SPEAKING
actors delivering lines in unison

STORYTELLING
using words and actions to tell a story about others to an audience

ENSEMBLE
a group of people working together on stage to create a performance

MIME
action created with no voice

PROXEMICS
the space and/or distance between actors to show the relationship between the characters

INTERACTION
how characters react to each other to convey their relationship

DIALOGUE
speech and words spoken by actors

FREEZE FRAMES
still images used to highlight actions and key moments of a performance. Can be used at the beginning of the devising process.

AN EVACUEE IS A PERSON WHO HAS TO BE MOVED FROM A DANGEROUS PLACE

A REFUGEE IS SOMEONE SEEKING A SAFE PLACE IN ANOTHER COUNTRY

WHAT AM I DOING WELL ? WHAT DO I NEED TO DO TO IMPROVE ? HOW ARE THE AUDIENCE IMPACTED BY THE ACTING AND DESIGN CHOICES ?

YEAR 7 PETER PAN

Physical and vocal Key words

CHARACTERISATION
Using a range of physical and vocal skills to show a character who is different to you.

TONE OF VOICE
The emotion behind what your character says e.g. an angry tone, a surprised tone.

PITCH
How high or low your character's voice is.

ACCENT
The way a person speaks- can show where they are from and sometimes class or status.

PACE
The speed at which your character speaks or moves.

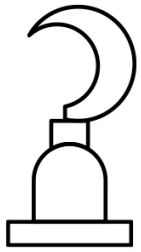
GESTURES
Using your hands (or sometimes eyes and head) to communicate meaning with other characters and the audience e.g. pointing/winking.

BODY LANGUAGE
Showing emotion through the way you sit, stand or position yourself.

FACIAL EXPRESSION
Showing emotion through your face- eyes, mouth, eyebrows...

moment effect scene script stage skills physical suggests actor element choices story dialogue successful character design movement engaging audience line director performance vocal

words we use to talk about theatre



Writing structure

WHAT? Explain **which** element was successful.

HOW? Explain exactly **how** this moment was created.

WHY? **Why** was it successful? What impact did it have on the audience?

- One moment that stood out for me was...
- This helped to communicate to the audience that...
- This effect was created by...
- This could have been communicated more effectively by...
- The actor/designer used... successfully to create...

Design Key words

DESIGNER
The person in charge of making decisions about a particular element of the production.

SET
The scenery and furniture on the stage throughout the production.

PROPS
The items held or used by actors on stage to make the action more realistic.

COSTUME
What the actors wear when performing. Costume can denote character, historical era and the style of the productio.n

MUSIC AND SOUND
Live or recorded sound used to enhance a production and create a certain atmosphere.

LIGHTING
Lighting is used to make sure the audience can see the actors and set, focus their attention on what is important and to create a mood.

REVOLVE
A circular section of the stage which turns separately to the rest.

LEVELS
Used to create different locations or to show status on stage.

COLOUR/FIT/STYLE
Can suggest a character's personality, occupation or status.

1. Key Language Devices Used by Writers

adjective	word that gives more information about a noun
alliteration	repetition of the same first letter
emotive language	language that is chosen to make the reader feel an emotion
imperative verb	a verb that gives an order or command
first person pronoun	a word that stands in place of a noun – it can be just refer to one person (I, me, my, mine) or to more than one person (we, us, our, ours)
juxtaposition	when two ideas are put close together, although they are very different
metaphor	a description of something as though it were something else, that uses a direct comparison
personification	when an object is given human qualities
repetition	words or phrases repeated to bring attention to an idea
rhetorical question	a question that is asked for effect and is not a request for informatio
rhyme	when two or more words have similar sounds, particularly at the end of lines in poetry
simile	a comparison introduced by 'like' or 'as'
verbs	a word used to describe an action (many verbs identify states or feelings rather than actions and can be very emotive / effective)
volta	a shift in mood or attitude

2. Key Terms for Poetry

ballad - a poem or song that describes tragic events in short stanzas, often with a moral purpose
context – information such as: where and when the text was written, who it was written by, and what was happening at the time when it was published.
purpose - the reason why a poet chose to write the poem – his or her intention
speaker – a character or voice that the poet has created when the poem was written. The poet writes the text and is not necessarily the same as the speaker.
stanza - a grouped set of lines within a poem (another way of saying verse)
title - the name of a poem, play, novel – that may give the reader some ideas about the text

3. Key Connectives You Can Use for Comparison

comparing – identifying differences and similarities between two texts
analysing – being able to explain the poet/s choices of form and language and comment on the effect

Comparing differences

However … Whereas … Conversely ….
On the other hand …

Comparing similarities

Equally … Similarly … Likewise ….
In the same way …

Point	The speaker is presented as … The writer makes us think that… The language of the text is used to… The structure of the text is used to… The writer suggests that …. The technique of…is used to…. The writer shows us that…. One way in which (use the key words from the question) is…
Evidence	For example …. This is shown in the line …. This is shown in the quotation… In the text it says '….' This is indicated in the line '….' For instance…
Technique	This is an example of a…. The technique ……. is used to… By using the technique… Bu using … the writer shows that…
Explain **E**ffect	This suggests/shows/implies/connotes/ The effect on the reader is…. This is used to show that… The connotations of this are…
Relate	Another example of the writer (use keywords from the question) is when… Overall, the writer makes us feel … (relate back to the question and your ideas on this) Relate to why the writer wrote the text, what you think s/he was trying to convey) The author's intention was to…

English – Myths and Legends

1. Key Words	
Exciting Verb Choices	**Exciting Adjective Choices**
unrelenting whispered blighting blistering stretching shrivelled hammering ricocheting resounding pulsing recoil	emaciated prominent perpetual frantic brittle brave gigantic terrifying

2. What features might a myth have?

1. Set in ancient times.
2. Fantastical things can happen.
3. Characters often have superpowers.
4. They serve as a moral message.
5. They might explain how something came into being in the natural world.
6. They have elements of the supernatural
7. May feature a hero.
8. Explain the actions of gods.

3.Technique	Definition	Example
adjective	A describing word	She created the spiralling mountains.
verb	An action or being word	A giant scallop shell glided to shore.
personification	When an object is given human attributes	She hears the whisper of leaves.
metaphor	Comparing one thing to something else by saying that it is that thing	The trees are shadows in the darkness of the forest.
Simile	Comparing one thing to something else by saying it is like that thing	At night that lake burns like a torch.
alliteration	When two or more words start with the same vowel sound	The cold, cramped cave sat high up on the mountain.
sibilance	The repetition of the s sound in two or more words in a sentence.	The slavering, shuddering, slobbering three headed dog.

4.Sentence Openers	
Way of starting a sentence	**Example**
Use a connective	While the rain poured down, Eros sat and wept bitter tears.
Using an ing clause	Stomping his colossal feet, Thor demanded attention.
Using an ed clause	Moved by his own beauty, Narcissus gazed lovingly at his own reflection.
Using a simile	As gently as a lamb, Cerberus lay down and fell asleep.
Using an adverb	Angrily, Grendal raised his giant fist and struck out at Beowulf.
Using a preposition	In the middle of the forest, Ndidi came across something mysterious.

5.Sentence type	Definition	Example
Simple	main clause only with a subject, an object and a verb.	The girl walked down the street.
Compound	can be broken down into two separate sentences and features a connective to join them.	The girl walked down the street and then she crossed the road.
Complex	features a main clause with extra detail added and commas used to separate clauses.	At two o' clock in the morning, the girl walked down the street, accompanied by a small dog.
Minor	One, two or even three words used for dramatic effect.	Walking silently. A girl. Darkness.

6.How to punctuate speech:

1.The words spoken by a character sit inside speech marks:
"Did you hear that noise?" whispered Sam.
2. Speech marks are sometimes known as inverted commas or quotation marks.
3. Some writers use double speech marks and some use single speech marks. You can use either type as long as you are consistent!
4. Every time there is a new speaker in the conversation, a new line is used.
5. Each new section of dialogue is like beginning a new paragraph, so in a printed novel you will see that each new line is also **indented**.
6.Each new line of direct speech should also start with a capital letter.
7.Each section of direct speech should **end with a punctuation mark**.

7.Essential elements for a story

Setting

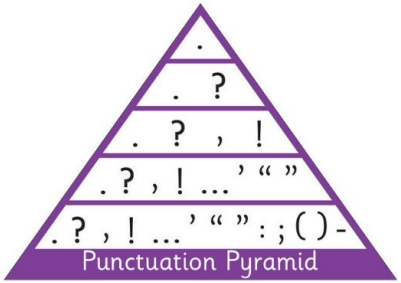
Characters

Plot

Moments of tension

Climax

Resolution



8.To build tension in writing you could:

1. Spend time setting the scene
2. Drop hints to the reader
3. Create pauses for dramatic effect
4. Use minor sentences and paragraphs to slow the pace.

Food Preparation & Nutrition - A Healthy Balanced Diet

1. The 4 C's

Cooking	Cleaning	Chilling	Cross Contamination
Cooking kills bacteria. Food needs to be heated till steaming hot with the core temperature reaching 75°C for 30 seconds.	Cleaning kills bacteria. Wash hands before, during and after food preparation. Wash all work tops, utensils, chopping boards and equipment. Rinse fruit, salad and vegetables.	Chilling prevents microbial growth. Cool food to below 5°C as quickly as possible. Defrost food in the fridge.	Bacteria is transferred from one object to another. Keep raw meat and shellfish on the bottom shelf of the fridge. Keep raw and cooked food separate. Never wash raw meat.

2. Using a knife safely

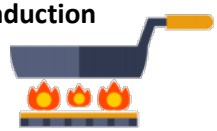
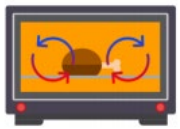
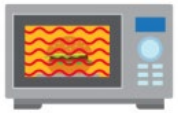
Bridge

Claw

- Use a firm grip and even pressure.
- Use the bridge or claw to hold food whilst cutting.
- Always cut down towards the chopping board, never cut towards yourself.
- Carry a knife with the point facing downwards.
- Don't touch the knife blade.
- Always put a knife down, don't hand it to someone else.
- Never leave your knife soaking in the washing up bowl.
- Never catch a falling knife.
- Always hand your knife back in at the end of the lesson.

Key topics: The Eatwell guide, the 4 C's, nutrients, knife skills, using the oven and hob, combining ingredients, shaping, forming, testing for readiness, weighing and measuring, washing up and clearing away.

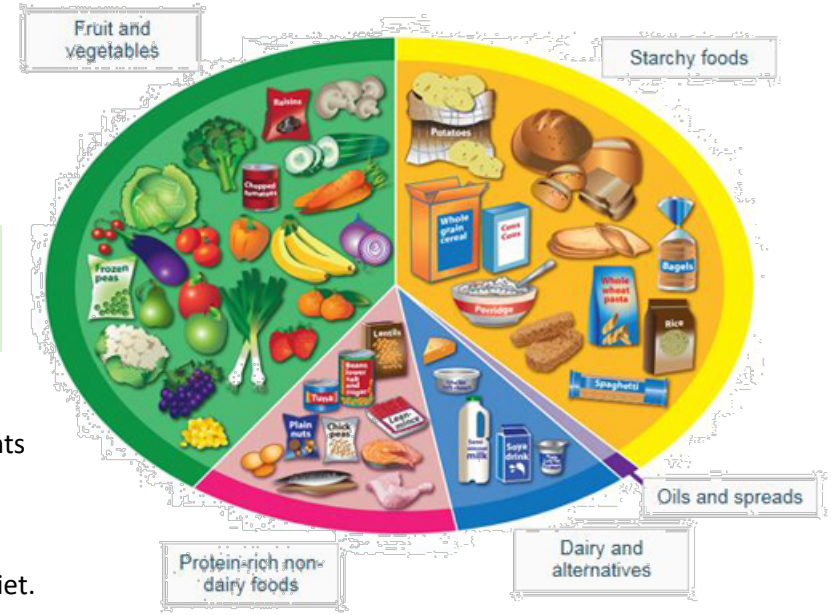
3. Heat Transfer and Cooking Methods

Conduction 	The transfer of heat from one object to another by **direct contact.** Metal is a good conductor of heat.	*Dry frying, stir frying*
Convection 	The transfer of heat energy by the movement of molecules, in **a liquid or in the air**, from a warm area to a colder area. Molecules rise as they heat up and then fall back down again as they cool creating convection currents.	*Baking, boiling, poaching and steaming.*
Radiation 	The process where heat and light waves strike and penetrate your food through electromagnetic energy. Heat energy in radiation is in the form of **infrared heat rays.**	*Microwave cooking, grilling and toasting.*

4. The Eatwell Guide

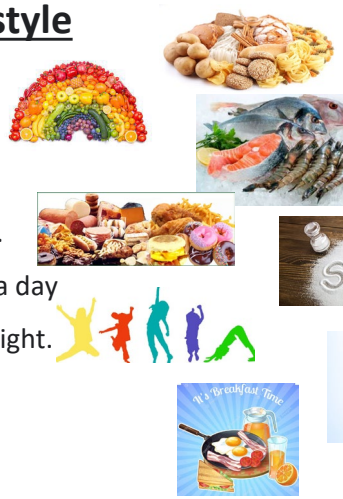
Watch this video for a recap.

This is the governments guideline showing a healthy balanced diet.



Food Preparation & Nutrition - A Healthy Balanced Diet

5. 8 tips for a healthy lifestyle



- 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.
- Don't skip breakfast.

6. Key Terms

1. Cross contamination	When bacteria is transferred from one object to another.
2. Diet	The type of foods that a person eats. Some people have special diets depending on their age or needs.
3. Nutrients	Nutrients are chemical compounds in food that are essential for the body to function properly and maintain health.
4. Macro nutrients	These are nutrients that are needed by the body in large quantities; they are Carbohydrates, Proteins and Fats.
5. Micro Nutrients	These are nutrients that are needed by the body in small amounts; they are vitamins and minerals.
6. Health	This defines your physical wellbeing. Good health indicates that you are free from illness.
7. Enzymic browning	An oxidation reaction that takes place in some foods, mostly fruit and vegetables, causing the food to turn brown.

	Nutrient	Function	Food sources
6. Macronutrients	**Carbohydrate**	This is the primary source of **energy** it also makes you feel full.	Bread, pasta, rice and potatoes.
	Protein	The bodies building block. Helps the body to **grow and repair** itself.	Nuts, eggs, fish, meat, beans and pulses.
	Fat	This is used as a secondary source of **energy**. It helps to **insulate** the body and maintains **brain function**.	Meats, cheese, butter, oils, nuts and seeds.
7. Micronutrients	**Vitamins** A B C D	There are many different vitamins and they play a vital role in keeping **skin**, **eyes**, **hair** and **blood healthy**.	Fruits and vegetables, meats, dairy, eggs, cereals, sunlight etc.
	Minerals Calcium, iron and sodium	Minerals help your body **grow**, **develop** and stay healthy. They help build **strong bones**, **teeth**, **blood** and **nervous systems**.	Dairy, vegetables, fish, meat, cereals etc.
Fibre		Prevent **constipation**, increase the feeling of **fullness**, reduce the risk of heart disease, diabetes and some cancers.	Wholegrain cereals, fruits and vegetables.
Water		Keeps you **hydrated**, controls body temperature, helps kidneys filter waste.	Fruit, vegetables, milk, soup.

8.

French		English
Pendant mon temps libre je fais beaucoup de choses	**1**	In my free time, I do lots of things
Deux fois par semaine je joue aux jeux-vidéos	**2**	Twice a week I play video-games
avec mon père ce qui est difficile mais fascinant	**3**	with my Dad which is difficult but fascinating
Souvent je vais au centre-sportif et je fais de l'exercice avec mes amis.	**4**	Often, I go to the sports centre and I do exercise with my friends.
Quand il fait beau j'aime jouer aux boules cependant	**5**	When it is nice weather, I like to play boules however
quand il pleut je fais de la natation	**6**	when it rains, I do swimming
Je dirais que la natation est plus fatigante que les boules.	**7**	I would say that swimming is more tiring than boules.
Ce weekend je vais aller au parc où je vais jouer au foot, ce sera génial.	**8**	This weekend I am going to go to the park where I am going to play football it will be great.
Normalement, le soir, j'aime regarder la télé avec ma famille au salon.	**9**	Normally in the evening, I like to watch TV with my family in the living room.
Surtout nous adorons les comédies et les documentaires.	**10**	We especially love comedies and documentaries.
Parfois nous allons au cinéma, je préfère les films romantiques	**11**	Sometimes we go to the cinema, I prefer romantic films
mais mon frère aime les films d'horreur.	**12**	But my brother likes horror films
J'écoute de la musique tous les soirs dans ma chambre. J'adore la musique pop, mon chanteur préféré est Harry Styles.	**13**	I listen to music every evening in my bedroom. I love pop music, my favourite singer is Harry Styles.
Cependant mes parents aiment la musique rock, c'est nul !	**14**	However, my parents like rock music, it's rubbish!

Geography – Topic 2 – Russia

1. Facts about the location of Russia
Largest country in the world by area
In both Europe and Asia
Coastline on the Arctic and Pacific Oceans

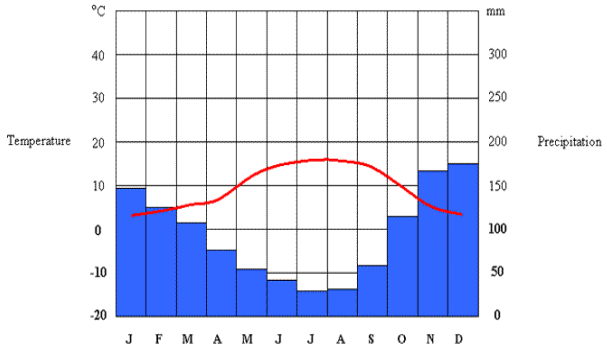
2. Physical features key words	
Marsh	Low-lying area which is flooded in wet seasons or high tide and is waterlogged
Mountain	A large elevation rising to a summit
Mountain Range	A series of connected mountains
Peninsula	A piece of land almost surrounded by water or projecting into a body of water
Permafrost	Permanently frozen ground found in tundra and polar regions
Plain	Flat area at a low elevation
Plateau	Flat area at a high elevation
River	A large stream of water flowing in a channel to the sea, a lake or another river
Steppe	A large area of flat unforested grassland in SE Europe or Siberia
Volcano	A mountain or hill through which lava, rock, gas and ash has erupted

The flag of Russia

3. Climate Graphs

Climate graphs contain three pieces of information

- Months (x-axis)
- Temperature in degrees Celsius (line graph)
- Precipitation in millimeters (bar chart)



4. Biomes in Russia: Taiga
Coniferous forests
Found in the Northern Hemisphere in countries including including Russia, UK, Canada and Sweden.

5. Plant adaptations in the Taiga
Evergreen trees
Thick, resinous bark
Pinecones
Long, shallow roots
Trees have long, thin needles
Downward sloping and springy branches

6. Population key words	
Population Density	Number of people living in a given area
Densely populated	Many people living in an area
Sparsely populated	Few people living in an area

7. Calculating population density

$$\frac{\text{Population}}{\text{Area}} = \text{Population Density}$$

8. Sectors of Industry	
Primary sector	Includes jobs in which people extract raw materials
Secondary sector	Includes jobs in which people make products out of raw materials often in factories
Tertiary sector	Includes jobs in which people provide a service for others
Quaternary sector	Includes jobs in which people research and invent things using advanced technology
Raw materials	Basic materials, e.g. wood or metal which can be used to make something

9. Economy in Russia key words	
Commercial farming	Farming to make a profit
Subsistence farming	Farming to provide food for yourself – anything left after can be sold.
Livestock	Animals reared to make a profit

10. Levels of Development	
HIC	High Income Country
NEE	Newly Emerging Economy
LIC	Low Income Country

Geography – Topic 3 – Weather and Climate

1. Key words	
Weather	The state of the atmosphere at a particular place and time
Precipitation	Any water falling from the sky such as rain, snow and hail.
Air pressure	The weight of the air pushing down on the earth
Air mass	Body of air with uniform conditions
Anticyclone	High pressure system leading to stable weather conditions
Depression	Low pressure system leading to unsettled weather
Front	Boundary between two air masses – one hot and one cold.
Microclimate	Variations of weather within a place

2. Measuring Weather		
Weather	Unit	Instrument used
Temperature	Degrees centigrade	Thermometer
Air pressure	Millibars	Barometer
Sunshine	Hours	Campbell-Stokes sunshine recorder
Wind speed	Knots	Anemometer
Rainfall	Millimetres	Rain gauge
Cloud Cover	Oktas	

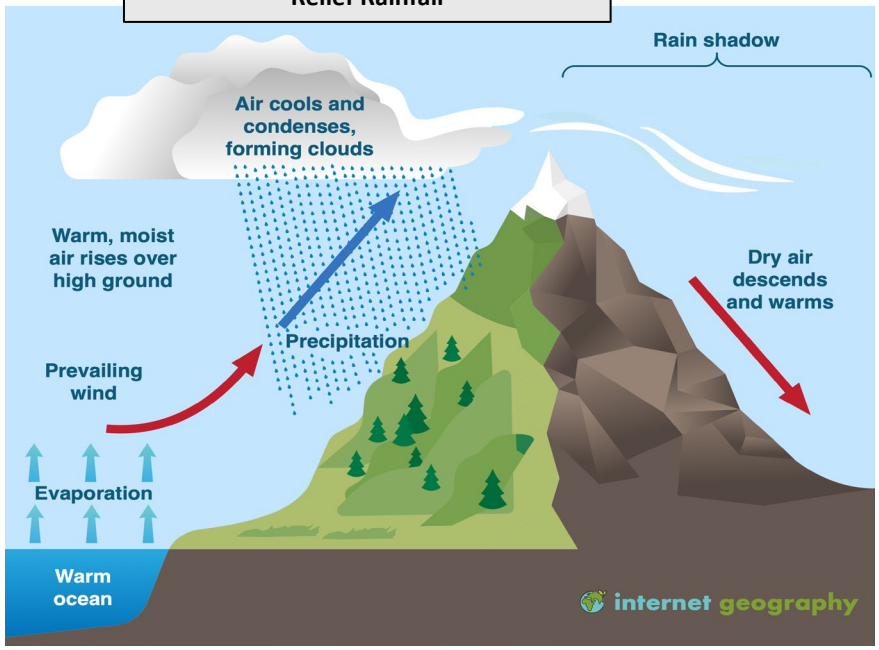
3. Formation of rainfall
1. Warm air rises and cools
2. Cool air reaches the dew point and condensation occurs
3. Clouds form
4. Cloud grows and when it can no longer hold the moisture rainfall occurs

4. Types of rainfall	
Relief	Caused when air is forced to rise over upland areas
Convectional	Caused by prolonged heating of the ground
Frontal	Caused by cold and warm air meeting in the atmosphere

5. Weather systems	
Anticyclone	Depression
High pressure	Low pressure
Clear and dry in summer – can lead to heatwaves	Changing unsettled weather over a period of days
Cooler temperatures at night	In the UK they come from the Atlantic and move West to East
Cold, dry days in winter	Cold front brings showers and strong winds
Frost and fog common in winter	Warm front brings light rain and light winds

6. Factors affecting climate	
Latitude	Position on the earth north or south of the equator. Heat is concentrated at the equator and less concentrated at high latitudes.
Distance from the sea	Water retains heat much longer than land, keeping places warmer for longer.
Altitude	Height of the land above sea level – Higher altitude leads to colder temperatures.
Prevailing wind	The direction from which most wind usually blows

Relief Rainfall



7. Extreme Weather Key words	
Extreme Weather	Weather which does not match the expected pattern e.g. blizzard or heatwave
Tropical storm	Intense low pressure weather system formed over oceans
Tornado	Rotating column of air formed from the clouds down to the ground.

8. Effects of tropical storms
Heavy rainfall
High winds
Storm surges

9. Factors affecting microclimate
Aspect – the compass direction the ground faces
Shelter
Surface
Buildings

Geography – Topic 4 – Settlement and Urbanisation

1. Population key words	
Population change	Change in the number of people in a specified area over time
Birth Rate	Number of babies born per 1,000 of population
Death Rate	Number of deaths per 1,000 of population

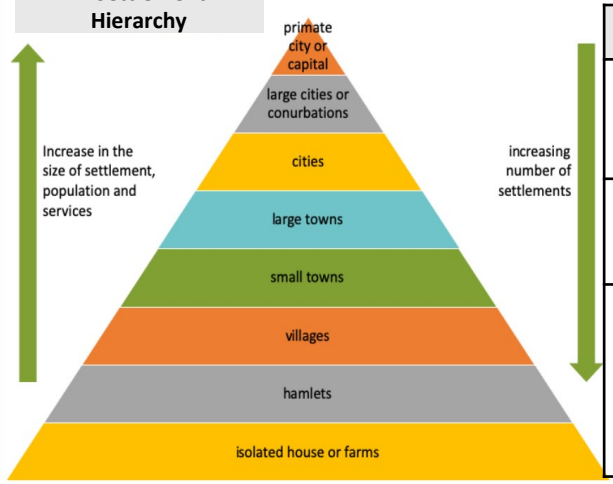
2. Settlement and Urbanisation key words	
Site	The place the settlement is located
Situation	Where the settlement is in relation to other settlements and surrounding features
Settlement hierarchy	Order of settlements in a region or country by population OR services
Land-use	The function of the land – what it is used for.
Terraced Housing	Row of similar houses joined together by their side walls
Traffic congestion	Slow speeds, longer travel times and queues when traveling in a vehicle.
Derelict building	Empty building which is no longer used and in a poor state of repair.
Retail	The selling of goods
Regeneration	Improving the buildings and landscape to provide benefits for an area
Urbanisation	The increasing percentage of a population living in urban areas
Megacity	A city with a population of over 10 million people

3. Early factors in choosing settlement location
Flat land
Raw materials
Water supply
Defendable site
Fertile soil
Shelter

6a. Challenges in HIC urban areas
Traffic congestion
Derelict buildings
Lack of green space
Crime

6b. Opportunities in HIC urban areas
Transport links
Close-knit communities
Entertainment and leisure
Retail

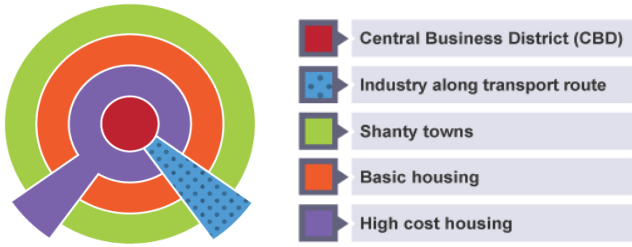
4. Settlement Hierarchy



7. Urban Transport Systems

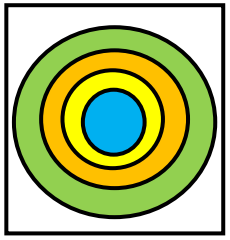
Integrated Public Transport	Combining modes of transport for ease and efficiency of use
Congestion Charge	Charging polluting cars for entering an urban area
Park and Ride	Cars are parked on the outskirts of an urban area and drivers take public transport from there to the CBD

8. LIC/NEE Urban Land-Use Model



8. LIC/NEE Urban Land-Use Model	
Shanty towns	Self-built housing on the edge of cities
Basic housing	Formally constructed housing with services such as water and electricity
High-cost housing	Similar in structure and style to those found in HICs

9. Causes of urbanisation in LIC/NEE Cities	
Natural Increase	Birth rate is higher than death rate
Rural-urban migration	The movement of people from the countryside to cities
Push factor	A reason a person has for leaving a place
Pull factor	A reason a person has for moving to a place



5. HIC Urban Land-Use Model

CBD	Central Business District. The commercial centre of an urban area.
Inner City	Mainly terraced housing in grid patterns, originally built near to factories to house workers.
Suburbs	Residential area mainly made up of private, semi-detached housing.
Rural-Urban Fringe	The edge of a city where it meets the countryside

10. Challenges in LIC/NEE Urban Areas	
Healthcare	Lack of access to healthcare facilities and trained doctors, nurses and midwives
Education	Not enough schools and a shortage of teachers. Wages are low for teachers.
Water supply	Not all the population have access to running water in an urban area
Energy supply	Shortages of supply because homes are not properly connected to the energy grid.
Crime	Lack of education and jobs mean some turn to crime for income.
Informal economy	Poorly paid jobs with no benefits and no tax is paid to the government from these jobs
Air pollution	Traffic congestion and pollutants from factories in the air create smog and unsafe air

History - Who Held Power In The Middle Ages?

1. Key people	
Monarch	A King or a queen
Henry II (1154-1189)	King of England from 1154 until his death in 1189. He believed the Church had too much power, so challenged this. Responsible for the death of Thomas Becket.
King John (1199-1216)	John was very unpopular. In 1215, John was made to sign the Magna Carta by his barons – which limited his power.
Henry III (1216–1272)	He tried to break the terms of Magna Carta, which led to a rebellion. He was forced to agree to the setting up of a Parliament.
Thomas Becket	Became Archbishop of Canterbury in 1162.
Simon de Montfort	Known also as 'The Father of Parliament'. One of the leading barons in England. Captured Henry III at Battle of Lewes and called a Parliament in 1265
Richard II	Becomes king of England aged 12. Helped defeat the Peasant's Revolt and kept the Feudal System.

2. Keywords	
Magna Carta	The document that King John was forced to sign by the barons in 1215 that limited some of his power.
Black Death	The disease that affected England from 1348 onwards. It is estimated that it killed 40% of the population.
Epidemic	A widespread occurrence of an infectious disease in a community at one time.
Parliament	Made up of Members of Parliament (MPs) who advise the monarch and pass laws
Martyr	Someone who dies standing up for their religion. They're celebrated by their religion.
Excommunicate	The Pope officially exclude (someone) from participation in the sacraments and services of the Christian Church

3. Medieval Church

Churches were important as meeting places – most people went to Church at least once a week.

In 1066, there were around 1000 monks. By 1300, there were over 12,000 monks in England.

Hospitals were run by priests not doctors – people used prayer to cure illness not medicine

Ideas about Heaven/Hell were very important to people. People lived their lives following the Church's rules so they'd go to heaven when they died.

4. Magna Carta

King John was very unpopular in England. He charged high taxes, offended his barons and tried to interfere in religious matters.

John was excommunicated by the Pope which stopped all religious services in England for 7 years

His Baron's made John sign Magna Carta (the Great Charter) setting out the rights that they had.

5. Henry III, Simon de Montfort and Parliament

John's son; Henry III, also had arguments with his baron's. Henry tried to raise taxes to fight in the Pope's Holy Wars, often without asking his barons

One of his barons, Simon de Montfort, forced Henry to sign the Provisions of Oxford.

When Henry broke the Provisions of Oxford, de Montfort led a rebellion against the king. Henry was captured and Simon de Montfort called England's first parliament consisting of 2 commoners from each region. This became known as the House of Commons.

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3. Black Death	
Plague	A disease which spreads quickly often causing the formation of buboes
Miasma	What medieval people called 'bad air' which they believed would make you ill.
Beliefs	4 humors, God, planets, cats and dogs
Treatments	Lancing buboes, drain pus, rebalance the humors
Preventions	Prayer, moved house, used smoke and herbs

3. Mansa Musa
Mansa Musa ruled of Mali, a kingdom in West Africa, from 1312-1337
He is considered the richest man that ever lived
Most of his wealth came from gold and salt. He was a devout Muslim and went to Mecca in 1324
He took with him 60,000 people, 21,000 kilograms of gold and 80 camels. (West Africa)
During his pilgrimage to Mecca, Mansa Musa gave away so much gold, the value of gold fell

6. Impact of Black Death	
Social Impact	**Political Impact**
Whole villages were wiped out.	Demands for higher wages contributed to the Peasants Revolt (1381) and the weakening of the feudal system.
Religious Impact	**Economic impact (money)**
Damage to Catholic Church because experienced priests died; others had run away.	Plague created food shortages: so the price of food went up, creating more hardship for the poor. Landowners switched to sheep farming as this needed fewer workers. Farm workers demanded higher wages and were less willing to be tied to the land and work for the feudal landlord.

5. Peasants' Revolt	
Revolt	A break away or rise against authority/ people in charge
Grievances	Living conditions, Black Death, inequality between rich and poor, taxes
Consequences	2000 people executed, rebellion crushed

7. Timeline	
1154	Henry II Becomes King
1170	Murder of Thomas Becket
1198	John becomes King
15th June 1215	Magna Carta is signed
1216	John dies and his son Henry III becomes king
1258	Henry III tries to break Magna Carta
1264	First Parliament is called
1348	Black Death arrives in England
1381	Peasants Revolt

History –The Silk Roads

1. Key words	
Trade	the action of buying and selling goods and services
Merchant	a person who trades in items produced by other people
Religion	a system of belief, faith and worship
Caliphate	a state under the leadership of an Islamic ruler
Excavation	the exposure, processing and recording of archaeological remains

2. What were the silk roads
The Silk roads were a network of routes that links people, trade, knowledge and religions.
They stretched from Europe in the West to China in the East.
They included some of the most important cities in the world such as Samarkand, Baghdad, Constantinople and Xian.

3. How did they begin?
Persia was situation in the heart of the Silk Roads and first began expanding their network outwards.
Alexander the Great continued expansion further, building roads and sharing ideas as he went!
Zhang Qian, a Chinese diplomat, headed West and began the trade of horses, significant for Silk Road expansion.

4. What religious ideas spread?
Buddhism, Islam, Zoroastrianism, Christianity were all spread along the Silk Roads.

5. What was traded on the silk roads?
Horses, silk, rhubarb, wool, spices, musk, gunpowder, paper, furs linen and silver were all traded on the Silk Roads.
The Sogdians were the greatest merchants of the Silk Roads period, situating themselves along the Silk Roads and acting as translators. Their home was the ancient city of Samarkand.
Items were transported on camels.

6. Baghdad – the jewel of the Silk Roads
Baghdad was the capital city of the Abbasid Muslim Empire. The town was built from scratch in 762AD.
It was built in the shape of a circle with an outer wall and two inner walls and a moat for defence.
It had a population of nearly 1 million.
It was a cosmopolitan city. People from Turkey, Persia, India and north Africa came to trade and live!

7. Misconceptions
Western Europe is the centre of the world.
Rome was the capital of the Roman empire.
Women treated as second class citizens in the Ancient World.
Christianity is European.
Europeans successfully resisted the Mongols.
Europe was superior academically and intellectually to the East.
Islam, Christianity and Judaism have always been rivals.
Globalization is a modern development.

1

Concept	Description
Input	A device that takes in user information
Process	A mathematical or logical calculation
Output	A device that displays information provided by the computer

2

Component	What it does
CPU	'Brain' of the computer, carries out calculations and processes
Motherboard	Connects hardware together
Hard disk	Stores data permanently such as files
Random Access Memory	Stores temporary information about programs in use
Power Supply	Provides power to device

3 Binary to decimal conversion

128	64	32	16	8	4	2	1
0	0	0	1	0	1	1	0

Draw a number line above the binary number, where there is a 1 add the numbers together. E.g. 16 + 4 + 2 = 22
Therefore, 00010110 in binary = 22 in decimal
To convert a decimal number into binary, draw a number line then add a 1 to each column as necessary. E.g. 51 = 00110011

128	64	32	16	8	4	2	1
0	0	1	1	0	0	1	1

32 + 16 + 2 + 1 = 51

4 Common Health & Safety issues

Back problems	Usually due to poor posture or sitting in an awkward position when using a computer.
Repetitive strain injury (RSI)	Usually damage to the fingers and wrists caused by repeated movements over a long period of time.
Eye strain	Usually caused by staring at a computer screen for a long time. Particularly in poor light, in glare or with a flickering screen.

Addition and Subtraction

Sparx Codes M928 M347 M635

1. Key words	
Key Word	Definition
Integer	A whole number
Decimal	A value that consists of a whole and fractional part
Perimeter	Total length around the outside of a shape
Standard Form	Writing very small or very large numbers in terms of powers of 10
Sum / Total	Amount resulting from adding two or more values
Difference	The result of subtracting one value from another
Credit	A value going into a bank account
Debit	A value taken out of a bank account
Frequency	The amount or number of times something happens (how many)

2 Here are some ways of working out $78 + 96$

$78 + 96$
$70 + 90 + 8 + 6$
$160 + 14$
174

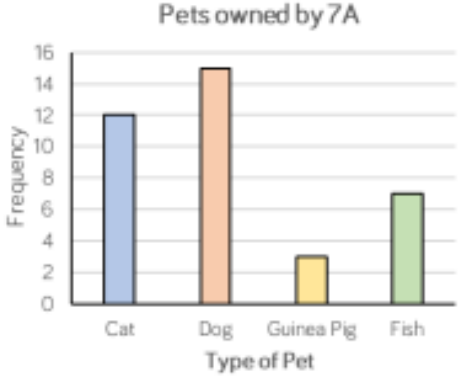
$78 + 96$
$78 + 90 + 6$
$168 + 6$
174

$78 + 96$
$+2 \quad -2$
$80 + 94$
$94 + 80$
174

$78 + 96$
$78 + 100 - 4$
$178 - 4$
174

$78 + 96$
$-4 \quad +4$
$74 + 100$
174

3



Multiplication and Division

Sparx Codes M187 M354 M705

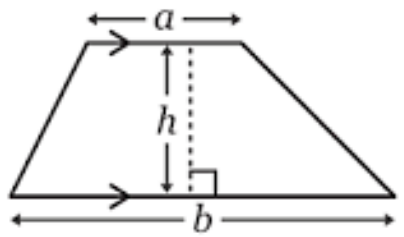
1. Key words	
Key Word	Definition
Product	The result of multiplying two or more values together
Quotient	The result of dividing one number by another
Multiple	A number in a given times table
Factor	A number that divides into another with no remainder
Mili-	A metric prefix used to denote one thousandth of a value
Centi-	A metric prefix used to denote one hundredth of a value
Kilo-	A metric prefix denoting multiplication by one thousand.
Estimate	Obtaining an approximate answer to a calculation by simplifying or rounding
Area	The amount of space taken up by a 2D shape

2 $670 \div 5 =$

$$\begin{array}{r} 134 \\ 5\overline{)\,6^{1}7^{2}0} \end{array}$$

3

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

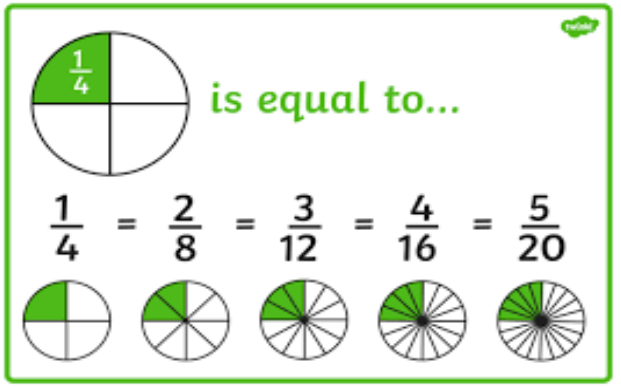


Fractions and Percentages of Amounts

Sparx Codes M695 M684 M437 M905

1. Key words	
Key Word	Definition
Fraction	A numerical value that is part of a whole
Equivalent	Fractions that have the same value once simplified
Numerator	The top number in a fraction. Indicates how many parts of the whole we have
Denominator	The bottom number in a fraction. Indicates how many equal parts there are
Percent	Per one hundred. A number or ratio that can be expressed as a fraction of 100

2



Numerator
Number of parts we have

$\frac{3}{5}$

Fraction Bar

Denominator
Total parts in a whole

3

$\frac{3}{4}$ of 36

Divide by the denominator then multiply by the numerator

$36 \div 4 = 9 \times 3 = 27$

($\frac{3}{4}$ of 36 = 27)

4

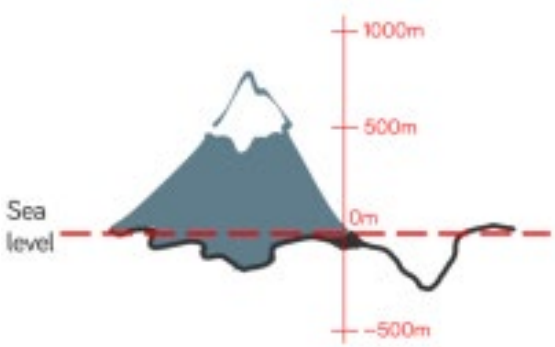
73% of 680 = 73 ÷ 100 × 680

7 3 ÷ 1 0 0 × 6 8 0 =

Directed Numbers

Sparx Codes M527 M106 M288

1. Key words	
Key Word	Definition
Positive	Any value greater than zero
Negative	Any value less than zero
Ascending	Increasing in value or size
Descending	Decreasing in value or size
Commutatitve	Numbers can be added or multiplied in any order to get the same sum or product
Inverse	Performing the opposite process or to undo an operation



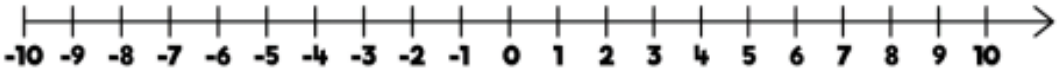
2 Rules for multiplying and dividing with negatives

(+) × (+) = (+)

(+) × (−) = (−)

(−) × (+) = (−)

(−) × (−) = (+)



Adding and Subtracting Fractions

Sparx Codes M601 M835

1. Key words	
Key Word	Definition
Mixed Number	A number consisting of an integer and fraction
Improper Fraction	A fraction where the numerator is greater than the denominator
Lowest Common Multiple	The smallest value that is a multiple of two or more numbers. E.g. 12 is the LCM of 3 and 4
Common Denominator	A common multiple of the denominators of two fractions

2 $\frac{9}{4} = 2\frac{1}{4}$

3

$$\frac{2\times4}{3\times4} + \frac{3\times3}{4\times3} = \frac{8}{12} + \frac{9}{12}$$

4. Convert to improper fractions

$$3\frac{1}{4} - 1\frac{3}{5} = \frac{13}{4} - \frac{8}{5} =$$

2. Find the LCM and subtract

$$\frac{65}{20} - \frac{32}{20} = \frac{33}{20} =$$

3. Convert back to a mixed number

$$1\frac{13}{20}$$

Music Knowledge Organiser: Year 7

Orchestra

Sections

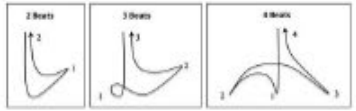
Strings

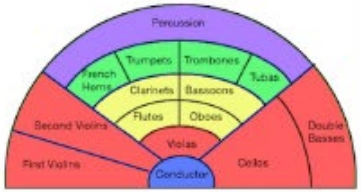
Brass

A large ensemble (group of musicians) of performers on various musical instruments who play music together.

Percussion

Woodwind





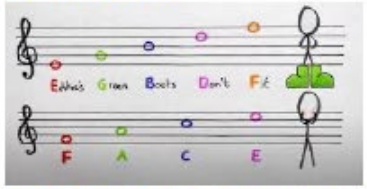
Layout

Elements

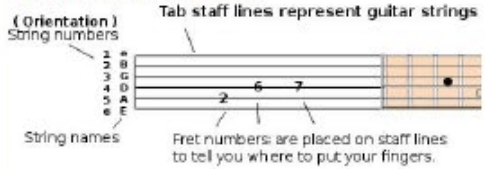
Pitch: the highness or lowness of a sound.
Tempo: the speed of a sound or piece of music.
Dynamics: the volume of a sound or piece of music.
Duration: the length of a sound.
Texture: how layers of sound within a piece of music interact.
Timbre: the unique sound or tone quality of different instruments voices or sounds.
Articulation: how individual notes or sounds are played.
Silence: the opposite or absence of sound, no sound.

Notation/Tablature

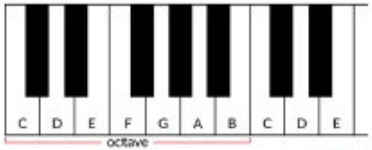
How music is written down.
Staff notation: music written on a **stave** (5 lines and spaces).



Tablature is a form of musical notation indicating instrument fingering rather than musical pitches.



Keyboard



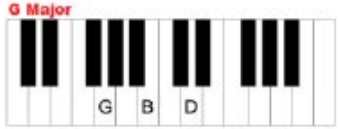
A keyboard is laid out with white and black keys.
C is to the left of the two black keys.
Middle C is normally in the centre of a keyboard.

Treble clef: high pitch
Bass clef: low pitch

Chords

C Major

G Major

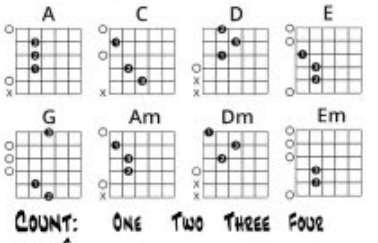


Left hand for **chords**
Right hand for **melody**

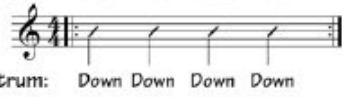
Guitar

Holding a plectrum

Chords

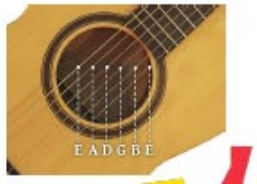


Strumming



Strings

Eddie.
Ate.
Dynamite.
Good.
Bye.
Eddie.



Injuries in Sport

1. Types of Injury	
Injury	**Description**
Sprain	Damage to a ligament that crosses a joint.
Fractures	Broken bones caused by impact, twisting or repetitive stress on the bone.
Dislocation	Joint injuries that occur when the bones meeting at a joint are dislodged through impact, twisting or pre-existing weakness to that area
Concussion	Caused by violent impacts to the head
Abrasion	Damage to the skin caused by impacts and collisions
Torn Cartilage	Cartilage lines the end of bones and can be damaged through twisting actions
Overuse injuries	Caused by repetitive actions or poor technique.

2. How to Treat an Injury (RICE method)		
R	Rest	Immobilise the injured part
I	Ice	Apply an ice pack or other cold object to the affected area
C	Compression	Ensure the ice pack or compress is firmly pressed against the affected area
E	Elevation	Raise the injured limb above the level of the heart
The **RICE** method helps to reduce swelling and pain! Used most commonly for soft tissue injuries or injuries where swelling is likely to occur.		

3. Prevention of Injury	
	Follow rules and apply them fairly
	Always use protective equipment. Ensure all protective equipment is in good condition

Drugs in Sport

1. Stimulants	Affects the Central Nervous System (CNS)
	Advantages: increases mental and physical alertness.
	Side effects: High blood pressure, heart and liver problems and are addictive!
	Sports: any sports where increased alertness is useful.
2. Narcotic Analgesics	Kills pain but could make injuries worse long term.
	Advantages: avoid pain, can perform when injured.
	Side effects: addictive with withdrawal symptoms, cause long term injury, low blood pressure and constipation.
	Sports: any sports where masking pain is useful.
3. Diuretics	Acts as a 'masking agent' – flushes other drugs out.
	Advantages: increases the amount you urinate – causes weight loss.
	Side effects: dehydration due to fluid loss and cramps.
	Sports: Weight division sports e.g. Boxing; Horse racing.
4. Beta Blockers	Drugs that control heart rate.
	Advantages: they lower heart rate, steady shaking hands, relax and calming effects
	Side effects: low blood pressure, nausea, tiredness, depression and heart failure.
	Sports: archery
5. Anabolic Steroids	Allows you to train harder for longer.
	Advantages: increases muscle mass, strength, power and bone growth
	Side effects: infertility, high blood pressure, heart attacks, stroke à **result in death!**
	Sports: athletics, weightlifting, boxing.

Types of Feedback in Sport

There are two types of feedback…

1. Intrinsic Feedback	· This is the physical feel of the movement as it is performed · It helps the performer to solve problems themselves · It helps them to develop skills independently
2. Extrinsic Feedback	· This is provided by external sources during or after a performance · It can come from teachers, coaches or teammates.

Feedback can also be experienced at different times…

3. Concurrent Feedback	· This is experienced by the performer whilst completing the action · E.g. A gymnast will experience feelings of being in a balanced position whilst they successfully complete a handstand · It is often the case that concurrent feedback is also intrinsic feedback
4. Terminal Feedback	· This is experienced by the performer once the movement has been completed · For example, a cricketer receives terminal feedback about the quality of their shot once the ball reaches the boundary · It is often the case that terminal feedback is also extrinsic feedback

5. Interpretation and Analysis of Feedback Data
Data can be gathered and shared before, during and after a performance.
Quantitative data— where you measure amounts. E.g. number of successful passes made in football
Qualitative data—how somebody feels about something. E.g. gathering opinions on their most recent performance

Lifestyle Choices

Lifestyle choices - the choices you make that can affect your health and fitness.

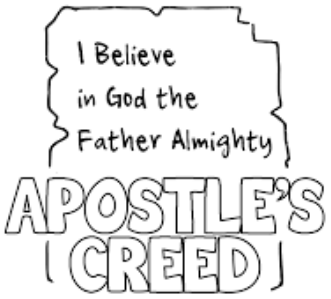
1.Eating a healthy diet: Boosts your energy levels, so you are better able to enjoy life. Will supply your body with the central nutrients it needs for a healthy immune system helping you fight off illnesses Reduces the risk of developing serious health conditions such as heart disease type 2 diabetes high blood pressure high cholesterol or stroke Communication stress levels and improve your sleep patterns Will help you lose weight if you are currently overweight or maintain a healthy weight	**2. Eating an unhealthy diet:** Leads to deficiencies in essential nutrients and causes health conditions such as osteoporosis and rickets as well as fatigue and muscle weakness Leads to an increase in weight and body fat which puts you at risk of developing health conditions such as heart disease type 2 diabetes high blood pressure high cholesterol and stroke Can affect your concentration levels and make you feel lethargic making it more difficult to find the energy to exercise Can affect your quality of sleep Can cause you to feel guilty and depressed especially if you overheat
3. Living an active life: Lowers your risk of disease Lowers your risk of developing mental health conditions such as depression or dementia Please yourself esteem the quality of your sleep and your energy levels Reduces stress and anxiety Improve your fitness levels	**4. Living an inactive life:** Increases your risk of disease Increases your risk of low self esteem anxiety and depression Decreases your muscle mass overall strength and energy levels making daily tasks such as carrying shopping bags more difficult
5. A good work/rest/sleep balance: Improve your physical emotional and social health Makes you feel more in control of your life helping to reduce stress You are better at making good decisions	**6. A poor work/ rest/ sleep balance can:** Increase your risk of depression Lead to weight gain Increase your risk of illness and disease Increase stress and anxiety Results in poor quality sleep

RE – Galilee to Jerusalem

Key Quotes	
1	We believe in one Lord, Jesus Christ, the only Son of God, eternally begotten of the Father, God from God, Light from Light, true God from true God, begotten, not made, of one being with the Father. (Nicene Creed)
2	And a voice from heaven said, "This is my Son, whom I love; with him I am well pleased." (Matthew 3:17)

Key Words		
1	Incarnation	Christians believe that God became man in the person of Jesus, truly human and truly divine.
2	Trinity	God as three in one – Father, Son and Holy Spirit.
3	Son of Man	A title for Jesus which suggests that he is both divine and human; it connects to the idea of him as a Messiah.
4	Son of God	A title of Jesus as the second person of the Trinity, reflecting his equal status to God the Father.
5	Christ	A title for Jesus, which means he was chosen by God.
6	Lord	A person who has power and authority; a title for God in the Old Testament, also used for Jesus in the New Testament.
7	Heresy	An opinion or belief that goes against Church teaching, or the denial of a revealed truth.
8	Arianism	The belief that was put forward by Arius in the 4th century that Jesus was not divine.
9	Service	Supporting the needs of others and putting them before our own; this might include physical and spiritual needs for example.

Key Facts	
1	The **incarnation** means that God became a human being in the form of Jesus to offer humans the chance of salvation.
2	The doctrine of the **Trinity** teaches that there is one God who is three persons: the Father, the Son (Jesus) and the Holy Spirit. The Trinity is reflected in prayer – for example, the Sign of the Cross.
3	The Nicene Creed is a statement of faith about the core beliefs held by Catholics, such as belief in the **incarnation**. It is said in Mass during the Liturgy of the Word and is structured around the three persons of the **Trinity**.
4	There are prophecies in the Old Testament which say that the Messiah will be God's Son and in the New Testament God the Father calls Jesus his 'beloved Son' during the baptism of Jesus. It shows that Jesus is truly God.
5	Jesus has the title of **Son of Man** to show that he is a human being who wants to serve others. The title is also used to show Jesus' divine power and authority.
6	Jesus also has the titles of '**Christ**', 'son of David' and '**Lord**'. There are prophecies in the Old Testament about the Messiah including that the Messiah will be a descendent of King David.
7	Christians believe that Jesus showed agape (a selfless love) when he sacrificed himself on the cross. Catholic Social Teaching encourages Catholics to follow Jesus' example.



RE – Desert to Garden

	Key Quotes
1	The Eucharist is the 'source and summit of Christian life.' (CCC 1324)
2	While they were eating, Jesus took bread, gave thanks and broke it, and gave it to his disciples, saying, "Take and eat; this is my body." (Luke 22:26)
3	A sacrament is an 'outward and visible sign of an inward, invisible grace.' (St Augustine)

	Key Words	
1	Paschal Mystery	The belief that Jesus' death and resurrection bring salvation to every human being.
2	Sacrament	Visible signs of God's grace that makes real what they symbolise; also the name given to the ceremonies that contain these signs.
3	Passover	A Jewish festival that celebrates God saving the Jewish people from slavery in Egypt.
4	Eucharist	The sacrament in which Catholics receive the body and blood of Christ; also called Holy Communion, the Lord's Supper, the Breaking of Bread and Mass.
5	Sacrifice of the Mass	The belief that Jesus' sacrifice is really made present to Catholics during the Eucharist.
6	Transubstantiation	The process by which the bread and wine actually become the body and blood of Jesus at the moment of consecration.
7	Holy Communion	Another name for the Sacrament of the Eucharist.
8	Lord's Supper	Another name for the Sacrament of the Eucharist.
9	Blessed Sacrament	A term which refers to the body and blood of Jesus in the Eucharist.

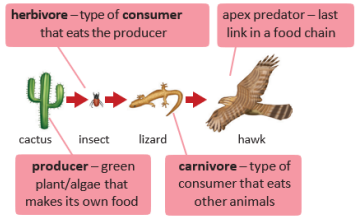
	Key Facts
1	**Sacraments** are visible signs of God's grace. Catholics must receive the three sacraments of Initiation to become a full member of the Catholic Church: Baptism, Confirmation & Eucharist.
2	There are two other types of sacrament. **Sacraments** of Healing include the Anointing of the Sick & Reconciliation. **Sacraments** of Service are Holy Orders & Matrimony.
3	The **Sacrament** of the **Eucharist** is the most important sacrament. It is where the bread and wine becomes the body and blood of Jesus.
4	The **Eucharist** is important as it can bring a person closer to God, strengthen faith and provide forgiveness and protection from sin.
5	The **Eucharist** is the '**source and the summit**' that unites us with Christ, physically and spiritually through **transubstantiation**. We become the spiritual bread for others through our words and actions.
6	The Last Supper was a meal that Jesus shared with his disciples to celebrate Jewish **Passover**. During this meal, Jesus instituted the Sacrament of the Eucharist.
7	Most Christians around the world agree that Jesus is present in the Eucharist but they have different views on how this happens. For example Catholics believe that Jesus is physically present in the Eucharist whereas Anglicans believe that Jesus is spiritually present.
8	Jesus is present in the Mass in four ways: in the assembly of the faithful, in the reading of scripture, in the person of the priest and in the **Blessed Sacrament**.

Keyword	Definition
Anther	The part of a plant that produces pollen
Bioaccumulation	The process by which chemicals build up in a food chain
Carpel	The female reproductive parts of a plant
Community	All the areas of an ecosystem
Competition	Where resources are limited, and one species has more of that resource than another
Ecosystem	All the organisms which are found in a location and the area in which they live
Fertilisation	When a female sex cell joins with a male sex cell
Food chain	The direction in which energy flows as one organism eats another
Food web	A diagram showing how different food chains are connected
Germination	The process in which the seed begins to grow
Interdependence	The way living organisms rely on each other to survive
Niche	The specific role an organism has in an ecosystem
Ovary	Contains the ovule
Ovule	The part of plant containing the ovum or egg cells
Petal	The brightly coloured part of a flower
Predator	An animal that eats another animal
Prey	The animal eaten by the predator
Producer	Organisms at the start of a food chain, they convert energy from the Sun
Pollen	The male sex cell of a plant
Pollination	The fertilisation of the ovule
Population	All the organisms that live in one area
Seed	An embryonic plant in a protective outer covering
Sepal	The outer casing of a flower
Stamen	The male reproductive part of a plant
Stigma	The part of a plant that catches the pollen
Style	The part of the plant that holds up the stigma

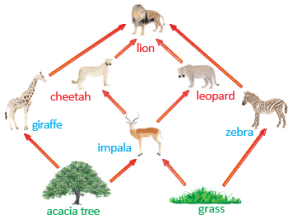
1. Food chains and webs

- **Food chains** show the direction in which energy flows when one organism eats another
- The direction of the arrows represent the direction in which the energy flows
- **Food webs** show how a number of different food chains are connected

Food chain



Food web



- **Producers** are the organisms which start the food chain, they convert energy from the Sun, making their own food, these are often plants
- **Prey** are organisms which are eaten by other organisms
- **Predators** are the organisms which eat the prey

2.Disruption to food chains

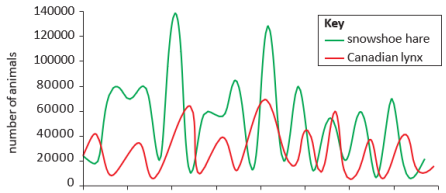
- **Interdependence** is the way in which living organisms rely on each other to survive
- A food chain will be disrupted if one of the organisms die out
- If the producer dies out the rest of the food chain will also die out unless they have a different food source
- If the **consumer** population die out the number of organisms which they eat will increase unless they are eaten by another organism
- **Bioaccumulation** is the process by which chemicals such as pesticides and insecticides build up along a food chain

3. Ecosystems

- All of the organisms which live in one area are known as a **population**
- An **ecosystem** is all of the organisms which are found in a particular location and the area in which they live in, both the living and non-living features
- A **community** are all of the areas in an ecosystem, the area in which the organisms live in is known as the **habitat**
- A **niche** is the specific role in which an organism has within an ecosystem, for example a panda's diet consists of 99% bamboo

4. Competition

- **Competition** is the process in which organisms compete with one another for resources
- Animals compete for food, water, space and mates
- Plants compete for light, water, space and minerals
- The best competitors are those who have adapted in order to best gain these resources
- As the number of a predator in a population increases the number of the prey will decrease as more are being eaten
- As the number of the predator decreases the number of the prey will increase as less are being eaten
- The relationship between the predator and the prey is known as a **predator-prey relationship**

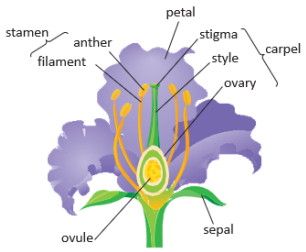


5. Parts of a flower

Stamen

Male part of the flower

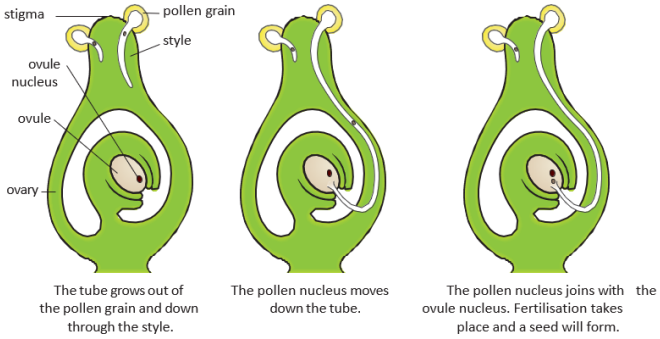
- The **anther** produces **pollen**
- The **filament** holds up the anther



Carpel

Female part of the flower

- The **stigma** is sticky to catch grains of pollen
- The **style** holds up the stigma
- The **ovary** contains **ovules**



6. Pollination and fertilisation

Pollination is the **fertilisation** of the ovule, the point at which the pollen is transferred to the ovule from the anther to the stigma, there are two types of pollination

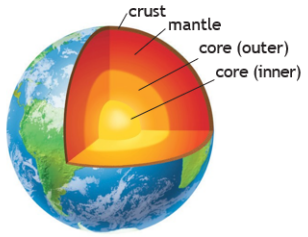
- Cross pollination is between two different types of plant
- Self pollination happens within the same plant

Germination is the process in which the **seed** begins to grow, for this to occur the seed needs:

- Water to allow the seed to swell and grow and for the embryo tostart growing
- Oxygen for that the cell can start respiring to release energy forgermination
- Warmth to allow the chemical reactions to start to occur within the seed

Key word	Definition
Asteroid belt	A region of space between the orbits of Mars and Jupiter where most of the asteroids in our Solar System are found orbiting the Sun
Artificial satellite	Man-made structures which can orbit planets
Axis	A tilt of the Earth of 23.4˚ which gives rise to our seasons
Crust	The rocky solid outer layer of the Earth
Durable	Able to withstand wear, pressure, or damage; hard-wearing
Dwarf planet	A small rocky planet which orbits the Sun
Galaxy	A collection of stars
Gas giants	A large planet consisting of mainly hydrogen and helium
Inner core	The innermost centre of the Earth
Magma	Hot fluid within the Earth's crust which lava and other igneous rock is formed when cooled
Mantle	The second layer of the Earth beneath the Earth's crust
Milky way	The name of our galaxy
Natural satellite	Natural objects which orbit a planet e.g. moons
Outer core	A fluid layer of the Earth composed of mostly iron and nickel
Orbit	The curved path of an object around the Sun
Planet	A celestial body moving in an orbit around a star
Solar system	Our star, the Sun, and everything bound to it by gravity
Star	A luminous ball of gas, mostly hydrogen and helium, held together by its own gravity.
Sun	The Earths star
Universe	All of space and time and their contents, including planets, stars, galaxies,
Year	The orbital period of a planetary body

The Earth

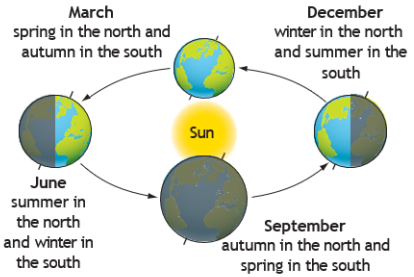


The Earth has three main layers:

- The **crust** is rocky and solid
- The **mantle** is made from mainly solid rock but this can flow
- The **outer core** is liquid metal and the **inner core** is solid

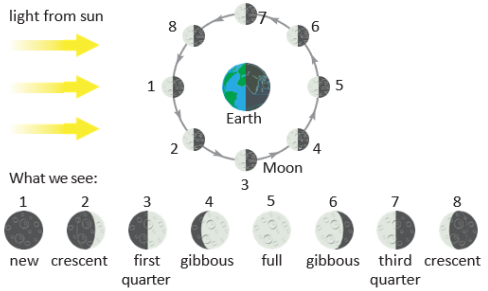
The spinning Earth

- The Earth takes 365 days to **orbit** the Sun, this is one Earth **year**
- The Earth takes 24 hours to spin on it's axis, that is why we have day and night
- The Earth's **axis** has a tilt of 23.4˚ which gives rise to our **seasons**



3. The Moon

- The Moon is a **natural satellite** which orbits the Earth
- One orbit of the Earth takes 27 days and 7 hours, this causes us to see the **phases of the moon**
- The different phases of the moon are caused by different parts of the Moon being lit by the Sun



4. The night sky

- A **galaxy** is a collection of **stars**, our galaxy is known as the **Milky Way**
- **Stars** produce their own light
- **Planets** are large objects which do not produce their own light but orbit stars
- **Natural satellites** include moons which can orbit planets
- **Artificial satellites**, such as the International Space Station, are man made structures which can orbit planets

The Universe contains billions of **Galaxies** contain billions of **Stars** are orbited by **Planets, asteroids, and comets** planets may have **Moons**

5. The Solar system

Our **solar system** consists of eight planets which orbit the Sun, four inner and four outer planets

Inner planets	Outer planets
Small and rocky planets ***(dwarf planets)***	*Gas giants*
Mercury, Venus, Earth, Mars	Jupiter, Saturn, Uranus, Neptune

- Between the inner and outer planets, between Mars and Jupiter, there is the **asteroid belt**
- The planets all orbit the Sun , but the path of their orbits are all slightly different, giving them the look of 'wandering' in the sky

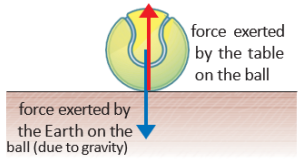
Key word	Definition
Acceleration	Speeding up
Air resistance	A non-contact force exerted by air particles on an object
Balanced	Forces acting on an object are the same
Contact force	When 2 objects are physically touching
Deceleration	Slowing down
Distance – time graph	A graph that shows the story of a journey
Field	The region where an object experiences a force
Force	A push or a pull
Motion	Movement
Gravity	A non-contact force that acts between 2 objects
Gravitational force	The force that brings you down to Earth when you jump
Interaction pair	Equal forces acting in opposite directions
Kilograms	The unit of measurement for mass
Mass	The matter which makes up an object
Newton	The unit of measurement for force
Non-contact	When 2 objects are not touching
Pull	A force
Push	A force
Relative motion	How quickly an object is moving compared to another
Resultant force	The difference between 2 unbalanced forces
Speed	A measure of how quickly or slowly something is moving
Unbalanced	When forces acting on an object are different
Weight	A downward force caused by gravity

1. What is a force?

- A **force** can be a **push** or a **pull**
- A force is measured in **Newtons** (N)
- We measure forces with a **newton meter**
- Forces explain why objects will move, change direction and change speed

- Forces always act in pairs, we call these **interaction pairs**

e.g. the tennis ball exerts a downward force of **weight** onto the table, the table exerts an equal and opposite reaction force onto the ball



2. Types of forces

- **Contact forces** act when two objects are physically touching
- **Air resistance** and **friction** are examples of contact forces
- **Non-contact forces** act when two objects are physically separated (not touching)
- Examples of non-contact forces include **gravitational force** and magnetic forces
- We call the region where an object experiences a non-contact force a **field**, examples of these include gravitational fields and magnetic fields

3. Gravity

- **Gravity** is a non-contact force that acts between two objects
- **Gravitational force** pulls you back to Earth when you jump
- The size of the gravitational force depends on the mass of the two objects and how far apart they are

- **Weight** is the downward force caused by gravity acting upon the mass of an object, it is measured in Newtons (N)
- **Mass** is the amount of matter within an object, whereas weight is the downward force of the object, we measure mass in **kilograms**
- We calculate weight with the equation:

$$\text{weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/kg)}$$

- The value of the gravitational field strength can vary, so although a person's mass would be the same on different planets, their weight would not be

4. Balanced and unbalanced forces

- When forces acting on an object are the same size, but acting in different directions, we say that they are **balanced**
- When forces are balanced, the object is either not moving (stationary) or moving at a constant **speed**

- When the two forces acting on an object are not the same size, we say that the forces are **unbalanced**
- When forces are **unbalanced**, the object will either be in **acceleration** or **deceleration**
- The **resultant force** is the difference between the two unbalanced forces

5. Speed

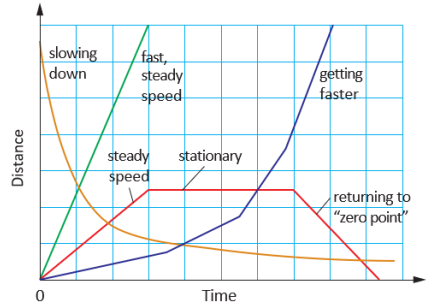
- **Speed** is a measure of how quickly or slowly that something is moving
- We measure speed in meters per second (m/s), this means that distance must be in meters and time must be in seconds
- We calculate speed with the following formula:

$$\text{speed (m/s)} = \frac{\text{distance travelled (m)}}{\text{time taken (s)}}$$

- **Relative motion** compares how quickly one object is moving compared to another
- If both objects are moving at the same speed, they are not changing position in comparison to one another, meaning that their relative speed is zero

6. Distance-time graphs

- **Distance-time graphs** tell the story of a journey, they show how much distance has been covered in a certain period of time



- To find the average speed, the total distance must be divided by the total time

Keyword	Definition
Acid	A solution with a pH value less than 7
Acidic	A solution with a pH between pH1 and pH6
Alkali	A soluble base
Alkaline	A solution with a pH between pH8 and pH14
Base	Any substance which neutralises an acid
Chemical	A substance obtained by a chemical process
Chemical reaction	A change in which atoms are rearranged to create new substances
Concentration	The amount of substance dissolved in 1 litre of water
Concentrated	A solution with many solute particles per litre
Corrosive	A substance that can burn
Displacement	When a more reactive metal reacts with a compound containing a less reactive metal
Hydroxide	An ion containing hydrogen and oxygen
Indicator	A chemical used to identify substances as either acid or alkaline
Irritant	A chemical that makes the skin or eyes itch
Neutral	A solution of pH 7
Neutralisation	Reactions in which an acid reacts with a base to reach pH 7
Oxide	A substance which contains oxygen
Oxidation	A chemical reaction in which a substance combines with oxygen
pH scale	A measurement of a substance being acid, alkaline or neutral
Reversible	A change in which it is possible to get back to the original substances
Reactivity	The likelihood of a substance undergoing a chemical reaction
Reactivity series	A list of metals showing how different metals are compared to one another
Salt	A salt is a compound in which the hydrogen atoms of an acid are replaced by atoms of a metal
Strong acid	An acid in which all the acid particles split up when it dissolves in water
Universal indicator	A chemical which reacts with acids and alkalis to give a colour change
Weak acid	An acid in which only some of the acid particles split up when it dissolves in water

1. Chemical reactions

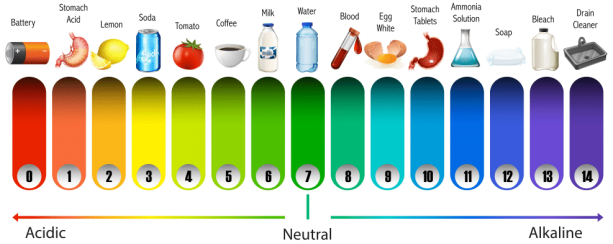
- A **chemical** reaction is a change in which atoms are rearranged to make new substances
- A **reversible** reaction is one where the products can react to get back the substances which you started with, most chemical reactions are not reversible
- You can look for signs that a chemical reaction has taken place such as flames, smells, heat change, a loud bang or gentle fizz

2. Acids and alkalis

- **Acids** and **alkalis** are the chemical opposites of one another
- Both acids and alkalis can be **corrosive** and **irritants**

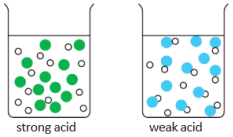
To see whether a substance is an acid or an alkali, we can use an **indicator**. Indicators show how acidic or how alkaline a solution is by showing its position on the **pH scale**, one example of this is **universal indicator**

- If the solution has a pH value of 1–6 it is **acidic**
- If the solution has a pH value of 8–14 it is **alkaline**
- If the solution has a pH value of 7 it is known as **neutral**



3. Acid strength

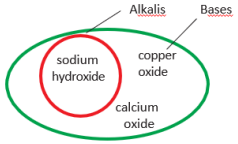
- The strength of an acid depends on how much of the acid has broken apart when it has dissolved in water
- Hydrogen chloride dissolves in water to form hydrochloric acid, this is a **strong acid** as all of the particles split up
- A **weak acid** will have particles that do not all split up



- The **concentration** of the acid is the amount of acid which has dissolved in 1 litre of water
- The more concentrated the acid, the lower the pH

4. Neutralisation

- **Neutralisation** reactions are any reaction in which acids react with a **base** to cancel out the effect of the acid
- These reactions form a neutral solution with a pH of seven
- A **base** is any substance which neutralises an acid
- An alkali is a base which has been dissolved in water



5. Metal reactions

When a metal reacts with an acid it will produce a salt and hydrogen gas, the fizzing that you see is the hydrogen gas being given off

metal + acid → salt + hydrogen

magnesium + hydrochloric acid → magnesium chloride + hydrogen

When a metal reacts with oxygen a metal **oxide** is formed, this process is known as **oxidation**

metal + oxygen → metal oxide

aluminum + oxygen → aluminum oxide

- When a metal reacts with water it forms a metal **hydroxide** and hydrogen gas.
- The alkali (group 1) metals react most vigorously, giving off a brightly coloured flame

metal + water → metal hydroxide + hydrogen

sodium + water → sodium hydroxide + hydrogen

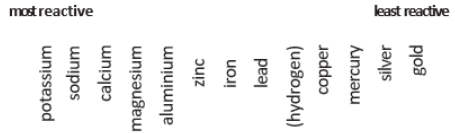
When a more reactive metal reacts with a compound containing a less reactive metal, it can take its place, this is known as a **displacement** reaction

copper + silver nitrate → silver + copper nitrate

- If the metal on its own is higher in the **reactivity series** than the metal in the compound a reaction will take place
- If the metal on its own is lower in the reactivity series than the metal in the compound, a reaction will not take place

6. The reactivity series

- The **reactivity series** describes how reactive different metals are compared to one another
- The higher the metal is in the reactivity series the more reactive it will be this means that it will react much more vigorously



7. Salts

Salts are substances which are formed when an acid reacts with a metal or metal compound

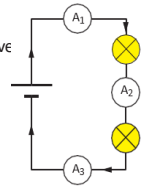
Different acids form different types of salts:

- Hydrochloric acids form chloride
- Sulphuric acids form sulphates
- Nitric acids form nitrates

Key word	Definition
Ammeter	A device to measure current
Atom	The particles all objects are made from
Attract	Opposite charges moving towards each other
Battery	A device that stores chemical energy and converts it to electrical energy
Cell	A single electrical energy source
Conductors	A material with a low electrical resistance
Current	The amount of electric charge flowing through the circuit per second
Electrons	Negatively charged particles
Electric charge	The force experienced when an object is placed in an electromagnetic field
Insulator	A material with a high electrical resistance
Neutral	No charge
Neutrons	Particles with no charge
Parallel	Electric circuits with more than loop
Potential difference	The amount of energy transferred by cell / battery to the charges
Protons	Positively charged particles
Repel	Similar charges moving away from each other
Resistance	A measure of how easy or difficult it is for charges to pass through a circuit
Series	Electric circuits with only one loop
Voltmeter	A device to measure potential difference

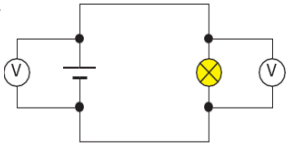
1. Current

- **Current** is the amount of **charge** flowing per second
- The charges that flow in a circuit are **electrons**, they are negative charged
- **Electrons** leave the negative end of the **cell** and travel around the circuit to the positive end of the cell
- Current has the unit of Amps (A) and is measured with an **ammeter** (which is placed in series or in the main circuit)



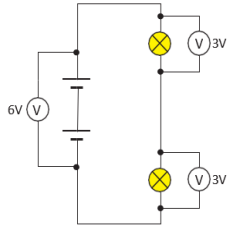
2. Potential difference

- **Potential difference** is the amount of energy transferred by the cell or **battery** to the charges
- The value of potential difference tells us about the force applied to each charge and then the energy transferred by each charge to the component which it passes through
- Potential difference has the unit of volts (V) and is measured with a **voltmeter** (which is placed in parallel to the circuit)



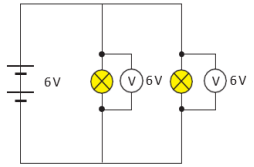
3. Series circuits

- **Series** circuits only have one loop
- If one component breaks, the whole circuit stops working
- Current is the same everywhere in a series circuit
- The total potential difference from the battery is shared between the components in a series circuit
- Adding more bulbs decreases the brightness of the bulbsA



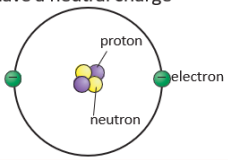
4. Parallel circuits

- **Parallel** circuits have more than one loop
- If one component breaks, the rest of the circuit will still work
- Current is shared between the different loops in the circuit
- The potential difference is the same everywhere in the circuit
- Adding more bulbs does not affect the brightness of the bulbs



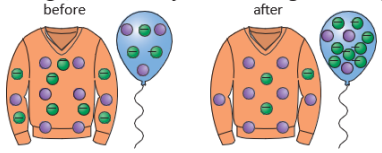
6. The atom

- The **atom** consists of a central nucleus with electrons orbiting around the outside in shells
- **Electrons** have a negative charged
- **Protons** are inside the nucleus and have a positive charge
- **Neutrons** are inside the nucleus and have a neutral charge



7. Static electricity

- Static electricity is the caused by the rubbing together of two **insulators**
- This causes electrons to be transferred, leaving one object with a positive charge, and one object with a negative charge



- Like charges will **repel**, opposite charges will **attract**

5. Resistance

- **Resistance** is a measure of how easy or how hard it is for charges to pass through a component in a circuit
- Resistance has the unit of ohms (Ω)
- Resistance is calculate by measuring potential difference and current and using the following equation:

$$\text{resistance } (\Omega) = \frac{\text{potential difference (V)}}{\text{current (A)}}$$

- Materials with a high resistance are said to be **insulators**
- Materials with a low resistance are said to be **conductors**

THE CORE FOUR

How to Create Flash Cards

1. Identify Knowledge

- What are you creating flashcards on?
- Do you have your knowledge organiser?
- Use your book to look at previous misconceptions from whole class feedback.

2. Colour Coding

- Use different coloured flash cards for different topics. This helps with organisation, NOT recall.

3. Designing

- 1 Question per flash card - make them concise and clear
- Use a one-word prompt, so that you can recall as much as you can
- No extended answer questions
- Number your cards for self-quizzing.

4. Using

- Write your answers down, then check, or say your answers out loud. This clearly shows the gaps in your knowledge.
- Do not just copy and re-read.
- Shuffle the cards each time you use them.
- Use the Leitner system to use flash cards every day.

5. Feedback

- How have you performed when you look back at your answers?
- Is there anything you need to revisit in more detail?
- Is your knowledge secure? If so, move on to applying knowledge in that area in specific extended exam questions.

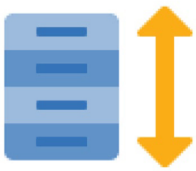
Brain Dumps

1. Identify Knowledge

- Identify the knowledge / topic area you want to cover.

2. Write it Down

- Take a blank piece of paper/white board and write down everything you can remember about that topic (with no prompts)
- Give yourself a timed limit (e.g 10 minutes)

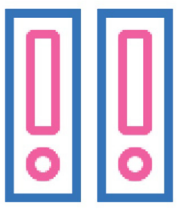


3. Organise Information

- Once complete and you cannot remember any more, use different colours to highlight / underline words in groups.
- This categorises / links information

4. Check Understanding

- Compare your brain dump to your Knowledge Organiser or book and check your understanding.
- Add any key information you have missed (key words) in a different colour.



5. Store and Compare

- Keep your brain dump safe and revisit it.
- Next time you attempt the same topic, try and complete the same amount of information in a shorter period of time or add more information.

THE CORE FOUR

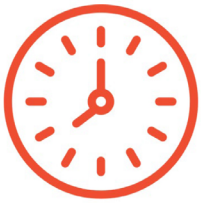
Revision Clocks

1. Identify Knowledge

Select a topic you wish to revise. Have your class notes, knowledge organiser or revision books ready.

2. Designing

You can make your own revision clock by drawing a clock in the centre of a page and dividing it into 12 chunks. You can also use an existing template from your teacher, or one you can find online.



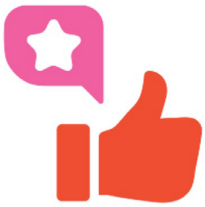
3. Manageable Chunks

Organise your revision notes into 12 sub-topics and make brief notes for each sub-topic into one of the segments on the page, creating manageable chunks of information. Combine text with images to help retain the information.

4. Using Revision Clocks

Revise each segment for 5 minutes. Turn the clock over and recite the sections out loud or ask someone to quiz you.

Alternatively, you can revise certain sections for 5 minutes and use a blank revision clock with headings, recall as much information as you can in the segments.



5. Check Understanding

How have you performed when you compare you answers to what you have written? Is your knowledge secure?

Remember to repeat the process regularly, using different techniques to answer the questions.

Put it somewhere visible for you to use again.

Self Quizzing

1. Identify Knowledge

- Identify knowledge / content you wish to cover

2. Review and Create

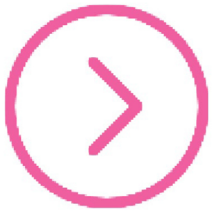
- Spend around 5 – 10 minutes reviewing content (knowledge organisers / class notes / textbook.)
- Create 10 questions on the content (if your teacher has not provided you with questions already)

3. Cover and Answer

- Cover up your knowledge and answer the questions from memory.
- Take your time and where possible answer in full sentences.

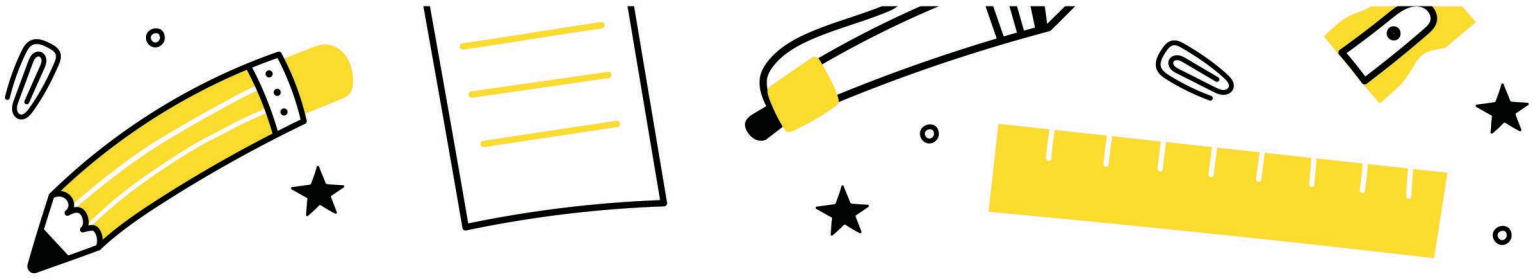
4. Self Mark and Reflect

- Go back to the content and self-mark your answers in green pen.



5. Next Time

- Revisit the areas where there were gaps in knowledge and include these same questions next time.



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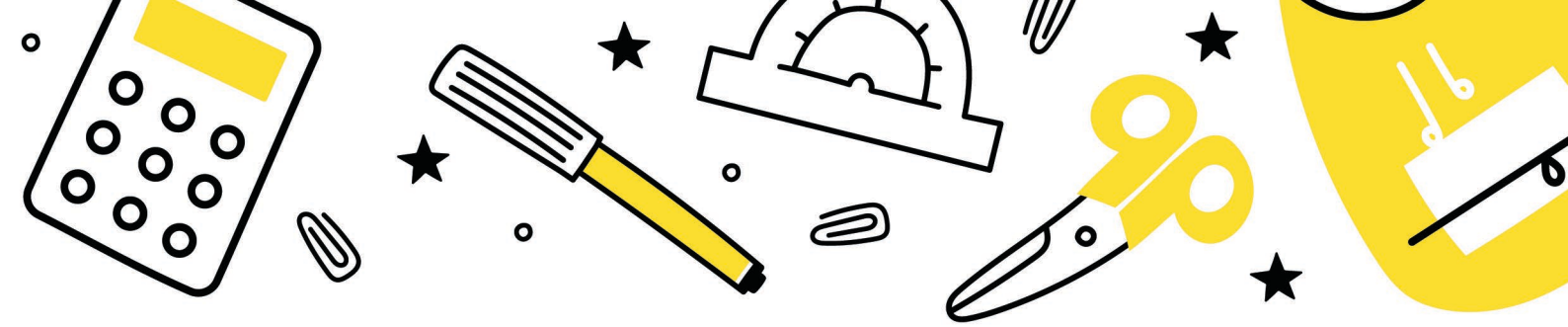

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