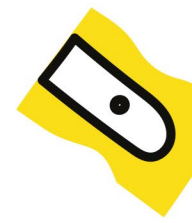
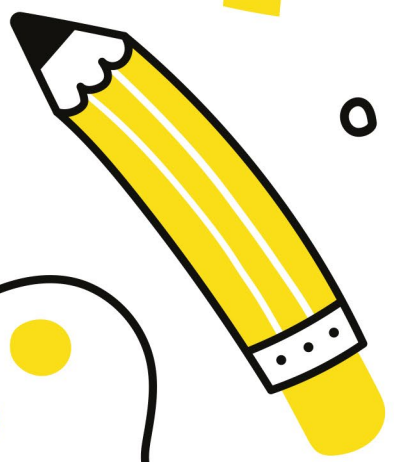
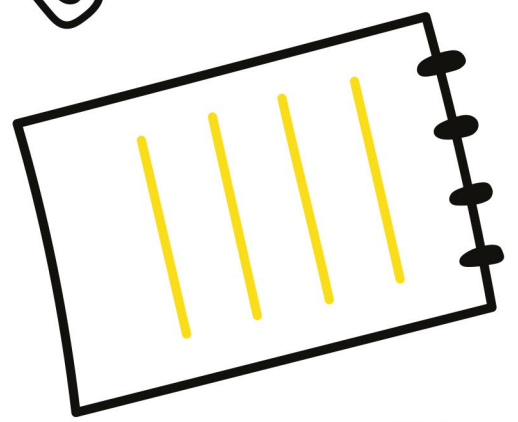
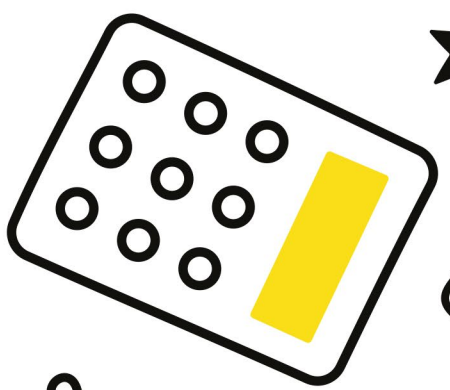
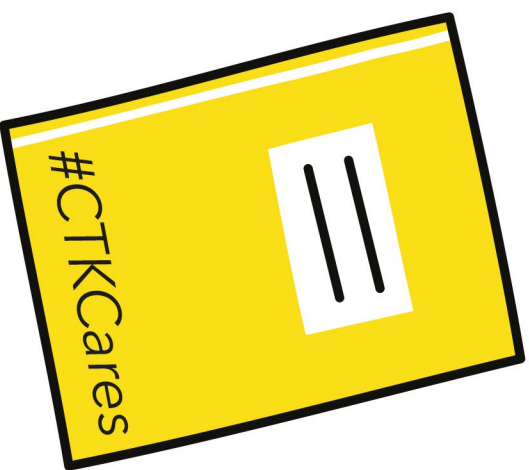
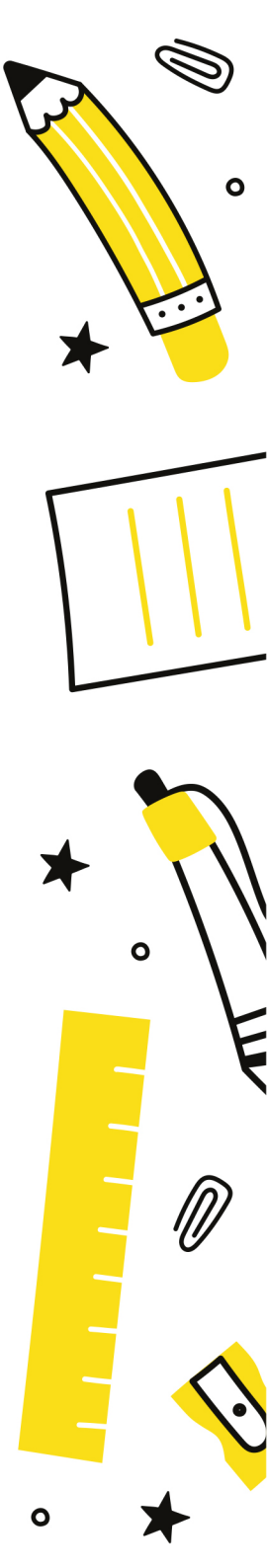




CHRIST THE KING
**KNOWLEDGE
ORGANISER**
Year 8 ADVENT
(Term 1)





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.

o **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.

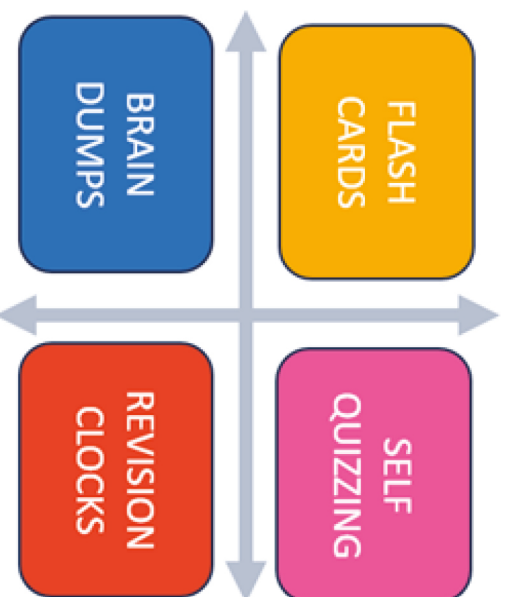
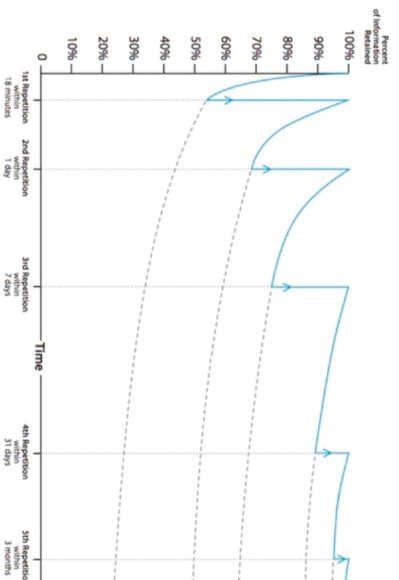
o **Self Quizzing:** There are different ways you can self-quiz:

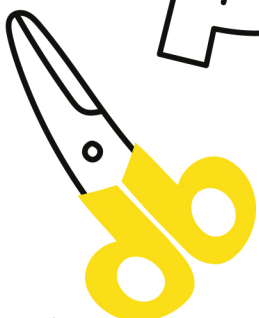
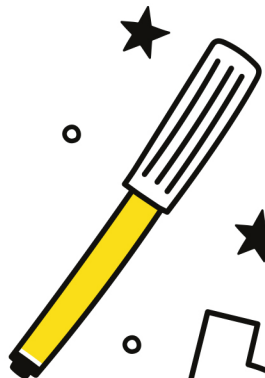
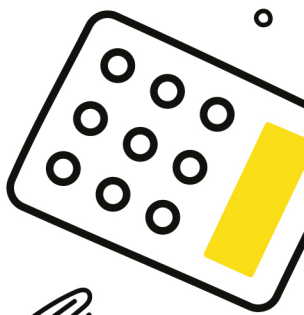
- Look, cover, write, (say), check
- Create gaps fills
- Create questions for the information you want to learn and then answer them from memory

o **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.

o **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'.

Rate of Forgetting with Study/Repetition





Homework Schedule

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

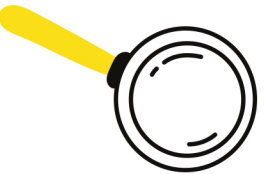
This will consist of:

- 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)

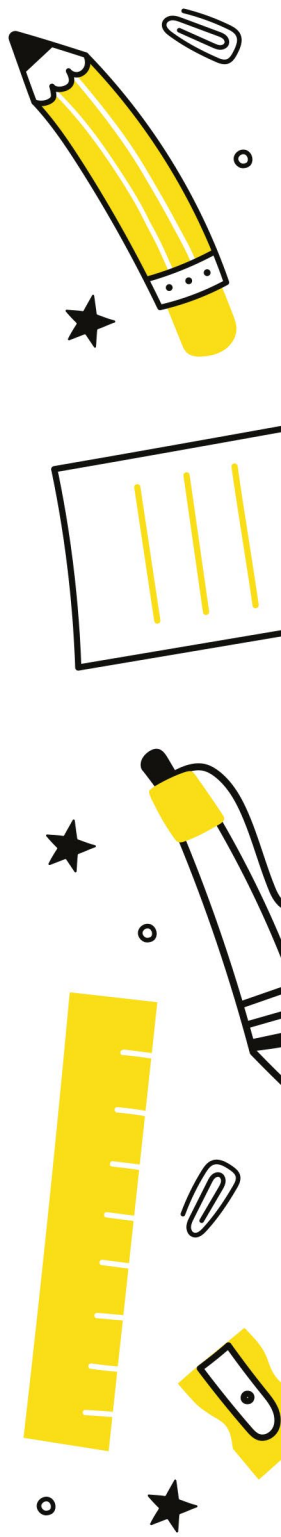
Read 20 minutes a day and you'll read 1,800,000 words per year.



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?

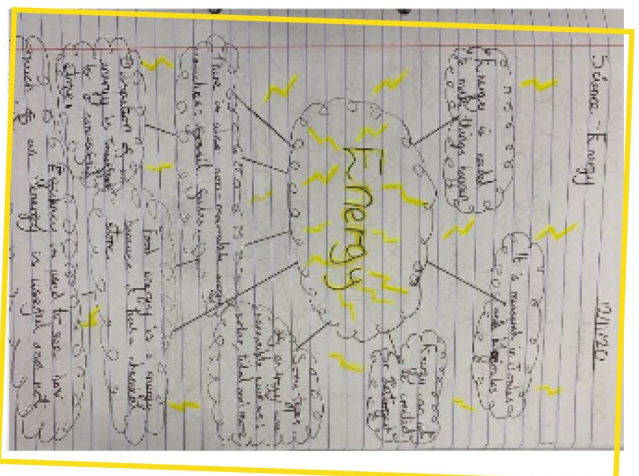
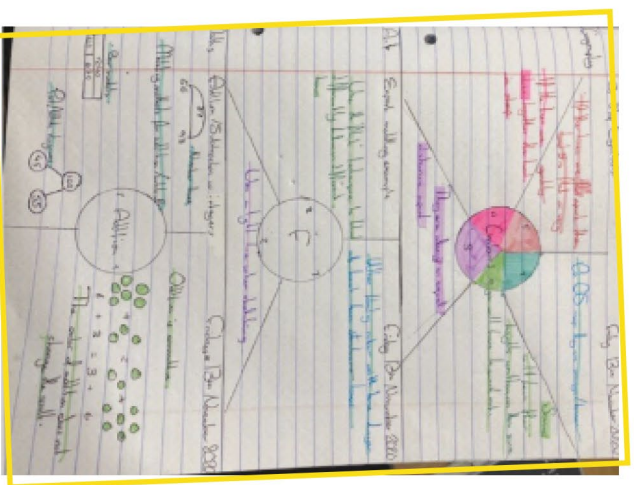
Each homework must meet the following 5 requirements:

- 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!



Keywords	Definition
Complimentary colours	Two colours which are opposite of each other on the colour wheel which can create a contrast.
Street Art	This term describes artworks which are made to be seen in public places, often outdoors. These artworks may include murals, sculptures, photographs, drawings etc.
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.
Religious Icon	Is usually a portrait painting which represents saints and Jesus.

1.

SHEPARD FAIREY ARTIST

WHAT? Frank Shepard Fairey is an American 'street artist' born in 1970. He is most famous for a design he did of the then USA President Barack Obama, who used the image as part of his election campaign in 2008.

WHY? Shepard Fairey's artwork is influenced by popular culture, especially his love of contemporary music, film and skateboarding. His early work depicted portrait images of his heroes which were made into posters. These were sometimes pasted onto walls and buildings where he lived in South Carolina.

HOW? Shepard Fairey is most famous for using stencils and spray paint to create his artworks. He often uses bold flat colours which represent different tones of the face. He also can create further layers to his work by adding collages, paints and drawings.

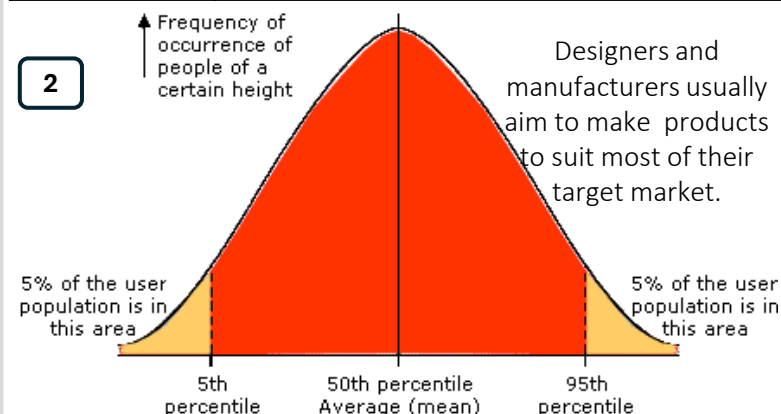


2. Formal Elements	Definition	Visual
Colour Theory	Colour theory is the study of how colours work together and how they affect our emotions and perceptions. It helps artists, designers, and creators to help them choose the right colours for their projects.	
Pattern	A pattern is created by repeating one design element. This can be a mark, line, shape or a colour.	
Tone	In painting, tone can describe the relative lightness or darkness of a colour.	

3. Processes	Definition
Colour mixing	This term applies to mixing two or more colours together to create a new colour or tone.
Collage	Is the technique and the resulting work of art in which pieces of paper, photographs, fabric and other materials are arranged and stuck down onto a surface.
Monoprint	Is a 'one off' print which uses mark making and ink to create an image.
Grid method	Is a technique using grids which create accurate drawings which are copied from a reference image.



1 Key terms	
Anthropometrics	The study of the human body and its movement, often involving research into measurements relating to people. It also involves collecting statistics or measurements of the human body that can then be used to design products and environments that fit the users.
Ergonomics	Defined as the science of fitting a workplace to the user's needs, <i>ergonomics</i> aims to increase how comfortable, efficient and easy a product is to use.
Triangulation	Triangulation involves the use of triangular shapes to give stability to structures.
Crating	Using sketched 3D cubes/ cuboids to help structure more complex drawings.
Mood board	An arrangement of images, materials, pieces of text, colours, textures etc. Intended to embody or project a particular style or theme.
Scale	A method used to enlarge or reduce the actual size of a drawing of model whilst keeping proportions the same.



3 Modelling Tools & Equipment		
Craft Knife	As single bladed knife that easily cuts through a variety of different materials. The blade is retractable so and can be snapped off to reveal a new blade, once the old one becomes blunt.	
Cutting Board	Self-healing cutting mats are purpose-built to be extremely durable and resilient, creating the perfect cutting surface that reduces blunting but also ensures any worksurface is well protected from damage.	
Metal Rule	Metal safety Rule's features a unique M profile which allows you to keep your fingers well away from any knife edge when used for cutting or scoring. They are made from metal to prevent the rule being damaged by the blade of a craft knife.	
Glue Gun	Heats up and melts hot glue sticks. Once melted, the glue is then directed out of the nozzle of the gun. The nozzle can get very hot , so it is important to follow safety rules to ensure that you don't burn yourself. Any burns should be reported straight away.	
4 Aljoud Lootah	Aljoud's designs focus on the idea of contrasts in form and function while distinctly interpreting the Emirati culture through contemporary design. Her creative drive comes from a passion for detail and experimental approaches to materials and aesthetics.	
Philippe Starck	Stark has produced designs for large companies such as Alessi, Puma and Microsoft. He is interested in bright colours, unusual shapes and materials. He wants his designs to be mass produced and relatively affordable, but he also wants them to be durable.	
Morag Myer	Known globally for creating installations and immersive public artworks that transform places and champion community. Her work is instantly recognisable, combining geometric patterns with bold shapes and hand painted type, it aims to bring joy to all those who encounter it.	
Ettore Sottsass	Ettore was an Italian architect and designer, he brought bold colors, unconventional shapes and an innovative contemporary style to everyday items, creating iconic postmodern furniture pieces that shaped the history of the Memphis movement .	



The Stages of the Design Process

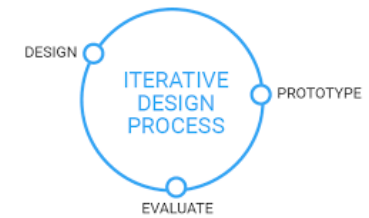
Problem	The main purpose of developing a new product is to solve a problem, this solves either a need or a want. It is important to investigate problems before you start designing.
Design brief	A design brief is a statement of intent that addresses how the product will solve the identified problem and satisfy the need or want. It normal considers; budget, function, target market, aesthetics and timescale.
Research	Market research and analysis is performed to help the designer fully understand and identify issues. This may involve looking at existing products, speaking to users, making observations and completing site visits.
Specification	This is shaped through the results of research. It is a list of SPECIFIC requirements that are measurable. It is used to test the product to assess success throughout.
Design ideas	These are produced by the designer by hand or using computer aided design (CAD). They are used to develop and communicate solutions to the identified problem.
Development	Designers often used the iterative process to model and test the design ideas against the specification, continually making improvements to get to the best solution.
Prototype Manufacture	A prototype is aa pre-production working model of a product, that is used to test the concept. The prototypes are usually manufactured using the same processes to ensure that the product meets expectations.
Evaluation	Prototypes must go though rigorous testing and analysis to ensure they are safe, fit for purpose and meet the design brief and specification. Any issues that are found, need to be resolved before the product can go into production.

Material Properties

Corrugated card	Two or more layers of card with a fluted layer in-between to add strength.
Foam core board	Two thin layers of card with a foam inner core in between.

Design & Technology - Design and Make

Iterative design is the repeated process of prototyping a design, testing it, collecting feedback, evaluating the design and making improvements based on results. The process is repeated until the final design is ready to be produced.



Scale A scale drawing is an enlarged or reduced drawing that is proportional to the original object. This means that all of the ratios between the corresponding sides of the original figure and the drawing are equal. Scale drawings are used by architects, clothing designers, and map makers among others.

2:1	The drawing is twice the size of the actual object.
1:1	The drawing is to actual size.
1:2	The drawing is half the size of the actual object.

Attachment techniques

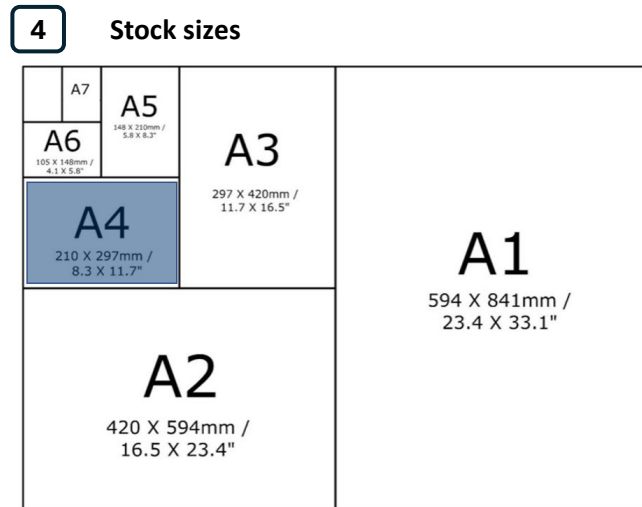
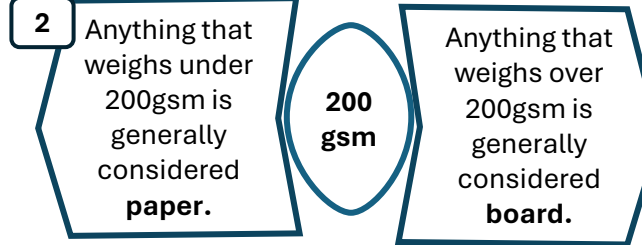
These are different ways to attach and join card together



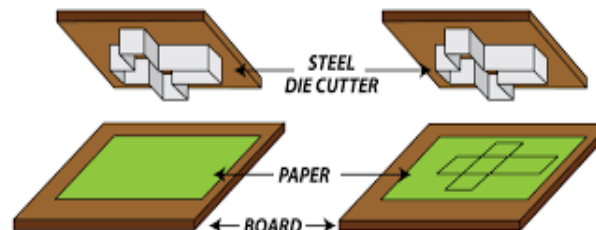
A split pin is a standard component that can be used to join materials whilst still allowing movement.



1 Keywords	
Keywords	Definition
1. Paper	Material manufactured in thin sheets from the pulp of wood or other fibrous substances, used for writing, drawing, or printing on.
2. Cellulose	Fibres found in plant materials.
3. Renewable	A sources of material that if managed responsibly will not run out.
3. Typography	The style or appearance of text.
4. Mood Board	An arrangement of images, materials, pieces of text, colours, textures etc. Intended to embody or project a particular style or theme.
5. Net	The 'net' of a shape is a term used to describe what a 3D shape would look like if it was opened out and laid flat.
6. Scoring	Scoring involves partially cutting into a material without going all the way through, usually to aid folding.
7. Branding	Key elements such as the logo, color scheme, typography, and other design components that makes a brand stand out from competitors, and recognizable to consumers.
8. Typography	The art of arranging letters and text in a way that makes it visually appealing to the reader.



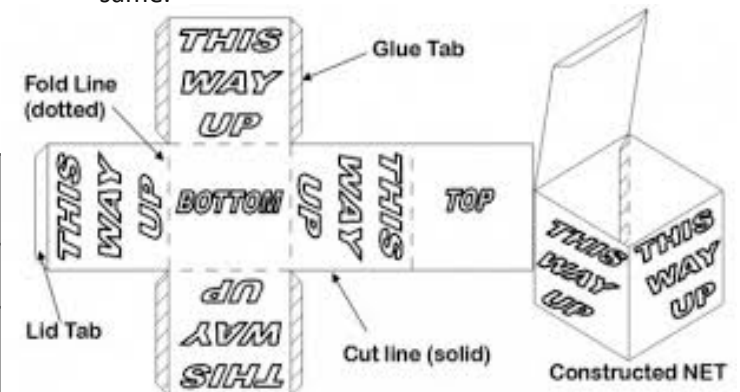
5 Die cutting
Die cutters are used to cut, crease or perforate paper to create shapes and make nets.



1. The die is pressed against the card and the steel cuts into the card.
2. Sharp blades will cut through the paper/card.
3. Rounded blunt blades will crease the paper/card for folding.








3 Paper Manufacture
1. DEBARKED: Trees chopped down and logs put into a rotating drum to remove the bark.
2. WOOD CHIPPED: Wood is then put through the chipper to make wood chips. Sometimes these are taken from unused offcuts from sawmills. This saves waste.
3. COOKED WITH CHEMICALS: Mixed with chemicals to dissolve the lignin in the wood. This creates pulp.
4. SIZING: The pulp is filtered, squeezed, bleached and pounded before other materials, such as chalk or chemicals, are added to change the opacity and absorbency of the paper.
5. DRYING: The pulp is pumped on to a moving belt and a set of rollers to remove the water. This is repeated until all of the water is removed.
6. CALENDERS: The paper passes through calendar rollers which give the paper its final finish.


6 The two-dimensional shapes that form a net can be arranged in different ways for a particular 3D shape. The relationship of **faces**, and **edges** must remain the same.





1	Keywords
Keywords	Definition
1. Wasting	The term used to describe the process of removing material when manufacturing. This can be through drilling, sawing, filling or cutting.
2. Template	A shaped piece of rigid material that is used to draw or cut around to increase accuracy. They can also be used when shaping or drilling.
3. Finishing	The term used to describe the process of adding a 'finish' such as paint, varnish, wax or stain to a material for functional or aesthetic reasons.
4. Quality control	Quality control is when you check the quality of a product against a set standard or specification. Products will often have a tolerance of how accurate they need to be.

2	Tools
Marking Gauge	 Mark out lines by running it along an edge and using the pin to mark a line into the material.
Try Square	 Used for marking out and checking 90° angles on wood, metal or plastic.
Tenon Saw	 A saw used for cutting wood. Its flat blade makes it good for cutting straight lines.
Belt Sander	 A machine that rotates a belt of sandpaper at high speeds. Used to neaten up edges of wood.
Coping Saw	 A saw used to cut wood and plastic. Its thin blade makes it ideal for cutting curved lines.
Chisel	 Is a cutting tool with a sharp edge. Sometimes used with a mallet to run along the surface off wood and remove shavings.
Sand Paper	 An abrasive paper used to smooth the surface of wood. It comes in a range of 'grit sizes' which range from rough to very fine.

4	Scots Pine - softwood
<ul style="list-style-type: none"> Easy to work with, reasonably strong and lightweight. Straight grain with lots of knots. Pale to reddish brown. 	
Uses: furniture, construction, door frames.	

5	Process of converting a tree to timber
FELLING	The trees are chopped down into logs and taken to the sawmill.
Transport to sawmill	
DEBARKING	The bark is removed from the logs. The bark is used for fuel.
Sawing - CONVERSION	The wood is converted into different stock form sizes.
Sorting & stacking	The timber is sorted and stacked to ensure air flow.
Drying - SEASONING	The timber is then dried using air or a kiln to remove 9-14% of the moisture.

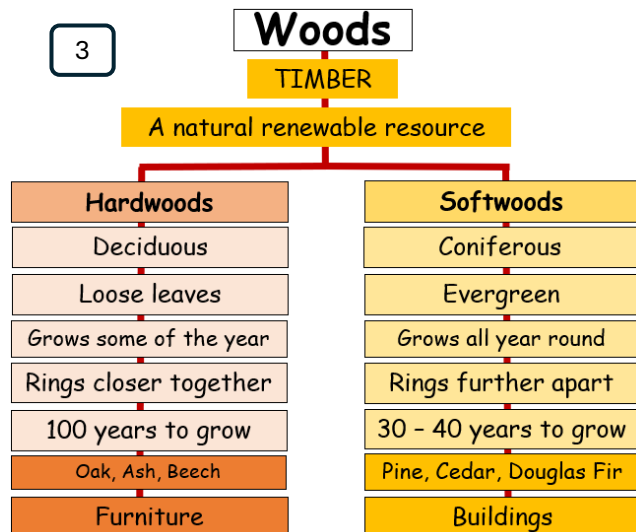
Oil – Soaks into the timber. As it penetrates the wood it provides protection and some water resistance.



Wax – a thin layer is applied with a soft cloth and pushed in to the wood. It enhances colour and gives a shine. It protects wood from moisture.



Stain – Permanently stains wood. The colour can be affected by the base wood. It does not protect.

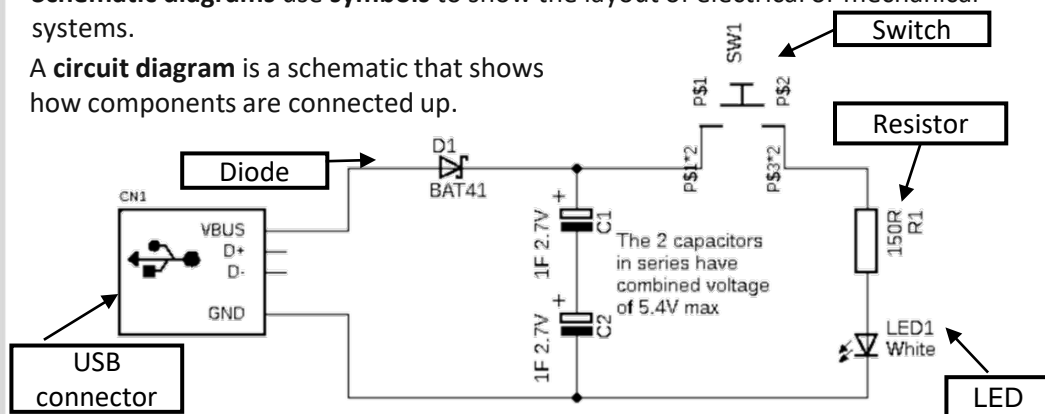




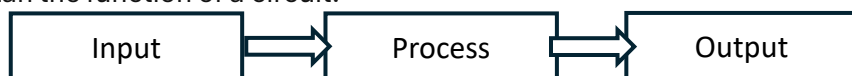
Key Word	Definition
1. CAD (Computer Aided Design)	Using a computer program to produce computer models/ designs.
2. CAM (Computer Aided Manufacture)	Machines that are controlled by computer software to determine movement and power.
3. Laser Cutter	An example of a CAM machine. A laser cuts through or etches onto a chosen material.
4. Etching	Using the laser cutter to etch/ burn the surface of a material and draw a design.
5. Solder	Solder is a metal alloy usually made of tin and lead which is melted using a hot iron. It is used to join electronic components to a circuit board.
6. 2D Design	The CAD software used to design models and control the laser cutter.
7. MDF (Medium Density Fibreboard)	It is a manufactured board that is made by pressing wood fibres pressed together using glue and heat.

Schematic diagrams use **symbols** to show the layout of electrical or mechanical systems.

A **circuit diagram** is a schematic that shows how components are connected up.



A **system diagram** uses the logical order of an input, a process and an output to plan the function of a circuit.



Electronic Components			
Component	Job	Image	Symbol
LED (Light Emitting Diode)	LED stands for Light Emitting Diode. LEDs are like normal diodes, in that they only allow current to flow in one direction, however, when the current is flowing, the LED lights up.		
Resistor	A resistor is a device that opposes the flow of electrical current. The bigger the value of a resistor, the more it opposes the current flow. The value of a resistor is given in Ω (ohms) and is often referred to as its 'resistance'.		
Switch	A device used to interrupt the flow of electrons in a circuit. They are usually on or off.		
USB Connector	Allows a circuit to connect to a USB port, charging the capacitor.		
Capacitor	A capacitor is a component that can store electrical charge (electricity). In many ways, it is like a rechargeable battery.		
Diode	Diodes let current flow in one direction, but stop it from flowing in the other. They are like a one way valve.		
Circuit Board	A thin rigid board containing an electric circuit; a printed circuit.		



WHAT AM
I DOING
WELL ?

WHAT DO I
NEED TO DO
TO IMPROVE ?

WHAT CLUES ARE THERE IN THE
SCRIPT THAT SHOW ME HOW
TO PLAY MY CHARACTER ?

YEAR 8
THE DEMON BARBER

Rehearsal techniques

Tools to help us explore the
script and better
understand our character

H. S.....
allows the
character to be
interrogated
about their
motives and
decisions.

R... O. T. W....
helps us to figure

out what we know about
a character and what we
still need to find out.

C..... A..... helps us to consider all of the
different emotions a character might
be feeling.



Returns to London seeking
revenge for the loss of his wife
and daughter.

A barber who
was wrongly
sent to
Australia on a
prison ship by
an evil Judge.

Moves in to his old flat
which is above a pork
pie shop.

The pie shop is owned by
Mrs Lovett who is in love
with Mr Todd. They plot
revenge together.

A very charming
man who
manipulates those
around him to get
what he wants.

What you need to know about
SWEENEY TODD

Key words

CHARACTERISATION

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

BACKGROUND

Your character's past life
experiences- where they come
from, their upbringing, how they
have been treated.

REHEARSAL

Working together in a group to
practice a part of the script and
share ideas about how it should
be performed.

ACCENT

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

tone

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

FACIAL EXPRESSION

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

PACE

The speed at which your
character speaks or moves.

STANCE

The way a person stands.

GAIT

The way your character walks-
do they have a narrow gait or a
wide gait?

POSTURE

The position in which someone
holds their body when they sit or
stand- can give us clues to their
personality.

GESTURES

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

PITCH

How high or low your character's
voice is.

BODY LANGUAGE

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

Homework: Research Victorian London. What was life like for ordinary people? Why might Sweeney be so angry?

Extension: Design the set for a production of The Demon Barber. Think about how you will create the trap door.



WHAT AM I DOING WELL ?

WHAT DO I NEED TO DO TO IMPROVE ?

HOW AM I COMMUNICATING MEANING ?

YEAR 8
SILENT FILM

characterisation

The act of changing [physicality] when in role

Why are clear characters important in mime?

What are the challenges in achieving this?

Why do they need to have clear relationships with the other characters?



What are the physical characteristics of...

The heroine? The hero? The villain?



Physical skills

STANCE

The way a person stands.

GAIT

The way your character walks- do they have a narrow gait or a wide gait?

POSTURE

The position in which someone holds their body when they sit or stand- can give us clues to their personality.

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...

Rules of mime

STAY SILENT

Communicate meaning with your physical, not vocal skills.

OVER EXAGGERATION

All of your movements must be increased and enlarged- for clarity and for comedy.

SIZE

When miming an object or piece of set, it's important that it stays the same size every time you interact with it.

WEIGHT

Make sure you show the weight of any mimed object that you interact with and that this stays consistent throughout the performance.

DISAPPEARING OBJECTS

Don't forget where you've 'put' mimed objects e.g. don't walk through a table you've mimed!

Homework: Research silent films. Why were they silent? Who were the stars? What were the costumes and story lines like?

Extension: Watch a silent movie online and then write a film review. Consider the physicality of the actors.



A. Key language devices used by writers			B. Key language devices used by writers		
1	adjective	word that gives more information about a noun	1	irony	humorous or sarcastic use of words to imply the opposite of what is being said
2	adverb	word that gives more information about a noun	2	metaphor	a description of something as though it were something else
3	alliteration	repetition of the same first letter	3	noun (abstract)	is something that you cannot touch, e.g. emotions like joy or fear
4	anecdote	when a writer uses an incident from his or her personal experience to make a point, or entertain the reader	4	noun (concrete)	is something that you can touch, e.g. a table or chair
5	comparatives	adjective that compares the quality of something	5	noun (proper)	that are given capitals identify particular places, things, people or events
6	connotation	the association that a particular image /colour / word has	6	onomatopoeia	a word that sounds like what it describes
7	emotive language / imagery	language or imagery that promotes an emotional reaction	7	opinion	a point of view that cannot be proved to be true or untrue
8	exaggeration / hyperbole	deliberately over-estimating for effect	8	paragraph	are used to sequence and organise the ideas, setting, timeframe etc. of a text. The topic sentence is particularly important for signposting the main idea in the paragraph
9	Informal language	language that uses colloquialisms (everyday sayings) or slang and so suits informal situations	9	personal pronoun	direct address to the reader, e.g. 'you'
10	formal language	language used in formal situations where the speaker / writer wishes to create a good impression	10	personification	when an object is given human characteristic
C. Key language devices used by writers			Connectives used for comparison		
1	perspective	A story can be told from the first, second or third person point of view (or perspective).	<p>Similarly, In contrast, Likewise</p> <p>However, Equally, Whereas</p> <p>In the same way, Alternatively...</p> <p>As with, On the other hand...</p>		
2	repetition	used to emphasise / reinforce a point			
3	rhetorical question	a question that is asked to draw attention to a particular point, rather than a genuine request for information			
4	sarcasm	language designed to insult or taunt			
5	appeal to senses	language or imagery connected to hearing / smell / taste / sight / touch			
6	sentence length	A variety of sentence lengths can be used for effect: e.g short sentences to create tension; long sentences to give detail	Key Terms		
7	simile	a comparison introduced by 'like' or 'as'	<ul style="list-style-type: none"> Fiction – literature exploring imaginary events and/or people Non fiction – based on facts and real life events e.g newspaper Compare – state the similarities and differences between 2 texts Summarise – state the key points of what is written Evaluate – offer your own critical opinion 		
8	superlative	adjective that expresses the highest quality or degree			
9	triplet	using three different qualities to reinforce or stress a point			
10	verbs	simply described as 'doing words', however many verbs identify states or feelings rather than actions and can be very emotive / effective			
			How to write about texts...		
			P oint	<p>The character is presented as ...</p> <p>The writer makes us think that...</p> <p>The language of the text is used to...</p> <p>The structure of the text is used to...</p> <p>Similarly/On the other hand the writer suggests that</p> <p>The technique of...is used to....</p> <p>The writer shows us that....</p> <p>One way in which (use the key words from the question) is...</p>	
			E vidence	<p>For example, ...</p> <p>One quote to show this is...</p> <p>In the line '.....'</p> <p>In the text it says '.....'</p> <p>This is indicated in the line '....'</p> <p>Such as...</p> <p>For instance...</p> <p>This is shown in the quotation...</p>	
			T echnique	<p>This is an example of a...</p> <p>The technique is used to...</p> <p>By using the technique...</p> <p>By using the writer shows that...</p> <p>The use of the feature is....</p> <p>An example of a ...</p>	
			E ffect	<p>This suggests/shows/implies/connotes/indicates...</p> <p>The effect on the reader is....</p> <p>This is used to show that...</p> <p>The connotations of this are...</p>	
			R elate back to the question	<p>(Use keywords from the question) Therefore it can be seen that...</p> <p>Overall, the writer is... (relate back to the question and your ideas on this)</p> <p>Relate to why the writer wrote the text, what they are trying to convey)</p> <p>The author's intention was to...</p>	



1. Key Vocabulary

Propaganda	Biased or misleading information used to promote a political cause.
Conscription	Compulsory enrolment into the armed forces.
Cowardice	Excessive fear that prevents an individual from taking risks or facing danger.
Patriotism	The feeling of loving your country and being proud of it.
Desertion	The act of leaving the armed forces without permission.
Court Martial	A court for trying soldiers accused of offences against military law.
Enlistment	Voluntary action of joining the armed forces.
Mustard Gas	A poisonous gas used by the Germans in trench warfare against the British. Caused blindness, choking and breathing problems and sometimes death.

3. World War 1 Facts

- World War 1 was also known as The Great War
- Dates: from 28th July 1914 to November 11th 1918.
- It is thought that 16 million [people died in the war.
- The war was between:

The Triple Alliance	The Triple Entente
Germany	Great Britain
Austria - Hungary	France
Their Allies	Russia

- newspapers were banned from printing anything that spoke out against the war.



2. Characters

Tommo	Main protagonist. Younger brother of Charlie and Joe. Feels guilty about his father's death
Charlie	Protects Tommo at school and is Tommo's hero.
Big Joe	Eldest of the three boys. He is mentally disabled. Loves animals.
Molly	Charlie and Tommo's best friend.
Mother	Raises her sons on her own. Is kind and fair.
Grandma Wolf	A relative who looks after the boys when mother is working. She is cruel, especially to Big Joe.
The Colonel	Owns the manor house and the surrounding land where many villagers live and work.
Hanley	A cruel sergeant who bullies the soldiers.
Wilkes	A kind Captain who improves the moral of the soldiers and tries to protect Charlie and Tommo.

4. Recruitment



- Only men could join up as soldiers.
- Men were made to feel morally obliged to join the army.
- You had to be at least 18 years old to join the army, and 19 years old before you could be sent abroad to fight.
- The top age limit was 41 years old (the age limit was increased to 51 years old in April 1918).
- Women were encouraged to give white feathers to men who did not sign up.
- The minimum **height limit** started at 5 feet 3 inches but was raised to 5 feet 6 inches in order to prevent an unmanageable flood of volunteers coming forward.
- The youngest person to have signed up and fought during the war was 12-year-old Sidney George Lewis.

5. Early 1900s working class life

- 25% of the British population lived in poverty at the start of the 20th century. 15% were living at subsistence level which means that they barely had enough to eat. 10% were living below subsistence level.
- Women were paid much lower wages than men.
- The average working week was 54 hours.
- The only holidays most working-class people got were bank holidays.
- In the countryside, many working class people would find jobs at the big house as servants, gardeners or gamekeepers.
- Scarlet fever was the biggest killer of children at the time. Symptoms are: high fever, headache, body aches, a red bumpy tongue, bright red skin in the creases of the body.

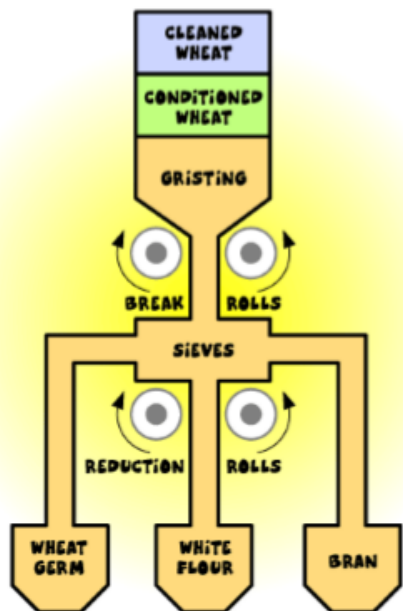
"Women of Britain Say Go!"	Exclamatory phrase, imperative verb, emotive language
"Daddy, what did you do in the war?"	Emotive language, question.
"Boys, come over here, you're wanted."	Direct address, 2 nd person pronoun, emotive language, imperative verb.
"Your country needs you!"	Exclamatory phrase, 2 nd person pronoun – direct address, patriotic appeal.
"Don't stand looking at this. Go and help!"	Imperatives, emotive – playing on guilt.



Key terms	Definition
1. Halal 	Foods that are allowed to be eaten according to Islamic law. Foods that are not permitted are known as haram.
2. Kosher 	Is a word used to describe food and drink that complies with Jewish religious dietary law and that are fit and proper for consumption.
3. Organic	Food produced without the use of chemical fertilisers, pesticides or other artificial chemicals.
4. Intensive farming	A way of producing large amounts of crops, by using chemicals and machines as well as keeping animals indoors to restrict movement.
5. Seasonal	The times of the year when the harvest or the flavour of a food is at its peak.
6. Food miles	The distance food is transported from the time of its making, until it reaches the consumer.

1

Farm to Fork – How flour is made



On arrival at the mill the wheat is **cleaned** to remove dust, straw and other impurities.

Conditioning with water softens the bran layer of the wheat and makes it easier to separate the parts of the wheat.

The wheat is blended with other types of wheat in a process called **gristing** to make different kinds of flour.

It is then **milled** through steel rollers with teeth that break the grains open.

The fragments of wheat grain are **separated** by sieves.

The bran, wheatgerm and endosperm have all been separated out. They can now be **blended** to make different types of flour.

2

	Intensive Farming	Organic Farming
Quantity (yield)	High yield, large amounts of food produced.	Lower yield of crops and more is lost and less is grown.
Pesticides	Artificial pesticides are used to keep pests away resulting in more crop.	Pesticides restricted; natural predators encouraged.
Animals	Battery rearing of animals in enclosures, less humane and can cause disease to spread quickly through the animal population..	Animals have a better quality of life with access to outdoors. Animals not given antibiotics.
Labour	Artificial chemicals and machines means fewer people are needed for work.	More people are needed to work the farms.
Fertilisers	If too much is used, it can wash in to streams and lead to pollution.	Only natural fertilisers are used along with crop rotations.
Cost	Low cost of production but a high initial set up, maximum output is achieved resulting in a lower cost for consumers	Production is lower and more space is needed, resulting in higher cost produce for consumers.

3



Farmed animals that have been inspected to **VERY high welfare standards** – providing them with physically and mentally stimulating environments from birth to slaughter.



This symbol means that the food you buy has been **responsibly sourced** from **British** farmers, safely produced and comes from crops and animals that have been well cared for.



This logo is stamped on to egg to certify that they are **British** and that the **hens have been vaccinated** against Salmonella.



This symbol means that the product is certified to **high organic standards** and provides an assurance of organic authenticity.



4	Food Safety
Microorganism	Tiny living things, such as bacteria, yeasts and moulds which cause food spoilage.
Pathogen	Harmful bacteria which can cause food poisoning.
High Risk Food	Foods which are ideal for the growth of bacteria or micro-organisms (e.g., chicken and shellfish).
Contamination	When food is affected with micro-organisms.



READY TO EAT FOOD
Such as dairy products, yoghurt & cream

READY TO EAT FOOD
Such as cream cakes, butter, cooked meats, leftovers & other packaged food.

RAW MEAT, POULTRY & FISH
Always cover & keep in sealed containers.

SALAD, FRUIT & VEGETABLES
Keep ready to eat fruit and vegetables in sealed bags or containers, always wash before use.



Prevent Cross Contamination
Use correct colour coded chopping boards and knives at all times

RAW MEAT

RAW FISH

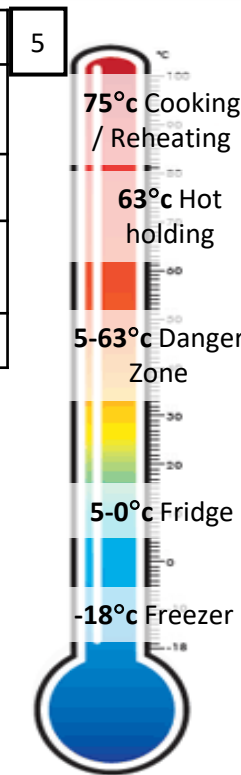
COOKED MEATS

SALADS & FRUITS

VEGETABLES

DAIRY PRODUCTS

ALLERGENS



6	Different ages have different nutritional needs
Age	Definition
Young children	Children have small stomachs and should have small meals more frequently. Dairy is important for calcium. They should be encouraged to try new foods.
Children	They are very active and growing rapidly. Need a balanced diet, sugar and snacking should be avoided.
Teenagers	Growth is in spurts, protein required for muscles and calcium for skeleton. Teenage girls begin mensuration. Teenagers deal with stress and this can lead to poor eating habits.
Adults	Stop growing so needs don't as much. Eatwell guide should be followed. Metabolic rate slows through age. Muscle is lost and fat gained.
Elderly	Usually less active and need less energy. Taste and smell can change which affects enjoyment.
Pregnancy	Mum's diet is important for formation of a healthy fetus. Iron and calcium and supplement of B9.



7	Diet Related Health Problems
Obesity	The most common over nutrition problem is obesity caused by too much energy being consumed, or high levels of inactivity. It is measured as a ratio of weight to height.
Dental Health	To maintain healthy teeth, you need to have a balanced diet. Bacteria feeds on the sucrose found in food and produces acid.
CHD & High blood pressure	Coronary heart disease (CHD) is related to the amount of fat in the diet and is caused by a narrowing of the blood vessels to the heart. This reduces the flow of blood to the heart. High levels of cholesterol in blood increase the risk of CHD.
Type 2 Diabetes	This is a metabolic disorder caused by poor absorption of glucose. Diet plays a strong role in preventing type 2 diabetes, a condition that causes the level of sugar (glucose) in the blood to become too high.
Anaemia	A condition caused by insufficient iron in the body and vitamin C , which is needed for absorption. Common symptoms include tiredness and lethargy.
Diverticulitis	A condition which affects the large intestine. It is linked to a low fibre diet and causes the lining of the bowel to become inflamed, infected and damaged.
Osteoporosis & rickets	Calcium is important for strong bones. Vitamin D is needed for calcium to be absorbed from food. Rickets is caused by a lack of calcium and vitamin D in children. Osteoporosis is a disease in which the bones start to lose minerals and their strength and break easily.



	French	English
1	Mon collège s'appelle Christ The King. C'est un collège catholique et mixte. Il y a huit cents élèves et quarante profs. C'est assez grand.	My school is called Christ the King. It is a Catholic, mixed school. There are 800 pupil and 40 teachers. It's quite big.
2	Dans mon collège il y a un terrain de foot, cependant, il n'y a pas de piscine. C'est dommage !	In my school there is a football pitch, however, there isn't a swimming pool. What a shame!
3	Dans mon collège on doit porter un uniforme scolaire. Je trouve ça nul !	In my school you must wear school uniform. I find that rubbish!
4	On porte un pantalon noir ou une jupe noire avec une veste noire et jaune. On porte aussi une cravate noire. J'adore mon uniforme.	We wear black trousers or a black skirt with a black and yellow blazer. We also wear a black tie. I love my uniform.
5	Au collège, j'étudie la biologie, les maths, les sciences, l'histoire et le Français.	At school, I study Biology, Maths, Sciences, History and French.
6	J'aime le français et l'anglais parce que j'ai des bonnes notes et la prof est sympa	I like French and English because I get good grades and the teacher is nice.
7	Par contre, je déteste la technologie et l'art plastique parce que c'est compliqué, et le prof est stricte.	However, I hate Technology and Art because it's complicated and the teacher is strict.
8	Je dirais que le français est plus amusant que les maths, cependant	I would say that French is more fun than Maths however
9	hier j'ai étudié l'EPS et c'était vraiment divertissant	Yesterday I studied PE and it was really entertaining.
10	Dans mon collège, on commence les cours à neuf heures cinq et on finit à trois heures vingt.	In my school, we start lessons at 9:05 and we finish at 3:20
11	Le récré est à dix heures et la pause déjeuner est à douze heures vingt.	Break is at 10 and lunch break is at 12:20
12	Après je rentre à la maison en bus où je fais mes devoirs mais mon frère fait de la natation.	After I go home by bus where I do my homework, but my brother does swimming.



1. Key words

Development	Economic progress of a country and its improving quality of life
Inequality	Extreme differences in quality of life
Resource	An item with value or purpose e.g. food
Malnutrition	Ill or weak due to too little food
Famine	Extreme shortage of food
Drought	Prolonged period of low rainfall leading to water shortages
Aid	Money, supplies and skills supplied to improve lives.
Contaminated	Infected by poisonous or polluting substance e.g. chemicals or faeces
Sanitation	Clean water, good sewerage and waste disposal
Gender Inequality	Treating people differently because they are male or female
NGO	Non-Governmental Organisation. Charities which raise money to support development and raise awareness of issues.
UN	United Nations. a group of 192 countries set up after WW2 to bring the world together to avoid future conflict.

2. Development Indicators (Measurements used to compare quality of life in different countries)

Birth rate	Number of babies born per 1000 of population
GNI	Gross National Income – the amount of money a country makes in a year
Infant Mortality Rate	The number of children who die before their first birthday per 1000 of population
Life expectancy	How long a person is expected to live
Literacy Rate	The % of the population over 15 years old who can read and write
HDI	Human Development Index – a combination of life expectancy, GNI and education
Per Capita	Per person

3. Causes of inequality

Landlocked	No access to the sea
Conflict	Ongoing violence between different groups/countries
Access to healthcare	Shortage of hospitals, doctors, nurses, and medical supplies.
Extreme weather	Temperature and rainfall which prevent effective agriculture
Natural Hazards	Disasters such as tropical storms, floods or earthquakes which are large scale and costly.
Access to education	Shortage of schools, teachers and resources
Access to resources	Shortage of water, energy and food.
Colonialism	European countries ruled over countries in Africa, Asia and the Americas.





4. Trade Key Words

Commodity`	A good for sale
Import	A good entering a country from abroad for sale
Export	A good leaving a country to go abroad for sale
TNC (Trans-National Corporation)	A large company with a headquarters in one country (often a HIC) which operates in a number of other countries.
Plantation	A large estate on which crops are grown e.g. cocoa beans, coffee beans, sugar.
Cash crop	Crops grown for sale
Free trade	Trade between countries with no restrictions which favours TNCs and HICs.
Fair trade	Trade of goods which guarantees a fair price for farmers and investment in their local community improving education, healthcare and their environment.

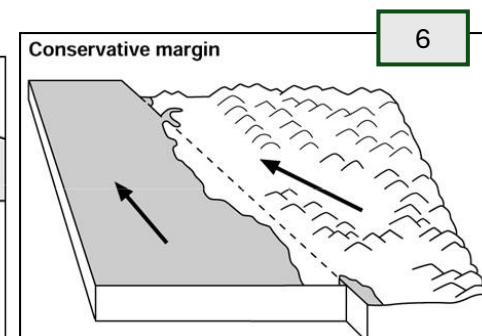
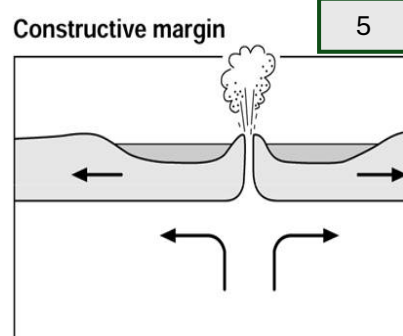
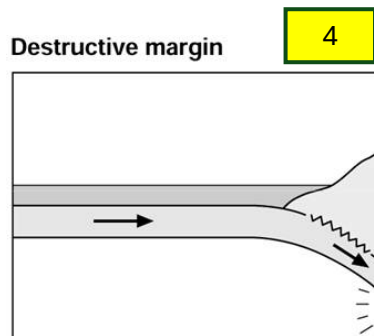
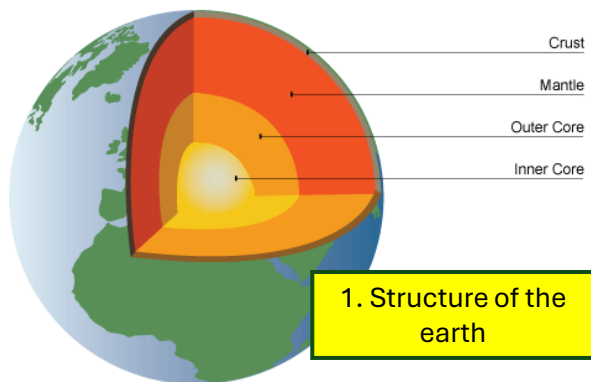
5. Types of aid

Top-down aid	A government decides how to invest aid in their country
Bottom-up aid	Local populations decide on and run smaller-scale aid projects
Short-term emergency aid	Aid to recover from a disaster e.g. earthquake
Long-term development aid	Aid to improve development indicators within a place over a number of years

6. Migration

Migrant	A person who moves from one place to another
Emigrant	A person who leaves a country to move to another one
Immigrant	A person who moves to a country from another country
Illegal Immigrant	A person who moves to another country without proper clearance
Economic Migrant	Someone who moves for money
Origin country	Where a migrant is from
Host country	Where a migrant moves to

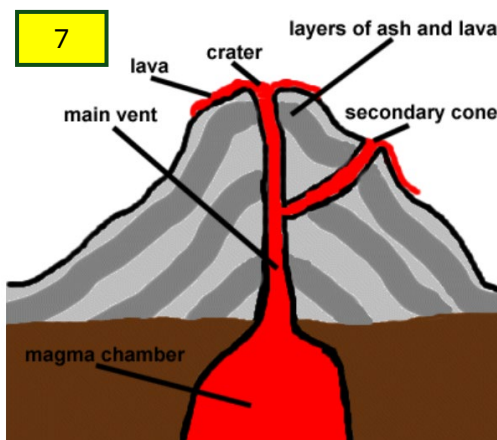




2. Plate tectonic theory key words	
Plate	A large rigid section of the earth's surface
Plate Margin	The boundary of two plates
Tectonic	The structure of the earth and processes within.
Continental Drift	Gradual movement of continents across time
Convection	Movement in a fluid of rising less dense heat and sinking denser cooler liquid.
Subduction	Denser oceanic plate sinks below less dense continental plate at a destructive margin.

3. Plate Margin	Plate movement	Hazards
Destructive	Together	Volcanoes and earthquakes
Constructive	Apart	Volcanoes and earthquakes
Conservative	Past one another	Earthquakes
Collision	Together	Earthquakes

A simple cross section of a volcano



9. Reasons for living near volcanoes
Fertile soil
Tourism
Precious minerals
Geothermal energy
Social factors

8. Volcanic Hazards	
Lava	Molten rock which erupts from the ground
Ash	Small pieces of shattered roc, minerals and gas thrown from the volcano
Volcanic Bomb	balls of molten rock that solidify as they fall
Lahar	Mud flows, made from pyroclastic materials, rocks and water.
Pyroclastic flow	Pyroclastic flows spill down the sides of the volcano. It is carrying heavier materials such as gas and rock.

10. Managing Volcanic Eruptions	
Dams	Blocking the path with a concrete wall
Channels	Digging channels to direct lava flow away from settlements
Water	Cools the lava to turn rock from molten to solid to slow the flow
Education	Teach people how to behave during a hazard to protect lives and communities
Evacuation	Remove people quickly and safely from a hazard
Monitoring	Observing the movement of the earth's crust for evidence of tectonic activity



1. Key Words	
Industry	Manufacturing goods in mills and factories
Revolution	A complete change
Urbanisation	Population shift from rural to urban areas
Mechanisation	Machines replace manual labour
Workhouses	Food and board for the poor in exchange for work
Types of Transport	Railways, canals, steam ships

2. Living Conditions	
Housing	One room per family. Little furniture, damp, dirty and unhygienic.
Sanitation	One shared outside water pump and toilet per street.
Cholera	Infection caused by ingestion of food or water contaminated by bacteria. Epidemics in 1832, 1849 and 1866.

3. Social Reformers	
Social	Related to human society.
Reform	Make changes to improve something.
Charles Booth	Created a survey in 1886 on living and working conditions and found 30% of London lived in poverty.
Joseph Rowntree	Concerned with the living conditions of his factory workers and made improvements

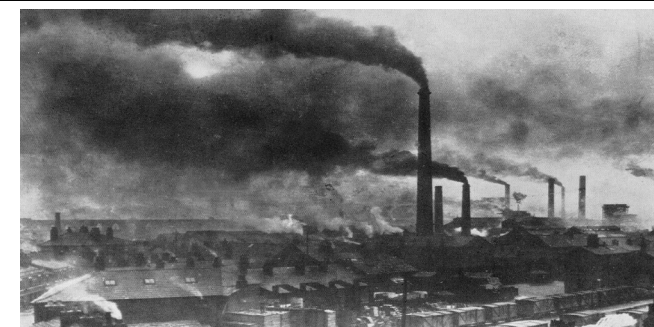
4. Working Conditions	
Pay	Very low pay for adults and children
Hours	6 days a week. 12 hours a day. Few breaks
Conditions	Dangerous, dirty, punishments
Accidents	Faulty machines, no safety gear, whips, fire

5. Transport	
Railways	Cheaper, quicker and more comfortable
Canals	Slower, likely to freeze and more expensive to build.
Shipping	Susceptible to bad weather.
Roads	Long distance road transport went into decline.

6. Inventions	
Great Exhibition 1851	The aim was to improve the manufacture and design of British goods and to cultivate public taste.
Steam Engine	In the 17 th century the steam engine was used to pump water out of mines.
Locomotive	A locomotive or engine is a rail transport vehicle that provides the motive power for a train.
Spinning Jenny	The spinning jenny was an engine for spinning wool or cotton invented in 1764 by James Hargreaves which improved the mass production of cotton.
Telephone	Invented by Alexander Graham, Bell in 1876, but has been accused of copying other inventors.

7. Knowledge of Skills	
Significance	Sufficiently great or important to be worthy of attention
What makes someone or something significant?	<p>Importance: To people living at the time.</p> <p>Profundity: How deeply people's lives were affected.</p> <p>Quantity: How many lives were affected.</p> <p>Durability: For how long people's lives were affected.</p> <p>Relevance: The extent to which the event has contributed to an increased understanding of present life.</p>

8. Timeline of key dates	
1825	The first passenger railway opens
1834	Poor Law Amendment Act
1837	Queen Victoria becomes the Monarch
1848	Cholera epidemic across Britain
1870	Education Act
1888	Jack the Ripper
1889	Charles Booth's survey
1901	Death of Queen Victoria





1. Before 1832			
Elections before 1832	No secret ballots, corruption, bribery and violence.		
Voters before 1832	Very rich men who lived in the countryside		
MPs before 1832	Very rich men and aristocrats who didn't need to work		
2. Nottingham Riots			
Causes of the Reform Riots	<ul style="list-style-type: none">Reform Bill was defeated in the House of Commons.Local Nottingham landowner The Duke of Newcastle had voted against it.Locals wanted revenge.		
Events of the Reform Riots	A violent mob attacked Nottingham Castle and Colwick Hall.		
Consequences of the Reform Riots	<ul style="list-style-type: none">Ring leaders arrested and put on trial with London Judges.George Beck was sentenced to deathValentine Marshall was sentenced to transportation.		
3. Suffragettes vs Suffragists			
Suffragists	Suffragists (NUWSS) wanted to act within the law to win support for their cause. They felt that any actions that broke the law would allow their opponents to portray them as irresponsible and not allow the vote.		
NUWSS	The NUWSS were led by Millicent Fawcett and were founded in 1897. They aimed to win women's suffrage through debate and campaigning, such as petitions and non-violent marches.		
Suffragettes	Suffragettes (WSPU) used militant methods to protest for their right to vote such as chaining themselves to Buckingham Palace and burning down homes of MPs.		
WSPU	The WSPU was formed in 1903 by Emmeline Pankhurst. She had been a member of the Suffragists but had grown impatient and decided to form her own suffrage movement.		
4. Emily Davison			
Who is she?	Was a militant suffragette, who joined the WSPU in 1906. Three years later she gave up her job as a teacher and went to work full-time for the suffragette movement. She was frequently arrested and in 1909, she was sentenced to a month's hard labour after throwing rocks at the carriage of chancellor David Lloyd George. She attempted to starve herself, and resisted force-feeding.		
What did she do?	On 4 th June 1913 she ran out in front of the King's horse as it was taking part in the Epsom Derby whilst wearing an WSPU sash. Her purpose was unclear, but she was trampled on and died on 8 June from her injuries.		
6. Changes to Voting in the 19 th and 20 th Centuries			
Great Reform Act 1832	Voters increased to 4 in every 10 men.		
Second Reform Act 1867	In 1866, all voters had to be male adults over 21 years of age, but the right to vote was still based upon if you owned property.		
Third Reform Act 1884	Approximately two in three men now had the vote - almost 18 per cent of the total population.		
Representation of the People Act 1918	This act gave all men over 21 and all women over 30 the right to vote. This represented 8.5 million women - two thirds of the total population of women in the UK.		
Equal Franchise Act 1928	The Equal Franchise Act gave all women over 21 the right to vote. This made the voting age equal amongst men and women.		
8. Timeline of key dates			
1819	Peterloo Massacre	1913	Cat and Mouse Act
1831	Nottingham Riots	1913	Emily Davison dies at Epsom Races
1832	Great Reform Act	1914-1918	World War One
1867	Second Reform Act	1918	Representation of the People Act
1887	Third Reform Act	1928	Equal Franchise Act
5. Reactions			
Cat and Mouse Act	Authorities responded to hunger strikes firstly by force feeding, but this was very dangerous. The government responded by introducing this act, which allowed prisoners to be released when they became ill, then returned to prison when they were eating again.		
Opposition	Mary Humphrey Ward created the Women's National Anti-Suffrage League in 1908. This organisation merged with the Men's League for Opposing Women's Suffrage in 1910, to form the National League for Opposing Woman Suffrage.		
7. Knowledge of Skills			
Source	Evidence from the time which historians can use to find out information.		
Useful	A source is always useful as it is from the time, however some sources are more useful than others.		
Bias	Bias is where personal opinions are included to influence your judgement.		
Examples	Picture, speech, letter, diary entry, newspaper article, records, cartoons, posters.		
Provenance	This is a source's nature (type), origin (where, who, when) and purpose (why).		



1

Keyword	Definition
Cell	Individual element of a spreadsheet
Formula	Mathematical equation
Function	A preset formula such as SUM, AVERAGE or COUNT
Filter	Used to highlight data that contain a certain value
Sort	Allows data to be placed in an order such as numerical or alphabetical

2

Type of software	Example	Used for
Web browser	Google Chrome	Searching for information / images
Word processor	Microsoft Word	Creating documents / letters / reports
Spreadsheet app	Microsoft Excel	Data analysis / graphs / charts
Email client	Microsoft Outlook	Sending and receiving emails / calendar function
Team collaboration software	Microsoft Teams	Sharing files / working on files with other people

3

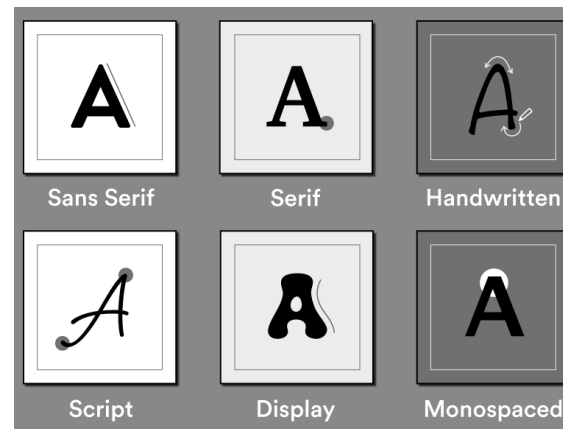
Colour swatch



Company logo



Font Style



4

Animations	Images / text can be animated to move around or appear on a slide in a specific way
Transitions	Movement between one slide and the next
Slide Show	Presenting the slides in order to an audience



1. Ration and Scale Key Words

1.	Ratio	A statement of how two or more items compare.
2.	Equal parts	All parts in the same proportion, or a whole shared equally.
3.	Proportion	A statement that links two ratios.
4.	Order	To place a number in a determined sequence.
5.	Equivalent	Of equal value.
6.	Factors	Integers that multiply together to get the original value.
7.	Scale	The comparison of something drawn to its actual size

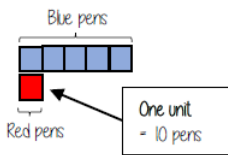
2. Finding a value given 1n (or n:1)

Inside a box are blue and red pens in the ratio 5:1
If there are 10 red pens how many blue pens are there?

Model the Question

Blue : Red
5 : 1

□ = one part
= 10 pens



Put back into the question

Blue : Red
5 : 1
(x 10) 50 : 10 (x 10)
Blue pens = 5 x 10 = 50 pens
Red pens = 1 x 10 = 10 pens

There are 50 Blue Pens

3. Sharing a whole into a given ratio

James and Lucy share £350 in the ratio 3:4.
Work out how much each person earns

Model the Question

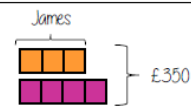
James : Lucy
3 : 4

Find the value of one part

Whole: £350
7 parts to share between
(3 James, 4 Lucy)

Put back into the question

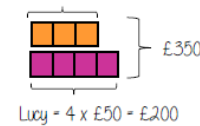
James : Lucy
3 : 4
(x 50) £150 : £200



James
£350 ÷ 7 = £50

□ = one part
= £50

James = 3 x £50 = £150



Lucy = 4 x £50 = £200

4. Simplifying a ratio

Cancel down the ratio to its lowest form

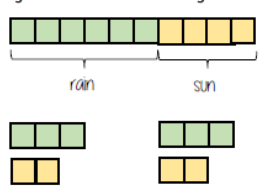
"For every 6 days of rain there are 4 days of sun"

6:4

÷ by 2

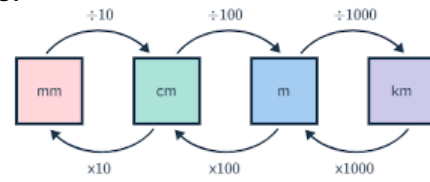
3:2

"For every 3 days of rain there are 2 days of sun" - when this happens twice the ratio becomes 6:4



Find the biggest common factor that goes into all parts of the ratio
For 6 and 4 the biggest factor (number that multiplies into them is 2)

5.



Sparx Codes

M885

M525

M478

1. Multiplicative Change Key Words

1.	Proportion	A statement that links two ratios.
2.	Variable	A part that the value can be changed
3.	Axes	Horizontal and vertical lines that a graph is plotted around.
4.	Approximation	An estimate for a value.
5.	Scale Factor	The multiple that increases/decreases a shape in size
6.	Currency	The system of money used in a particular country.
7.	Conversion	The process of changing one variable to another
8.	Scale	The comparison of something drawn to its actual size.

2.

Direct Proportion



4 cans of pop = £2.40

(x 0.5) 2 cans of pop = £1.20
(x 3) 12 cans of pop = £7.20

This multiplier is the same in the same way that this would be for ratio

As one variable changes the other changes at the same rate.

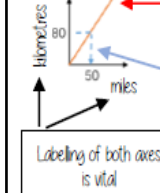
This is a multiplicative change

Sometimes this is easiest if you work out how much one unit is worth first e.g. 1 can of pop = £0.60

4.

Conversion Graphs

Compare two variables



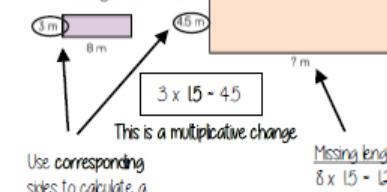
This is always a straight line because as one variable increases so does the other at the same rate

To make conversions between units you need to find the point to compare - then find the associated point by using your graph. Using a ruler helps for accuracy. Showing your conversion lines help as a "check" for solutions

3.

Understand Scale Factor

The two rectangles are similar.



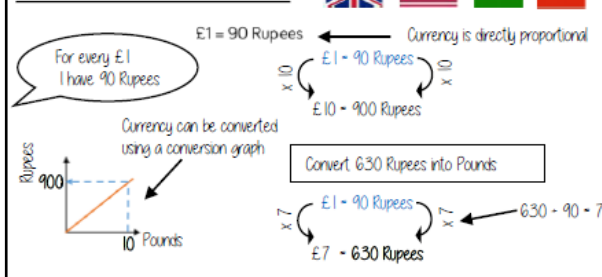
Use corresponding sides to calculate a scale factor

Scale factor can also be calculated by

Bigger corresponding side
Smaller corresponding side

5.

Conversion between currencies



£1 = 90 Rupees
Currency is directly proportional
For every £1 I have 90 Rupees
Currency can be converted using a conversion graph
Convert 630 Rupees into Pounds
£1 = 90 Rupees
£7 = 630 Rupees
630 ÷ 90 = 7

Sparx Codes

M478

M377

M324



1. Multiplying and Dividing Fractions Key Words

1.	Numerator	The number above the line on a fraction, the top number represents how many parts are taken.
2.	Denominator	The number below the line on a fraction, the number represent the total number of parts.
3.	Whole	A positive number including zero without any decimal or fraction parts.
4.	Commutative	An operation is commutative if changing the order does not change the result
5.	Unit Fraction	A fraction where the numerator is one and the denominator is a positive integer.
6.	Non-Unit Fraction	A fraction where the numerator is larger than one.
7.	Dividend	The amount you want to divide up.
8.	Divisor	The number that divides another number.
9.	Quotient	The answer after we divide one number by another. Dividend ÷ Divisor = Quotient
10.	Reciprocal	A pair of numbers that multiply together to give 1.

2. Multiplying non-unit fractions

Shade in 3 parts → $\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$ → Parts shaded

Repeat it on this many rows →

This many columns →

This many rows →

Modelled: $\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$

Total number of parts in the diagram

3. Dividing any fractions Remember to use reciprocals

$\frac{2}{5} \div \frac{3}{4} = \frac{2}{5} \times \frac{4}{3} = \frac{8}{15}$

Multiplying by a reciprocal gives the same outcome

Represented:

4. The reciprocal When you multiply a number by its reciprocal the answer is always 1

$$3 \times \frac{1}{3} = 1$$

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

The reciprocal of 3 is $\frac{1}{3}$ and vice versa

Reciprocals for division

eg $5 \div \frac{1}{4} = 20$

$5 \times 4 = 20$

Multiplying by a reciprocal gives the same outcome

Sparx Codes

M157

M110

M216

1. Cartesian Plane Key Words

1.	Quadrant	Four quarters of the coordinate plane.
2.	Coordinate	A set of values that show an exact position.
3.	Horizontal	A straight line from left to right (parallel to the x axis).
4.	Vertical	A straight line from top to bottom (parallel to the y axis).
5.	Origin	(0,0) on a graph, the point the two axis cross.
6.	Parallel	Lines that never meet.
7.	Gradient	The steepness of a line.
8.	Intercept	Where lines cross.

2.

Lines parallel to the axes

Intersection points

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

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

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

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

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

It can be ONLY positive or negative value including 0

4.

Coordinates in four quadrants

Coordinate (x, y) (6, 4)

From the origin this coordinate is 6 places along the positive x axis and 4 places up the positive y axis

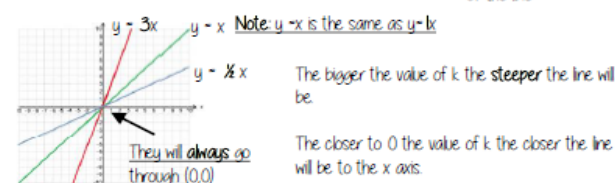
(0, a) Will be always be a point on the y axis (a can be any number)

(a, 0) Will be always be a point on the x axis (a can be any number)

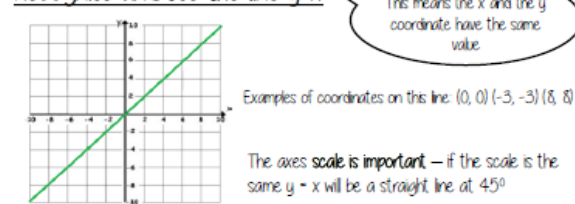
Always the position on the x axis first

Always the position on the y axis second

3. Recognise and use the lines $y=kx$ The value of k changes the steepness of the line



5. Recognise and use the line $y=x$



Sparx Codes

M618

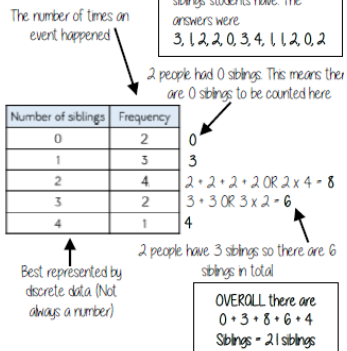
M932



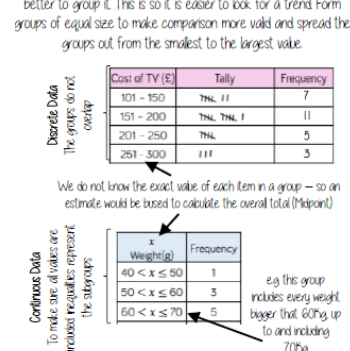
1. Representing Data Key Words

1.	Variable	A quantity that may change within the context of the problem.
2.	Relationship	The link between two variables (items), e.g. between sunny days and ice cream sales.
3.	Correlation	The mathematical definition for the type of relationship.
4.	Line of best fit	A straight line on a graph that represents the data on a scatter graph.
5.	Outlier	A point that lies outside the trend of the graph.
6.	Continuous:	Quantitative data that has an infinite number of possible values within its range.
7.	Discrete	Quantitative or qualitative data that only takes certain values.
8.	Frequency	The number of times a particular data value occurs.

2. Ungrouped Data



3. Grouped Data



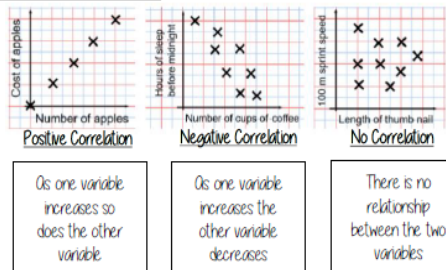
Sparx Codes

M769

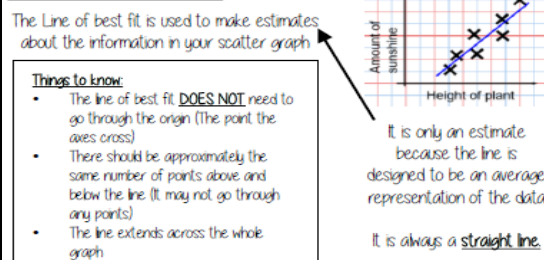
M596

M127

4. Linear Correlation



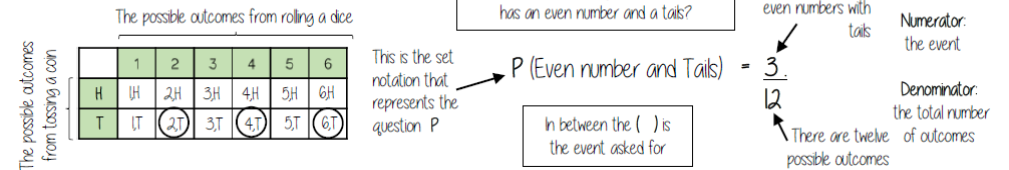
4. The line of best fit



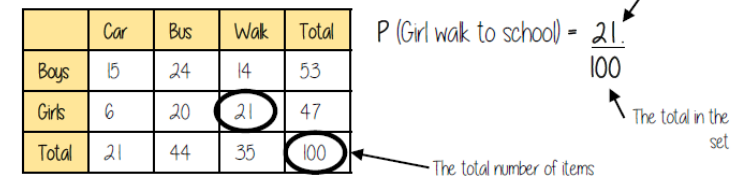
1. Tables and Probability Key Words

1.	Outcomes	The result of an event that depends on probability.
2.	Probability	The chance that something will happen.
3.	Set	A collection of objects.
4.	Chance	The likelihood of a particular outcome.
5.	Event	The outcome of a probability- a set of possible outcomes.
6.	Biased	A built-in error that makes all values wrong by a certain amount.
7.	Union	Notation 'U' meaning the set made by comparing the elements of two sets.

2. Probability from sample space



3. Probability from two-way tables



Sparx Codes

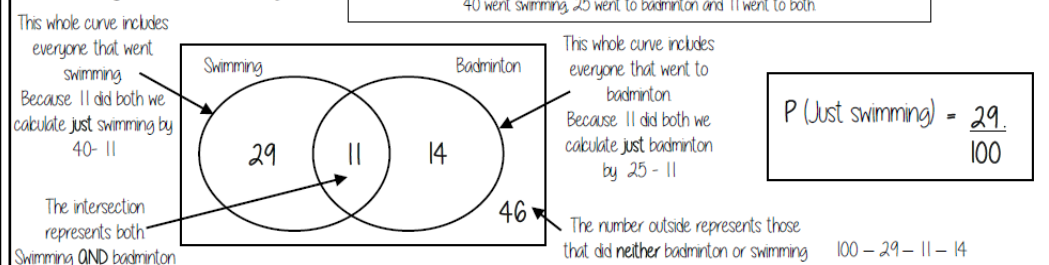
M718

M829

M419

5.

Probability from Venn diagrams





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So Quick. So Simple. So Schofield.

Jingles



Jingle - key words

Advert

A public announcement promoting a particular product.

Jingle

Musical advert

Script

Dialogue

Hook

A short phrase that “catches the ear”.

Melody

A tune

Slogan

A catchy phrase

Rhythm

Beats - A repeated pattern of strong and weak beats.

Foreground Music

Music used as the main focus of the advert.

**K
E
Y

W
O
R
D
S**

What is a Jingle?

It's simply
a.....musi
cal **advert**.

Advertising is used to
sell a product, in
order to make money
and music is a key
feature when creating
an advert.



Computer and Video Game Music



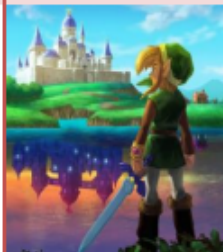
Early Computer and Video Game Music



Early video game music consisted primarily of **SOUND EFFECTS** (an artificially created or enhanced sound used to emphasize certain actions within computer and video games), **CHIPTUNES** or **8-BIT MUSIC** (a style of electronic music which used simple melodies made for programmable sound generator (PSG) sound chips in

vintage computers, consoles and arcade machines) and early sound **SYNTHESISER** technology (an electronic musical instrument that generates audio signals that may be converted to sound). **SAMPLING** (the technique of digitally encoding music or sound and reusing it as part of a composition or recording) began in the 1980's allowing sound to be played during the game, making it more realistic and less "synthetic-sounding".

How Computer and Video Game Music is used within a Game



Music within a computer or video game is often used for **CUES** (knowing when a significant event was about to occur).

Video game music is often heard over a game's title screen (called the **GROUND THEME**), options menu and bonus content as well as during the entire gameplay. Music can be used to **INCREASE TENSION AND SUSPENSE** e.g. during battles and chases, when the player must make a decision within the game (a **DECISION MOTIF**) and can change, depending on a player's actions or situation e.g. indicating missing actions or "pick-ups".

Musical Features of Computer and Video Game Music

JUMPING BASS LINE

Where the bass line often moves by **LEAP (DISJUNCT MOVEMENT)** leaving 'gaps' between notes



STACCATO

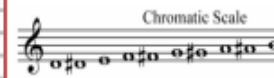
ARTICULATION

Performing each note sharply and detached from the others. Shown by a dot.



CHROMATIC MOVEMENT

Melodies and bass lines that ascend or descend by semitones.



SYNCOPIATION

Accenting the weaker beats of the bar to give an "offbeat" jumpy feel to the music.



How Computer and Video Game Music is Produced



Fully-orchestrated **SOUNDTRACKS** (video game music scores) are now popular – technology is used in their creation but less in their performance. The composer uses **MUSIC TECHNOLOGY** to create the score, it is then played by an **ORCHESTRA** and then digitally converted and integrated into the game. Video game **SOUNDTRACKS** have become popular and are now commercially sold and performed in concert with some radio stations featuring entire shows dedicated to video game music.

Character Themes in Computer and Video Game Music



Characters within a video game can also have their own **CHARACTER THEMES** or **CHARACTER MOTIFS** – like **LEITMOTIFS** within Film Music. These can be manipulated, altered and changed – adapting the elements of music – **ORCHESTRATION** (the act of arranging a piece of music for an orchestra and assigning parts to the different musical instruments), **TIMBRE, SONORITY, TEXTURE, PITCH, TEMPO, DYNAMICS** – depending on the character's situation or different places they travel to within the game.

Famous Computer and Video Game Music Composers and their Soundtracks



Koji Kondo

Super Mario Bros. (1985)
The Legend of Zelda (1986)



Michael Giacchino

The Lost World: Jurassic Park (1997)
Medal of Honour (1999)
Call of Duty (2003)



Mieko Ishikawa

Dragon Slayer (1993)



Martin O'Donnell and Michael Salvatori

Halo (2002)



Daniel Rosenfield

Minecraft (2011)



Rom Di Prisco

Fortnite (2017)



Components of Fitness

Health Related Components

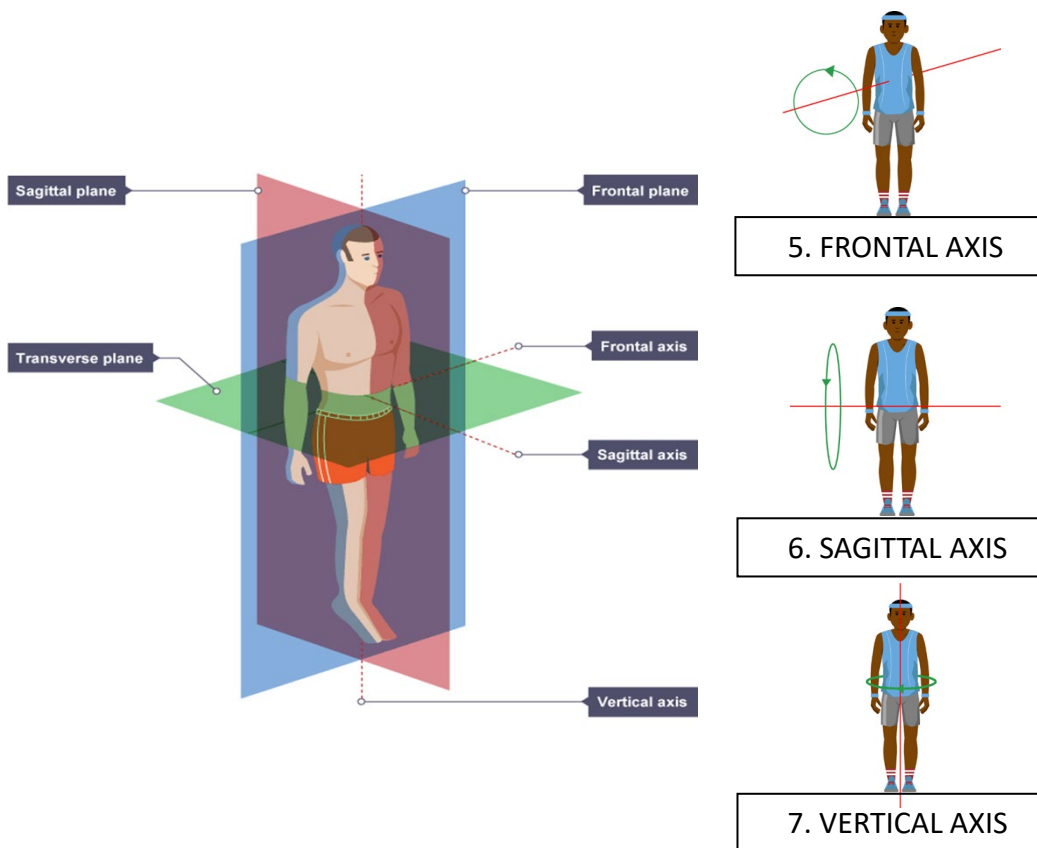
1. Cardiovascular Fitness	The ability to exercise the entire body for long periods of time without tiring
2. Muscular Endurance	The ability to use voluntary muscles many times without getting tired
3. Muscular Strength	The amount of force a muscle can exert against resistance
4. Flexibility	The range of movement possible at a joint
5. Body Composition	The relative ratio of fat mass to fat-free mass in the body

Skill Related Components

6. Agility	The ability to change the position of the body quickly while maintaining control of the movement
7. Balance	The ability to retain the body's centre of mass above the base of support
8. Coordination	The ability to use two or more body parts together
9. Reaction Time	The time it takes to respond to a stimulus
10. Power	The ability to do strength performance quickly (power = strength x speed)
11. Speed	The amount of time it takes to perform a particular action

Movement Analysis

<u>Type of Plane</u>	<u>Movement Available</u>
1. Sagittal	Divides the left and right side of the body, vertically.
2. Frontal	Divides the front and the back of the body, vertically.
3. Transverse	Divides the top and bottom of the body, horizontally.





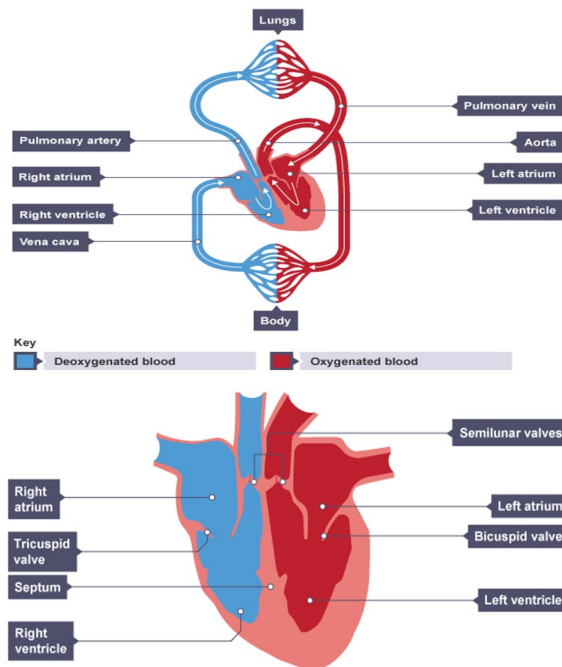
Principles of Training

1. Specificity	Ensuring that the training is relevant and specific to the sport you are training for
2. Progressive Overload	Training frequency, intensity, time and type must be increased over time to ensure the body is pushed beyond its normal rhythm
3. Individual Needs	Training must be related to an athletes age, gender, injury status and fitness level
4. Reversibility	Systems and progress are reversed if training stops or is reduced
5. Rest and Recovery	Physical adaptations occur during the recovery and rest periods of the training cycle
6. Overtraining	If an athlete doesn't have sufficient rest periods then their body doesn't have time to adapt and overall fitness declines

FITT Principle

1. Frequency	This is increased by training a greater number of times each week
2. Intensity	This is increased by lifting a greater resistance when weight training, or training at a higher percentage of your maximum heart rate
3. Time	This can be when you train for longer periods or when you reduce recovery time between sets of exercise
4. Type	This is where you offer a variety of training types and experiences for the athlete by combining different training methods

Cardiovascular System



Blood Pressure: when heart contracts it pushes the blood into blood vessels which creates blood pressure.

1. Systolic value – blood pressure whilst the heart is contracting
2. Diastolic value – blood pressure whilst the heart is relaxing

Key Words

1	Artery	carries blood away from the heart (usually oxygenated blood, except for the pulmonary artery)
2	Vein	carries blood back to the heart (usually deoxygenated blood, except for the pulmonary vein)
3	Capillary	allows diffusion of gases and nutrients from the blood into the body cells
4	Heart Rate (HR):	number of times the heart beats per minute.
5	Red Blood Cells	transport oxygen around the body
6	White Blood Cells	fight infection
7	Platelets	clot to prevent blood loss during injury
8	Plasma	liquid part of the blood

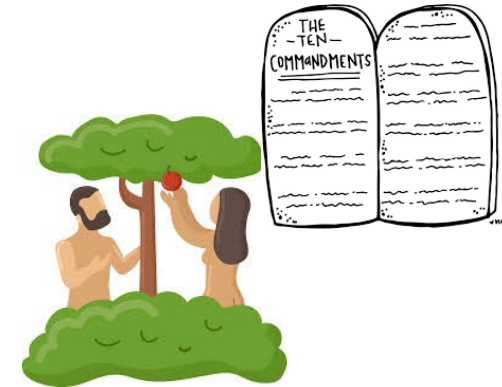


Key Words

1	The Fall	the story in Genesis 3 where humans commit the first sin and fall away from God's grace.
2	Original Sin	The state of sin in which all humans are born, meaning they inherit the consequences of Adam and Eve's first sin.
3	Concupiscence	The natural temptation to sin that all humans have, following the Fall.
4	Covenant	A promise between God and his people.
5	The Decalogue	The ten 'words' or sayings of God that guided the Jewish people to live as God wanted; also called the Ten Commandments.
6	Freedom	The power or right a person has to act, speak or think as they want; being able to choose their own destiny, independent or influence from anyone or anything else.
7	Responsibility	Having control or power over something, which leads to a duty or moral obligation to behave correctly.
8	Conscience	An intuitive knowledge of right and wrong, which leads to an instinctive desire to do right and avoid wrong.
9	Baptism	The Sacrament of Initiation that welcomes new members into the Catholic Church and washes a person clean of the original sin all humans inherit following the first sin by Adam and Eve.

Key Quotes

1	'Go therefore and make disciples of all nations, baptizing them in the name of the Father, and of the Son and of the Holy Spirit.' <i>Matthew 28:19</i>
2	'we all carry within us a drop of the poison of that way of thinking, illustrated by the images in the Book of Genesis... the human being does not trust God' <i>Pope Benedict XVI</i>



Key Facts

1	Adam and Eve were tempted by the serpent to disobey God and eat the fruit from the Tree of Knowledge. God knew they had sinned because Adam and Eve hid from him. This is called The Fall
2	For disobeying God, Eve was punished by having painful childbirth. Adam was to work hard on the land to get the food that he needs. The serpent had to crawl on the ground.
3	Sin is the act of going against God. This damages the relationship between God and humanity. All humans are born with Original Sin
4	God gave Moses the 10 Commandments (the Decalogue) to give His people guidance on how to live in a way which is pleasing to him. They are divided into those which help to show love of God and those which show love of neighbour.
5	Humans need to educate their conscience to allow them to make moral decisions. Some of the ways they can do this include studying the Bible, prayer and receiving the sacraments.
6	During Baptism symbols such as water, white garments and a candle are used to show that a person has had their original sin washed away and welcomed into the Church community.
7	Sophie Scholl was a Christian teenager who lived in Nazi Germany. She disagreed with Nazi rule and stood up for those who were being persecuted. As a result, she was arrested, found guilty of treason and beheaded.



Key Words

1	Prophet	A person anointed by God and inspired by God through the Holy Spirit to share God's messages.
2	Priest	A person anointed by God to make thanksgiving offerings on behalf of the people; today it also refers to an ordained minister of the Catholic Church, who celebrates the sacraments in which all Catholics participate.
3	King	An anointed person who has authority, power and responsibility for people in his care; also a ruler of a country.
4	Messianic	Relating to the Messiah
5	Advent	The first season in the liturgical year, in which Christians prepare and wait for both the birth of Jesus and the Second Coming of Christ.
6	Amos	An early Hebrew prophet who called people back to God and warned of divine judgement on people who have sinned.
7	Elijah	An Old Testament prophet who foretells the coming of the Messiah in the books 1 Kings and 2 Kings.
8	John the Baptist	A New Testament prophet who prophesied and prepared the way for Jesus as the Messiah; also the cousin of Jesus.



Key Quotes

1	'And you, child, will be called the prophet of the Most High; for you will go before the Lord to prepare his ways...' Luke 1
2	'before I formed you in the womb I knew you, and before you were born I consecrated you; I appointed you a prophet to the nations.' Jeremiah 1

Key Facts

1	There are many prophets in the Old Testament who share God's messages with humanity. They can be warnings, encouragements or predictions.
2	Jeremiah is known as 'the weeping prophet ' because his prophecies suggested that terrible things would happen unless people started living life according to God's laws.
3	The prophets talk about common themes. These include encouraging repentance, caring for the poor and judgement.
4	John the Baptist is said to be the final prophet . He was called by God to prepare the way for Jesus and fulfil Zephaniah's prophecy by baptising people.
5	Catholics are called to be priest , prophet and king . This means that they should participate in the sacraments, share the words of God with others and show people how to behave by setting a good example.
6	St Oscar Romero was a man who worked in El Salvador and spoke out about the corruption of his country. This led to him being shot and killed whilst celebrating Mass.
7	Advent is a time of preparation for Catholics. They prepare for the arrival of Jesus, the Incarnation. Catholics anticipate the coming of Jesus just like the prophecies said.
8	Advent is celebrated around the world in different ways. In the UK many primary school children take part in Nativity plays whereas in South America they celebrate Las Posadas.



1. Respiration

- Respiration is the process in which energy is released from the molecules of food which you eat
 - Respiration happens in the mitochondria of the cell
 - Aerobic respiration** involves oxygen, it is more efficient as all of the food is broken down to release energy

$$\text{glucose} + \text{oxygen} \Rightarrow \text{carbon dioxide} + \text{water}$$
 - The glucose is transported to the cells in the blood **plasma**
 - The oxygen is transported to the cells in **red blood cells**, by binding with **haemoglobin**
 - Carbon dioxide is a waste product and is transported from the cells to the lungs to be exhaled
-
- Anaerobic respiration** is a type of respiration which does not use oxygen, it is used when the body cannot supply the cells with enough oxygen for aerobic respiration
 - Anaerobic respiration releases less energy than aerobic respiration

$$\text{glucose} \Rightarrow \text{lactic acid} + \text{carbon dioxide}$$
 - The **lactic acid** produced through anaerobic respiration can cause muscle cramps
 - Lactic acid will build up if there is not enough oxygen present in the blood supply to break it down. This is known as an **oxygen debt**

2. Fermentation

- Fermentation** is a type of anaerobic respiration which occurs in yeast
- Instead of producing lactic acid, yeast produces ethanol, which is a type of alcohol

$$\text{glucose} \Rightarrow \text{ethanol} + \text{carbon dioxide}$$
- This process can be used to form alcohol to drink or to allow bread and cakes to rise

3. Plant minerals

Plants need minerals for healthy growth, if they do not have enough of these minerals this is known as a **mineral deficiency**

Mineral	What is it used for?	What happens if there is not enough?
nitrates (contain nitrogen)	healthy growth	poor growth and older leaves yellow
phosphates (contain phosphorus)	healthy roots	poor growth, younger leaves look purple
potassium	healthy leaves and flowers	yellow leaves with dead patches
magnesium	making chlorophyll	leaves will turn yellow

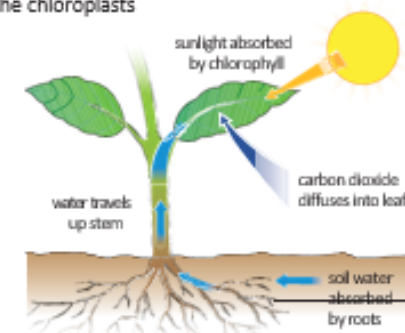
Fertilisers can be used to stop plants from suffering with mineral deficiencies

4. Photosynthesis

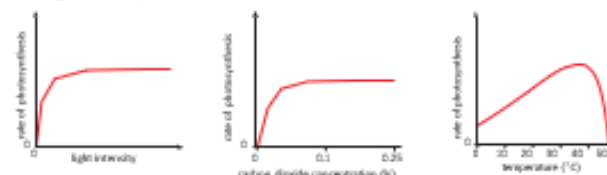
- Photosynthesis** is the process which occurs in the chloroplasts to produce glucose using sunlight



- Any organism that can use photosynthesis to produce its own food is known as a **producer**, these are not just limited to plants but can include other organisms such as **algae**

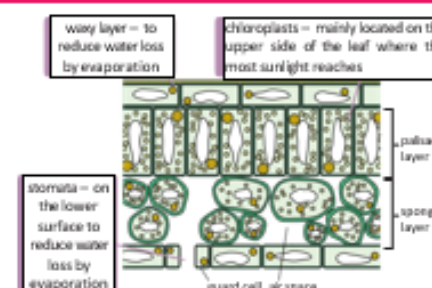


- The rate of photosynthesis can be affected by:
 - Light intensity** – the higher the light intensity the higher the rate of photosynthesis up to a point
 - Carbon dioxide concentration** – the higher the carbon dioxide concentration the higher the rate of photosynthesis up to a point
 - Temperature** – the optimum temperature is the temperature at which photosynthesis occurs at the highest rate, before and after this the rate will be less



5. Leaves

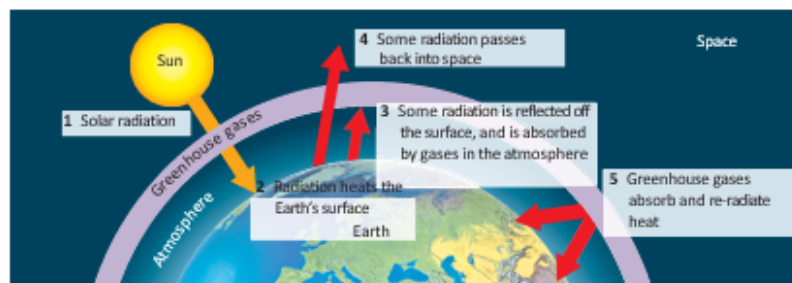
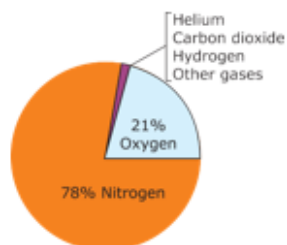
- To best adapt for photosynthesis leaves have a number of adaptations
- They are thin to allow the most light through
- There is a lot of **chlorophyll** to absorb light
- They have a large surface area to absorb as much light as possible





1. The atmosphere

- The air around us all of the time is known as the **atmosphere**. It is made up of a mixture of gases
- When the Sun heats the Earth's surface, some of the radiation is absorbed and some is reflected back into space
- Some of the gases in the atmosphere absorb radiation that is about to be reflected into space, this keeps the Earth at a warmer temperature than it would be without the atmosphere, this is needed as otherwise it would be too cold for life
- The gases in the atmosphere which absorb and trap this radiation are known as **greenhouse gases**, the most commonly known greenhouse gases are carbon dioxide and methane

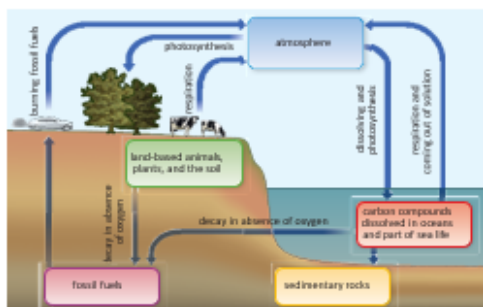


2. Global warming

- Global warming** is the gradual increase in temperature of the Earth
- This is closely linked to the rise in carbon dioxide levels in the atmosphere

3. The carbon cycle

- The **carbon cycle** is the processes by which carbon is naturally transferred to different stores through a range of natural processes
- Carbon is released into the atmosphere through **combustion of fossil fuels**, and animal **respiration**
- It is then reabsorbed by plants during **photosynthesis**



4. Climate change

- Long term changes to weather patterns are known as **climate change**
- This can cause the ice caps to melt, leading to sea levels rising and flooding of low-level land
- Graphs alone cannot confirm that humans are the cause, but the majority of scientists now believe that human activity is a very likely cause
- We can help to prevent climate change by:
 - Using renewable energy resources
 - Using cars less
 - Buying and wasting less resources

5. Extracting metals

- Metals are a **natural resource**, with most being found joined with other elements in compounds
- Naturally occurring metals and their compounds are known as **minerals**
- An **ore** is a naturally occurring rock which contains enough of a mineral to be worth extracting
- An example of an ore is Bauxite, which contains aluminium hydroxide
- When metals are extracted, they first have to be separated from other minerals in the ore, then they need to undergo a chemical reaction to separate them from the other element that they are joined to in a compound
- If a metal is below carbon in the reactivity series, it can be extracted by reacting it with carbon in a displacement reaction
- As carbon is more reactive it will take the place of the metal in the compound, leaving the metal on its own:

$$\text{carbon} + \text{metal oxide} \rightarrow \text{metal} + \text{carbon dioxide}$$

$$\text{copper} + \text{copper oxide} \rightarrow \text{copper} + \text{carbon dioxide}$$
- If the metal is above carbon in the reactivity series, **electrolysis** can be used, this involves separating the metal by using electricity

Reactivity series

magnesium
aluminium
carbon
zinc
iron
lead
copper

6. Recycling

- Recycling** is the collecting and processing of materials that have been used so that the resources can be used again
- Recycling can have both advantages and disadvantages:

Advantages	Disadvantages
<ul style="list-style-type: none"> Resources will last longer It uses less energy than extracting new materials It reduces waste and pollution 	<ul style="list-style-type: none"> Separating rubbish can be seen as a nuisance The lorries collecting recycling produce pollution Some materials are easier to recycle than others

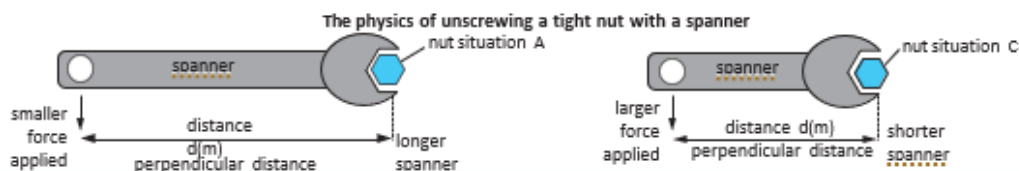


1. Work

- In physics, **work done** is the energy transferred when a force is used to move an object a certain distance
- Like energy, work is measured in **Joules (J)**
- Work can be done in a range of situations, e.g. lifting a book work is done against gravity, when you slide a book along a table work is done against friction
- We calculate work with the equation:

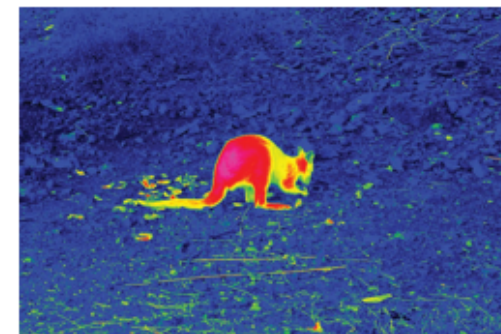
$$\text{work done (J)} = \text{force (N)} \times \text{distance moved (m)}$$

- A **simple machine** makes it easier to lift things, they reduce the force needed
- A **force multiplier** uses a smaller **input force** (what you apply) to to generate a larger **output force** (what is created)
- If you increase the distance from the pivot, less input force is needed to be used for the same output force as before
- A **lever** is an example of a force multiplier, a longer lever will require a less input force than a shorter lever to produce the same output force



3. Radiation

- Radiation** is a method of transferring energy without the need for particles
- An example of radiation is thermal energy being transferred from the Sun to us through space (where there are no particles)
- This type of radiation is known as **infrared radiation**, it is a type of wave just like light
- The hotter an object is the more infrared radiation it will emit (give out)
- The amount of radiation emitted and absorbed depends on the surface of the object:
- Darker matte surfaces absorb and emit more infrared radiation
- Shiny and smooth surfaces absorb and emit less infrared radiation, instead reflecting this
- The amount of infrared radiation being emitted can be viewed on a **thermal imaging camera**

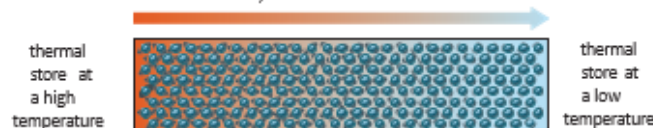


2. Energy and temperature

- The **temperature** of a substance is a measure of how hot or cold it is
- Temperature is measured with a **thermometer** it has the units of degrees Celsius ($^{\circ}\text{C}$)
- The **thermal energy** of a substance depends on the individual energy of all of the particles, it is measured in Joules (J)
- As all particles are taken into account, a bath of water at 30°C would have more thermal energy than a cup of tea at 90°C as there are many more particles
- The faster the particles are moving, the more thermal energy they will have
- When particles are heated, they begin to move more quickly
- The energy needed to increase the temperature of a substance depends on:
 - the mass of the substance
 - what the substance is made of
 - how much you want to increase the temperature by

4. Conduction

- Conduction** is the transfer of thermal energy by the vibration of particles, it cannot happen without particles
- This means that every time particles collide, they transfer thermal energy
- Conduction happens effectively in solids as their particles are close together and can collide often as they vibrate around a fixed point
- Metals are also good **thermal conductors** as they contain electrons which are free to move
- In conduction the thermal energy will be transferred from an area which has a high **thermal energy store** (high temperature) to an area where there is a low thermal energy store (low temperature)
- Gases and liquids are poor conductors as their particles are spread out and so do not collide often, we call these **insulators**



5. Convection

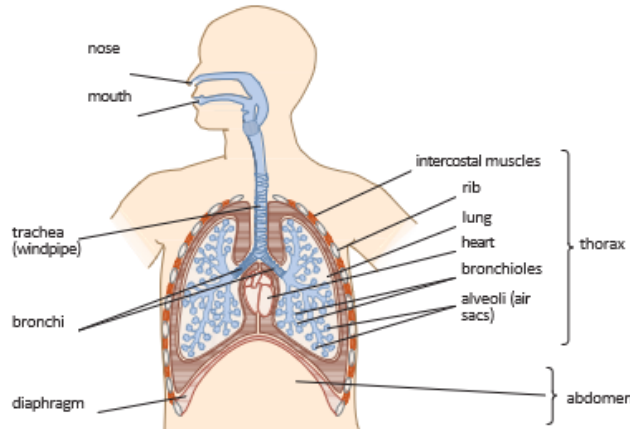
- Convection** is the transfer of thermal energy in a liquid or a gas, it cannot happen without particles
- As the particles near the heat source are heated, they spread out and become less dense, this means that they will rise
- More dense particles will take their place at the bottom nearest the heat source creating a constant flow of particles
- This is known as a **convection current**
- Convection cannot happen in a solid as the particles cannot flow around a fixed point





1. Gas exchange and breathing

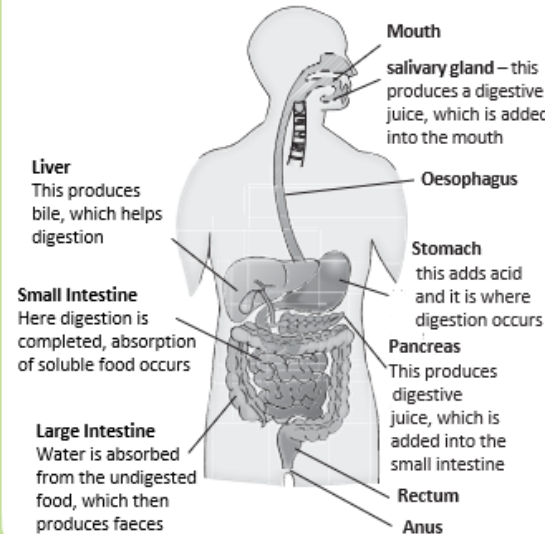
- Gas exchange is the process of taking in oxygen and giving out carbon dioxide
- This occurs in the **respiratory system**
- The proportions of gases in the air we **inhale** and **exhale** changes due to using oxygen in **respiration** and producing carbon dioxide



2. What happens when you breathe in and out

When you breathe in (inhale)	<ul style="list-style-type: none"> muscles between the ribs contract ribs are pulled up and out diaphragm contracts and flattens volume of the chest increases pressure inside the chest decreases air rushes into the lungs
When you breathe out (exhale)	<ul style="list-style-type: none"> muscles between ribs relax ribs are pulled in and down diaphragm relaxes and moves up volume in the chest decrease pressure inside the chest increases air is forced out of the lungs

3. The digestive system



4. Enzymes

- Enzymes** are biological **catalysts**, they speed up the digestion of **nutrients**
- Each enzyme is specific to each nutrient
- The way the enzyme and nutrient bind with each other is called a **lock and key model**
- Carbohydrases** break **carbohydrates** down into simple sugars
- Proteases** break **proteins** down into amino acids
- Lipase** breaks **lipids** (fats) down into fatty acids and glycerol



5. Nutrients

- A **balanced diet** involves eating the right amount of nutrients for your body to function
- Not eating enough of a nutrient means you have an unbalanced diet, and this can lead to a **deficiency**

Nutrient	Role in your body
carbohydrates	main source of energy
lipids	fats and oils provide energy
proteins	growth and repair of cells and tissues
vitamins and minerals	essential in small amounts to keep you healthy
water	needed in all cells and body fluids
fibre	provides bulk to food to keep it moving through the gut

6. Drugs

- Drugs** are chemicals that affect the way that our body works
- Medicinal drugs** are used in medicine, they benefit health
- If medicinal drugs are not taken in the correct way they can harm health
- Examples include antibiotics and pain killers
- Recreational drugs** are taken by people for enjoyment
- Recreational drugs normally have no health benefits and can be harmful for health
- Examples include alcohol and tobacco
- Drug addiction** is when your body gets so used to a drug, it feels it cannot cope without it
- If someone who has an addiction stops taking the drug, they will experience **withdrawal symptoms**



- An **element** is a substance that only contains one type of atom, it is found on the **Periodic Table**
- Each element has it's own unique chemical symbol which is the same in every language, these are also found on the Periodic Table
- An **atom** is the smallest part of which an element can be broken down into
- As there are around 100 types of elements that can occur naturally, there are around 100 different atoms

- **Compounds** are formed when two or more different elements chemically bond together
- The compound will have different **physical properties** to the elements which make up the compound, for example water is a liquid, but it made from oxygen and hydrogen which are both gases
- Compounds are hard to separate and need a chemical reaction to do this

- When naming a compound, we always mention the metal first and the non metal second
- The name of the metal will not change but the name of the non metal will, for example oxygen can change to oxide
- Chemical formulae tells us how many atoms of each element are in the compound in relation to each other



- The small number tells us the number of each element which is in front of the number

- **Polymers** are long chains of groups of atoms which are repeated many times
- Natural polymers are not man-made and include wool, cotton, starch and rubber
- Synthetic polymers are man-made and include polythene, polystyrene and nylon

- **Groups** are the columns in the Periodic Table, they go downwards
- **Periods** are the rows in the Periodic Table, they go sideways
- Elements in the same group normally follow the same trends in properties such as melting point, boiling point and reactivity
- By placing these elements into these groups, scientists can make predictions about their properties

- Group 0 elements are known as the noble gases
- They are all non metals with low melting and boiling points, meaning all are gases at room temperature
- The boiling point decreases going down the group
- All of the group 0 elements are unreactive
- When electricity is passed through the gas, they emit a brightly coloured light, this can be seen in neon signs

fluorine

chlorine

bromine

iodine

most reactive

least reactive

- Group 1 elements are also known as the **alkali metals**
- They share similar properties with other metals such as:
 - Being shiny when freshly cut
 - Being good conductors of electricity and heat
- Group 1 metals are much softer than other metals and also have much lower melting and boiling points
- Group 1 elements react with water to form alkali solutions

$$\text{lithium} + \text{water} \rightarrow \text{lithium hydroxide} + \text{hydrogen}$$

$$\text{metal} + \text{water} \rightarrow \text{metal hydroxide} + \text{hydrogen}$$
- The further down the group that the metal is, the more vigorous the reaction will be. This is called a **trend**
- Another trend seen in Group 1 is with the boiling and melting points: the further down the group, the lower the boiling and melting points are

- Group 7 elements are also known as the **halogens**
- They share similar properties with other non metals such as:
 - Having low melting and boiling points
 - Not conducting electricity
 - Moving down the groups the elements have an increased melting and boiling point
- The halogens also react in a similar way to one another, for example with iron:

$$\text{iron} + \text{chlorine} \rightarrow \text{iron chloride}$$

$$\text{iron} + \text{bromine} \rightarrow \text{iron bromide}$$
- Halogens can undergo **displacement reactions**, this is where a more reactive halogen will take the place of a less reactive halogen
- The most reactive halogens are at the top of the group, and the least reactive halogens are at the bottom of the group
- If the most reactive halogen is on its own, it will take the place of the less reactive halogen in a compound

calcium bromide + chlorine → calcium chloride + bromine

1		2												group number					7	8
Li	Be											B	C	N	O	F	Ne			
Na	Mg											Al	Si	P	S	Cl	Ar			
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr			
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe			
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn			
Fr	Ra																			



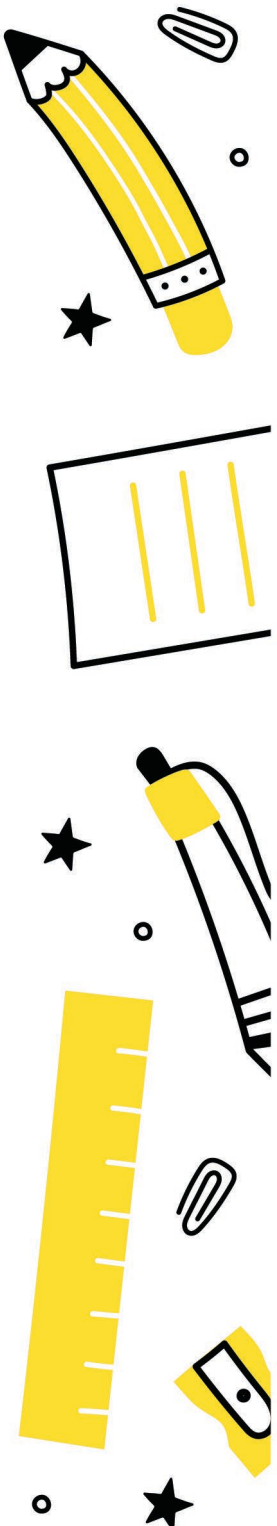
Ecosystem	
Keyword	Definition
Aerobic respiration	The process by which organisms use oxygen to transfer the energy in a fuel into chemical energy
Algae	A single celled plant
Anaerobic respiration	The process by which organisms transfer the energy in a fuel into chemical energy, but in the absence of oxygen
Chlorophyll	The green pigment found in plants which absorbs light during photosynthesis
Mineral deficiency	A condition in organisms where the concentration of a mineral is lower than it should be and so impairs the function of the organism
Fermentation	A type of anaerobic respiration in which glucose is converted to ethanol, carbon dioxide and energy
Fertiliser	Chemicals containing minerals that plants need to be healthy
Haemoglobin	The substance in blood that carries oxygen around the body
Lactic acid	An acid produced by animals during anaerobic respiration
Magnesium	An element essential for healthy plant growth. It is used to make chlorophyll
Nitrates	Minerals containing nitrogen, used by plants to make protein
Oxygen debt	Extra oxygen required after anaerobic respiration to break down lactic acid
Phosphates	Minerals containing phosphorus, used by plants to form healthy roots
Photosynthesis	The process plants and algae use light energy to make glucose.
Plasma	A liquid that transports blood cells and other materials around the body
Potassium	A mineral needed by plants for healthy leaves and flowers
Producer	The plant in the food chain that uses light energy and photosynthesis to produce glucose
Red blood cells	Blood cells that transport oxygen around the body

Earth	
Keyword	Definition
Atmosphere	The mixture of gases found in the air around us.
Carbon cycle	The process by which carbon is naturally transferred from one store to another
Climate change	Long term changes to weather patterns
Combustion	The burning of a fuel in oxygen
Electrolysis	The extraction of metal from a compound using electricity
Fossil fuel	A chemical energy store formed from the remains of organisms
Global warming	The gradual increase in the temperature of the Earth
Greenhouse gas	Gases in the atmosphere that trap radiation.eg methane and carbon dioxide
Mineral	A naturally occurring mineral or compound
Natural resources	Resources that are not man-made and can be found in the environment
Ore	A naturally occurring rock which has a mineral content worth extracting
Photosynthesis	The process of plants transferring light energy to chemical energy
Recycling	The collecting and processing of materials so they can be used again
Respiration	The process by which organisms transfer chemical energy to useable energy stores

Energy	
Keyword	Definition
Conduction	Transfer of thermal energy by the vibration of particles.
Convection	Transfer of thermal energy when particles in a fluid rise
Convection current	The movement of heated fluids where hot fluid moves upwards, and cold fluid moves downwards
Force multiplier	A simple machine that uses a small input force to generate a large output force
Input force	The force you apply to make an object move or change shape
Insulator	Materials which do not allow thermal energy to pass through them.
Infrared radiation	The transfer of thermal energy without the need for particles
Lever	A type of machine which is a rigid bar that pivots about a point. It is a force multiplier
Output force	The force that is applied to the object moved by the machine
Simple machine	A machine such as a lever or pulley system which changes the size of the force by moving a force over a bigger or smaller distance
Temperature	A measure of how hot or cold a substance is
Thermometer	An instrument used to measure temperature
Thermal conductor	Thermal conductors contain electrons that are free to move
Thermal energy store	The energy store associated with an object's temperature
Thermal imaging camera	A device used to view an amount of infrared radiation being emitted from an object
Work done	The amount of energy transferred when an object is moved over a distance – $WD = \text{force} \times \text{distance}$



Organisms		Matter	
Keywords	Definition	Keyword	Definition
Addiction	A need to keep taking a drug in order to feel normal	Atom	The smallest part of an element that can exist
Balanced diet	Eating food containing the right nutrients in the correct amounts	Alkali metals	The elements in the left column of the periodic table including lithium, sodium etc. also called group 1
Carbohydrate	Nutrients that provide the body's main source of energy	Compound	Pure substances made up of atoms of 2 or more elements strongly joined together
Carbohydrase	Enzyme that breaks down carbohydrates into smaller sugar molecules	Displacement reaction	A reaction involving a metal and a compound of a less or more reactive metal
Catalyst	Substances that speed up chemical reactions but are not unchanged at the end	Element	Substances which contain only one type of atom
Deficiency	A lack of minerals that causes poor health	group	A column in the periodic table. The elements have similar properties
Drug	Chemical substance that affects the way your body works	Group 1	The elements in the left column of the periodic table, including sodium and lithium. Also known as the alkali metals
Enzyme	Substances that speed up the chemical reactions of digestion	Group 7	Elements in the right column of the periodic table including fluorine and chlorine. Also known as the halogens
Exhale	Breathing out, removing carbon dioxide	Group 0	Elements in the farthest right column of the periodic table including helium and neon, also known as the noble gases
Fibre	Food matter that supports movement through the intestines and prevents constipation	Halogen	An element in group 7 of the periodic table
Gas exchange	The transfer of gases between an organism and its environment	Noble gas	An element in group 0 of the periodic table
Inhale	Breathing in, to take in oxygen	Period	A row in the periodic table
Lipid	A type of fat	Periodic table	A table which shows all known elements. Elements with similar properties are grouped together
Medicinal drug	A drug that has a medicinal benefit to your health	Physical properties	Features of a substance that can be observed without changing the substance itself
Mineral	Essential nutrient needed in small amounts to keep healthy	Polymer	A molecule made by joining up thousands of smaller molecules in a repeating pattern
Nutrient	Essential substances that your body needs to survive, provided by food	Trend	A pattern in properties, such as an increase or decrease
Protease	Enzyme that breaks down proteins into amino acids		
Protein	Nutrient required for growth and repair		
Recreational drug	Drug taken for enjoyment		
Respiration	Chemical reaction where energy is released from glucose		
Respiratory system	Organ system which replaces oxygen and removes carbon dioxide from the blood		
Vitamin	Essential nutrients needed in small amounts for health		
Withdrawal symptoms	Unpleasant symptom a person with a drug addiction suffers from when they stop taking the drug		



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.



THE CORE FOUR REVISION TECHNIQUES



Brain Dumps



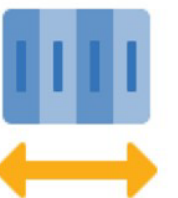
1. Identify Knowledge

- 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)



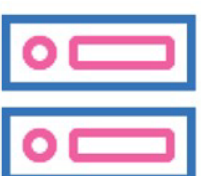
3. Organise Information

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



4. Check Understanding

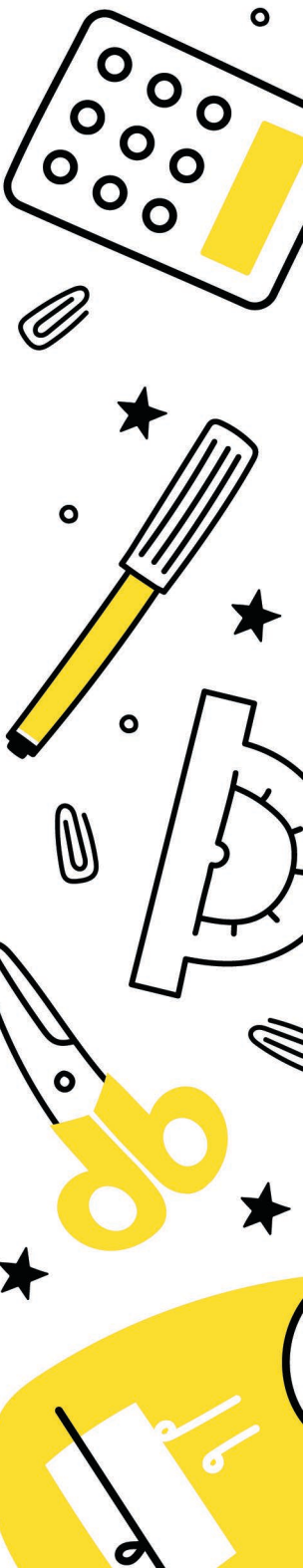
- Compare your brain dump to your Knowledge Organiser or book and check your understanding.
- Add any key information you have missed (key words) in a different colour.



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 TECHNIQUES



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.



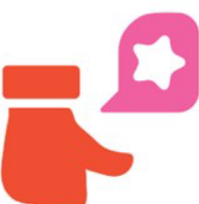
3. Manageable Chunks

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.



5. Check Understanding

How have you performed when you compare your 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.

THE CORE FOUR REVISION TECHNIQUES

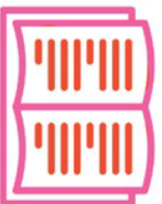


Self Quizzing



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

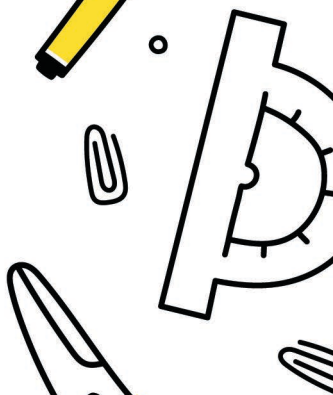
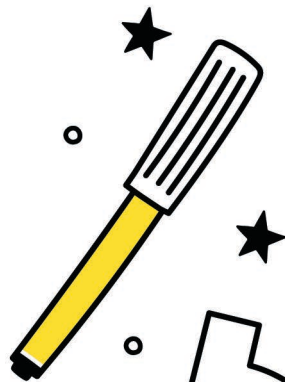
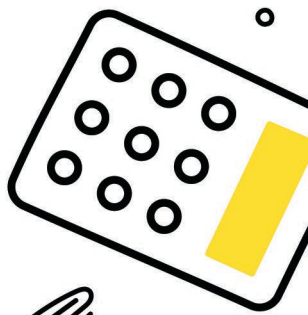
- Go back to the content and self-mark your answers in green pen.



5. Next Time

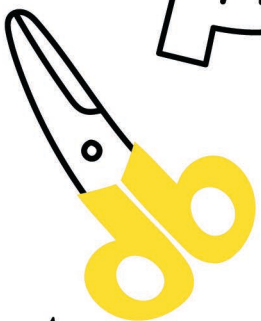
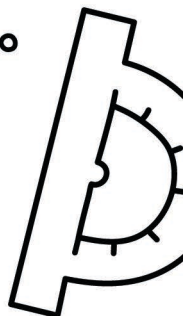
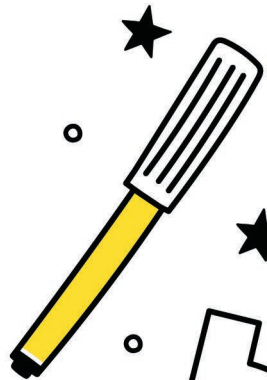
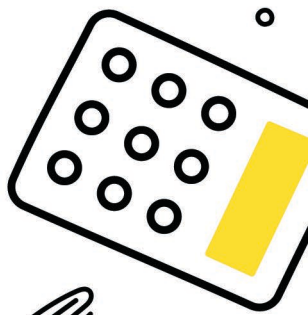
- Revisit the areas where there were gaps in knowledge and include these same questions next time.

THE CORE FOUR REVISION TECHNIQUES



NOTES

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NOTES