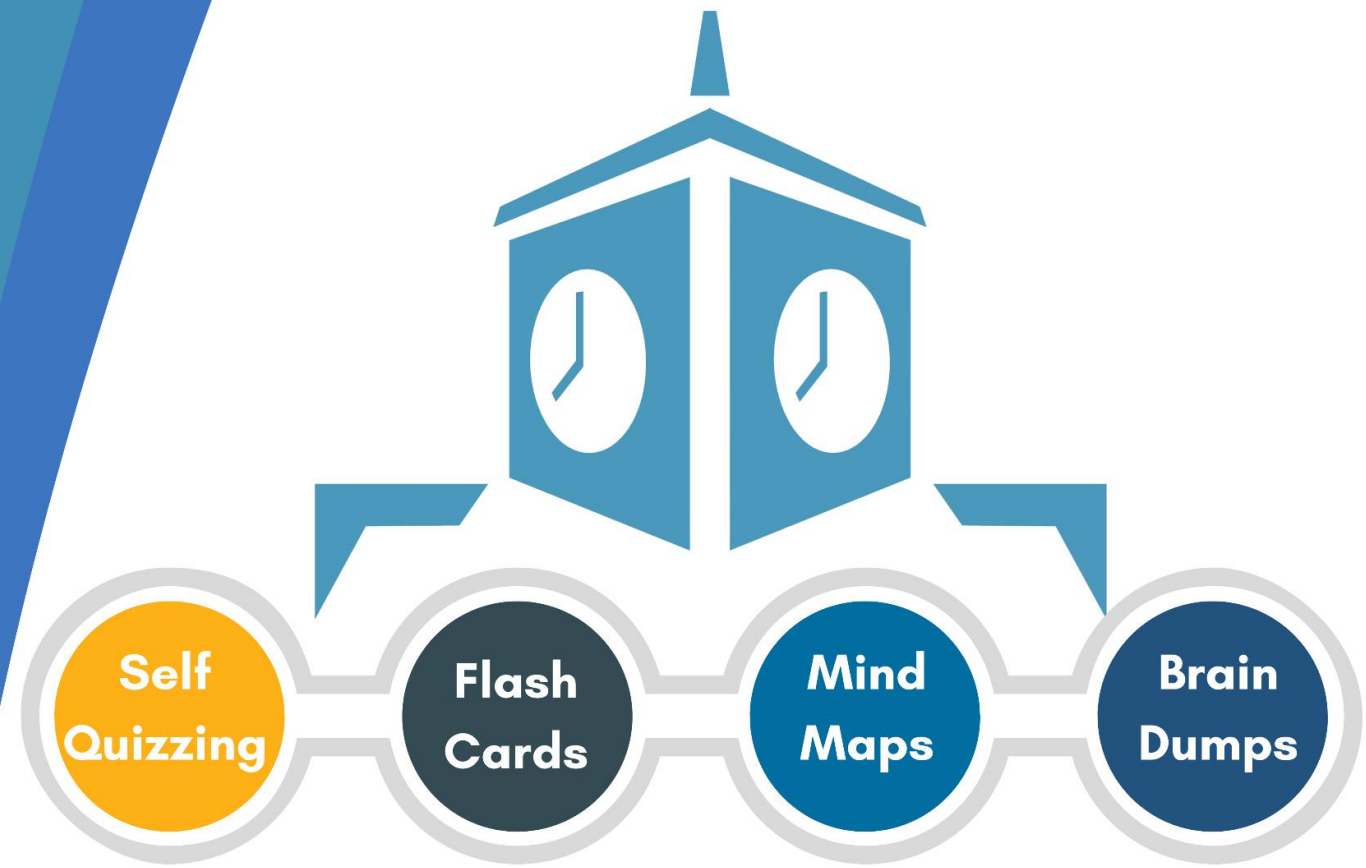
September - October

Year 9

KNOWLEDGEABLE AND EXPERT LEARNERS



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INDEPENDENT LEARNING BOOKLET

NAME: .....

TUTOR GROUP: .....

CONTENTS

You will need an A4 application booklet.

HOMEWORK:

- Your teacher will set specific tasks, with a deadline, on Class Charts
- Instructions for your homework and how to access it are in this booklet
- You must complete and hand in the work by the deadline

INDEPENDENT LEARNING EXPECTATIONS AND REWARDS:

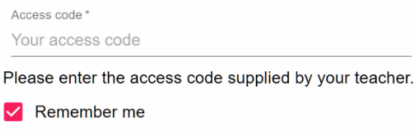
- You should complete 1 task per day, 5 days a week.
- The tasks will be set on Class Charts to help you keep track of what you need to do.
- You must bring your ILB and application book to school every day.
- You can choose the subject/topic you want to work on.
- Your tutor will check your ILB regularly to see how you are getting on.
- You will be rewarded for going above and beyond expectations.

USING CLASS CHARTS

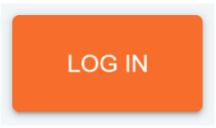
All of your homework will be set by your teachers using the Class Charts System.
You should check Class Charts every day to make sure you are up to date, and that you meet all your deadlines.
Below, shows you how to log on and track your homework.

Logging in to Class Charts

1. Enter your email address and password into the fields provided



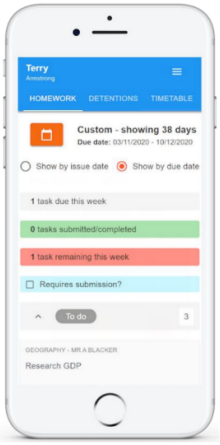
2. Click on the Log in button



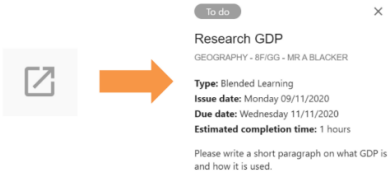
3. Enter your date of birth if prompted and click on the OK button

Homework

- Select the homework tab on our account.
- This will display a list of the homework tasks which you have been given.
- To change the date range for displayed homework tasks, click on the orange Date button.
- To display tasks in the order they are expected to be handed in, click on the Due date button.
- To mark a homework task as completed, view the homework task of your choice in more detail and tick the Completed checkbox.

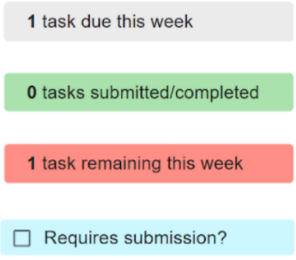


To view a homework task in more detail, click on the expand icon in the bottom right hand corner of the homework tile. A popup will appear that contains the a description of the homework task, the estimated completion time and any links or attachments that may have been included.



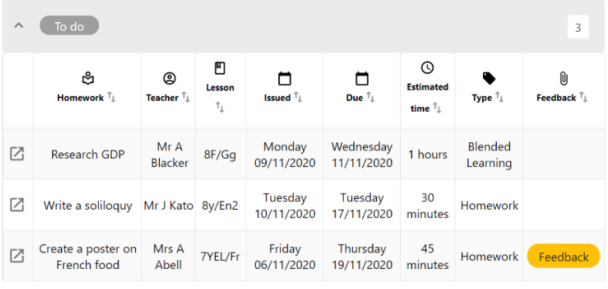
Keeping track of homework

To track your homework use the three banners above the homework status. This shows the the number of homework tasks that are due that week, how many of those tasks you have completed and how many tasks you still need to complete.



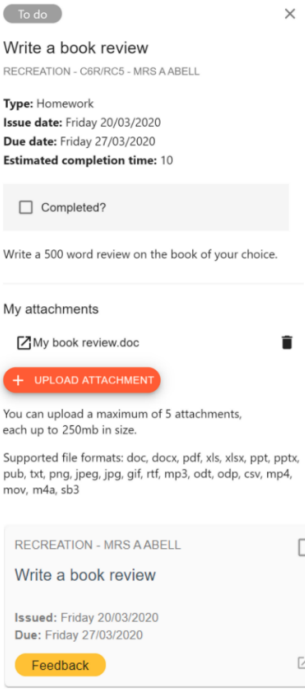
To only see homework tasks that require an attachment submission, tick the checkbox labelled Requires submission.

If you are viewing the Homework tab via a desktop or laptop, expanding a homework status category will display a table overview of each homework task for the selected date range.



Homework attachment submissions

For certain homework tasks, you may be asked by your teacher to upload your work as an attachment. When viewing a homework task in more detail, you will see the Upload attachment button if your teacher is expecting your work to be uploaded. To submit a homework attachment, click on the Upload attachment button and select the files of your choice. Successfully uploaded files will then appear above the button



If your teacher leaves feedback on one of your homework attachments, you will see a Feedback icon appear on the associated homework task.

To view the feedback, click on the expand icon in the bottom right hand corner of the homework tile. Your teacher's feedback will appear directly below your homework attachment

To do

To-Do: These are homework tasks that you need to complete. Once you have completed them, tick the checkbox

Completed

Completed: These are homework tasks that you have ticked as completed but have not been marked by your teacher

Submitted late

Late: These are homework tasks that have been handed in past the deadline.

Not submitted

Not submitted: These are homework tasks that were not handed in on time.

Submitted

Submitted: These are homework tasks that have been handed in on time.

HOW TO ACCESS SENECA

Seneca learning is a free online platform that will help you revise for all your subjects.

1. Go to https://senecalearning.com/en-GB/

2. Click 'Log In' at the top right hand corner.

3. Select 'Continue with Microsoft'.

4. Enter your school email and password.

5. Select the course(s) you want to work on

If you need any help accessing SENECA please speak to your class teacher, or Miss Holmes.

You can also scan this QR code for a video walkthrough of how to log in as a student

SCAN HERE

INDEPENDENT LEARNING LOG
SELF-QUIZZING

Expectation this ½ term: Self-Quizzing

1. Use/Create 6 questions
2. Answer 6 questions

- This should be done once a day, for approximately 20 minutes.
- All quizzing should be evidenced in your application booklet.
- Use this log to track how what subjects you have done (see example)

Week Beginning	Monday	Tuesday	Wednesday	Thursday	Friday
EXAMPLE: 01/09/2025	English: KG1 & 2	Science: KG2 & 4	History: KG4 & 5	PSHCE: KG 1 & 2	Drama: KG 1 & 3
8/09/2025					
15/09/2025					
22/09/2025					
29/09/2025					
06/10/2025					
13/10/2025					
20/10/2025					

SELF QUIZZING - INSTRUCTIONS

1. 

Identify knowledge

Identify the subject and knowledge groups you are going to cover.
Look at one knowledge group at a time.

2. 

Review

Spend around 5 minutes reviewing the knowledge group you have chosen.
Use this time to create questions if you need too.
Read it to yourself
Highlight keywords

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. 

Revisit

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

5. 

Review

Review the areas where there were gaps in knowledge, and self-quiz this area again.

SELF-QUIZZING QUESTIONS

These are taken straight from a knowledge organiser. These are examples of questions in your KO that can help you with self quizzing.

What is happiness?
What is gratitude?
What is vulnerability?
What is courage?

You can directly answer these questions in your application book.

OR

A. Structure of the Earth and Plate Tectonics		
1	 Structure of the earth	**Crust** – The outer layer of the Earth. It is a very thin layer (think of an apple skin on an apple) and ranges between a thickness of 6 and 70 km. Broken in pieces called tectonic plates. **Mantle** – Due to the high temperatures of this thick layer, the mantle has the consistency of jam! Temperatures within the mantle range from 5000ºC near the core to 1300ºC just below the crust. **Outer Core** – This layer is liquid and made up largely of iron. **Inner Core** - This layer is solid and is also made of iron. Temperatures within this dense core can be 5500ºC.

Using your KO, you can create your own questions, such as:

Structure of the Earth

1. What is the Crust?
2. What is the Mantle?
3. What is the Outer Core?
4. What is the Inner Core?

Beckfoot School	Subject: Art	Topic: Assemblage Mask	Year 9 Half-Term 1	BECKFOOT SCHOOL enjoylearnsucceed

Knowledge Group 1: Mask Preparation		
1	Fibre mask	A rigid paper mask with elastic to wear around the head.
2	Contour	An outline representing or bounding the shape or form of something.
3	Carve	Cut or shape a material in order to produce an object, design, or inscription.
4	Aperture	An opening, hole, or gap.
5	Bionic Eye	An artificial, robotic eye which provide visual sensations to the brain.
6	Wire mesh	A woven metal fabric created in varying degrees of coarseness, weight and aperture.
7	Warp	Make or become bent out of shape.
8	Overlap	Extend over so as to cover partly.
9	Underlap	To extend partly under.

Knowledge Group 2: Assemblage		
1	Disparate objects	Essentially objects which are different in kind; not able to be compared.
2	Balanced composition	A compositional choice in art in which the work feels balanced. Different compositional aspects carry "weight," for example the placement of objects.
3	Movement (Making the eye travel)	The principle of art that an artist uses to guide a viewer's eye in, through, and out of a composition.
4	Embed	To fix (an object) firmly and deeply in a surrounding mass.

Key Vocabulary		
1	Richard Symons	Is an artist, sculptor and model maker who has worked in film, television and commercial projects.
2	Assemblage	A work of art made by grouping together found or unrelated objects.

Knowledge Group 3: Paint		
1	Flat colour	Process of applying a coloured medium onto a surface to record a solid and uniform finish.
2	Unified	Made uniform or whole; united.
3	Dry brush	Drybrush is a painting technique in which a paint brush that is relatively dry, but still holds paint, is used to create a drawing or painting.
4	Tonal modelling	A means for the artist to create a sense of three-dimensional form in a painting. It involves using gradations of tone over the surface so that the lighter surface appears closer to the viewer and the darker side further away.
5	Highlights	An area or a spot in a drawing, painting, or photograph that is strongly illuminated.
6	Shadows	A shadow is a dark area where light from a light source is blocked by an opaque object.

Subject: Computer Science	Topic: Cybersecurity	Year Group: 9

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Cybersecurity

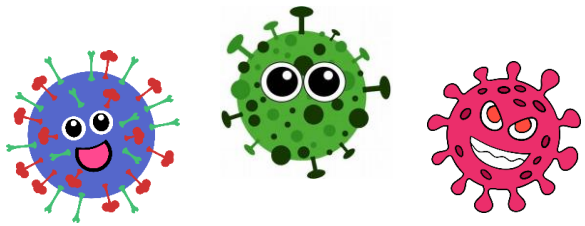
Cybersecurity	Cybersecurity is the practise of protecting computer systems, networks and devices from cyber-attacks.
Importance of cybersecurity	Cybersecurity is important to reduce the risk of cyber-attacks and protect against the unauthorised exploitation of networks and technology.

Methods of Detecting and Preventing Cybersecurity Threats

Biometrics	Biometric security makes use of unique physical characteristics and features to identify people when they are using a computer system. Examples include: scan of a fingerprint, facial recognition, eye or retina scan.
Weak and Strong Passwords	A good password is made up of a collections of characters. It should be at least 8 -12 characters long and should include: uppercase letters, lowercase letters, numbers and a special character.
Captcha	CAPTCHA forms challenge humans to prove that they are human.
Two Factor Authentication (2FA)	Extra layer of security making it harder for hackers to break into your accounts. An example: Enter your password (the first factor), and then also receive a code on your phone (the second factor).

Malicious Software

Computer Virus	A virus is a piece of malware that infects a computer and then replicates itself continuously, infecting multiple files and computers.
Trojan	A Trojan appears to be a piece of harmless software that contains malicious code hidden inside. This only appears once the software is installed. It was named after the Greek myth of the Trojan horse.
Spyware	Spyware is a type of malware that collects the activity on a computer system and sends the data it collects to another person without the owner being aware.
Adware	Adware is software that either causes pop-ups or windows that will not close. Generally, the pop-ups or windows display advertisements.
Ransomware	Ransomware hijacks the data on a computer system by encrypting it and demanding that the owners pay money for it to be decrypted.



Key Vocabulary

1	**Network**	A network is a set of computers connected together for the purposes of communication and sharing resources.
2	**Social Engineering**	Social Engineering is malicious activities to trick users into making security mistakes or giving away sensitive information.
3	**Malicious Software** **Malware**	Malicious code is software which is written to harm or affect a computer.
4	**Hacker**	Malicious hackers exploit vulnerabilities for personal gain, such as stealing data, spreading malware, or causing damage

Social Engineering

Phishing	a phishing email will ask a person to send personal details but pretends to be from a business.
Pharming	is a type of cyberattack that redirects a user from a genuine website to a fake one. When a person logs in, it copies their username and password to access their real accounts.
Blagging	is when someone makes up a story to gain a person's interest and uses this to encourage them to give away information about themselves, or even send money.
Shouldering	is looking at someone's information over their shoulder, for example looking at someone enter their PIN in a shop or at a cashpoint.

Product Design | Illuminated 3D Jigsaw | Year Group: 9

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1. Material Properties

1	**Malleable**	Can be pressed or hammered into shape
2	**Corrosion resistant**	Resists oxidization or moisture
3	**Ductile**	Able to be stretched into wire
4	**Hard**	Resists scratching

2. Materials; Metals

1	**Ferrous metal**	A ferrous metal is a metal that DOES contain IRON. Ferrous metals tend to rust and are magnetic Examples include; Iron and Steel
2	**Non Ferrous metals**	A non ferrous metal DOES NOT contain IRON. Examples include; Aluminium and Copper
3	**Alloy**	An alloy is a combination of 2 or more metals mixed together to give an existing metal better properties Examples include; Solder, Brass and Bronze

3. Materials; Manufactured Boards

1	**Plywood**	Strong thin wooden board consisting of two or more layers glued and pressed together with the direction of the grain alternating.

4. Electronic Components

1	**Battery Snap** 	Snap onto the leads on the terminal end of a standard 9V battery.
2	**Switch** 	A component that can disconnect or connect the path in an **electrical** circuit.
3	**Light Emitting Diode (LED)** 	A light source that emits light when current flows through it in the correct direction.
4	**Wire** 	Made from copper, allowing electricity to flow between components.
5	**Battery** 	A combination of electrochemical cells with external connections for powering electrical devices.

5. Tools & equipment

1	**Soldering Iron**	An electrical tool which applies heat, melting solder allowing you to join metals together.
2	**Wire Cutters**	Hand held tool used to cut through wires or cables
3	**Wire Strippers**	A hand-held tool designed to remove insulation from electrical wires.

6. Process; Soldering

Step 1	Heat the connection with the tip of the soldering iron for a few seconds, then apply the solder.
Step 2	Keep the soldering tip on the connection as the solder is applied.
Step 3	Remove the tip from the connection as soon as the solder has flowed .
Step 4	Don't move the connection while the solder is cooling.
Step 5	Don't overheat the connection, as this might damage the electrical component you are soldering

Key Vocabulary

1	**Template**	A shaped piece of rigid material used as a pattern for repeated processes such as cutting out or shaping
2	**Model**	A particular design or version of a product
3	**Prototype**	A first version of a device from which other forms are developed.

Sand down any finished plywood shapes (P80,P120,P240,P320,P400)

Know the black wire goes to the short leg on the LED.
(Red – positive, Black – Negative)

Design & Technology; Food

Topic: The power of food

Year Group: 9

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1. Knowledge is power

1	**Super foods**	Superfoods are foods that are thought to be very good for your health. They usually have lots of nutrients. These nutrients help your body stay healthy and fight off illness. Some Scientists believe that these foods have extra special benefits in boosting our immunity.
2	**Fast foods**	Fast food is a type of mass-produced food that is easy to access, efficient and tasty. Some are sold in restaurants or bought in stores with frozen, preheated or precooked ingredients . Many fast foods contain hidden fats, salt and sugars, so must be consumed occasionally, as a treat.
3	**Cooking Methods**	We cook food to make it safe, tasty and easier to digest. The way that we cook food has an impact on nutrients and some are better than other at retaining them. E.G steaming. Finding the best cooking methods to seal nutrients in is essential to reduce nutrient loss and maximise benefits
4	**Factors affecting food choices**	Many things effect the types of food that we choose to eat. Sometimes the type of food that we choose to eat can lead to an unbalanced and harmful diet. Availability, food access and cost can impact choice. Religious and environmental reasons can limit what we choose to buy.
5	**Eating Disorders**	An eating disorder is a serious mental health condition where a person develops an unhealthy relationship with food, eating, body shape, or weight. It can affect anyone — no matter their age, gender, or background.
6	**Nutrition in life stages**	There are many stage of life that humans experience. Each stage requires certain nutrients to do a job in the body. E.g. Toddlers require calcium for bone development.
7	**Exercise**	Required to burn off the foods we consume. Input v output should be equal for good health
8	**Animal Welfare**	Where animals are reared in a safe, happy and secure environment. They are not mistreated.

2. How to adapt a recipe

1	**Big Mac** 	Mince choice, combining, moulding, shaping, cooking methods. Vegan/pescatarian options. Garnish development, leaves, vegetables, Sauces – mayo, chilli,
2	**Sausage Bites** 	Meat filling choices, vegan, fish 5 veg a day, grating to hide for toddlers. Eliminate fatty pastry using wholegrain bread as a casing. More Fibre fuller for longer Shaping, moulding, securing, glazing, consistent sizing, even cooking. Use food probe
3	**KFC** 	Type of potato: Sweet potato, white, new Fish/chicken: Salmon, Pollock, chicken, turkey Coating/seasoning: Cornflakes, rice krispies, bran flakes, paprika, oregano, chilli
4	**Cheesecake** 	Type of biscuits: Gingernuts, digestives Filling flavour, Lemon, blueberry. decoration: lemon slices, blueberry cluster, chocolate decoration, strawberry fans, roses.
5	**Taco Bowls** 	Using tortilla to make taco bowl. Seasoning, oiling and spice measuring on bowl and dips. Use of beans, lentils, protein.
6	**Curry** 	Marinating, tenderising, use of authentic, traditional spices. Cooking techniques, temperature control, chicken. Appropriate vegetable selection
7	**Spring Roll** 	Baking rather than deep frying to reduce fat content. Selection of vegetables as filling. Adding authentic spice selection.
8	**Pizza Bites** 	Passata / pesto used to go towards 5 a day. Cheese grated to limit fat content. Grated carrot added and other vegetables. Aubergine / sweet potato used instead of bread

Key Vocabulary

1	**Deficiency**	A lack/shortage of a nutrient in the body.
2	**Excess**	Too much of a nutrient in the body.
3	**Macronutrient**	A nutrient required in large amounts in the diet. E.g. carbohydrates, fats, protein.
4	**Micronutrient**	A nutrient required in small amounts in the diet. E.g. vitamins, minerals and NSP.
5	**Anaemia**	A condition that can be caused by lack of iron in the diet. Not enough healthy red blood cells to carry enough oxygen around the body.
6	**Osteoporosis**	A condition caused by lack of calcium/vitamin D in the diet. It weakens bones making them fragile and more likely to break.
7	**Antioxidant**	Antioxidants are natural substances that help protect your body's cells from damage. Antioxidants act like protective shields that stop or reduce cell damage.
8	**Well-being**	Well-being is feeling well, feeling positive. Includes having good mental health and high self-esteem.
9	**SMEE Issues**	Social, moral, ethical and environmental issues e.g. Organic, Halal, Fair trade, farm assured, veganism
10	**Symptoms**	A physical or mental feature that points to a condition or disease.
11	**Calorie**	The amount of energy in an item of food or drink is measured in calories
12	**Food Provenance**	Where food comes from, how it's produced, and how it gets to us. It's the journey food takes — from farm to fork.
13	**Battery Eggs**	come from hens kept in small wire cages, often in large, crowded sheds. Poor care and feed.

❑ **Think how else does food effect our lives.**

❑ **Research benefits of cooking for yourself.**

❑ **Can you think of any other new words you've learnt in this project?**

Design and Technology: Textiles | Typography Project | Year 9

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Techniques and Processes

1	**Block Printing** 	The process of creating a printing block, applying a layer of ink with a 'brayer' and transferring a design onto paper or fabric.
2	**Free machine embroidery** 	Using a free machine foot on the sewing machine to achieve free motion sewing which creates designs and patterns.
3	**Lamination** 	The process of arranging various materials between layers of plastic and applying heat to seal together the layers and create an interesting design.
4	**Digital Repeat patterns** 	An image which is repeated multiple times to create interesting patterns. Repeats are mirrored, aligned and repeated to create surface pattern.
5	**Hand drawn Repeats** 	The process of creating a motif and repeating to create a block repeat design.

Key Vocabulary

1	**Typography**	Typography is the art and technique of arranging type to make written language legible, readable and appealing when displayed.
2	**Annotation**	Text accompanying images/practical work which explains, describes and justifies.
3	**Motif**	A motif is a recurring fragment, theme or pattern that appears in a work of art.
4	**Mixed Media**	Mixed media art refers to a visual art that combines a variety of media in a single artwork. For example, pencil, paint, collage, ink or fine liner etc.
5	**CAD**	Computer Aided Design is the use of a range of computer software to support the creative/design process of products.
6	**Repeat** **Reflect** **Rotate** **Half drop repeat**	Occurs multiple times A mirror image Move in a circle round an axis Staggering the repeat of an image along a vertical line
7	**Justification**	Presenting a reason, fact or opinion for your choices or actions
8	**Inspiration**	The process of being influenced or stimulated to do something creative

Tools and Equipment

1	**Laminator**	A machine used to provide protection and durability by sealing documents, pictures or materials between two layers of plastic.
2	**Brayer**	A 'roller' that applies a fine, evenly spread layer of ink to a printing block.
3	**Template**	A guide used to accurately measure/cut a material
4	**Free machine foot**	A circular foot allowing free motion sewing in all directions
5	**Feed dogs**	Metal teeth like ridges which guide the fabric through the sewing machine. They must be down for FME.
6	**Cotton material**	Woven natural soft material which comes from the cotton plant

Contextual links/Key names

1	**Typography**	Typography and Textile Design are linked through their shared focus on pattern, communication and cultural expression. Surface pattern designers create repeating patterns that are applied to various products and surfaces like wallpaper, wrapping paper, clothing, upholstery, stationary, and much more.
2	**People Powered Press**	The People Powered Press are a community-based arts project in Saltaire. They operate one of the largest printing presses in the world and focus on engaging the local community in creative and collaborative printing projects. The PPP have a mission to make art accessible for everyone.
3	**Morag Myerscough**	Morag Myerscough is a London –based artist and designer. She creates vibrant, large-scale installations that transform public spaces. Her work is bold, colourful and geometric. She uses a lot of typography/lettering and uplifting words and phrases. She often collaborates with local communities to co-create site-specific installations in schools, hospitals, at festivals and in urban spaces.

Subject: Performing Arts	Topic: Blood Brothers	Year Group: 9

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Background Information

1	Playwright	Willy Russell
2	Setting	Liverpool - 1960s
3	Plot	Twin brothers are separated at birth; one raised in wealth and the other in poverty. Their lives cross paths when they become friends, unaware of their true relationship.

Characters

1	Mrs Lyons	• A wealthy woman. • Doesn't work. • Married to a wealthy businessman. • Can't have children.
2	Mrs Johnstone	• A single Mother of 7 children. • Mickey and Edwards biological mother. • Works as a cleaner.
3	Eddie	• Son to Mrs Lyons (wealthier) • Biological mother is Mrs Johnstone . • Has a great education.
4	Mickey	• Son to Mrs Johnstone (poorer) • Has 6 siblings that he lives with. • Poor education
5	Sammy	• Mickey's older brother • Involved in crime
6	Linda	• Eddie and Mickey's childhood friend. • Lives in the poorer part of Liverpool. • Marries Mickey when she is older

Drama Rehearsal techniques

1	Leading Body Parts	Choosing a part of the body to push furthest forward (e.g. the nose) to communicate a character.
2	Seven Levels of Tensions	Different stages of tension in the muscles 1. Exhausted – Jellyfish 2. Laid back – Californian 3. Neutral – No story 4. Alert – Mr Bean, curious. 5. Suspense – "Is there a bomb?", Melodrama. 6. Passionate – "There is a bomb!", Opera. 7. Tragic – "The bomb is going to go off!", Petrified
3	Split Scene	Switching between two scenes which represent two events happening at the same time.
4	Conscience Alley	Showing the different thoughts of a character out loud, usually two sides of an argument

Performance and Stagecraft Skills

1	Physical Skills	G – Gesture S – Stance P – Posture & body language E – Expression E – Eye contact D - Dynamics
2	Vocal Skills	D – Diction & Projection E – Emphasis & Volume P – Pitch A – Accent R – Rhythm T - Tone
3	Stagecraft Skills	B – Blocking E – Entrances and exits P – Proxemics L – Levels A – Audience awareness C – Concentration E – Energy S – Set and props interaction

Stanislavski's Drama Techniques

1	Magic 'IF'	The actor puts themselves into the mindset of the character and thinks. **'What would I do if I was in this situation?'**
2	Seven Questions	1. Who am I? 2. Where am I? 3. What time is it? 4. What do I want? 5. Why do I want it? 6. How will I get what I want? 7. What must I overcome to get what I want?
3	Given Circumstances	Information about the character and their history. It also includes the time period and location.

English | Of Mice and Men | Year Group: 9

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Plot Summary

1	What happens in Ch 1?	• George & Lennie are on their way to start work as labourers at a ranch. • They camp outside and they talk about their dream of getting a place of their own and living off the land.
2	What happens in Ch 2?	• George & Lennie arrive at the ranch to start work. • They meet the boss and most of the other characters on the ranch; they don't have a good feeling about the place but decide to stay. • George tells Lennie where to hide if he gets into any trouble.
3	What happens in Ch 3?	• George confides in Slim, explaining that they had to leave Weed because a woman accused Lennie of rape. • Carlson pressurises Candy into having his dog shot; a depressed Candy finds hope again when he hears about George and Lennie's plans, offering to give money to join them in buying a house. • Slim's dog has puppies, Lennie is given one to keep. • Curley starts a fight with Lennie and ends up with a crushed hand.
4	What happens in Ch 4?	• The ranch workers have gone out for the evening. • Crooks, Candy, Lennie and Curley's Wife stay at the ranch. • Lennie goes to see Crooks in his hut and along with Candy, the three of them share a dream about getting a place together. • Curley's Wife joins them but she is not welcome; Crooks asks her to leave but she threatens him saying she will accuse him of rape if he is rude to her. • Lennie accidentally kills one of the puppies, unaware of his own strength.
5	What happens in Ch 5?	• Lennie tries to bury the puppy discreetly in the barn. • Curley's Wife sees Lennie and asks what he is doing. • They have a conversation and she confides in Lennie saying that her husband isn't nice.
6	What happens in Ch 6?	• George realises he needs to find Lennie first. • He knows that Lennie is extremely vulnerable and makes a hard decision. • Slim is the only other character who fully understands George's decision.

Characters

1	George	The protagonist. Introduced as a smart but modest character, he is compassionate and feels a huge sense of responsibility where Lennie is concerned. George is a moral person who has to make difficult decisions.	5	Crooks	Crooks is the only black man on the ranch and experiences racism. He is intelligent and proud but battles with loneliness. Like Candy, he is excited by the idea of buying land with George and Lennie.
2	Lennie	Also the protagonist of the novella, Lennie is childlike and innocent, highly dependent on George to take care of him. He looks to George for guidance and reassurance and although he is a kind person he makes mistakes that have huge repercussions.	6	Curley	The antagonist of the novella. Curley is a cruel, insensitive man who enjoys picking fights with people. He is insecure about his height and often starts fights with those who are bigger than him to prove a point. Although recently married he doesn't try to understand or care for his wife.
3	Slim	A natural leader and an intelligent man who others listen to and respect. He is highly skilled and is the only other character who fully understands the decisions George has to make.	7	Curley's Wife	The only woman on the ranch, she is lonely and unhappy. She always appears to be searching for her husband but in truth she is looking for company.
4	Candy	The eldest of the ranch workers, Candy lost his hand in a farm accident. He cleans the ranch and is dependent on his old dog for company. A lonely character who is delighted by the idea of being able to buy a patch of land with George, Lennie & Crooks.	8	Carlson	An insensitive character who pressurises Candy into agreeing to have his dog killed. He owns a Luger pistol.

Context

1	The Great Depression	In 1929 the American stock market crashed meaning that the value of businesses dropped suddenly. Lots of these businesses had to close down and many people lost their jobs. People couldn't pay back the money they owed to the banks and as a result lost their homes. Many people lived in poverty.
2	Migrant Workers	During the Great Depression many farmers lost their jobs, they had borrowed money from the banks to buy farms but couldn't give the money back when the banks asked for it. This meant that many of these farm workers had to find work elsewhere, travelling around for temporary work, usually alone.
3	The American Dream	In the 1800s many people saw America as a place to start a new life and settle on empty land (at this time most of western America hadn't been explored). Many people believed they could be their own boss and make their own fortune. This was the American Dream.
4	Women in 1930s	Women weren't treated in the same way as men, they were expected to obey their husbands. Their job was to be a good wife and stay at home looking after the children.

Themes

1	Dreams	Many of the characters have dreams about what they would like to achieve if they had the opportunity. George and Lennie dream about having their own plot of land and Curley's Wife dreams of being an actress.
2	Loneliness	The majority of the characters are battling with loneliness. The men on the ranch have no family and workers usually travel alone. Curley's wife is constantly searching for company and Crooks feels lonely because he is given his own hut, separated from the others.
3	Death	Death features in every chapter of the novella; it is a part of life on the ranch and nobody can escape it. Lennie is often involved in the deaths suggesting that he is dangerous. His accidental killing of the puppy can be seen as foreshadowing Curley's Wife's death.
4	Prejudice	Crooks faces the most prejudice on the ranch because he is a black man. Black people were separated from white people in schools, prisons and hospitals in 1930s America. Candy also faces prejudice because of his age and disability whilst Curley's Wife experiences prejudice because she is not staying at home like a woman was expected to do. She is judged for talking to the men on the ranch.

Key Vocabulary

1	**Novella**	A short novel.
2	**Itinerant worker**	An itinerant worker travels around a region, working for short periods in different places.
3	**Foreshadowing**	To be a warning or an indication of a future event.
4	**Motif**	A powerful or recurring idea in a novel.

Subject: French | Knowledge Organiser | Year 9

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Present Tense		
1	Je suis	I am
2	Je sors	I go out
3	Je fais	I do/make
4	Je vais	I go
5	Je joue	I play
6	Je prends	I take
7	Je rencontre	I meet
8	Je mange	I eat
9	Je bois	I drink
10	Je passe	I spend
11	Je travaille	I work
12	Je voyage	I travel
13	Je vois	I see
14	Je dors	I sleep
15	c'est	it's

Perfect Tense		
1	J'ai été	I have been
2	Je suis sorti(e)	I went out
3	J'ai fait	I did/made
4	je suis allé(e)	I went
5	J'ai joué	I played
6	J'ai pris	I took
7	J'ai rencontré	I met
8	J'ai mangé	I ate
9	J'ai bu	I drank
10	J'ai passé	I spent
11	J'ai travaillé	I worked
12	J'ai voyagé	I travelled
13	J'ai vu	I saw
14	J'ai dormi	I slept
15	c'était	it was

Future Tense – I will…		
1	Je serai	be
2	Je sortirai	go out
3	Je ferai	do
4	J'irai	go
5	Je jouerai	play
6	Je prendrai	take
7	Je rencontrerai	meet
8	Je mangerai	eat
9	Je boirai	drink
10	Je passerai	spend
11	Je travaillerai	work
12	Je voyagerai	travel
13	Je verrai	see
14	Je dormirai	sleep
15	ce sera	it will be

Conditional Tense – I would like to…		
1	Je voudrais être	be
2	Je voudrais sortir	go out
3	Je voudrais faire	do
4	Je voudrais aller	go
5	Je voudrais jouer	play
6	Je voudrais prendre	take
7	Je voudrais rencontrer	meet
8	Je voudrais manger	eat
9	Je voudrais boire	drink
10	Je voudrais passer	spend
11	Je voudrais travailler	work
12	Je voudrais voyager	travel
13	Je voudrais voir	see
14	Je voudrais dormir	sleep
15	ce serait	it would

Il y a		
1	Il y a	There is/are
2	Il y avait	There was/were
3	Il y aura	There will be
4	Il y aurait	There would be

Imperfect Tense		
1	J'étais	I was/I used to be
2	J'avais	I had/I used to have
3	C'était	It was
4	il y avait	there was/were

Structures with infinitives		
1	J'aime aller/faire	I like going/doing
2	Je n'aime pas aller/faire	I don't like going/doing
3	il faut aller/jouer	you have to go/play
4	on peut/doit aller	you can/must go

Subject: French | Knowledge Organiser | Year 9

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Sentence Starters

1	je pense que	I think that
2	je crois que	I believe that
3	à mon avis	in my opinion
4	selon moi	in my opinion
5	je dirais que	I would say that

Connectives

1	et	and
2	ou	or
3	où	where
4	parce que	because
5	car	because
6	mais	but
7	en revanche	however
8	de plus	furthermore

Intensifiers

1	un peu	a bit
2	assez	quite
3	surtout	especially
4	vraiment	really
5	beaucoup	much/ a lot
6	en général	generally
7	carrément	totally
8	plutôt	rather

Adjectives

1	célèbre	famous
2	rapide	quick
3	passionnant	exciting
4	sain	healthy
5	malsain	unhealthy
6	bien-payé	well-paid
7	fatigant	tiring
8	cher	expensive

Signposting Time Frames

1	l'année dernière	last year
2	la semaine dernière	last week
3	de bonne heure	early
4	ce matin	this morning
5	cet après-midi	this afternoon
6	ce soir	this evening
7	la semaine prochaine	next week
8	l'année prochaine	next year
9	dans l'avenir	in the future

Frequency

1	tout le temps	all the time
2	de temps en temps	from time to time
3	une fois par semaine	once a week
4	deux fois par mois	twice a month
5	ne…jamais	never
6	d'abord	firstly
7	souvent	often
8	quelquefois	sometimes

Describe Myself and Others

1	beau/belle	handsome/beautiful
2	joli/jolie	pretty
3	vieux/vieille	old
4	heureux/heureuse	happy
5	travailleur/travailleuse	hardworking
6	lunatique	moody
7	égoïste	selfish
8	pénible	annoying/a pain
9	affreux/affreuse	awful
10	marrant/marrante	funny
11	drôle	funny
12	malade	ill

Fancy Phrases

1	je l'ai trouvé génial	I found it great
2	je me suis bien amusé(e)	I really enjoyed myself
3	j'ai tellement hâte	I'm really looking forward to it

Subject: Geography	Topic: Russia	Year Group: 9

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A.. Across Russia

1	**Location**	Russia is located in north-eastern Europe and northern Asia. It is the largest country in the world—slightly less than 1.8 times the size of the United States, with a total area of 17,075,200 sq. km (6,592,771 sq. mi).
2	**Bordering countries**	Russia has boundaries with 14 countries: Norway, Finland, Estonia, Latvia, Lithuania, Poland (via the Kaliningrad Oblast), Belarus, Ukraine, Georgia, Azerbaijan, Kazakhstan, Mongolia, the People's Republic of China and North Korea.

B. Russia's landscape

1	**Physical conditions**	Much of Russia is under snow for up to 8 months a year. The tundra and sub-Artic climate zones have permafrost where there is frozen soil below the ground which stays frozen even in summer. In parts of Siberia, the permafrost is over 1km thick.
2	**Physical landscape**	Russia has a variety of Biomes- Mountain ranges, tundra, temperate forest, Steppe, taiga.

C. Melting permafrost

1	**Permafrost**	About a quarter of the entire northern hemisphere is permafrost, where the ground is frozen year-round. It's widespread in the Arctic regions of Siberia, Canada, Greenland, and Alaska—where nearly 85 percent of the region sits atop a layer of persistent permafrost. However, global warming is rapidly thawing this frozen landscape.
2	**Climate change**	With global warming causing temperatures around the world to increasing, permafrost is thawing in many Arctic regions. This is causing a number of severe local and global problems.

E. Chernobyl disaster

1	**Location**	In eastern Europe in the country of Ukraine. Now an independent country, in 1986 the Ukraine was part of the Soviet Union.
2	**The Chernobyl disaster**	26th of April 1986, engineers were running safety tests at the Chernobyl nuclear power station. There were four reactors at the station and they were testing reactor number four. During one of the tests something went wrong and there was a massive power surge which meant that the reactor gave out more power than normal and caused an explosion of the nuclear reactor.
	impacts	29 people died within days of the explosion, however the impacts from radiation being released is unknown, 600,000 people exposed to the radioactive material were later diagnosed with cancer.

F. Putin's Russia

1	**Superpower**	A country that has the ability to exert its influence and power through economic or military means at anytime.
2	**Crimea**	The Republic of Crimea, officially part of Ukraine, lies on a peninsula stretching out from the south of Ukraine, to the east of Crimea is Russia. Crimea has been in conflict with Russia over its independence for many years.

Subject: Geography	Topic: Russia	Year Group: 9

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1) Climate	Weather conditions of a region, as temperature, air pressure, humidity, precipitation, sunshine, cloudiness, and winds, throughout the year, averaged over a series of years.
2) Boreal Forest	Biome characterized by coniferous forests consisting mostly of pines, spruces, and larches. The taiga or boreal forest is the world's largest land biome.
3) Tundra	Type of biome where the tree growth is hindered by low temperatures and short growing seasons, the subsoil in the tundra is permanently frozen.
4) Permafrost	Permafrost is ground that continuously remains frozen for two or more years, located on land or under the ocean. Permafrost does not have to be the first layer that is on the ground. It can be an inch to over miles deep into the Earth's surface.
5) Communism	a theory or system of social organization in which all property is owned by the community and each person contributes and receives according to their ability and needs.
6) Nuclear Power	electric or motive power generated by a nuclear reactor.
7) Mutation	the changing of the structure of a gene, resulting in a variant form that may be transmitted to subsequent generations, caused by the alteration of single base units in DNA, or the deletion, insertion, or rearrangement of larger sections of genes or chromosomes.
8) Superpower	A country that has the ability to exert its influence and power through economic or military means at anytime.
9) Emerging power	An emerging power or rising power is a term used as recognition of the rising, primarily influence of a nation—or union of nations—which has steadily increased their presence in global affairs.

10) Steppe	A large area of flat un-forested grassland in south-eastern Europe or Siberia.
11) Taiga	The swampy coniferous forest of high northern latitudes, especially that between the tundra and steppes of Siberia.
12) Radiation	The emission of energy as electromagnetic waves.
13) USSR	The soviet union, officially the union of soviet socialist republics, was a federal socialist state in northern Eurasia that existed from 1922 to 1991 and was the largest country in the world.
14) Crimea	The republic of Crimea, officially part of Ukraine, lies on a peninsula stretching out from the south of Ukraine, to the east of Crimea is Russia.
15) Putin	The current president of Russia.

Subject: German | Knowledge Organiser | Year 9

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Present Tense		
1	ich gehe	I go
2	ich fahre	I travel
3	ich lese	I read
4	ich mache	I do/make
5	ich wohne	I live
6	ich sehe	I see
7	ich verdiene	I earn
8	ich studiere	I study
9	ich höre	I listen
10	ich kaufe	I buy
11	ich schlafe	I sleep
12	ich esse	I eat
13	ich bleibe	I stay
14	ich schwimme	I swim

Past Tense		
1	ich bin gegangen	I went
2	ich bin gefahren	I travelled
3	ich habe gelesen	I read
4	ich habe gemacht	I did/made
5	ich habe gewohnt	I lived
6	Ich habe gesehen	I saw
7	ich habe verdient	I earned
8	ich habe studiert	I studied
9	ich habe gehört	I listened
10	ich habe gekauft	I bought
11	ich habe geschlafen	I slept
12	ich habe gegessen	I ate
13	ich bin geblieben	I stayed
14	ich bin geschwommen	I swam

Future Tense – I will…		
1	Ich werde gehen	go
2	Ich werde fahren	travel
3	Ich werde lesen	read
4	Ich werde machen	do/make
5	Ich werde wohnen	live
6	Ich werde sehen	see
7	Ich werde verdienen	earn
8	Ich werde studieren	study
9	Ich werde hören	listen
10	Ich werde kaufen	buy
11	Ich werde schlafen	sleep
12	Ich werde essen	eat
13	ich werde bleiben	stay
14	ich werde schwimmen	swim

Conditional Tense – I would like to…		
1	Ich möchte gehen	go
2	Ich möchte fahren	travel
3	Ich möchte lesen	read
4	Ich möchte machen	do/make
5	Ich möchte wohnen	live
6	Ich möchte sehen	see
7	Ich möchte verdienen	earn
8	Ich möchte studieren	study
9	Ich möchte hören	listen
10	Ich möchte kaufen	buy
11	Ich möchte schlafen	sleep
12	Ich möchte essen	eat
13	ich möchte bleiben	stay
14	ich möchte schwimmen	swim

There is		
1	es gibt	There is/are
2	es gab	There was/were
3	es wird geben	There will be
4	es gäbe	There would be

Imperfect Tense		
1	ich war	I was/I used to be
2	ich hatte	I had/I used to have
3	es war	It was
4	ich konnte	I could
5	ich durfte	I was allowed

Modal Verbs		
1	man muss + infinitive	you must …
2	man darf + infinitive	you are allowed …
3	man kann + infinitive	you can …
4	man soll + infinitive	you should …

Connectives		
1	auch	also
2	oder	or
3	mit	with
4	ohne	without
5	weil	because
6	jedoch	however

Subject: German | Knowledge Organiser | Year 9

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Sentence Starters

1	Meiner Ansicht nach	in my opinion
2	Meiner Meinung nach	in my opinion
3	Ich würde sagen, dass	I would say that

Signposting Time Frames

1	letztes Jahr	last year
2	letzte Woche	last week
3	gestern	yesterday
4	normalerweise	normally
6	heute	today
7	nächste Woche	next week
8	nächstes Jahr	next year
9	in der Zukunft	in the future

Comparatives & Superlatives

1	besser/beste	better/best
2	reicher/reichste	richer/richest
3	größer/größte	bigger/biggest
4	älter/älteste	older/oldest
5	kleiner/kleinste	smaller/smallest
6	jünger/jüngste	younger/youngest

Question Words

1	wer	who
2	was	what
3	wann	when
4	wo	where
5	warum	why
6	wie	how
7	wie viel	how much

Intensifiers

1	viel	many
2	zu	too
3	extrem	extremely
4	ziemlich	quite
5	sehr	very
6	nicht	not
7	nur	only

Frequency

1	immer	always
2	ab und zu	now and then
3	oft	often
4	zuerst	first of all
5	einmal pro Woche	once a week
6	nie	never
7	manchmal	sometimes
8	zweimal pro Jahr	twice a year
9	seit	since/for
10	jetzt	now

Fancy Phrases

1	Das hat Spaß gemacht / Das wird Spaß machen	That was fun / That will be fun
2	Es hat sich gelohnt	It was worth it
3	Ich freue mich darauf!	I am looking forward to it
4	Ich habe es toll gefunden	I found it great

Adjectives

1	behrühmt	famous
2	bescheiden	modest
3	erfolgreich	successful
4	reich	rich
5	glücklich	happy
10	sauber	clean
11	stark	strong
12	unterhaltsam	entertaining
13	altmodisch	old fashioned
14	kitschig	corny
16	gemein	mean
17	neu	new
18	einfach	easy
22	streng	strict
24	bunt	colourful

Prepositions

2	unter	under
3	auf	on
4	zwischen	between
5	vor	in front of
6	hinter	behind
7	neben	next to
8	gegenüber	opposite
9	mit	with

Subject: History **Topic: What was the turning point in WW2?** **Year Group: 9**

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1. How did the Nazi's gain control over Europe by 1940?

1	Why did Hitler take over other countries?	1. Before WW2 broke out Hitler tried to get land back that Germany lost after WWI 2. He also wanted to gain more power and 'living space' for the German speaking people
2	How did Hitler gain control over Europe?	1. Germany was prepared for war as it had been training its military since 1935 2. Britain and France had not been training as they were trying to avoid war 3. Germany used Blitzkrieg methods to quickly take control over Poland, Norway, Denmark, Belgium and France
3	What happened at Dunkirk?	1. When the Germans took control of Calais (in France) in 1940, around 400,000 allied troops were stranded 2. Britain launched Operation Dynamo to rescue over 330,000 troops. 3. It was a heroic event but still a loss for the allies – British soldiers and equipment were lost 4. The French surrendered to the Germans in June 1940

2. How did the Battle of Britain affect the war?

1	How was Britain under threat?	1. After France surrendered Hitler planned an invasion of Britain 2. He aimed to invade using his air force – the Luftwaffe
2	Why did the British win the battle for Britain?	1. The British planes, such as the Spitfire and Hurricane, were better than the German planes 2. The British used a combination of radar, anti-aircraft guns, fighter pilots and careful planning to defend against the German bombers 3. The British were supported with pilots from around the world especially Poland
3	What was the impact of the British victory?	1. There was a lot of damage done to many cities, homes and facilities in Britain 2. Prime Minister Churchill presented the event as a big victory 3. It was a morale boost for the British as they had survived a German invasion and stopped Hitler from turning his attention to the East

3. How did the attack on Pearl Harbour affect the war?

1	Why did Japan attack Pearl Harbour?	1. Japan wanted to expand its territory in the Pacific. 2. As this threatened the US territories, the US put an oil embargo on Japan 3. Japan saw this as a threat and attacked Pearl Harbour to strike first before the US were ready
2	What was the impact of Pearl Harbour?	1. The US joined WW2 by declaring war on Japan 2. This meant that the US also declared war on the other Axis powers 3. This helped the Allied forces as they now had the army, supplies and funding of another powerful country
3	How did the US entry to WW2 affect the war?	1. After the US entered WW2, Japan's advance into Asia and the Pacific was stopped. 2. Japan began to lose significant battles 3. A weakened Japan was defeated after the US dropped two nuclear bombs on Hiroshima and Nagasaki in 1945 4. This eliminated one of Germany's allies and left them weakened

4. How did the Battle of Stalingrad affect the war?

1	What was the Battle of Stalingrad?	1. Germany invaded the USSR in June 1941. 2. At first they had success in defeating the Russians, however as Winter arrived, their victory slowed 3. Stalingrad was a city that the Russians were keen to defend because it was a symbolically important city 4. The battle lasted from August 1942 to February 1943 and ended with Russian victory
2	What was important about the Battle?	1. The Battle of Stalingrad was a big morale boost for the Russians and a morale loss for the Germans 2. It allowed the Russians to start attacking the Germans and forcing them to retreat back to Germany. 3. This allowed the Russian forces to meet up with the other Allied forces in Germany in 1945

Key Word	Definitions
Allied forces	The alliance of Britain, France, China, the USSR and the USA during WW2
Axis powers	The alliance of Germany, Japan and Italy during WW2
Blitzkrieg	'Lightning war' – the word used to describe the German tactic of using intense concentrated attacks from land and air.
Blitz	Short for Blitzkrieg, the term 'the Blitz' refers to German bombing of civilian targets in Britain
Embargo	A refusal to trade in a particular item, often done for political reasons
Front	An area where armed forces engage in fighting
Luftwaffe	The German air force
Morale	The confidence of a group of people.
RADAR	A system to detect approaching aircrafts.
Turning Point	A time in which when a decisive change occurs

Subject: Maths	Term: Half Term 2 - September	Year Group: 9

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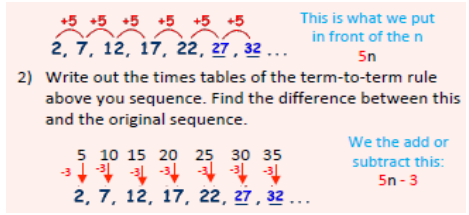
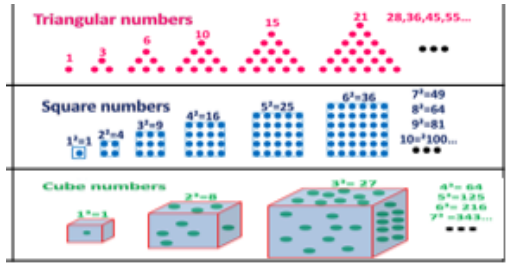
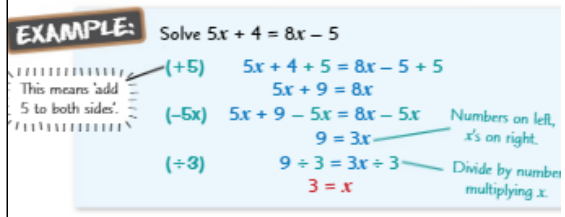
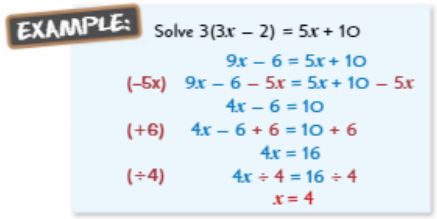
Algebra – Sequences

1	Nth term	
2	Special Sequences	

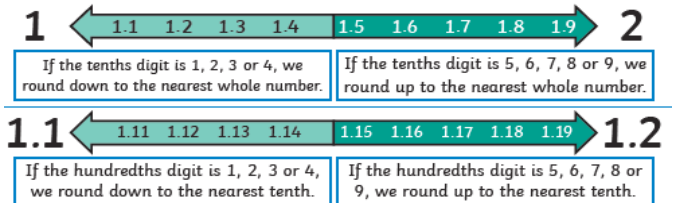
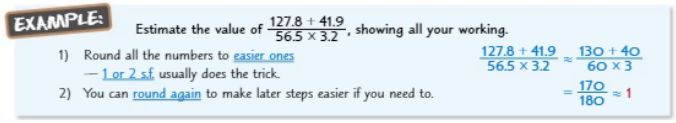
Algebra – Equations

1	
	

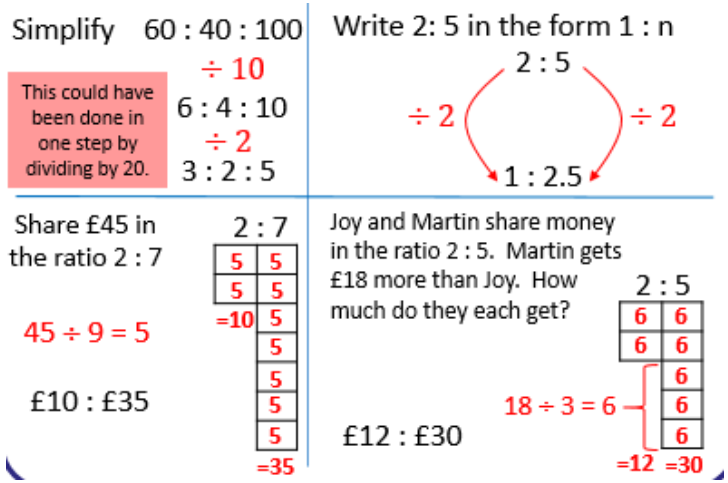
Key Vocabulary

1	Geometric Sequence	In a **Geometric Sequence** each term is found by **multiplying** the previous term by a **constant**.
2	Estimate	To find a value that is close enough to the right answer, usually with some thought or calculation involved.
3	Surd	When we can't simplify a number to remove a square root (or cube root etc) then it is a **surd**. Example: $\sqrt{2}$ (square root of 2) can't be simplified further so it is a **surd**.

Number – Rounding and estimating

1	Rounding	
2	Estimating	

Ratio, Proportion and Rates of Change - Ratio

1	Ratio	

Music	History of Music	Year Group: 9 – Half term 2

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1. Baroque Period

1	**Baroque**	Era of music from 1600- 1750
2	**Composers**	Bach, Pachelbel, Vivaldi, Handel
3	**Baroque Instruments**	Harpsichord, Organ, Violin, Cello, Wooden Flute
4	**Terraced Dynamics**	Sudden changes in the volume level, sometimes creating an echo effect
5	**Basso Continuo**	A form of musical accompaniment. It means "continuous bass". A bass line played by the left hand and doubled on the other bass instrument.
6	**Harpsichord**	a keyboard instrument where the strings are plucked rather than hammered.

2. Classical Period

1	**Classical**	Era of music from 1750- 1820
2	**Composers**	Mozart, Beethoven, Haydn, Schubert
3	**Classical Instruments**	Strings, woodwind, brass and percussion all used
4	**Homophonic Accompaniment**	One line of melody played by all instruments at the same time. Sounding together
5	**Alberti Bass**	A type of arpeggio, or 'broken' chord, in which the notes of the chord are played in the order lowest, highest, middle, highest.

3. Compositional Techniques

1	**Imitation**	Repetition of melody in a different voice (Different instrument)
2	**Canon**	A melody with one or more imitations of the melody played after a given duration
3	**Ornamentation**	Musical flourishes such as a trill (rapid playing of a notes and the one above it)

4. Key vocab Musical forms

1	**Binary**	(AB)- where the music has two clear sections
2	**Ternary**	(ABA)- where the music has two sections then returns to the first section
3	**Rondo**	(ABACA)- where the music has one sections which keeps returning and is sandwiched between lots of different sections

5.Key Vocab Musical elements

1	**Melody**	The main tune, played on instruments or sung.
2	**Chords**	Two or more notes played at once.
3	**Broken chords**	Notes of chord played individually
4	**Ostinato**	Repeating musical phrase
5	**Pitch**	High or Low
6	**Dynamics**	Volume of music
7	**Texture**	Layers of instruments used- Thick or thin
8	**Timing**	Playing with the pulse

Other musical styles linked to this: Romantic, Modern, Renaissance

Subject: RE	Unit: Religion, Human Rights and Social Justice	Year: 9

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Knowledge Group 1 – Social Justice

1	What is the teaching of social justice?	That all religions should teach and promote equality within society
2	What issues are incorporated in social justice?	Gender, disability, wealth, sexuality, race,
3	Christians promote social justice because of which parable?	The sheep and the goats.
4	Muslims promote social justice by…	Giving Zakat (alms). This is 2.5% of their wealth every year.
5	The Buddhist teaching that promotes Social justice is….	The right action. If everyone followed this, then there would be no injustice in the world.
6	Sikhs believe in the justice of the brotherhood, this means….	That humankind is equal in spirit and so everyone should be treated equally.

Knowledge Group 2 – Responsibility and freedom

1	Why do religions believe social justice is their responsibility?	All religions promote the duty of care for one another and believe they should model this belief.
2	Why are human rights important?	They ensure that everyone has rights and should be treated justly.
3	What is a religious citizen?	Someone who is a member of a country and has belief. They believe they belong to both groups as part of their identity.
4	What is religious freedom?	Means you have the right to freedom which is protected by the law.
5	What is freedom from religious persecution?	The right to be legally protected if you are targeted due to your religion.

Knowledge Group 3- Conscience

1	What is the conscience made up of according to Aquinas?	Ration, conscientia and synderesis
2	What is the synderesis principle?	Do good avoid evil
3	Why does Aquinas believe the conscience is not the voice of Good?	Its infallible and can make mistakes- God is perfect so never makes mistakes
4	What 3 parts make up the conscience according to Freud?	Id, Ego and Super Ego
5	How does the conscience link to social justice?	Provides guilt over what is wrong and teaches us justice is right

Knowledge Group 4 – Wealth and Exploitation

1	What does religion teach about wealth?	That wealth is a gift from God and should be used responsibly.
2	What does the Bible say about wealth?	'For the love of money is a root of all sorts of evil'
3	Which Bible story teaches about wealth?	Matthew 19:24- The parable of the rich young man
4	What does the Quran say about wealth?	'Tell those who hoard gold instead of God's cause that they will have grievous punishment'
5	What is exploitation of the poor?	Misuse of power or money for personal gain. It is a type of corruption.
6	What does religion teach about the exploitation of the poor?	Exploitation goes against religious teachings on equality. Believers should be active in trying to stop exploitation and helping victims of it.

Key word	Definition
Social justice	Is ensuring that society treats people fairly.
Human Rights	The basic rights and freedoms that all humans should be entitled to.
Responsibility	The duty of care not to harm others.
Equality	The ideas that all humans are of equal value and status.
Prejudice	Holding bias about an individual or group without knowing the facts.
Discrimination	Acting upon prejudice through behaviour and actions.
Freedom of religion	The right to believe or practice whatever religion you choose or don't choose.
Freedom of religious expression	The right to worship, preach and practices one's faith in whatever way one chooses.
Positive discrimination	Treating people more favourably because they have been discriminated against in the past.
Exploitation	Misuse of power or money to get others to do things for unfair reward.
Conscience	a person's moral sense of right and wrong, viewed as acting as a guide to one's behaviour.
Preferential option for the poor	The Christian duty of the privileged to side with the poor in solidarity and act against exploitation.

Social justice is fairness as it manifests in society. That includes fairness in healthcare, employment, housing, and more. In a socially-just society, human rights are respected and discrimination is not allowed to flourish.

Subject: Science	Topic: Atomic structure and periodic table (1)	Year Group: 9

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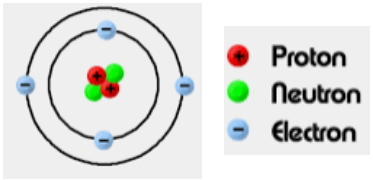
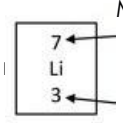
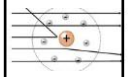
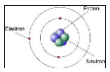
The atom

1	The atom	
2	Subatomic particles	Name of particle / Relative charge / Relative mass Proton / +1 / 1 Neutron / 0 / 1 Electron / -1 / Very small
3	 Mass number (Total of protons + neutrons in Atomic number (number of protons = no of electrons)	

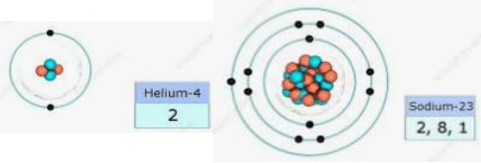
Models of the atom (common content with physics)

1	Pre 1900 Billiard ball		John Dalton- before electrons were discovered atoms were tiny solid spheres
2	1897 Plum pudding		JJ Thompson- Ball of positive charge with negative electrons.
3	1909 Nuclear	Alpha particle scattering experiment 	Ernest Rutherford-Beam of alpha particles directed at very thin gold foil, most passed through, some deflected by positive nucleus, few reflected back. Result: positively charged nucleus surrounded by negative electrons.
4	1913 Bohr		Niels Bohr- Electrons orbit the nucleus in fixed shells as specific distances
5	Quantum		James Chadwick- Neutrons exist within the nucleus

Key Vocabulary

1	Atom	The smallest unit of matter. Have a radius of approx 0.1nm. Have no overall charge.
2	Element	A substance made up of only one type of atom, which cannot be chemically broken into other substances. Represented by symbols Eg: Na. Approx 100 different elements.
3	Compound	A substance made of two or more elements that have bonded chemically. These atoms are usually, but not always, joined in molecules. Can only be separated into elements by chemical reactions.
4	Mixture	Two or more elements or compounds, not chemically bonded together. Can be separated by physical processes.
5	Molecule	A group of atoms, usually but not always representing more than one element, joined by chemical bonds. Compounds are typically made of up molecules.
6	Mass number	The sum of the protons and neutrons in the nucleus
7	Atomic number	The number of protons in the atom. Number of protons = Number of electrons
8	Nucleus	The center of an atom, a region where protons and neutrons are located. The nucleus accounts for the atomic mass. Radius=less than 1/10000 ($1x10^{-14}$m) of atom
9	Neutron	A subatomic particle that has no charge. Found in the nucleus.
10	Proton	A positively charged particle in an atom. The number of protons in the nucleus of an atom is the atomic number of an element.
11	Electron	A negatively charged particle in an atom.
12	Isotope	Atoms of the same element with the same number of protons, however a different number of neutrons. This means they have a different mass number.
13	Ion	An atom or atoms that has lost or gained one or more electrons, to become a charged particle. Eg: Na +

Electronic structure

1	Maximum number of electrons in each shell Shell 1- 2 electrons Shell 2- 8 electrons Shell 3- 8 electrons Shell 4- 2 electrons LEARN TO DRAW THE FIRST 20 ELEMENTS STRCUTURES AS BELOW EXAMPLES
2	EXAMPLES  Use dots or crosses to represent electrons clearly

Practical separation techniques

	Method	Example
1	Filtration-separate insoluble solid from liquid	Separate sand from a mixture of sand, salt and sea water
2	Crystallisation-separate solid from solution	Obtain pure crystals of sodium chloride from salt water
3	Simple distillation- separate solvent from solution	Separate pure water from salt water
4	Fractional distillation- separate mixture of liquids with diff bp's	Separate different compounds in crude oil
5	Chromatography- separate substances(varying solubility)	Separate out the dyes in food colouring

Subject: Science	Topic: Atomic structure and periodic table (2)	Year Group: 9

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Developments of the periodic table

1	Before discovery of protons, neutrons, electrons	Newland organised the elements by atomic weight. Some were placed in wrong groups and the periodic table was incomplete
2	Mendeleev	Left gaps to fill in newly found elements. Knowledge of isotopes explained why atomic weight order wasn't always correct
3	Now: Elements arranged in order of atomic number	Elements with similar properties in groups (columns)- have same No of electrons in outer shell AND periods (rows)- have same number of electron shells

Metals and non-metals

1	Metals	Left of dark line on periodic table	Form positive ions, conductors, high mp's/bp's, ductile, malleable
2	Non-metals	Right of dark line	Form negative ions, insulators, low mp's/bp's

Half equations + ionic equations (HT ONLY) -Links to Chemical changes unit

1	Reduction: Positive metal ions (cations) gain electrons to form neutral atoms	$Cu^{2+} + 2e^- \rightarrow Cu$
2	Oxidation: Negative non-metal ions (anions) lose electrons to form neutral atoms	$2Cl^- \rightarrow Cl_2 + 2e^-$
3	Half equations combine to form ionic equations to show overall reactions	$Cu^{2+} + 2Cl^- \rightarrow Cu + Cl_2$

Alkali metals (Group 1)

Very reactive with oxygen, water, chlorine -Have 1 electron in outer shell. Form +1 ions. More reactive down group -Outer negative electron further from positive nucleus so more easily lost

Reactions of Alkali metals (Group 1)

1	With oxygen	Metal + oxygen → metal oxide	e.g. $4Na + O_2 \rightarrow 2Na_2O$
2	With water	Metal + water → metal hydroxide + hydrogen	e.g. $2Na + 2H_2O \rightarrow 2NaOH + H_2$
3	With metal chloride	Metal + chlorine → metal chloride	e.g. $2Na + Cl_2 \rightarrow 2NaCl$

Halogens (Group 7)

Diatomic molecules (pair of atoms)-7 outer shell electrons, form 1+ ions, Mp's/Bp's increase down group- increasing atomic mass No, decreasing reactivity down group- increasing proton No so electrons gained easier

Reactions of Halogens (Group 7)

1	With metals	Metal + halogen → metal halide e.g. Sodium + chlorine → sodium chloride	e.g. NaCl metal atom loses outer shell electrons and halogen gains an outer shell electron
2	With hydrogen	Hydrogen + halogen → hydrogen halide e.g. Hydrogen + bromine → hydrogen bromide	e.g. $Cl_2 + H_2 \rightarrow 2HCl$
3	With aqueous solution of a halide salt	Chlorine + potassium bromide → potassium chloride + bromine	e.g. $Cl_2 + 2KBr \rightarrow 2KCl + Br_2$

Chemical equations

1	Word equations- Do not show what happens to the No of atoms	*Uses words to show reaction* reactants → products magnesium + oxygen → magnesium oxide
2	Symbol equations- Show No of atoms/molecules. Must be balanced.	*Uses symbols to show reaction* reactants → products $2Mg + O_2 \rightarrow 2MgO$

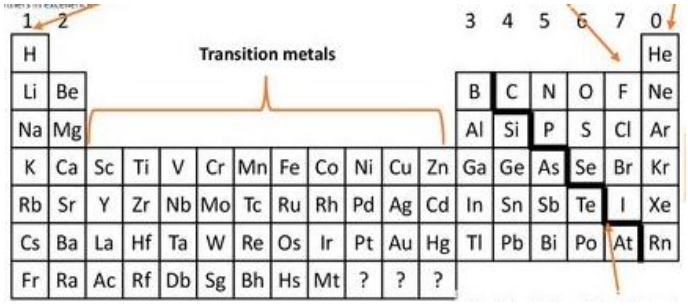
Transition metals (CHEMISTRY ONLY)

1	Compared to group 1	Less reactive, harder, denser, higher mp's	Cu^{2+}	Blue
			Ni^{2+}	Pale green (used to make margarine)
2	Properties	Different ions with diff charges, used as catalysts, form coloured compounds	Fe^{2+}	Green (Use Haber process)
			Fe^{3+}	Reddish/brown
			Mn^{2+}	Pale pink

Key vocabulary

1	Periodic table	A chart that shows the elements arranged in order of atomic number, along with chemical symbol and the average atomic mass (in atomic mass units) for that particular element.
2	Periods	Rows of the periodic table of elements. These represent the number of energy levels for electrons in atoms of the elements. Eg: Na- period 3
3	Groups	Columns on the periodic table of elements, ordered according to the numbers of electrons in the outer shells of the atoms of each element Eg: Na- group 1- 1 electron in outer shell
4	Chemical symbol	A one-or two-letter abbreviation for the name of an element. Eg; Na (Sodium)
5	Chemical equations	Show chemical reactions with reactant/s and product/s. Law of conservation of mass states the total mass of products = total mass of reactants

Alkali metals | Halogens | Noble gases

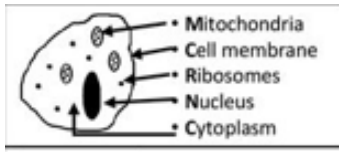
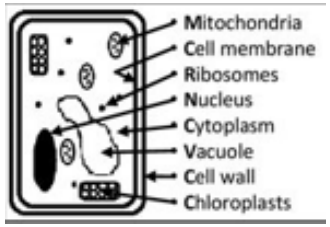


Noble gases (Group 0)

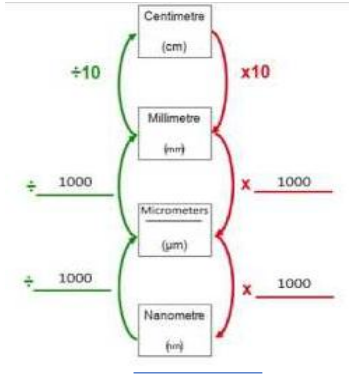
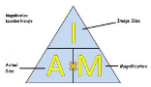
1	Unreactive, do not form molecules	Due to having full outer shells of electrons
2	Bp's increase down group	Increasing atomic number

Subject: Science	Topic: Cells (1)	Year Group: 9

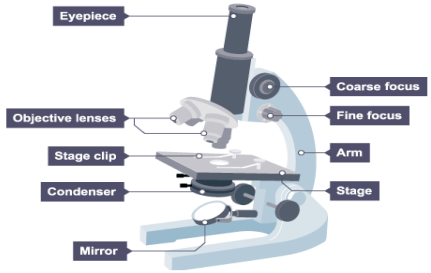
Cells

1	Typical animal cell	
2	Typical plant cell	

Maths Skills (conversions and magnification)

1	Conversions Standard form cm- x10^{-2} mm- x10^{-3} µm- x10^{-6} nm- x10^{-9}	
2	Magnification	Magnification = image size / object size  (watch out for units)

Microscopes (Required practical)

1	Light microscope	Use light and lenses. Require glass slide preparation. Have a magnifications of 40x, 100x and 400x, low magnification and resolution, used to view living cells 
2	Electron microscope	More modern, uses a beam of electrons, cannot be used to view living cells, much higher magnification and resolution. Eg: can see tiny structures such as ribosomes and mitochondria in cells

Specialised cells

1	Specialised animal cells	**Sperm**- has a tail with lots of mitochondria for energy to swim **Nerve**- long to carry electrical impulses **Muscle**- contracts and relaxes for movement
2	Specialised plant cells	**Root hair**-large surface area to absorb minerals and ions **Xylem**- continuous hollow tube, carry water and minerals **Phloem**- tubes with sieve like ends connected end to end, carry glucose to cells

A=animal cell only, P= plant cell only, B= both

Key Vocabulary

1	Eukaryotic cell	Have cell membrane, cytoplasm and nucleus, eg: animal and plant cells
2	Prokaryotic cell	Do not have a nucleus, genetic material is looped, eg: bacteria
3	Sub cellular structures	Small structures inside a cell e.g. nucleus
4	Nucleus (B)	Controls cell activities, contains DNA
5	Cytoplasm (B)	Where chemical reactions take place
6	Cell membrane (B)	Controls what enters and leaves the cell
7	Cell wall (P)	Made from cellulose fibres. Strengthens the cell and supports the plant.
8	Mitochondria (B)	Where aerobic respiration takes place
9	Ribosomes (B)	Make proteins by protein synthesis
10	Chloroplasts (P)	Where photosynthesis occurs. Contains chlorophyll to absorb light
11	Chlorophyll (P)	Green pigment used for photosynthesis found in chloroplasts
12	Vacuole (P)	Contains cell sap
13	Specialised cell	Cells that are modified to carry out a particular function. Found in both animals and plants
14	Magnification	How much bigger an image appears than the real object
15	Resolution	Ability to distinguish between two very small and closely spaced objects

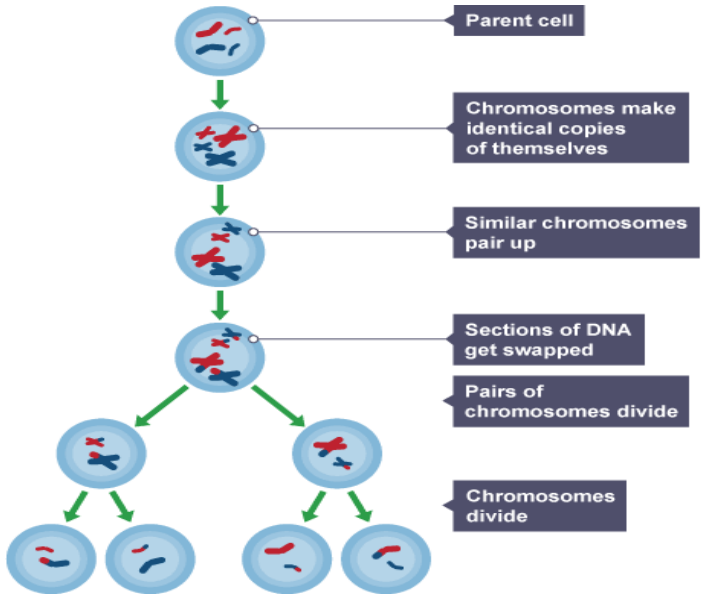
Subject: Science | Topic: Cells (2) | Year Group: 9

Mitosis and cell cycle

1	Stage-1: Growth- Increase number of subcellular structures eg: mitochondria
2	Stage-2: DNA synthesis- DNA replicates forming 2 copies of each chromosome
3	Stage-3: Mitosis- Cells divide in stages. Genetic material is doubled, then divided into 2 identical cells. It occurs during growth, repair and replacement of cells. Asexual reproduction occurs by mitosis in plants and simple animals.
4	One set of chromosomes is pulled to each end (pole) of the cell and nucleus divides. Cytoplasm and cell membrane divides to form 2 new cells (daughter cells) identical to the parent cell (image)

Adaptations for diffusion

1	Small intestine (SI) and Lungs (L) in humans and Gills in fish (G)	Villi (SI), Alveoli (L), gill filaments and lamellae (G)- increase surface area Good blood supply- maintain concentration gradient Thin membranes- short diffusion pathway
2	Roots (R) and leaves (L) in plants	Root hair cells (R), flat/large (L)- increase surface area Thin (L)- short diffusion pathway Stomata on lower surface (L)- let O_2 and CO_2 in/out



Stem cells

1	Treatment with stem cells may help conditions such as diabetes and paralysis. Uses of stem cells are rejected by some due to ethical or religious reasons.		
2	Human embryonic stem cells	Can be cloned, differentiate into most cell types	Therapeutic cloning uses same genes- no tissue rejection, infection risk
3	Adult bone marrow stem cells	Can form many types of human cells eg: blood cells	Matching tissue avoids rejection, infection risk, few types of cells can be formed
4	Meristems (plants)	Differentiate into any plant cell type anytime in plants life	Produces clones quickly and economically (rare species)

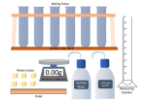
Required Practical – Osmosis

- Independent variable – Conc of sugar sol
- Dependent variable – length + mass of potato cylinders
- Control variables – diameter/length of potato cylinders, vol of sol

Calculate: change in mass and change in length

AND

% change in mass = $\frac{\text{new mass} - \text{original mass}}{\text{original mass}} \times 100$



Key Vocabulary

1	Differentiation	When a cell becomes a specialised cell – animal cells differentiate at an early stage, plant cells continue to differentiate throughout life.
2	Mitosis	The process of cell division where 1 parent cell produces 2 genetically identical daughter cells
3	Genes and chromosomes	DNA is arranged in chromosomes in cells. Gene - section of a chromosome. Chromosomes found in pairs in cells.
4	Stem cell	Cells that are undifferentiated but can turn into any type of cell
5	Diffusion	The movement of particles from a HIGH concentration to a LOW concentration down a concentration gradient (gases or liquids). No energy required. Oxygen and carbon dioxide in gas exchange in lungs. Rate affected by concentration, temperature and surface area.
6	Osmosis	The movement of WATER particles from a high concentration (DILUTE solution) to a low concentration (MORE CONCENTRATED solution) through a partially permeable membrane. (liquids only). No energy required. Eg: water absorption by roots from soil.
7	Active transport	The movement of particles, e.g. mineral ions, from a LOW concentration to a HIGH concentration, AGAINST the concentration gradient. Requires ENERGY. Eg: movement of mineral ion into plant roots and glucose into small intestine.