

YEAR 9

Knowledge
ORGANISER

2026 - 27
SEMESTER 1



WHO CAN I GET *support* FROM?

You can also speak to your check-in tutor, all your subject teachers, your PD teacher and all your pastoral staff: Miss Leonard, Miss Howe, Mrs Kelly, Mr Sykes. If you are unable to speak to any member of staff, please contact: studentsupport@bentonpark.mlt.co.uk



MY YEAR LEADER
Miss Bannister

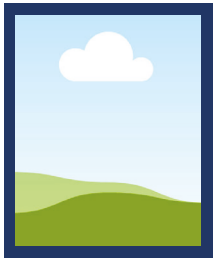


MY KEY STAGE LEADER
Mrs Collins



MY SLT LINK
Mr Coltman

OTHER YEAR LEADERS



Year 7 – Miss Bond



Year 8 – Miss Downing



Year 10 – Miss Charlton



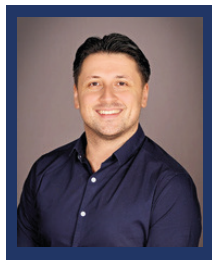
Year 11 – Mrs Sykes



**Designated
Safeguarding Lead /
Assistant Headteacher**
Mrs Howard



**KS3 Safeguarding
Officer**
Miss Fox



**SENCo /
Assistant Headteacher**
Mr Hayes



Key Stage 4 Leader
Miss Dobby

MY *Attendance* RECORD

ATTENDANCE %

Year so far:

Attendance Targets:

DATE	WEEKLY %	YEAR TO DATE %
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		
Week 7		
Week 8		
Week 9		
Week 10		
Week 11		
Week 12		
Week 13		
Week 14		
Week 15		
Week 16		
Week 17		
Week 18		
Week 19		

EVENTS / EXTRA CURRICULAR ACTIVITIES / CLUBS / PRESENTATIONS

SEMESTER 1	WHAT I HAVE ATTENDED / BEEN PART OF / BEEN A MEMBER OF AN AUDIENCE
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	
Week 8	
Week 9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	
Week 16	
Week 17	
Week 18	
Week 19	

LAST TERM I WAS A MEMBER OF / TOOK PART IN / ATTENDED....

HOME *Learning*

In addition to your online home learning with SPARX and EDUCAKE, some subjects will give you homework based on your Knowledge Organiser. The next page gives you further information...

HOW DOES HOME LEARNING WORK?

The main way you will complete homework will be via 2 online platforms: SPARX and EDUCAKE. These online platforms will quiz you on your learning in lesson. It's a great way to test yourself and developing your memory retrieval and retention skills. As well as home learning quizzes, these platforms allow you to prepare for assessments and revise key content.

HOW DO I ACCESS THESE?

PLATFORM	WEB ADDRESS	SUBJECTS
SPARX	www.sparx.com	Maths and Science
EDUCAKE	www.educake.co.uk	English, Geography, History, Languages, and Computer Science

Use the 'log in with MICROSOFT' button to access these platforms.

These systems use single sign on.

Note: Sparx may require teacher input first

HOMEWORK PLAN

SUBJECT	FREQUENCY
English / Science / Maths	Weekly
Geography / History / Languages / Computer Science	Fortnightly

IN THE LIBRARY YOU CAN:

- Access books and resources
- Use the internet to complete any online home learning
- See staff who can give you any advice and guidance you may need
- Study independently in a quiet place

Organisation AND Planning SHEET

DATE SET	TASK	DUE DATE	TICK WHEN COMPLETE

DATE SET	TASK	DUE DATE	TICK WHEN COMPLETE

STUDENT *Loyalty* CARD

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

**COLLECT A STAMP EACH TIME YOU ATTEND A LUNCH AND AFTER SCHOOL
EXTRA-CURRICULAR ACTIVITY. WHEN YOU'VE REACHED 10, 20, 30 AND 40
STAMPS YOU WILL RECEIVE A REWARD!**

SUBJECT: ENGLISH

YEAR: 9



TOPIC: PROTEST POETRY

SEMESTER: I

WORD REVOLUTION

protest	Expressing disagreement with something, often in public.
social class	A group of people with similar money, jobs, or status in society.
institution	An important organisation or system in society, like education.
oppression	Unfair treatment that keeps people from having equal rights.
prejudice	Judging someone unfairly before knowing them, often based on race,
romantic poetry	A type of poetry from the late 1700s and early 1800s.
persona	The character or voice the writer uses to speak in a poem or story.
refugee	A person who has to leave their country because they are in danger.
immigrant	A person who moves to another country to live there permanently.
identity	The qualities, beliefs, or characteristics that make a person or group unique.
injustice	Unfair treatment, often by an institution which holds power.
crisis	A time of intense difficulty or danger.
controversy	Prolonged public discussion or heated debate.
context	The historical or social background in which a text is written.

What will I study in this topic?

A selection of poems addressing various political and social issues such as: **climate change** and **human impact** on the environment; **immigration** and **refugees**; **governmental power** and how it impacts individuals; race and **racial prejudice**, **slavery** and its legacy.

What will I be able to do by the end of this topic?

Comment on key messages and ideas explored in a range of poems. Understand how poems relate to the specific social and historical context in which they were written. Identify a range of techniques used by poets and explain how they help to convey the writer's message.

CONTEXT: Climate Emergency (*Future Visions*)

The climate emergency is a global crisis driven by human-induced greenhouse gas emissions, causing rising temperatures, extreme weather, sea level rise, and biodiversity loss. Activists have campaigned a lot in recent years for urgent action to reduce emissions, use renewable energy, and protect ecosystems to avoid irreversible damage to the planet.

CONTEXT: Black Lives Matter

The **Black Lives Matter** protests began in the US in response to police violence and racial injustice, especially after the killing of George Floyd in 2020. Millions of people around the world marched to demand justice, equality, and an end to systemic racism, calling for real change in how Black lives are treated. A major protest was held in Bristol, UK, where the statue of Edward Colston was pulled down.

CONTEXT: William Blake

William Blake was a poet, artist, and thinker who helped shape the Romantic movement in the late 1700s. He believed in the power of imagination, emotion, and nature over reason and rules. His work challenged injustice and celebrated the power of the human spirit, inspiring future writers and artists to think freely and deeply.



SUBJECT: ENGLISH

YEAR: 9

TOPIC: PROTEST POETRY

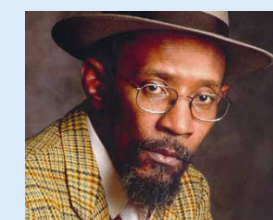
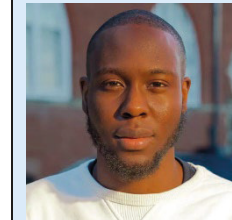
SEMESTER: I



Key Questions:	• How do poets use imagery to express ideas? • How do poets use structure effectively to convey ideas? • How do poets use different voices to explore ideas and issues? • How do poets use their own personal experiences to inspire their work? • How do protest poems reflect the social and historical contexts they are written in?
Curriculum Connections:	Protest - Protest is a key element at the heart of many of the texts we study in English. One example you studied in Year 7 is <i>A Christmas Carol</i>, in which Charles Dickens draws attention to the suffering caused by poverty and urges greater social responsibility in the wealthier classes. Another example is <i>The Blue Book of Nebo</i>, which has a strong environmental message, drawing attention to the impact of human actions on the natural world. Poetry - We studied a range of poetry in Year 8 to develop understanding of different poetic techniques and how they are used to express ideas and emotions. In this unit, we look at the same techniques but explore how language is used to make a political point.

POETIC DEVICES

Tone	The attitude or emotion expressed in a poem.
Structure	How a poem or text is organized (e.g., stanzas, rhyme, order).
Stanza	A group of lines in a poem, like a paragraph in prose.
Enjambment	When a sentence or phrase runs over from one line to the next without a pause.
Caesura	A pause in the middle of a line of poetry.
Anaphora	Repeating the same word or phrase at the start of several lines
Personification	Describing an inanimate object as though it is human
Imagery	The use of vivid visual description using a variety of methods.
Volta	A rhetorical shift or dramatic change in thought or emotion in the poem.



Caleb Femi (L) and Linton Kwesi Johnson (R) both write about the injustice suffered by young black men due to police 'stop and search' powers.

CONTEXT – Police Stop and Search Powers

Police stop and search powers in the UK have long been a contentious issue, particularly due to their disproportionate impact on young black men. In the year ending March 2023, there were 24.5 stop and searches per 1,000 Black people, compared to 5.9 per 1,000 White people. Young Black men often report feeling targeted and criminalised, which can damage relationships between police and communities.

This issue is not new. The 'sus law', which Linton Kwesi Johnson addresses in his poem 'Sonny's Lettah' was a controversial law used by police in the 1960s and 70s to stop and search anyone who looked suspicious. The sus law disproportionately affected young black men, which led to riots and widespread resentment of the police.



Civil rights protest, Washington, 1963

SUBJECT: English

YEAR: 9

TOPIC: PROTEST POETRY

SEMESTER: I



How will I be assessed?

You will write your own protest poem on a topic of your choice.
You will write an analytical essay on one of our chosen protest poems.

Every time you read a new poem, **Do the TWIST!**

T Title	W Word Choice	I Imagery	S Structure	T Tone
What does it suggest to you? What does it make you think the poem is about?	Pick out 2/3 words or phrases Why do you think they are interesting? What do they suggest to you? What type of words are they? Nouns? Powerful adjectives, verbs, adverbs?	Pick out 2-3 lines that make you picture an image in your mind. Which techniques have been used? Simile? Metaphor? Personification etc?	How is the poem laid out? How does it look on the page? Why do you think this is? Is there a rhyme or a rhythm? Why? What is the purpose?	What do you think the narrator is feeling? Does the mood change? Is there a Volta? Why do you think the poet wrote it?

Language for Essay Writing

Analytical Verbs	Shows, Suggests, Implies, Indicates, Reveals, Highlights, Illustrates, Conveys, Portrays, Demonstrates, Emphasises, Symbolises
Evaluative Adjectives	Adjectives, Crucial, Significant, Effective, Successful, Clear, Skilful, Convincing, Engaging, Thought-provoking,
Evaluative Adverbs	Significantly, Crucially

A Writing Frame for Poetry: WQSF

Writer	The writer focuses on ...
Question/Quotation	Comment on the focus of the question and use a quotation.
Significance	- What is the significance of your evidence? - What is the significance of the question focus?
Furthermore	- Can you link your ideas to the writer's intention? - Can you find further evidence in another quotation? - Can you find further meaning in a link to the context?

Further Reading and Other Resources

Books:

Travel Light, Travel Dark by John Agard (a collection of modern poems)

Songs of Innocence and Experience by William Blake (classic poems)

Websites:

Examples of Protest Poetry:

<https://www.poetryfoundation.org/collections/101581/poems-of-protest-resistance-and-empowerment>

Revising Poetic Techniques:

<https://www.bbc.co.uk/bitesize/topics/zryk8hv>

Recall Questions

1. What is a volta?
2. What does it mean to be prejudiced?
3. What did William Blake believe in?
4. Why are 'stop and search' powers still a contentious issue?
5. What does **TWIST** stand for in poetry analysis?
6. What is a caesura?
7. What is enjambment?
8. In 2020, there was a significant global protest. Why were so many people protesting?
9. What is oppression?
10. What are some of the climate problems activists are protesting against?

SUBJECT: ENGLISH

YEAR: 9



TOPIC: DYSTOPIA & POLITICAL SPEECHES

SEMESTER: I

WORD REVOLUTION

dystopia	An imaginary community or society that is undesirable or frightening .
utopia	An imaginary community or society with ideal political and social structures.
rhetoric	Effective or persuasive speaking or writing.
post-apocalyptic	The time following a catastrophic event, especially nuclear war.
oppression	Prolonged cruel or unjust treatment or exercise of authority
coercive government	A government which uses threat or force to control its citizens; restricting freedoms and autonomy.
democracy	A system of government consisting of elected representatives.
resistance	Refusal to accept or comply with something.
futuristic	Having or involving advanced or imaginary technology or design.
trope	A commonly used descriptive device used to convey ideas.
prejudice	A preconceived opinion that is not based on reason or experience.
discrimination	Unjustified treatment of a certain category of people eg. age, gender
totalitarian	A government which has a single, dominant party or leader.
propaganda	Information of a misleading nature used to promote a particular cause.

What will I study in this topic?

You will read and study a range of **dystopian texts** and explore the **typical tropes** and characters. You will then move on to study a range of **political speeches** and **rhetorical techniques** used to influence an audience.

What will I be able to do by the end of this topic?

Identify key **dystopian features** through a range of texts, understand **authors' intentions** and **develop your writing** so that it is suited to the genre and purpose. You will be able to contextualise writer's ideas and comment on historic and social issues in the past and present.

Understanding Society and Attitudes

You will explore how power is abused by rulers; how people rebel through uprisings, war and disaster; what totalitarianism is and the impact of a lack of democracy; the impact of oppressive governments; the impact of politics on society; how texts relate to today's world and the intentions and impact of writers and speakers.

People and Relationships

You will explore what community is, how this is presented in the texts and the impact of tyranny on individual and groups of people. Through dystopian literature, you will study the effects of oppression on individual people and communities and explore how hierarchies are created and how abuse of power causes human suffering.

Form, Structure and Narrative

Development of ideas through carefully structured narratives and speeches
Writer's purpose and craft (use of methods)
Impact of form, structure and language typical of the genre
Building tension using language methods
Effective characterisation
Speaker/listener perspectives
Exploration of forms: novel, short story, speech.



What is **dystopian** about this poster?

SUBJECT: ENGLISH

YEAR: 9

TOPIC: DYSTOPIA & POLITICAL SPEECHES

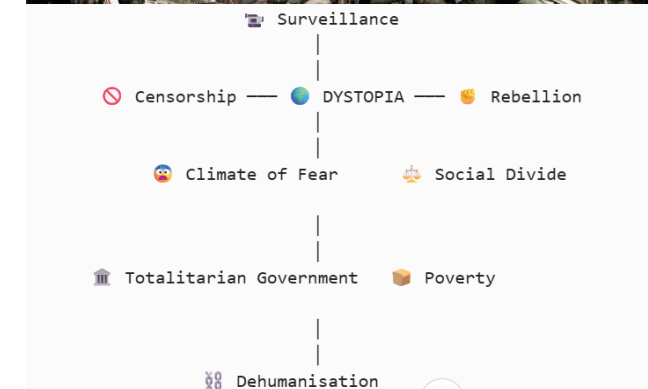
SEMESTER: I



Key Questions:	• What are the key stylistic features of a dystopian piece of writing? • How can we link the dystopias you have studied to the real world? • How do writers of dystopian texts show the divides between different communities? • How do speakers engage audiences using language, structure and rhetorical devices?
Curriculum Connections:	• Mystery stories and Creative Writing (Year 7) Understanding structural features of writing for effect and how these are used to engage the reader. • Protest Poetry- (Year 9) Understanding cultural and diverse perspectives and the struggles of marginalised people. • <i>Animal Farm</i> (Year 9) Allegorical and social commentary on democracy, inequality and its impact on society. • <i>The Blue Book of Nebo</i> (Year 8) Dystopian concepts and human struggle in the face of adversity.

Tropes in dystopian literature

Oppressive/totalitarian government	A form of government that seeks to exercise total control over all aspects of life, both public and private, often led by a dictator.
Surveillance and control	The monitoring of individuals or systems, gathering information and regulating people's behaviours.
Rebellion and resistance	Forms of challenging authority or systems: sometimes an organised uprising, which creates the conflict in dystopian stories.
Social inequality and divide	Uneven distribution of resources, opportunities and power. Disparities in income, health, wealth, social status and free will.
Suffering / poverty	The oppressed public have no control over their lives or wealth, which leads to human suffering.
Censorship	Suppression or prohibition of speech, public communication or writing.
Climate of fear	A pervasive atmosphere of anxiety and apprehension, often created by leadership that negatively impacts human beings in society.
Dehumanisation / violation of human rights	Depriving a person or group of their human qualities, personality or dignity to make them feel degraded or inhuman.



SUBJECT: ENGLISH

YEAR: 9

TOPIC: DYSTOPIA & POLITICAL SPEECHES

SEMESTER: I



Aristotle's Rhetorical Appeals:

Ethos: The Ethical Argument	Pathos: The Emotional Argument	Logos: the Logical Argument
A mode of persuasion that convinces an audience of the credibility of the producer.	A mode of persuasion that appeals to an audience's emotions.	A mode of persuasion that convinces an audience by use of evidence, logic or reasoning.

Examples of Famous Speeches:

Steve Jobs (2005): Ethos	Martin Luther King Jnr (1963): Pathos	Sojourner Truth (1851): Logos
'Woz and I started Apple in my parent's garage when I was 20. We worked hard, and in 10 years Apple had grown from just the two of us in a garage into a \$2billion company with over 4000 employees.	I am not unmindful that some of you have come here out of great trials and tribulations. Some of you have come fresh from narrow jail cells. Your quest for freedom has left some of you battered by the storms of persecution and staggered by the winds of police brutality.	That man over there says that women need to be helped into carriages, and lifted over ditches, and to have the best place everywhere. Nobody ever helps me into carriages, or over mud-puddles, or gives me any best place! And ain't I a woman? Look at me! Look at my arm! I have ploughed and planted, and gathered into barns, and no man could head me! And ain't I a woman?

D	Direct address including personal pronouns
A	Alliteration and Anecdotes
F	Facts
O	Opinions
R	Rhetorical questions
R	Repetition
E	Emotive Language
S	Similes
T	Tripling

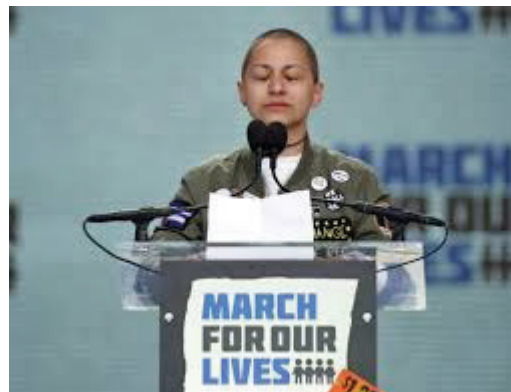
Martin Luther King Jnr 1963

'I have a dream'



X Gonzales 2017

'The guns have changed but our laws have not'



Greta Thunberg 2019

'How dare you?'



SUBJECT: ENGLISH

YEAR: 9

TOPIC: DYSTOPIA & POLITICAL SPEECHES

SEMESTER: I



How will I be assessed?

READING: Analysis of an extract from a dystopian novel

WRITING: A dystopian description

End of unit:

WRITING: Write and perform a speech to express a point of view/perspective

An Example of a Dystopian Description: what techniques can you find?

The sky was a permanent shade of ash, choked by the smog that billowed endlessly from the towering factories lining the city's edge. Streets once vibrant with life were now cracked and silent, patrolled by faceless enforcers in black armour, their boots echoing like gunshots in the stillness. Billboards flickered with state propaganda—smiling faces and hollow slogans—while drones buzzed overhead, scanning every passerby for signs of dissent.

The people moved like shadows, eyes downcast, their identities reduced to barcodes etched into their wrists. Beyond the city walls, the wastelands stretched endlessly—scorched earth and skeletal remains of a world that had long since burned. Hope was a forgotten word, whispered only in the darkest corners where the resistance dared to dream.

Dystopian Protagonists and Antagonists

Protagonists	Feel trapped and isolated and therefore seek to escape and change.	Question authority and systems and have an inquisitive nature.	Even if they conform, they have a rebellious streak.
Antagonists	A dominant authority who is ruthless and uncompromising.	Manipulative and uses propaganda to control the masses.	Often serve as a foil to the protagonist.

Political Soundbites

Political soundbites can be catchy, memorable, informative, empowering and essential in providing effective messaging to the public. They tend to employ techniques such as alliteration or imperatives and are repeated often.	'Take back control.' UK Leave campaign (Brexit) 'For the many, not the few.' UK Labour Party 'Labour isn't working' UK Conservative party 'War on terror' George W Bush, 2001 'Make America great again.' Donald Trump
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Further Reading

The Hunger Games – Suzanne Collins (2008)
1984 – George Orwell (1949)
Divergent – Veronica Roth (2011)
Brave New World – Aldous Huxley (1932)
Lord of the Flies – William Golding (1954)
Legend – Marie Lu (2011)
The Maze Runner – James Dashner (2009)
Matched – Ally Condie (2010)
The Grace Year – Kim Liggett (2019)

Recall Questions

1. What is a dystopia?
2. Name three tropes of a dystopian novel.
3. Name three tropes of a dystopian protagonist.
4. Name three tropes of a dystopian antagonist.
5. How is propaganda used in dystopias?
6. Give 3 examples of well-known dystopian novels.
7. Give an example of how a dystopia could reflect real life issues.
8. What techniques are employed in a political soundbite?
9. What did Aristotle mean by an 'ethical' argument?
10. What is a climate of fear?

SUBJECT: Maths

YEAR: 9



TOPIC: Number I

SEMESTER: I

WORD REVOLUTION

Percentage	Per-cent means "out of one hundred". A percentage is part of an amount.
Reverse	The process of doing something backwards. You will look here at reverse percentages.
Change	The process of making something different. Here you will find the percentage change.
Interest	When extra money is given to you when you invest, or money you pay if you borrow.

What will I study in this topic?

You will recap work you did last year on finding percentages and fractions of amounts. You will learn how to find the original value or the percentage something has changed by. You will also learn about simple interest and how you can calculate this.

What will I be able to do by the end of this topic?

- Find, increase or decrease by a give percentage or fraction
- Find the original value following a percentage change
- Find the percentage a value has either increased or decreased by
- Be able to calculate the interest given to you when you invest money

Percentages and Fractions Recap

Find 27% of £360

10% of £360 = £36 so 20% = £72 1% = £3.60 so 7% = £25.20
Hence, 27% of £360 = £72 + £25.20 = **£97.20**

With a calculator you can simply so $360 \times 0.27 = £97.20$

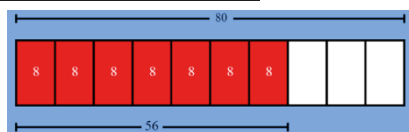


Increase £360 by 27% = $360 + 97.20 = £457.20$
Or with a calculator: $360 \times 1.27 = £457.20$

Decrease £360 by 27% = $360 - 97.20 = £262.80$
Or with a calculator: $360 \times 0.73 = £262.80$

Finding fractions of an amount

Eg Find $\frac{7}{10}$ of 80



Dividing 80 by 10, finds one tenth of 80, shown here with all the boxes. Then multiply by 7 (the red boxes). So, the correct answer is 56.

Finding the original amount (non-calc)

A snack bar now weighs 20% more than previously. It now weighs 72 g. How much did it weigh before?

So, the bar now weighs 120% of what it did before. You need to find 100% using the method shown here.

Diagram showing the relationship between percentages and weights:

- 120% = 72 g
- 10% = 6 g
- 100% = 60 g

Arrows indicate the calculations: $72 \div 1.2 = 60$ and $60 \times 1.2 = 72$.

Finding the original amount (calc method)

A snack bar now weighs 20% more than previously. It now weighs 72 g. How much did it weigh before?

So, $\text{_____} \times 1.2 = 72$

Here we are saying that there was a value that the bar weighed before, which when multiplied by 1.2 (to increase by 20%) gives us 72 grams
Hence $72 \div 1.2 = 60$

Finding the percentage change

Percentage change = $\frac{\text{Change}}{\text{Original}} \times 100$

So, to work out the percentage change here the calculation is:

$$\frac{26850 - 24702}{24702} \times 100 = \frac{2148}{24702} \times 100 = 8\%$$



Year	Population
2000	26 850
2005	24 702

Simple Interest

£1400 is put into an account. It gathers **simple interest** at a rate of 7% per year.

a) How much money is added to the account each year?

b) How much money will be in the account after two years?

Answers: a) Find 7% of £1400 (= **£98**)

b) £98 is paid every year, so in two years the interest is £196. $£1400 + £196 = £1596$

SUBJECT: Maths

YEAR: 9



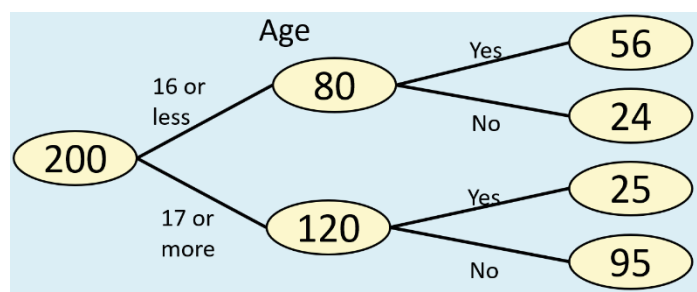
TOPIC: Statistics/Number

SEMESTER: I

WORD REVOLUTION

Probability	The chance of something happening or not happening
Theoretical Probability	The likelihood of an event happening, found by using equally likely outcomes.
Experimental Probability	The likelihood of an event occurring based on the results of an experiment.
Standard Form	An abbreviated way of writing a very large or very small number.
Frequency	How often something happens or how many people do a certain thing

Frequency Trees



A frequency tree like the one above gives information about how many people fall into different categories. For example here, there are 200 people in total, of which 80 are 16 years old or less and 120 are 17 or more. Of the younger people, 56 said yes to whether they liked sweets and 24 said no. A person is chosen at random. What is probability they do not like sweets? There are 119 people who said they did not like sweets so the probability is $\frac{119}{200}$

What will I study in this topic?

You will learn how to calculate the probability of an event happening by considering equally likely outcomes. You will also find probability by looking at the results of experiments. You will draw and use frequency trees and calculate with standard form.

What will I be able to do by the end of this topic?

- You will calculate probabilities based on logic and reasoning, but also based on the results of experiments
- You will be able to draw a frequency tree and use it to calculate probabilities.
- You will add, subtract, multiply and divide numbers written in standard form and know how to use a calculator to do this.

Experimental Probability

A bowl contains lots of beads in the colours below. To estimate the probability of obtaining a colour we can use a frequency table. The experimental probability of obtaining green is

$$\frac{5}{25} = \frac{1}{5}$$

Colour	Green	Purple	Black	Yellow
Frequency	5	4	10	6

Standard Form Calculations 2

Work out $(4.9 \times 10^{-8}) \times (8.8 \times 10^2)$
Give your answer in standard form.

$4.9 \times 8.8 = 43.12$ $10^{-8} \times 10^2 = 10^{-6}$
So the answer is 43.12×10^{-6}
(Not in standard form, so divide 43.12 by 10 and
Multiply 10^{-6} by 10) Answer = 4.312×10^{-5}

Standard Form Calculations 1

When adding or subtracting numbers in standard form, it is best to write in ordinary form first.

Work out $4.3 \times 10^4 + 2 \times 10^3$
Give your answer in standard form.

$$4.3 \times 10^4 = 43000 \quad 2 \times 10^3 = 2000$$
$$43000 + 2000 = 45000$$

So final answer in standard form is 4.5×10^4
Look how close this is to the first given number

Standard Form on a Calculator

You can use your calculator to perform standard form calculations. To enter the number 3.71×10^4 , simply type in 3.71, followed by that button, and then the number 4.



SUBJECT: Maths

YEAR: 9



TOPIC: Algebra I

SEMESTER: I

WORD REVOLUTION

Inequality	An inequality is used when we don't know exactly what an expression is equal to.
Quadratic	An expression or equation where the highest power of the unknown is 2
Factorise	The process of writing an expression as a product of factors, usually back into brackets
Formula	(Plural Formulae) – A mathematical rule or relationship including unknown values
Rearrange	Move things around. In this context, make an unknown the subject of the formula

What will I study in this topic?

You will learn what the inequality signs are and how we can write and solve an inequality. You will also learn how to factorise a quadratic expression and use it solve an equation. Finally, how to rearrange the subject of a formula.

What will I be able to do by the end of this topic?

- Recognise and describe each of the inequality signs
- Factorise quadratic expressions where the value in front of x^2 is one
- Solve a quadratic equation by first factorising it
- Rearrange a formula so that one of the other unknowns is the "subject of the formula"

Rearranging Formulae

REARRANGE THIS

$$x = \frac{y + 2}{6} \rightarrow y = ?$$

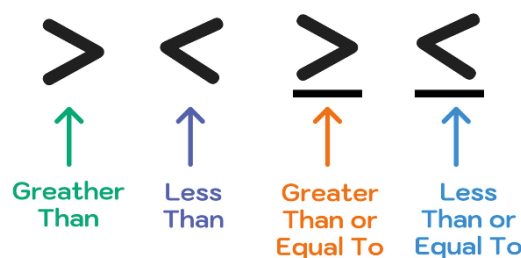
To rearrange a formula means to change the subject so that a different unknown appears left of the equals sign.

In the example above we need to rearrange it so that y is the subject. You do this in the same way you solve equations. So here, first multiply both sides by 6 to give $6x = y + 2$. Then subtract 2 from both sides and swap things around the equals sign to leave you with:

$$y = 6x - 2$$

Inequality Signs

Inequality Symbols



Solving inequalities

You can solve inequalities in the same way you solve equations, making sure the inequality sign is there throughout your working.

E.g. Solve $2x + 2 \leq 14$

$$\begin{array}{r} 2x + 2 \leq 14 \\ -2 \quad -2 \\ \hline 2x \leq 12 \\ \frac{2}{2} \quad \frac{12}{2} \\ \hline x \leq 6 \end{array}$$

Subtract 2 from both sides, then divide both sides by 2. The answer means "if x is less than or equal to 6, then $2x+2$ will be less than or equal to 14."

Factorising Quadratic Expressions

Factorise:

$$x^2 + 2x - 8$$

We need to put this into double brackets. Remember to list pairs of numbers that multiply to make -8, and look for the pair with a sum of 2. The only pair this works for is 4 and -2. So the answer is $(x+4)(x-2)$

+8, -1	+4, -2 ✓
-8, +1	-4, +2

Solving Quadratic Equations

Solve:

$$x^2 + 2x - 8 = 0$$

In the box on the left we factorised this so we now solve: $(x + 4)(x - 2) = 0$

This is two things multiplied together to give zero. The only way that can happen is if either $(x+4) = 0$ or $(x-2) = 0$ so $x = -4$ or $x = 2$

SUBJECT: Maths

YEAR: 9



TOPIC: Geometry I

SEMESTER: I

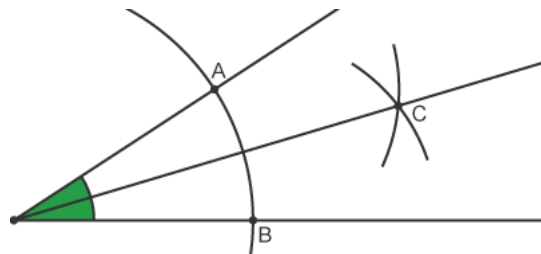
WORD REVOLUTION

Construction	A drawing using mathematical equipment
Sector	Part of a circle bounded by two radii and an arc
Arc	Part of the circumference of a circle
Cylinder	A 3D shape like a prism, it has a circle as its cross-section
Surface Area	The area of all the faces of a 3D shape added together
Volume	The amount of space inside a 3d shape

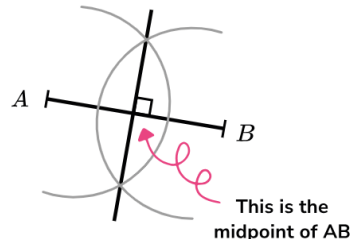
Constructions

We can draw constructions such as bisectors using compasses.

Angle Bisector:



Perpendicular Bisector of a line:



What will I study in this topic?

You will learn how to construct bisectors of angles and lines using compasses and rulers. You will also learn how to find the arc length of a sector and its area. Finally, you will calculate the total surface area and volume of a cylinder

What will I be able to do by the end of this topic?

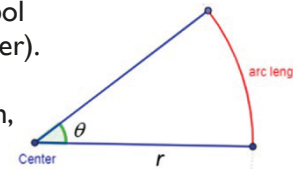
- Construct bisectors of angles and lines
- Calculate the arc length and area of a sector
- Calculate the surface area and volume of a cylinder

Arc Length

Here, the angle symbol is theta (a Greek letter).

To find the arc length, multiply the proportion of the whole circle by the whole circumference. If θ is measured in degrees then

$$\text{arc length} = \frac{\theta}{360^\circ} \times 2\pi r$$



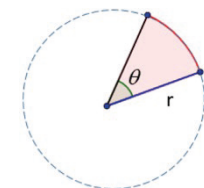
Area of a Sector

The formula for the area of the sector works in the same way as the arc length.

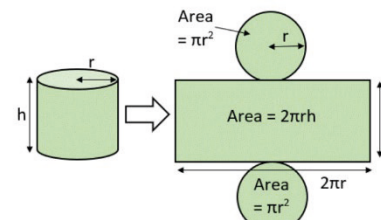
But this time use the area of the circle in the formula.

If θ is measured in degrees then

$$\text{area of sector} = \frac{\theta}{360^\circ} \times \pi r^2$$

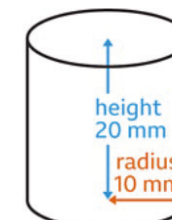


Surface Area of a Cylinder



The net of a cylinder consists of two circles and a rectangle with length $2\pi r$ (the circumference). So, the surface area is $2\pi r^2 + 2\pi rh$

Volume of a Cylinder



$$\begin{aligned} V &= \pi r^2 h \\ &= \pi \times 10^2 \times 20 \\ &= 3.142 \times 10^2 \times 20 \\ &= 6284 \end{aligned}$$

$$\text{Volume} = 6284 \text{ mm}^3$$

As a cylinder is very much like a prism we can use the formula:

Volume = area of cross-section $\times$ length



WORD REVOLUTION

Plan	In the context of 3D shapes, this refers to what you can see when you look from above
Elevation	In the same way, this means what you see when you look from the front or side
Hypotenuse	The longest side of a right-angled triangle – always opposite the right angle
Pythagoras Theorem	A theorem discovered by a Greek mathematician and philosopher

What will I study in this topic?

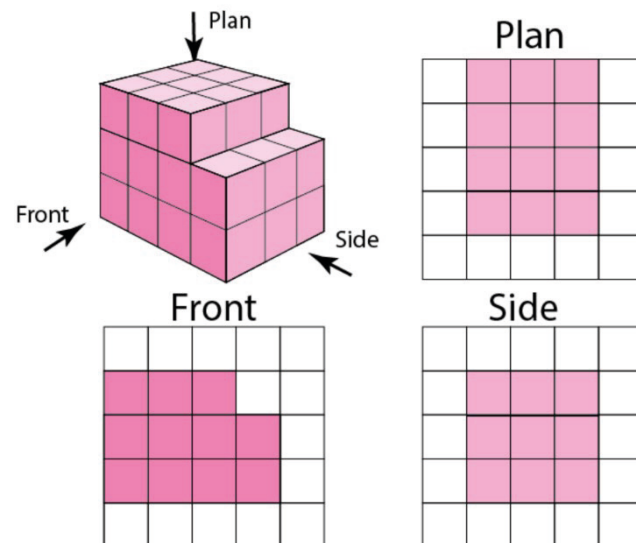
You will learn how to draw plans and elevations of shapes, in other words what the shape looks like from above and from the side. You will also use Pythagoras' Theorem involving right angled triangles.

What will I be able to do by the end of this topic?

- Draw the plan or elevation of a 3D shape
- Find the Hypotenuse of a right-angled triangle using Pythagoras' Theorem when given the other two sides
- Find another side length other than the Hypotenuse
- Use Pythagoras Theorem to solve problems in two-dimensions

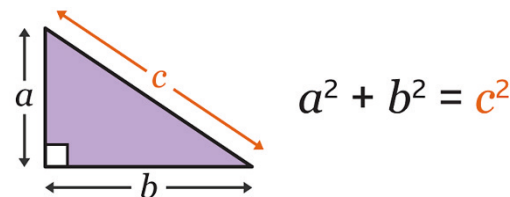
Plans and Elevations

You can draw plans and elevations of 3D shapes in 2D. Just imagine you were holding the solid shape in front of you – what shapes would you be able to see?



Pythagoras' Theorem

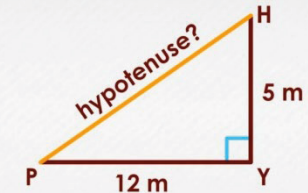
The Hypotenuse is the side opposite the right angle. It is the longest side in a right-angled triangle. The theorem stated the following:



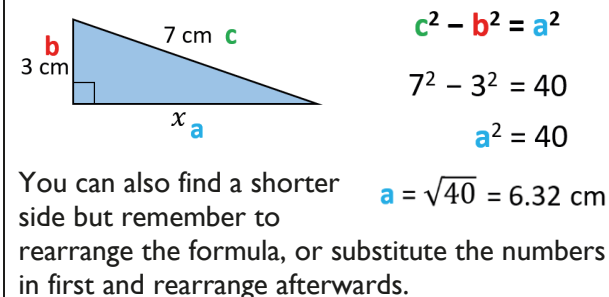
Finding the Hypotenuse

You can use the theorem to find any side length provided you know the other two.

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 5^2 + 12^2 &= c^2 \\ 25 + 144 &= c^2 \\ 169 &= c^2 \\ \sqrt{169} &= c \\ c &= 13 \end{aligned}$$

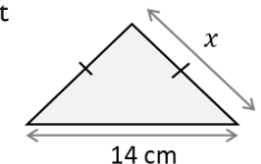


Finding a Shorter Side



Problem Solving

Sometimes Pythagoras is not obvious. Imagine here we were told the area was 84cm² and we had to find x. First split the shape right down the middle to create two right-angled triangles. Using the area of a triangle formula you can calculate that the perpendicular height is 12cm. From this you can use Pythagoras to find the missing side length x.



SUBJECT: Maths

YEAR: 9



TOPIC: Ratio & Proportion I

SEMESTER: I

WORD REVOLUTION

Ratio	A proportional relationship between two or more amounts
Simplify	The process of making something simpler, here you make the numbers in a ratio smaller.
Direct Proportion	Increase or decrease together at the same rate with a constant ratio.
Inverse Proportion	A relationship such that as one quantity increases, the other decreases.
Currency Conversion	When we change between two countries currency using an exchange rate

What will I study in this topic?

You will be reminded how to simplify a ratio and share a quantity in a given ratio. You will then solve direct and inverse proportion problems and finally look at exchange rates and how we can convert between two different currencies.

What will I be able to do by the end of this topic?

- Understand the difference between direct and inverse proportion and be able to solve worded problems involving the two.
- Convert between two currencies using an exchange rate

Currency Conversions

Exchange Rates are Used to see what Each currency is Worth compared To others. In this Table we can see £1 is equivalent to \$1.36. These can fluctuate day by day.

British Pound	1.00 GBP
US Dollar	1.360001
Euro	1.159490
Indian Rupee	116.523332
Australian Dollar	2.071437
Canadian Dollar	1.859423

Use the exchange rate $\pounds 1 = \text{€}1.21$ to work out
a) how much $\pounds 80$ is worth in euros.

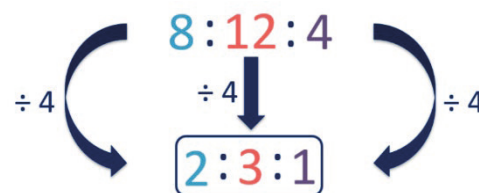
Each pound is worth $\text{€}1.21$ so $\pounds 80 = \pounds 80 \times 1.21 = \text{€}96.80$

b) how much $\text{€}38.72$ is worth in pounds.

This time we are working with the exchange rate but backwards, like when you return from holiday and exchange currency back into pounds. This time we have to divide.

So, $\text{€}38.72 \div 1.21 = \pounds 32.00$

Simplifying Ratios (recap)



To simplify a ratio, divide each value in the ratio by the same amount (the Highest Common Factor of all the values).

Sharing in a given ratio (recap)

Eg Bob and Betty share $\pounds 20$ in the ratio 3:2

You can use a bar-model to help you share



Bob's share

Betty's share

$\frac{3}{5}$ of $\pounds 20 = \pounds 12$

$\frac{2}{5}$ of $\pounds 20 = \pounds 8$

Direct Proportion

10 identical plants cost $\pounds 60$ in total.
How much would 7 of the plants cost?

This is a direct proportion question because first the cost increases, as the number of plants you buy increases, but also because it costs you zero pounds to zero plants. Use the unitary method here to first discover it costs $\pounds 6$ per plant, found by dividing 60 by 10. So, 7 plants costs $7 \times 6 = \pounds 42$

Inverse Proportion

It takes 20 hours for 4 people to build a wall.
How long would it take 5 people to build the same wall?

This is an inverse proportion question. We are increasing the number of workers, so the time it takes decreases. Again, use the unitary method to find how long it would take 1 person, but this time multiply 20 by 4 to give 80 hours. So, 5 people would take $80 \div 5 = 16$ hours



WORD REVOLUTION

Mitochondria	Where respiration occurs in cells, which releases energy
Ribosomes	Where proteins are made in cells
Differentiation	When a cell has specific features that allows it to do a particular job
Eukaryotic cell	A cell that has a clear defined nucleus e.g. animal and plant
Prokaryotic cell	A cell that does not have a clear defined nucleus e.g. bacteria
Enzyme	A biological catalyst
Amino acid	Small molecules that are the building blocks of proteins
Catalyst	A substance that speeds up chemical reactions e.g. digestive enzymes
Antigen	Any substance that causes an immune response in the body
Antibody	Protein produced by white blood cells to attack pathogens
Communicable disease	Diseases that are infectious e.g. COVID
Non-communicable disease	Diseases that are not infectious e.g. cancer
Phagocytosis	When white blood cells ingest antigens

What will I study in this topic?

The differences between eukaryotes and prokaryotes.
The role of enzymes in the digestive system.
How disease spreads and how this transmission can be prevented.
How aerobic and anaerobic respiration supply the body with energy.

What will I be able to do by the end of this topic?

State the function of each organelle in a prokaryote and eukaryote and describe how stem cells differentiate.
To label and give the functions of each digestive organ including how an enzyme catalyses reactions.
Describe the differences between viruses, bacteria, fungi and protists.
Describe the process of aerobic and anaerobic respiration in humans and in yeast and explain its importance.

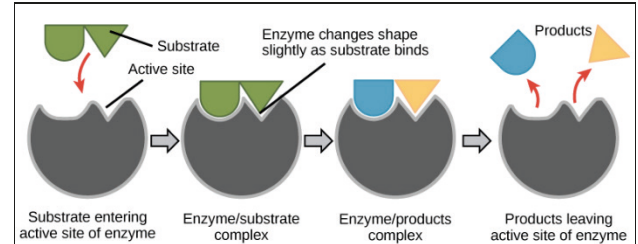
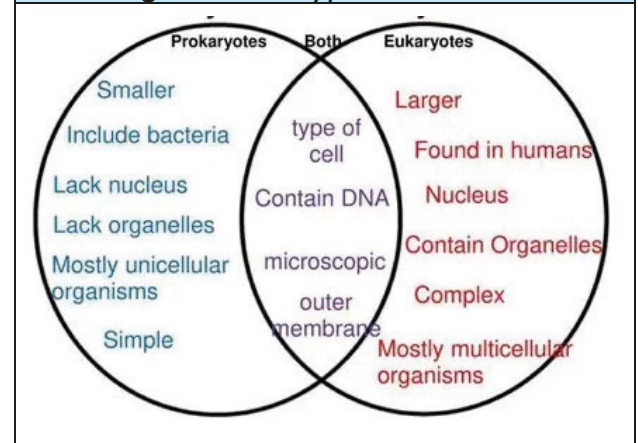
Digestive Enzymes:

- **Mouth (Salivary Glands):**
Produce amylase, an enzyme that begins the digestion of carbohydrates.
- **Stomach:**
Releases protease that starts the breakdown of proteins.
- **Pancreas:**
Produces amylase, protease, and lipase, released into the small intestine to further digest carbohydrates, proteins, and lipids.
- **Small Intestine:**
Also produces amylase, protease, and lipase, to breakdown more of these macronutrients.

Enzyme action:

They achieve this by lowering the activation energy needed for a reaction to occur. Enzymes are highly specific, meaning each enzyme typically acts on a specific substrate due to the complementary shape of the enzyme's active site and the substrate.

Venn diagram of cell types:



SUBJECT: Biology

TOPIC: Paper 1 Topics

YEAR: 9

SEMESTER: I



Key Questions:	What is the differences between eukaryotes and prokaryotes? How do we digest food? What are the differences between viruses, bacteria, fungi and protists?
Curriculum Connections:	Past: Year 7 – Microscopes, Plant and Animal Cells. Year 8 - Enzymes and Digestion, Structure of cells, Respiration. Future: Year 10 – Adaptation of cell membranes, root hairs and villi. The functions of blood vessels and the structure of blood. The benefits and disadvantages of vaccination against disease. The ideal conditions for photosynthesis – linked to limiting factors.

Types of pathogens:
Viruses, bacteria, fungi, and protists are all microorganisms, but they differ significantly in their structure, how they reproduce, and how they interact with other organisms. All types of pathogen have a simple life cycle. They infect a host, reproduce themselves or replicate if it is a virus, spread from their host and infect other organisms. They also all have structural adaptations that make them successful at completing their life cycles, which enable them to cause further disease. • Viruses are non-living particles that require a host cell to reproduce, while bacteria, fungi, and protists are living cells. • Bacteria are prokaryotes, while fungi and protists are eukaryotes, with fungi having cell walls made of chitin and protists exhibiting a wide range of characteristics.

Examples of pathogens in animals and plants			
• Bacteria • Salmonella • Gonorrhoea		• Fungi • Rose black spot	
• Virus • Measles • HIV • Tobacco mosaic virus		• Protists • Malaria	

Aerobic and anaerobic respiration:
The equation for aerobic respiration is: glucose + oxygen → carbon dioxide + water + energy released $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + \text{energy released}$ Respiration is a series of reactions, but this summarises the overall process. Respiration occurs in the mitochondria. Most organisms cannot respire without oxygen but some organisms and tissues can continue to respire if the oxygen runs out. These organisms and tissues use the process of anaerobic respiration. The glucose in muscle is converted to lactic acid: glucose → lactic acid + energy released Some plants, and some <i>fungi</i> such as yeast can respire anaerobically – it's preferable to release less energy but remain alive. Glucose in yeast cells is converted to carbon dioxide and <i>ethanol</i> , which we refer to simply as 'alcohol': glucose → ethanol + carbon dioxide + energy released Anaerobic respiration occurs only in the cytoplasm of cells.

Food Testing					
	Starch	1.) Add the iodine solution directly to the substance to be tested (in solid or liquid form) and look for a colour change.	Turns blue black with starch		Protein
				1.) Add Biuret's to the solution/suspension to be tested and look for a colour change.	Turns purple with protein
	Reducing Sugar	1.) Add Benedict's to the solution/suspension to be tested. 2.) Heat for 2 mins in a water bath at boiling point and look for a colour change.	Turns brick red with reducing sugars (green/yellow/orange if less sugar present)		Lipid (known as the Emulsion test)
				1.) Add ethanol to the solution/suspension to be tested and shake thoroughly. 2.) Then add water and look for a colour change.	Turns cloudy/milky with lipid

SUBJECT: Chemistry

YEAR: 9



TOPIC: Atomic structure + Chemistry of the atmosphere

SEMESTER: I

WORD REVOLUTION

Solute	The substance dissolved in the solvent
Solvent	The liquid used to dissolve the solute
Distillation	A separation technique involving evaporation and condensation
Crystallisation	Separation technique where solid crystals are formed
Isotopes	An atom with the same number of protons but a different number of neutrons
Relative Atomic Mass	The average mass numbers of an elements' isotopes
Atmosphere	The layer of gases surrounding the Earth, held in place by gravity
Combustion	Reacting with oxygen (burning)
Greenhouse Gases	Gases that trap thermal radiation from the sun
Pollutants	A substance that causes harm to the environment when released
Photosynthesis	A process where plants use light energy, typically from the sun, to convert carbon dioxide and water into glucose and oxygen
Carbon Footprint	Measure of the total amount of carbon dioxide and other greenhouse gases that are released over the full life cycle of a product, service or event.

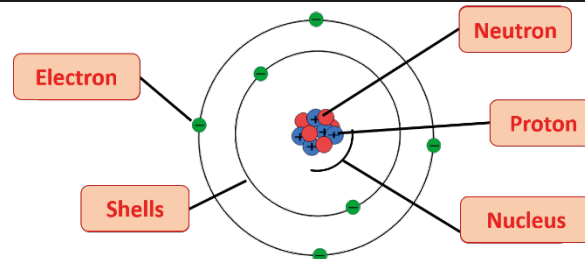
What will I study in this topic?

The makeup of atoms, isotopes and relative atomic mass.
How the atmosphere has changed
How human activities are causing climate change

What will I be able to do by the end of this topic?

- Identify atoms, elements, compounds and mixtures by their particle diagrams
- State the masses and charges of an atom
- Calculate numbers of sub-atomic particles in given data
- Calculate relative atomic mass
- State the composition of the Earth's atmosphere today
- Describe the changes in the atmosphere over last 4.6 billion years
- State ways carbon dioxide levels decreased, and oxygen levels increased
- Describe how the greenhouse effect works

Atomic Structure

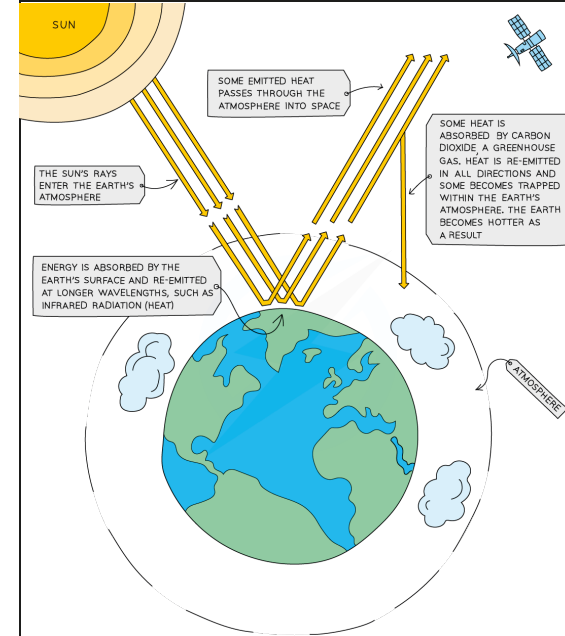


Sub-atomic particle	Mass	Charge
Proton	1	+1
Neutron	1	0
Electron	Very Small	-1

Greenhouse gases:

- Water vapour – From the evaporation of oceans and combustion
- Carbon dioxide – From combustion of fuels
- Methane – From animal farming and rice farming
- Nitrous oxides – nitrogen cycle and agriculture

Greenhouse Effect:



SUBJECT: Chemistry

YEAR: 9

TOPIC: Atomic structure + Chemistry of the atmosphere

SEMESTER: I



Key Questions:	How are certain objects separated – which technique would work best and why? How many protons, electrons and neutrons are in ____? What is the relative atomic mass of ____? How do greenhouse gases contribute to global warming? How has the Earth's atmosphere changed over time?
Curriculum Connections:	Past: Year 7 separation techniques. Year 8 atmosphere topic. Future: Year 10 Atomic models and the periodic table development. Year 10: Alternative fuels and sustainability.

How to calculate relative atomic mass:

The relative atomic mass of an element is calculated by averaging the mass numbers of its isotopes, weighted by their natural abundances:

Example: We want to work out the average mass of the element carbon

Step 1: Pair the numbers for each isotope

Step 2: Multiply the abundance by the mass

Step 3: Add up the numbers from step 2

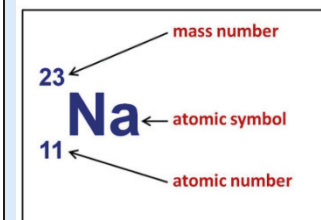
Step 4: Add up the abundance in total

Step 5: Divide step 3 by step 4 for the final answer

Isotope	Abundance	Mass	
Carbon-12	90	12	1080
Carbon-13	6	13	78
Carbon-14	4	14	56
	100		1214

$$\text{Answer} = \frac{1214}{100} = 12.14$$

How to work out how many protons, neutrons and electrons are in an atom using the periodic table



Using **mass** number and **atomic** number we can **calculate** the number of protons, neutrons and electrons in **any** atom.

protons = atomic no.

electrons = atomic no.

neutrons = mass - atomic

Changes in the atmosphere:

The Earth's atmosphere has changed significantly since its formation.

Early in Earth's history, the atmosphere was primarily composed of carbon dioxide, with much smaller amounts of nitrogen and oxygen.

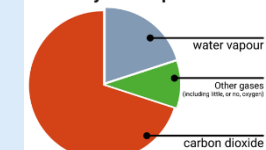
Over time, volcanic activity released gases like water vapor, which condensed to form oceans.

When life evolved on Earth, the proportion of oxygen increased due to photosynthesis by early life forms.

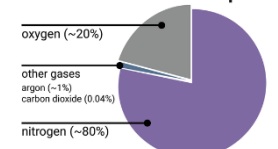
Today, the atmosphere is predominantly nitrogen and oxygen, with trace amounts of other gases like argon and carbon dioxide. Burning fossil fuels has increased the amount of carbon dioxide in the atmosphere, leading to concerns about climate change.

Pie charts are to represent the changes in the Earth's atmosphere over 4 billion years

The Early Atmosphere



The Current Atmosphere



SUBJECT: Physics

YEAR: 9



TOPIC: Paper 1 Topics

SEMESTER: I

WORD REVOLUTION

Transformer	Can increase (step up) or decrease (step down) potential difference
Efficiency	How good something is at its job. (Useful energy out/Total energy in)
Evaporation	Liquid to Gas
Condensation	Gas to Liquid
Sublimation	Solid to Gas
Arrangement	How the particles are positioned
Potential difference	Measured in volts - the energy transferred between two points
Resistance	Measured in Ohms - how difficult it is for an electric current to flow
Isotope	An atom with the same number of protons but a different number of neutrons
Ionising power	Cancer causing ability
Penetrating power	Ability to pass through materials
Radioactive decay	The release of radiation to go from an unstable nucleus to a stable one
Ionising radiation	The release of alpha, beta or gamma radiation from an unstable atom

What will I study in these topics?

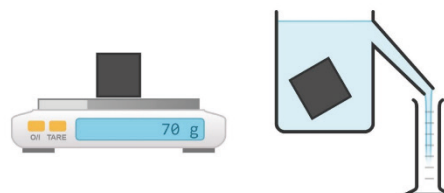
Transfer of energy and the national grid
Density of materials and link structure to other properties
Difference between series and parallel
What radioactive decay is

What will I be able to do by the end of this topic?

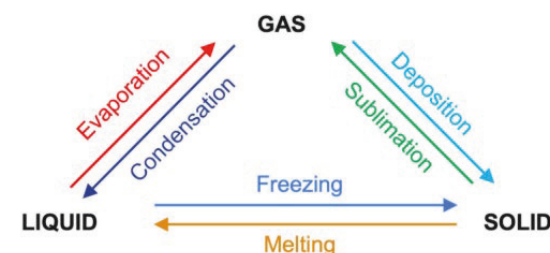
Describe how energy can be usefully transferred between stores.
To appreciate how the arrangement of particles affects the density of a substance and its state of matter.
Construct, draw and describe basic properties found in a circuit.
Describe how our understanding of the atom has changed over time and how nuclear radiation is produced.

Using a Eureka can:

Investigating Density

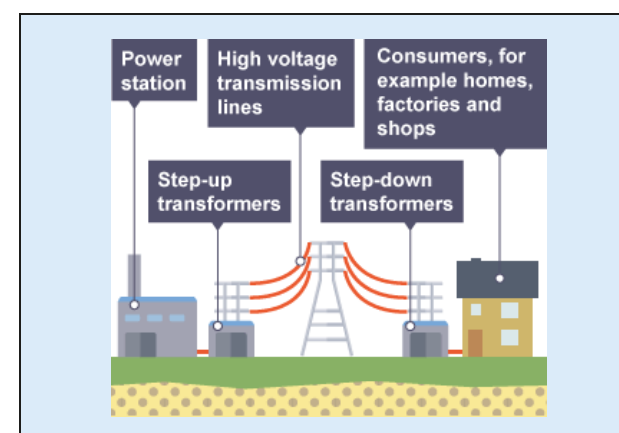


Changes of state:



National grid:

To move power around the National Grid (the country):
Before electrical power leaves a power station – it is transferred at high voltages by using 'step-up' transformers to increase the voltage to around 275,000 V. This is done to reduce energy loss through heat and make the process more efficient.
Before electrical power enters homes and factories – the voltages are decreased by 'step-down' transformers to 230 V.



SUBJECT: Physics

YEAR: 9

TOPIC: Paper I Topics

SEMESTER: I



Key Questions:	Why do we need step-up transformer? What methods can you use to measure the density of an object? How can you tell if a radioactive source is alpha, beta or gamma?
Curriculum Connections:	Past: Year 7 energy stores. Year 8 density calculations. Year 7 circuits. Year 8 Chemistry of atoms Present: Year 9 Chemistry of atomic model and isotopes. Future: Specific Heat Capacity in Year 10. Nuclear Physics in Year 13.

Radioactive decay:

- **Alpha (α) radiation:**

Consists of alpha particles, which are essentially helium nuclei (two protons and two neutrons). Alpha particles are relatively heavy and slow-moving compared to other types of radiation. They are the least penetrating and can be stopped by a sheet of paper or even clothing.

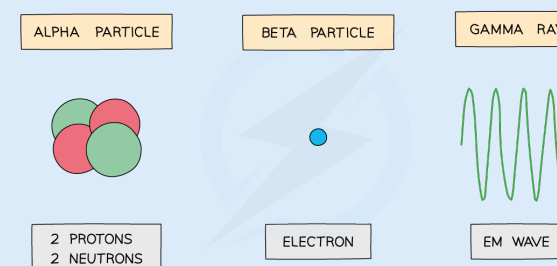
- **Beta (β) radiation:**

Involves the emission of either electrons (beta-minus, β^-) or positrons (beta-plus, β^+) from the nucleus. Beta particles are much smaller and faster than alpha particles. They can penetrate paper but are stopped by a thin sheet of aluminum.

- **Gamma (γ) radiation:**

Consists of high-energy electromagnetic waves, not particles. Gamma radiation is the most penetrating of the three and requires thick shielding like lead or concrete to be stopped.

This is a description of the 3 types of radiation and what they actually are:



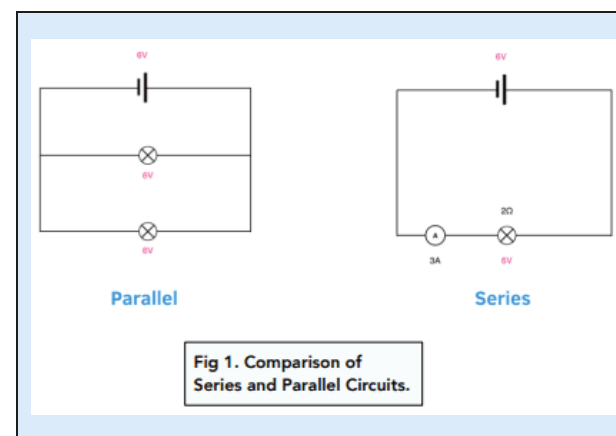
Circuit rules:

In series circuits, components are connected end-to-end (1 loop of wire), forming a single path for current flow.

- The current is the same through all components
- The potential difference is that the total voltage of the power supply is shared between the components
- The total resistance is the sum of individual resistances added together.

In parallel circuits, components are connected on separate branches (2 or more loops of wire), allowing current to split.

- The potential difference (voltage) is the same across each branch
- The current splits when the wires split at the branches.
- The total resistance decreases as more branches are added.



SUBJECT: Science

YEAR: 9

TOPIC: Semester I

SEMESTER: I



How will I be assessed?

Within class you will have low stakes testing, mini whiteboard work and quick 6 starters every lesson so your teacher can see your understanding of the topic work as well as if you can remember and recall information from previous lessons.

After semester I you will complete 3 assessments – 1 in each subject (Biology – green book, Chemistry – red book and Physics – blue book) – within these assessments there will be questions based on the science content and skills from all semester I topics.

Typical energy stores to remember:

Kinetic Energy: The energy an object possesses due to its motion. The faster it moves or the more massive it is, the more kinetic energy it has.

Gravitational Potential Energy: Energy stored by an object due to its position in a gravitational field (e.g., height above the ground).

Elastic Potential Energy: Energy stored in a stretched or compressed object (e.g., a spring or rubber band).

Chemical Energy: Energy stored in the bonds between atoms and molecules. This is released during chemical reactions like burning fuel or in a battery.

Thermal Energy: The total kinetic energy of the particles within a substance. It's often referred to as heat.

Nuclear Energy: Energy stored within the nucleus of an atom, released during nuclear reactions like fission or fusion.

These energy types can be converted from one form to another, such as potential energy converting to kinetic energy (a ball rolling down a hill) or chemical energy converting to heat and light (burning wood).

Extra Nuggets!

- **Mechanical:**

Energy is transferred through forces, like when a force moves an object over a distance. For example, a person pushing a box, or a ball rolling across the floor.

- **Electrical:**

Energy is transferred by moving charges, like in an electric current. An example is the energy transfer in an electrical circuit.

Extra Nuggets!

- **Heating:**

Energy is transferred due to a temperature difference, causing heat to flow. For example, heating a room with a radiator, or the sun warming the earth.

- **Radiation:**

Energy is transferred as waves, such as light, infrared, or sound. The sun's light reaching the earth, or a microwave heating food are examples.

Further Reading and Other Resources

<https://sparxscience.com/> - here you have your weekly homeworks, but you can also use the independent learning tab and choose whichever topics you need extra help with.

<https://www.bbc.co.uk/bitesize/examspecs/z8r997h> - bitesize has our AQA course on it. Here there is lots of useful information, quizzes and videos to watch about the topics you have been studying.

KS4 GCSE CGP revision guides – we have discounted revision guides available through parentpay

<https://www.aqa.org.uk/subjects/science/gcse/science-8464/assessment-resources>

You can find past papers here from AQA

Recall Questions

1. Name the differences between prokaryote and eukaryote cells
2. Describe the role of enzymes in digestion
3. Name 2 examples of viruses in plants and animals
4. Describe the food test for protein
5. Why would the body anaerobically respire?
6. How do you calculate relative atomic mass?
7. What is an isotope?
8. Describe how the atmosphere of the Earth has changed over 4 billion years
9. How would you separate salt and water – why?
10. Describe the different properties of the three radiation types
11. How do you calculate the density of an irregular object?
12. What are the rules for current and potential different in series and parallel?

SUBJECT: Geography

YEAR: 9



TOPIC: Fieldwork

SEMESTER: I

1. WORD REVOLUTION

Fieldwork	The process of investigating the world around us.
Enquiry question	A question about an area of geography that can be tested through fieldwork.
Hypothesis	A statement that can be tested through a fieldwork inquiry.
Primary data	Data you collect yourself.
Secondary data	Data collected by someone else.
Risk assessment	Process of working out the possible dangers, and how to avoid them

3. CREATING AN ENQUIRY QUESTION

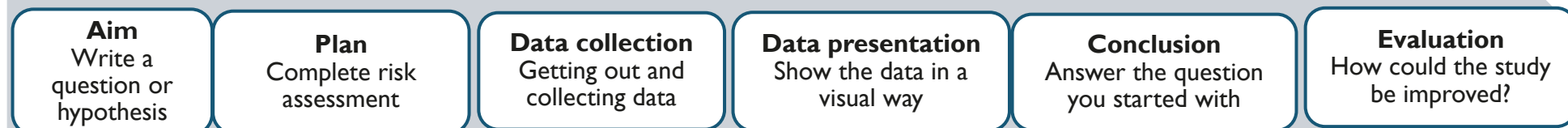
- ✓ **Geographical:** to do with geography
- ✓ **Open ended:** not a yes/no question
- ✓ **Achievable:** not in a dangerous environment, possible to travel to

What will I learn?	What fieldwork is and how it works
What will I be able to do?	Take part in external fieldwork
How will I be assessed?	Progress check in class

4. DATA COLLECTION

Method	Purpose	Limitation
Field sketch	Record key features of the landscape	Hard to complete, not numerical
Questionnaire	Find out opinions about a place or issue	Members of the public might not want to answer
Measurements	Find numerical sizes/shapes/numbers	Making mistakes with measuring

2. FIELDWORK ENQUIRY PROCESS



SUBJECT: Geography

TOPIC: Clothes

YEAR: 9

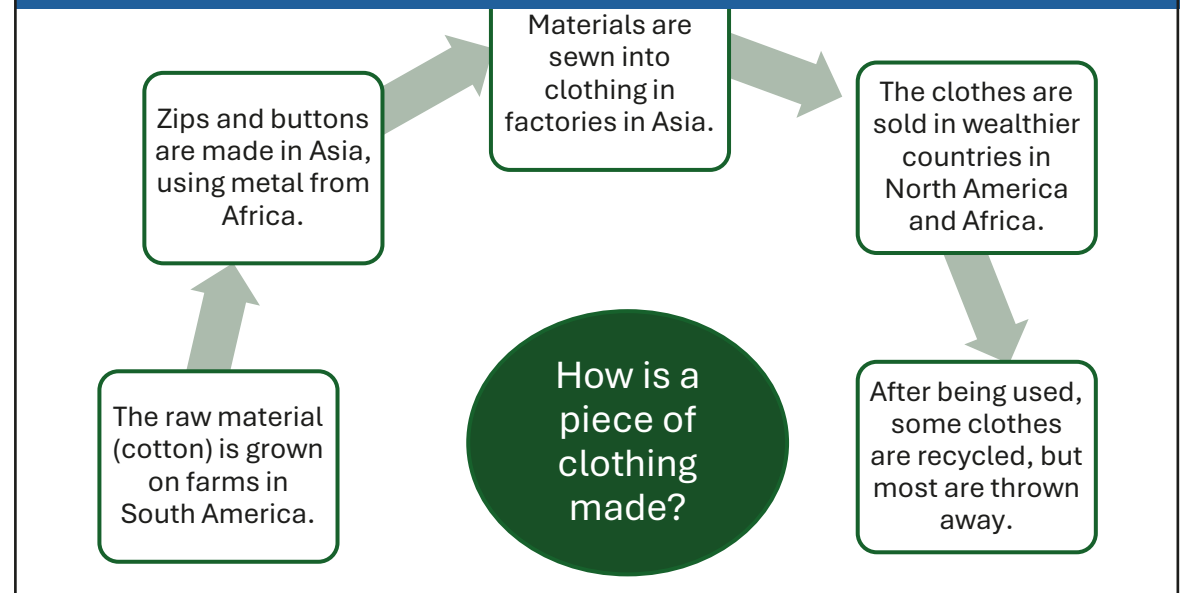
SEMESTER: I



1. WORD REVOLUTION

Globalisation	The process of the world becoming increasingly interconnected
Fast fashion	Making clothing as quickly as possible: as soon as a trend appears, it may just take a matter of weeks to be made.
Supply chain	The process of making an item of clothing, often involving many different steps around the world.
Consumer	Person who buys the product.
Manufacture	Make a product, such a clothing
Sustainable	Acting in a way that won't have a negative impact on the planet or people in the future.

2. THE CLOTHING SUPPLY CHAIN



3. IMPACTS OF THE CLOTHING INDUSTRY

Social	Economic
• Pay – minimum wage in Bangladesh is \$0.32 an hour • Child labour – children can work in factories • Working conditions – 10-12 hours a day, physical and verbal abuse	• Water – a single pair of jeans needs 9,500 litres of water • Fossil fuels – 90% of clothes contain materials that come from oil • Waste – clothes are thrown away after a few uses and often go to landfill

4. IMPROVEMENTS

Individuals: Buy less, keep clothes for longer, research the best brands.

Companies: Encourage people to recycle, make sure factories treat people fairly and do not harm the environment

Countries: Make laws to ensure companies treat people and the environment fairly.

SUBJECT: Geography

TOPIC: Geographical basics

YEAR: 9

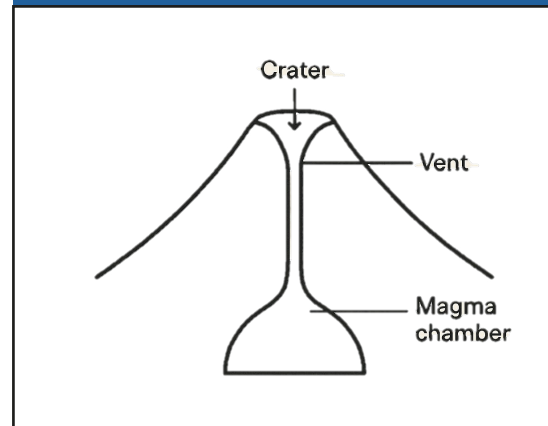
SEMESTER: I



1. WORD REVOLUTION

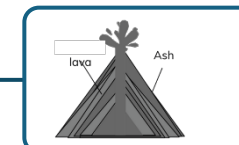
Risk	Possibility of something dangerous happening
Tectonic	To do with the movement of the earth's crust
Erosion	Wearing away of rock or soil
Geology	Rock type
Infrastructure	Physical systems needed for a society to function
Adaptation	Changing behaviour to reduce effects of a problem
Mitigation	Taking action to prevent the causes

2. PARTS OF A VOLCANO



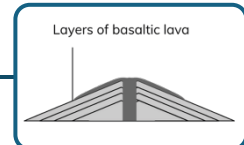
3. TYPES OF VOLCANO

Composite



Thick, sticky lava that builds up at the vent

Shield



Runny lava that spreads out

4. COASTAL EROSION CAUSES and EFFECTS

Causes

- Storms and strong winds
- Sea level rise caused by climate change
- Geology (rock type)
- Human activity - removing natural defences



Effects

- Loss of land
- Damage to property
- Threat to infrastructure
- Loss of habitats
- Loss of income

5. RESPONDING TO RISK

	Mitigation	Adaptation
Volcanic eruptions		Evacuation plans Lava barriers
Coastal erosion	Building sea walls Stabilising sand dunes	Moving buildings No-build zones
Climate change	Reducing fossil fuel use Planting trees (carbon sink)	Changing crops Improving water supplies

SUBJECT: Geography

YEAR: 9



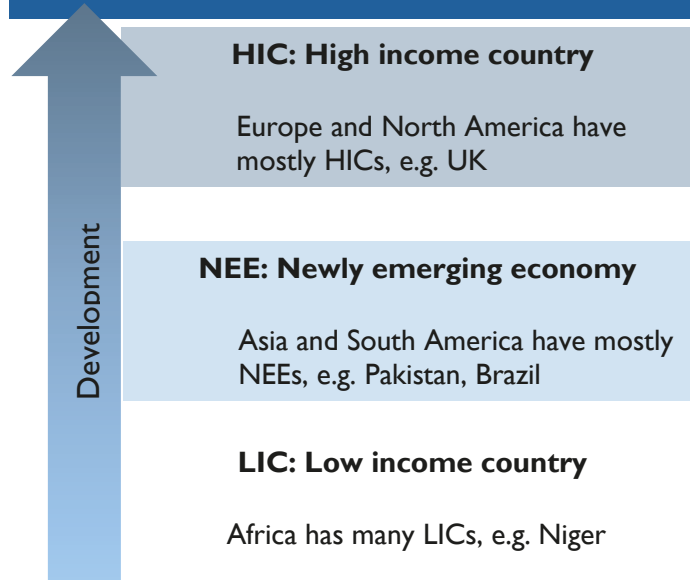
TOPIC: Geography basics

SEMESTER: I

1. WORD REVOLUTION

Development	Process of a country or area improving
Life expectancy	Average age people live to in an area.
Literacy rate	Amount of people who can read and write in an area
Erosion	Wearing away of rock
Weathering	Weakening of rock where it is
Weather	Day to day changes in the atmosphere
Climate	Long term average weather conditions

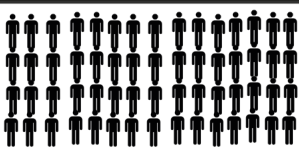
2. DEVELOPMENT AROUND THE WORLD



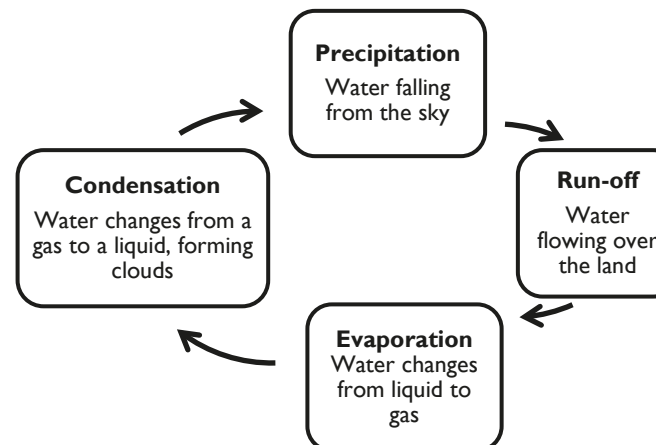
3. JOB TYPES

Tertiary jobs 	Providing a service, e.g. doctor, shop assistant, taxi driver
Secondary jobs 	Making raw materials into a product, e.g. in a factory
Primary jobs 	Extracting raw materials from nature, e.g. farmer, fisher, miner

3. RURAL and URBAN AREAS

Rural	Urban
Countryside E.g. Yorkshire Dales	City or town E.g. Leeds
Sparsely populated: not many people in a certain area.	Densely populated: lots of people in a certain area
	

4. THE WATER CYCLE



5. WEATHERING

Biological: tree roots grow into rock, animals burrow into rock

Chemical: slightly acidic rainwater dissolves certain types of rock (e.g. limestone)

Freeze-thaw: water freezes and melts inside rock, expanding cracks

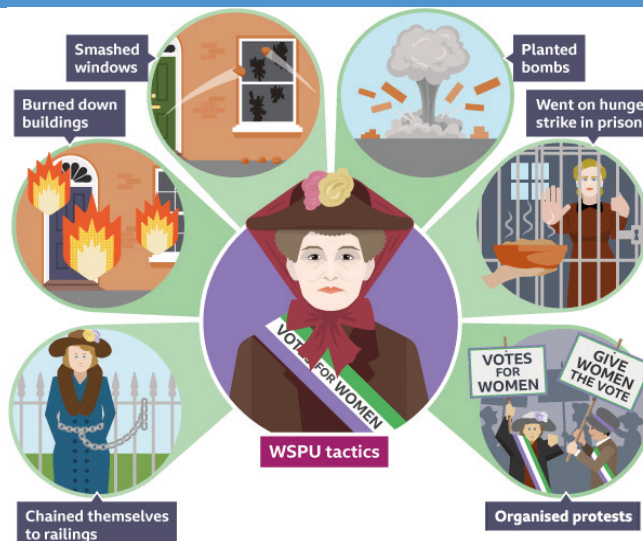
SUBJECT: History
TOPIC: Women's Suffrage Movements

YEAR: 9
SEMESTER: I



WORD REVOLUTION

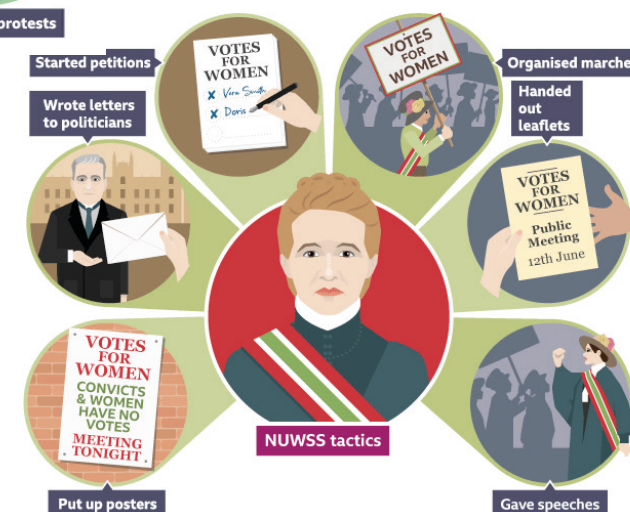
Suffrage	The right to vote in a political election.
Patriarchy	A system in which men are in positions of power and control.
Parliament	The elected government in Britain, responsible for making and changing laws.
Hunger strike	Refusing to eat as a form of protest.
Militant	Using extreme or violent methods in support of a political or social cause. .
Moderate	Views and methods are balanced and are acceptable to a large number of people.
Munitions	Military weapons made for war (e.g. shells, ammunition)
Suffragette	A member of the Women's Social and Political Union led by Emmeline Pankhurst who fought using violence to achieve votes for women.
Suffragist	A member of the National Union of Women's Suffrage Societies led by Millicent Fawcett who campaigned for women's suffrage using debate, petitions and non-violent marches.



Men and women were not equal in the 1800s. Women had very few rights in the eyes of the law and they were not allowed to vote. Women were expected to marry a man, have children and look after the home. When a woman got married, any property she owned passed into the ownership of her husband.

In the mid-1800s, some women started to campaign for the right to vote, commonly referred to as women's Suffrage.

Though many men opposed the women's suffrage movement, there were some men who supported the campaign.



Medieval period					Renaissance		Industrial Period		Modern Period
1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1750	1750-1800	1800-1900	1900-present

SUBJECT: History

TOPIC: Causes of WWI

YEAR: 9

SEMESTER: I



WORD REVOLUTION

Empire	A group of countries ruled by one powerful nation.
Colonialism	When a country controls and settles lands overseas.
Naval	To do with warships and the sea.
Assassination	A planned killing of an important person for political reasons.
Munition(s)	Military weapons and ammunition.
Militarism	Aggressive build-up of armed forces
Alliances	Forming of a group with a common aim
Imperialism	Building an empire by taking over territory
Nationalism	Feeling of pride in ones nation

Causes of WWI: MAIN



Steps to war



Medieval period					Renaissance		Industrial Period		Modern Period
1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1750	1750-1800	1800-1900	1900-present

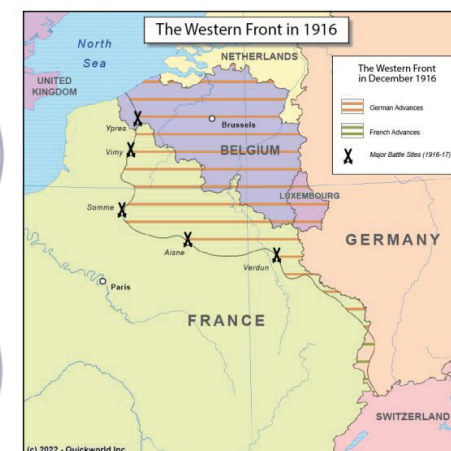
SUBJECT: History
TOPIC: WWI: Life in the Trenches

YEAR: 9
SEMESTER: I



Word Revolution

Trench	A long, narrow ditch.
Western Front	A 400-plus mile stretch of land through France and Belgium from the Swiss border to the North Sea where most battles of WWI were fought
Propaganda	Information (often misleading) used to persuade people to support a view or opinion.
Shell shock	a psychological condition resulting from the stress a soldier experiences during battle. Now known as PTSD (Post Traumatic Stress Disorder).
No man's land	an area or strip of land that no one owns or controls, especially in a war.
Trench foot	Happens when feet are exposed to wet and cold conditions for a long time. Symptoms include redness, swelling, blisters, skin turns black and peels off.
Bombardment	A continuous attack with bombs, shells or other missiles.
Armistice	an agreement made by opposing sides in a war to stop fighting for a certain time; a truce.
Conscientious objector	person who refuses to fight in wars because of strong personal beliefs against war.



- At the start of World War One, the UK launched a huge recruitment campaign, recruiting soldiers from all around the UK and the British Empire.
- Life in the trenches was extremely difficult, uncomfortable and dangerous.
- New weapons and technology changed how wars were fought, prolonging World War One for four years, until 1918. It resulted in the deaths of millions of people.
- The first day of the Battle of the Somme was the deadliest day in the history of the British army.

Medieval period					Renaissance		Industrial Period		Modern Period
1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1750	1750-1800	1800-1900	1900-present

SUBJECT: Religious Studies

YEAR: 9

TOPIC: Crime and Punishment

SEMESTER: I



WORD REVOLUTION

Absolute Morality	There is always a right action to take no matter what the moral dilemma.
Addiction	When you have a strong need to do something.
Capital Punishment	Legally killing someone for their crime.
Crime	An act which is an offence and punishable by law.
Criminals	A person who has committed a crime or offence.
Corporal Punishment	Physical punishment such as whipping
Deterrence	To put people off from committing an act sometimes by fear.
Ethics	Moral principles which govern a person's behaviour.
Forgiveness	To let go of resentment and anger.
Golden Rule	Treat others as you wish to be treated.
Greed	Intense and selfish desire for something.
Punishment	The imposing of a penalty due to an offence.
Reform	Make someone or something change and improve for the better.
Retribution	Punishment inflicted as revenge

What will I study in this topic?

You will learn about important legal and moral issues linked to crime and punishment. You will explore different theories of punishment, as well as the debate around the death penalty. Alongside this, you will study how ethical ideas and religious teachings from Judaism, Islam, Christianity, and Buddhism shape different responses to these issues, including ideas about justice, forgiveness, and the purpose of punishment.

Curriculum Connections:

During the course of the year you will learn about ethical debates surrounding crime, abortion and debating big topical questions including the treatment of animals, the legalisation of cannabis, reasons for war and euthanasia. This knowledge will help you when you study ethical and religious dilemmas at GCSE in Year 10 and 11.

What are the causes of crime?



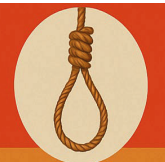
What are the aims of punishment?

Reform Help criminals change for the better	Protection Keep society safe from dangerous criminals
Retribution Criminals should 'pay' for their crimes	Deterrence Put people off committing crimes

Different forms of punishment

CAPITAL PUNISHMENT

The execution of a criminal



CORPORAL PUNISHMENT

The infliction of physical punishment



FINES

Monetary penalties for offenses



PRISON

Incarceration in a prison facility



COMMUNITY SERVICE

Unpaid work in the community



SUBJECT: Religious Studies

TOPIC: Crime and Punishment

YEAR: 9

SEMESTER: I



Why is Punishment important?

- **Protect Public Safety** - Prevents harm and violence
- **Ensure Justice and Fairness** - Everyone is treated equally
- **Maintain Social Order** - Reduces chaos and conflict
- **Set Standards for Behaviour** - Defines what is acceptable
- **Support Rights and Freedoms** - Protects individual rights
- **Ensure Justice and Fairness** - Everyone is treated equally

How should we treat others? The Golden Rule

Every religion has a version of the Golden Rule which religious believers follow in their treatment with others.

- **Christianity and Judaism** – *'Love your neighbour as yourself'*
- **Buddhism** – *'Treat other with respect. How they treat others will be how they treat you.'*
- **Islam** – *'None of you truly believes, until he wishes for his brother what he wishes for himself'*
- **Sikhism** – *'I am a stranger to no one, I am a friend to all'*

What does religion teach about Crime and Punishment?

Christianity	Jesus in the New Testament of the Bible said 'an eye for an eye and a tooth for a tooth' is wrong and Christians should 'turn the other cheek' Matthew 5:38.
Islam	Shari'ah law (Islam) states that the family of a murder victim can accept money as compensation rather than enforce the death penalty.
Judaism	The death penalty is used in the Christian Bible (Old Testament) and the Jewish Torah for certain offences e.g. murder Exodus 21:24 'an eye for an eye, a tooth for a tooth...'
Buddhism	Buddhism – The first of the Five Moral Precepts (5 rules Buddhists should follow) is 'abstain from harm' (abstain = don't do it)

Capital Punishment

ARGUMENTS FOR	ARGUMENTS AGAINST
Deterrence Justice for Victims Cost-Effective	Risk of Wrongful Execution HUMAN RIGHTS Human Rights Concerns No Proven Deterrent Effect

The Prison System in the UK

✓ Positives of Prison	✗ Negatives of Prison
Keeps dangerous people away from others Protects the public by separating criminals from society	Can be very expensive Prisons cost a lot to run. Money could be better spent
Acts as a deterrent Some people may avoid crime to stay out of prison	Doesn't always stop reoffending Many prisoners commit crimes again – lack of reform
Gives time to reflect and reform Offenders may rethink their actions and change – opportunities to get counselling and qualifications	Can break families apart Children and partners can suffer when someone is jailed – destroys relationships

Argumentas About Corporal Punnishment

Agree	Disagree
It can act as a deterrent It could stop people from breaking rules Mentioned in the Bible and Quran as okay Countries have use it successfully for many years	There are better ways to discipline It can lead to physical harm

SUBJECT: Religious Studies

YEAR: 9



TOPIC: Ethics and Abortion

SEMESTER: I

WORD REVOLUTION

Abortion	The deliberate ending of a pregnancy so that it does not result in the birth of a baby.
Conception	The moment when a sperm fertilises an egg, marking the beginning of pregnancy.
Ensoulment	The belief about when the soul enters the body of a developing baby.
Foetus	The developing baby in the womb from around 8 weeks after conception until birth.
Miracle of life	The idea that life is special, amazing, and possibly a gift from God
Pro choice	The belief that a woman should have the right to choose whether or not to have an abortion.
Pro life	The belief that abortion is wrong because life begins at conception and should be protected.
Quality of life	A measure of how good or comfortable someone's life is, including their physical and
Sanctity of life	The belief that life is holy, sacred, and given by God, so only God should decide when it ends.
Viability	When a baby could survive outside the womb with medical help. (24 weeks)

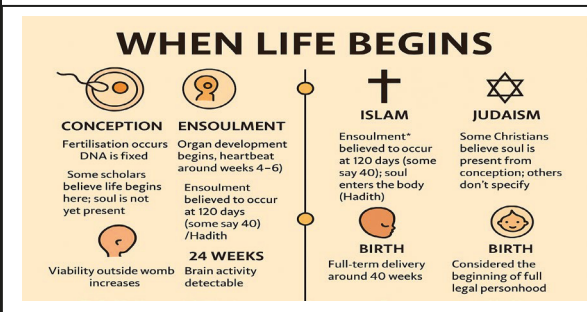
What will I study in this topic?

You will gain a well-rounded understanding of the key ethical questions and religious and non-religious perspectives surrounding abortion, approaching the topic with sensitivity and an appreciation for its complexity as an ethical, legal, and religious issue.

Curriculum Connections:

During this topic you will learn about the foetal development and the different views on when life begins. This will link to your Science lessons and also allow you to develop a basic understanding of the different religious views towards abortion. This will lay the foundations for GCSE study where this topic is covered in detail from a Christian and Buddhist perspective.

Different ideas on when life begins



Current law on abortion in the UK

ABORTION LAWS IN UK AND IRELAND	
UK	IRELAND
Law Introduced: 1967 Abortion Act Legal up to 24 weeks Requires approval from two doctors Permitted after 24 weeks only if: - risk to woman's life - severe fetal abnormality - grave physical/mental injury	Law Introduced: 2018 (Post-referendum) Mandatory 3-day waiting period Permitted after 12 weeks only if - risk to mother's life - fetus not expected to survive

Stages of foetal development





Religious views on abortion

RELIGIOUS ATTITUDES TOWARD ABORTION



CHRISTIANITY

- Generally opposes abortion, especially among Catholics.
- Life is sacred from conception

"Before I formed you in the womb I knew you"
Jeremiah 1:5



ISLAM

- Abortion generally discouraged but allowed in some cases (e.g, before 120 days, to save the mother's life)

"Do not kill your children for fear of poverty"
Quran 17:31



JUDAISM

- Permits abortion to protect the mother's life and health
- The fetus is not considered a full person until birth

"If her life is in danger, the fetus may be destroyed"
Mishnah Ohalot 7:5



BUDDHISM

- Generally opposes abortion due to belief in non-harm (ahimsa)
- Views vary by tradition and context

"The taking of life is to be avoided."
First Precept

Arguments for and Against abortion

ARGUMENTS FOR ABORTION

Women's right to choose
(non-religious)

Prevents suffering in cases of severe fetal abnormalities
(non-religious)

 Permitted in Judaism to protect the mother's life (religious)

Islam allows abortion before 120 days in some cases
(religious)

Reduces illegal and unsafe abortions
(non-religious)

ARGUMENTS AGAINST ABORTION

 Life begins at conception
(Christian belief)

 Sanctity of life
(Islamic and Christian belief)

 Abortion is considered killing
(Buddhist and Catholic view)

 Fetus has a right to life
(non-religious ethical argument)

 Can cause emotional and psychological harm
(non-religious)

SUBJECT: Religious Studies**YEAR: 9****TOPIC: World Religions****SEMESTER: I**

	When It Began	Where It Began	Founder	Holy Book(s)	Place of Worship	Key Beliefs About God	Key Practices	Symbol(s)	Major Festivals	Beliefs About Afterlife
Hinduism (Hindus)	Around 4000 - 2000 BCE	Indian Subcontinent	Developed from the people of the Indus Valley	Vedas, Upanishads, Bhagavad Gita	Temple	Many gods (polytheistic), Brahman is supreme reality	Puja (worship) Festivals like Diwali		Diwali Holi	Rebirth (reincarnation) and Moksha (liberation from cycle of rebirth)
Judaism (Jews)	Around 2000 BCE	Ancient Israel	Abraham	Torah Tenakh	Synagogue	One God (Monotheistic) Yaweh/Elohim	Sabbath, Kosher Prayer Festivals		Passover Yom Kippur Hanukkah	Resurrection and Olam Ha-Ba (World to Come); focus on this life
Buddhism (Buddhists)	Around 5th Century BCE	India	Siddhartha Gautama (The Buddha)	Various scriptures (Tripitaka) (Pali Canon)	Temple	No creator God	Meditation Following the Eightfold Path Festivals		Vesak Parinirvana Day	Rebirth and Nirvana (end of suffering and cycle of rebirth)
Christianity (Christians)	Around 1st Century CE	Jerusalem (Middle East)	Jesus Christ	Bible (Old & New Testament)	Church	One God (Monotheistic), Trinity (Father, Son, Holy Spirit)	Prayer Worship Baptism Communion		Advent Christmas Lent Easter	Heaven and Hell; eternal life through faith in Jesus
Islam (Muslims)	7th Century CE	Mecca (Saudi Arabia)	Prophet Muhammad	Quran	Mosque	One God (Allah) Monotheistic	Five Pillars (Faith, Prayer, Fasting, Charity, Pilgrimage)		Eid al-Fitr, Eid al-Adha	Paradise (Jannah) and Hell (Jahannam) based on deeds
Sikhism (Sikhs)	Late 15th Century CE	Punjab (India/Pakistan)	Guru Nanak	Guru Granth Sahib	Gurdwara	One God (Waheguru), Monotheistic	Prayer Seva (service) Community (Langar)		Vaisakhi Guru Nanak's Birthday	Rebirth and union with God; emphasis on living a truthful, humble life



KEY VOCABULARY

opinions	adjectives
ich kann...nicht leiden – I can't stand	schrecklich – terrible
Ich denke, dass – I think that	spannend – exciting
Meine Lieblingssendung ist – my favourite show is	stinklangweilig – deadly boring
am liebsten – best	kindisch – childish
TV & Film genres	schmalzig – cheesy
Seifenopern – soap operas	entspannend – relaxing
die Nachrichten – the news	informativ - informative
Dokumentarfilme – documentaries	schlimmer als – worse than
Kindersendungen – kids' shows	besser als – better than
Zeichentrickfilme - cartoons	gruselig – creepy
Werbespots – adverts	pros and cons of TV
Quizsendungen – quiz shows	macht passiv – makes you passive
Krimis – crime programmes	
Tiersendungen – animal shows	eine Zeitverschwendung – a waste of time
das Wetterbericht – weather forecast	
adverbs of frequency	bildet - educates
jede Woche – every week	informiert - informs
jeden Monat – every month	beruhigt – calms
jeden Tag – every day	das beste Beruhigungsmittel – the best calming method
manchmal – sometimes	

What will I study in this topic?

What will I be able to do by the end of this topic?

- ☐ 1: Giving and justifying opinions of TV and film
- ☐ 2: Describing what I watched on TV or streamed at the weekend and giving past opinions
- ☐ 3: Describing what I can see in German film trailers
- ☐ 4: Discussing the advantages and disadvantages of TV for young people

- ✓ Give opinions on a range of film and TV genres
- ✓ Watch German film trailers and describe what I see.
- ✓ Describe what I watched on TV or streamed at the weekend, using the perfect and imperfect tenses
- ✓ Discuss the advantages and disadvantages of TV

Grammar: Plural noun forms

- ✓ There are different ways to form plural nouns in German
- ✓ It is best to learn the plural forms along with the nouns.

Ich hasse Krimis, weil sie doof sind.

Singular	Plural
Zeichentrickfilm	Zeichentrickfilme
Quizsendung	Quizsendungen

Grammar: comparative adjectives

In German, we add “er” to most adjectives to form the comparative form

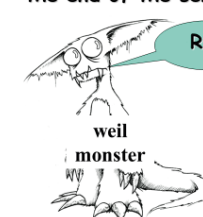
lustig funny	lustiger funnier
doof stupid	doofer stupider

For single syllable adjectives, we also add an umlaut if appropriate.

warm warm	wärmer warmer
kalt cold	kälter colder

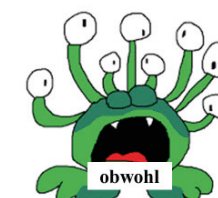
Subordinating Conjunctions

Weil is a vile word, because it scares the verbs to the end of the sentence!



The comma is the weil monsters only and best friend. He always puts the comma before himself.

The weil monster has a gang of other vile friends, who scare verbs to the end too:
obwohl, dass, als, wenn, bevor, seitdem...



Ich mag Deutsch, weil es unterhaltsam ist.
Ich denke, dass mein Bruder nervig ist.
Ich liebe Stoke City FC, obwohl sie schrecklich sind.



Key Questions:	Was für Sendungen siehst du gern? What type of programmes do you like to watch? Was für Sendungen siehst du nicht gern? What type of programmes do you not like to watch? Was hast du neulich im Fernsehen gesehen? Wie war es? What have you recently seen on TV? How was it? Ist Fernsehen gut für junge Leute? Is TV good for young people?
Cultural links:	Looking at famous German Christmas films such as : 'Alles ist Liebe', 'Es ist ein Elch entsprungen', 'Drei Haselnüsse für Aschenbrödel'.   

Perfect Tense (past tense) verbs

The perfect tense is used to describe completed actions in the past, for example if you watched a film.
 Remember that for **verbs of movement**, we use **sein** rather than **haben** as the auxiliary verb.

I saw	ich habe...gesehen	I went	ich bin...gegangen
you (inf, sing) saw	du hast...gesehen	you (inf, sing) went	du bist...gegangen
s/he saw	er/sie hat...gesehen	s/he went	er/sie ist...gegangen
we saw	wir haben...gesehen	we went	wir sind...gegangen
you (inf, pl.) saw	ihr habt...gesehen	you (inf, pl.) went	ihr seid...gegangen
you (form.)they saw	Sie/sie haben...gesehen	you (form.)they went	Sie/sie sind...gegangen

Curriculum Connections:

- ☐ **Opinions:** about films and TV shows
- ☐ **Comparative :** comparing film genres
- ☐ **Reference to others:** saying what films people like and dislike
- ☐ **Describing** a scene from a film trailer
- ☐ N
- ☐ F

German in context

Ich schwärme für Horrorfilme, obwohl sie gruselig sind.

I am crazy about horror films, although they are creepy.

Letztes Wochenende habe ich Match of the Day gesehen. Es war spannend !

Last weekend I watched Match of the Day. It was exciting!

Fernsehen lenkt von den eigenen Problemen ab.

TV distracts you from your own problems.

Auf dem Foto gibt es eine Frau. Sie sieht traurig aus.

In the photo there is a woman. She looks sad.

Imperfect Tense

We can use the **imperfect tense** to describe how things looked or felt in the past.

I was	ich war
you (inf, sing) were	du warst
s/he was	er/sie war
we were	wir waren
you (inf, pl.) were	ihr wart
you (form.)they were	Sie/sie waren



KEY VOCABULARY

topic vocabulary	places in school
das Fach, die Fächer – the subject, the subjects	im Klassenzimmer – in the classroom
Geschichte – history	im Labor – in the lab
Erdkunde – geography	auf dem Schulhof – on the playground
Kunst – art	in der Kantine –in the canteen
Theater - drama	
Informatik – IT	im Gang – in the corridor
Mathe – maths	in der Aula – in the hall
Französisch – French	nirgendwo - nowhere
Spanisch – Spanish	school day
Deutsch - German	in der ersten Stunde – in the 1st period
die Musik - music	in der zweiten Stunde – in the second period
Naturwissenschaften - Science	in der Pause – at break
Werken - technology	in der Mittagspause – at lunchtime
die Leute – people	
der Lehrer – teacher (m)	narration
die Lehrerin – teacher (f)	
Schüler – pupil (pl Schüler)	zuerst – first
der Direktor – headteacher	dann – then
ideal school	danach – after that
es gäbe – there would be	später – later
wir hätten – we would have	letztens – finally
es wäre – it would be	nach der Schule – after school

What will I study in this topic?

- ☐ 1: Giving Balanced opinions of school subjects
- ☐ 2: Describing when you have different lessons
- ☐ 3: Explaining the school rules
- ☐ 4: Discussing whether the school rules are fair
- ☐ 5: Describing our ideal school

What will I be able to do by the end of this topic?

Talk about school life, subjects and teachers
Describe my school now
Talk about school rules
Describe my ideal school



Verb 2nd idea

^{1st idea} Ich ^{verb 2nd} habe Mathe.
(I have maths.)

^{1st idea} Am Montag ^{verb 2nd} habe ich Mathe.
(On Monday "have I" maths.)

^{1st idea} Am Montag in der dritten Stunde ^{verb 2nd} habe ich Mathe.
(On Monday period 3 "have I" maths.)

Time, Manner, Place (TMP)

T Am Montag **M** habe ich **P** mit meinen Freunden im Klassenzimmer Englisch.

In German, if we are making more complex sentences, the elements must go in a particular order: **TMP**

Grammar: What is a modal verb?

- ✓ A modal verb is a helper verb.
- ✓ It tells us **how** something is done, what we **must, may, or are supposed to** do
- ✓ In German we use a modal verb with an infinitive verb at the end of the clause

Du musst pünktlich **ankommen**.

You **must arrive** on time.

Man darf in der Kantine **essen**.

He **may eat** in the canteen.

subjects	teachers
schwierig difficult	nett nice
einfach easy	begabt talented
anstrengend demanding	streng strict
zwecklos pointless	hilfsbereit helpful
kreativ creative	lustig funny
nutzvoll useful	intelligent clever
wichtig important	geduldig patient
praktisch practical	verrückt crazy
	gemein mean



Key Questions:	Welche Fächer magst du (nicht)? What subjects do you (not) like? Beschreib einen typischen Schultag. Describe a typical school day. Sind die Schulregeln in deiner Schule fair? Are the school rules in your school fair? Beschreib deine Traumschule. Describe your dream school.
Cultural links:	School Day: German schools start earlier (around 8am) and finish earlier (around 12:30-1pm). Afternoons: German pupils used to go home in the afternoon, but now, many stay at school to attend clubs, or to do homework whilst their parents are at work. Lunch Break: there didn't used to be lunch served in German schools, but this is starting to change. Uniforms: German students usually do not wear school uniforms. Exams: German students take the <i>Mittlere Reife</i> at around age 15 and the <i>Abitur</i> at 18.

Modal verbs müssen (to have to) dürfen (to be allowed to) sollen (to be supposed to)

müssen	to have to	dürfen	to be allowed	sollen	to be supposed to
ich muss	I must	ich darf	I may	ich soll	I am supposed to
du musst	you sing.inf. must	du darfst	you sing.inf. may	du sollst	you are supposed to
er/sie/man muss	s/he/we must	er/sie/man darf	s/he/we may	er/sie/man soll	s/he/we is supposed to
wir müssen		wir dürfen		wir sollen	
ihr müsst	we must	ihr dürft	we may	ihr sollt	we are supposed to
Sie/sie müssen	you inf.pl. must	Sie/sie dürfen	you inf.pl. may	Sie/sie sollen	you inf. pl. are supposed to
	you form. / they must		they may		you form. / they are supposed to

Curriculum Connections:

- ☐ **Opinions: on the subjects and rules**
- ☐ **Comparing: different subjects**
- ☐ **Reference to others: describing my school**
- ☐ **Describing subjects and teachers**
- ☐ **Narrating: a typical school day**
- ☐ **F**

German in context

Meiner Meinung nach ist Erdkunde interessant, obwohl es ziemlich schwierig ist.
In my opinion geography is interesting, although it is quite difficult.

Am Montag in der ersten Stunde habe ich Naturwissenschaften.
On Monday in the first period I have science.

In meiner Schule muss man immer pünktlich sein. Ich finde das fair aber nervig!
In my school you must always be punctual. I find it fair but annoying!

Meine Traumschule wäre in einem Schloss und wir hätten ein Schwimmbad.
My dream school would be in a castle and we would have a swimming pool.

man darf ... man darf nicht...

eine Uniform tragen	wear a uniform
pünktlich sein	be on time
ruhig arbeiten	work quietly
Piercings tragen	wear piercings
das Handy benutzen	use your phone
im Gang rennen	run in the corridors
die Tische beschmieren	graffiti the tables
Kaugummi kauen	chew gum
mobben	bully

SUBJECT: Computer Science

TOPIC: Data interpretation

YEAR: 9

SEMESTER: I



WORD REVOLUTION

Variable	A named space in memory used to store data that can change during a
Sequence	The order in which instructions are carried out in a program.
Selection	A decision-making process in code (e.g., using <code>if</code> statements).
Iteration	Repeating a set of instructions (e.g., using <code>for</code> or <code>while</code> loops).
Boolean	A data type with only two values: True or False.
String	A sequence of characters, like words or sentences, in quotation marks.
Integer	A whole number (positive or negative, no decimals).
Float	A number that includes a decimal point.
Syntax Error	A mistake in the code that breaks the rules of the programming language.
Logic Error	A mistake in the program's design that causes it to run incorrectly.
Input	Data received from the user or another source.
Output	Information the program gives back to the user.
Casting	Changing a variable from one data type to another (e.g., from string to
Concatenation	Joining two or more strings together.

What will I study in this topic?

In this topic, you will deepen their understanding of how computers use data and logic to solve problems. You will explore core programming concepts such as variables, selection, iteration, and data types using a text-based language like Python. You will learn how to plan and write structured code, identify and fix errors, and use functions to make their programs more efficient. You will also develop their ability to think computationally—breaking problems into smaller steps and using logical reasoning to design solutions.

What will I be able to do by the end of this topic?

You will be able to write and test structured Python programs using variables, selection, and loops. They will confidently use different data types, apply functions to simplify code, and debug common errors. You will be able to plan solutions using flowcharts or pseudocode and explain how their code works using correct terminology. You will also develop their ability to think logically and solve problems independently, preparing you for more advanced programming challenges.

What is “Merchandising”?

Merchandising is all about choosing the right products to sell, displaying them in appealing ways, and setting prices that attract customers. It's used in shops, online stores, and even school events like bake sales!

In computing, students might use **data modelling** to plan a merchandising strategy—like working out how many items to sell, what price to charge, and how much profit they could make.

What is Data Modelling?

Data modelling is the process of using data to represent real-world situations so we can understand them better and make decisions. It's like building a simplified version of something complex—such as a business, a budget, or a sports league—using numbers and rules.

Advantages of Data Modelling:

- Helps you **predict outcomes** (e.g. how much profit you might make).
- Makes it easier to **spot patterns or problems**.
- Allows you to **test different scenarios** without real-world risks.
- Supports **better decision-making** using facts and figures.

SUBJECT: Computer Science

YEAR: 9

TOPIC: Computer Logic

SEMESTER: I



Key Questions:	1. How do computers use logic and decision-making to solve problems? 2. Why is it important to choose the right data type when writing a program? 3. What's the difference between a syntax error and a logic error, and how can we fix them? 4. How can using functions make our code easier to read and reuse? 5. What skills do we develop when we break problems into smaller steps?
Curriculum Connections:	This unit builds on the programming foundations introduced in Year 7 and 8, moving from basic block-based logic to more advanced text-based coding. It strengthens students' understanding of computational thinking, problem-solving, and digital literacy. The skills learned here—such as writing structured code, debugging, and using functions—are essential for future units in computer science, including algorithms, data structures, and software development. These concepts also support logical thinking and resilience across other subjects like maths and science.

Top Tips for writing code

- **Plan before you code** – Use flowcharts or pseudocode to map out your ideas.
- **Use clear variable names** – Make your code easier to read and understand.
- **Check your syntax** – Python is picky! Make sure your punctuation and indentation are correct.
- **Test often** – Run your code regularly to catch errors early.
- **Use comments** – Add # comments to explain what your code does.
- **Don't fear errors** – Mistakes help you learn. Read error messages carefully and try to fix them.
- **Ask for help** – If you're stuck, talk to a classmate or teacher. Everyone gets stuck sometimes!
- **Keep practising** – The more you code, the more confident you'll become.

A **data analyst** is someone who works with numbers and information to help organisations make smart decisions. They collect data from different sources (like surveys, websites, or spreadsheets), clean it to remove errors, and then use tools like **Excel**, **Python**, or **Power BI** to spot patterns and trends. Their job is to turn raw data into useful insights—like helping a company understand what products are selling best or how to save money.

Starting salary: around **£27,500** per year for entry-level roles

Average salary: about **£35,000** per year
Data analysts help businesses, governments, and charities make better choices. Whether it's planning a new product, improving customer service, or tracking climate data, analysts are behind the scenes making sense of the numbers.

Top tips for using Excel to analyse data

Use clear headings – Label your columns and rows so your data is easy to understand.
Keep it tidy – Avoid leaving random blank rows or columns; it helps your spreadsheet stay organised.
Use formulas – Let Excel do the maths! Try =SUM(), =AVERAGE(), or =IF() to save time.
Check your cell types – Make sure numbers, dates, and text are formatted correctly.
Use autofill – Drag the corner of a cell to copy formulas or patterns quickly.
Freeze panes – Keep your headers visible while scrolling by using "Freeze Panes" under the View tab.
Use filters – Quickly sort and find data using the filter tool in the Home or Data tab.
Save your work – Save regularly and name your files clearly so you can find them later.
Try charts – Turn your data into a visual by using Insert > Chart to make it easier to understand.
Undo is your friend – Made a mistake? Press Ctrl + Z to undo it instantly.

SUBJECT: Computer Science

YEAR: 9

TOPIC: Number systems

SEMESTER: I



Number systems: Conversion

Conversion Type	Method of Doing This	Worked Example
Denary to Binary	Divide the number by 2, record the remainder, repeat with the quotient until the quotient is 0. The binary number is the remainders read in reverse.	Example: $13 \rightarrow 1101$
Binary to Denary	Multiply each bit by 2 raised to the power of its position (starting from 0 on the right), and sum the results.	Example: $1101 \rightarrow 1 \cdot 2^3 + 1 \cdot 2^2 + 0 \cdot 2^1 + 1 \cdot 2^0 = 8 + 4 + 0 + 1 = 13$
Binary to Hex	Split the binary number into groups of 4 bits (from the right). Convert each group to its hex equivalent.	Example: $11010111 \rightarrow 1101\ 0111 \rightarrow D7$
Hex to Binary	Convert each hex digit to its 4-bit binary equivalent.	Example: $2F \rightarrow 0010\ 1111$
Hex to Denary	Multiply each hex digit by 16 raised to the power of its position (starting from 0 on the right), and sum the results.	Example: $2F \rightarrow (2 \cdot 16^1) + (15 \cdot 16^0) = 32 + 15 = 47$
Denary to Hex	Divide the number by 16, record the remainder, repeat with the quotient until the quotient is 0. The hex number is the remainders read in reverse.	Example: $47 \rightarrow 2F$

Understanding data storage

Bit	The smallest piece of data – just a 1 or a 0.
Nibble	4 bits. It's called a "nibble" because it's half a byte – like a small bite!
Byte	8 bits. Enough to store one letter or symbol.
Kilobyte (KB)	1024 bytes. Not 1000, because computers use binary (base 2), and 1024 is 2^{10} .
Megabyte (MB)	1024 KB. Used for storing photos, songs, or small apps.
Gigabyte (GB)	1024 MB. Common for USB sticks, phones, and games.
Terabyte (TB)	1024 GB. Used for large hard drives and cloud storage.

Why should I care about binary or hex?

Computers use **base 2 (binary)** because they are made of millions of tiny switches that can only be **on** or **off**—just like binary digits, which are only **1** or **0**. This makes binary the simplest and most reliable way for computers to store and process data. **Hexadecimal (base 16)** is used because it's a **shorter, more human-friendly way** to write long binary numbers. One hex digit represents four binary digits, so it's easier to read, write, and debug code—especially when working with colours, memory addresses, or machine code.

What Is a Programmer?

A **programmer** writes code to make computers, apps, and websites work. They solve problems, build software, and work in areas like gaming, web design, and cybersecurity.

How Much Do They Earn?

Starting salary: £29,000/year

Average salary: £30,700/year

Experienced: £45,000–£70,000+

SUBJECT: Art & Design

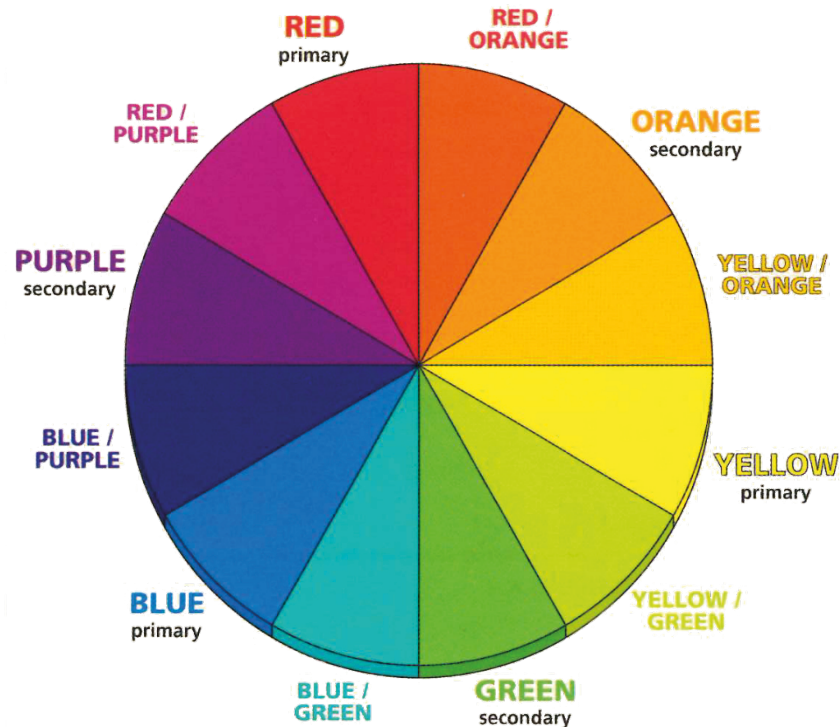
TOPIC: Formal Elements

YEAR: KS3

SEMESTER: I



THE COLOUR WHEEL



COMPLEMENTARY COLOURS

The colours opposite each other on the wheel are called complementary colours.

RED is opposite GREEN
BLUE is opposite ORANGE
YELLOW is opposite PURPLE

If a colour is surrounded by its complementary colour it will appear stronger and brighter.



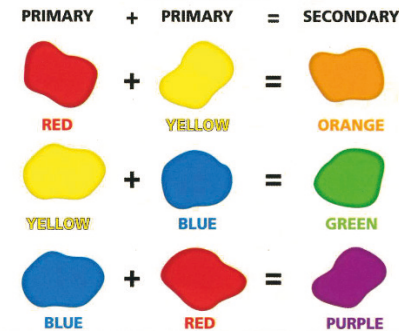
PRIMARY COLOURS

There are **THREE PRIMARY COLOURS**. These are pure colours which cannot be made by mixing other colours.



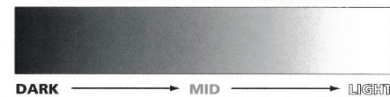
SECONDARY COLOURS

Secondary colours are made by mixing each primary colour with one other primary colour.



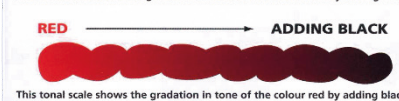
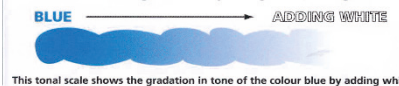
TONE

This tonal scale shows the gradation of dark tones, mid tones and light tones. It shows the passage from black through grey to white.



TINTING AND SHADING

Tinting and shading refer to making a colour lighter by adding white (tinting) or darker by adding black (shading).



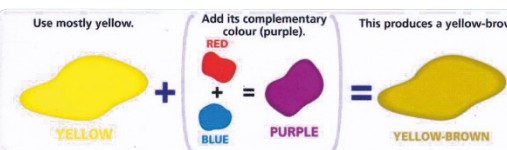
TINTING AND SHADING WITH COLOUR



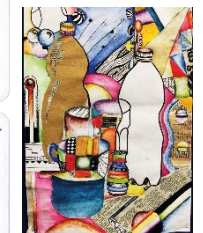
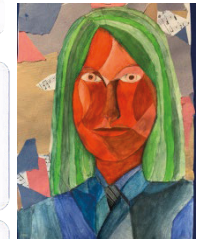
TERTIARY COLOURS

TERTIARY COLOURS CONTAIN A MIX OF ALL THREE PRIMARY COLOURS. A PRIMARY, MIXED WITH ITS COMPLEMENTARY COLOUR EQUALS A TERTIARY COLOUR.

PRIMARY + COMPLEMENTARY = TERTIARY



By using varying amounts of each colour, an infinite number of shades are possible. The more colours are mixed on the palette, the less luminous the result.



WORD REVOLUTION VOCABULARY

PORTRAIT OBSERVATION FACIAL - PROPORTION EXPRESSION TONE TINT SHADE CUBISM CONTOUR DISTORTION GRADATION COMPLIMENTARY - COLOUR	VIEWPOINT SYMMETRICAL STILL-LIFE ELLIPSE VERTICAL DEPTH PROPORTION ACCURACY LIMITED PALETTE MONOCHROME COLLAGE DEFINE COMPOSITION DIAGONAL METHOD PERSPECTIVE	GRAPHIC ART ILLUSTRATION FINE ART ICONOGRAPHY SYMBOLISM ZENTANGLE MARK-MAKING HATCHING CROSS HATCHING STIPPLING TONAL RANGE COMPOSITION CONTEXTUAL ANALYSIS PERSONAL LAYERING VISUAL IDENTITY
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PORTRAIT

HOW TO DRAW A PORTRAIT - A STEP BY STEP GUIDE

STEP 1

- Draw an egg-shaped oval.
- Split the oval in two halves with a horizontal line (median line).

STEP 2

- Draw a vertical line of symmetry.
- Draw 5 ovals across the median line.
- Two of the ovals become the eyes.

STEP 3

- The nose is the width of the centre oval.
- The base of the nose lies halfway between the median line and the bottom of the face.

STEP 4

- The mouth lies above a line halfway between the base of the nose and bottom of the face.
- The bottom lip is usually fuller than the top.

STEP 5

- The ears are bigger than you would imagine.
- They are drawn from the median line to just below the base of the nose line.

STEP 6

- Add the eyebrows which are thicker in the middle and thinner on the outside of the face.
- Add a hair style of your choice.

CIRCLES & ELLIPSES

An ellipse is a circle tilted away from you - a circle in perspective.

HOW A CIRCLE BECOMES AN ELLIPSE

A circle can be drawn in a square. By tilting the square, it is now in perspective.

HOW TO DRAW AN ELLIPSE

1. Draw a square in perspective.
2. Find the perspective centre of the square by drawing diagonal lines.
3. Mark the perspective centre of each side of the square.
4. Now draw an ellipse so the curve touches each of the four sides.

LIGHT AND SHADE

The above flat (2-dimensional) objects appear solid (3-dimensional) when drawn in perspective as shown below.

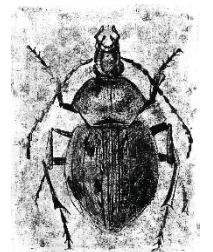
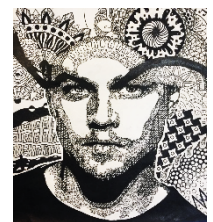
Light helps show the volume of an object. When light falls on an object, shadows and highlights occur.

HIGHLIGHTS occur when light falls directly on to an object.

SHADOWS are caused when the object blocks the light.

ANALYSING IMAGES

CONTENT	FORM
• What is the image about? • Is it a representational or an abstract piece of work? Pablo Picasso (1881-1973) Portrait of Dora Maar (1937) • Are there any hidden meanings in the picture?	• What colours have been used? • Is it realistic, harmonious or contrasting? Jacobus van Heemskerck (1576-1923) Landscape (1915) • Are there any recurrent shapes, lines, forms, patterns or textures?
PROCESS	MOOD
• How was the piece produced and of what was it made? Jackson Pollock (1912-1956) Number 33 (1946) • What techniques and processes were used?	• Does the work capture a mood, feeling or emotion? Joseph Mallord William Turner (1775-1851) Rain, Steam, and Great Bridge (1810) • What techniques has the artist used to convey the mood?



FORMAL ELEMENTS

THE FORMAL ELEMENTS ARE THE BASIC COMPONENTS FROM WHICH TWO-DIMENSIONAL DESIGNS ARE COMPOSED

LINE Connection between two points.	SHAPE Created by a closed line or by a solid colour.
TEXTURE Visual and tactile surface.	COLOUR Primary, secondary, tertiary, complementary colours.
TOPE Shadows, mid-tones, highlights.	PATTERN Natural, man-made, repeat or mirrored.



WORD REVOLUTION

The Elements of Music	Dynamics, Rhythm, Pitch, Structure, Metre, Instruments (sonority), Tonality, Texture, Tempo
Leit motif	A short piece of music that is linked to a character e.g. Hedwig's theme.
Underscore	The music in the background that supports the on screen action
Pedal Note	A long sustained low note that plays under the rest of the music
Britpop	Britpop was a music started in 1990s Britain where bands like Oasis made catchy rock songs that celebrated being British.
Pop song structure	Intro, verse, bridge, chorus, middle 8, instrumental, outro
Mickey-mousing	Where the music is perfectly in sync with the on-screen action.
Extension chord	A chord that uses 4 or more notes e.g. E7, G7
Harmony	Use of chords and accompaniment. Major, minor, dissonance.
Interval	The gap in pitch between two notes e.g. C-G is an interval of a 5th

What will I study this year?

What will I be able to do by the end of this year?

Performing: Keyboard, drums, guitar, bass and vocal skills.

Reading Music: Learn treble and bass clef notes, rhythms and chords

Composing: Make longer melodies and chord sequences to create emotions

Technology: Use GarageBand to make, edit and save and export music

Listening: Identify composing techniques and be able to describe the elements

Context: Understand music's origins and emotions

Compose: Create a descriptive piece of film music on GarageBand.

Understand: Treble clef notes, rhythms, and time values

Identify Composing Techniques: Pedal notes, tonality, use of elements

Perform: Use instruments or voice in time confidently in a variety of contexts

Dynamics

pp	Pianissimo
p	Piano
mp	Mezzo Piano
mf	Mezzo Forte
f	Forte
ff	Fortissimo
	Crescendo
	Diminuendo

Rhythm

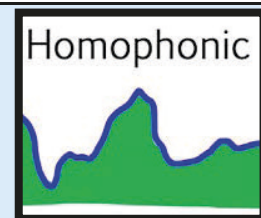
Semibreve	
Minim	
Crotchet	
Quaver	
Semiquaver	

= tea
 = coffee
 = Coca-Cola

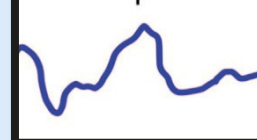
Film Music Overview

Film Music History	Film music began in the early 1900s with live piano during silent films and grew into full soundtracks with orchestras, electronic, and digital compositions.
Purpose	It helps tell the story.
Notable Composers	John Williams, Hans Zimmer
Why it Matters	Film music builds tension, enhances emotions, and helps you connect with the story.

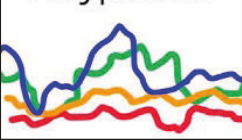
Texture is the way the musical layers are combined. Basic texture can be described as 'thick' or 'thin'



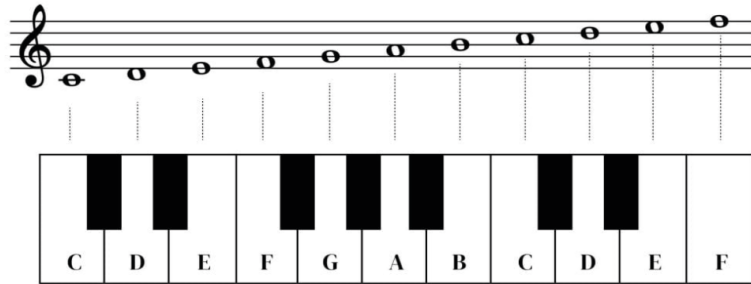
Monophonic



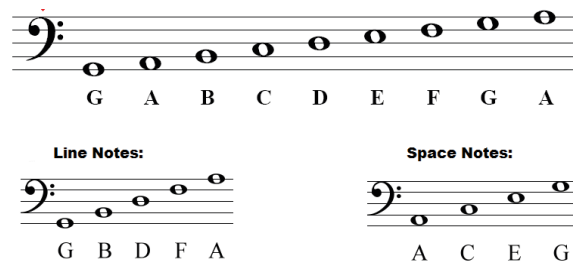
Polyphonic



Treble clef notes and keyboard



Bass Clef – for instruments like bass guitar, cello, trombone etc.



How to work out major and minor chords

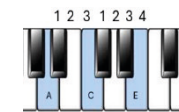
Major

4 steps then 3 steps

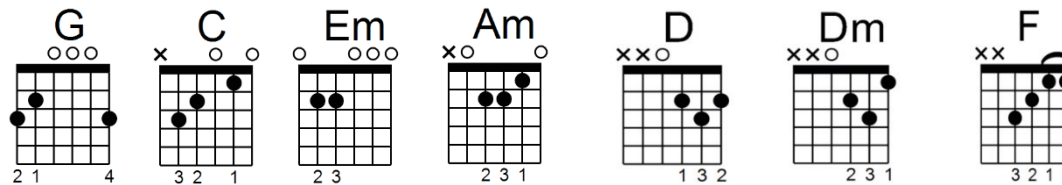


Minor

3 steps then 4 steps



Add 3 steps to either to create a 7th chord (4 notes) e.g. CEGGb



Guitar Chords

Drumbeat

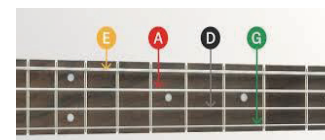
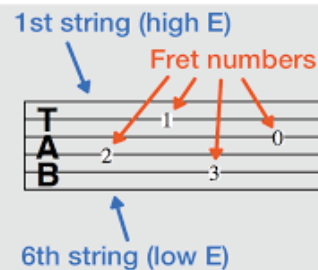
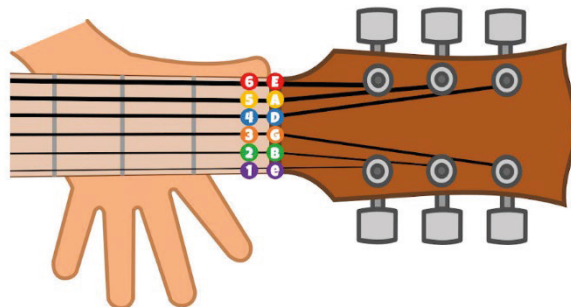


Try adding this fill in b4



INSTRUMENTS

Strings	Woodwind	Brass	Percussion
Violin	Flute	Trumpet	Xylophone
Viola	Clarinet	French Horn	Glockenspiel
Cello	Oboe	Trombone	Timpani
Double Bass	Bassoon	Tuba	Triangle
Guitar	Saxophone	Cornet	Tambourine
Bass Guitar	Recorder		Drum Kit



Bass Guitar strings

SUBJECT: Drama

TOPIC: Performance Skills



YEAR: 9

SEMESTER: 1 & 2



WORD REVOLUTION

Characterisation	The way an actor uses voice, body, and emotions to show what a character is like.
Subtext	The hidden meaning behind what a character says or does — what they really feel or think.
Naturalism	A style of acting and performance that tries to look and feel like real life.
Stylised Theatre	Theatre that uses exaggerated movement, voice, or design instead of trying to look real.
Ensemble Work	When a group of actors work closely as a team, with no one person being more important than the others.
Stimulus	Something that inspires an idea for a drama — like a picture, word, sound, or object.
Monologue	A speech by one character, where they talk to themselves or the audience.
Emotional Truth	When an actor shows real, believable feelings that connect with the audience.
Physicality	How an actor uses their body to show a character or emotion.
Devising	Creating your own piece of drama from scratch, often in a group, instead of using a script.

Devising Challenge Task – The Ticking Clock: In a small group, create a short drama scene (2–3 minutes) using the idea of a ticking clock. The clock should represent something deeper, like pressure, fear, or time running out. Your scene should have a clear story, show strong emotions through movement and voice, and include everyone in the group. Try to show the meaning of the clock without using a real one and be ready to explain what your scene is about.

What will I study in this topic?

- I will develop deeper, more complex characters using emotion and backstory.
- I will learn to break down scripts and find hidden meanings (subtext).
- I will explore performance styles like naturalism and stylised theatre.
- I will work in groups to create original drama based on themes or issues.
- I will perform comedy scenes and monologues with emotional depth.

What will I be able to do by the end of this topic?

- I can perform believable characters with emotion and strong physical choices.
- I can analyse and perform scripts with clear understanding of subtext.
- I can switch between acting styles and adapt to different genres.
- I can collaborate in a group to create and perform original work.
- I can deliver monologues and comedy scenes with skill and confidence.

Naturalistic Theatre Performance

- Characters behave and speak like real people in believable, everyday situations.
- Dialogue is natural and realistic.
- Actors create detailed backstories to understand their character's thoughts and emotions.
- Performers react truthfully on stage, even when they aren't speaking.
- Sets, props, and costumes are realistic and match the real world of the play.

Devising and Using a Stimulus

- Start by discussing what the stimulus makes you think or feel.
- Brainstorm ideas as a group and decide on a clear theme or message.
- Create characters, settings, and scenes based on your chosen idea.
- Use improvisation to try out different moments and develop the story.
- Rehearse, and shape the performance to make it clear and engaging for an audience.

Working with a Script

- Read the script carefully to understand what's happening in the scene.
- Think about what each character wants and why they are saying certain lines.
- Look for feelings or thoughts that are *not* said out loud — this is the subtext.
- Use body language, facial expressions, and tone of voice to show hidden emotions.
- Practise the scene with different emotions or intentions to explore what's really going

Stimulus for drama could be....

- Pictures
- Props
- Scripts
- Location





WORD REVOLUTION

Sustainability	Using resources in a way that meets current needs without harming the environment or reducing resources for the future.
Eco-friendly	Not harmful to the environment; designed to reduce pollution and waste.
Client	The person or group you are designing a product for.
User needs	The requirements and preferences of the person who will use the product.
Container home	A house built using shipping containers, often adapted for comfort and sustainability.
Accessibility	Design features that make a product or space usable for people with different abilities or needs.
Insulation	Material used to keep heat in or out of a building, improving energy efficiency.
Perspective drawing	A way of drawing objects so they appear three-dimensional and realistic, showing depth.
Functionality	How well a product or design works to meet its intended purpose.
Iterative design	A process of constantly improving a design through testing, feedback, and refinement.
Recycled materials	Items that have been used before and processed to be reused in new products.
Design specification	A clear list of requirements that a product must meet, based on the user's needs.
Low-impact living	A lifestyle that tries to reduce damage to the environment through choices like saving energy and reducing waste.
Innovation	A new idea or method that improves how something works or looks.

What will I study in this topic?

- How eco-friendly and sustainable homes are designed and built
- The needs of different users and how design can meet those needs
- How to sketch and develop ideas using 1-point perspective drawing
- How to plan, make, and evaluate a model of an eco container home

What will I be able to do by the end of this topic?

- Explain what makes a home sustainable and eco-friendly
- Create design ideas that respond to a specific client's needs
- Draw a container home in accurate 1-point perspective with annotations
- Build and evaluate a 3D model that reflects your design and client brief

Key Tools:



Try Square



Scroll Saw



Coping Saw



Tenon Saw

Curriculum Connections:

Builds on your practical and drawing skills from Year 7 and 8 to create more detailed designs.

Introduces sustainability and client needs – key ideas for GCSE projects.

Follows the same design process used in the GCSE NEA, helping you get ready for Year 10.

Health & Safety



Wear goggles when operating machinery



Tie back long hair



Wear an apron.

How will I be assessed?



Design Ideas



Practical outcomes



End of unit test

SUBJECT: Design & Technology

TOPIC: Product Design

YEAR: 9

SEMESTER: 1 & 2



Key drawing skill: 1 point perspective	Step 1 Draw the horizon and vanishing point Step 2 Draw the front of the shape Step 3 Draw lines to the vanishing point Step 4 Add lengths to show depth
Why is energy efficiency important for housing?	They help reduce energy bills – using less electricity and gas saves money. They are better for the environment – using less energy means less pollution and fewer greenhouse gases. They keep homes more comfortable – better insulation means homes stay warmer in winter and cooler in summer. They reduce demand on power stations – helping the country avoid blackouts and reduce fuel imports

The needs of the client

Accessibility – e.g. ramps, wide doorways, or step-free access for wheelchair users or people with mobility issues.	Comfort – spaces that are warm, well-lit, ventilated, and suitable for everyday living.	Privacy – areas for sleeping, relaxing, or working without being disturbed.	Storage – enough space to safely store personal belongings, tools, or equipment.	Personal lifestyle needs – e.g. a space for pets, hobbies, working from home,
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Evaluation Tool - Pugh's Plates

Functionality – Does the design meet the client's needs and work well in daily use? Cost – Is the design affordable and does it make good use of materials?	Aesthetics – Does the design look good and suit the client's style or preferences? Sustainability – Does the design use eco-friendly materials and reduce environmental impact?	Ease of manufacture – Is the design easy to build using the tools and materials available? Safety – Is the design safe for the user and safe to make in the workshop?	Space efficiency – Does the design make good use of space, especially in a small container home? Innovation – Does the design include any creative or original ideas that make it stand
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Moodboard - Ideas for inspiration!



SUBJECT: Design & Technology

YEAR: 9



TOPIC: Food Preparation & Nutrition

SEMESTER: 1 & 2

WORD REVOLUTION

Protein	Protein – Helps your body grow and repair muscles and tissues. Eg: meat, fish & beans.
Carbohydrate	Gives you energy to move, think, and stay active. Eg: Bread, pasta, rice.
Fat	Provide long-term energy and help your body absorb vitamins.
Fibre	Keeps your digestive system healthy and prevents constipation.
Viscosity	How thick or runny a liquid is, such as soup or custard.
Gelatinisation	When starch absorbs liquid and thickens during cooking, like in sauces.
Denaturation	When heat or acid changes a protein's structure, making it firm or solid.
Coagulation	When proteins thicken or set when heated, like eggs cooking.
Macronutrient	Nutrients your body needs in large amounts, like protein, carbs, and fats.
Micronutrient	Vitamins and minerals your body needs in small amounts to stay healthy.
Blending	Mixing ingredients smoothly using a blender or food processor.
Simmering	Cooking food gently in liquid just below boiling point.
Kneading	Working dough with your hands to stretch gluten and make it elastic.
Danger zone	The temperature range (5 °C – 63 °C) where bacteria grow quickly in food.

What will I study in this topic?

- The role of macronutrients in our bodies
- The science behind starch-based sauces
- How to design and creatively make bread shapes
- The Eatwell guide
- Protein denaturation

What will I be able to do by the end of this topic?

You will build upon prior learning from KS3 Food Technology. You will enhance your knowledge and understanding of what constitutes a healthy, balanced diet and good nutrition. This includes the Eat well Guide and the role of nutrients in a balanced diet. You will build upon the skills learnt in KS3 and use more technical equipment and develop more complex recipes.

Key Tools:



FOOD PROCESSOR



OVEN



HOB



KNIFE



SAUCEPAN



ELECTRIC WHISK



HAND BLENDER



CHOPPING BOARD

Health & Safety



Wash your hands using anti-bacterial soap.

Tie back long hair.



Wear an apron.



Tell a staff member if you burn yourself.

Curriculum Connections:

- Build on the knowledge and practical skills developed in KS3 Food Technology.
- Develop a deeper understanding of healthy eating, the Eatwell Guide, and the role of nutrients in a balanced diet.
- Learn about food science, including how ingredients behave and how cooking methods change food.
- Use a wider range of specialist equipment safely while developing more advanced practical skills and recipes.
- Improve your independence, confidence, and food hygiene practices when planning, preparing, cooking, and presenting food.

How will I be assessed?



Verbal contributions



Food practical evaluations



Cooking assessments

SUBJECT: Design & Technology

TOPIC: Food Preparation & Nutrition

YEAR: 9

SEMESTER: 1 & 2



Key making skill: Bread	Step 1 Mix ingredients – Combine flour, yeast, salt, and water to form a sticky dough.  Step 2 Knead the dough – Stretch and fold to build gluten and make it smooth and elastic.  Step 3 Shape the dough – Form into rolls, plaits, knots, or loaves ready for baking.  Step 4 Bake – Heat sets the structure, browns the crust, and cooks the inside evenly. 											
	The science behind bread making	    <table><tr><th>Yeast</th><th>Kneading</th><th>Egg wash</th><th>Heat reaction</th></tr><tr><td>Yeast feeds on sugars and releases carbon dioxide, making the dough rise and light.</td><td>Kneading develops gluten strands that trap gas and give bread its chewy texture.</td><td>Egg wash adds protein and sugar that brown beautifully, giving a shiny golden crust.</td><td>Heat causes starches and proteins to set, locking in shape and flavour.</td></tr></table>				Yeast	Kneading	Egg wash	Heat reaction	Yeast feeds on sugars and releases carbon dioxide, making the dough rise and light.	Kneading develops gluten strands that trap gas and give bread its chewy texture.	Egg wash adds protein and sugar that brown beautifully, giving a shiny golden crust.
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Top tips for Y9 Food Preparation & Nutrition

1 Be on time to every lesson. The practical lessons are only 55 minutes- the time will fly by!	2 Always bring your ingredients. If there is a problem, please see your Food teacher before the lesson so we can help you.	3 Work as a team! You can help your table members whether it is a theory lesson or a practical.	4 Read through each recipe carefully. Make sure you understand the steps before you begin, you can always ask your teacher to go through them with you!
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Know your food adjectives- think, speak and write like a chef!

Appetising	Creamy	Sweet	Savoury	Tangy
Soft	Spicy	Moist	Chewy	Smooth
Crispy	Rich	Zesty	Fluffy	Buttery
Bland	Wet	Dry	Delicious	Crunchy

Bread assessment inspiration!

You will need to design & make two different bread shapes.





WORD REVOLUTION

Sustainability	To reduce the harm products cause the environment by considering how they are made, what materials they are made from and how they can be disposed of after use.
Annotate	To add labels and comments explaining an idea in full.
Evaluate	To judge how well something meets its purpose & suggest improvements
Properties (of materials)	How a material behaves (eg: is it absorbant, stretchy, strong, malleable)
Decorative Technique	A way of adding decoration to the surface of a textile product realistic
Sample	A practice version to test out the idea before creating the final piece
Applique	A technique where layers of fabric are applied to a larger piece to form decorative patterns or pictures.
Embroidery	Decorative sewing stitch technique.
Embellishment	A technique where decorative details are added such as button & beads.
Template	A guide that is traced around on to fabric before cutting out the pieces
Seam Allowance	The extra fabric between the sewing line and the cut edge
Seam	The line where two or more pieces of material are joined together

What will I study in this topic?

- The relevance of sustainability in design and as consumers
- How to decorate fabric using a range of sewing techniques
- How to create a 3D textiles product by making a template and using safe and accurate construction techniques
- How fabrics are made (their construction) and how that effects how they behave (their properties)

What will I be able to do by the end of this topic?

- Follow the design process: research, design, make and evaluate
- Use a range of specialist equipment safely and effectively including the sewing machine and fabric shears

Key Tools:



Health & Safety



Take care with sharp objects.



Keep the room tidy to avoid trip hazards.



Tie back long hair.

Curriculum Connections:

Builds upon earlier making skills & specialist knowledge in readiness for study at GCSE

- Developing ideas through sampling
- Safe and effective use of the sewing machine
- Testing and evaluating decorative techniques
- Understanding that fabrics have different properties and this impacts their suitability
- Understand the environmental issues associated with Textiles

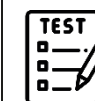
How will I be assessed?



Design Ideas



Practical outcomes



End of unit test

SUBJECT: Design & Technology

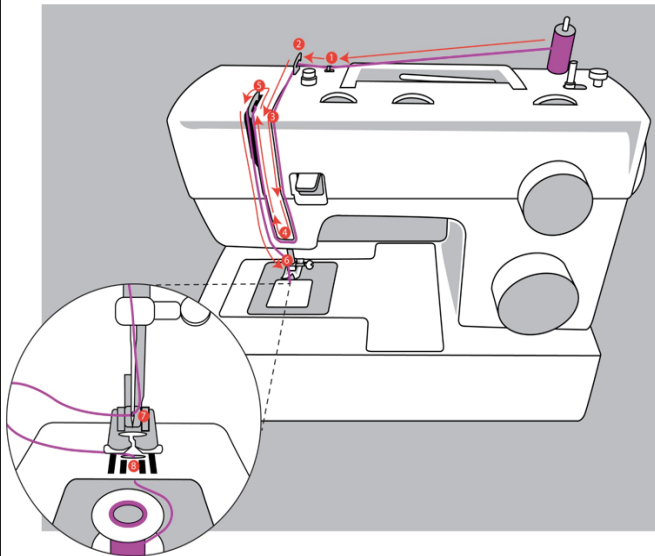
TOPIC: Textiles

YEAR: 9

SEMESTER: 1 / 2



Key practical skill: Threading the Sewing Machine



Follow the numbers 1-7 printed on the sewing machine, ensuring the thread also goes through the hole at the pointed end of the needle (point 7). There should be a second thread that comes up from the panel below the needle. This comes from another, smaller spool of thread called the bobbin.

Decorative Techniques:



Applique: layer/s of fabric applied and stitched to base

Embellishment: adding buttons/sequins/beads

Embroidery: decorative stitch, eg: running, back, chain, cross-stitch

The 6Rs of Sustainability



RETHINK

Always thinking 'do I really need this?', 'is there another way this could be done?'



REDUCE

Reduce how much material we use, how much we buy & how much gets thrown away



REUSE

Don't just throw things away! Can you pass on to someone else or keep using in a different way?



RECYCLE

Choose recycled and recyclable products. Take time to sort the rubbish!



REPAIR

Before you throw away, can your product be fixed and its life extended?



REFUSE

Change your habits! Check labels, refuse to buy products with poor sustainability. Refuse to just throw away and buy more.

QUICK 6 RESEARCH TASK: How are companies being more sustainable?

Which of the 6Rs are being demonstrated in the below examples?



Picture: 1



Picture: 2



Picture: 3



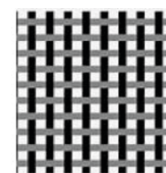
Picture: 4

Challenge: Can you find examples like these on any products you own?

Specialist Technical Knowledge: Fabric Construction

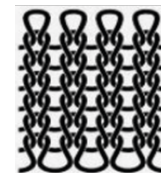
Fabrics behave differently (have different **properties**) depending on how they are made. Knowing the construction of a fabric will help you choose the right fabric for the product you want to make.

Woven



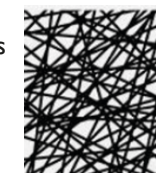
- Strong
- Smooth surface (good to print on)
- Rigid (no stretch)
- Fray when cut

Knitted



- Stretchy
- Warm
- Permanent patterns can be knitted into fabric
- Can ladder and edges curl when cut

Non/Woven



- Does not fray
- Can be permanently shaped using heat & pressure (eg: hat making)
- No stretch and least strong



WORD REVOLUTION

Kick Out	<i>A technique used during somersaults where the body extends at the peak of the jump to control rotation and prepare for landing.</i>
Cardiovascular Endurance	<i>The ability of the heart and lungs to supply oxygen to the muscles during sustained physical activity.</i>
Time Signature	<i>A musical term used in dance to describe the number of beats in each measure, helping</i>
Choreography	<i>The art of designing sequences of movements in which motion, form, or both are specified.</i>
Spin Pass	<i>A passing technique where the ball is spun through the air, allowing for greater distance and accuracy</i>
Zonal Marking	<i>A defensive strategy where players guard specific areas of the court rather than marking individual opponents.</i>
Penalty pass	<i>A penalty pass is awarded when a major rule infringement occurs</i>
hooker	<i>A central player in the front row of the scrum</i>
decompression	<i>the phase when the body extends and straightens after compression (bending)</i>
Reaction time	<i>the amount of time it takes for a person to respond to a stimulus.</i>
Articulating Movements	<i>Movement of joints in the body. These movements allow for actions such as bending, rotating, or extending limbs during physical activity</i>

Netball Scoring

DATE: _____ ROUND: _____

BRENTWOOD A	BRENTWOOD B
E 0	

1. A coin is tossed to decide who will start the netball game with the **first centre pass**. The team that wins the coin toss and then chooses the first centre pass will start as **EVENS**.
2. An 'E' for **EVENS** should be written in the box under the team which will take the first centre pass and an 'O' for **ODD** should be written in the box of the opponent.
3. The Umpire may also ask the Scorer which team has the next centre pass. The Scorer can work this out by adding both the scores together to find out if the total is an **Even** or **Odd** number.
4. In this example, the score is **5-2** and therefore the total comes to **7**, so the team who is currently **ODD** will take the next centre pass.
5. If the quarter **ended mid-play** then the team that were previously on **EVENS** now **changes** to **ODDS** and vice-versa.
6. If the quarter ended on a goal and the following **centre pass has not taken place**, then the **EVENS** and **ODDS** **stay the same**.
7. **REMEMBER: - If IN play, CHANGE the way.**

DATE: _____ ROUND: _____

BRENTWOOD A	BRENTWOOD B
E 0	
1 2 3 4 5	1 2
5	0 E 2

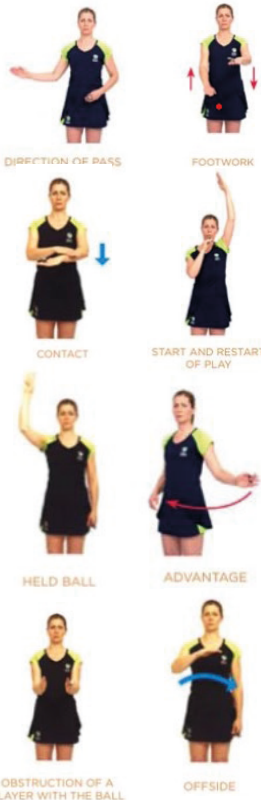
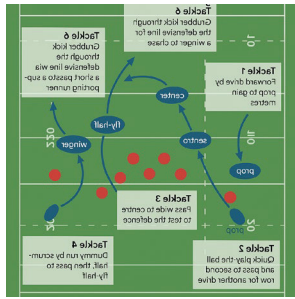
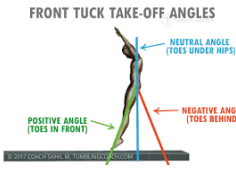
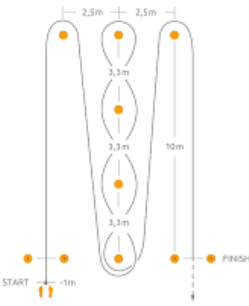
skill	Tariff value
Straight jump	0.0
Tuck jump	0.0
Seat drop	0.0
Half twist	0.1
Full twist	0.2
Back somersault (tucked)	0.5
Front somersault (tucked)	0.5
back somersault with half twist	0.6
Front somersault full twist	0.8

What Is a Difficulty Tariff in Trampolining?

The **difficulty tariff** (also called **degree of difficulty** or **DD**) is a score that reflects how challenging the skills in a trampoline routine are.

Each skill has a **pre-set value** based on:

- The number of **somersaults**
- The number of **twists**
- The **body shape** used (tuck, pike, straight)

Netball	Football	Rugby	Trampolining	Fitness	Dance
Hand Signals  Penalty pass A penalty pass is given to the non-offending team when a major infringement occurs. The offending player must stand out of play, which means: They must stand beside and away from the player taking the penalty. They cannot move or attempt to influence play until the pass is taken.	Offside explained They are closer to the opponent's goal line than both the ball and the second-last defender at the moment the ball is played to them by a teammate, AND they are actively involved in play (e.g. receiving the ball, interfering with an opponent, or gaining an advantage).  Scenario: Your team wins a corner kick. Set Piece Plan: The corner taker (Player A) passes the ball short to a nearby teammate (Player B). Player B either: Crosses the ball into the box for attackers to head or shoot. Passes back to Player A who now has a better angle to cross. Why it's useful: - It draws defenders out of the penalty area. - It creates better angles for crossing. - It encourages teamwork and communication.	6 tackle strategy examples  Tackle 1 – Forward drive by prop to gain ground. Tackle 2 – Quick ball to second row for another strong carry. Tackle 3 – Pass wide to centre to stretch the defence. Tackle 4 – Scrum-half dummy run, then pass to fly-half. Tackle 5 – Short pass to supporting runner to keep momentum. Tackle 6 – Grubber kick behind the line for winger to chase. Wrap-Around Move Pass & Loop: Fly-half (10) passes to centre (12) and loops behind. Timing: Centre delays pass slightly to allow the loop. Centre's Role: Draw defenders, then return pass to fly-half.	Compulsory 10-bounce routine 1. Tuck Jump 2. Pike Jump 3. Straddle Jump 4. Half Twist Jump 5. Seat Drop 6. Half Twist to Seat 7. Half Twist to Feet 8. Back Drop 9. Half Twist to Feet 10. Front Somersault (Tucked) Front Somersault 1. Take-Off: Jump high with arms up and tight body. 2. Tuck: Bring knees to chest, hold shins, stay compact. 3. Spot Landing: Open out early, look for the bed. 4. Landing: Land on feet, knees bent, arms forward. 	Cardiovascular endurance - 12minute cooper run Muscular strength – handgrip dynamometer Muscular endurance – 1-minute sit-up test Flexibility – sit and reach test  Agility – Illinois agility test Speed – 30m sprint test Power - vertical jump test Balance – standing stork test  Coordination – wall toss test Reaction time – ruler drop test.	Choreography Techniques by Decade 1980s: Focus on breaking, popping, and locking. Emphasize isolations, sharp movements, and floor work. 1990s: Introduce hip-hop freestyle, house, and rave styles. Teach groove-based movement and fluid transitions. 2000s: Explore krumping, street jazz, and commercial dance. Highlight expressive, high-energy, and stylized choreography.  Constructive Feedback Use specific language when giving feedback (e.g., “Your arm isolations in the popping section could be sharper.”). Encourage feedback on: Choreographic structure (beginning, middle, end) Use of space and levels Energy and commitment Synchronization in group work

