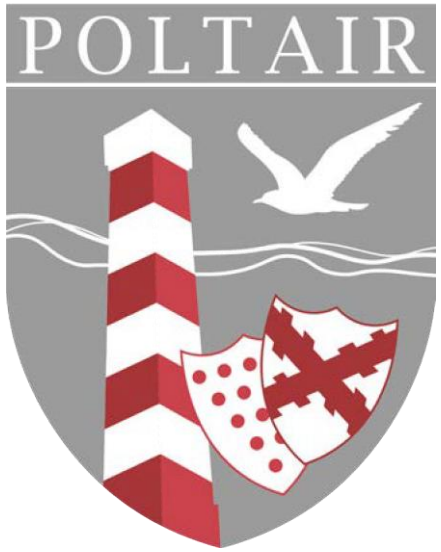


Year 10
Learning Cycle 1

Student Name:_____

Contents

How to Use your Learning Cycle Planner

Poltair School believe that the Learning Cycle Planner should be used daily for classwork and home learning. The Learning Cycle Planner will inform students and parents of topics that are being covered in class during each learning cycle, enabling all students to extend their learning outside of the classroom.

Students should be using their Learning Cycle Planner as a revision guide for assessments and using their SORT strategies to revise for each subject prior to assessments.

Learning Cycle 1
1/9/24 - 20/12/24

Knowledge check
2/12/24 – 13/12/24

At Poltair we SORT it!

How to Use your Learning Cycle Knowledge Organiser

Poltair School believe that the Learning Cycle Knowledge Organiser should be used daily for classwork and home learning. The Learning Cycle Knowledge Organiser will inform students and parents of topics that are being covered in class during each learning cycle, enabling all students to extend their learning outside of the classroom.

Students should be using their Learning Cycle Knowledge Organiser as a revision guide for assessments and using their SORT strategies to revise for each subject prior to assessments.

What are the SORT strategies?

Select	Organise	Recall	Test
Select your revision materials by topic/subtopic. Traffic light your PLC sheets to identify areas of weakness or gaps (Red/Amber) that need to be prioritised.	Organise and condense any class notes, revision guides and revision.	Use active recall and spaced repetition to memorise your knowledge organisers until you can recall the information e.g.. Look, cover, write or self-testing	Use low stakes online tests/quizzes and answer high stakes past paper/sample questions to check and apply knowledge and understanding
Strategies			
• How to use your PLC • How to schedule your home learning and stick to it! • Hoe to select the correct knowledge to study	• Cornell Notes • Flash cards • Mind mapping • Revision clocks • Dual coding • Summary	• Look cover & test • Leitner system • Blurt it • Transform it	• Low stakes • Self-quizzing • Quiz each other • Online quizzes • High stakes • Exam style questions

How to use SORT

Step 1: Select	Step 2: Organise	Step 3: Recall	Step 4: Test
When you revise for a specific topic use your knowledge organiser, revision guide, website etc to select the key knowledge you need to learn. a. Use the daily planner on page 10 to identify all the times when you will complete your home learning and when you will complete independent revision b. RAG each of the PLCs so you identify your RED topics – the ones that you are unsure of or you do not fully understand c. Write your RED topics into your daily planner for when you will revise that subject.	Organise the knowledge that you have selected using a range of strategies: • Flashcards • Mindmaps • Cornell Notes • Revision Clocks • Summary For more details go to the SORT webpage: https://www.poltairschool.co.uk/sort	Once you have summarized the knowledge, you need to actively memorise it. This is the most important part of the revision process! You could use any of the following strategies to help: • Lietner System • Blurt It • Look, say, cover, write, test	The last step in revision is to be confident that you can recall and retrieve the knowledge. To do this you need to test yourself. Quick and simple ways are to ask someone else to quiz you on the knowledge or to complete an online quiz. You can also answer past exam questions. If you can not confidently recall the knowledge you will need to repeat step 3.

At Poltair we SORT it!

ATTENDANCE FOCUS

POLTAIR

ATTENDANCE FOCUS

POLTAIR

Attendance Reflection Sheet	
What is your current attendance?	
How many sessions have you missed of school?	
How many 'I' coded sessions have you had?	
How many 'M' coded sessions have you had?	
How many 'L' coded sessions have you had?	
How many 'U' coded sessions have you had?	
How many 'O' coded sessions have you had?	
How many days does this equate to so far this year?	
If this attendance continued how many days off would you have this year?	

To improve my attendance, I commit to the following:	
1.	
2.	
3.	
What attendance do you want to end this term with?	
What is your end of year attendance target?	
What is our minimum expected attendance to be rewarded?	

Possible strategies to REACH MY Attendance Goals

- I will make attending school every day a priority.
- I will keep track of my attendance and absences.
- I will set my alarm clock for _____a.m.
- I will attend school everyday unless I am truly sick.
- I will find a relative, friend or neighbour who can take me to school if I miss the bus.
- If I am absent, I will contact my teachers to find out what I missed.
- I will set up medical and dental appointments for weekdays after school. If I must make a medical appointment during the school day, I will try to attend school for most of the day.
- When I am struggling with a challenge that is keeping me from school I will confide in an adult at school and seek help.

Home Learning timetable - when I am going to complete my home learning

	Mon A	Tues A	Weds A	Thurs A	Fri A	Mon B	Tues B	Weds B	Thurs B	Fri B
10X1 & Y1	Eng/	Sci/Option B	Option A	Ma/	Option C/Option D	Eng/Sci	Option B	Option A	Ma/	Option C/Option D
10X2 & Y2	Eng/Ma	Sci/ Option B	Option A		Option C/Option D	Eng/Sci	Option B	Ma/Option A		Option C/Option D
10X3 & Y3	Ma/	Eng/Option B	Sci/Option A		Option C/Option D		Eng/Option B	Option A	Ma/Sci	Option C/ Option D

Expected time home learning will take:

Subject	Homework
English (Eng)	60 minutes (weekly)
Mathematics (Ma)	60 minutes (weekly)
Science (Biology/Chemistry/Physics)	30 minutes (every two weeks)
Computing (Comp)	30 minutes (every two weeks)
Spanish (MFL)	30 minutes (every two weeks)
Geography (Geog)	30 minutes (every two weeks)
History (His)	30 minutes (every two weeks)
Creative Learning (Music/DT/Art/Performing Arts) – Creative	30 minutes (every two weeks)

My Computer passwords:

Platform	Username	Password

Revision Planner

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Time	Saturday	Sunday
8.30am - 4pm						8.30am - 4pm		
4pm - 5pm						4pm - 5pm		
5pm - 6pm						5pm - 6pm		
6pm - 7pm						6pm - 7pm		
7pm - 8pm						7pm - 8pm		
8pm - 9pm						8pm - 9pm		

Year 10 Learning Cycle 1 Personal Learning Checklists

English – Language paper 1

Key Ideas	S	O	R	T
Question 1: focus, timings and how to answer the question.				
Question 2: focus, timings and how to answer the question.				
Question 3: focus, timings and how to answer the question.				
Question 4: focus, timings and how to answer the question.				
Selecting relevant information from a fiction text (Q2, Q3, Q4).				
Identifying language methods with accurate terminology (Q2, Q4).				
Analysing language methods (Q2, Q4).				
Identifying structure methods with accurate terminology (Q3, Q4).				
Analysing structure methods (Q3, Q4).				
Evaluating a statement about a fiction text (Q4).				
Supporting my evaluation of a fiction text by identifying and analysing a range of relevant methods (Q4).				
Planning an extended descriptive or narrative piece of writing (Q5/Section B).				
Using a range of sophisticated vocabulary precisely in my creative writing (Q5/Section B).				
Using a range of language methods in my creative writing (Q5/Section B).				
Using a range of punctuation accurately in my creative writing (Q5/Section B).				
Using a range of sentence structures and starters in my creative writing (Q5/Section B).				
Proof-reading and editing my creative writing (Q5/Section B).				

English – Literature paper 1, section B (A Christmas carol)

Key Ideas	S	O	R	T
Recalling significant moments in the plot.				
Understanding characters and how they develop throughout the novella.				
Understanding key themes (greed, poverty, familial love, redemption, Christmas, charity, happiness and joy).				
Recalling key quotations for all characters and themes.				
Understanding how Dickens' beliefs and motivations influence his writing.				
Understanding Dickens' intentions, messages and 'big ideas'.				
Recalling key information about the Victorian context.				
Planning thoughtfully structured responses to exam questions.				
Writing thesis introductions.				
Writing developed what, how, why paragraphs.				
Using a range of references (including quotations) to support ideas in written responses.				
Identifying language methods using correct subject terminology.				
Analysing Dickens' language methods thoughtfully.				
Identifying structure methods using correct subject terminology.				
Analysing Dickens' structure methods thoughtfully.				
Developing analysis by exploring how quotations / references add to Dickens' exploration of 'big ideas' e.g. poverty and responsibility.				
Developing analysis with relevant contextual ideas (Victorian).				
Using a range of sophisticated vocabulary to enhance analysis.				
Using appropriate connectives in written responses.				

Year 10 Learning Cycle 1 Personal Learning Checklists

Mathematics

Key Ideas	Sparx code	S	O	R	T
I can add, subtract, multiply and divide with decimals	M429, M152, M803, M491				
I understand percentage increase and decrease	U773, U671				
I can reverse percentage increases and decreases	U286, U278				
I know the difference between simple and compound interest and can calculate these	U533, U322, U988				
I know how to draw and interpret bar charts, vertical line charts, stem&leaf diagrams and scatter graphs	U590, U193, U200, U128				
I can expand and factorise single brackets	M237				
I can expand double brackets, including repeated brackets	M960				
I can factorise a quadratic expression	U693, U858, U178				
I can rearrange formulae	U181, U191				

Mathematics

Key Ideas	Sparx code	S	O	R	T
I can sort data into Venn diagrams	U476, U748,				
I can draw and interpret tree diagrams	U558, U729				
I can write a number as a product of its prime factors	M108				
I can find the HCF and LCM of a number from the product of its prime factors	M365				
I can find the area of rectangles, squares and parallelograms	M390, M610, M291,				
I can find the area of compound shapes	M269,				
I can find the volume of cuboids, prisms and cylinders	U786, U174				
I can solve linear and quadratic simultaneous equations (higher only)	U760, U547				

Mathematics (higher only)

Key Ideas	Sparx code	S	O	R	T
I can draw and interpret cumulative frequency graphs	U182, U642,				
I can draw and interpret boxplots	U879, U837, U507				
I can find the nth term of a quadratic sequence and find the next terms	U206				
I understand set notation	U748,				
I can simplify surds	U633, U338, U872, U499				
I can rationalise the denominator	U707, U281				
I can find the volume of spheres, convers, pyramids and frustums	U617, U116, U350, U426				
I can calculate the surface are of cylinders, cones, pyramids	U871, U464, U893, U334				

Year 10 Learning Cycle 1 Personal Learning Checklists

Science

Key Ideas	S	O	R	T
I can describe the structure of a leaf				
I can explain how the xylem and phloem are adapted and how this links to transpiration and translocation				
I can describe the process of photosynthesis including the limiting factors and the uses of glucose				
I can describe how diffusion, osmosis and active transport occurs in the root hair cell				
I can explain interdependence and what is it to be a stable community				
I can explain the levels of organisation in an ecosystem				
I can explain how animal and plants are adapted to suit their environment				

Science

Key Ideas	S	O	R	T
I can describe alternating and direct current				
I can describe and explain the features of a plug				
I can describe and explain the features of a plug				
I can calculate the power using potential difference and current				
I can understand the role of the national grid in supplying electricity to our homes				
I can calculate the power across transmission lines by using current and resistance				
I can calculate the power across transmission lines by using current and resistance				
I can define what WAN, LAN and PAN networks are and when they are used.				

Science

Key Ideas	S	O	R	T
I can understand how the periodic table has been developed				
I can explain how properties of group 1 and 7 elements change and how they react				
I can explain how properties of group 1 and 7 elements change and how they react				
I can explain how properties of group 1 and 7 elements change and how they react				
I can explain how metallic bonding occurs and what fullerenes are				
I can explain how metallic bonding occurs and what fullerenes are				
I can explain how metallic bonding occurs and what fullerenes are				
I can describe the process of cracking				

Year 10 Learning Cycle 1 Personal Learning Checklists

Science

Key Ideas	S	O	R	T
I can describe resistance in series and parallel circuits				
I can describe and explain the I-V graphs for several components				
I can describe and explain the I-V graphs for several components				
I can calculate KE, GPE and EPE				
I can understand how energy is transferred through electrical appliances				
I understand how to use my chosen materials with skill and flair.				

Art

Key Ideas	S	O	R	T
Explain and use tone, texture, line, shape, scale and composition to create an interesting observational drawing.				
Experiment with a range of materials.				
Refine work through annotation.				
Record ideas and observations.				
Develop ideas through investigation.				
Present a personal and meaningful response.				
Explain and discuss how decisions have been made through annotation.				

Computer Science

Key Ideas	S	O	R	T
What happens at each stage of the fetch-decode-execute cycle				
The role of each of the CPU components				
The purpose of each register				
Understand the impact of Clock speed, Cache and Cores				
What is an embedded system?				
The characteristics of RAM and ROM				
Types and characteristics of secondary storage				
Why is data in binary?				
Units of data storage and conversions				
Convert binary and hex				
Python selection and iteration				
How images and sound are stored digitally				

Year 10 Learning Cycle 1 Personal Learning Checklists

Design Technology

Key Ideas	S	O	R	T
I can understand the impact of new and emerging technologies on the design and organisation of the work place.				
I am able to understand the impact of resource consumption on the planet.				
I am able to identify how enterprise can be based on the development of effective business innovation.				
I can understand how products are designed to avoid having a negative impact on others.				
I am able to identify how the contemporary and future use of automation, computer aided design, and computer aided manufacture helps with creating products.				

Geography – Tectonic hazards

Key Ideas	S	O	R	T
Define hazard and give examples				
Name and locate the layers of the earth				
Explain how convection currents cause plate movement				
Explain the causes and effects of the Haiti earthquake 2010				
Evaluate the responses to the Haiti earthquake 2010				
Understand the causes and effects of the Christchurch earthquake 2011				
Evaluate the responses to the Christchurch earthquake 2011				
Describe the benefits of planning, prediction, and planning				
Explain the benefits of living in a hazardous area				
Evaluate the differences in hazards between a HIC and a LIC				

Geography - Weather hazards and climate change

Key Ideas	S	O	R	T
Describe the global distribution of tropical storms (hurricanes, cyclones, typhoons)				
Explain the relationship between tropical storms and general atmospheric circulation				
Identify the key features of a tropical storms				
Describe the structure of a tropical storm				
Explain how tropical storms form and the conditions needed for their formation				
Suggest how climate change is going to influence the distribution, frequency and intensity of tropical storms				
Describe the global distribution of tropical storms (hurricanes, cyclones, typhoons)				
Explain the relationship between tropical storms and general atmospheric circulation				
Identify the key features of a tropical storms				
Describe the structure of a tropical storm				

Year 10 Learning Cycle 1 Personal Learning Checklists

History

Key Ideas	S	O	R	T
I can state Medieval treatments, preventions and beliefs about the cause of disease and illness				
I can explain the outbreak of the Black Death in 1348				
I can state Early Modern (renaissance) treatments, preventions and beliefs about the cause of disease and illness				
I can explain the changes and continuities in the Early Modern (renaissance) period				
I can state 18th and 19th century treatments, preventions and beliefs about the cause of disease and illness				
I can explain the changes and continuities in the 18th and 19th century period				
I can state Modern treatments, preventions and beliefs about the cause of disease and illness				
I can explain the changes and continuities in the modern period				
I can state what it was like to fight in the trenches and the medical issues associated with this				
I know how to analyse source content and provenance				

Hospitality and Catering

Key Ideas	S	O	R	T
I can describe Control measures for common risks and hazards in the hospitality industry - slips, trips, falls, burns, scalds.				
I can describe Control measures for common risks and hazards in the hospitality industry - slips, trips, falls, burns, scalds.				
I can identify high risk foods and methods of reducing risk - Food related causes of ill health				
I can describe causes of food poisoning and identify visible and invisible symptoms.				
I can explain the importance of the Environmental Health Officer and describe their roles and responsibilities				
I can explain the nutritional requirements of Vulnerable groups of people.				
I can demonstrate the techniques and skills - yeast products, enriched dough, knife skills, pastry making, chicken portioning, white sauce-roux sauce, cake making				

Music

Key Ideas	S	O	R	T
I understand and can recognise the concepts, characteristics, key features and influential artists of African Drumming.				
I understand and can recognise the concepts, characteristics, key features and influential artists of The Blues.				
I understand and can recognise the concepts, characteristics, key features and influential artists of Britpop.				
I understand and can recognise the concepts, characteristics, key features and influential artists of Heavy Metal.				
I understand and can recognise the concepts, characteristics, key features and influential artists of EDM and Film Music.				
I understand and can recognise the concepts, characteristics, key features and influential artists of Minimalism.				
I can accurately perform, compose or produce music from each of these genres that shows off the characteristics.				

Year 10 Learning Cycle 1 Personal Learning Checklists

Performing Arts

Key Ideas	S	O	R	T
I can understand the different roles for creating theatre.				
I am able to understand the roles for rehearsing and running a theatre production.				
I know about Brecht and the theories and styles behind his techniques.				
I understand the Frankenstein script as well the characters and motives of each character.				
I can interpret the symbolism and meaning of Frankenstein and have thought about how this might impact the way characters are presented.				

Spanish

Key Ideas	S	O	R	T
I know my non-negotiable verbs for the past, present and future tenses				
I understand the meaning of all of the question words				
I know at least 5 interesting adjectives that I can apply to my work				
I can include at least 3 wow-phrase to all of my written work				
I can talk confidently about my holiday experiences				
In the writing exam, I understand the format that each of the tasks takes				
I can write a success criteria for these tasks from memory				

Year 10 Learning Cycle 1English - Reading 40 marks (50% of Language Paper 1 – 1 hour)

1. The Questions

Question 1: List four things… [4]

- ✓ 5 minutes
- ✓ Use the correct line numbers.
- ✓ Write four different ideas that directly answer the question

Question 2: Language [8]

- ✓ 10 minutes
- ✓ Focusing on the key idea in the question, highlight and annotate the best quotations.
- ✓ Write your answer using two or three What, How, Why paragraphs - say a lot about a little!

Question 3: Structure [8]

- ✓ 10 minutes
- ✓ Select important structural features to analyse, including the opening and the ending (use your paragraph summaries to help you).
- ✓ Write your answer using SEW (structure method, evidence, why) paragraphs.

Question 4: Evaluating a statement and a writer's methods (use methods from Questions 2 and 3 + effect + evaluate statement) [20]

- ✓ 20 minutes
- ✓ Mark out the given line numbers.
- ✓ Read the statement and highlight the key ideas. Think about your response to it.
- ✓ Find the best quotations to support your response to the statement and annotate with their methods.
- ✓ Quickly plan then write your answer using SEMA (statement, evidence, method, analyse) paragraphs, linking your analysis back to the statement.

2. Language Methods Terms (use these in Q2 and Q4)

noun	a word that identifies a person, thing, idea or state
adjective	a word that describes a noun
verb	a word that identifies an action, event, situation or change
adverb	a word that gives information about a verb, telling the reader how something is done
sensory imagery	when the writer crafts mental 'pictures' using the senses in description
repetition	using a word or phrase more than once
simile	something is presented as like something else, using the words 'like' or 'as'
metaphor	something is described as if it is something else, to highlight their similarities
personification	giving human traits to something non-human
semantic field	a set of words related in meaning
alliteration	repetition of the same sound at the start of a series of words
sibilance	repetition of the 's' sound at the start of a series of words
plosive sounds	harsh letter sounds such as 't', 'd' and 'k'
onomatopoeia	words that sound like their meaning
pathetic fallacy	weather reflects the mood
hyperbole	purposely exaggerated ideas
juxtaposition	two opposing ideas
list	connected words, ordered one after the other and separated by commas or 'and'
symbol	the use of characters, events or ideas to represent something broader

3. Structure Methods Terms (use these in Q3 and Q4)

opening	the way the extract begins
character introduction	the first description of a person in the text
cyclical	ends the same way it begins
focusing attention	our attention is drawn to something specific
building	when an idea/tension is increased
developing	an earlier point is added to and extended
narrative shift	a swift or change of focus
zooming in	moving from a wider description to detailed description of something precise
zooming out	moving out and describing 'the bigger picture'
flash-forward	presents future events
foreshadowing	hints at what is to come later in a text
climax	the most intense point
dialogue	lines spoken by characters
flashback	presents past events
internal thoughts	description of what a character is thinking or feeling
external action	description of events outside the character
ending	the last ideas/events in the Source

Year 10 Learning Cycle 1English - Reading 40 marks (50% of Language Paper 1 – 1 hour)

4. Verbs for Analysis

Shows For explicit/ obvious meanings	Suggests For what the writer wants us to work out based on clues, inferences implicit meanings	Highlights For ideas made very clear and stressed by the writer as very important	Links to For making connections between quotations from different parts of a text	Other
Reveals demonstrates Exposes Tells the reader/ audience Conveys Presents Depicts	Implies Hints at Connotes Intimates Indicates Alludes to	Emphasises Underlines Reiterates (for something shown more than once) Accentuates Underscores	Relates to Echoes Mirrors Augments Develops Contrasts Juxtaposes Diverges from	Evokes Establishes Symbolises

5. Connectives for Developing Ideas

To order ideas:	To add a different idea:	To add:	To sum up:
Firstly…secondly Finally Lastly To conclude	By contrast On the contrary Although However Alternatively On the other hand Conversely Despite	This also In addition Furthermore Moreover Again Therefore Consequently What is more Then again Subsequently	Ultimately Above all It is evident that

6. Sentence Stems

Q2	The writer describes …… The use of the [language method] demonstrates…… * Furthermore, the word/phrase "……." powerfully evokes …….
Q3	At the beginning of the Source, the writer focuses the reader's attention on……. As the Source progresses, the writer adds to / contrasts ….. * The conscious introduction of ……. as the Source develops builds / contrasts ……. Finally, the writer of the Source ends with ……
Q4	I wholeheartedly/ partially agree that ……. The writer describes "……", which reveals…… The [language/structure method] highlights……. This indicates……. [link to statement].

7. Words to identify writers' emotions:

☺		☹	
Content	Euphoric	Perplexed	Overwhelmed
Assured	Optimistic	Suspicious	Dejected
Captivated	Grateful	Irritated	Indifferent
Curious	Delighted	Indignant	Disgusted
Composed	Untroubled	Unsettled	Enraged
Exhilarated	Proud	Pessimistic	Alarmed

Year 10 Learning Cycle 1English - Writing 40 marks (50% of Language Paper 1 – 45 minutes)

7. Approaching the Question

Plan!
5 minutes

Write
35 minutes

Proof-read
5 minutes

Section B: Writing

You are advised to spend about 45 minutes on this section.
Write in full sentences.
You are reminded of the need to plan your answer.
You should leave enough time to check your work at the end.

Q5: Your school has asked for creative writing pieces to include in their newsletter to parents.

EITHER: Write a description as suggested by this picture:

OR: Write the opening of a story set at night.

(24 marks for content and organisation
16 marks for technical accuracy)
[40 marks]

8. DISCO!

Drop into your setting (action!)

Zoom In

Shift in time (flashback)

Comment (one line of reported speech)

Overview (return to opening description but change something significant

9. The Mark Scheme

Have you:

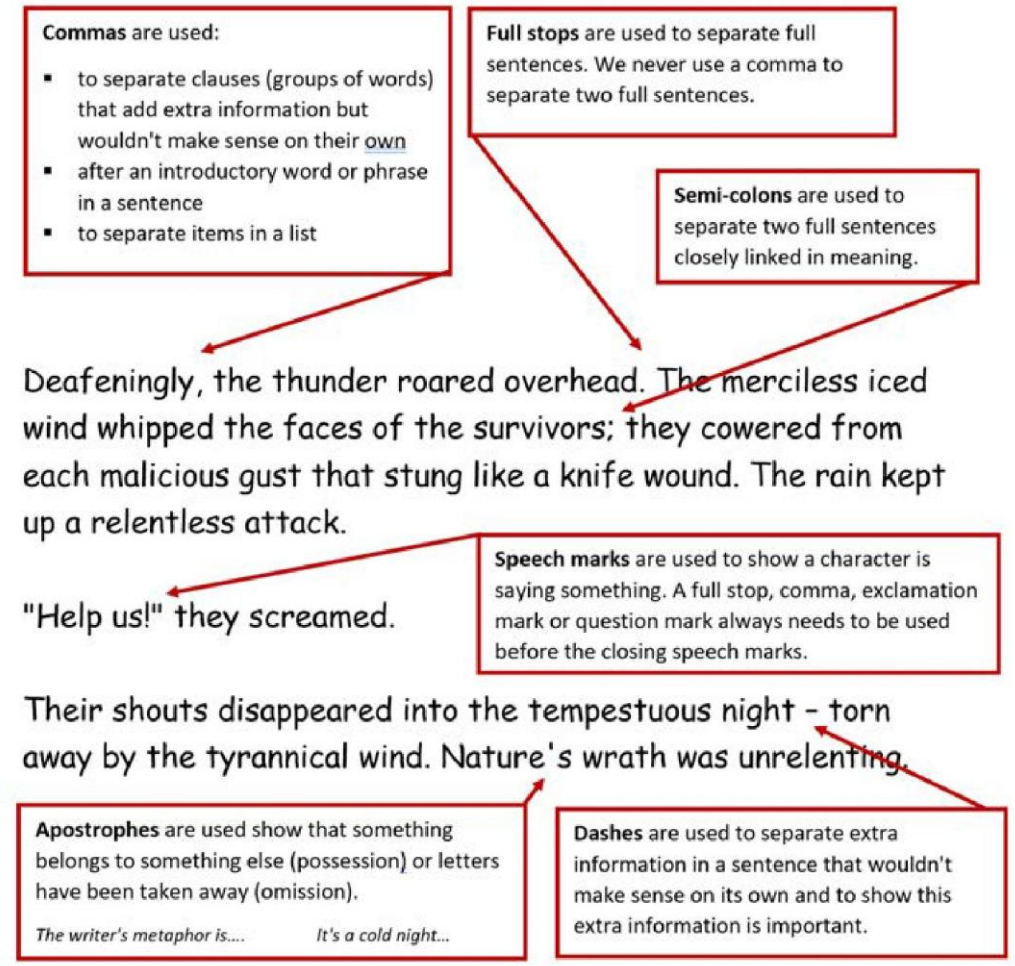
Content and Organisation /24	a) Register matches audience and purpose	• Used a descriptive, creative style? • Included a range of descriptive methods, including simile, metaphor, personification and imagery?
	b) Vocabulary and linguistic devices	• Used a range of interesting and challenging word choices? • Used thoughtful, challenging descriptive methods,
	c) Structural features	• Crafted an engaging opening and a thoughtful ending? • Included foreshadowing, a flashback or flashforward, a motif or circular structure?
	d) Ideas	• Included interesting and convincing ideas? • Linked your ideas together coherently throughout the narrative or description?
	e) Paragraphing	• Used paragraphs in your extended writing and linked them together? • Used a range of paragraph lengths for effect?
Technical Accuracy /16	f) Sentence demarcation	• Ended your sentences correctly, using a full stop, exclamation mark or question mark? • Avoided comma splicing?
	g) Punctuation	• Used basic punctuation correctly, including full stops, commas and capital letters? • Used more complex punctuation e.g. semi-colon, colon and dash?
	h) Sentence forms	• Used a range of minor, simple, compound and complex sentences? • Used a range of sentence starters?
	i) Standard English	• Used formal word choices? • Used grammatically correct phrases?
	j) Spelling	• Used correct spellings? • Selected correct homophones e.g. there/their/they're; to/ too/two; weather/whether.
	k) Vocabulary	• Used a range of challenging word choices precisely?

Year 10 Learning Cycle 1English - Writing 40 marks (50% of Language Paper 1 – 45 minutes)

10. Vocabulary

Key Terms	Description
Alluring	powerfully attractive or interesting
Awe	a feeling of great respect and wonder
Captivating	capable of holding someone's interest
Emanates	comes out from or spreads out from
Enlightened	showing understanding to act positively
Ethereal	light and delicate, in a way that makes something seem heavenly
Euphoric	extremely happy or excited
Dreary	depressingly dull or gloomy
Grave	serious in behaviour or appearance or a place where dead bodies are buried
Inescapable	unable to get away from
Loathsome	causing hatred or disgust
Luminous	giving off light; bright or shining
Merciless	showing no kindness
Melancholy	sadness; downheartedness
Morose	unhappy and unwilling act in a happy way
Oppressed	treated harshly and cruelly
Serene	calm, peaceful, untroubled
Shrouded	covered up, making it hard to see or wrapped in material ready to be buried
Tumultuous	very loud or full of confusion
Triumphantly	in a way that shows great happiness at a victory (winning something) or achievement.
Tyrant	a cruel leader
Vivacious	full of energy and enthusiasm
Wither	to become dry, wrinkled or shrivelled

11. Punctuation



Year 10 Learning Cycle 1English - A Christmas Carol (Literature Paper 1)

1. Plot

1a. Stave 1 Ebenezer Scrooge – a callous and selfish miser – is introduced. In his counting house, where he works as a money lender, he is visited by his nephew who he treats with contempt, rejecting his invitation to dinner on Christmas Day and rebuking his passion for the festive season. Next,
he dismisses two charity men who are collecting money for the poor. Resentfully, he allows Bob Cratchit the day off for Christmas Day, before going home. It is here that he is visited by the ghost of his dead business partner: Jacob Marley. Wearing a weighty chain, he is condemned to wander the Earth and witness suffering, as a punishment for his greed and ignorance in life. Marley tells Scrooge that he is destined to do the same but he has a chance to escape this fate and that he will be visited by three more ghosts. Scrooge falls asleep.

1b. Stave 2 The Ghost of Christmas Past is the first of the spirits to visit Scrooge. The ghost takes Scrooge to see his old school, where he sees himself alone – a painful memory. Next, he is taken to the place he was an apprentice for Fezziwig
and witnesses the jovial party that Fezziwig throws for his family and employees.
Scrooge is then distressed to witness his former fiancée breaking off their engagement and as an older woman,
happily spending time with her husband and raucous children. Scrooge cannot bear to watch so tries – and fails - to extinguish the ghost's light.

1c. Stave 3 The Ghost of Christmas Present appears and shows Scrooge society celebrating Christmas, first wandering the streets then visiting the Cratchit family. He witnesses the small meal they enjoy but their contentment and appreciation. Next,
Scrooge is taken to a number of remote locations – a mining village, a lighthouse and a ship in the middle of the ocean – where people are celebrating Christmas despite their isolation. The ghost then transports him to Fred's house, where they are playing games. Finally, as the ghost physically appears to be growing older, Ignorance and Want are revealed.

1d. Stave 4 The Ghost of Yet to Come takes Scrooge to witness a series of gatherings, all focusing on the death of the same man. Scrooge is taken to see people selling the dead man's stolen belongings and insulting him ruthlessly. He hears a young couple talking happily about the death as it means they have some more time to repay a debt. He visits the Cratchit family, in mourning for the death of Tiny Tim. Finally, he is taken to a graveyard where it is revealed that he is the lonely, unloved dead man. He realises he can change this fate and pledges to become a better person.

1e. Stave 5 Scrooge is overjoyed to wake up on Christmas morning. He donates a substantial amount of money to the charity men, sends a prize turkey to the Cratchit family, goes to Church and visits Fred's house for dinner. The next day, he tells Bob
that he will increase his salary and promises to help him further. Finally, readers are informed that he changes his ways and treats Tiny Tim – who did not die – as his own child.

2. Characters

2a. Ebenezer Scrooge The novella's main protagonist. A cold, isolated miser whose experiences with the ghosts result in his redemption. By the end, he is socially conscious and philanthropic.

2b. Bob Cratchit Scrooge's only employee, a clerk, treated cruelly by him but content with the love of his family.

2c. Fred Scrooge's nephew (his sister Fan's son). An excitable, generous and forgiving man who attempts to share the merriment of Christmastime with his uncle. Scrooge's foil.

2d. The Ghost of Jacob Marley Scrooge's dead business partner who appears as a ghost to warn Scrooge of the error of his ways.

2e. The Ghost of Christmas Past Allegorical of memory, he shows Scrooge events from his past. He has a strange, fluctuating appearance and a jet of light streaming from his head – symbolic of hope and truth.

2f. Fezziwig Scrooge's old employer. He treats his employees generously. Scrooge's foil.

2g. Belle Scrooge's young love who breaks off their engagement because of Scrooge's changing nature and attitude to money.

2h. The Ghost of Christmas Present Sitting atop a throne of food, this ghost is large and commanding. He symbolises the Christmas spirit, sprinkling incense from his torch to assist those who need his help, and showing Scrooge how Christmas should be celebrated.

2i. Tiny Tim Bob Cratchit's disabled, thoughtful son. He rises above his own suffering to think of others.

2j. Ignorance and Want Two emaciated, animalistic children who symbolises society's vices: a wilful lack of awareness of the plight of the poor and greed that leaves others wanting.

2k. The Ghost of Christmas Yet to Come The most ominous of the spirits, a spirit who does not speak and completely covered in a black garment. He is the ghost Scrooge fears most of all.

Year 10 Learning Cycle 1English - A Christmas Carol (Literature Paper 1)

3. Context

3a. Charles Dickens When he was a child, Dickens attended private schools. When he was 12, his father was sent to debtor's prison and Dickens was sent to work in a blacking factory, labelling bottles of black polish. Later in life, he read a report on child labour in the UK. This prompted him to write A Christmas Carol, in order to criticise the treatment of the most vulnerable in society. His disabled nephew inspired Tiny Tim's character.

3b. Victorian London Victorian England was a time of huge population increase, almost doubling from 16.8 million in 1851 to 30.5 million in 1901. London became the most advanced and wealthiest city in the world. However, constant factory production caused a black smog of smoke to hang over the city. Buildings were filthy, streets crowded and overpopulated. The Industrial Revolution meant that machines took over many jobs previously carried out by people. People moved to cities, such as London, but here demand for jobs was high and pay low. London – like Victorian England more widely – was a place of stark inequality between the rich and poor.

3c. The Poor Law and The Workhouse In 1834 , a law was passed that stopped Government money going to the poor except in exceptional circumstances. Instead, those who could not afford to support themselves were sent to workhouses: places where people were given food and clothes in exchange for hours of manual labour and where conditions were poor.

3d. Malthusian Theory The Rev. Thomas Malthus, a respected economist and writer, warned against helping when people were hungry because it would lead to a population size that was too big. He believed that population would always grow faster than access to food. A Christmas Carol is a refutation of this theory.

3e. Education Dickens believed that many of the problems in Victorian society, such as crime, poverty and disease were caused by lack of education. The poor in Victorian Britain had little or no education. He supported several projects to educate the poor, such as the Ragged Schools, which offered free education, clothing and food to children from poor families.

3f. Christianity and Christmas In the early 1800s, Christmas was observed more as a religious festival rather than a holiday and time of sumptuous celebration. The novella is often credited with spreading popular traditions and reminding people of the need for kindness, familial love, charity and happiness at Christmastime. Victorians believed in following certain rules in order to be a good Christian, including attending Church on a Sunday and not working on Sundays – known as Sabbatarianism.

4. Vocabulary

4a = philanthropy (noun) The desire and active effort to help others, especially through the donation of money

4b = misanthrope (noun) A person who dislikes humankind and avoids human contact

4c = poverty (noun) The condition of being extremely poor

4d = plight (noun) A dangerous, difficult situation; struggle; difficulty

4e = injustice (noun) Lack of fairness; unfair treatment in a situation

4f = avarice (noun) Extreme greed

4g = parsimonious (adjective) Very unwilling to spend money

4h = facetious (adjective) Treating serious issues with deliberately inappropriate humour or sarcasm

4i = supernatural Above or beyond what is natural; otherworldly

4j = didactic (adjective) Intended to teach, or to improve morals by teaching

4k = humanity Human beings collectively; the quality of being kind and compassionate

4l = Sabbatarianism (noun) The belief of some Christians that no work should be carried out on the Sabbath (usually a Sunday), as it is a holy day.

4m = Malthusian (adjective) Relating to Thomas Malthus, the economist and writer who believed the poor would likely die if resources such as food became too expensive and this was a natural way to control the population size

4n = catalyst (noun) Someone or something that encourages progress or change

4o = redemption (noun) The act of being saved from sin or past mistakes

4p = social reform (noun phrase) A change and improvement to the way a country is run or organised

Subject Vocabulary

4q = novella (noun) A short novel

4r = protagonist (noun) The main character in a novel, play or film

4s = allegory (noun) A story that can be interpreted to reveal a hidden meaning, typically a moral or political one

4t = context (noun) The circumstances surrounding writing; social issues, historical events, author's background and beliefs, and how they influence a writer's choices

4u = characterisation (noun) A method used by writers to create and craft characters.

4v = foil (noun) A character who contrasts with another

4w = symbol (noun) A character, idea, image or setting that represents a bigger idea

4x = imagery (noun) The use of language to create vivid pictures in the readers' minds

4y = pathetic fallacy (noun) Giving human feelings and emotions to something not human, particularly the weather or environment

4z = motif (noun) An important idea or image that is repeated throughout a piece of writing.

Year 10 Learning Cycle 1English - A Christmas Carol (Literature Paper 1)

5. Authorial Intent

Charles Dickens wrote this novella for a purpose and uses the plot, characters and settings to send a message to his readers…

5a - To encourage... his Victorian readers to acknowledge the plight of the poor and to and exposes his reader to the terrible suffering they endure.

5b – To expose… his readers to the injustices of the class system of Victorian Britain and the mistreatment of the working class.

5c – To refute… Malthusian theory and champion the idea that everybody in society can live a happy life if resources are shared and the rich are charitable and distribute their wealth.

5d – To warn… of the terrifying consequences of forsaking philanthropy and Christian duty and neglecting the needs of those who are less fortunate

5e – To present… a scathing social commentary on Victorian society and to challenge the misanthropic views of his wealthy reader.

5f – To celebrate... the contentment of close family relationships and the contentment of the festive season - a time for kindness, charity and peace for all.

5g - The text is relevant today as... social inequality and injustice still affects many people in modern Britain, as evidenced by the cost of living crisis and the rising number of people accessing food banks.

6. Themes

6a = Poverty Dickens felt strongly that Victorian society ignored the poverty of the working class and underclass. While the rich who enjoyed excess and comfort at Christmas, the poor – including vulnerable children - were forced to live in dreadful conditions in workhouses or in utter destitution. Through the novella he suggests that poverty leads to suffering, death, dehumanising of individuals, crime and misery.

6b = Greed Dickens suggests that greed is the cause of poverty and if the avaricious Victorian rich would acknowledge the plight of the poor then the cycle of poverty and misery could be broken. He also conveys the idea that prioritising wealth over everything else leads to isolation from family and friends – a melancholy existence.

6c = Charity and Philanthropy Dickens wanted his rich Victorian readers to understand the benefits of charity and the importance of the rich seeing charity as their social obligation and duty. Sharing wealth could end the suffering of many poor people and make those who contribute to those in poverty happy and content too.

6d = Christmas Christmas is a Christian celebration of the birth of Christ, though it also encompasses Greek, Roman and pagan traditions of giving gifts and feasting around the Winter Solstice. It is a time when families and friends come together to share food and exchange gifts. The story of Scrooge takes place on Christmas Eve and Christmas Day and uses the ideas of generosity and compassion – embodied by characters such as the Ghost of Christmas Present, Fred and Fezziwig - that we associate with Christmas to highlight the joy of the festive season. Scrooge is shown that even the poor and isolated characters (The Cratchit family, the miners and sailors) find comfort in Christmas celebrations.

6e = Family Closely linked to Dickens' purpose of popularising an emotional element to Christmas is his presentation of family. The contentment of family life is highlighted by the older Belle and the Cratchit family who, while financially poor, are emotionally rich because of their familial love. Eschewing family leads to misery, as Scrooge emphasises at the start of the novella.

6f = Redemption Redemption is the idea of being saved from sin or evil. In Scrooge we see a man who is transformed from a greedy, selfish miser into a generous and good- natured character by the end. He is shown the error of his ways by the ghosts that visit him and is redeemed by his own willingness to change. The moral message of the novella is that all human beings – even the most misanthropic - have the opportunity to behave in kinder ways towards each other.

Year 10 Learning Cycle 1English - A Christmas Carol (Literature Paper 1)

7. Key Quotations and Methods

7a. "A … covetous old sinner!" Adjective 'covetous' - jealous of others' money, avaricious; religious reference – Scrooge's unchristian nature

7b. "Solitary as an oyster" Simile - Scrooge's isolation as he puts a barrier between himself and humanity; image hints at something more worthy inside Scrooge, as a pearl is sometimes found in an oyster shell

7c. "Christmas time … when men and women… open their shut-up hearts freely" Metaphor – Fred's love for the festive season and the kindness and charity that it inspires in others

7d. "Many thousands are in want of common necessaries" Statement – extent of poverty in London and the plight of the poor

7e. "If they would rather die, they had better do it and decrease the surplus population" Dismissive tone and reference to Malthusian theory – Scrooge's ignorant and callous attitude to the poor

7f. "A poor excuse for picking a man's pocket every twenty-fifth of December!" Metaphor and irony – Scrooge reluctant to give his clerk, Bob Cratchit, a paid day off for Christmas Day, even though he is able to financially

7g. "I wear the chain I forged in life" Symbol – the chain is a symbol of Marley's relentless punishment for his greed in life, metaphorically 'forged' in the fires of his sin and ignorance

7h. "Mankind was my business" Statement and simple sentence – unarguable message that charity and social conscience are vital

7i. "From the crown of its head there sprung a bright clear jet of light" Symbol – the light emanating from the ghost's head is symbolic of hope and truth

7j. "A small matter to make these silly folks so full of gratitude" Irony – Scrooge is himself a cruel employer, unwilling to spend any money on Bob Cratchit – changing character

7k. "Another idol has displaced me... A golden one" Metaphor – Belle breaks off the engagement because Scrooge reveres money more than her – goes against the 10 commandments – conveys how avarice can destroy personal relationships

7l. ""To any kindly given. To a poor one most."… "Because it needs it most." Dialogue – generosity and compassion of the Ghost of Christmas Present

7m. "God bless us, everyone." Religious reference – Tiny Tim is pious and wants all to be protected and made happy by God

7n. ""I see a vacant seat… and a crutch without an owner." Poignant image and euphemism – Tiny Tim will die but the idea is so distressing that the ghost at first cannot articulate it bluntly

7o. "His offences carry their own punishment" Connotations – Fred believes Scrooge's actions are morally 'criminal'

7p. "They were a boy and a girl. Yellow, meagre, ragged, scowling, wolfish." Symbols and listing of adjectives – Ignorance and Want are symbols of the ignorance of the Victorian rich and the resulting struggles of the most vulnerable – adjectives suggest the lack of dignity, misery and emaciation as a result of poverty

7q. "Its mysterious presence filled him with a solemn dread." Image and unsettling tone – the final ghost instills fear in Scrooge and makes his redemption certain

7r. "The whole quarter reeked with crime, with filth and misery." Setting and listing – the slum where the poorest in London live symbolises the plight of the poorest and the necessity of crime for them to survive

7t. "Happy as an angel!" Simile and religious reference – the contentment that charity and kindness brings – Christian virtues bring you closer to God

Year 10 Learning Cycle 1 Mathematics

Key Terms	Description
Prime number	A number whose only factors are one and itself
HCF	The highest number which goes into both quantities given
LCM	The first number which is a multiple of all of the quantities given
Factor	A number which can be multiplied to reach the starting number
Variable	A letter which is used to represent an unknown quantity
Expression	An algebraic statement including terms and operations
Term	A collection of variables and numbers
Equation	An algebraic statement with an equals sign in the middle
Compound interest	Where you earn interest on your interest. Recalculated each time it is applied.
Simple interest	Calculated on the starting value and does not change
Cumulative	Running total
Perimeter	The distance around the outside of a shape
Area	The amount of 2d space a shape takes up
Parallelogram	A quadrilateral with two pairs of parallel sides
Trapezium	A quadrilateral with one pair of parallel sides
Gradient	A measure of how steep a line is
Venn diagram	Diagram made of circles used for sorting
Surd	A number which is the square root of an integer- but which does not evaluate to an integer
Frustum	The shape which is left when the point is removed from a cone

Year 10 Learning Cycle 1 Mathematics - Decimals % percentages

1. Adding & Subtracting decimals

Line up the decimal points.

Use zeros as place holders if you need

$$\begin{array}{r} 12.5 \\ +\ 6.23 \\ \hline 18.73 \end{array} \qquad \begin{array}{r} {}^{4}5{}^{1}.2 \\ -\ 3.6 \\ \hline 1.6 \end{array}$$

2. Multiplying decimals

Multiply as if no decimal point

Answer has as many decimal places as in the question

3.4 x 2.86

x10 x100

$$\begin{array}{r} 286 \\ \times\ 34 \\ \hline 1144 \\ 8580 \\ \hline 9724 \end{array}$$

9724 ÷ 10 ÷ 100

= 9.724

3. Dividing decimals

Write division as a fraction

Use powers of 10 for equivalent fractions until integer on denominator

8.75 ÷ 0.7

x10

$$\frac{8.75}{0.7} = \frac{87.5}{7}$$

x10

$$7\overline{)\,{}^{1}8{}^{3}7.5} \quad 12.5$$

= 12.5

4. Percentage increase & decrease

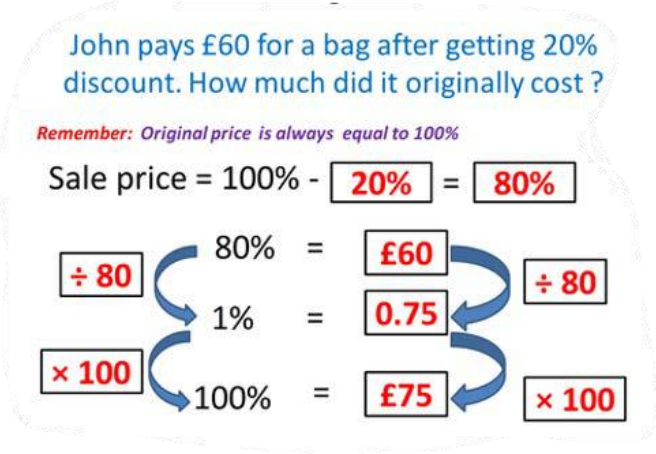
Increase 60 by 20%

100% = 60

20% = 12

60 + 12 = 72

5. Reverse percentages



6. Simple interest

1. Calculate the interest for the first year.
2. Add the same amount on each year.

7. Compound interest

$$A = P(1 + \frac{r}{100})^n$$

Where:
A represents the final amount
P represents the original principal amount
r is the interest rate over a given period
n represents the number of times the interest rate is applied over time

Year 10 Learning Cycle 1 Mathematics - Algebraic thinking

1. Expanding single, double and triple brackets

$$5(3n-4) \equiv 15n-20$$

$5 \times 3n \quad 5 \times -4$

multiply

$(x+8)(x+5)$

multiply

$x^2 + 5x + 8x + 40$

$x^2 + 13x + 40$

2. Factorising single bracket

Factorise:

$5x^2 + 3x$

1) Find the HCF of the terms.

2) Divide each term by the HCF.

$\frac{5x^2}{x} = 5x \qquad \frac{3x}{x} = x$

$x(5x+3)$

3. Factorising quadratic

Factorising

$2x^2 + 5x + 3 \equiv (2x+3)(x+1)$

Expanding brackets

$x^2 - x - 30 = \underbrace{x^2 - 6x}_{group} + \underbrace{5x - 30}_{group}$

$= x(x-6) + 5(x-6)$

$= (x-6)(x+5)$

4. Factorising using Difference Of Two Squares (higher only)

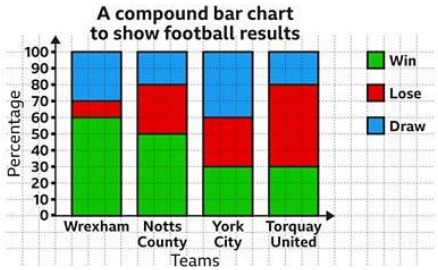
Factorising

$a^2 - b^2 \equiv (a+b)(a-b)$

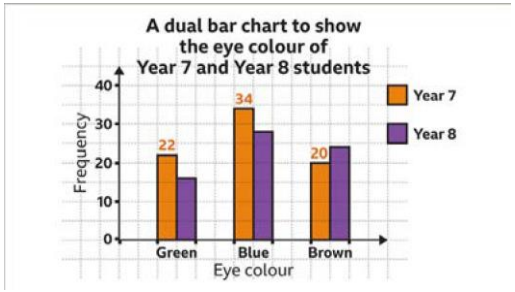
Expanding brackets

Year 10 Learning Cycle 1 Mathematics - Representing data

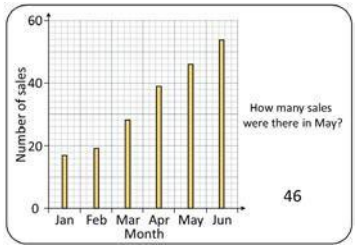
1. Graphs and diagrams



Bar charts



Vertical line chart



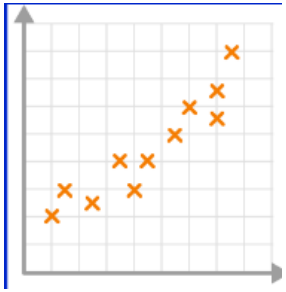
Pictogram

Team	Number of house points
Diamond	★★½
Ruby	★★★
Sapphire	★★★½
Emerald	★★½

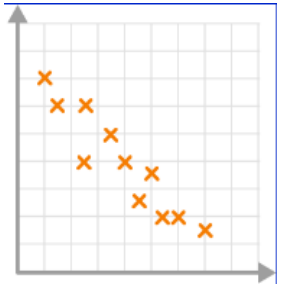
Key: ★ = 8 points

2. Scatter graphs

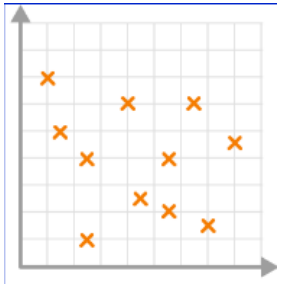
Positive Correlation



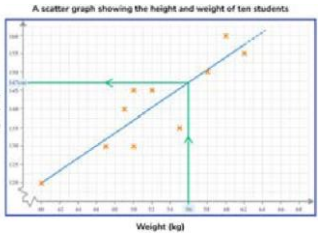
Negative correlation



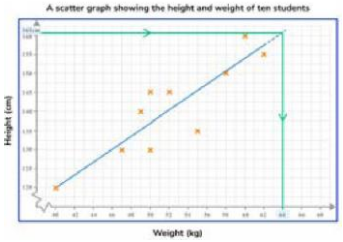
No correlation



Interpolation



Extrapolation



3. Stem & Leaf diagrams

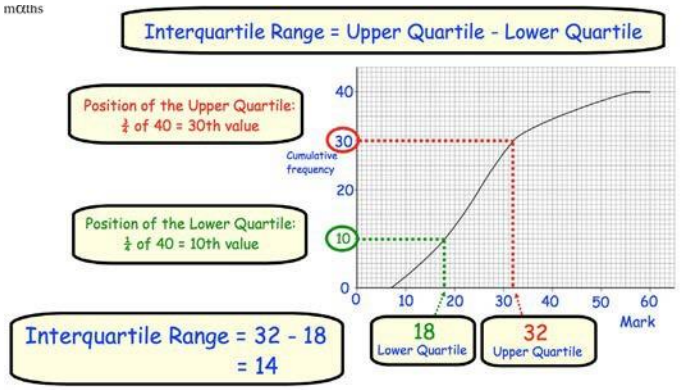
Stem and leaf diagrams break numbers into their stem and their leaf

They must include a key

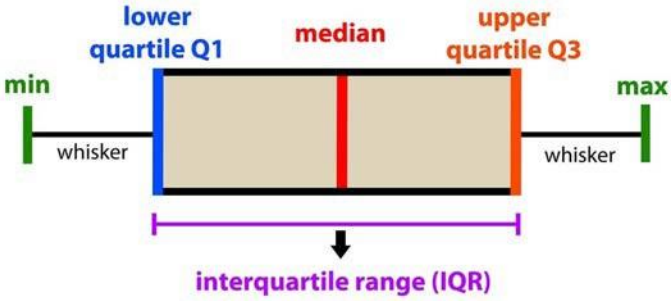
Key : 2 | 0 means 20

Stem	Leaf
0	1 4
1	3 6 6 7
2	0 2 5
3	6 7 7 7 8
4	0 1 3

4. Cumulative Frequency graphs

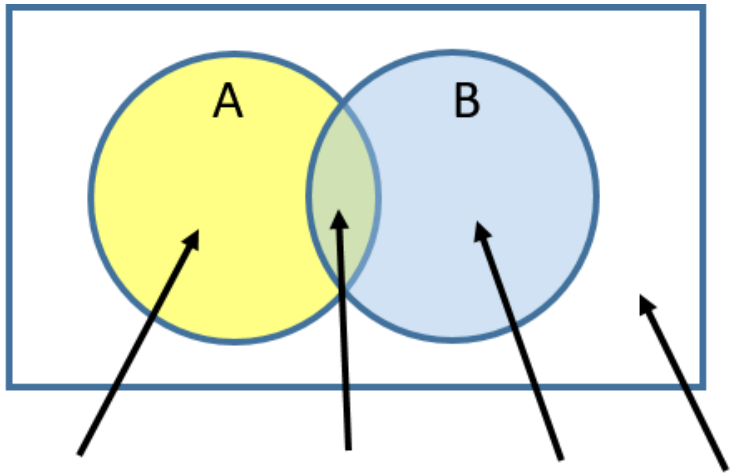


5. Boxplots



Year 10 Learning Cycle 1 Mathematics - Probability

1. Venn diagrams



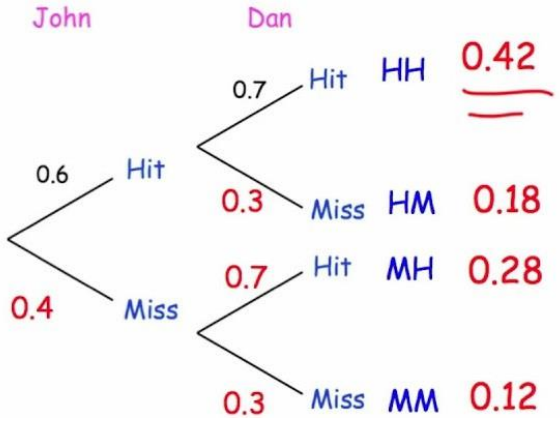
Objects here are in set A but not set B	Objects here are in both sets A and B	Objects here are in set B but not set A	Objects here are not in set A or set B.

2. Tree Diagrams

John throws a ball at a target.
Dan then throws a ball at the same target.
The probability that John hits the target is 0.6
The probability that Dan hits the target is 0.7

What is the probability that
John and Dan both hit the target?

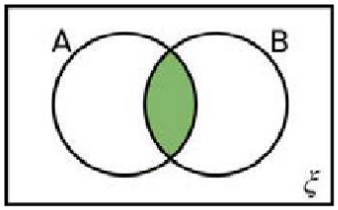
0·42



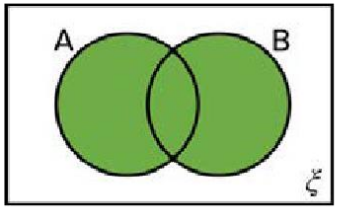
Multiply along the branches

Add up the values at the end.

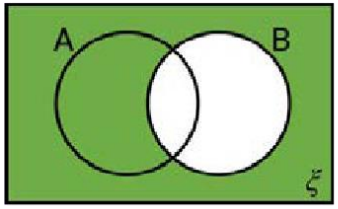
3. Set notation



A ∩ B
The **intersect** of A and B.
The set of elements in **both A and B**.



A ∪ B
The **union** of A and B.
The set of elements in **A or B or both.**



B'
The **complement** of B.
The set of elements **not in B**.

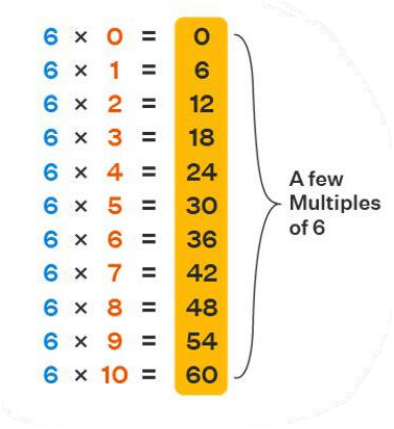
Year 10 Learning Cycle 1 Mathematics - Factors, multiples & primes

1. What are factors?

30

Factor pairs	Products
1 30	1 × 30 = 30
2 15	2 × 15 = 30
3 10	3 × 10 = 30
5 6	5 × 6 = 30

2. What are multiples?



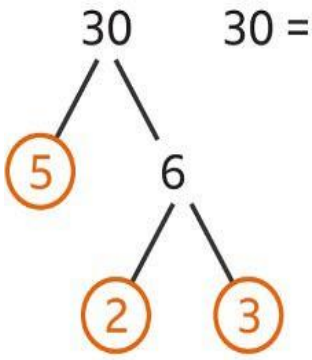
3. What are primes?

2	3	5	7	11	13	17
19	23	29	31	37	41	
43	47	53	59	61	67	
71	73	79	83	89	97	

Numbers which have exactly two factors: 1 and itself

4. Prime factor decomposition

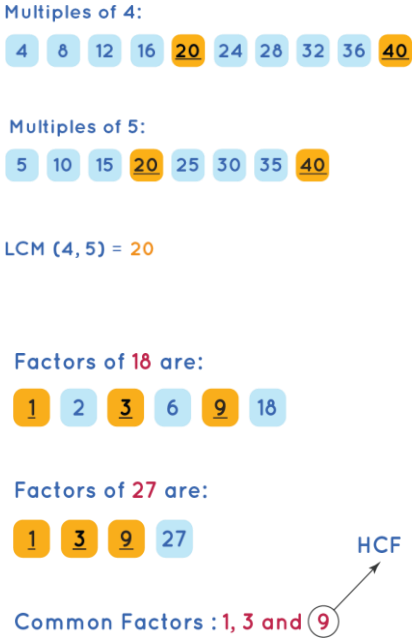
1. Break number down into factor pairs
2. Circle prime numbers
3. Write final answer as a product



30 = 2 × 3 × 5

This is called writing a number as a *product of its prime factors*

5. HCF & LCM from a list



6. HCF & LCM from product of primes

HCF- Multiply the numbers which appear in both lists

12 = 2 x 2 x 3
18 = 2 x 3 x 3
Common factors = 2, 3
HCF = 2 x 3 = 6

LCM- HCF x the numbers leftover in both lists

LCM= 6 x 2 x 3
LCM = 36

Year 10 Learning Cycle 1 Mathematics - Surds (Higher only)

1. Simplifying surds

$$2\sqrt{32} = 2(\sqrt{16} \times 2)$$
$$= 2(\sqrt{16} \times \sqrt{2})$$
$$= 2(4 \times \sqrt{2})$$
$$= 2(4\sqrt{2})$$
$$= 8\sqrt{2}$$

2. Adding and subtracting surds

Only add and subtract surds with the same number under the root

$$2\sqrt{3} + 5\sqrt{2} + 3\sqrt{3} - 2\sqrt{2}$$
$$= 5\sqrt{3} + 3\sqrt{2}$$

3. Multiplying surds

Rules for Multiplying Surds

1.	$a \times \sqrt{b} = a\sqrt{b}$	$3 \times \sqrt{2} = 3\sqrt{2}$
2.	$\sqrt{b} \times \sqrt{b} = b$	$\sqrt{3} \times \sqrt{3} = 3$
3.	$\sqrt{a} \times \sqrt{b} = \sqrt{ab}$	$\sqrt{2} \times \sqrt{3} = \sqrt{6}$
4.	$a\sqrt{b} \times c\sqrt{d} = ac\sqrt{bd}$	$2\sqrt{3} \times 2\sqrt{5} = 4\sqrt{15}$

4. Expanding brackets

$$\sqrt{5}(3 + \sqrt{2}) = 3\sqrt{5} + \sqrt{10}$$

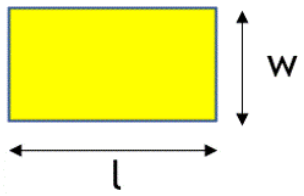
5. Rationalizing the denominator

If you have a surd on the denominator of a fraction, then you need to rationalise the denominator.

$$\frac{\sqrt{6}}{\sqrt{10}} \times \frac{\sqrt{10}}{\sqrt{10}} = \frac{\sqrt{60}}{10}$$

Year 10 Learning Cycle 1 Mathematics - Volume

1. Area of sqares and rectangles

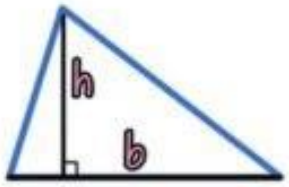


Units will be squared

e.g. cm^2

Area = $l \times w$

2. Area of triangles



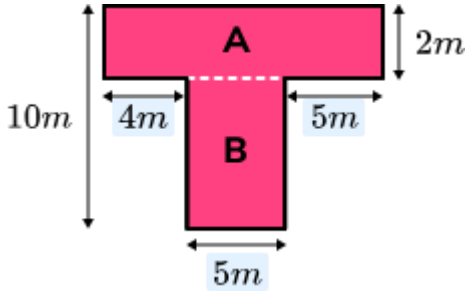
$$\text{Area} = \frac{1}{2} \times b \times h = \frac{bh}{2}$$

3. Compound shapes

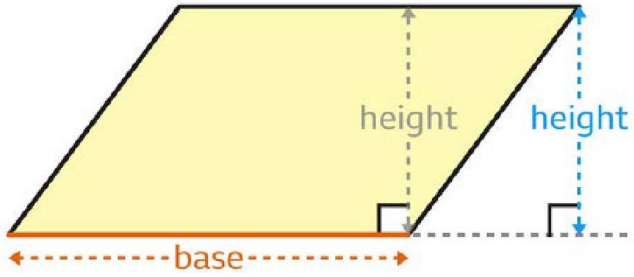
Split into regular shapes.

Find the areas of each.

Add together.



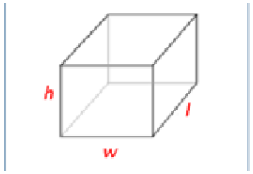
4. Area of parallelograms



Area of parallelogram

base × perpendicular height

5. Volumes of cuboids

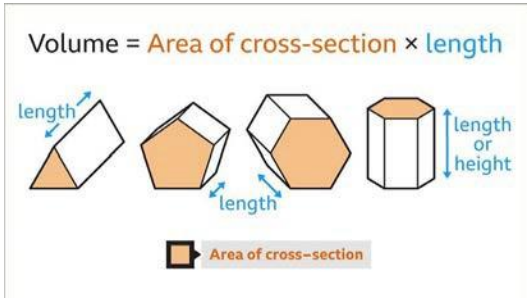


Volume = $l \times w \times h$

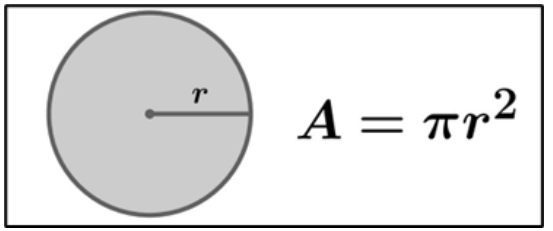
Units will be cubed

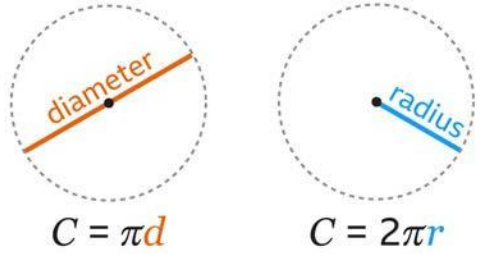
e.g. cm^3

6. Volume of prisms

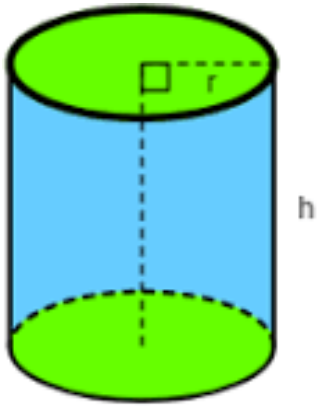


7. Circles





8. Volume of cylinders

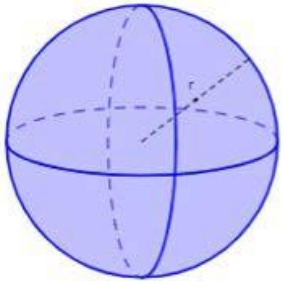


Volume of a Cylinder

$\pi r^2 h$

Year 10 Learning Cycle 1 Mathematics - Volume (Higher only)

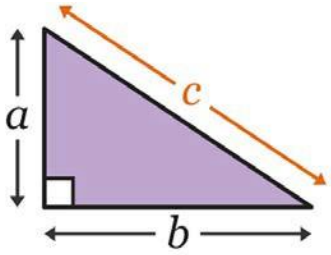
1. Spheres



Surface Area = $4\pi r^2$

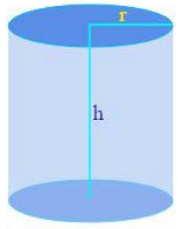
Volume = $\frac{4}{3}\pi r^3$

3. Pythagoras



$a^2 + b^2 = c^2$

5. Surface area of cylinder

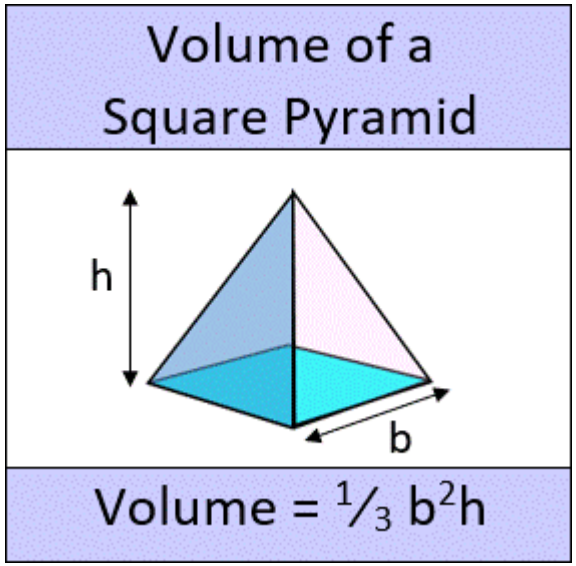


Cylinder

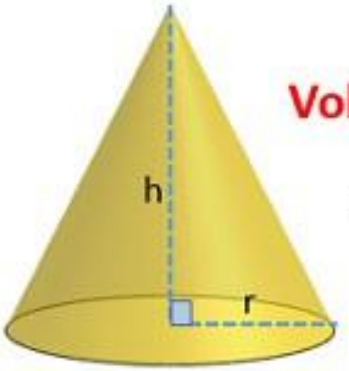
Volume = $\pi r^2 h$

Surface Area = $2\pi r^2 + 2\pi r h$

2. Volume of a pyramid



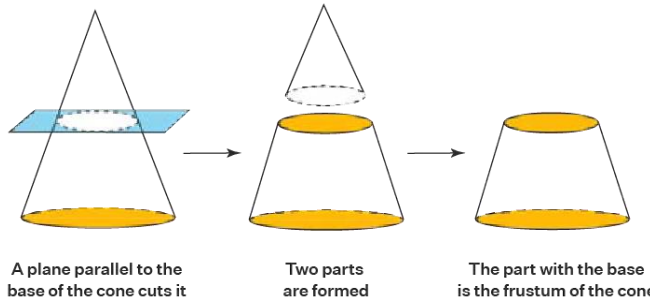
4. Volume of a cone



Volume of Cone

$= \frac{1}{3}\pi r^2 h$

6. Frustum



A plane parallel to the base of the cone cuts it

Two parts are formed

The part with the base is the frustum of the cone

Year 10 Learning Cycle 1 Mathematics - Calculator Features

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Square numbers: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

Cube Numbers : 1, 8, 27, 64, 125

Prime numbers: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47…

Useful features on your calculator:

FACT: this express a number as a product of its prime factors

RATIO (menu 4): this will find missing values within equivalent ratios

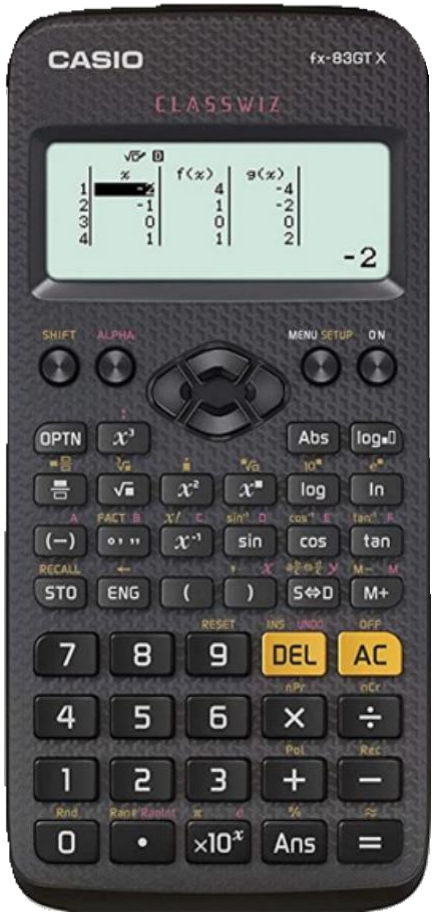
Table (menu 3): This is where you can generate values within a table- useful for plotting graphs and generating terms of a sequence

Statistics (menu 2): this will find all of the averages from a table of data

°’”: This Is the time button and can do conversion between time units, as well as calculations with different times

Fraction button: can be used for ay calculations with fractions

S-D: Converts decimal answers to fractions and vice vera



Year 10 Learning Cycle 1 Mathematics - Sparx Maths

Sparx Maths

- Homework will be set on Tuesday's and will be due on Tuesday morning at 7:00am
- You must complete 100% of the homework- if you have not got 100% of the questions correct, then you have not done your homework
- You will receive a merit for completion of your homework
- Bookwork must also meet the criteria outline in the table
- A bookwork score of 5/5 means you will receive a merit
- If your bookwork code is 4 or less, you will receive 1pt
- You need to bring your homework book to the first lesson after the Tuesday hand-in.
- If you complete one of the extra homework's- XP Boost or Target, you will receive another merit.- they must be 100% complete
- Sparx clinics will run every break time and lunchtime in the Arc, with a maths teacher available to support you. There will also be help available in homework club on Tuesday afternoon.
- It is your responsibility to seek help BEFORE the deadline, if you get stuck

Book work criteria	Marks
Due date and **title** written and underlined	1 mark
Bookwork codes written down	1 mark
All workings shown in the bookwork **SOME** workings = 1 mark **NO** workings = 0 marks	2 mark
Every question **marked**	1 mark

Year 10 Learning Cycle 1 Science - How can I use the Periodic Table?

Group 1 – Alkali Metals

Group 7 – **Halogens**

Group 0 – **Noble gases**

Group number – tells you the number of **electrons** in an elements **outer** shell.

Elements in the **same group** have **similar properties**.

Element **symbol**
Element **name**

Mass Number = number of **protons** and **neutrons** added together.

Atomic / Proton Number = number of **protons** which is the same as the number of **electrons**.

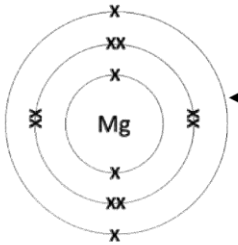
Neutrons = Mass number – Atomic number

relative atomic mass
atomic symbol
name
atomic (proton) number

1	2											3	4	5	6	7	0
																	4 He helium 2
7 Li lithium 3	9 Be beryllium 4											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
23 Na sodium 11	24 Mg magnesium 12											27 Al aluminium 13	28 Si silicon 14	31 P phosphorus 15	32 S sulfur 16	35.5 Cl chlorine 17	40 Ar argon 18
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[97] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[267] Rf rutherfordium 104	[270] Db dubnium 105	[269] Sg seaborgium 106	[270] Bh bohrium 107	[270] Hs hassium 108	[278] Mt meitnerium 109	[281] Ds darmstadtium 110	[281] Rg roentgenium 111	[285] Cn copernicium 112	[286] Nh nihonium 113	[289] Fl flerovium 114	[289] Mc moscovium 115	[293] Lv livermorium 116	[293] Ts tennessine 117	[294] Og oganesson 118

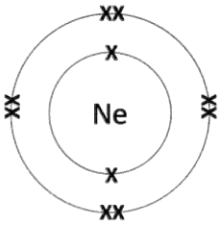
Transition Metals

Non-Metals

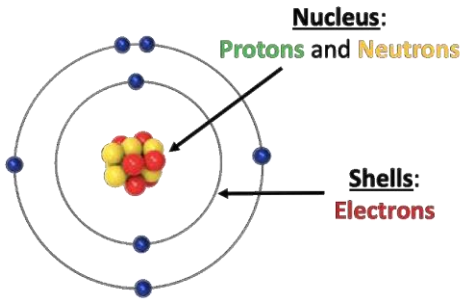


Magnesium (Mg) has **12 electrons** in total. It is in **group 2** so has 2 electrons in its **outer** shell. Mg's electronic configuration is 2,8,2.

Noble gases have a **full outer shell** of electrons E.g., Neon (Ne)



Subatomic Particle	Mass	Charge
Proton	1	+1
Neutron	1	0
Electron	Negligible	-1



Year 10 Learning Cycle 1 Science - Experiments

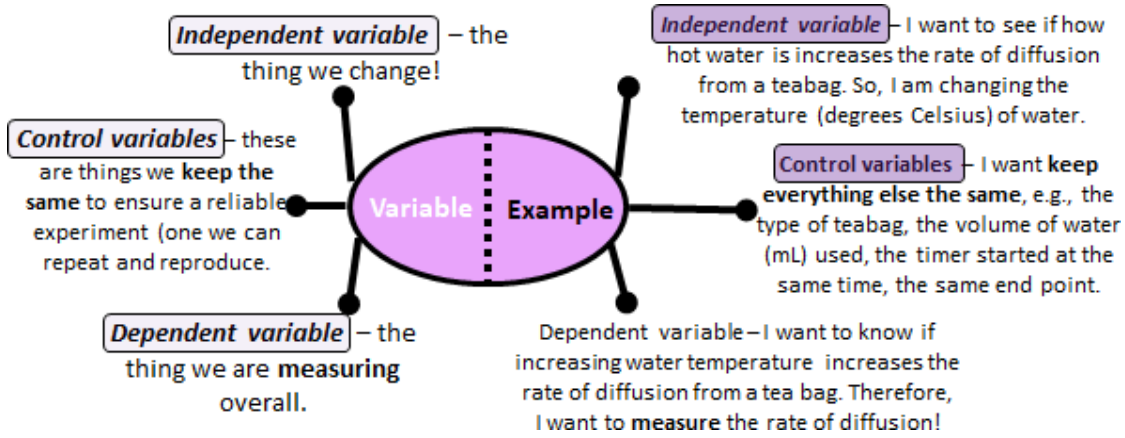
1. Key Terms	Description
Independent variable	The variable you change in an investigation
Dependent variable	The variable you measure in an investigation
Control variable	The variable you keep the same in an investigation
Hypothesis	A prediction of what will happen in an investigation
Reliability	We use control variables to ensure a reliable experiment
Reproducible	To re-do our experiment and get similar results due to a reliable method
Mean	Doing an experiment 3 times then dividing by 3 to get an average
Fair test	An experiment where only the independent variable changes.
Anomalous result	Result that does not fit with the rest of the data.

2. Designing and performing experiments

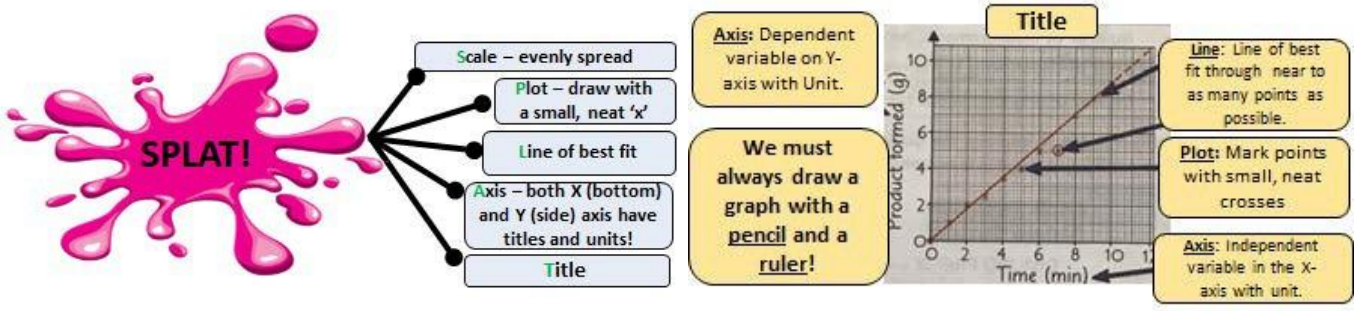
1. ***Repeatable*** – The **same** person gets the **same results** after repeating the experiment using the same method and equipment.
2. ***Reproducible*** – Similar results can be achieved by **someone else** or using a **different method**/piece of equipment.
3. ***Accurate*** – Results are close to the true answer
4. ***Precise*** – data is **close** to the **mean** (or the average!)

For data to be reliable, it must be **repeatable** and **reproducible**

3. The Variables



4. Presenting Data



5. Drawing conclusions from data:

1. State the relationship between the independent and dependent variable, e.g., 'as the time increases the product formed increases.'
2. Use statistics to support your answer. 'For example, at 10 minutes there was 50g of product, compared to 160g at 20 minutes'
3. Refer to the original hypothesis – does the data support this?

When evaluating think of the positives and negatives of the method (the validity - did they use enough controls? And of the results – were results reliable, accurate, reproducible?) and come to an overall conclusion.

Year 10 Learning Cycle 1 Science - How can I use the Physics equation sheet? How can I use the Physics equation sheet?

HT = Higher Tier only equations

Triple only equations

kinetic energy = 0.5 × mass × (speed)^2	$E_k = \frac{1}{2} m v^2$
elastic potential energy = 0.5 × spring constant × (extension)^2	$E_e = \frac{1}{2} k e^2$
gravitational potential energy = mass × gravitational field strength × height	$E_p = m g h$
change in thermal energy = mass × specific heat capacity × temperature change	$\Delta E = m c \Delta\theta$
power = $\frac{\text{energy transferred}}{\text{time}}$	$P = \frac{E}{t}$
power = $\frac{\text{work done}}{\text{time}}$	$P = \frac{W}{t}$
efficiency = $\frac{\text{useful output energy transfer}}{\text{total input energy transfer}}$	
efficiency = $\frac{\text{useful power output}}{\text{total power input}}$	
charge flow = current × time	$Q = I t$
potential difference = current × resistance	$V = I R$
power = potential difference × current	$P = V I$
power = (current)^2 × resistance	$P = I^2 R$
energy transferred = power × time	$E = P t$
energy transferred = charge flow × potential difference	$E = Q V$
density = $\frac{\text{mass}}{\text{volume}}$	$\rho = \frac{m}{V}$

	thermal energy for a change of state = mass × specific latent heat	$E = m L$
	For gases: pressure × volume = constant	$p V = \text{constant}$
	weight = mass × gravitational field strength	$W = m g$
	work done = force × distance (along the line of action of the force)	$W = F s$
	force = spring constant × extension	$F = k e$
	moment of a force = force × distance (normal to direction of force)	$M = F d$
	pressure = $\frac{\text{force normal to a surface}}{\text{area of that surface}}$	$p = \frac{F}{A}$
HT	**pressure due to a column of liquid = height of column × density of liquid × gravitational field strength**	$p = h \rho g$
	distance travelled = speed × time	$s = v t$
	acceleration = $\frac{\text{change in velocity}}{\text{time taken}}$	$a = \frac{\Delta v}{t}$
	(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance	$v^2 - u^2 = 2 a s$
	resultant force = mass × acceleration	$F = m a$
HT	**momentum = mass × velocity**	$p = m v$
HT	**force = $\frac{\text{change in momentum}}{\text{time taken}}$**	$F = \frac{m \Delta v}{\Delta t}$
	period = $\frac{1}{\text{frequency}}$	$T = \frac{1}{f}$
	wave speed = frequency × wavelength	$v = f \lambda$
	magnification = $\frac{\text{image height}}{\text{object height}}$	
HT	**force on a conductor (at right angles to a magnetic field) carrying a current = magnetic flux density × current × length**	$F = B I l$
HT	**$\frac{\text{potential difference across primary coil}}{\text{potential difference across secondary coil}} = \frac{\text{number of turns in primary coil}}{\text{number of turns in secondary coil}}$**	$\frac{V_p}{V_s} = \frac{n_p}{n_s}$
HT	**potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil**	$V_p I_p = V_s I_s$

Give
Give
Want

1. What does it give you? What does it want you to calculate?
2. Do you need to rearrange?
3. Do you need to convert?
4. Include the figures
5. Do you need to put it into standard form?
6. Do you need to include the unit?
7. Do you need to give the answer in significant figures?

Year 10 Learning Cycle 1 Science - Key terms

1. Ecology

Key Terms	Description
Translocation	Movement of sugars up and down the plant, in the phloem
Transpiration	Movement of water and minerals up the plant, in the xylem
Osmosis	The diffusion of water molecules, from a region where the water molecules are in higher concentration, to a region where they are in lower concentration, through a partially permeable membrane.
Diffusion	The movement of particles from a high concentration to a low concentration
Active transport	The movement of particles from a low concentration to a high concentration across a cell membrane, using energy.
Photosynthesis	Carbon dioxide + water -> glucose + oxygen
Adaptation	A feature which allows an organism to survive and reproduce
Interdependence	If the population of one organism rises or falls, then this can affect the rest of the ecosystem.
Abiotic	Non-living elements of an ecosystem, such as climate, temperature, water, and soil type.
Biotic	Living elements of an ecosystem, such as plants and animals.
Community	All the organisms that live in a habitat (plants and animals).
Ecosystem	The living organisms in a particular area, together with the non- living components of the environment.

2. Supply and Demand

Key Terms	Description
Direct current	A direct current flows in only one direction.
Alternating current	An alternating current regularly changes direction.
The national grid	distributes electricity across the country
Step-up transformer	Increases voltage and decreases current
Step-down transformer	Decreases voltage and increases current
Renewable resources	Replenished at a greater rate than it is being used
Finite resources	Used at a greater rate than it is being replenished
Conductor	An electrical conductor is a material which allows an electrical current to pass through it easily. It has a low resistance.
Transmission lines	Thick cables used to carry electricity long distances through the National Grid.
Frequency	Thick cables used to carry electricity long distances through the National Grid.
Fuse	An electrical component that protects circuits and electrical devices from overload by melting when the current becomes too high.
Generator	Device that converts kinetic energy into electrical energy.

Year 10 Learning Cycle 1 Science - Key terms

3. Atomic structure and bonding

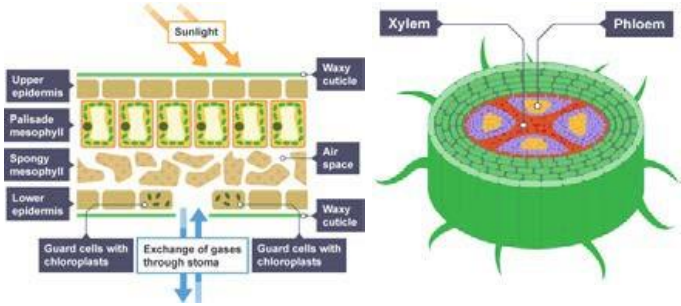
Key Terms	Description
Atom	The smallest part of an element which can exist. Atoms have a nucleus, containing protons and neutrons, with electrons orbiting in shells
Element	A substance made of only one type of atom
Compound	A substance made of more than one element, chemically bonded together
Ionic bonding	The electrostatic attraction between two oppositely charged ions
Covalent bonding	A shared pair of electrons between two non-metals
Fractional distillation	The process of separating hydrocarbons based on their boiling point
Cracking	The process of splitting long chain hydrocarbons into shorter, more useful ones
Hydrocarbon	A compound containing only hydrogen and carbon

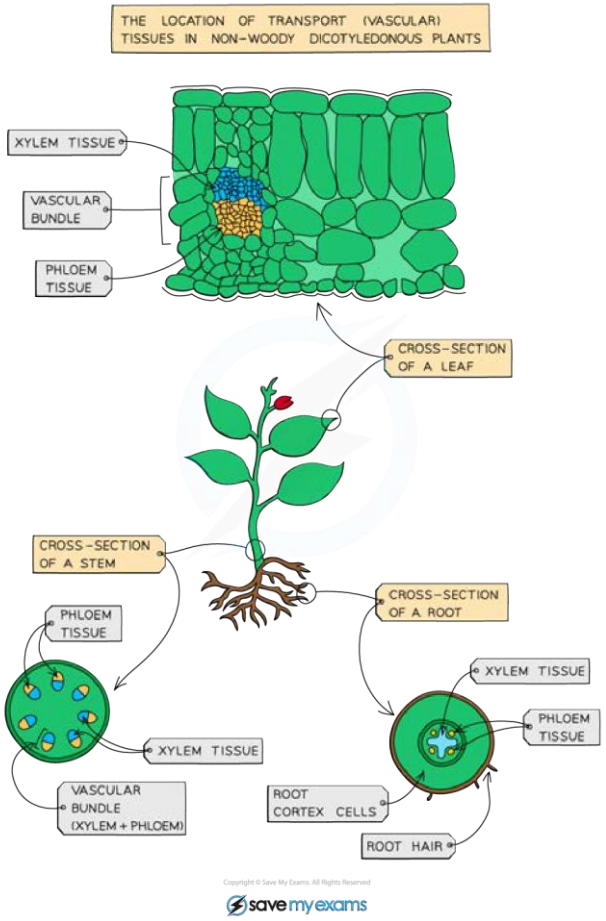
4. Transferring energy

Key Terms	Description
Component	Working parts of a product or system.
Current	Moving electric charges, eg electrons moving through a metal wire.
Diode	An electrical device that allows current to flow in one direction only.
Energy	The capacity for doing work.
Filament	A thin, high resistance wire that gets hot and glows when a current flows through it causing it to emit heat and light. Filaments are used in some types of bulb and electrical heaters.
Fixed resistor	Electrical component with a resistance that is fixed and cannot be changed.
Parallel	In a parallel circuit, the current divides into two or more paths before recombining to complete the circuit. Lamps and other components in these different paths are said to be in parallel.
Series	A circuit where one component follows directly from another, eg three bulbs in a row with no junctions are said to be connected in series.
Ohm's law	The rule that states that the current (I) flowing through a resistor (R) is directly proportional to the voltage (V) across the resistor, provided the temperature remains constant.
Potential difference	The rule that states that the current (I) flowing through a resistor (R) is directly proportional to the voltage (V) across the resistor, provided the temperature remains constant.
Power	The energy transferred each second, measured in watts (W). Power = work done ÷ time taken.
Resistance	The opposition in an electrical component to the movement of electrical charge through it. Resistance is measured in ohms
Semi conductor	Insulating material doped with impurities to affect electron energy bands and therefore affect conduction properties.
Thermistor	An electrical device whose resistance decreases as its temperature increases.
Voltage	A device used to measure potential difference or voltage.

Year 10 Learning Cycle 1 Science - Ecology

1. Plant structures

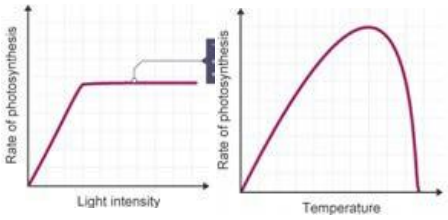


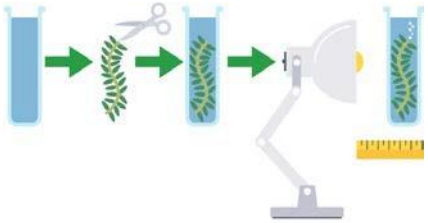


2. Photosynthesis

Required practical – the effect of light intensity on photosynthesis.

1. Submerge a 10cm piece of pond weed in a boiling tube of sodium hydrogen carbonate solution
2. Place the boiling tube 10cm from an LED lamp and record the number of bubbles produced in 1 minute.
3. Repeat step 2 at 4 more distances.
4. Repeat steps 2 and 3, identify anomalies and calculate a mean.





3. Adaptation and competition

Arctic ecosystem The arctic fox has white fur for camouflage and thick fur, to keep warm.

Plants compete for:

- Water
- Space
- Minerals
- Sunlight

Desert ecosystem

The cactus has spines to prevent it from being eaten and deep root systems to collect water.

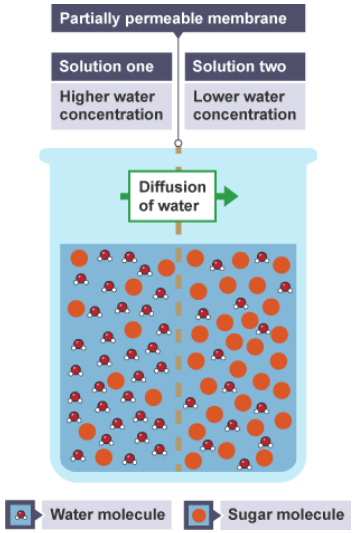
Animals compete for:

- Food
- Water
- Mates
- Territory

4. Osmosis

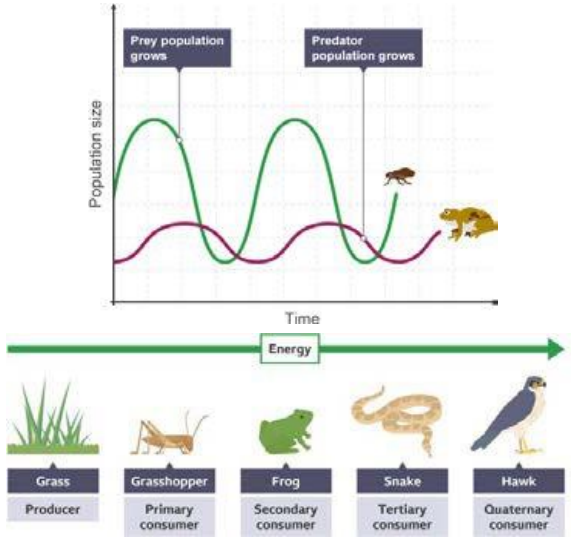
Required practical – the effect of osmosis on plant tissue.

1. Record the mass of 5 pieces of potato.
2. Place each piece of potato in 5 different concentrations of sugar solution for 24 hours.
3. Dry the potato pieces, and record their final mass
4. Calculate percentage change



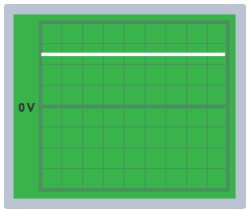
$$change\ in\ mass = \frac{mass\ at\ end - mass\ at\ start}{mass\ at\ start} \times 100$$

5. Interdependence

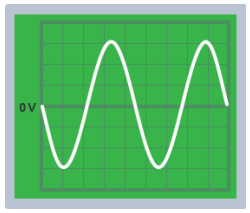


Year 10 Learning Cycle 1 Science - Supply and demand (Energy resources)

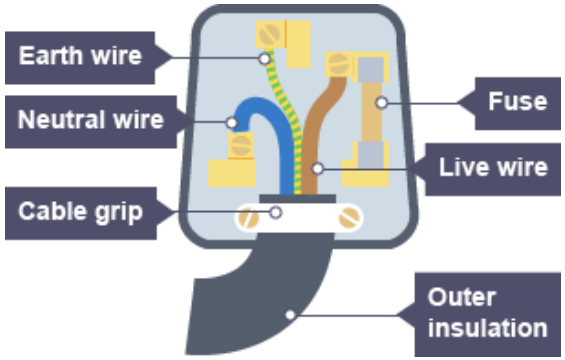
1. Mains electricity



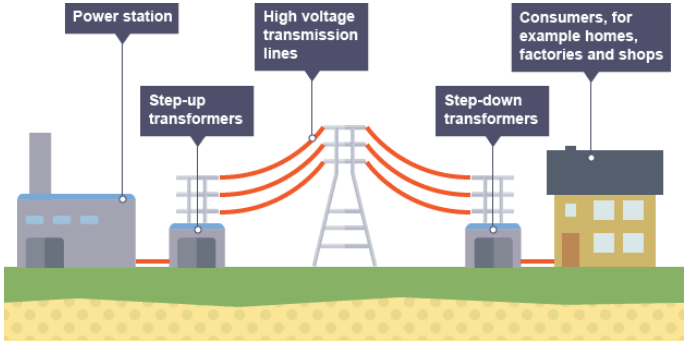
Direct current (DC)



Alternating current (AC)



2. Transporting electricity



3. Useful equations

- energy (E) is measured in joules (J)
- power (P) is measured in watts (W)
- time (t) is in seconds (s)
- current (I) is measured in amps (A)
- resistance (R) is measured in ohms (Ω)
- potential difference (V) is measured in volts (V)

energy = power × time

$$E = P \times t$$

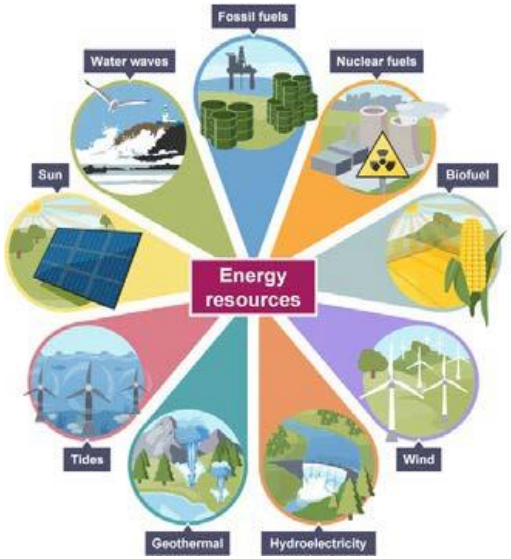
power = potential difference × current

$$P = V \times I$$

power = current^2 × resistance

$$P = I^2 \times R$$

4. Energy resources



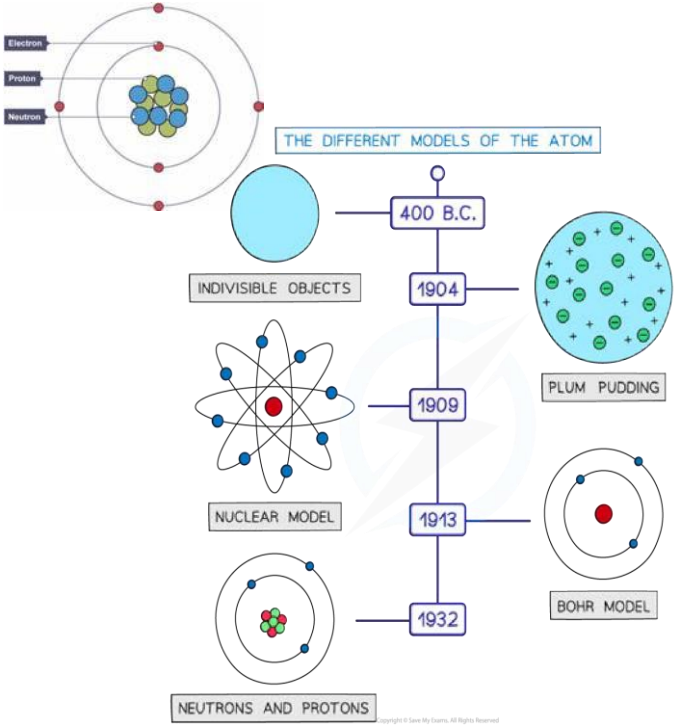
5. Energy resources

Energy	Energy store	Renewable or non-renewable	impact on environmenr
Fossil fuels (oil, coal, and natural gases)	Chemical	Non-Renwable	Release CO_2 (causes global warming)
Nuclear fuels	Nuclear	Non-Renewable	Radioactive waste (needs to be disposed of safely)
Wind	Kinectic	Renewable	Take up large areas that could be used for farming, people say windmills spoil their view

Year 10 Learning Cycle 1 Science - Atomic structure and bonding

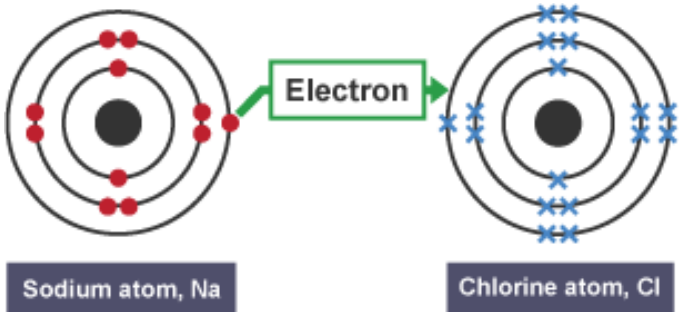
1. Atomic Structure

Subatomic particle	Relative mass	Relative charge
Proton	1	+1
Neutron	1	0
Electron	Very small	-1



Plum Pudding model	Nuclear model
The atom is mostly positively charged 'dough'	The atom is mostly empty space
Negative electrons are distributed throughout the atom	Negative electrons orbit the nucleus at a distance
The mass of the atom is evenly distributed	Almost all of the mass of the atom is concentrated in the positively charged nucleus

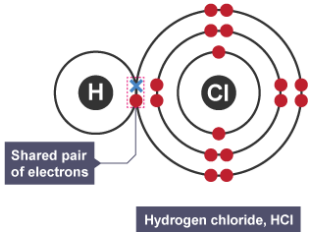
2. Ionic bonding



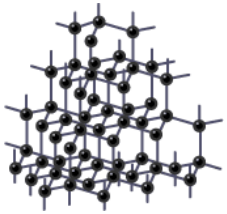
Giant ionic lattices, such as sodium chloride (NaCl) have high melting and boiling points because of strong electrostatic attractions between ions. They only conduct electricity when molten or dissolved.

3. Covalent bonding

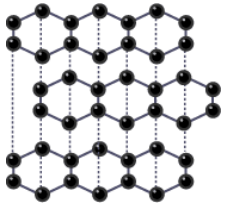
Simple molecules, such as water (H2O) and hydrogen chloride (HCl) have low melting and boiling points because they have weak intermolecular forces between molecules



Giant covalent structures, such as diamond and graphite have very high melting and boiling points

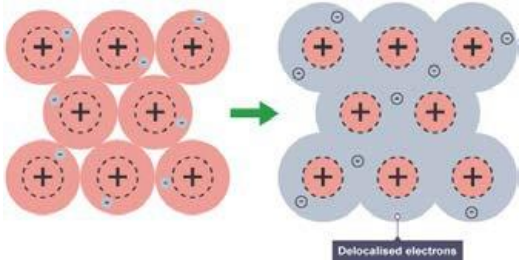


Diamond – each carbon atom forms 4 covalent bonds with another carbon atom.



Graphite – each carbon atom forms 3 covalent bonds. Graphite conducts electricity because there are delocalised electrons between layers.

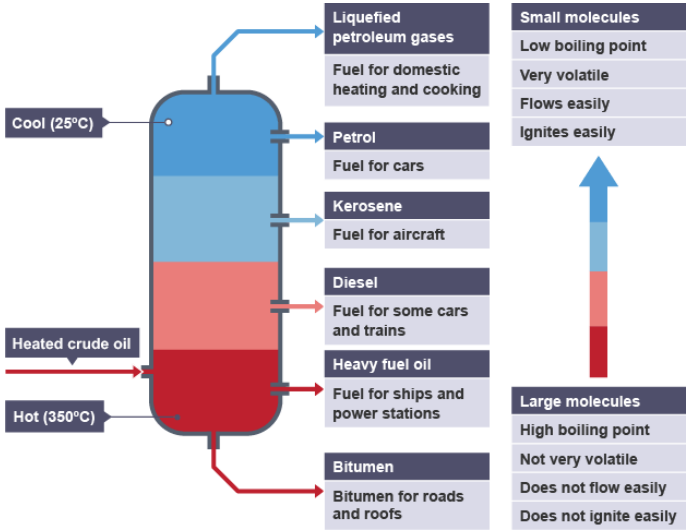
4. Metallic bonding



Metallic structures are good conductors of heat and electricity because they have delocalised electrons. They are malleable because layers of positively charged metal ions can slide.

5. Organic chemistry

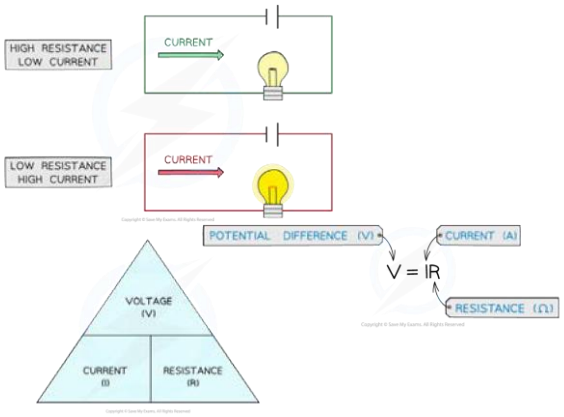
Fractional distillation separates hydrocarbons based on their boiling point.



Cracking splits long chain hydrocarbons into shorter, more useful ones.

Year 10 Learning Cycle 1 Science - Transferring energy

1. Current, resistance & potential difference



2. Ohm's Law

Ohm's Law states that: The current through a conductor is directly proportional to the potential difference across it

Electrical conductors that obey Ohm's Law are referred to as ohmic conductors

Examples of ohmic conductors are:

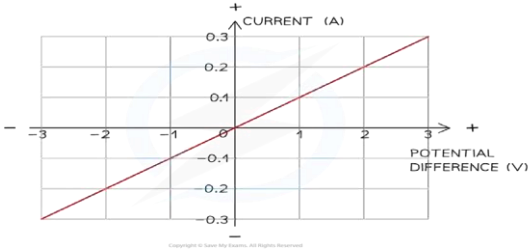
- Fixed resistors
- Wires
- Heating elements

Ohm's Law is represented by the equation V = IR

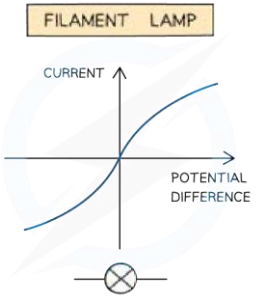
- If V and I are directly proportional, this means that the resistance R remains constant

Ohm's Law is relevant only at constant temperatures

An ohmic conductor will have a current-voltage (I–V) graph that is a straight line through the origin

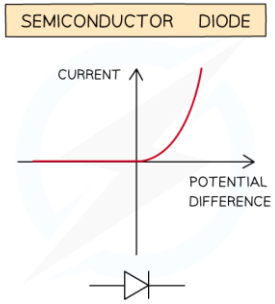


3. I-V Graphs



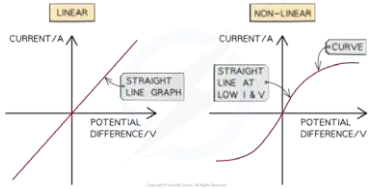
Linear elements include:

- Fixed resistors
- Wires
- Heating elements

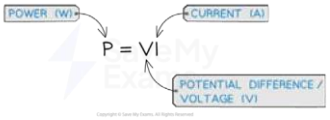


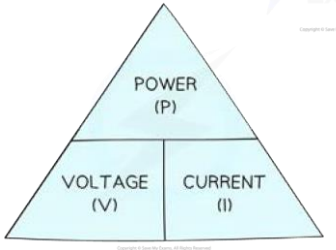
Non-linear elements include:

- Filament lamps
- Diodes & LEDs
- LDRs
- Thermistors

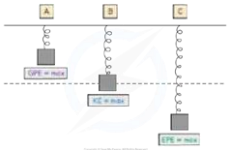


4. Electrical power





5. KE, GPE and EPE



When a mass on a vertical spring oscillates up and down, energy is transferred between stores

Although the total energy of the mass-spring system will remain constant, it will have changing amounts of energy in its:

- Elastic potential energy (EPE) store
- Kinetic energy (KE) store
- Gravitational potential energy (GPE) store At

position A:

- The spring has some energy in its elastic potential store since it is slightly compressed
- The spring has zero energy in its kinetic store since it is stationary
- The amount of energy in its gravitational potential store is at a maximum because the mass is at its highest point

At position B:

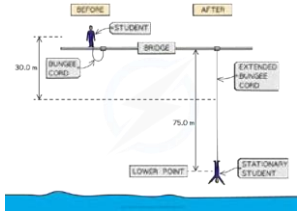
- The spring has some energy in its elastic potential store since it is slightly stretched
- The energy in its kinetic store is at a maximum as it passes through its resting position at its maximum speed
- The spring has some energy in its gravitational potential store since the mass is still above its lowest point in the oscillation

At position C:

- The energy in the elastic potential store of the spring is at its maximum because it is at its maximum extension
- The spring has zero energy in its kinetic store since it is stationary
- The energy in the gravitational potential store of the spring is at a minimum because it is at its lowest point in the oscillation

6. Example questions

Calculate:



a) The change in gravitational potential energy of the student at 30.0 m

b) The maximum change in the gravitational potential energy of the student

c) The speed of the student after falling 30.0 m if 90% of the energy in the student's gravitational potential store is transferred to the student's kinetic store

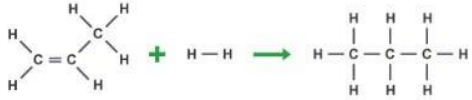
d) The spring constant of the bungee cord if all the energy in the gravitational potential store of the student is transferred to the elastic potential store of the bungee cord

Year 10 Learning Cycle 1 Science – Triple only organic chemistry

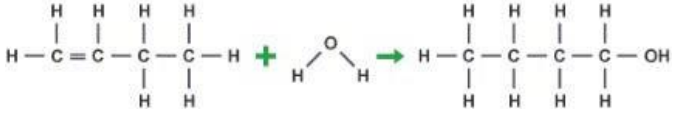
1. Key Terms	Description
Saturated hydrocarbon	A hydrocarbon containing only single bonds – such an alkane
Unsaturated hydrocarbon	A hydrocarbon containing at least 1 double bond – such as an alkene
Polymer	A large molecule make of a long chain of repeating units
Alcohol	A homologous series with a hydroxyl group -OH
Carboxylic acid	A homologous series with a carboxyl group -COOH
Amino acid	Biological molecules which polymerize to make proteins
DNA	A pair of polymers which twist to form a double helix.

2. Alkenes

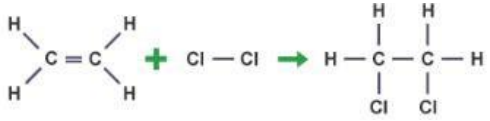
Alkenes contain at least 1 carbon-carbon double bond. Because of this double bond, they are reactive



Alkene + hydrogen → alkane



Alkene + water (steam) → alcohol



Alkene + halogen → halogenoalkane

3. Alcohols

- Alcohols are a homologous series with a hydroxyl group –OH
- Ethanol is a useful fuel and solvent, which can be produced by microorganisms through fermentation

glucose → ethanol + carbon dioxide

- All alcohols undergo complete combustion

ethanol + oxygen → carbon dioxide + water

- Ethanol will react sodium

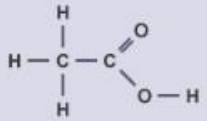
sodium + ethanol → sodium ethoxide + hydrogen

- Ethanol will oxidise to produce a carboxylic acid

ethanol + oxidising agent → ethanoic acid + water

4. Carboxylic acids

Carboxylic acids are a homologous series with a carboxyl group –COOH. Carboxylic acids partially ionise in water to produce a pH of less than 7.

Ethanoic acid	CH_3COOH	

Like other acids they:

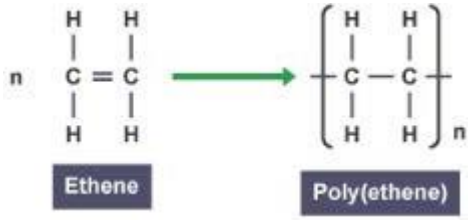
- react with **metals** to form a **salt** and hydrogen
- react with **bases** to form a salt and water
- react with carbonates to form a salt, water and carbon dioxide

Carboxylic acids react with alcohols to make esters

alcohol + carboxylic acid → ester + water

5. Polymerisation

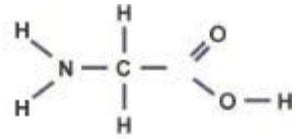
Addition polymerisation is when many monomers join together to form polymers. The monomers must have a carbon-carbon double bond



In condensation polymerisation, the monomers need 2 different functional groups. This is how polyesters are produced.

6. Amino acids, DNA and natural polymers

Amino acids are molecules with at least 2 functional groups. They react by condensation polymerisation to make proteins.



DNA is a biological polymer of monomers called nucleotides – it carries genetic information.

Starch is a biological polymer which plants use to store sugars.

Cellulose is a biological polymer which strengthens the plant cell wall. It is made of sugars

Year 10 Learning Cycle 1 Science - How to Approach 6 Mark Questions

1. How to approach 6 mark questions in Science - Atomic structure, bonding and organic chemistry

Question	Explain the properties of _____
Info	You could be asked to explain the properties of different materials. Examples of materials include@ • Any named salt • Any named metal • Diamond • Graphite To answer this question, you will need to do the following: 1. Identify the type of bond involved 2. Describe the structure of the material 3. Identify a property of the material 4. Explain why it as this property linking back to its structure 5. Repeat steps 3 and 4 until you have no more properties
Top tip	When explaining why a material does or does not conduct electricity by careful. When talking about materials with covalent or metallic bonds you need to use the key term "electron" when you are discussing a material with ionic bonds you need to use key term "ion"
Model answer	Explain the properties of graphite • Graphite has covelant bonds • Graphite is made up of layers of carbon atoms. Each acarbon atom os covalently bonded to 3 others in a giant structure • Graphite conducts electricity • It conducts electricity because it has delocalised electrons which are able to move • Graphite is slippery and soft. It is slippery and soft because it is made up of layers that can slide over each other. Graphite also has high melting and boiling points. This is because it has strong covalent bonds between atoms which takes lots of energy to overcome
Practice	1. Learn and practice the model answer above. 2. Explain the properties of diamond 3. Explain the properties of the metal copper 4. Explain the properties of sodium chloride 5. Explain the properties of carbon nanotubes

2. How to approach 6 mark questions in Science - Ecology

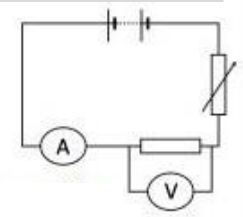
Question	Explain why _____ changed in mass when placed in a _____ solution
Info	You could be asked to explain the change in mass of different substances when placed in dilute or concentration solutions. 1. To answer this question, you will need to do the following: 2. Compare the concentration inside and outside the cells of the substance that was given in the question 3. Identify the direction of the movement of water by osmosis
Top tip	Remember a concentrated solution has little water while a dilute solution has lots of water. Water will move from dilute solution to a concentrated solution.
Model answer	Explain why a peeled potato changed in mass when placed in dilute solution. The potato piece is more concentrated than the surrounding solution. This means the water will move into the potato piece by osmosis and so the potato piece will increase in mass.
Practice	1. Learn and practice the model answers above. 2. Prepare and learn a model answer to explain what will happen to a potato piece when placed in a concentrated solution. 3. Prepare and learn a model answer to explain what you predicted would happen to the potato piece with concentration of 0.55M when placed in the following solutions; 0M, 0.2M, 0.4M and 0.6M

Year 10 Learning Cycle 1 Science - How to Approach 6 Mark Questions

3. How to approach 6 mark questions in Science - Supply and demand

Question	1. Explain the difference between current supplied by mains and by a battery. 2. Explain why touching the live wire of an appliance is dangerous 3. Explain why step-up transformed are used in the national grid
Info	4. At least one of these questions is likely to come up. The examiner is going to be looking for a clear answer written in a logical sequence
Top tip	Be careful that you use key words/phrases accurately (these are in bold in your model below)
Model answer	Explain the differences between the current supplied by the mains supply and the current supplied by a battery A battery supplies a direct current whic flows in one direction only while the mains supply supplies an alternating current which is constantly changing direction.
Model answer	Touching the live wire of an appliance is dangerous when the appliance is connected to the mains electricity supply. explain why The potential of a live wire is 230V, while a person is 0V. This means that there is a large potential difference between the wire and the person and so the current passes through the person's body.
Model answer	Explain why step-up transformers are used in the National Grid To increase the voltage across the cables and to decrease the current through the cables. This reduces the energy loss in the cables and increases the efficiency of transmission
Practice	1. Learn and practice the model answer above.

4. How to approach 6 mark questions in Science - Transferring Energy

Question	Explain how to investigate the IV characteristics of a _____
Info	You could be asked this question for different components. Some that have come up in the past include: • Resistor • Filament Lamp • Diode To answer this question, you will need to do the following: • Draw a diagram of how to set up equipment • Identify the readings you will collect • Describe what you will do with results
Top tip	Be careful drawing your components. Draw the ammeter in series while a voltmeter should be connected in parrallel
Model answer	Explain how to investigate the IV characteristics of a _____ 1. Set up the equipment as shown in the diagram. 2. Record the current and voltage. 3. Adjust the variable resistor. 4. Record the new current and voltage. 5. Repeat this until you have 5 pairs of readings 6. Swap the connections to the battery. 7. Repeat steps 3-4 until you have 5 negative pairs or readings. 8. Draw a graph of current against potential difference. 
Practice	1. Learn and practice the model answers above. 2. Prepare and learn model answers to explain how you would investigate the IV characteristics of diodes and filament lamps.

Year 10 Learning Cycle 1 Science - Triple Science students only

Key Terms	Description
Antibacterial chemicals	Naturally occurring chemicals made by plants like mint and witch hazel which protect them from bacterial pathogens
Mimicry	The ability of some organisms to copy the appearance or behaviour of others
Deficiency disease	A disease that develops because an organism (plant or animal) does not have enough vitamins or minerals ions.
Fungicide	A chemical which kills fungi

Magnesium ion deficiency

Plants use magnesium ions to make chlorophyll in their leaves. Like in nitrate deficiency, the plant is limited in terms of its photosynthetic ability and the plant growth is compromised. Magnesium is a limiting factor in healthy plant growth.

Symptoms

Plant pathogens cause diseases with a range of different symptoms. These symptoms can be used to identify the pathogen and then treat the disease, or limit its effects. The symptoms of common plant infections are shown below.

Identification

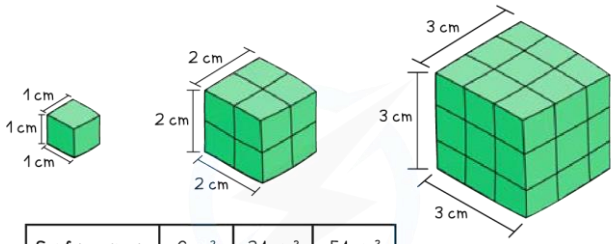
Farmers and gardeners often use books and the internet to identify plant diseases. They can also take a small cutting of an infected plant (or a photograph of it) to a local garden centre, which have staff that can often help identify and treat the disease. For diseases that are more difficult to identify, cuttings of the plant may be analysed by scientists in laboratories using testing kits containing monoclonal antibodies.

Nitrate deficiency

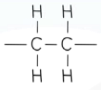
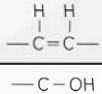
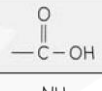
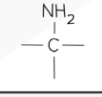
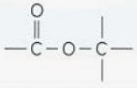
Plants use nitrates as a supply of nitrogen, which is needed to make proteins for healthy growth. Plants absorb nitrates in water through their roots. Nitrates are present in high levels in plant fertilisers.

Without nitrates, the amount of chlorophyll in leaves reduces. This means leaves turn a pale green or yellow colour. This reduces the plant's ability to photosynthesise and grow properly, which reduces the farmers' crop yield. Farmers or gardeners can add chemical or natural fertilisers, such as manure to increase nitrate levels.

Key Terms	Description
Nanoparticle	Particles between 1 and 100 nanometres (nm) in size and are made up of a few hundred atoms.
Homologous series	A family of organic compounds with the same functional groups and similar chemical properties
Polymer	A large molecule, made of repeating subunits called monomers

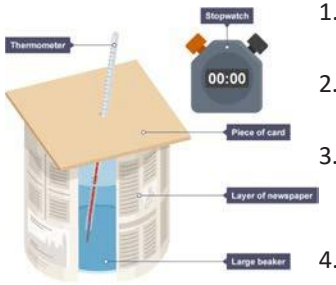


Surface area	6 cm²	24 cm²	54 cm²
Volume	1 cm³	8 cm³	27 cm³
Surface area: volume	6:1	3:1	2:1

FAMILY	FUNCTIONAL GROUP	NAME
ALKANE		-ANE
ALKENE		-ENE
ALCOHOL	—C—OH	-ANOL
CARBOXYLIC ACID		-ANOIC ACID
AMINE		-AMINE
ESTER		-YL -ANOATE

Key Terms	Description
Insulator	A material which does not let heat or electricity pass easily through it
Charge	A property of matter which causes a force when near another charge. Charges are either positive or negative.
Electric field	An area surrounding an electric charge which may influence other charged particles

Required practical – investigating methods of insulation



1. Add 100cm3 of boiling water to a beaker with a lid fitted
2. Record the start temperature of the water
3. Record the temperature of the water every 2 minutes for 60 minutes
4. Repeat steps 1-3 with different types of insulation around the beaker.

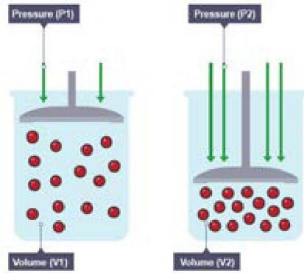
For a fixed mass of gas at a constant temperature:

pressure × volume = constant

$$p\,V = constant$$

This is when:

- pressure (p) is measured in pascals (Pa)
- volume (V is measured in metres cubed (m^3)



Year 10 Learning Cycle 1 Science - Clubs and Reading

Post 16 GCSE transition activities to explore:

1. AQA | Subjects | Science | AS and A-level

2. Undergraduate Science Courses (thecompleteuniversityguide.co.uk)

3. The official website of the Nobel Prize - NobelPrize.org

4. National Geographic

5. Discover | Natural History Museum (nhm.ac.uk)

6. NASA

7. http://learn.genetics.utah.edu/

8. Science_A_Level_skills_pack.pdf (oup.com)

9. Summer Start for A-Level Chemistry – YouTube

10. Why is biodiversity so important? - Kim Preshoff | TED-Ed

11. KS5 Physics Transition workbook 2019.docx - Google Drive

Post 16 GCSE inspirational journals to explore:

1. Physics World
2. New Scientist

Year 10 Learning Cycle 1 Art

1. Tier Three Vocabulary

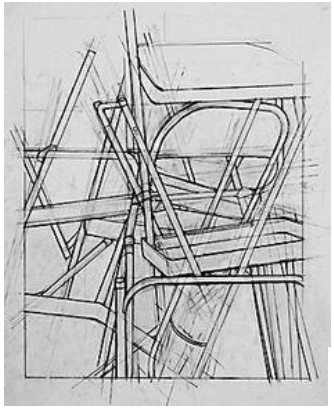
Key Words	Definitions
Still Life	A collection of objects that the artist has selected to draw and paint to develop skills. An art movement.
Impasto	Applying paint thickly to create texture.
Negative space	The space and shapes around an object.
Continuous Line	Drawing without lifting the pencil, creating one long line.
Resist	Wax will resist water, pushing it back, creating a clear line.
Depth	Using dark tone to create perspective in an image.
Composition	How the artist arranges the objects to create more interesting image that draws the viewer into the image.

2. Art has Value?

The value of art can be measured in different ways - personal, cultural, social, economic, political, and so on.
Works of art and artists are not equally valued.
Artists can be marginalised because of prevailing social attitudes. Attitudes to art change over time.

3. What is ways of looking?

A still life is a work of art depicting mostly inanimate subject matter, typically commonplace objects which are either natural (food, flowers, dead animals, plants, rocks, shells, etc.) or man-made (drinking glasses, books, vases, jewellery, coins, pipes, etc.). You will learn how to look, draw, develop composition and how to use a range of materials.



4. Artists that make Marks

Jackson Pollock

Pollock believed art could be created from mood created by movement. That a line can express your feelings.

Henri Matisse

Matisse started to lose his eyesight in later life and created collage through touch. Feeling the shapes he wanted.

Beti Saar

Saar is a visual storyteller and an accomplished printmaker. Saar was a part of the Black Arts Movement in the 1970s, which engaged myths and stereotypes about race and femininity

5. Links and Further Reading

https://is.gd/jacksonpollock

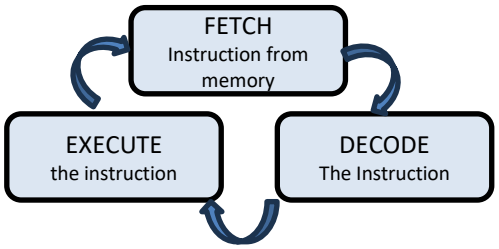
https://is.gd/henrimatisse

Year 10 Learning Cycle 1 Computer Science - Computer Systems

1: Computer hardware

Von Neumann Architecture:

Program instructions and data are both stored in memory. Instructions are retrieved and executed by the CPU using the Fetch-Decode-Execute Cycle.



CPU : Central Processing Unit: ALU :

Arithmetic Logic Unit

CU : Control Unit

Clock : Clock speed : Processing cycle per second

CPU Registers (very fast memory)

- Program Counter (PC)
- Memory Address Register (MAR)
- Memory Data Register (MDR)
- Current Instruction Register (CIR)
- Accumulator (holds result from ALU)

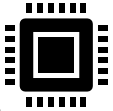
Embedded Systems

A computer system dedicated to a specific task and built into an electronic device eg: Sat Nav, microwave, burglar alarm, camera

2: Memory & Storage

Random Access Memory (RAM) is the main working memory of the computer. The computer stores the instructions for the operating system and all running programs and data in RAM when your computer is turned on. RAM is volatile so it empties when the computer is turned off or power is cut

Read Only Memory (ROM) Contains the initial instructions for the computer when it is turned on. ROM is non-volatile so it is not lost when the power is off.



Virtual Memory: Part of the Hard Drive is reserved to be used as an extension to the RAM. Instructions and data are swapped between RAM and VM although they can only be executed when in RAM.

Secondary Storage:

Optical - (CD, DVD, Blu Ray) - Lasers read & write using light.

Magnetic: (Hard Disk Drive, tape) Mechanical parts move over the disks surface to read and write data magnetically.

Solid State Drive (SSD, USB, Flash) Data is recorded onto solid memory chips without any moving parts

Key Terms	Description
Central Processing Unit	The "brains" of the computer
Secondary Storage	Optical, Magnetic SSD
Denary	Normal numbering system, base 10, 0 to 9
Algorithmic thinking	Thinking logically to solve a problem using code
Registers	small areas of memory on the CPU, store data or instruction, fast
Virtual memory	When the CPU borrows memory from RAM
Hexadecimal	Base 16 uses 0 to 9 then A B C D E F
Decomposition	Breaking down a problem into easy to solve parts
Cores	Some computers have multiple CPUs or cores = more instructions processed
Cache	Frequently used data / instructions are stored in cache Accessed much faster than RAM
Character set	Letters, numbers and characters stored as binary. ASCII and Unicode
Abstraction	Removing unnecessary detail to make a problem easier to solve
Clock Speed	The speed instructions are executed
FDE Cycle	Instructions are Fetched, Decoded then executed in the CPU
Sequence	The route through code
Iteration	looping or repeating a section of code. While loop or For loop
Primary Storage	RAM – Volatile, changeable ROM – Non-volatile
Binary	The number system used by the CPU, Base 2 only use 1 and 0
Selection	Using IF change the route through the code depending on variables
Data Types	Integer: whole number String: letters & number Boolean: True/False

Year 10 Learning Cycle 1 Computer Science - Computer Systems

3. Converting between Number bases

Binary (Base 2)

Binary (Base 2)

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

32 + 8 + 1 = 41

Convert to Denary - Add all the place values where there is a 1 below.

Hexadecimal (Base 16)

Convert to Denary (decimal):

16	1
B	4

B = 11 so 11 * 16 = 176

+

1 * 4 = 4

So B4 = 180 in HEX

HEX	DEC
A	10
B	11
C	12
D	13
E	14
F	15

HEX is used because it is shorter than writing binary. Used in colour selection:

#A1 4F 9C is lilac

#FF 00 00 is red

Alternate method convert to binary first:

B = 11					**4**			
8	4	2	1		8	4	2	1
1	0	1	1		0	1	0	0

1: Split and convert nibbles to binary

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

2: Join and convert binary to denary

128+32+16+4 = 180 HEX

4. Adding, multiplying and dividing Binary

Adding Binary

1+0 = 0

1+1 = 10

1+1+1=111

Carry the extra digits !

Check your answers by converting to Denary!

8	4	2	1
1	0	1	1
0	0	1	1
1	1	1	0
	1	1	

Underflow error (numbers fall off the right) reduces accuracy.

Overflow error (numbers fall off the left) error in answer

Using Binary shift

Left shift = multiply (by 2 each place)

Right shift = divide (by 2 each place)

110 = 6

Shift one place left = 1100 = 12 Shift two places left = 11000 = 24

Shift one place right = 11 = 3

5. Images and Sound

Images: Stored in binary

Metadata – data about the image (eg size, location, file type)

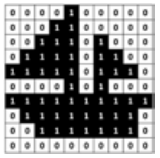
Pixel – smallest picture element

Colour Depth / Bit Depth – number of bits to store each colour

Resolution – pixels per inch

Bitmap images – use a single bit (2 colours)

Vector images – shapes are stored as vectors



Sound: stored in binary

Sample rate – samples of analogue per second

Bit depth – the number of bits storing each sample

More samples = better representation = bigger file

Calculate from bits = 2n so 3 bits = 23 = 2*2*2 = 8 possible colours

Units of measurement

Bit	1 or 0
Nibble	4 bits
Byte	8 bits
Kilobyte	1 thousand bytes
Megabyte	1 million bytes
Gigabyte	1 billion bytes
Terabyte	1 trillion bytes
Petabyte	1 Quadrillion bytes

Year 10 Learning Cycle 1 Computer Science - Python Programming

1. Python programming Output

```
print("Hello this is my first program!")
print("Hello ", user_name) outputs a string and a variable
```

Input

```
user_name = input()
age = int(input())  if you are using a number
user_name = input("Please enter your name: ")
```

2. Assignment

Give a variable a value:

A = 12

B = A * 4

dice = randint(1,6) assigns a random value between 1 and 6

3. Selection

```
if day == "Monday":
    print("The start of a brilliant week!")
    day_number = 1
elif:
    print("Halfway through the week!")
else:
    print("Have a great day")
```

4. Flow Diagrams

Start/End

Input/output

Process

Selection (decision)

Sub-program

Sequence

5. Iteration – While loops

```
# display a count from 1 to 10
count = 1
while count <= 10:
    print(count)
    count = count+1
```

Python is a **high-level** language

Binary is a **low-level** language

6. Operators

Addition	+
Subtraction	-
Multiplication	*
Division	/
Integer Division (DIV)	//
Remainder (MOD)	%
Exponent	**
Equal to	==
Not equal to	!=
Less than	<
Less than or equal to	<=
Greater than	>
Greater tan or equal to	>=

7. Iteration – For loops

```
# display a count from 0 to 10
for count in range (11):
    print(count)
# display a count from 1 to 7
for count in range (1, 8):
    print(count)
```

Year 10 Learning Cycle 1 Design Technology - Briefs, Specifications, ideas and development

Design Briefs

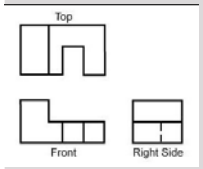
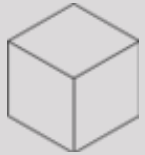
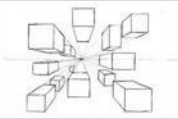
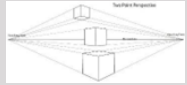
A Design Brief is the statement of how you will solve the Design Problem It will often include:

- Constraints/ limitations
- What the product is
- Materials/processes
- Any key information you know

Design Specifications

- A Design Specification is a list of requirements your product has to meet in order to be successful
- It is also useful for evaluation. If your product hasn't met the Spec then it gives you a starting point
- for improvements.

Key Words	Definitions
Aesthetics	What the product looks like? Style? Colour Scheme? Design Movement?
Customer	Who would buy it? (Age, gender, socio-economic, personality) How does the design appeal to them?
Cost	How much will it cost? (min-max) Why?
Environment	Where will it be used? Why? How will you make it suitable?
Safety	How is it safe? How will it be checked? Why must it be safe?
Size	What is the maximum or minimum size? Why?
Function	What does the product do? What features make it do that function well? How is it unique from similar products?
Materials	What is it made from? Why?
Manufacture	How might it be made? Why? What scale of production? Why?

Technique	Description/ notes	Diagram
Orthographic Projection/ Working Drawings	• Includes "Front", "Plan" and "End" 2D Views, and often an Isometric 3D View • Standardised method for scale, dimensions and line types • Great for manufacturing	
Isometric	• Common 3D sketching method • Can be drawn free-hand or using isometric paper and ruler • Angles are at 30 degrees • Great for seeing most of the products	
1-Point Perspective	• A 3D drawing method • Often used by interior designers and architects • Gives drawings depth • Only uses 1 vanishing point	
2-Point Perspective	• Used for 3D designs • Exaggerates the 3D effect • Objects can be drawn above of below the horizon line but must go to the 2 vanishing points	
Annotated Drawings/ Free and Sketches	• Quick and easy way of getting ideas down • Range of ideas can be seen • Annotation helps explain designs further	
Exploded View	• Helps see a final design of a product and all it's parts • Can see where all the parts fit • Great for manufacturers	

Modelling and Development

Modelling and development are key to testing and improving products This can be done physically using materials like; card, foam, clay, man-made boards or virtually in CAD.

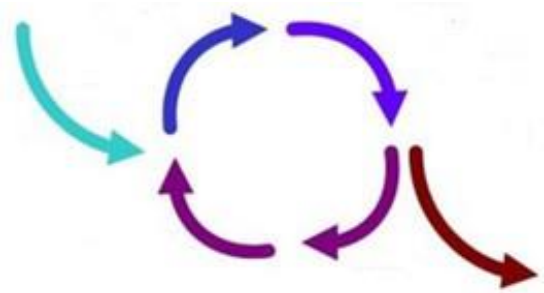
Modelling helps the designer get feedback from the customer, check aesthetics, function, sizes and even materials and production methods and change them if needed

Year 10 Learning Cycle 1 Design Technology - Design strategies

Design Strategies are used to solve Design Fixation, and help develop creative design ideas.

Iterative Design

- A Proposal is made
- It is then planned and developed to meet the brief
- It is analysed and refined
- It is then tested and modelled
- Then evaluated against the brief – many versions fail but that then informs development to make the idea better



- The cycle then repeats and if the product is successful it is then made and sold on the market

Advantages	Disadvantages
• Consistent testing helps solve problems earlier • Constant feedback • Easy evidence of progress	• Designers can loose sight of "the big picture" • Time consuming

User-Centred Design

- This is when designs are based on fulfilling the needs and wants of the Users/Clients at every stage of the design process
- Questioning and testing is ongoing and is often found through

Advantages	Disadvantages
• User feels listened to • Makes sure the product meets their needs	• Requires extra time to get customer feedback • If focused on just one person it can limit appeal to others

Systems Approach

- Usually used for electronic products
- Often uses diagrams to show systems in a visual way
- Planning the layout for the correct sequences e.g. inputs, outputs, timings, etc
- Electronics and mechanical systems need an ordered and logical approach

Advantages	Disadvantages
• Does not need specialist knowledge • Easy to communicate stages • Easy to find errors	• Sometimes over-simplifies stages • Can lead to unnecessary stages

Collaborative Approach

- Working with others to share data and solving problems and coming up with design proposals can help with creativity
- Numerous companies work in teams, and has been shown to improve the range and quality of ideas produced

Advantages	Disadvantages
• Gets multiple opinions and a range of views • Working in groups can produce more ideas	• Can be difficult to design ideas with opposing views • Can be difficult to find time to communicate with multiple people

Year 10 Learning Cycle 1 Design Technology - Environment

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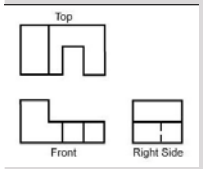
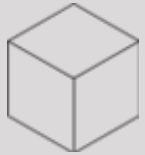
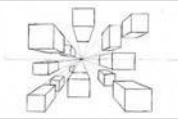
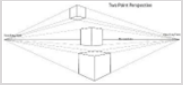
Orthographic Projection/ Working Drawings	• Includes "Front", "Plan" and "End" 2D Views, and often an Isometric 3D View • Standardised method for scale, dimensions and line types • Great for manufacturing	
Isometric	• Common 3D sketching method • Can be drawn free-hand or using isometric paper and ruler • Angles are at 30 degrees • Great for seeing most of the products	
1-Point Perspective	• A 3D drawing method • Often used by interior designers and architects • Gives drawings depth • Only uses 1 vanishing point	
2-Point Perspective	• Used for 3D designs • Exaggerates the 3D effect • Objects can be drawn above of below the horizon line but must go to the 2 vanishing points	
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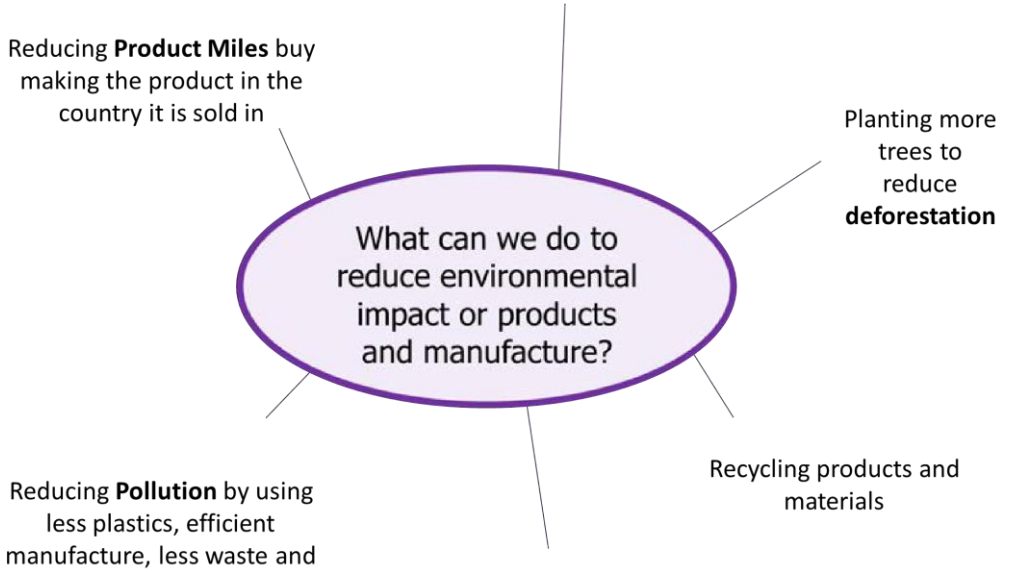
Year 10 Learning Cycle 1 Design Technology - Environment

The 6Rs	Meaning
Reuse	To use a product again either for the same purpose or a different one
Reduce	To have less of material/packaging/pollution when making products by making them more efficient
Recycle	Breaking down and forming the material into another product
Refuse	Customers not buying or supporting products that make an environmental impact
Rethink	Designers and customer rethinking their decisions when making and buying products.
Repair	Fixing a product rather than throwing it away. Extending its life rather than using more resources to make another. Often products are Designed for Maintenance so can easily be repaired. E.g. Using screws so even non-specialists can take a product apart, or using components that can easily be replaced like fuses or batteries



Life Cycle Assessment

This is when a designer looks at the environmental impact a product makes over its life time and how it could be reduced. Including:

- Impact of materials
- Impact of processes
- Product Miles (how far a product has to travel to get from factory to consumer)
- Impact while in use
- Impact when disposed of (6Rs)

Sustainability

Sustainability is maintaining our planet and its resources and making a minimal negative impact

Finite Resources

Will run out of eventually

Plastics

Metals

Polymers (Textiles)

Infinite Resources

Can be re-grown and re-bread. Will not run out of

Paper

Boards

Natural Timbers

Cotton

Leather

Planned Obsolescence

This is where products “die” after a certain amount of time. E.g. Disposable cups, Phones, Lightbulbs, Printer Ink, etc This can have a big environmental impact as customers are throwing away lots of products, and resourc

Year 10 Learning Cycle 1 Design Technology - People, Society and Culture

Market Pull and Technology Push

Technology Push is the development of new technology, materials and manufacturing methods to create new products or improve old ones.

Examples include; Smart Phones, Electricity, Mass Production, etc

Market pull is the demand from consumers for new products and improvements in old ones; this is often found via reviews, polls, surveys, etc Examples include; Product Aesthetics, making products easier to use, etc

Cultures, Faith and Belief

Different groups of people have different interests and have to be catered for.

Different countries and cultures also react to products differently.

E.g. In India McDonalds don't sell beef burgers as it has a large Hindu populatin, and cows are seen as sacred – in contrast the UK sells its most amount of fish and chips on a Friday as it is a Christian tradition to not eat meat on that day.

Case Study: £5 note

Hindu, Sikh and some other faith-based communities may choose to follow a vegetarian diet, and this is part of their culture. In addition to not eating meat, many followers of these faiths, as well as vegans and vegetarians, take every opportunity to avoid using animal products in their day-to-day lives.

The revelation in 2016 that the new polymer Bank of England £5 note contained tallow, an animal fat-based substance, upset a number of communities. There was a prompt call for the Bank of England to find an alternative way to produce the note and in the first two days of an official petition well over 100,000 signatures were received.

Shortly after the Bank of England admitted that the new polymer £5 note contained the animal by-product, some establishments refused to take the notes as a method of payment. One café owner was repulsed by the idea that the note contained tallow and believed that her customers supported her view. They received no complaints.

The Bank of England say they currently have no plans to change the manufacturing process.

Fashion and Trends

Fashion and Trends will change quickly, and you can see major differences in fashions over decades. Designers have to make sure their products meet the fashion and trends of the area they are designing and selling the product to. The change of products over time is called Product Evolution. This is caused by Market Pull, Technology Push and Fashion and Trends.

Some products are seen as timeless. These products are called Iconic Designs. These products are timeless because they were innovative, set a bench mark for following products, changed their industry and are often copied.

Examples include; iPod, iPhone, Angle-Poise Lamp, Swiss Army Knife, Converse Shoes, Levi's Jeans, Classic Mini Cooper

Inclusive vs. Exclusive Design

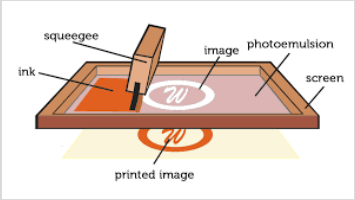
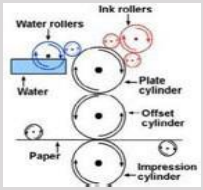
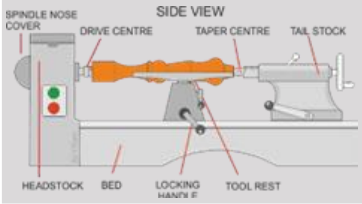
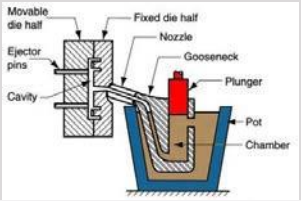
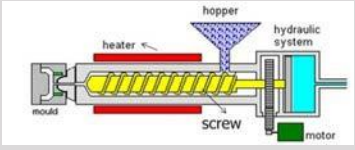
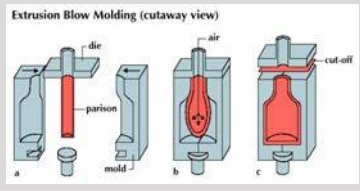
Inclusive Design: The aim to create a product that as many people as possible can use

Examples include; Cars, Doorframes, Adjustable Products, etc

Exclusive Design: The aim to create a product for a particular group and their needs

Examples include; Car seats for babies, Wheelchairs, Stair Lifts

Year 10 Learning Cycle 1 Design Technology - Production Processes

Name of Process	Diagram	Material	Products Made	Key info
Screen-printing		Papers and Textiles	Posters, signs and t-shirts	Screen printing places paint on top of a screen. The screen has a stencil embedded in it, so when the paint is passed across it the desired shape is printed underneath. Good process in one-off and batch production as often done by hand
Offset Lithography		Papers and card (thin, flexible plastics)	Posters, newspapers, plastics bags	Rollers containing the colours and water go onto the plate cylinder. The water stops the colours sticking to certain places, creating the shape. The shape is transferred between rollers and onto the material. Can be used at batch and mass production
Lathe Turning		Wood and metal	Chair legs, baseball bats (cylindrical items)	Material is placed between the tail stock and the headstock and spun at high speed. The material is then cut using specialist tools (either by hand or my automated machinery) to the desired shape. Can be used in one-of and batch production
Die Casting		Metal	Car parts, engine components, etc	Molten metal is poured into a chamber and a plunger forces the metal through the nozzle into the mould. Unlike sand casting, the mould is reusable. Good process for both one-of and batch production
Injection Moulding		Plastics	Chairs, toys, etc	Plastic granules are poured into the hopper and onto the screw. The screw moves the material towards the heater where it turns into a liquid. The liquid is then forced into the mould, cooled and released. Great process for mass production as it makes 100s+ of products at once, to a identical standard.
Blow Moulding		Plastics	Plastic bottles	A Plastic parison is heated and put into the mould. The parison is then filled with air (like blowing up a balloon) and is forced to fit the mould shape. It is then cooled and then released. This is a great process for mass producing bottles.

Year 10 Learning Cycle 1 Design Technology - Work of others and Customer Research

Image/ Example	Designer	Design Movement	Key info
	William Morris	Arts and Crafts	• British designer in 1880s • Simple natural crafts • Useful and beautiful products (wallpapers, cushions, etc)
	Charles Rennie Mackintosh	Art Nouveau	• Scottish designer in 1860s – 1920s • Known for light and shadow • Created stained glass and furniture • Inspired by nature and geometric lines
	Ettore Stottas	Memphis	• Italian designer in the 1950s/60s • Enjoyed making everyday objects wacky and bold • Used lots of bold colours and black lines

Image/ Example	Brand	Key info
	Alessi	• Italian Design Company • Homeware and kitchen utensils • “Post-modern” style • Phillipe Starke is a major designer
	Apple	• USA-based tech company • Famous for iconic designs of iPod and iPhone • Steve Jobs and Johnathon Ive are major designers • Known for innovative and modern design
	Dyson	• British engineering company • Famous for vacuum cleaners and innovative technology • James Dyson is a major designer

Research can be divided into 2 categories; Primary Research and Secondary Research. Primary is research you complete yourself. Secondary is research from resources others can gathered e.g. books, magazines and internet Primary research is generally more reliable as it is done by the person using it and can double-check the data

Anthropometrics and Ergonomics

Another key piece of research, is Anthropometrics and Ergonomics. This helps develop the sizes of products, etc to make sure it fits the User

Anthropometrics	The study of measurements of the human body. E.g. Knowing the grip width of a palm, if designing a new travel coffee cup
Ergonomics	The application of anthropometrics to ensure products are safe and comfortable to use. This can aso include; size, material, appearance, brightness, sound and texture. E.g. making sure the travel cup is the correct size, and an insulating smooth material to make it comfortable

Year 10 Learning Cycle 1 Geography - Tectonic Hazards

The structure of the Earth

The Crust	Varies in thickness (5-10km) beneath the ocean. Made up of several large plates.
The Mantle	Widest layer (2900km thick). The heat and pressure means the rock is in a liquid state that is in a state of convection.
The Inner and outer Core	Hottest section (5000 degrees). Mostly made of iron and nickel and is 4x denser than the crust. Inner section is solid whereas outer layer is liquid.

Convection Currents

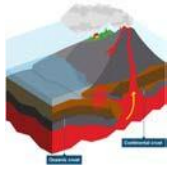
The crust is divided into tectonic plates which are moving due to convection currents in the mantle.

1. Radioactive decay of some of the elements in the core and mantle generate a lot of heat
2. When lower parts of the mantle molten rock (Magma) heat up they become less dense and slowly rise.
3. As they move towards the top they cool down, become more dense and slowly sink.
4. These circular movements of semi-molten rock are convection currents
5. Convection currents create drag on the base of the tectonic plates and this causes them to move.

Types of Plate Margins

Destructive Plate Margin

When the denser plate subducts beneath the other, friction causes it to melt and become molten magma. The magma forces its ways up to the surface to form a volcano. This margin is also responsible for devastating earthquakes.



Constructive Plate Margin

Here two plates are moving apart causing new magma to reach the surface through the gap. Volcanoes formed along this crack cause a submarine mountain range such as those in the Mid Atlantic Ridge.

Conservative Plate Margin

A conservative plate boundary occurs where plates slide past each other in opposite directions, or in the same direction but at different speeds. This is responsible for earthquakes such as the ones happening along the San Andreas Fault, USA.

Volcanic Hazards

Ash cloud	Small pieces of pulverised rock and glass which are thrown into the atmosphere.
Gas	Sulphur dioxide, water vapour and carbon dioxide come out of the volcano
Lahar	A volcanic mudflow which usually runs down a valley side on the volcano.
Pyroclastic flow	A fast moving current of super-heated gas and ash (1000oC). They travel at 450mph.
Volcanic bomb	A thick (viscous) lava fragment that is ejected from the volcano.

LIC -CS: Haiti Earthquake 2010

Causes: On a conservative plate margin, involving the Caribbean & North American plates. The magnitude 7.0 earthquake was only 15 miles from the capital Port au Prince. With a very shallow focus of 13km deep.

What is a Natural Hazard?

A natural hazard is a natural process which could cause death, injury or disruption to humans, property and possessions.

Effects

230,000 people died and 3 million affected. Many emotionally affected.

250,000 homes collapsed or were damaged. Millions homeless.

Rubble blocked roads and shut down ports.

Management

Individuals tried to recover people.

Many countries responded with appeals or rescue teams.

Heavily relied on international aid, e.g. $330 million from the EU.

98% of rubble remained after 6 months.

Geological Hazard

These are hazards caused by land and tectonic processes.

Meteorological Hazard

These are hazards caused by weather and climate.

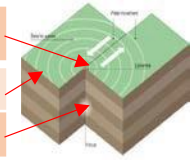
Causes of Earthquakes

Earthquakes are caused when two plates become locked causing friction to build up. From this stress, the pressure will eventually be released, triggering the plates to move into a new position. This movement causes energy in the form of seismic waves, to travel from the focus towards the epicentre. As a result, the crust vibrates triggering an earthquake.

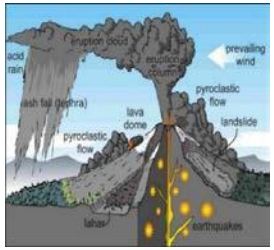
The point directly above the focus, where the seismic waves reach first, is called the **EPICENTRE**.

SEISMIC WAVES (energy waves) travel out from the focus.

The point at which pressure is released is called the **FOCUS**.



Managing Volcanic Eruptions



Warning signs

Small earthquakes are caused as magma rises up.

Temperatures around the volcano rise as activity increases.

When a volcano is close to erupting it starts to release gases.

Monitoring techniques

Seismometers are used to detect earthquakes.

Thermal imaging and satellite cameras can be used to detect heat around a volcano.

Gas samples may be taken and chemical sensors used to measure sulphur levels.

Preparation

Creating an exclusion zone around the volcano.

Having an emergency supply of basic provisions, such as food

Being ready and able to evacuate residents.

Trained emergency services and a good communication system.

Earthquake Management

PREDICTING

Methods include:

- Satellite surveying (tracks changes in the earth's surface)
- Laser reflector (surveys movement across fault lines)
- Radon gas sensor (radon gas is released when plates move so this finds that)
- Seismometer
- Water table level (water levels fluctuate before an earthquake).
- Scientists also use seismic records to predict when the next event will occur.

PROTECTION

You can't stop earthquakes, so earthquake-prone regions follow these three methods to reduce potential damage:

- Building earthquake-resistant buildings
- Raising public awareness
- Improving earthquake prediction

HIC – Christchurch 2011

22nd February 2011
12:51pm
10km west of the city centre of Christchurch
High income country
Magnitude 6.3
Destructive margin – Australian and Pacific

Effects

185 people were killed

3129 people were injured

6800 people received minor injuries

100,000 properties were damaged, and the earthquake demolished 10,000

Management

Around $6-7 million of international aid was provided

Water and sewage were restored by August 2011

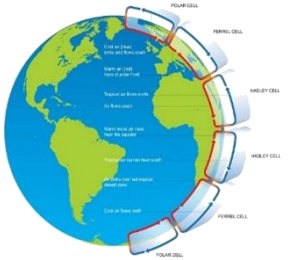
The New Zealand government provided temporary housing

Year 10 Learning Cycle 1 Geography – Weather hazards and climate change

Global pattern of air circulation

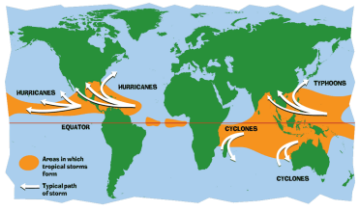
Atmospheric circulation is the large-scale movement of air by which heat is distributed on the surface of the Earth.

Hadley cell	Largest cell which extends from the Equator to between 30° to 40° north & south.
Ferrel cell	Middle cell where air flows poleward between 60° & 70° latitude.
Polar cell	Smallest & weakness cell that occurs from the poles to the Ferrel cell.



Distribution of tropical Storms

They are known by many names, including hurricanes (North America), cyclones (India) and typhoons (Japan and East Asia). They all occur in a band that lies roughly 5-15° either side of the Equator.



High and Low Pressure

Low Pressure	High Pressure
Caused by hot air rising. Causes stormy, cloudy weather.	Caused by cold air sinking. Causes clear and calm weather.

Formation of tropical storms

1	The sun's rays heats large areas of ocean in the summer and autumn. This causes warm, moist air to rise over the particular spots
2	Once the temperature is 27°, the rising warm moist air leads to a low pressure. This eventually turns into a thunderstorm. This causes air to be sucked in from the trade winds.
3	With trade winds blowing in the opposite direction and the rotation of earth involved (Coriolis effect), the thunderstorm will eventually start to spin.
4	When the storm begins to spin faster than 74mph, a tropical storm (such as a hurricane) is officially born.
5	With the tropical storm growing in power, more cool air sinks in the centre of the storm, creating calm, clear condition called the eye of the storm.
6	When the tropical storm hits land, it loses its energy source (the warm ocean) and it begins to lose strength. Eventually it will 'blow itself out'.

Changing pattern of Tropical Storms

Scientist believe that global warming is having an impact on the frequency and strength of tropical storms. This may be due to an increase in ocean temperatures.

Management of Tropical Storms

Protection Preparing for a tropical storm may involve construction projects that will improve protection.	Aid Aid involves assisting after the storm, commonly in LIDs.
Development The scale of the impacts depends on the whether the country has the resources cope with the storm.	Planning Involves getting people and the emergency services ready to deal with the impacts.
Prediction Constant monitoring can help to give advanced warning of a tropical storm	Education Teaching people about what to do in a tropical storm.

Primary Effects of Tropical Storms

- The intense winds of tropical storms can destroy whole **communities, buildings** and **communication networks**.
- As well as their own destructive energy, the winds can generate abnormally high waves called **storm surges**.
- Sometimes the most destructive elements of a storm are these subsequent **high seas and flooding** they cause to coastal areas.

Secondary Effects of Tropical Storms

- People are **left homeless**, which can cause distress, poverty and ill health due to lack of shelter.
- **Shortage of clean water** and **lack of proper sanitation** makes it easier for diseases to spread.
- **Businesses are damaged** or destroyed causing employment.
- Shortage of food as **crops are damaged**.

Case Study: Typhoon Haiyan 2013

Causes

Started as a tropical depression on **2rd November 2013** and gained strength. Became a Category 5 **"super typhoon"** and made landfall on the Pacific islands of the Philippines.

Effects	Management
• Almost 6,500 deaths. • 130,000 homes destroyed. • Water and sewage systems destroyed had caused diseases. • Emotional grief for dead.	• The UN raised £190m in aid. • USA & UK sent helicopter carrier ships deliver aid remote areas. • Education on typhoon preparedness.

Case Study: UK Heat Wave 2003

Causes

The heat wave was caused by an anticyclone (areas of high pressure) that stayed in the area for most of August. This blocked any low pressure systems that normally brings cooler and rainier conditions.

Effect	Management
• People suffered from heat strokes and dehydration. • 2000 people died from causes linked to heatwave. • Rail network disrupted and crop yields were low.	• The NHS and media gave guidance to the public. • Limitations placed on water use (hose pipe ban). • Speed limits imposed on trains and government created 'heatwave plan'.

What is Climate Change?

Climate change is a large-scale, long-term shift in the planet's weather patterns or average temperatures. Earth has had tropical climates and ice ages many times in its 4.5 billion years.

Recent Evidence for climate change.

Global temperature	Average global temperatures have increased by more than 0.6°C since 1950.
Ice sheets & glaciers	Many of the world's glaciers and ice sheets are melting. E.g. the Arctic sea ice has declined by 10% in 30 years.
Sea Level Change	Average global sea level has risen by 10-20cms in the past 100 years. This is due to the additional water from ice and thermal expansion.

Enhanced Greenhouse Effect

Recently there has been an increase in **humans burning fossil fuels** for energy. These fuels (gas, coal and oil) emit **greenhouse gases**. This is making the Earth's atmosphere thicker, therefore trapping more solar radiation and causing **less to be reflected**. As a result, the Earth is becoming warmer.

Evidence of natural change

Orbital Changes	Some argue that climate change is linked to how the Earth orbits the Sun, and the way it wobbles and tilts as it does it.
Sun Spots	Dark spots on the Sun are called Sun spots. They increase the amount of energy Earth receives from the Sun.
Volcanic Eruptions	Volcanoes release large amounts of dust containing gases. These can block sunlight and results in cooler temperatures.

Evidence of natural change

Carbon Capture This involves new technology designed to reduce climate change.	Planting Trees Planting trees increase the amount of carbon is absorbed from atmosphere.
International Agreements Countries aim to cut emissions by signing international deals and by setting targets.	Renewable Energy Replacing fossil fuels based energy with clean/natural sources of energy.

Year 10 Learning Cycle 1 History - Paper 1: Medicine Through time, c.1250-Present Day + Medicine in the Trenches 1914-1918

Key Topic 1: What was medicine like in the Medieval Period, c.1250-1500?

Key words	
Physician	A qualified doctor
Symptom	A sign or feature of an illness
Flagellants	Religious people who whipped themselves in hopes that God wouldn't send plague
Miasma	Bad air (poisonous, foul smelling fumes)
Muck rakers / night soil men	Workers hired by local authorities to empty cess pits and dispose of the contents.
Cess pits	Holes in the ground below a privy (toilet) where the waste collected
Blood-letting	Taking blood from a patient in an attempt to treat their illness
Humours	A theory claiming the body is divided into 4 humours or liquids: blood, black bile, yellow bile and phlegm.
Pestilence	A word used in the Middle Ages for the plague
Plague Pneumonic/ Bubonic	Bubonic plague is spread by fleas and originates from black rats from China. Pneumonic plague is spread by a person already with the virus through their coughs and sneezes.
Bubo / buboes	Swollen lumps in armpit and neck glands – a symptom of plague
Planet alignment	When planets in our solar system line up in their orbits. Thought by astrologists to have impact on human health & behaviour

Core knowledge	
1. Name the 2 main influences on medical understanding in the medieval period	Galen and Hippocrates
2. Why couldn't their theories be disproven?	Dissections were banned by the Church
3. Why didn't people question the Church in the medieval period?	Feared they would go to hell
4. What was the 'Theory of the Four Humours'?	If the 4 liquids are not perfectly balanced you will get sick
5. How many physicians were there during the medieval period?	Approx. 100.
6. Who carried out treatments and minor operations?	Barber Surgeons
7. How did 'wise women' treat people?	Herbal remedies
8. How were medieval towns/villages kept clean	'Rakers', Laws against throwing waste
9. When was the Black Death and how many people died?	1348 and 2 million
10. What did people believe caused the Black Death?	God's punishment, miasma (bad air)
11. How did people try to prevent the Black Death?	Praying, Keep air moving, Flagellants

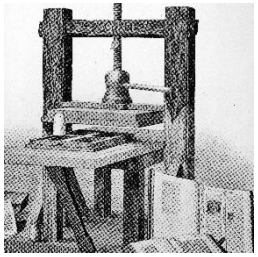
The Black Death in 1348

Year 10 Learning Cycle 1 History - Paper 1: Medicine Through time, c.1250-Present Day + Medicine in the Trenches 1914-1918

Key Topic 2: What was medicine like in the Early Modern Period, c.1500-1700?

Key words	
Dissection	Cutting up a corpse to study the internal organs and structure.
Anatomy	The study of the human body
Privy / latrine / water closets	A toilet, usually a public or shared one.
Almshouse / poor house	Charitable housing provided to vulnerable people in the community, run by church or set up by wealthy benefactors.
Renaissance	Re-birth; a period of time where people return to questioning and scientific experienments
Printing Press	Invented in 1440, but impact felt in Renaissance period. Took control of information out of the Church's control, and allowed for new ideas to be shared.

Page from Vesalius' book The Fabric of the Human Body



The Printing Press

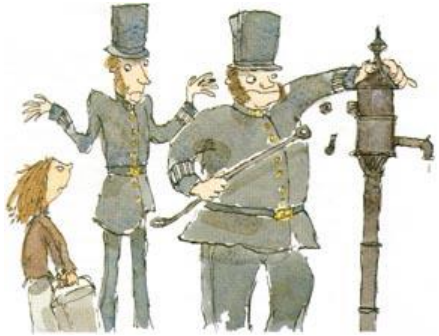
Core knowledge	
12. What treatments did people still use in the Renaissance period?	Bloodletting and purging, praying, herbal remedies
13. How did Vesalius prove Galen wrong in more than 200 ways?	Learnt about anatomy from dissections
14. Why was Thomas Sydenham known as the English Hippocrates?	Emphasised careful observation. Each disease was different.
15. Who discovered that blood is pumped around the body by the heart?	William Harvey
16. Why were his theories slow to be accepted?	No evidence (needed microscope), power of the Church
17. What did Gutenberg invent?	Printing press
18. What did Leeunwenhoek invent?	Microscope
19. What group included scientists who discussed and experimented?	Royal Society
20. When was the Great Plague?	1665
21. How did people try to prevent the Great Plague?	Praying, Quarantine, Dogs and cats killed, Amber burnt on streets

Year 10 Learning Cycle 1 History - PAPER 1: Medicine Through time, c.1250-Present Day + Medicine in the Trenches 1914-1918

Key Topic 3: What was medicine like in the 18TH AND 19TH Centuries, c.1700-1900?

Key words	
Industrial Revolution	The period c.1750-1900 which saw new machines and technology that led to mass production and increase in population in towns.
Laissez-Faire	The point of view of the government in the 1700-mid 1800s. They did not interfere in people's lives or health.
Smallpox	A viral disease that causes disfiguring blisters leaving scars. To some vulnerable people it can be fatal
Sanitation	The provision of clean water, with waste being kept separate.
Amputation	Surgical removal of a limb
Cauterise	Following amputation the wound would be burned to seal it
Antiseptics	Chemicals that kill bacteria and prevent infection
Industrial Revolution	The period c.1750-1900 which saw new machines and technology that led to mass production and increase in population in towns.

Florence Nightingale



Core knowledge	
22. What did Edward Jenner invent?	Smallpox vaccine
23. What did people believe caused disease before Germ Theory was published?	Spontaneous Generation of germs
24. Whose theory was germs cause disease?	Louis Pasteur, 1861
25. What vaccines were discovered as a result of Pasteur's and Koch's work?	Rabies, typhoid, tuberculosis, diphtheria, tetanus
26. What did Florence Nightingale do?	Cleaned up hospitals. Reduced death rate from infection from 40% to 2%.
27. What did John Snow discover?	Source of cholera outbreak in 1854. (Broad Street pump)
28. Why did the government pass the 1875 Public Health Act?	Report: Conditions in working class areas were terrible
29. What did Edwin Chadwick publish in 1842?	Voting reforms, the Great Stink, Germ Theory
30. What were the 3 biggest problems in surgery at the beginning of the 19th Century?	Pain, infection and blood loss
31. What 3 methods were used to try and deal with pain in surgery?	Ether, laughing gas and chloroform
32. What did Joseph Lister develop?	Using carbolic acid spray as an anti-septic.
33. Who discovered DNA's structure?	Crick and Watson
34. Which three reports established the link between poverty and poor health?	Chadwick, Booth and Rowntree

Year 10 Learning Cycle 1 History - PAPER 1: Medicine Through time, c.1250-Present Day + Medicine in the Trenches 1914-1918

Key Topic 4: What is medicine like in the Modern Period, c.1900-Present Day?

Key words	
Magic bullet	A chemical / synthetic / man-made drug that targets and kills disease-microbes
Alternative therapies	Medical treatments not involving drugs e.g. acupuncture
Transfusion	Transferring blood from a donor to a recipient (person receiving the donated blood)
Genetic screening	The study of a person's DNA sequence in order to identify susceptibility to particular diseases
Stem cell research	Stems cells are extracted from human embryos and can be grown to repair faulty cells in a patients body, but the embryo dies.
Gangrene / sepsis	Death of body tissue due to lack of blood flow or serious bacterial infection
Magic bullet	A chemical / synthetic / man-made drug that targets and kills disease-microbes
Alternative therapies	Medical treatments not involving drugs e.g. acupuncture

Core knowledge	
35. Give two examples of technology that has led to improved diagnosis.	Endoscopes, microscopes, scans, nuclear medicine
36. What did Alexander Fleming discover in 1928?	Penicillin
37. When did Florey and Chain begin working on penicillin?	1938
38. Why did the government begin funding mass production of penicillin?	Second World War
39. What did Paul Erlich discover?	Salvarson 606 – the first magic bullet
40. What were the Liberal Reforms?	Laws passed by the Liberal government (1906-1914) aimed to improve the lives of ordinary people
41. What did the Beveridge Report call for?	A National Health Service (NHS), 1948
42. Give three examples of high-tech medical treatments.	Blood transfusions, X-rays, radiotherapy, transplants, gene therapy, dialysis, keyhole surgery, pacemakers.
43. What attempts have been made to prevent lung cancer?	Advertising campaigns and anti-smoking laws.

Salverson 606 Magic Bullet

X-Rays, new technology of the modern period

NHS healthy living campaign poster

Year 10 Learning Cycle 1 History - PAPER 1: Medicine Through time, c.1250-Present Day + Medicine in the Trenches 1914-1918

Key Topic 5: DEPTH STUDY: What is medicine like in the British sector of the Western? Front,

Key words	
Front	An edge or boarder; Western Front where the trenches were and the opposing sides fought
Salient	A piece of land or section of fortification that sticks out to form an angle e.g. the Ypres Salient
Sodium citrate	A chemical added to donated blood to stop it clotting
Citrate glucose	A chemical added to donated blood so it can be stored for longer
Blood depot	A blood bank / storage facility for donated blood
Gas gangrene	When a wound is infected the skin swells and a foul-smelling gas is released when the wound is treated
Sterile	A germ free environment
Pedicle tubes	Tubes made from a patient's skin tissue whilst still attached to the body. Stitched onto a wound helping the body to heal itself and avoid infection

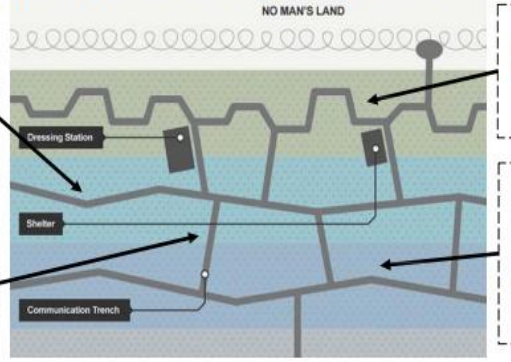
Core knowledge	
44. What were the tunnels used for at the Battle of Arras?	Underground hospital
45. How many British casualties were there on the first day of the Battle of the Somme?	60,000
46. What were three of the main illnesses suffered in the trenches?	Trench foot, Trench fever, Shell shock
47. What was the effect of shrapnel?	Infection due to dirty terrain
48. What happened at the Regimental First Aid Post?	Wounded were triaged
49. What was the FANY?	First Aid Nursing Yeomanry
50. Why had blood transfusions often been unsuccessful before the First World War?	Didn't know different blood groups, couldn't store blood

Year 10 Learning Cycle 1 History - PAPER 1: Medicine Through time, c.1250-Present Day + Medicine in the Trenches 1914-1918

Key Topic 5: DEPTH STUDY: What is medicine like in the British sector of the Western? Front, 1914-1918?

The Trench System

This shows the main features of the Trench System from the Western Front, they were often quite different but they were mostly laid out this way. No Man's Land was between the two trenches, punctuated by shell holes, death and destruction.



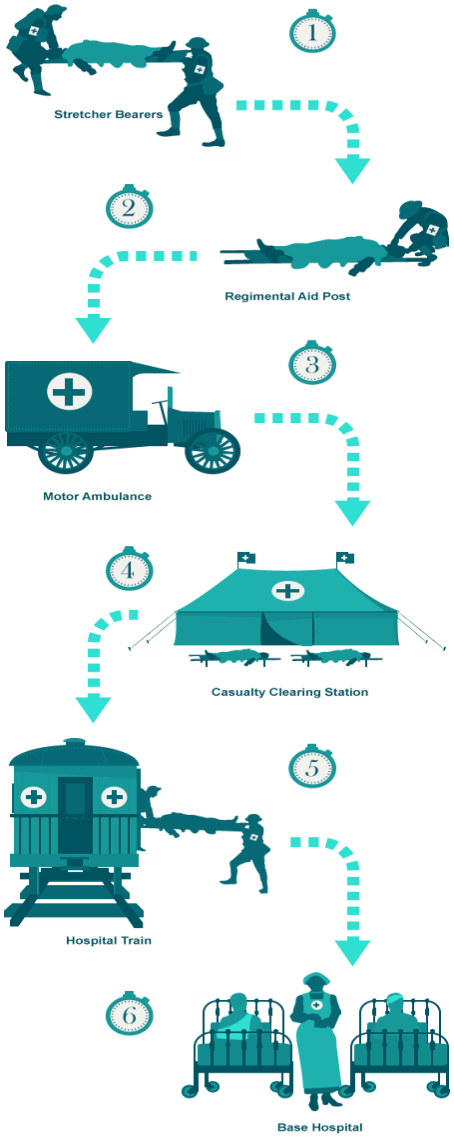
Support Trench
80m behind the frontline trench. Troops would retreat here if under attack. 10% of time here.

Communications Trench
Trenches that run between other trenches, linking them together.

Frontline Trench
Where attacks were made from, the most dangerous area. Only 15% of a soldiers time was here.

Reserve Trench
100m behind the support trench. Where troops would be mobilised to counter attack the enemy if they captured the front line. 30% of time here.

45% of a soldiers time was actually spent away from the trenches.



1. RAP: Regimental Aid Post

- Located within 200 metres of the frontline, in communication trenches.
- The purpose of the RAP was to give immediate first aid and get as many men back to the front as quickly as possible. They could not deal with serious injuries – these were sent to ADS.
- Led by a Regimental Medical Officer with some stretcher bearers.

2. Dressing stations (ADS and MDS)

- There was usually an **Advanced Dressing Station** (ADS) within 400m of the RAP and a **Main Dressing Station (MDS)** about half a mile away, usually in tents or bunker to provide protection from enemy shelling. They could only look after men for a week.
- They were staffed by 10 medical officers, stretcher bearers and nurses too. In total, they could deal with about 150 men but often in battles like Ypres (1917) they dealt with 1,000 causalities in 2 days at Hooge.

3.Casualty Clearing Stations (CCS)

- Around 7 miles away from the front, close to the railway and for ambulance wagons.
- They had several doctors, contained operating theatres, x-ray machines and wards. They could deal with up to 1,000 casualties at a time. At the Third Battle of Ypres the 24 CCS treated over 200,000 causalities with only 4% dying.
- The CCS treated the most critical injuries close to the front. This was important as it would stop gangrene infection and so men could be sent back to the front.
- The CCS had a triage system to assess the wounded into three categories:
  - The walking wounded - patch them up and send back to the front.
  - Those in need of hospital treatment - move to a Base Hospital.
  - No chance of recover y- make them comfortable.

4. Base Hospitals

- Situated near the ports on the French/Belgian coast on trainlines and canals.
- They had operating theatres, x-ray machines, laboratories and even specialist centres for treating gas poisoning and head wounds. These specialist wards allowed doctors to become experts in treatment of particular wounds.
- They could treat upto 2,500 patients at once.
- From here, most patients were sent back to England, those with '*Blighty Wounds*'.

Year 10 Learning Cycle 1 Hospitality and Catering - Health & Safety

What employers need to do by law	What paid employees need to do
Control substances that are dangerous to health.	Attend all training sessions regarding COSHH.
Provide correct storage for those substances and appropriate training for staff.	Follow instructions carefully when using the substances.
Some examples of substances that are dangerous to health include cleaning products, gases, powders & dust, fumes, vapours of cleaning products and biological agents.	Know the different types of symbols used to know different types of substances and how they can harm users and others when used incorrectly.

Health and Satefy at Work Act 1974 (HASAWA)

What employers need to do by law	What paid employees need to do
Protect the health, wellbeing and safety of employees, customers and others.	Take reasonable care of their own health and safety and the health and safety of others.
Review and assess the risks that could cause injuries.	Follow instructions from the employer and inform them of any faulty equipment.
Provide training for workers to deal with the risks.	Attend health and safety training
Inform staff of the risks in the workplace.	Not to misuse equipment.

Personal Protective Equipment at Work Regulations (PPER) 1992

What employers need to do by law	What paid employees need to do
Provide PPE e.g. masks, hats, glasses and protective clothes.	Attend training and wear PPE such as chef's jacket, protective footwear and gloves when using cleaning chemicals
Provide signs to remind employees to wear PPE.	
Provide quality PPE and ensure that it is stored correctly.	

Report of Injuries, Diseases and Dangerous Occurences Regulations (RIDDOR) 2013

What employers need to do by law	What paid employees need to do
Inform the Health and Safety Executive (HSE) of any accidents, dangerous events, injuries or diseases that happen in the workplace.	Report any concerns of health and safety matters to the employer immediately. If nothing is resolved, then inform the HSE.
Keep a record of any injuries, dangerous events or diseases that happen in the workplace.	Record any injury in the accident report book.

Manual Handling Operations Regulations 1992

What employers need to do by law	What paid employees need to do
Provide training for staff.	Ask for help if needed.
Assess and review any lifting and carrying activities that cannot be avoided.	Squat with feet either side of the item. Keep back straight as you start to lift. Keep the item close to your body whilst walking. Make sure you can see where you're going.
Store heavy equipment on the floor or on low shelves.	
Provide lifting and carrying equipment where possible.	

Risks to health and security including the level of risk (low, medium, high) in relation to employers, employees, suppliers and customers

Review and assess level of risks in the workplace e.g. slips, trips, falls, burns etc by completing a risk assessment to avoid from happening.

Year 10 Learning Cycle 1 Hospitality and Catering - Food safety Hazard

Analysis and Critical Control Points (HACCP)

Every food business lawfully needs to ensure the health and safety of customers whilst visiting their establishment. To ensure this, they need to take reasonable measures to avoid risks to health. HACCP is a food safety management system which is used in businesses to ensure dangers and risks are noted and how to avoid them.

All food businesses are required to:

- assess and review food safety risks
- identify critical control points to reduce or remove the risk from happening
- ensure that procedures are followed by all members of staff
- keep records as evidence to show that the procedures in place are working

Food Hazards

A food hazard is something that makes food unfit or unsafe to eat that could cause harm or illness to the consumer. There are three main types of food safety hazards:

- Chemical – from substances or chemical contamination e.g. cleaning products.
- Physical – objects in food e.g. metal or plastic.
- Microbiological – harmful bacteria e.g. bacterial food poisoning such as salmonella.

HACCP Table

Here is an example of a HACCP table – it states some risks to food safety and some control points

Hazard	Analysis	Critical Control Point
Receipt of food	Food items damaged when delivered / perishable food items are at room temperature / frozen food that is thawed on delivery.	Check that the temperature of high-risk foods are between 0°C and 5°C and frozen are between -18°C and -22°C. Refuse any items that are not up to standard.
Food storage (dried/chilled/ frozen)	Food poisoning / cross contamination / named food hazards / stored incorrectly or incorrect temperature / out of date foods.	Keep high-risk foods on correct shelf in fridge. Stock rotation – FIFO. Log temperatures regularly.
Food preparation	Growth of food poisoning in food preparation area / cross contamination of ready to eat and high-risk foods / using out of date food.	Use colour coded chopping boards. Wash hands to prevent cross-contamination. Check dates of food regularly. Mark dates on containers.
Cooking foods	Contamination of physical / microbiological and chemical such as hair, bleach, blood etc. High risk foods may not be cooked properly.	Good personal hygiene and wearing no jewellery. Use a food probe to check core temperature is 75°C. Surface area & equipment cleaned properly.
Serving food	Hot foods not being held at correct temperature / foods being held too long and risk of food poisoning.Physical / cross-contamination from servers.	Keep food hot at 63°C for no more than 2 hours. Make sure staff serve with colour coded tongs or different spoons to handle food. Cold food served at 5°C or below. Food covered when needed.

Year 10 Learning Cycle 1 Hospitality and Catering - The importance of nutrition The importance of nutrition

Listed below are the macro-nutrients and micro-nutrients. You need to know their function and know examples of food items for each. You need to know why they are needed in the diet and why there is a need for a balanced/varied diet.

Macro-nutrients

Carbohydrates - Carbohydrates are mainly used in the body for energy. There are two types of carbohydrates which are:

- Starch - Examples include bread, pasta, rice, potatoes and cereals.
- Sugar - Examples include sweets, cakes, biscuits & fizzy drinks.

Fat - This is needed to insulate the body, for energy, to protect bones and arteries from physical damage and provides fat soluble vitamins. There are two main types of

fat which are:

- Saturated fat - Examples include butter, lard, meat and cheese.
- Unsaturated fat - Examples include avocados, plant oils such as sunflower oil, seeds and oily fish.

Protein - Protein is mainly used for growth and repair in the body and cell maintenance. There are two types of protein which are:

- High biological value (HBV) protein - Includes meat, fish, poultry, eggs, milk, cheese, yogurt, soya and quinoa.
- Low biological value (LBV) protein - Includes cereals, nuts, seeds and pulses.

Micro-nutrients

Vitamins

- Fat soluble vitamin A - Main functions include keeping the skin healthy, helps vision in weak light and helps children grow. Examples include leafy vegetables, eggs, oily fish and orange/yellow fruits.
- Fat soluble vitamin D - The main function of this micro-nutrient is to help the body absorb calcium during digestion. Examples include eggs, oily fish, fortified cereals and margarine.
- Water soluble vitamin B group - Helps absorbs minerals in the body, release energy from nutrients and helps to create red blood cells. Examples include wholegrain foods, milk and eggs.
- Water soluble vitamin C - Helps absorb iron in the body during digestion, supports the immune system and helps support connective tissue in the body which bind cells in the body together. Examples include citrus fruits, kiwi fruit, cabbage, broccoli, potatoes and liver.

Minerals

- Calcium - Needed for strengthening teeth and bones. Examples include dairy products, soya and green leafy vegetables.
- Iron - To make haemoglobin in red blood cells to carry oxygen around the body. Examples include nuts, beans, red meat and green leafy vegetables.
- Sodium - Controls how much water is in the body and helps with the function of nerves and muscles. Examples include salt, processed foods and cured meats.
- Potassium - Helps the heart muscle to work correctly and regulates the balance of fluid in the body. Examples include bananas, broccoli, parsnips, beans, nuts and fish.
- Magnesium - Helps convert food into energy. Examples include wholemeal bread, nuts and spinach.
- Dietary fibre (NSP) - Helps digestion and prevents constipation. Examples include wholegrain foods (wholemeal pasta, bread and cereals), brown rice, lentils, beans and pulses.
- Water - Helps control temperature of the body, helps get rid of waste products from the body and prevents dehydration. Foods that contain water naturally include fruits, milk and eggs.

Year 10 Learning Cycle 1 Hospitality and Catering - Food related causes of ill health

Food related causes of ill health

Ill health could be caused by any of the following:

- bacteria
- allergies
- intolerances
- chemicals such as:
  - detergent and bleach
  - pesticides and fertilisers.

Intolerances

Some people feel unwell when they eat certain foods. Common foods that cause ntolerance include:

- milk (lactose)
- cereals (gluten)
- artificial sweeteners (Aspartame)
- flavour enhancers (MSG).

Food and the law

Food can cause ill-health if it is stored, prepared and/or cooked incorrectly or if a person unknowingly eats a food that they are allergic or intolerant to. All hospitality and catering provision need to follow laws that ensure food is safe to eat. They are:

- Food Labelling Regulations (2006): A label must show all ingredients including allergens, how to store and prepare the food, where it came from, the weight of the food and a use-by or best-before date.
- Food Safety (General Food Hygiene Regulations) 1995: This law makes sure that anyone who handles food - from field to plate – does so in a safe and hygienic way. The HACCP system is used throughout the hospitality and catering sector.
- Food Safety Act 1990: This law makes sure that the food people it is safe to eat, contains ingredients fit for human consumption and is labelled truthfully

Food poisoning bacteria

The main causes of food poisoning bacteria are:

- Bacillus cereus: found in reheated rice and other starchy foods.
- Campylobacter: found in raw and undercooked poultry and meat and unpasteurised milk.
- Clostridium perfringens: found in human and animal intestines and raw poultry and meat.
- E-coli: found in raw meat, especially mince.
- Listeria: found in polluted water and unwashed fruit and vegetables.
- Salmonella: found in raw meat, poultry and eggs.
- Staphylococcus aureus: found in human nose and mouth.

Food allergies

An allergy is a reaction to something found in food. In the case of a severe allergy, the reaction can lead to death.

Common allergens include:

Cereals	Eggs	Seeds
Soya	Fish and shellfish	Strawberries
Peanuts	Wheat	Milk and dairy
Celery	Tree nuts	Mustard

Year 10 Learning Cycle 1 Hospitality and Catering - Symptoms of food-induced ill-health Symptoms and signs of food-induced ill-health:

An “upset tummy” is a familiar symptom for someone who thinks they might have food poisoning; this is known as a non-visible symptom. There are many other signs and symptoms that could show that a person might be suffering from ill-health due to the food they have eaten. Some of the symptoms can be seen (visible symptoms) such as a rash. It is important to be able to recogise visible and non-visible symptoms to help someone suffering from food-induced ill-health.

Visible symptoms

Visible symptoms of food poisoning, chemical poisoning, allergic reaction and food intolerance include:

- Diarrhoea: a common symptom of most types of food poisoning bacteria and can also be a symptom of lactose intolerance.
- Vomiting: a common symptom of most types of food poisoning bacteria, but may could also be caused by taking in chemicals accidently added to food.
- Pale or sweating/chills: a high temperature is a common symptom of E-coli and Salmonella.
- Bloating: a symptom of lactose intolerance.
- Weight loss: a symptom of gluten intolerance (coeliac disease).

Allergic/anaphylactic reaction

- Visible symptoms: red skin, a raised rash, vomiting, swelling of lips and eyes and difficulty breathing.
- Non-visible symptoms: swelling of tongue and throat, nausea (feeling sick) and abdominal pain.
- Anaphylaxis: a severe reaction to eating an allergen that can lead to death. An injection of adrenaline (for example, an EpiPen) is the treatment for an anaphylactic

Non-visible symptoms

Non-visible symptoms of food poisoning, chemical poisoning, allergic reaction and food intolerance include:

- Nausea (feeling sick): the most common symptom for all types of food-induced ill-health.
- Stomach-ache/cramps: abdominal pain is common symptom of lactose intolerance as well as a sign of an allergic reaction. Cramps may happen at the same time as diarrhoea.
- Wind/flatulence: a common symptom of lactose intolerance.
- Constipation: a symptom of Listeria food poisoning.
- Painful joints: a symptom of E-coli food poisoning.
- Headache: a symptom linked to Campylobacter, E-coli and Listeria.
- Weakness: non-stop vomiting, and diarrhoea can leave a person feeling weak. Gluten intolerance (coeliac disease) can leave a person feeling tired because their bodies can’t absorb the correct amount of nutrients.

Year 10 Learning Cycle 1 Hospitality and Catering - Preventative control measures

Preventing cross-contamination

Food poisoning bacteria can easily be transferred to high-risk foods. This is called cross-contamination. It can be controlled by:

- washing hands before and after handling raw meat and other high-risk foods.
- using colour-coded chopping boards and knives when preparing high-risk foods.
- washing hands after going to the toilet, sneezing, or blowing your nose and handling rubbish.

Preventing physical contamination

Physical contamination is when something which is not designed for eating ends up in your food. Physical contaminants include hair, seeds, pips, bone, plastic packaging, plasters, broken glass, flies and other insects, tin foil and baking paper, soil, and fingernails.

Physical contamination can be controlled by:

- food workers following personal hygiene rules
- keeping food preparation and serving areas clean
- checking deliveries for broken packaging
- thoroughly washing fruits and vegetables before preparation
- using tongs or gloves for handling food.

Temperature control

Delivery

The temperature of high-risk foods must be checked before a delivery is accepted. The food should be refused if the temperatures are above the safe range.

Refrigerated foods = 0-5°C

Frozen foods = -22°C to -18°C

Storage

High-risk foods must be covered and stored at the correct temperature. Temperatures must be checked daily.

Refrigerator = 0-5°C

Freezer = -22°C to -18°C

Unwashed fruit and vegetables must be stored away from other foods.

Preparation

High risk-foods need to be carefully prepared to avoid cross-contamination.

A food probe can be used to make sure that high-risk foods have reached a safe core (inside) temperature, which needs to be held for a minimum of two minutes.

Core temperature = 70°C

Service

Food needs to be kept at the correct temperature during serving to make sure it is safe to eat. Hot food needs to stay hot and cold food needs to stay chilled.

Hot holding = 63°C minimum

Cold holding = 0-5°C

Year 10 Learning Cycle 1 Hospitality and Catering - Role of EHO

Role of the Environmental Health Officer (EHO)

The role of the Environmental Health Officer (EHO) is to protect the health and safety of the public. They are appointed by local authorities throughout the UK. In the hospitality and catering industry, they are responsible for enforcing the laws linked to food safety. They inspect all businesses where food is prepared and served to members of the public, advise on safer ways of working and can act as enforcers if food safety laws are broken.

EHO Inspections

The EHO can carry out an inspection of any hospitality and catering premise at any time during business hours – they do not need to make an appointment. During an inspection, the EHO will check to make sure that:

- the premises are clean
- equipment is safe to use
- pest control measures are in place
- waste is disposed properly
- all food handlers have had food hygiene and safety training
- all food is stored and cooked correctly
- all food has best-before and use-by dates
- there is a HACCP plan to control food hazards and risks.

The EHO is allowed to:

- take photographs of the premises
- take food samples for analysis
- check all record books, including fridge and freezer temperatures, cleaning schedules and staff training
- offer advice on improving food hygiene and safety in the business.

EHO and the law

If the EHO discovers problems with the food safety and hygiene in the premise, they are allowed by law to:

- remove any food that may be hazardous so it can't be sold
- tell the owners to improve hygiene and safety within a set time and then come back and re-inspect
- close the premises if there is a risk to health of the public
- give evidence in a court of law if the owners are prosecuted for breaking food hygiene and safety laws.

Complaints by the public

The EHO will immediately investigate any complaints of suspected poisoning linked to a particular premise

Hygiene ratings

When an inspection has been carried out, the EHO will give the business a food hygiene rating. The ratings are published on the Food Standards Agency website as well as on stickers displayed at the business. A rating of 5, or very good, represents the highest standard of foodhygiene.

Year 10 Learning Cycle 1 Hospitality and Catering - Practical and techniques

Skills and techniques

You need to be able to identify the different types of skills you need to produce your selected dishes. Some dishes will require the use of more complex skills. You will need to demonstrate a range of skills when producing your chosen dishes. Preparation and cooking skills are categorised as follows: basic, medium, and complex.

Presentation

You should know and understand the importance of using the following appropriate presentation techniques during the production of dishes:

- creativity
- garnish and decoration
- portion control
- accompaniments.

Basic preparation skills and techniques

Blending, beating, chopping, grating, hydrating, juicing, marinading, mashing, melting, peeling, proving, sieving, tenderising, trimming, and zesting.

Basic cooking skills and techniques

Basting, boiling, chilling, cooling, dehydrating, freezing, grilling, skimming, and toasting.

Medium preparation skills and techniques

Baton, chiffonade, creaming, dehydrating, deseeding, dicing, folding, kneading, measuring, mixing, puréeing, rub-in, rolling, skinning, slicing, spatchcocking, toasting (nuts/seeds) and weighing.

Medium cooking skills and techniques

Baking, blanching, braising, deglazing, frying, griddling, pickling, reduction, roasting, sautéing, steaming, stir- frying, and using a sous vide (water bath).

Complex preparation skills and techniques

Brunoise, crimping, de-boning, filleting, julienne, laminating (pastry), melting using bain-marie, mincing, piping, and segmenting, shaping, unmoulding andwhisking (aeration).

Complex cooking skills and techniques

Baking blind, caramelising, deep fat frying, emulsifying, poaching, and tempering.

Year 10 Learning Cycle 1 Music - West African drumming

1. Key Words	Definitions
Aurally	Passed on by word of mouth.
Master Drummer	The leader of the ensemble.
African Drumming Circle	A drumming ensemble.
Visual Cue	Communication to the ensemble without speaking.
Dynamics	The volume of the music.
Groove	Rhythms together that create another rhythm that moves the music.
Polyrhythm	Many rhythms played at the same time.
Cyclic Rhythm	Rhythms that are repeated.
Syncopation	Where the weaker beat is emphasised (off the beat).
Solo	One person plays on their own.
Call and Echo	The call is played by the master drummer, the rest of the ensemble then respond with the same rhythm.
Call and Response	The call is played by the master drummer, the rest of the ensemble then respond with a different rhythm.
Djembe	A West African drum shaped like a goblet
Dundun	A West African drum with two heads.
Bass	A low-pitched sound that is played by striking the middle of the drum.
Tone	A medium-pitched sound that is played by striking the drum half-way between the edge and the centre.
Slap	A short, high-pitched sound made by striking the edge of the drum.

2. Context

African music is part of everyday life – everyone joins in clapping, singing and dancing to the music. African drumming is often used in ceremonies. Music isn't written down and is passed on aurally. The master drummer would lead the ensembles using visual cues.

African music has influenced lots of other genres as it came over from Africa during the American slave trade. It was combined with European Folk Music, and genres such as Blues, Jazz and Gospel were created. These genres then influenced pop and the music that we have today.
African Music heavily influenced the Blues, which then influenced everything else since.

3. Composers, artists or producers

FAMOUDOU KONATÉ

Famoudou Konaté is an expert djembe drummer and is one of only a few handful of initiated masters of the Malinké drumming tradition. He has been performing since 1948.

LADJI CAMARA

Ladji Camara was born in 1923 in Guinea, West Africa and travelled throughout the world and appeared in show on Broadway in New York. He has performed with Nina Simone.

4. Key Features

Dynamics	• Dynamics were varied and had a mixture of louds and quiets that was used for interest.
Rhythm	• Complex rhythms were used. • Grooves • Polyrhythms – lots of different rhythms at the same time • Cross-rhythms – conflicting rhythms • Cyclic rhythms – repeated rhythms • Syncopation used regularly • Master drummer has the most elaborate part and plays solos. • Timelines used to keep the piece together. Timeline usually played on a bell or similar.
Texture	• Complex textures • Monophonic texture used (thin texture) • Polyphonic texture used (thick texture)
Melody	• Singing used for every occasion (lullabies, play songs, birthdays, marriages, funerals) • Small intervals (2nds, 3rds) used • Repetitive • Descending phrases • Solos (one person), duets (two people) and choruses (lots of people). • Acapella singing (just voices) • Strophic form used (split into sections, like verse and chorus) • Call and Response used (one phrase sung by the leader which is responded to by the chorus.
Instruments (timbre)	• Drums made from wood, metal and hard-skinned fruit. • Come in different shapes and sizes. • Some have one head, some have two. • The bigger the drum, the lower the pitch. • Played using hands or sticks. • Animal skills are used usually. • Djembes/Dundun/Talking Drums
Instrumental techniques	• Bass (B): a low-pitched sound made by striking the middle of the drum • Tone (T): a medium-pitched sound made by striking the drum halfway between the edge and the centre • Slap (S): a short, high-pitched sound made by striking the edge of the drum

Year 10 Learning Cycle 1 Music - The Delta blues

1. Key Words	Definitions
4/4	This is a time signature. This indicates that there are 4 beats in a bar (specifically crotchet beats.)
Shuffle	A type of rhythm that uses triplets.
Triplets	This is where you fit three notes into the space of two.
Aurally	When something is passed on verbally and by word-of-mouth.
Blues Scale	A scale is a selection of notes. The Blues scale uses 6 notes and the third note in the scale is flattened (moved down a semitone).
AAB	A structure where section A is repeated twice, followed by a brand-new section (B).
Blues Notes	Flattened 3rds, 5ths and 7ths. These notes are called worried notes.
12 Bar Blues	A 12-bar chord sequence that include three different chords.
Walking Bass Line	Repetitive bass line that creates a groove.
Groove	Rhythms together that create another rhythm that moves the music.
Syncopation	Off-the beat. Where the weaker beat is stressed and emphasised.
Solo	A solo is where one person plays on their own, or a part by themselves over the top of a harmony.
Call and Response	Originating from African Drumming, the call is played by one person and the rest of the ensemble then respond with a different rhythm.
Improvisation	Where something is made up on the spot.
Boogie Woogie	A repetitive swung or shuffle rhythm.
Reverb	When something has an echo-like effect.

2. Context

The Delta Blues originated in the deep south of the USA in the 1870s. It developed from African Work songs and spirituals during the slave trade period.

Many different types of Blues developed: Chicago Blues, Delta Blues, Dallas Blues, Blues Rock etc.

This further influenced the development of Rock and Roll and Pop Music.

3. Composers, artists or producers

Robert Johnson

Robert Johnson was a legendary Blues musician known for his haunting vocals and intricate guitar playing. His influential style, characterised by the Delta Blues, showcased his mastery of slide guitar and heartfelt lyrics.

B.B. King

Often referred to as the 'King of the Blues', he had a distinctive guitar style marked by his expressive vibrato and precise phrasing. His soulful voice and iconic guitar solos, combined with elements of jazz and R&B, created a unique sound the captivated audiences worldwide.

4. Key Features

Distribution & sharing	• Sun Records – Small independent label • Performed at small venues
Rhythm & rhythmic techniques	• Strong rhythms • Frantic, energetic vocals • Heavy use of the snare drum • Boogie Woogie style piano • Fast tempo
Recording techniques & developments	• Slap back echo • Flutter echo • Tape delay echo • Reverb
Production	• Use of the tape echo.
Melodic techniques	• Vocal twangs • Driving guitar licks
Instruments (timbre)	• Electric guitar • Double Bass • Drums – minimal drum kit – bass, snare and ride cymbal • Piano • Vocals
Instrument techniques	• Bass Slap • Finger picking used in the guitar parts
Harmony	• I-IV-V chord progressions (12-bar blues) • 7th chords used a lot to provide detail.

Year 10 Learning Cycle 1 Music - Britpop

1. Key Words	Definitions
Arpeggios	A chord that is broken up into separate notes that are played one after the other.
4/4	A time signature that symbolises it has 4 crotchet beats per bar.
Melody	In music this is often referred to as the main tune.
Riff	A riff is a repetitive, short catchy phrase of music.
Strophic Structure	Strophic structure is a structure that uses song sections – such as verse, chorus, bridge etc.
Palm Muting	Palm muting is where you soften the notes of the guitar using the palm of your hand.
Seventh Chord	A seventh chord is where you add the seventh note of the scale onto the chord (e.g. C major 7 would be: C, E, G and B)
Sus Chord	A sus chord is where you play the second or the fourth note in the scale instead of the third.
Grunge	Grunge music was a genre of music that game in the mid-80s and was known for its heavy distortion and down-tuned rock music. Nirvana was a famous grunge band.
British Invasion	British Invasion is a cultural movement where rock and pop music acts from the UK took over the music industry in both the UK and the US.
Alternative Rock	A genre of music that emerged from the independent music underground in the 1970s and became hugely popular in the 1990s.

2. Context

Britpop emerged from the British Invasion of Music in the mid 90s. Britpop originated from the UK and the music emphasised 'brightness'. It was a form of alternative rock and was a reaction against the darker lyrics of Grunge (such as Nirvana). It further influenced styles such as Cool Britannia and guitar pop.

There was an infamous chart battle between Oasis and Blur in 1995 – The Battle of Britpop. Tony Blair and New Labour aligned themselves with the movement. Britpop declined in 1997 due to the popularity of the Spice Girls. Britpop was known as a cultural movement and not just a musical genre. It was influenced by Glam Rock, British Pop of the 60s, Punk Rock and Indie Pop of the 80s. Blur and Oasis were inspired by The Kinks, early Pink Floyd and The Beatles. The Smiths also influenced a lot of Britpop acts.

3. Composers, artists or producers

Oasis

Led by the Gallagher brothers, Liam and Noel, they were the kings of Britpop. Oasis had raw energy and rebellious attitude that made them stand out. Some of their most famous songs are Wonderwall and Don't Look Back in Anger.

Blur

Led by Damon Albarn, they delivered catchy hits like "Song 2" and "Parklife." Their music embodied the spirit of British culture and left a significant impact on the music scene.

4. Key Features

Distribution & sharing	• Media driven focus on bands • Independent music scene
Production	• Clean guitar sounds. • Overdrive used heavily as well • Limited distortion was used as this was a feature of Grunge who they were trying to get away from.
Rhythmic techniques	• 4/4 time signature • Up tempo and upbeat.
Scales & modes	• The use of arpeggios in the riffs. • Use of the pentatonic scale in lead lines.
Structure	• Typical song structure with instrumentals, bridges and solos were often very common.
Instruments & timbre	• Vocals • Electric Guitar • Bass Guitar • Acoustic Guitar • Drums • Keyboards (used sometimes) • Piano • String arrangements used sometimes.
Instrumental techniques & developments	• Use of hammer-ons. • Use of pull-offs. • Use of palm muting on guitars. • Use of pitch bending on guitars. • Use of string skipping on guitars.

Year 10 Learning Cycle 1 Music - Heavy Metal

1. Key Words

1. Key Words	Definitions
Riff	A really catchy musical phrase that's played on guitar or other instruments and gets stuck in your head.
Power Chords	Simple but heavy guitar chords made up of just two notes that give that awesome rock sound.
Shredding	When a guitarist plays super fast and crazy guitar solos that show off their incredible skills.
Double Bass Drumming	When the drummer uses both feet to play two bass drums really quickly, creating a powerful and fast beat.
Pedal note	A long and sustained note that keeps repeating, adding tension and creating a cool effect.
Through-Composed	When a song or piece of music doesn't have a repeated section and keeps changing all the way through.
Gain	The knob on an amp or pedal that makes the sound louder and more distorted, giving it that heavy metal sound.
Distortion	A cool effect added to a guitar or other instruments that makes the sound fuzzy and distorted, like in heavy metal music.
Tritone	A musical interval that sounds really tense and spooky, also called the "Devil's interval."
Palm Muting	A technique where the guitarist lightly rests their palm on the strings near the bridge to create a muted and chunky sound.
Chromatic	A musical scale that includes all the notes, both the black and white keys on a piano, giving it a dramatic and intense sound.
Pentatonic	A scale made up of five notes that's commonly used in rock and blues music, giving it a cool and bluesy vibe.

2. Context

Heavy Metal emerged in the early 1970s as a genre of rock music in the UK and US. Influenced by Blues Rock, Psychedelic Rock, and Classical music, it featured aggressive performances with a strong sense of masculinity.

Different bands showcased various aspects of Heavy Metal, including raw and sleazy sounds with outrageous stage shows from Alice Cooper and Kiss, blues-rooted music from Aerosmith, flashy guitar leads from Van Halen, and a punk rock feeling from Motorhead. Heavy Metal faced controversy over its lyrics and was even banned in some Muslim countries. Black Sabbath is often credited with inventing Heavy Metal, with their distinctive sound inspired by the bleak working-class environment of Birmingham.

3. Composers, artists or producers

Black Sabbath

Black Sabbath had a huge impact on heavy metal. They are considered the pioneers of the genre, shaping its sound and style. Their dark and heavy music influenced many bands and made them a significant force in heavy metal history.

Iron Maiden

Iron Maiden has had a major impact on heavy metal. Their unique sound, epic songwriting, and powerful live performances have influenced countless metal bands. They are considered legends in the genre and have left a lasting imprint on heavy metal music.

4. Key Features

Distribution & sharing	• Recordings were multi-track recorded. • It was mostly sold on vinyl. • Impressive and intricate artwork was often depicted on the sleeves. • Heavy metal wasn't usually played on the radio as it was considered too heavy for public radio.
Production	• Thick massive sound • Highly amplified distortion – helps to create the thick, massive sound. • Very loud dynamics (f, ff) • Use of gain • Power chords played on the lower strings with distortion – low frequency sounds, thick sound • Guitar pedal was used – analogue delay • Amp stacks were often used – Marshall stacks. • Bass and treble turned up and mid-turned down.
Melodic techniques	• Extended Guitar solos - can be virtuosic • Aggressive lyrics - dark and depressing • 'Manly' lyrics • Vigorous vocals - sometimes includes screaming • Pedal notes used in the bass • Complex riffs that use licks are used in the bass • Bass solos • Power chords played in the bass too • Riffs - usually minor and using power chords
Scales & modes	• Modal scale progressions – Aeolian and Phrygian • Tritone used a lot – which people often called the Devil's Interval because how dissonant and clashy it sounds. • Chromatics were often used. • Pentatonic scale was often used. • Minor scales were often used.
Structure	• Sometimes used extended structures • Through composed structures (always a new section without repetition)
Instruments & tmbre	• Drums - large drum kit • Bass Guitar • Rhythm Guitar • Lead Guitar • Vocals • Keyboards sometimes used to enhance the fullness of the sound. Deep Purple used a Hammond Organ and in 1970 Led Zeppelin used a Moog Synthesizer • 1990's - almost all heavy metal used a synthesizer
Instrumental techniques and developments	• Palm muting • Gallop and reverse gallop rhythms • Shredding • Scallop the frets so you could play quicker - changing instrument to be able to play quicker • Gibson and Fender guitars

Year 10 Learning Cycle 1 Music - EDM

1. Key Words	Definitions
Sample	A small piece of sound or music taken from another song and used in a new one.
Loops	Short sections of music that can be repeated over and over again to create a continuous rhythm or melody.
Breakdown	A part in a song where the energy and intensity decrease, often building up anticipation for the next section.
Build Up	The gradual increase in energy and intensity leading up to the most impactful part of the song.
Drop	The moment in a song where the bass and beat hit hard, creating an intense and energetic climax.
Uplifters	Sound effects that rise in pitch and volume, adding excitement and anticipation to the music.
Downlifters	Sound effects that decrease in pitch and volume, creating a transition or bringing the energy down.
Filter Sweep	A technique where a filter is used to gradually open or close, altering the sound by emphasizing or reducing certain frequencies.
Automation	A technique where a filter is used to gradually open or close, altering the sound by emphasizing or reducing certain frequencies.
Sidechaining	A technique where the volume of one sound is controlled by the volume of another, often used to create a pulsing effect.
Sub bass	Very low-frequency sounds that create a deep and powerful bass foundation in electronic music.
Four-to-the-Floor	A rhythmic pattern in dance music where the bass drum hits on every beat, giving a steady and driving feel.
DAW	Software used for recording, editing, and producing music on a computer.

2. Context

EDM, or Electronic Dance Music, has a cool history that started in the late 1970s and 1980s. DJs and producers began using electronic instruments and synthesizers to make catchy and energetic music. Rave parties in the 1990s helped make EDM popular, and it kept growing with different styles like house, techno, and dubstep. Today, EDM is a big deal all around the world, with its exciting beats and awesome drops making people dance and have a great time. It's influenced lots of musicians and keeps evolving with new sounds and ideas.

3. Composers, artists or producers

Avicci

Known for his uplifting and melodic tunes. His songs like "Wake Me Up" and "Levels" became huge hits and brought EDM into the mainstream. He had a unique ability to blend catchy melodies with infectious beats, creating music that made people feel good and want to dance.

Skrillex

Skrillex is an iconic EDM artist who changed the game with his heavy and intense sound, introducing dubstep to the world and inspiring a new generation of producers.

4. Key Features

Distribution & sharing	• Chicago clubs • Radio stations – use 3.5 minute radio edits • House Label – Trax Records • Pirate Radio Stations • 2000s – festivals dedicated to house. Creamfields/Tomorrowland/ Ultra Music Festival
Production	• Create a mix – segueing one recording to another • Producers perform live in a concert/festival in a live PA • Producers often do mixes for pop artists • Sometimes, the drum sounds are 'saturated' by boosting the gain to create a more aggressive edge.
Melodic techniques	• Synthesiser riffs • Sung, spoken and/or sampled vocals • Simple word phrases thar are repeated • Vocals can be like pop melodies • House tracks do not need to have vocals • Layering sounds in and out to remain consistent • House tracks build up slowly, but adding layers of sound and texture, and by increasing the volume. • Lower-pitched bass register is most important. • Bass-heavy loops or basslines produced by a synthesiser and/or samples of disco, soul, jazz-funk or funk songs.
Rhythmic techniques	• ass drum on beats 1 and 3. • Tempo is around 120-130 bpm • Deep bassline • 4/4 time signature • Off-beat hi-hat/snares/claps • Syncopation with claps, shaker, snare drums or hi-hats • Signature rhythm riffs are built on the clave rhythm.
Structure	• Intro, chorus, various verse sections, a midsection and a brief outro • Some tracks do not have a verse, taking a vocal part from the chorus and repeating the same cycle. • House music tracks are often based on eight-bar sections which are repeated.7
Instruments & timbre	• DJs • Drum machine – Roland TR-707, TR-808, TR-909 • Synthesiser • Bass Synthesiser – Roland TB-303 • Vocals • Sampler • Sequencer • SAW • Laptop/PC
Instrumental techniques & developments	• Use of hammer-ons. • Use of pull-offs. • Use of palm muting on guitars. • Use of pitch bending on guitars. • Use of string skipping on guitars.

Year 10 Learning Cycle 1 Music - Film Music

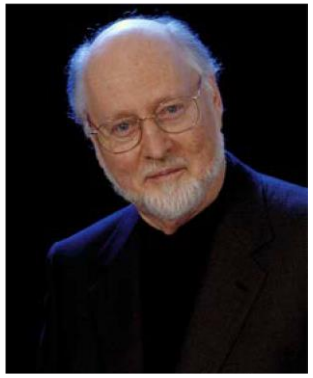
1. Key Words	Definitions
Dynamics	The variation in volume and intensity of music, from soft to loud.
Rhythm	The pattern of beats and accents that gives music its groove and sense of timing.
Pitch	The highness or lowness of a sound, determining the melody and harmony.
Instrumentation	The choice and arrangement of musical instruments used in a piece of music.
Melody	A sequence of single notes played in a specific order, forming a recognizable musical line.
Harmony	The combination of multiple notes played simultaneously to create chords and rich musical textures.
Leitmotif	A recurring musical theme associated with a specific character, idea, or situation in a composition.
Pedal	A long, sustained or repeated single note that serves as a foundation while other musical elements change around it.
Dissonance	The clash or tension between two or more musical notes played together, creating a sense of instability or discord.
Diegetic music	Music that is part of the story or scene, where the characters can hear it too, like a band playing on screen or a radio playing in the background.
Non-diegetic music	Background music or a film score that the characters cannot hear, but is added to enhance the mood or emotion of a scene.
Composer	A person who writes and creates music, including melodies, harmonies, and arrangements.
Through-Composed	A musical form where a composition does not have a repeated section and progresses continuously without returning to previous sections

2. Context

Music in movies serves different purposes. Diegetic music, like music from a radio, adds to the atmosphere and tells us more about the characters. Background music sets the mood and enhances the story. It can establish the time and place, move the action forward, and describe characters. Foley is a technique to recreate everyday sounds and make films more realistic. Foley artists have to time their sounds to match what's happening on screen.

3. Composers, artists or producers

John Willaims



An iconic composer recognized for his legendary film scores. He is widely acclaimed for his work on movies like "Star Wars," "Jurassic Park," and "Harry Potter." Williams' music has become synonymous with the movies themselves, adding depth and emotion to the storytelling. His compositions are instantly recognizable.

Hans Zimmer

Known for 'Inception', 'Lion King' and 'Pirates of the Caribbean', Zimmer's compositions skilfully blend orchestral and electronic elements, creating captivating and memorable music that elevates the storytelling and immerses the audience in the cinematic experience. His talent and innovation have earned him widespread acclaim and numerous prestigious awards..

4. Key Features

Dynamics	• Varies with action on the screen • Wide range of dynamics • Sudden changes
Rhythmic techniques	• Ostinatos • Syncopation • Quick changes of tempo
Recording techniques & developments	• Use MIDI to create it before it goes to orchestration • Can combine the two together often.
Structure	• Through-composed so that there are no repeated parts as it reacts to the music.
Melodic techniques	• Leitmotifs (melody, chord sequence, rhythm or combo) • Manipulation of leitmotifs to match the action (changing rhythm, pitch, instrumentation, accompaniment, adding new material or development of ideas). • Quick changes of melodies • Rapid shifts from one musical idea to the next • Sudden changes of pitch • Cluster chords
Instumentation & timbre	• Orchestra and popular instruments used • Instrument colour is very important • Often own sounds are created.
Texture	• Layers – of different sounds and ideas.
Harmony	• Can be atonal • Quick changes of harmony • Ambient pad sounds using synth • Drones • Dissonance • Use of non-diatonic chords • Movement by thirds

Year 10 Learning Cycle 1 Music -Minimalism

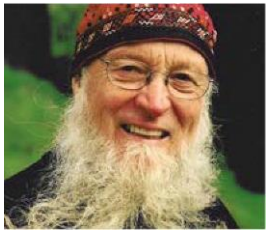
1. Key Words	Definitions
Dynamics	The variation in volume and intensity of music.
Texture	The overall sound quality and arrangement of musical elements.
Rhythm	The pattern of beats and accents that gives music its groove and pulse.
Ostinato	A repeated musical pattern or motif.
Harmony	The combination of different notes played simultaneously to create chords and pleasing sounds.
Note addition	Adding more musical notes to a melody or harmony.
Note subtraction	Removing or reducing the number of musical notes from a melody or harmony.
Metamorphis	A transformation or gradual change in musical themes or motifs.
Augmentation	Lengthening the duration of musical notes or motifs.
Diminution	Shortening the duration of musical notes or motifs.
Phasing	A technique where two or more musical patterns gradually move out of sync with each other.
Drone	A sustained or continuously repeated musical tone or sound.
Inverted drone	A drone sound that changes pitch or direction.
Through-composed	A musical form where a composition does not have a repeated section and progresses continuously without returning to previous sections.

2. Context

In the 1960s, minimalism emerged as a musical genre in the United States. It was a response to the emotionally intense works of the Romantic era and aimed to strip art and music back to its fundamental elements. Minimalist music sounded unlike anything found in the popular charts, often characterized by repetitive patterns and simple structures. It found applications in film and TV, where its sparse and atmospheric qualities were well-suited for enhancing visuals and creating mood. Additionally, minimalism sometimes incorporated aleatoric elements, meaning that certain aspects of the music were left to chance or determined by random processes.

3. Composers, artists or producers

Terry Riley



He created a famous composition called "In C" that is super influential. It's all about repeating patterns, and the cool thing is that the musicians can play it in different ways each time. Terry Riley's ideas and his use of repetition have inspired lots of other musicians and made a big impact on how people think about and make music.

Steve Reich

Steve Reich is an iconic figure in the field of minimalism. His compositions, such as "Music for 18 Musicians" and "Different Trains," are known for their repetitive and intricate patterns that gradually evolve and create mesmerizing musical experiences.

4. Key Features

Dynamics	• Regular changes in dynamics
Rhythmic techniques	• Repetitive patterns or pulses • Phase shifting • Use of polyphonic textures • Contrapuntal texture • Rhythmic transformation (rhythm gradually changes shape) • Experimental and changing time signatures – 3/2 • Syncopation • Use of canon • Metrical displacement (entries start on different notes so accented notes fall in different places) • Cross rhythms • Augmentation • Diminution
Production	• Use of technology to record, edit and sample.
Structure	• Use of technology to record, edit and sample.
Melodic technique	• Repetitive musical phrases. • Short ostinatos • Sequencing • Use of layers • Note addition (notes are added to a repeated phrase) and note subtraction. • Melodic transformation (melody gradually changes shape) • Resultant melody (where a melody emerges as the same notes occur at the same time in the phase, giving them emphasis). • Accents are used.
Texture	• Layers – of different sounds and ideas.
Harmony	• Drones • Consonant harmony • Simple chord progressions • Extended chords used • Broken chords • Tonal ambiguity • Modulations • Static Harmony

Year 10 Learning Cycle 1 Performing Arts - Roles & responsibilities

1. Roles for creating theatre

Roles	Reponsibilities
Producer	• Look after the finances and manage how the budget is spent • Negotiate and issue contracts • Organise and manage technical, stage management and workshop functions • Agreeing projects and financial backers • Agreeing production timelines • Setting ticket prices and influencing the marketing strategy • Holding regular meetings with Directors, creative teams and Artists • Ensuring legal compliance such as copyright law, insurance liability, payroll and tax
Casting director	• Study the script to understand all speaking roles • Collaborate with Directors and Producers to determine a roles requirements i.e. physical characteristics, voice ability, experience etc. • Prepare casting budgets • Contact Agents directly to source ideal Performers for the production • Review CV's and contact suitable Performers • Organise auditions and readings • Interview and audition Performers and determine their suitability for the part
Playwright	• To create and write a play • Write the synopsis and character list • To stick to the given brief • To be able to tell a story through written word for the theatre • Working to tight deadlines • Researching and gathering data • Liaising with Publishers, Directors and Producers • Redrafting and reworking the play
Composer	• Work with a team including a book writer and lyricist, who are collectively responsible for conceiving the show's story, writing the script, and connecting the story with the music via lyrics.

Role	Reponsibilities
Choreographer	• Create dance routines that work with the music and lyrics of a production or performance • Read through a script and interprets each song, creating dance sequences to match the song and interpret a story through dance • Attend rehearsals of Dancers and cast members and ensure everyone has a clear understanding of the routine and ensure everyone is at the same level • Ensure the routine looks good to an audience and everyone is in time with each other and the music • Make sure the movement follows the original interpretation
Director	• Create an overall vision/concept for the production • To pull together all the different elements as a production and make them into cohesive production
Costume maker	• Communicating with the Costume Designer and Costume Supervisor to ensure they understand the designs given to them. You can find out more about a Costume Designer here. • Sourcing fabric samples and other materials with the Costume Supervisor to make costumes • Drafting patterns, cutting and sewing
Prop maker	• Discuss what props are required with Production Staff • Create your own take on plans made by the Production Team and turn their rough sketches into detailed designs • Make sure props look authentic by researching history and culture • Experiment with different tools, methods and materials to create great effects • Hire and buy props when necessary • Repair props
Puppet maker	• Design and make puppets • Create hand, string, rod and shadow puppets from materials such as wood, paper mache, styrofoam, wires, metal, and rubber • Write or obtain scripts for the performance • Move and control the puppets to animate them for an audience • Study media for ideas that relate to stories, plays and seasonal themes • Sew clothing for puppets by hand or machine • Talk or sing during performances to give the illusion of voice to the puppets • Operate audio equipment during performances • Organise bookings for the puppet show or theatre and deliver on these deadlines. For example, ensure a venue is booked, equipment is prepped and additional staff are hired if necessary

Year 10 Learning Cycle 1 Performing Arts - Roles & responsibilities

2. Roles for creating theatre

Roles	Reponsibilities
Set designer	• Read through the script and work with the Director to create a concept for the production. A concept includes your rough ideas of what you think it should look like • Communicating your ideas to costume, make-up, props and lighting departments • Have a creative vision and able to create sets from small scale to large scale • Building and photographing scale models • Arrange your team and give them all individual tasks to ensure you and your team are all working together to create a great set • Have a knowledge of set materials which can be used to create certain aspects of the set • Working out problems like lighting and scene changes • Researching historical, contemporary, futuristic details to get the right look for the production • Creating effective designs within the available budget • Sketching design ideas to produce a storyboard
Costume designer	• Reading the full script, marking and making notes on areas that will affect costume • Research the time period and setting of the play • Researching fashion in certain time periods and places • Design the costume for each character • Liaise with the Director on the overall vision of the play
Hair and wig designer	• Pulls, purchases, alters or manufactures all wigs, hair styles and facial hair as designed by the Costume Designer. • Facilitates or performs haircuts needed on specific productions. • Maintains the wig/hair stock in an organized and accessible way. • Works with the Costume Designer to create any specialty make-up for specific productions. • Supervises a crew of hair assistants as necessary. • Orders hair and specialty make-up supplies as necessary. • Creates a hair maintenance schedule for wig washing, re-sets, and maintenance hair cuts. • Facilitates or performs specialty hair processes as necessary. This includes but is not limited to: coloring and permanent waves. • Performs other duties as assigned by Costume Director.

Role	Reponsibilities
Lighting designer	• Work with the creative team to come up with ideas • Design the lighting needed for the performance • Be aware of health and safety aspects • Write a lighting plot/script to note where there are any lighting changes • Attend technical rehearsals • Be aware of budgets and energy use
Sound designer	• Responsible for obtaining all sound effects, whether recorded or live for a specific production. • Responsible for setting up the sound playback equipment and must make sure the board operator is properly trained.
Makeup artist	• Communicating with clients to clarify visual requirements • Reading scripts to ensure they find the right materials and styles that may be required. E.g. a production set in a particular period such as Shakespearean • Research where required • Creating sketches designed for hairstyles and make-up • Liaising with other members of the team to ensure all are focusing on the correct thing and aiming towards the same outcome • Ensuring that appropriate action is taken to reduce the risk of side effects from using special effects make-up/hairdressing techniques • Casting facial and body moulds and sculpting latex foam, these are called prosthetics • Fitting and maintaining wigs, hairpieces and prosthetics • Taking detailed notes and photographs of work to maintain an up-to-date portfolio

Year 10 Learning Cycle 1 Performing Arts - Roles & responsibilities

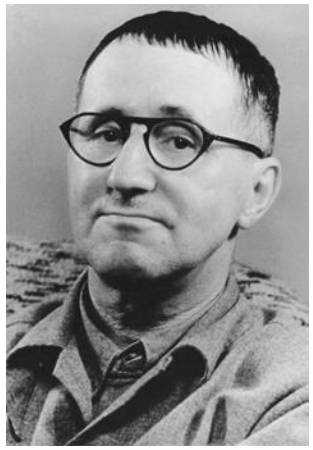
3. Roles for rehearsing and running a Theatre production

Roles	Reponsibilities
Performer	• Learn lines, songs and/or dances • Research the play/character • Attend all rehearsals scheduled • Attend costume fittings • Take direction from the Director and/or Choreographer • Work with other Performers • Attend technical and dress rehearsals • Perform the show to an audience • Use props and costume during the performance • Perform other duties laid out in the job description depending on the kind of show
Sound technician	• Prepare soundboards and equipment for shows as well as maintain the quality of sound throughout a performance • Set up microphones on performers and in various places in the theatre • Check sound levels and make sure the equipment is functioning correctly • Run sound checks • Repairing and reporting sound equipment • Maintain the work areas for other sound professionals to ensure the safety and productivity for the team • Attend meetings with key professionals such as the Director or Stage Manager before rehearsals to help organise sound cues for the performance
Musical director	• Attend creative team meetings with the Director and Choreographer to develop the overall vision of the show • Study the script and music • Participate in auditions, evaluate the vocal abilities of all auditionees and offer suggestions on which individual might be best suited to each role based on vocal performance • Teach music to the cast and musicians • Attend rehearsals • Lead regular warm-ups with the cast and musicians before shows • Normally serves as the conductor during live performances, directing the orchestra
Fight director	• Choreograph combat sequences (fight sequences) which can range from martial arts to swordplay to mock gunfights while keeping the Director's vision in mind • Ensure the safety of the Actors performing the stage combat and other participants • Ensure the sequence looks realistic and works well within the play • Using the correct techniques that are appropriate to the historical period in which the scene/play takes place • Fight Directors can teach other Directors and Actors the craft of staged combat in a non-production environment

Role	Reponsibilities
Musician	• Read through and learn sheet music for a production • Work alongside a band, ensemble, choir or orchestra to create a final piece • Attend rehearsals for a production as well as every live show
Stage manager	• Create and set up rehearsal schedules • Managing furniture and props • Arrange costume and wig fittings • Liaise with all theatre departments and collate information • Liaise with Production Manager regarding budgets • Supervise the 'get in' and 'get out' (When the set, lighting and sound are installed and removed from the space) • Create a prompt script compiled with notes on Actors' cues and requirements for props, lighting and sound • Make alterations to the set and props between scene changes • Cue the lighting and Sound Technicians • Create a risk assessment to ensure the safety of the full company • Manage the backstage and onstage area during performances • Call Actors for rehearsals and performances • Maintain props, furniture and set during the run • Liaise with resident staff (if touring)
Lighting technician	• Communicating with the Lighting Designer and making sure you understand their lighting plan and you are able to produce what is asked for • Rigging and operating necessary lighting equipment • Taking direction and cues from the Stage Manager • Use manual and computer-controlled lighting systems during the show • Keeping lighting equipment in a good and safe working condition • Electrical maintenance duties when needed • Keeping updated with new technology within the theatre industry
Head of wardrobe	• Working with Stage Management to prepare dressing rooms and pre-set costumes. • Instructing dressers with regard to actors' change of costumes, supervising quick changes where necessary. • Maintaining costumes, including laundry.
Head of wigs	• Responsible for providing all Wigs in conjunction with the Costume and makeup supervisor on each show and to ensure their maintenance for the entire run.
Dance captain	• Set any extra rehearsal times • Ensure all members of the ensemble are doing the choreography correctly and all in sync • Be able to demonstrate areas of the choreography for the rest of the ensemble

Year 10 Learning Cycle 1 Performing Arts - Brecht

1. Background information



Born-Died: 1898-1956

Nationality: German

Aim of work:
Aimed to appeal to less privileged classes, treating contemporary issues such as war, stock-markets, poverty, unemployment and corruption in high places.

Occupation: Marxist playwright, poet and director. Political writer

2. Brecht's theory and style

Epic Theatre: This is the term used to describe Brecht's theory and technique.

'Verfremdungseffekt': This means 'alienation' or 'distancing' effect. The familiar is made strange so the audience think about the issues in the piece clearly rather than getting too emotional.

Didactic Theatre: This means theatre that teaches the audience a moral message.

3. Key techniques in epic theatre

Montage	A montage is a series of freeze frames, images, projections or scenes put together in no particular order. Often music is played over the top.
Narration	The actor tells the story out loud. Sometimes the narrator will tell us what happens in the story before it has happened. This is a good way of making sure that we don't become emotionally involved in the action to come as we already know the outcome.
Direct address	Speaking directly to the audience breaks the fourth wall and destroys any illusion of reality.
Gestus	A clear gesture or movement used by the actor which captures the attitude of a character or situation.
Figures (not characters)	Brecht didn't want the actors to play a character onstage, only to show them as a 'type' of person in society.
Third person narration	Commenting upon a character as an actor is a clear way of reminding the audience they are watching a play. It means they don't get emotionally attached to characters and think more about the message.
speaking stage direction	This device was used by Brecht more frequently in rehearsal than performance. It helps distance the actor from the character they're playing. It also reminds the audience that they're watching a play and forces them to study the actions of a character in objective detail.
Multi-role	Multi-roling is when an actor plays more than one character onstage. The differences in character are marked by changing voice, movement, gesture and body language but the audience can clearly see that the same actor has taken on more than one role.
Split-role	This is where more than one actor plays the same character. For instance, the actor playing the main character might rotate from scene to scene.
Placards	A placard is a sign or additional piece of written information presented onstage. Using placards might be as simple as holding up a card or banner. Multimedia or a PowerPoint slideshow can also be used for this effect. What's important is that the information doesn't just comment upon the action but deepens our understanding of it.
Lehrstucke	The Lehrstücke are shorter, parable pieces - a simple story used to illustrate a moral lesson)
Spass	Spass literally translates as 'fun'. By presenting a serious subject in a funny way, it makes the audience laugh, and then question why they laughed. This makes them think about the message of the piece.
Minimal set/ costume/props	Set, costume and props are all kept simple and representational. Although the stage setting was usually minimal, there was always a sense of authenticity to production elements (this means real, accurate props from the time period, for example).
symbolic props	Often one item can be used in a variety of ways.
Lighting	Brecht believed in keeping lighting simple as he didn't want the production values to overshadow the message of the work. He believed in using harsh white light as this illuminates the truth.
Song and dance	This is a good way to ensure that the audience sees the theatre and are reminded of the fact they are watching a play. Often in Brechtian theatre the style of the music and the lyrics contrast each other e.g. serious lyrics with jolly music. This makes create a sinister feel and emphasises the message.
Visible stage mechanics	Stagehands visible when changing sets, lighting units visible etc.

Year 10 Learning Cycle 1 Performing Arts - Frankenstein

1. Key information

Acting style	Realism
Design style	Symbolism
Themes	There are many themes in Frankenstein but you should decide which ones stand out to you're the most as an audience member – Dangerous Knowledge, Birth, Creation, Monstrosity, Family, Revenge, Loneliness, Power, Religion.
Purpose	You need to decide that you think the main purpose is after doing your research. You may think the purpose is to education/ challenge/question the audience about a particular theme or issue. It is also a good idea to think about what was happening in science and society at the time the play was written.
Creative intentions	You need to decide that you think the main purpose is after doing your research. You may think the purpose is to education/ challenge/question the audience about a particular theme or issue. It is also a good idea to think about what was happening in science and society at the time the play was written.

2. Main characters and the actors

The Creature: Victor Frankenstein's experiment made from different body parts	The actors swap each night: Benedict Cumberbatch / Jonny Lee Miller
Victor Frankenstein: The Creature's creator	The actors swap each night: Jonny Lee Miller / Benedict Cumberbatch
De Lacey: A blind man peasant who lives in the woods	Karl Johnson
Felix De Lacey: De Lacey's son	Daniel Millar
Agatha de Lacey: Felix's wife	Lizzie Winkler
Elizabeth Lavenza: Victor Frankenstein's cousin	Naomie Harris
William Frankenstein: Victor Frankenstein's brother	William Nye

3. Creative team

Director	Danny Boyle
Writer	Nick Dear (based on the novel by Mary Shelley)
Set designer	Mark Tildesley
Costume designer	Suttirat Anne Larlarb
Lighting designer	Bruno Poet
Music and sound score	Underworld
Fight director	Kate Water
Director of movement	Toby Sedgwick
Sound design	Underworld & Ed Clarke

4. Contextual Links:

The Industrial Revolution:
https://www.youtube.com/watch?v=xLhNP0qp38Q

Nick Dear talks about Adapting Frankenstein for Stage:
https://www.youtube.com/watch?v=X7Fi208Cb6M

Victor Frankenstein – A Character Study:
https://www.youtube.com/watch?v=OGo9oYID6vw

Creating Frankenstein:
https://www.youtube.com/watch?v=9ewtTGkXZ4U

National theatre – biography of Mary Shelley
https://www.youtube.com/watch?v=9ewtTGkXZ4U

Actor's process:
https://www.youtube.com/watch?v=E67Ty4diDgE

Year 10 Learning Cycle 1 Performing Arts - Frankenstein

1. Plot Synopsis

Scenes 1–5:		The Creature is brought to life. Frankenstein discovers him, and flees, terrified.
Scenes 4–5:	(BC: 0:10:19 JLM: 00:07:55):	The Creature stumbles into the streets of Ingolstadt. People throw stones and chase him out of town
Scenes 6-8:	(BC: 0:13:40 JLM: 00:12:00):	The Creature stumbles into the streets of Ingolstadt. People throw stones and chase him out of town
Scenes 9-11:	(BC: 0:18:56 JLM 00:16:20):	Two beggars at a campfire in the wood are scared away by the Creature. At the fire, the Creature discovers warmth, and learns to eat their food. The beggars return, beat him with sticks and chase him away.
Scenes 12-18:	(BC: 0:22:18 JLM: 00:19:37):	At a house in the woods, the Creature meets an old blind man called De Lacey who takes pity on him and befriends him. De Lacey teaches the Creature to read, write and speak, all the while keeping him secret from his son Felix and his wife Agatha, whom the Creature fears will reject him. At night, the Creature performs good deeds for Felix and Agatha, like collecting firewood for them. Felix and Agatha think they must be blessed, and thank the "elves and sprites" who have helped them.
Scenes 19:	(BC: 0:36:06 JLM: 00:33:02):	The Creature dreams of a female version of himself, who would love and accept him. They dance together.
Scenes 20:	(BC: 0:38:20 JLM: 00:35:22):	The Creature reads Victor's journal, learning he lives in Geneva with his family. Agatha and Felix discover the Creature, and are terrified of him: they beat him with sticks and chase him out of the house despite De Lacey's protests.
Scenes 21:	(BC: 0:41:27 JLM: 00:38:15):	Angry and hurt, the Creature wonders aloud what humans do when they feel this way – 'they revenge', he says. He burns down De Lacey's house with Agatha, Felix and De Lacey inside.
Scenes 22-23:	(BC: 0:41:27 JLM: 00:38:15):	In Geneva, Frankenstein's brother, William, is playing hide and seek with Elizabeth. The Creature approaches William while he is alone, and asks him to come with him. William refuses, and the Creature kidnaps him. That night, a search party looks for William. Victor finds William's dead body in a boat on the lake, alongside pages from his journal.
Scenes 24:	(BC: 0:50:35 JLM: 00:47:17):	Victor hunts down the Creature in the mountains and tries to kill him, but the Creature overpowers him. Victor is astonished at how advanced the Creature is. The Creature tells him about the cruelty he suffered, and blames Victor for his suffering – that being abandoned and alone has led him to do these terrible things. He asks Victor to make a female Creature for him to love, promising to disappear with her forever. Victor reluctantly agrees.
Scene 25:	(BC: 1:04:06 JLM: 1:00:20):	Back at his house, Victor tells his father he must leave at once to do important work, missing William's funeral and postponing his own wedding. Elizabeth begs to go with him, but he tells her there is no place for a woman in his work. She doesn't understand, but supports him anyway.
Scene 26-28:	(BC: 1:10:25 JLM: 1:06:53)	On a remote island, Victor rents a small house and starts work on a female Creature, enlisting two locals to find him a suitable corpse to work from. William appears to Victor as a ghost, and asks what will happen if the two Creatures have children. The following day the Creature appears and demands he see his bride. He insists to Victor he is capable of love. After bringing the bride to life, Victor breaks his word, and slashes the female Creature to pieces. The Creature swears revenge.
Scene 29	(BC: 1:29:33 JLM: 1:25:42):	Back in Geneva, Victor confesses everything to Elizabeth after they are married. He asks her to stay in the house while he goes out into the night to kill the Creature. Once he is gone, the Creature reveals himself to Elizabeth, and tells her everything about himself. She is kind, and understanding, and offers to be his friend. After gaining her trust and promising not to harm her, the Creature breaks his word, just as his creator did to him. He attacks her, raping and killing her as Victor bursts in. He vanishes into the night.
Scene 30	(BC: 1:45:10 JLM: 1:40:40):	Victor has chased the Creature to the North Pole, and has grown weak. Thinking Victor has died from the cold, the Creature weeps, begging him for forgiveness, telling him he is all he has left. Victor recovers, and the Creature rejoices, leading his maker further into the frozen wastes.

2. Adaptions from the novel

1. The story is from the Creature's perspective rather than Victor's. The audience witnesses the Creature's early life with De Lacey first hand, rather than as a backstory.
2. The framing story of Captain Robert Walton is dispensed with entirely, as is much of Victor's backstory. The play opens with the Creature's "birth".
3. Elizabeth Lavenza is Victor's cousin rather than his adopted sister. (They are cousins in the original release of the novel but changed to adopted siblings in the 1831 rewrite. In the play, they remain cousins.)
4. The character of Justine, William's nurse, is cut, and William's murder is never solved. The character of Henry Clerval is also cut.
5. M. Frankenstein personally brings Victor home from Scotland, and Victor is never imprisoned.
6. M. Frankenstein does not die at the end of the play.
7. The Creature rapes Elizabeth before killing her in the play

Year 10 Learning Cycle 1 Spanish

Classroom language

Español	Inglés
¿Cómo se dice… en español/inglés?	How do you say… in Spanish/ English?
¿Cómo se escribe…?	How do you spell…?
¿Cómo se pronuncia?	How do you pronounce (it)?
¿Me das …. ?	Can you give me…?
¿Puedes repetir?	Can you repeat that?
¿Puedo ir a mi clase de música?	Can I go to my music class?
(No) entiendo	I (don't) understand
Lo siento	I'm sorry
(Casi) he terminado	I have (almost) finished
por favor	please
gracias	thank you
Objetos en la clase	Classroom objects
un bolígrafo	a pen
una regla	a ruler
un cuaderno	an exercise book

Question words

Español	Inglés
¿Qué?	what
¿Cómo?	how
¿Por qué?	why
¿Dónde?	where
¿Adónde?	where to
¿De dónde?	where from
¿Cuándo?	when
¿Cuánto/a?	how much
¿Cuántos/as?	how many
¿Cuál?	which
¿Quién?	who
¿A qué hora?	at what time

Phonics - Sound Symbol Correspondence (SSCs)

These sounds never change!

a = cat e = egg i = feet o = hot u = woo

ca - ce - ci - co - cu

Stick your tongue out like the English /th/ for /ce/ and /ci/ and also z, /que/ = ke - /qui/ = key

ga - ge -gi - go - gu

Soft /g/ sound, except for /ge/ and /gi/ these are pronounced like a Spanish /j/ in the back of your throat. Soft /gue/ = get and /gui/ = geese

h = silent, ll = like an English y, v like an English b, ñ = ny, roll your rs if they come at the beginning of a word, or are a double rr

Year 10 Learning Cycle 1 Spanish

Past holidays

De vacaciones	On holiday
¿Adónde fuiste?	Where did you go?
El año pasado	Last year
El verano pasado	Last summer
fui a ..	I went to …
España	Spain
las Islas Baleares	The Balearic Islands
las Islas Canarias	The Canary Islands
América Latina	Latin America
Reino Unido	UK
1.	
2.	
Me quedé en Inglaterra	I stayed in England
¿Cómo viajaste?	How did you travel?
Viajé en…	I travelled by…
avión	plane
coche	car
barco	boat/ferry
a pie	on foot
tren	train
vuelo	flight
metro	tube train

Essential verbs

¿Qué hiciste?	What did you do?
fui	I went
fue	it was
vi	I saw
tuve	I had
hice	I did
lo pasé bomba	I had a blast
lo pasé mal	I had a bad time
me divertí	I had fun
había	there was/were
1.	
2.	
3.	

Weather

hizo calor	It was hot
hizo frío	It was cold
hizo sol	It was sunny
hizo viento	It was windy
hizo buen tiempo	It was good weather
hizo mal tiempo	It was bad weather
llovió	It rained
hubo nieve	It snowed
1.	
2.	
3.	

Key verbs

ir (a)	to go (to)
viajar	to travel
descansar	to relax
escuchar música	to listen to music
comer	to eat
beber	to drink
visitar	to visit
tomar el sol	to sunbathe
escribir	to write
bailar	to dance
ver	to see/watch
comprar	to buy
ir de compras	to go shopping
pensar/ creer	to think/ believe
querer	to want
salir	to leave/ to go out
tomar el sol	to sunbathe
pasar	to spend (time)
volver	to return
disfrutar	to enjoy
divertirse	to have fun
pasar	to spend (time)
perder	to lose/ miss
romper	to break
conocer	to meet

Opinions in the past

¿Cómo te fue?	How was it?
Fue guay	It was cool
Me gustó	I liked it
Me encantó	I loved it
¿Por qué?	Why?
Perdí …	I lost/ missed
el vuelo	the flight
mi móvil	my mobile
mi maleta	my suitcase
mi pasaporte	my passport
mi tarjeta de crédito	my credit card
mi cámara	my camara
mi reloj	my watch
Personalisation	
1.	
2.	
3.	

Key adverbs

a menudo	often
a veces	sometimes
demasiado	too
en seguida	straight away
más	more
menos	less
no obstante	nevertheless

Year 10 Learning Cycle 1 Spanish

Places in town

En la ciudad	In town
¿Qué hay en tu ciudad?	What's in your town?
hay….	there is….
no hay….	there is(n't)
un castillo	a castle
un parque	a park
un centro comercial	a shopping centre
un campo de fútbol	a football pitch
una biblioteca	a library
una playa	a beach
una piscina	a pool
una plaza	a town square
una tienda	a shop
un mercado	a market
un supermercado	a supermarket
un cine	a cinema
un centro comercial	a shopping centre
el puente	the bridge
la calle	the street
la plaza	the square
1.	
2.	
3.	
4.	
5.	

Locations

Dónde está?	Where is it?
Está...	It is...
el norte	the north
el sur	the south
el este	the east
el oeste	the west
el suroeste	the southwest
el campo	in the country
las montañas	the mountains
la ciudad	the town
al lado del mar	by the sea
la costa	on the coast
las afueras	the suburbs
1.	
2.	
3.	

Superlatives

lo bueno	the good thing
lo malo	the bad thing
lo mejor	the best thing
lo peor	the worst thing

Directions

¿Para ir al / a la….?	
¿Por dónde se va al / a la…?	How do I get to…..?
¿dónde está …?	where is…?
está lejos	it is far away
está cerca	it is near
al final de	the end of
a la derecha	to/on the right
a la izquierda	to/on the left
sigue	continue
gira….	turn
toma….	take
pasa…	go past
cruza	cross
coge	catch
la primera calle	the first street
la segunda calle	the second street
la tercera calle	the third street
Personalisation	
1.	
2.	
3.	
4.	
5.	

Key prepositions

a	at
cerca de	near
lejos (de)	far (from)
durante	during
fuera de	outside/out of
hacia	towards
hasta	until
para	for/in order to
por todas partes	everywhere
por /a través de	through
sin	without
Personalisation	
1.	
2.	
3.	
4.	
5.	

Year 10 Learning Cycle 1 Sports – Basketball

Key Knowledge, Skills and Tactics

1. Advanced shooting skills – combining all shooting skills to become more advanced and allow for more creativity in shooting to be used. Shooting from varieties of angles and distances.
2. Offensive skills - using skills such as passing, receiving, dribbling, rebounding and shooting (all forms) to maximize the effectiveness of offensive skills.
3. Creating space and movement – being able to work collectively as a team, both on and off the ball, to create space around the basket for your team to travel into, creating scoring opportunities
4. Attacking and defensive plays – creating plays both attacking and defending that will work effectively. These patterns of play will be rehearsed and understood by all members of the team so that they work smoothly.
5. Officiating - being able to take a role as an official to run your own match enforcing the laws of the game you have learnt through your basketball lessons throughout school
6. Defensive strategies - tactics created by the squad/team regarding how they will go about defending the basket, regaining possession of the ball and stopping the opposition from shooting.
7. Offensive strategies - tactics created by the squad/team regarding how they are going to work opportunities to shoot towards and score through the basket and outwitting the defenders.
8. Peer evaluation and coaching – being able to take a step back and observe your peers and then give feedback (both positive and negative) to help construct your peer's performance.

Key Vocabulary

Hook shot
Confidently perform
Give and go
Incorporate

Man to man defence
Defensive strategies
Roles and responsibilities of each position

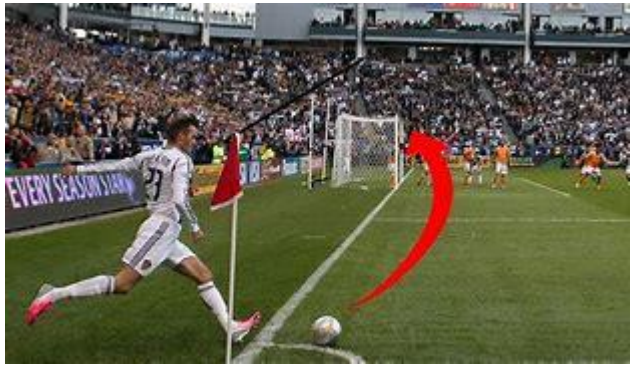
Year 10 Learning Cycle 1 Sports – Football

Key Knowledge, Skills and Tactics

1. Defending strategies and skills (jockey, closing down) – creating and mastering ways in which you and your team can defend against an opposition, win the ball back, and prevent them from scoring. Jockeying the attackers by standing them up and not committing to a change of direction. Closing down the angle so that they have less of an option in terms of passing and shooting angles, reducing options when you're on the ball.
2. Attacking strategies and skills - creating and mastering ways in which your team can attack against an opposition, to create and clinically complete scoring opportunities.
3. Free kicks (set plays) - creating routines for free kicks, corner kicks and throw ins, that will enable scoring opportunities to be produced.
4. Games (full-sided) - beginning to implement skills, techniques and tactics into full sized games that enable all knowledge learned in KS3 to be drawn together and applied in real-life, competitive examples.
5. Formations - setting up your team in a structured formation and shape with each individual having roles within the team.
6. Officiating – understanding rules learned in KS3 to begin officiating matches being played by peers. Applying laws of the game with confidence

Key Vocabulary

Accurately replicate
Jockeying
Channelling play
Goal side
Tracking
Angled running
Direct and indirect free kicks
Set plays
Defensive strategies
Tactics
Formations
Officate
Evaluate
Analyse
Observe
Leading
Rules



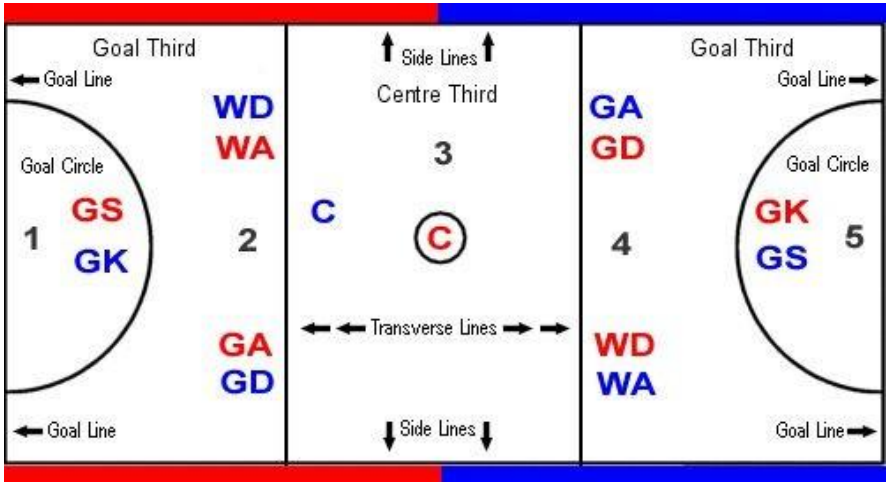
Year 10 Learning Cycle 1 Sports – Netball

Key Knowledge, Skills and Tactics

1. Games – being able to apply all the skills learned through years 7-10 into matches that closely replicate a high-standard netball game. These could begin of a small-sided nature (5-a-side = losing the wing positions)
2. Full-Sided Games – including all positions into matches, to again apply skills into games replicating a professional structure.
3. Peer Performance observation and Coaching with Full-Sided Games - Watching matches being played by peers and offering your knowledge and understanding you have acquired during years
4. Competition – playing games in a competition format to add an extra sense of motivation and opportunity for reward for successful skill application in games.
5. Defensive Strategies and Games – understanding, creating and applying defensive strategies in an attempt to keep the opposition away from the shooting zone and hoop. By being able to work together effectively, you will reduce the number of goals scored by the opponents and therefore reduce the task on hand for your attack to outscore the opposition.
6. Offensive strategies – creating and performing attacking set plays or strategies that will allow for more shooting opportunities to be afforded. This will give your attacking players more chances to shoot and be successful and put your team in an advantageous position in the match.
7. Officiating and coaching – using your knowledge of the rules to officiate a game by following the laws, and ensuring the game is played fairly and safely. Using tactical awareness and your knowledge and understanding to act as a coach, to take control of a team and instruct them to complete strategies and techniques that will lead to success.

Key Vocabulary

Officiating
Coaching
Strategies
Tactics
Offensive strategies
Peer observation
Coaching skills
Technique and tactic skills
Competition



Year 10 Learning Cycle 1 Sports – Rugby

Key Knowledge, Skills and Tactics

1. Forwards and backs (roles and responsibilities) - understanding the difference between a forward and a back and the responsibilities for these players within the team. A back will require kicks and open field play skills more often, whereas a forward will engage in the scrums and ground play.
2. Attacking plays – creating attacking tactics that can afford greater opportunities for you to create scoring chances. By working on these as a team you can all be on the same wavelength and make them more effective.
3. Strategies and Set Pieces within game situations – applying strategies that have been spoken about and created into game situations so that they can be rehearsed and evaluated.
4. Competition – adding skills into competitive environments.
5. Set Play – working on the break downs, when set plays can be used to restart play or create future plays in the game. Understanding how to attack and defend set plays.
6. Officiating – learning the rules of the game and being able to enforce them as an official when peers play in small sided games.

Key Vocabulary

Competition
Confidently perform
Phases
Attacking play
Positional responsibilities
Open play
Defence
Evaluate
Analyse
Officiate
Tactics