



Year 11 Learning Cycle 2

Student Name: _____

Contents

Home Learning timetable	3	Engineering - Proposing Design Solutions	81
How to Use your Learning Cycle Knowledge Organiser	4	Engineering - Using engineering tools and equipment	82
What are the SORT strategies?	4	Engineering - Solving applied engineering problems	83
How to use SORT	5	French	84
Daily Planner	8	Geography - UK Economy	85
Year 11 Learning Cycle 2 Personal Learning Checklists	19	Geography - Urban Issues	86
English - A Christmas Carol (Literature Paper 1)	28	Geography - Urban Issues	87
English - Section A - READING 40 marks	32	History - Weimar and Nazi Germany, 1918-1939	88
English - Section B - WRITING 40 marks	34	Hospitality and Catering - Types of Hospitality	93
English - Romeo and Juliet	36	Hospitality and Catering - Types of service	94
Maths	40	Hospitality and Catering - Standards and Ratings	95
Maths - Higher	42	Hospitality and Catering - Types of employment roles	96
Maths - Key formulae	43	Hospitality and Catering - Working conditions	97
Maths - Sparx Maths	46	Hospitality and Catering - Equipment	99
Science - How can I use the Periodic Table?	48	Performing Arts - Responding to a Brief	100
Science - Experiments	49	Spanish	101
Science - How can I use the Physics equation sheet?	50	Notes Pages	102
Science - Inheritance, variation and evolution	51		
Science - Rates of reaction	54		
Science - Using resources (Triple Science only)	56		
Science - Chemical analysis	58		
Science - Chemical analysis (Triple Science only)	59		
Science - Magnetism	60		
Science - Magnetism (Triple Science only)	61		
Science - Waves	62		
Science - Waves (Triple Science only)	64		
Science - Space (Triple Science only)	65		
Science - Clubs and Reading	68		
Art	69		
Computer Science - Computational thinking, algorithms and programming	70		
Computer Science - Producing Robust Programs	71		
Computer Science - Boolean Logic	72		
DT - Briefs, Specifications, ideas & development	73		
DT - Design strategies	74		
DT - Environment	75		
DT - People, Society and Culture	77		
DT - Production Processes	78		
DT - Work of others and Customer Research	79		
Engineering - Understanding function	80		

Masterclass Timetable

	Tuesday	Wednesday	Thursday
Subject			

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

	Mon A	Tue A	Wed A	Thu A	Fri A
Core Activity	1 hour of SPARX Maths XP and target practice				
Subject 1	Science	Maths	Option A	Maths	Science
Subject 2	Option C	English	Option D	English	Option B
	Mon B	Tue B	Wed B	Thu B	Fri B
Core Activity	1 hour of SPARX Maths XP and target practice				
Subject 1	Science	Maths	Option A	Maths	Science
Subject 2	Option C	English	Option D	English	Option B

PPE 2 Timetable

Week 1 (A)	Monday 29 th Jan	Tuesday 30 th Jan	Wednesday 31 st Jan	Thursday 1 st Feb	Friday 2 nd Feb
Start 8.30am			Spanish Listening	Mathematics	French Listening
Start 11.00am	Comp Science	English Language	Biology	Geography	Chemistry
Week 2 (B)	Monday 5 th Feb	Tuesday 6 th Feb	Wednesday 7 th Feb	Thursday 8 th Feb	Friday 9 th Feb
Start 8.30am	Mathematics			Mathematics	French & Spanish Reading
Start 11.00am	History	English Literature	Physics		DT & Engineering

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.




At Poltair we **SORT** it!

What are the SORT strategies?

Summarise	Organise	Recall	Test
Summarise and condense any class notes, revision guides and revision.	Organise 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.	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			
<ul style="list-style-type: none"> • Cornell Notes • Flash cards • Mind mapping • Revision clocks • Dual coding 	<ul style="list-style-type: none"> • How to use your PLC • How to schedule your home learning and stick to it! 	<ul style="list-style-type: none"> • Look cover & test • Leitner system • Blur it • Transform it 	<ul style="list-style-type: none"> • Low stakes • Self-quizzing • Quiz each other • Online quizzes • High stakes • Exam style questions

How to use SORT

Step 1: Organise	Step 2: Summarise	Step 3: Recall	Step 4: Test
<p>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</p> <p>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</p> <p>c. Write your RED topics into your daily planner for when you will revise that subject</p>	<p>When you revise for a specific topic use your knowledge organiser, revision guide, website etc to summarise the key knowledge you need to learn.</p> <p>Use any summarizing strategy, such as:</p> <ul style="list-style-type: none"> • Flashcards • Mindmaps • Cornell Notes • Revision Clocks <p>For more details go to the SORT webpage:</p> <div style="display: flex; align-items: center;">  <p style="color: red;">https://www.poltairschool.co.uk/sort</p> </div>	<p>Once you have summarized the knowledge, you need to actively memorise it. This is the most important part of the revision process!</p> <p>You could use any of the following strategies to help:</p> <ul style="list-style-type: none"> • Lietner System • Blur It • Look, say, cover, write, test 	<p>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.</p> <p>If you can not confidently recall the knowledge you will need to repeat step 3.</p>



At Poltair we **S O R T** it!

ATTENDANCE FOCUS



ATTENDANCE FOCUS



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.


Daily Planner

Time	Monday 4 th December	Tuesday 5 th December	Wednesday 6 th December	Thursday 7 th December	Friday 8 th December	Time	Saturday 9 th December	Sunday 10 th December
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		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50
To Do						To Do		



Daily Planner

Time	Monday 11 th December	Tuesday 12 th December	Wednesday 13 th December	Thursday 14 th December	Friday 15 th December	Time	Saturday 16 th December	Sunday 17 th December
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		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50
To Do						To Do		

Daily Planner

Time	Monday 18 th December	Tuesday 19 th December	Wednesday 20 th December	Thursday 21 st December	Friday 22 nd December	Time	Saturday 23 rd December	Sunday 24 th December
8.30am - 4pm						8.30am - 4pm		<p>Spend time with friends and family</p> 
4pm - 5pm						4pm - 5pm		
5pm - 6pm						5pm - 6pm		
6pm - 7pm						6pm - 7pm		
7pm - 8pm						7pm - 8pm		
8pm - 9pm						8pm - 9pm		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	
To Do						To Do		

Daily Planner

Time	Monday 25 th December	Tuesday 26 th December	Wednesday 27 th December	Thursday 28 th December	Friday 29 th December	Time	Saturday 30 th December	Sunday 31 st December
8.30am - 4pm	 <p>Merry Christmas!</p>					8.30am - 4pm		 <p>Spend time with friends and family</p>
4pm - 5pm						4pm - 5pm		
5pm - 6pm						5pm - 6pm		
6pm - 7pm						6pm - 7pm		
7pm - 8pm						7pm - 8pm		
8pm - 9pm						8pm - 9pm		
Checklist				<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	
To Do					To Do			

Daily Planner

Time	Monday 1 st January	Tuesday 2 nd January	Wednesday 3 rd January	Thursday 4 th January	Friday 5 th January	Time	Saturday 6 th January	Sunday 7 th January
8.30am - 4pm	Take the day off					8.30am - 4pm		Spend time with friends and family before getting ready for back to school!
4pm - 5pm						4pm - 5pm		
5pm - 6pm						5pm - 6pm		
6pm - 7pm						6pm - 7pm		
7pm - 8pm						7pm - 8pm		
8pm - 9pm						8pm - 9pm		
Checklist		<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	
To Do						To Do		

Daily Planner

Time	Monday 8 th January	Tuesday 9 th January	Wednesday 10 th January	Thursday 11 th January	Friday 12 th January	Time	Saturday 13 th January	Sunday 14 th January
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		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50
To Do						To Do		

Daily Planner

Time	Monday 15 th January	Tuesday 16 th January	Wednesday 17 th January	Thursday 18 th January	Friday 19 th January	Time	Saturday 20 th January	Sunday 21 st January
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		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50
To Do						To Do		

Daily Planner

Time	Monday 22 nd January	Tuesday 23 rd January	Wednesday 24 th January	Thursday 25 th January	Friday 26 th January	Time	Saturday 27 th January	Sunday 28 th January
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		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50
To Do						To Do		

Daily Planner

Time	Monday 29 th January	Tuesday 30 th January	Wednesday 31 st January	Thursday 1 st February	Friday 2 nd February	Time	Saturday 3 rd February	Sunday 4 th February
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		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Revision <input type="checkbox"/> #revise50
To Do						To Do		

Daily Planner

Time	Monday 5 th February	Tuesday 6 th February	Wednesday 7 th February	Thursday 8 th February	Friday 9 th February	Time	Saturday 10 th February	Sunday 11 th February
8.30am - 4pm						8.30am - 4pm	<p style="text-align: center;">Relax! Well done – you have completed another set of PPEs!!</p>	
4pm - 5pm						4pm - 5pm		
5pm - 6pm						5pm - 6pm		
6pm - 7pm						6pm - 7pm		
7pm - 8pm						7pm - 8pm		
8pm - 9pm						8pm - 9pm		
Checklist	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	<input type="checkbox"/> Home Learning <input type="checkbox"/> Revision <input type="checkbox"/> #revise50	Checklist		
To Do						To Do		

Revise 50

REVISE FOR 50

Record every 15 minutes that you revise. You are aiming to complete a minimum of 50 hours ahead of your PPEs. This can include time spent in planned revision sessions or independent study.

#revise50

1	11	21	31	41
2	12	22	32	42
3	13	23	33	43
4	14	24	34	44
5	15	25	35	45
6	16	26	36	46
7	17	27	37	47
8	18	28	38	48
9	19	29	39	49
10	20	30	40	50

Year 11 Learning Cycle 2 Personal Learning Checklists

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 play.				
Understanding key themes (redemption, charity and kindness, greed, poverty, Christmas).				
Identifying and analysing language methods.				
Identifying and analysing structure.				
Recalling key quotations for all characters and themes.				
Understanding how Dickens’ motivations influence his writing.				
Understanding Dickens’ themes and ‘big ideas’ and how they develop across the play.				
Understanding Dickens’ intentions and messages.				
Recalling key information about the Victorian context.				
Planning thoughtfully sequenced responses to exam questions.				
Writing thesis introductions.				
Developed what, how, why paragraphs.				
Using a range of references (including quotations) to support ideas.				
Using appropriate connectives.				
Developing analysis with relevant contextual ideas.				
Using a range of sophisticated vocabulary to enhance analysis.				

English – Language Paper 2

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				
Understanding information and ideas in a non-fiction text (Q1)				
Making inferences about relevant quotations from two non-fiction texts (Q2)				
Analysing language methods (Q3)				
Identifying writers’ viewpoints in two non-fiction texts (Q4)				
Identifying and analysing how writers present their viewpoints – analysing the methods they choose (Q4)				
Planning an extended piece of opinion writing (Q5 / Section B)				
Using a range of sophisticated vocabulary precisely in my opinion writing. (Q5 / Section B)				
Appealing to a specific audience in my opinion writing (Q5 / Section B)				
Using features of form thoughtfully (letter, article, speech, essay, leaflet) (Q5 / Section B)				
Using features of form thoughtfully (letter, article, speech, essay, leaflet) (Q5 / Section B)				
Using a range of persuasive methods in my opinion writing. (Q5 / Section B)				
Using a range of punctuation accurately in my opinion writing. (Q5 / Section B)				
Using a range of sentence structures and starters in my opinion writing. (Q5 / Section B)				
Proof-reading and editing my opinion writing. (Q5 / Section B)				

Year 11 Learning Cycle 2 Personal Learning Checklists

English – Literature Paper 1, Section A (Romeo and Juliet)

Key Ideas	S	O	R	T
Recalling significant moments in the plot				
Understanding characters and how they develop throughout the play				
Understanding characters and how they develop throughout the play				
Identifying and analysing language methods				
Identifying and analysing structure				
Identifying and analysing features of the play form				
Understanding how Shakespeare’s motivations influence his writing				
Understanding Shakespeare’s themes and ‘big ideas’ and how they develop across the play				
Understanding Shakespeare’s intentions and messages				
Recalling key information about the Elizabethan context				
Planning thoughtfully sequenced responses to exam questions				
Writing thesis introductions				
Developed what, how, why paragraphs				
Using a range of references (including quotations) to support ideas				
Using appropriate connectives				
Developing analysis with relevant contextual ideas				
Using a range of sophisticated vocabulary to enhance analysis				

Science – Inheritance

Key Ideas	S	O	R	T
Describe features of sexual and asexual reproduction				
Describe what happens during meiosis and compare to mitosis				
Describe what happens at fertilisation				
Bio ONLY: Explain advantages of sexual and asexual reproduction				
Bio ONLY: Describe examples of organisms that reproduce both sexually and asexually (malarial parasites, fungi, strawberry plants and daffodils)				
Describe the structure of DNA and its role in storing genetic information inside the cell				
Explain the term ‘genome’ and the importance of the human genome (specific examples from spec only)				
Bio ONLY: Describe the structure of DNA, including knowledge of nucleotide units				
Bio & HT ONLY: Explain complementary base pairing in DNA				
Bio & HT ONLY: Explain the relationship between DNA bases (ATCG), amino acids and proteins				
Bio & HT ONLY: Describe how proteins are synthesised on ribosomes, including protein folding and its importance for protein function				
Bio & HT ONLY: Explain what mutations are, and the possible effects of mutations				
Bio & HT ONLY: Explain what non-coding parts of DNA are, and why they are important				
Describe how characteristics are controlled by one or more genes, including examples				
Explain important genetic terms: gamete, chromosome, gene, allele, genotype, phenotype, dominant, recessive, homozygous and heterozygous				
Explain and use Punnet square diagrams, genetic crosses and family trees				
HT ONLY: Construct Punnet square diagrams to predict the outcomes of a monohybrid cross				

Science – Inheritance

Key Ideas	S	O	R	T
Describe cystic fibrosis and polydactyly as examples of inherited disorders				
Evaluate social, economic and ethical issues concerning embryo screening when given appropriate information				
Describe how the chromosomes are arranged in human body cells, including the function of the sex chromosomes				
Explain how sex is determined and carry out a genetic cross to show sex inheritance				
Describe what variation is and how it can be caused within a population				
Describe mutations and explain their influence on phenotype and changes in a species				
Explain the theory of evolution by natural selection				
Describe how new species can be formed				
Describe what selective breeding is				
Explain the process of selective breeding, including examples of desired characteristics and risks associated with selective breeding				
Describe what genetic engineering is, including examples, and how it is carried out				
Explain some benefits, risks and concerns related to genetic engineering				
HT ONLY: Explain the process of genetic engineering, to include knowledge of enzymes and vectors				
Bio ONLY: Describe different cloning techniques, to include: tissue culture, cuttings, embryo transplants and adult cell cloning				
Bio ONLY: Describe the ideas proposed by Darwin in his theory of natural selection and explain why this theory was only gradually accepted				
Bio ONLY: Describe other inheritance-based theories that existed (apart from the theory of natural selection), and the problems with these theories				
Bio ONLY: Describe the work of Alfred Russel Wallace				

Year 11 Learning Cycle 2 Personal Learning Checklists

Science - Inheritance

Key Ideas	S	O	R	T
Bio ONLY: Explain how new species can be formed				
Bio ONLY: Describe how our understanding of genetics has developed over time, to include knowledge of Mendel				
Describe some sources of evidence for evolution				
Describe what fossils are, how they are formed and what we can learn from them				
Explain why there are few traces of the early life forms, and the consequences of this in terms of our understanding of how life began				
Describe some of the causes of extinction				
Describe how antibiotic-resistant strains of bacteria can arise and spread (inc MRSA)				
Describe how the emergence of antibiotic-resistant bacteria can be reduced and controlled, to include the limitations of antibiotic development				
Describe how organisms are named and classified in the Linnaean system				
Explain how scientific advances have led to the proposal of new models of classification, inc three-domain system				
Describe and interpret evolutionary trees				

Science - Rates of Reaction

Key Ideas	S	O	R	T
Calculate the rate of a chemical reaction over time, using either the quantity of reactant used or the quantity of product formed, measured in g/s, cm ³ /s or mol/s				
Draw and interpret graphs showing the quantity of product formed or reactant used up against time and use the tangent to the graph as a measure of the rate of reaction				
Describe how different factors affect the rate of a chemical reaction, including the concentration, pressure, surface area, temperature and presence of catalysts				
Required practical 11: investigate how changes in concentration affect the rates of reactions by a method involving measuring the volume of a gas produced, change in colour or turbidity				
Use collision theory to explain changes in the rate of reaction				
Explain what a reversible reaction is, including how the direction can be changed and represent it using symbols: A + B ⇌ C + D				
Explain that, for reversible reactions, if a reaction is endothermic in one direction, it is exothermic in the other direction				
Describe the State of dynamic equilibrium of a reaction as the point when the forward and reverse reactions occur at exactly the same rate				
HT ONLY: Explain that the position of equilibrium depends on the conditions of the reaction and the equilibrium will change to counteract any changes to conditions				
HT ONLY: Explain and predict the effect of a change in concentration of reactants or products, temperature, or pressure of gases on the equilibrium position of a reaction				

Science - Using Resources

Key Ideas	S	O	R	T
Chem ONLY: Define corrosion and describe rusting as an example of corrosion				
Chem ONLY: Describe ways to prevent corrosion, including providing coatings, sacrificial protection and explain how sacrificial protection works				
Chem ONLY: Describe the following alloys bronze, gold, steels and aluminium, their uses and describe the benefits of using alloys instead of pure metals				
Chem ONLY: Compare the properties of materials, including glass and clay ceramics, polymers and composites and explain how their properties are related to their uses				
Chem ONLY: Discuss the different types of polymers and how their composition affects their properties, including thermosoftening and thermosetting polymers				
Chem ONLY: Explain what composites are and provide examples of composites and their benefits over other types of materials				
Chem ONLY: Describe the Haber process, including the reactants and products, recycling of remaining hydrogen and nitrogen and the chemical equation				
Chem & HT ONLY: For the Haber process interpret graphs of reaction conditions versus rate				
Chem ONLY: Apply the principles of dynamic equilibrium to the Haber process and discuss the trade-off between the rate of production and the position of equilibrium				
Chem ONLY: Explain how the commercially used conditions for the Haber process are related to the availability and cost of raw materials and energy supplies				
Chem ONL: Recall the names of the salts produced when phosphate rock is treated with nitric acid, sulfuric acid and phosphoric acid				
Chem ONLY: Describe NPK fertilisers and the compounds they are composed of and compare the industrial production of fertilisers with the laboratory preparations				

Year 11 Learning Cycle 2 Personal Learning Checklists

Science – Chemical Analysis

Key Ideas	S	O	R	T
Define a pure substance and identify pure substances and mixtures from data about melting and boiling points				
Describe a formulation and identify formulations given appropriate information				
Describe chromatography, including the terms stationary phase and mobile phase and identify pure substances using paper chromatography				
Explain what the R _f value of a compound represents, how the R _f value differs in different solvents and interpret and determine R _f values from chromatograms				
Required practical 6: investigate how paper chromatography can be used to separate and tell the difference between coloured substances (inc calculation of R _f values)				
Explain how to test for the presence of hydrogen, oxygen, carbon dioxide and chlorine				
Chem ONLY: Identify some metal ions from the results of flame tests and describe how to conduct a flame test				
Chem ONLY: Describe how sodium hydroxide solution can be used to identify some metal ions and identify metal ions from the results of their reactions with sodium hydroxide solution				
Chem ONLY: Write balanced equations for the reactions between sodium hydroxide solution and some metal ions to produce insoluble hydroxides				
Chem ONLY: Describe how to identify carbonates using limewater				
Chem ONLY: Describe how to identify negative ions, including halide ions using silver nitrate and sulfate ions using barium chloride				
Required practical 7: use of chemical tests to identify the ions in unknown single ionic compounds				
Chem ONLY: State the advantages of using instrumental methods to identify elements and compounds compared to chemical tests				
Chem ONLY: Describe the process of and how to use flame emission spectroscopy to identify metal ions; interpret the results of a flame emission spectroscopy tests				
Using appropriate connectives				
Developing analysis with relevant contextual ideas				
Using a range of sophisticated vocabulary to enhance analysis				

Science – Magnetism

Key Ideas	S	O	R	T
Describe the attraction and repulsion between unlike and like poles of permanent magnets and explain the difference between permanent and induced magnets				
Draw the magnetic field pattern of a bar magnet, showing how field strength and direction are indicated and change from one point to another				
Explain how the behaviour of a magnetic compass is related to evidence that the core of the Earth must be magnetic				
Describe how to plot the magnetic field pattern of a magnet using a compass				
State examples of how the magnetic effect of a current can be demonstrated and explain how a solenoid arrangement can increase the magnetic effect of the current				
Draw the magnetic field pattern for a straight wire carrying a current and for a solenoid (showing the direction of the field)				
PHY ONLY: Interpret diagrams of electromagnetic devices in order to explain how they work				
HT ONLY: State and use Fleming's left-hand rule and explain what the size of the induced force depends on				
HT ONLY: Calculate the force on a conductor carrying a current at right angles to a magnetic field by applying, but not recalling, the equation: $[F = BIL]$				
HT ONLY: Explain how rotation is caused in an electric motor				
PHY & HT ONLY: Explain how a moving-coil loudspeaker and headphones work				
PHY & HT ONLY: Describe the principles of the generator effect, including the direction of induced current, effects of Lenz' Law and factors that increase induced p.d.				
PHY & HT ONLY: Explain how the generator effect is used in an alternator to generate a.c. and in a dynamo to generate d.c.				

Science – Magnetism

Key Ideas	S	O	R	T
PHY & HT ONLY: Draw/interpret graphs of potential difference generated in the coil against time				
PHY & HT ONLY: Explain how a moving-coil microphone works				
PHY & HT ONLY: Explain how the effect of an alternating current in one coil inducing a current in another is used in transformers				
PHY & HT ONLY: Explain how the ratio of the potential differences across the two coils depends on the ratio of the number of turns on each				
PHY & HT ONLY: Apply the equation linking the p.d.s and number of turns in the two coils of a transformer to the currents and the power transfer				
PHY & HT ONLY: Apply but not recalling the equations: $[V_s \times I_s = V_p \times I_p]$ and $[V_p / V_s = N_p / N_s]$ for transformers				

Year 11 Learning Cycle 2 Personal Learning Checklists

Science - Waves

Key Ideas	S	O	R	T
Describe waves as either transverse or longitudinal, defining these waves in terms of the direction of their oscillation and energy transfer and giving examples of each				
Define waves as transfers of energy from one place to another, carrying information				
Define amplitude, wavelength, frequency, period and wave speed and Identify them where appropriate on diagrams				
State examples of methods of measuring wave speeds in different media and Identify the suitability of apparatus of measuring frequency and wavelength				
Calculate wave speed, frequency or wavelength by applying, but not recalling, the equation: $[v = f \lambda]$ and calculate wave period by recalling and applying the equation: $[T = 1/f]$				
Identify amplitude and wavelength from given diagrams				
Describe a method to measure the speed of sound waves in air				
Describe a method to measure the speed of ripples on a water surface				
PHY ONLY: Demonstrate how changes in velocity, frequency and wavelength are inter-related in the transmission of sound waves from one medium to another				
Required practical 8: make observations to identify the suitability of apparatus to measure the frequency, wavelength and speed of waves in a ripple tank and waves in a solid				
PHY ONLY: Discuss the importance of understanding both mechanical and electromagnetic waves by giving examples, such as designing comfortable and safe structures and technologies				
PHY ONLY: Describe a wave's ability to be reflected, absorbed or transmitted at the boundary between two different materials				
PHY ONLY: Draw the reflection of a wave at a surface by constructing ray diagrams				

Science - Waves

Key Ideas	S	O	R	T
Required practical 9 (physics only): investigate the reflection of light by different types of surface and the refraction of light by different substances.				
PHY & HT ONLY: Describe, with examples, processes which convert wave disturbances between sound waves and vibrations in solids				
PHY & HT ONLY: Explain why such processes only work over a limited frequency range and the relevance of this to the range of human hearing, which is from 20 Hz to 20 kHz				
PHY & HT ONLY: Define ultrasound waves and explain how these are used to form images of internal structures in both medical and industrial imaging				
PHY & HT ONLY: Compare the two types of seismic wave produced by earthquakes with reference to the media they can travel in and the evidence they provide of the structure of the Earth				
PHY & HT ONLY: Describe how echo sounding using high frequency sound waves is used to detect objects in deep water and measure water depth				
Describe what electromagnetic waves are and explain how they are grouped				
List the groups of electromagnetic waves in order of wavelength				
Explain that because our eyes only detect a limited range of electromagnetic waves, they can only detect visible light				
HT ONLY: Explain how different wavelengths of electromagnetic radiation are reflected, refracted, absorbed or transmitted differently by different substances and types of surface				
Illustrate the refraction of a wave at the boundary between two different media by constructing ray diagrams				
HT ONLY: Describe what refraction is due to and illustrate this using wave front diagrams				

Science - Waves

Key Ideas	S	O	R	T
Required practical activity 10: investigate how the amount of infrared radiation absorbed or radiated by a surface depends on the nature of that surface.				
HT ONLY: Explain how radio waves can be produced by oscillations in electrical circuits, or absorbed by electrical circuits				
Explain that changes in atoms and the nuclei of atoms can result in electromagnetic waves being generated or absorbed over a wide frequency range				
State examples of the dangers of each group of electromagnetic radiation and discuss the effects of radiation as depending on the type of radiation and the size of the dose				
State examples of the uses of each group of electromagnetic radiation, explaining why each type of electromagnetic wave is suitable for its applications				
PHY ONLY: State that a lens forms an image by refracting light and that the distance from the lens to the principal focus is called the focal length				
PHY ONLY: Explain that images produced by a convex lens can be either real or virtual, but those produced by a concave lens are always virtual				
PHY ONLY: Construct ray diagrams for both convex and concave lenses				
PHY ONLY: Calculate magnification as a ratio with no units by applying, but not recalling, the formula: $[\text{magnification} = \text{image height} / \text{object height}]$				
PHY ONLY: Explain how the colour of an object is related to the differential absorption, transmission and reflection of different wavelengths of light by the object				
PHY ONLY: Describe the effect of viewing objects through filters or the effect on light of passing through filters and the difference between transparency and translucency				
PHY ONLY: Explain why an opaque object has a particular colour, with reference to the wavelengths emitted				
PHY ONLY: State that all bodies, no matter what temperature, emit and absorb infrared radiation and that the hotter the body, the more infrared radiation it radiates in a given time				

Year 11 Learning Cycle 2 Personal Learning Checklists

Science - Waves

Key Ideas	S	O	R	T
PHY ONLY: Describe a perfect black body as an object that absorbs all the radiation incident on it and explain why it is the best possible emitter				
PHY ONLY: Explain why when the temperature is increased, the intensity of every wavelength of radiation emitted increases, but the intensity of the shorter wavelengths increases more rapidly				
PHY & HT ONLY: Explain and apply the idea that the temperature of a body is related to the balance between incoming radiation absorbed and radiation emitted				
PHY & HT ONLY: Describe how the temperature of the Earth as dependent on the rates of absorption and emission of radiation and draw and interpret diagrams that show this				

Science - Space

Key Ideas	S	O	R	T
PHY ONLY: List the types of body that make up the solar system and describe our solar system as part of a galaxy				
PHY ONLY: Explain how stars are formed				
PHY ONLY: Describe the life cycle of a star the size of the Sun and of a star which is much more massive than the Sun				
PHY ONLY: Explain how fusion processes lead to the formation of new elements and how supernovas have allowed heavy elements to appear in later solar systems				
PHY & HT ONLY: Explain that, for circular orbits, the force of gravity leads to a constantly changing velocity but unchanged speed				
PHY & HT ONLY: Explain that, for a stable orbit, the radius must change if the speed changes				

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				

Year 11 Learning Cycle 2 Personal Learning Checklists

Computer Science

Key Ideas	S	O	R	T
I know how to open, close, append and create files in Python				
I know how to open, close, append and create files in Python				
I know the different types of test data, how to design a test and how to record output in a test table				
Know the difference between Iterative and terminal testing				
I can demonstrate the different Search algorithms and can choose for a task				
I can demonstrate the different Sort algorithms and can choose for a task				
I can perform SQL queries on tables of data				
I can write code which uses selection				
I can write code which uses iteration				
I can implement subroutines and know the benefits of using them				
I can discuss the Cultural, Legal, Environmental and Ethical issues in technology development				
I can create and use 1D and 2D Arrays for problem solving				
I can identify methods to make code more maintainable				

Design Technology

Key Ideas	S	O	R	T
I am able to use ACCESSFM to identify the target areas of products				
I can model and develop an idea based on a concept				
I can use my knowledge of previous products to come up with a solution to a problem				
I am able to think outside the box and be creative with my solutions				
I can think logically and organise my ideas in my portfolio				
Present a personal and meaningful response				
Explain and discuss how decisions have been made through annotation				

Engineering

Key Ideas	S	O	R	T
I am able to identify potential improvements to a product				
I am able to create effective designs that clearly show an understanding of isometric and orthographic drawings				
I am able to communicate design concepts through drawing and prototyping				
I am able to make appropriate and effective prototypes that contextualise my design intention				
I can use appropriate design software to illustrate my ideas				
I can use a variety of tools to make my product better and improve it				

Year 11 Learning Cycle 2 Personal Learning Checklists

French

Key Ideas	S	O	R	T
I can talk/write about celebrations, special occasions and eating out				
I can talk/write about healthy eating, illness and injury				
I can talk/write about the environment				
I can talk/write about family and relationships				
I can talk / write about school				
I can talk / write about holidays and where I live				
I can talk / write about work and future plans				

Geography

Key Ideas	S	O	R	T
Define key terms				
Describe the causes of economic change				
Define post-industrial				
Explain the effects of post-industrial change in the UK				
Explain the reasons for the development of the quaternary sector in the UK				
Describe the differences between a business and science park				
Explain the impacts of rural depopulation				
Explain the impacts of rural population growth				
Explain transport developments in the UK				
Evaluate strategies to reduce the north-south divide				

History

Key Ideas	S	O	R	T
I can explain how the end of WWI affected Germany				
I can explain the threats to the Weimar Republic (political and economic)				
I can explain how hyperinflation affected people in Germany				
I can explain the Munich Putsch and how it can be viewed as both a failure and a success				
I can explain why 1924-28 is viewed as a 'Golden Age' for Weimar				
I can state how the Nazi party appealed to groups of people				
I can explain how Hitler was able to gain support and power in the 1930s				
I can explain what life was like in Germany under Nazi control for different groups (workers, women, Jews, the Youth)				
I can explain how Hitler used terror to control the people of Germany				

Year 11 Learning Cycle 2 Personal Learning Checklists

Hospitality & Catering

Key Ideas	S	O	R	T
I can use techniques in preparation of commodities (U2, LO3, AC3.1)				
I can assure quality of commodities to be used in food preparation (U2, LO3, AC 3.2)				
I can use techniques in cooking of commodities (U2, LO3, AC3.3)				
I can complete dishes using presentation techniques (U2, LO3, AC3.4)				
I can use food safety practices (U2, LO3, AC3.5)				
I can evaluate dishes I have prepared (U2, LO4, AC4.1)				
I can reflect on my own performance (U2, LO4, AC4.2)				
I can explain different types of establishment and food service used in the hospitality and catering industry				
I can explain the responsibilities of an employer and employee along with legal requirement				
I can explain the roles and responsibilities of front of house and the kitchen brigade as well as the rest of back of house				
I understand of ensuring an establishment meets a customer's requirements				

Performing Arts

Key Ideas	S	O	R	T
I understand how to interpret a brief and generate ideas from a stimulus				
I can practically explore a theme through workshopping ideas				
I understand how to tailor a performance to a specific target audience				
I can identify which practitioners would link to my chosen style of performance				
I can demonstrate effective use of performance skills and techniques in performance				
I know how to evaluate the creative process and end product				

Spanish

Key Ideas	S	O	R	T
I can talk/write about celebrations, special occasions and eating out				
I can talk/write about healthy eating, illness and injury				
I can talk/write about the environment				
I can talk/write about family and relationships				
I can talk/write about school				
I can talk/write about holidays and where I live				
I can talk/write about work and future plans				

Year 11 Learning Cycle 2 English - 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 11 Learning Cycle 2 English - 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 11 Learning Cycle 2 English - 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 expose 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 11 Learning Cycle 2 English - 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 necessities" 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 11 Learning Cycle 2 English - Section A - READING 40 marks (50% of Language Paper 1 - 1 hour)

1. The questions

Question 1: Select four true statements [4]

- ✓ 5 minutes
- ✓ Mark out the line numbers.
- ✓ Use 'T' or 'F' next to the statements before making your final decisions.
- ✓ Shade the oval once you are certain of your answers.

Question 2: Summary question - compare both sources - quotes + inference. [8]

- ✓ 10 minutes
- ✓ Focusing on the narrow focus in the question, highlight key quotes.
- ✓ Write your answer using two SQUID paragraphs.

Question 3: Language [12]

- ✓ 10 minutes
- ✓ Select important language methods features to analyse, including word choice.
- ✓ Write your answer using What, How, Why paragraphs.

Question 4: Question 4: Comparing writers' viewpoints and methods [16]

- ✓ 20 minutes
- ✓ Use all of both sources
- ✓ Compare viewpoints and methods used to present these viewpoints
- ✓ Language, tone, structure
- ✓ VEMAD > connective > VEMAD x3
- ✓ VEMAD= Viewpoint, Evidence, Method, Analysis, Difference

2. Sentence Starters for Question 2 (SQUID)

Whilst source A...source B...which shows...

The writer in source A...however in source B this is...

Although source B presents...source A portrays...

In contrast to source A, source B...

This differs to source A as...which implies...

The...in source A are...in comparison to source B...

3. Words to identify writers' viewpoints

😊		☹️	
Composed	feeling in control and calm	Remorseful	sorry for your actions, guilty
Content	quietly happy	Suspicious	being unsure and cautious about something or someone
Assured	confident	Perplexed	confused
Untroubled	having no worries	Indignant	unwilling to believe something
Curious	interested and wanting to know more	Unsettled	on edge, slightly worried or scared
Captivated	having your attention held by something beautiful or exciting	Overwhelmed	feeling sudden, strong emotions
Delighted	very pleased	Dejected	sad and lacking in hope
Euphoric	extremely happy or excited	Indifferent	not caring about something
Grateful	thankful	Disgusted	a strong feeling of dislike for something unpleasant
Optimistic	hopeful and confident about the future	Enraged	extremely angry
		Pessimistic	negative about the future, believing the worst will happen

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	• Conveys	• Implies	• Intimates	• Emphasises	• Accentuates	• Relates to	• Mirrors	• Evokes	
• Demonstrates	• Presents	• Hints at	• Indicates	• Underlines	• Underscores	• Contrasts	• Diverges from	• Establishes	
• Exposes	• Depicts	• Connotes	• Alludes to	• Reiterates (for something shown more than once)		• Echoes	• Augments	• Symbolises	
• Tells the reader/ audience						• Juxtaposes	• Develops		

Year 11 Learning Cycle 2 English - Section A – READING 40 marks (50% of Language Paper 1 – 1 hour)

5. Connectives for Developing Ideas

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

6. Inference (Q2)

Inference means **working things out based on the evidence** in a text. It does not mean writing the meaning of a quotation – this is paraphrasing.

Example:

The writer describes the footballer as “assuring his place in history with the quickest goal”. We can infer that he is an incredibly skilled footballer and that people will admire him for a long time for his ability. We might also infer that he has worked hard to hone his skills and develop his strategy on the pitch.

7. Language Methods Terms (use these in Q3 and Q4)

noun	words that name a person, thing, idea or feeling
adjectives	words that describe a noun
verb	describes an action, event, situation or change
adverb	gives information about a verb; a word that tells you how something is done
sensory imagery	when the writer uses the senses to create pictures in our minds
repetition	Using a word or phrase more than once
simile	Something is compared to something else using the words 'like' or 'as'
metaphor	something is described as something else
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	sound words; words that sound like their meaning

pathetic fallacy	weather reflects the mood
hyperbole	purposely exaggerated ideas
juxtaposition	purposely exaggerated ideas
symbol	the use of characters, events or ideas to represent something broader
pathos	evoking strong emotions in the reader e.g. sympathy or sadness
ethos	using information or research to present the writer as knowledgeable and credible
logos	using logic to give ideas that cannot be argued with
rhetorical question	a question worded in such a way to make a reader think from a particular perspective
direct address	using the word 'you' to speak directly to the reader
personal anecdote	using the word 'you' to speak directly to the reader
triple / tricolon	using three words or short phrases to emphasise a point
reported speech	words spoken by someone, marked out using speech marks
analogy	a comparison between things that have similar features e.g. you might use the analogy of a box of chocolates to explain the variety of life

8. Structure Methods Terms (use these for Q4)

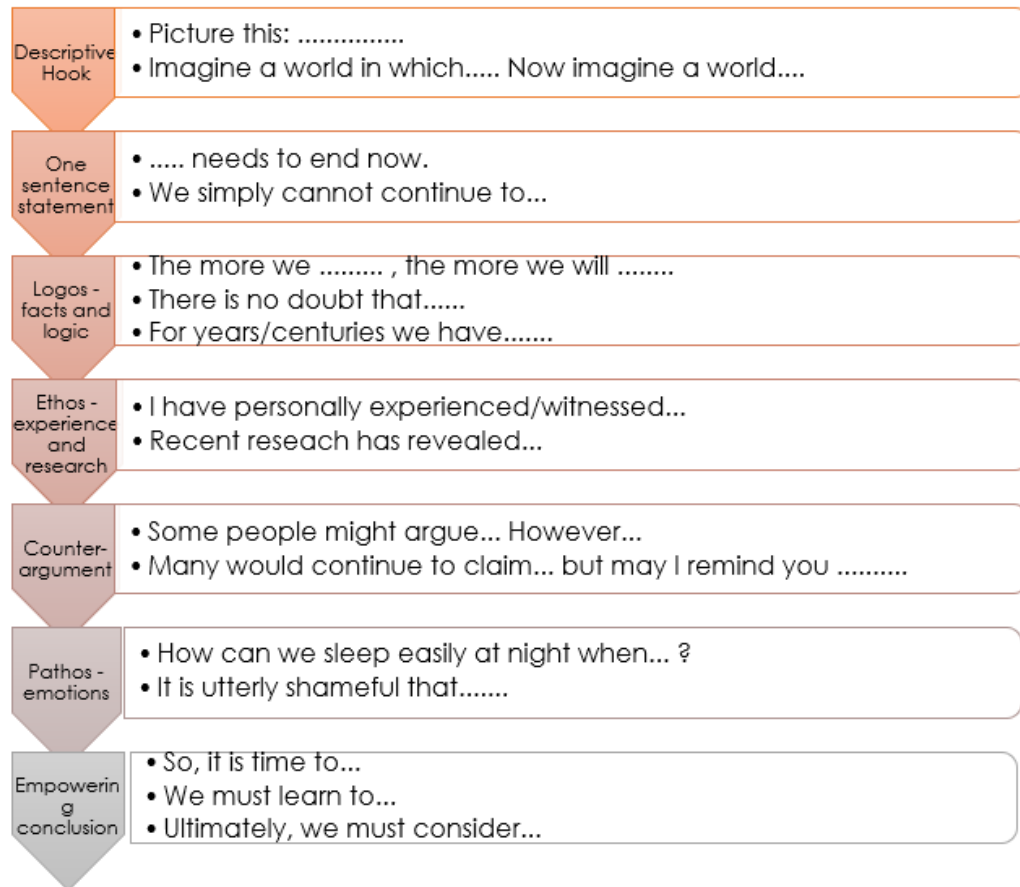
opening	the way the extract begins
character introduction	the first description of a person in the text
cyclical	ends the same way it begins
focusing attention	our attention is aimed at something
building	when an idea/tension is increased
developing	an earlier point is extended
narrative shift	a swift or change of focus
zooming in	detailed description of something
zooming out	showing the reader the bigger picture
flash-forward	presents future events
foreshadowing	hints at what's to come
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 11 Learning Cycle 2 English - Section B - WRITING 40 marks (50% of Language Paper 1 - 45 minutes)

9. Approaching the Question

Plan - 5 minutes > Write 30 minutes > Proof-read 5 minutes

10. Suggested Structure



11. The Mark Scheme

Have you:

Content and Organisation /24	a) Register matches audience and purpose	<ul style="list-style-type: none"> Used a descriptive, creative style? Included a range of descriptive methods, including simile, metaphor, personification and imagery?
	b) Vocabulary and linguistic devices	<ul style="list-style-type: none"> Used a range of interesting and challenging word choices? Used thoughtful, challenging descriptive methods,
	c) Structural features	<ul style="list-style-type: none"> Crafted an engaging opening and a thoughtful ending? Included foreshadowing, a flashback or flashforward, a motif or circular structure?
	d) Ideas	<ul style="list-style-type: none"> Included interesting and convincing ideas? Linked your ideas together coherently throughout the narrative or description?
	e) Paragraphing	<ul style="list-style-type: none"> Used paragraphs in your extended writing and linked them together? Used a range of paragraph lengths for effect?
Technical Accuracy /16	f) Sentence demarcation	<ul style="list-style-type: none"> Ended your sentences correctly, using a full stop, exclamation mark or question mark? Avoided comma splicing?
	g) Punctuation	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Used a range of minor, simple, compound and complex sentences? Used a range of sentence starters?
	i) Standard English	<ul style="list-style-type: none"> Used formal word choices? Used grammatically correct phrases?
	j) Spelling	<ul style="list-style-type: none"> Used correct spellings? Selected correct homophones e.g. there/their/they're; to/too/two; weather/whether.
	k) Vocabulary	<ul style="list-style-type: none"> Used a range of challenging word choices precisely?

Year 11 Learning Cycle 2 English - Section B – WRITING 40 marks (50% of Language Paper 1 – 45 minutes)

12. Vocabulary

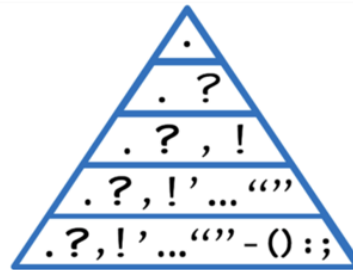
Expressing a Negative Opinion

Fronted adverbial	Verb phrase	Adverb	Adjective
Unfortunately	I find it	mildly	discomforting
increasingly	the situation seems to be	inconceivably	awful
regrettably	we are faced with a	utterly	mortifying
lamentably	many people ignore the	unimaginably	absurd
disappointingly	our reaction to this is	downright	appalling
laughably	this state of affairs is		upsetting
preposterously	I believe that it is		problematic

Expressing a Positive Opinion

Fronted adverbial	Verb phrase	Adverb	Adjective
Happily	I find it	mildly	encouraging
thankfully	the situation seems to be	wonderfully	reassuring
increasingly	we are faced with a	amazingly	invaluable
fortunately	our reaction to this is	pleasingly	beneficial
encouragingly	many people realise the	undoubtedly	advantageous
reassuringly	I believe that it is	unquestionably	delightful
			rewarding
			motivational

13. Punctuation



Full stops are used to separate full sentences. We never use a comma to separate two full sentences.

Commas are used:

- to separate clauses (groups of words) that add extra information but wouldn't make sense on their own
- after an introductory word or phrase in a sentence
- to separate items in a list

Dashes are used to separate extra information in a sentence that wouldn't make sense on its own and to show this extra information is important.

We are under pressure. We cannot escape from the burden of expectations placed upon us. Every day feels like a monotonous, uphill battle - a battle with ourselves, our workload, our stress.

One problem is more influential than any other: homework. It disrupts our sleep, as we are often given so much that we are forced to complete it into the early hours, which then leaves us exhausted, which makes it harder to learn at school, which leads to less understanding of what is being taught, which increases stress, which further impacts our ability at school. Homework must be abolished; it cannot continue to be a hindrance to our learning.

Colons are used to introduce or explain an idea, problem or situation that has been presented in the sentence that comes before OR to introduce a complicated list.

Semi-colons are used to separate two full sentences closely linked in meaning.

14. Sentence Structures

Triple

Crisp packets, coffee cups and chewing gum are the most common things discarded on our street – just minutes from the coast – and left to blow into the ocean.

Double adjective starter

Unightly and dangerous, litter is the scourge of our society

Brackets although

Some young people do take this issue seriously (although not everyone credits them with this) and there is already an emerging positive impact.

Question

Why are we not able to reject this way of living?

Colon one word/phrase

We can adopt one lifestyle change immediately: recycling.

Verb beginning

Showing your support is simple.

Anaphora

Imagine a world in which forest paths were lined with greenery, not plastic. Imagine a world where flowers were not outshone by a pile of lurid dog poo bags. Imagine a world where you could breathe fresh, clean air.

The more the more the more

The more litter that is dropped, the more ugly our world becomes, and the more difficult it is to change our habits.

Year 11 Learning Cycle 2 English - Romeo and Juliet

1. Plot

1a = Prologue: A sonnet, recited by the chorus, outlines the play. **Act 1 Act I, Scene 1:** Capulet and Montague servants fight in the streets. Benvolio tries to break them up, but Tybalt arrives and challenges him. The Prince arrives and declares that any further fighting will be punished with death. After this, the Montagues discuss Romeo's melancholy state and Benvolio learns Romeo is in love with Rosaline. **Act I, Scene 2:** Paris seeks Capulet's permission to marry his daughter Juliet. Capulet says she is too young, but Paris should try to win her affections at his banquet. Capulet's invitation list is intercepted by Benvolio and Romeo, who decide to attend the event. **Act I, Scene 3:** The Nurse and Lady Capulet tell Juliet about Paris, and she agrees to consider him as a potential suitor. **Act I, Scene 4:** Romeo, Benvolio, and Mercutio arrive at the banquet, and Mercutio banters with Romeo. **Act I, Scene 5:** Romeo and Juliet see each other and fall in love immediately. Tybalt sees Romeo and wants to fight him, but Lord Capulet stops him.

1b = Act 2 Act II, Scene 1: Romeo separates himself from his friends as they leave the party. **Act II, Scene 2:** Romeo listens to Juliet at her balcony, and they exchange vows to marry. Juliet says she will send a messenger to Romeo the next day to arrange the wedding. **Act II, Scene 3:** Romeo goes to see Friar Lawrence to ask for his help with marrying Juliet. The Friar agrees, hoping that their alliance will end their families' feuding. **Act II, Scene 4:** Benvolio and Mercutio discuss Tybalt, who has challenged Romeo to a duel. Romeo arrives and the friends banter about his love. The Nurse appears; Romeo's friends depart. Romeo gives the Nurse a message for Juliet: she is to go to Friar Lawrence that afternoon, and they shall be married. He arranges for the Nurse to receive a rope-ladder for Juliet to lower for him that night. **Act II, Scene 5:** The Nurse returns to an impatient Juliet. She teases her charge by withholding the message but then tells her the good news. **Act II, Scene 6:** Juliet comes to Romeo in Friar Lawrence's cell, and they greet each other joyfully. The Friar prepares to marry them.

1c = Act 3 Act III, Scene 1: Benvolio and Mercutio encounter Tybalt, and Mercutio mocks him. Romeo arrives and refuses to accept Tybalt's challenge to a duel (due to his secret marriage to Juliet). Mercutio thinks this is cowardly so fights on his behalf. Romeo tries to intervene and Mercutio is killed under his arm, cursing the families as he dies. Romeo fights and kills Tybalt to get revenge. At Benvolio's urging, Romeo flees. The Prince appears and interrogates Benvolio. Judging Tybalt to be guiltier than Romeo, he spares the latter the death sentence but banishes him from Verona. **Act III, Scene 2:** Juliet longs for night, when Romeo is to come. The Nurse brings her word of Tybalt's death and Romeo's banishment, and volunteers to bring Romeo to the distraught girl. **Act III, Scene 3:** Romeo is in a state of anger and disbelief, hiding with the Friar. The Nurse arrives with word of Juliet's distress. The Friar chastises Romeo for behaving so foolishly and proposes that, after a night with Juliet, Romeo should flee to Mantua until everything is cleared up. Romeo agrees and leaves. **Act III, Scene 4:** Capulet decides to marry Juliet to Paris in three days to cheer her up. **Act III, Scene 5:** Romeo and Juliet awake after spending the night together and Romeo leaves. Lady Capulet arrives and tells Juliet about her impending marriage. Juliet refuses and her parents fly into a rage. The Nurse advises that Juliet ignore her marriage to Romeo, which no one else knows about, and marry Paris.

1d = Act 4 Act IV, Scene 1: Juliet interrupts Paris talking to Friar Lawrence and, when he leaves, threatens to kill herself if the Friar doesn't help her. He agrees to provide her with a potion that will make her seem to be dead, until Romeo collects her from the family crypt. **Act IV, Scene 2:** Juliet apologizes to her father, promising to obey him and marry Paris. Capulet moves the wedding up a day to the next morning. **Act IV, Scene 3:** Juliet drinks the potion. **Act IV, Scene 4:** Capulet sends the Nurse to awaken Juliet on the morning of her wedding day. **Act IV, Scene 5:** The Nurse finds Juliet dead and the family grieve for her.

1e = Act 5 Act V, Scene 1: Balthasar arrives in Mantua and tells Romeo that Juliet has died. Romeo immediately plans to join her and buy a poison from an apothecary. **Act V, Scene 2:** Friar John reports to Friar Lawrence that he has been unable to deliver Lawrence's letter to Romeo. Lawrence sends John to fetch a crow bar, planning to open the vault and take Juliet into hiding in his own cell until Romeo can be summoned. **Act V, Scene 3:** Paris visits Juliet's tomb at night. Romeo appears with Balthasar, whom he sends away with a letter to Montague. Paris steps forth to challenge him. They fight, and Romeo kills Paris. Romeo then enters the crypt, drinks the poison, and dies. Friar Lawrence arrives tells Juliet what has happened and begs her to flee. She refuses and stays. She kisses her dead lover and stabs herself with his dagger. The watchmen appear, arresting Balthasar and the Friar as the Prince arrives, followed by both families. The Friar explains what has happened, and his tale is confirmed by Balthasar and by Romeo's letter to his father. Montague and Capulet make peace and vow to erect golden statues of the two lovers.

Year 11 Learning Cycle 2 English - Romeo and Juliet

2. Top twenty quotations

1. "A pair of star-crossed lovers take their life."
2. "Nay, as they dare. I will bite my thumb at them, which is a disgrace to them."
3. "Why then, O brawling love! O loving hate! O any thing, of nothing first create!"
4. "I fear too early, for my mind misgives Some consequence yet hanging in the stars Shall bitterly begin his fearful dare With this night's revels."
5. "Now by the stock and honour of my kin / to strike him dead I hold it not a sin."
6. "For saints have hands that pilgrims' hands do touch, / And palm to palm is holy palmers' kiss."
7. "But, soft, what light through yonder window breaks? / It is the east, and Juliet is the sun."
8. "With love's light wings did I o'erperch these walls."
9. "Deny thy father and refuse thy name."
10. "This alliance may so happy prove to turn your household's rancour to pure love."
11. "These violent delights have violent ends."
12. "If we meet we shall not 'scape a brawl, For now, these hot days, is the mad blood stirring."
13. "Ask for me tomorrow and you shall find me a grave man."
14. "A plague o' both your houses!"
15. "Give me my Romeo. And when I shall die, Take him and cut him out in little stars, and he will make the face of heaven so fine."
16. "O serpent heart, hid with a flowering face! / Did ever dragon keep so fair a cave? / Beautiful tyrant! fiend angelical!"
17. "Hang thee, young baggage, disobedient wretch! ... get thee to church o' Thursday, / Or never after look me in the face."
18. "I would the fool were married to her grave."
19. "I think it best you married with the County. / O, he's a lovely gentleman."
20. "All are punish'd."

3. Main Characters

3a = Romeo Montague - the male heir to the dynasty of House Montague, which is in a long-standing feud with House Capulet. A young man of about sixteen, Romeo is **handsome, intelligent, and sensitive**. Though impulsive and immature, his idealism and passion make him an extremely likable character. He lives in the middle of the violent feud but he is not interested in violence.

3b = Juliet Capulet - a shy and innocent girl at the beginning of the play, but the depth of her character shows as she meets Romeo, defies her father, marries Romeo, and ultimately commits suicide. While appearing quiet and obedient, Juliet displays inner strength, intelligence, bravery, wit, and independence.

3c = Mercutio - With a **lightning-quick wit and a clever mind**, Mercutio is a scene stealer and one of the most memorable characters in all of Shakespeare's works. Though he constantly **puns, jokes, and teases** - sometimes in fun, sometimes with bitterness - Mercutio is not a mere jester. With his **wild words**, Mercutio punctures the romantic sentiments that exist within the play. He **mocks** Romeo's self-indulgence just as he ridicules Tybalt. Unlike the other characters who blame their deaths on fate, Mercutio dies cursing all Montagues and Capulets, believing that specific people are responsible for his death.

3d = The nurse - The Nurse's main role in the play is that of a **secondary mother figure** for Juliet. The Nurse clearly enjoys a closer relationship with Juliet than Lady Capulet does. This isn't surprising, given the amount of responsibility she had in caring for Juliet since her birth. Just as she is a surrogate mother for Juliet, so too is Juliet a surrogate daughter for the Nurse.

3e = Friar Lawrence - He occupies a strange position in Romeo and Juliet. He is a **kind-hearted** Franciscan monk who helps Romeo and Juliet throughout the play. He performs their marriage and gives generally **good advice**. He is the sole figure of religion in the play. But Friar Lawrence is also the most **scheming and political** of characters in the play: he marries Romeo and Juliet as part of a plan to end the civil strife in Verona; he spirits Romeo into Juliet's room and then out of Verona; he devises the plan to reunite Romeo and Juliet through the deception of a sleeping potion.

3f = Benvolio - The **peacemaker**, amongst a group of hot-headed characters, Benvolio Montague, cousin to Romeo, is a character who significantly moves the plot along, helping Romeo along the way to discover his true love.



Year 11 Learning Cycle 2 English - Romeo and Juliet

4. Critical Tier 2 Vocabulary

Shakespeare presents the Montagues and their supporters as...

4a = Romeo

1. Melancholic – someone who is prone to moping and being depressed.
2. Quixotic – extremely idealistic: unrealistic and impractical.
3. Ardent – enthusiastic and passionate.

4b = Benvolio

1. Appeasing – someone who tries to pacify others.
2. Sincere – honest and genuine.
3. Stalwart – loyal and reliable.

4c = Mercutio

1. Anarchic – unruly and chaotic.
2. Impulsive – someone who acts on a whim, without thinking.
3. Precocious – someone who ‘shows off’ their intelligence arrogantly.

Shakespeare presents the Capulets and their supporters as...

4d = Juliet

1. Idealistic – someone who believes whole-heartedly in something, even if it is unrealistic.
2. Ingenuous – innocent, naïve and unworldly.
3. Resolute – someone who has made their mind up and whose opinion cannot be changed.

4e = Tybalt

1. Volatile – someone who could explode at any moment.
2. Tempestuous – someone who is unpredictable and has many conflicting emotions.
3. Righteous – someone who believes what they are doing is morally justifiable.

4f = Nurse

1. Maternal – motherly.
2. Submissive – will bend to a dominant authority and ‘do what they are told’
3. Uncouth – uncivilised and uncultured, potentially vulgar.

5. Motifs in ‘Romeo and Juliet’

5a = Night and Day Romeo and Juliet complicates traditional notions of light versus dark and day versus night. Light is typically a symbol of openness, purity, hope, and good fortune, while dark often represents confusion, obscurity, and doom. Shakespeare, however, turns these commonplace associations on their heads and inverts both symbols. In the world of this play, dawn, day, and bright lights are, overwhelmingly, negative—night, the only time Romeo and Juliet can be together in secret, is the time of day they both long for, and together they grow to lament the arrival of the days that pull them apart.

5b = Light and Darkness When Romeo initially sees Juliet, he compares her to the brilliant light of the torches and that illuminate Capulet's great hall. Juliet is the light that frees him from the darkness of his melancholia. In turn, Juliet compares Romeo and the bond that they share with radiant light. However, despite all the positive references to light in the play, it ultimately takes on a negative role, forcing the lovers to part at dawn. From this point on, darkness becomes the central motif. The beauty and brevity of love itself is highlighted and the darkness triumphs, the Prince indicating this when he tells the other characters that the sun will not appear.

6. Context

6a = Queen Elizabeth I – She was queen while Shakespeare was writing ‘Romeo and Juliet’, and supported him. Elizabeth I made Protestantism the official religion of England, which angered many Catholics, and led to much conflict. Shakespeare may be referencing this with the two warring families.

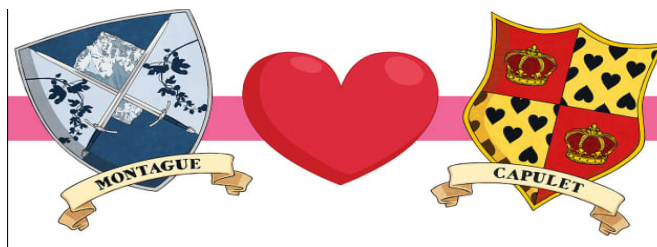
6b = Patriarchy – patriarchal societies are ones where men are dominant, and have control over women e.g. by choosing who they would marry.

6c = Nurses – employed by wealthy families to feed and care for their children.

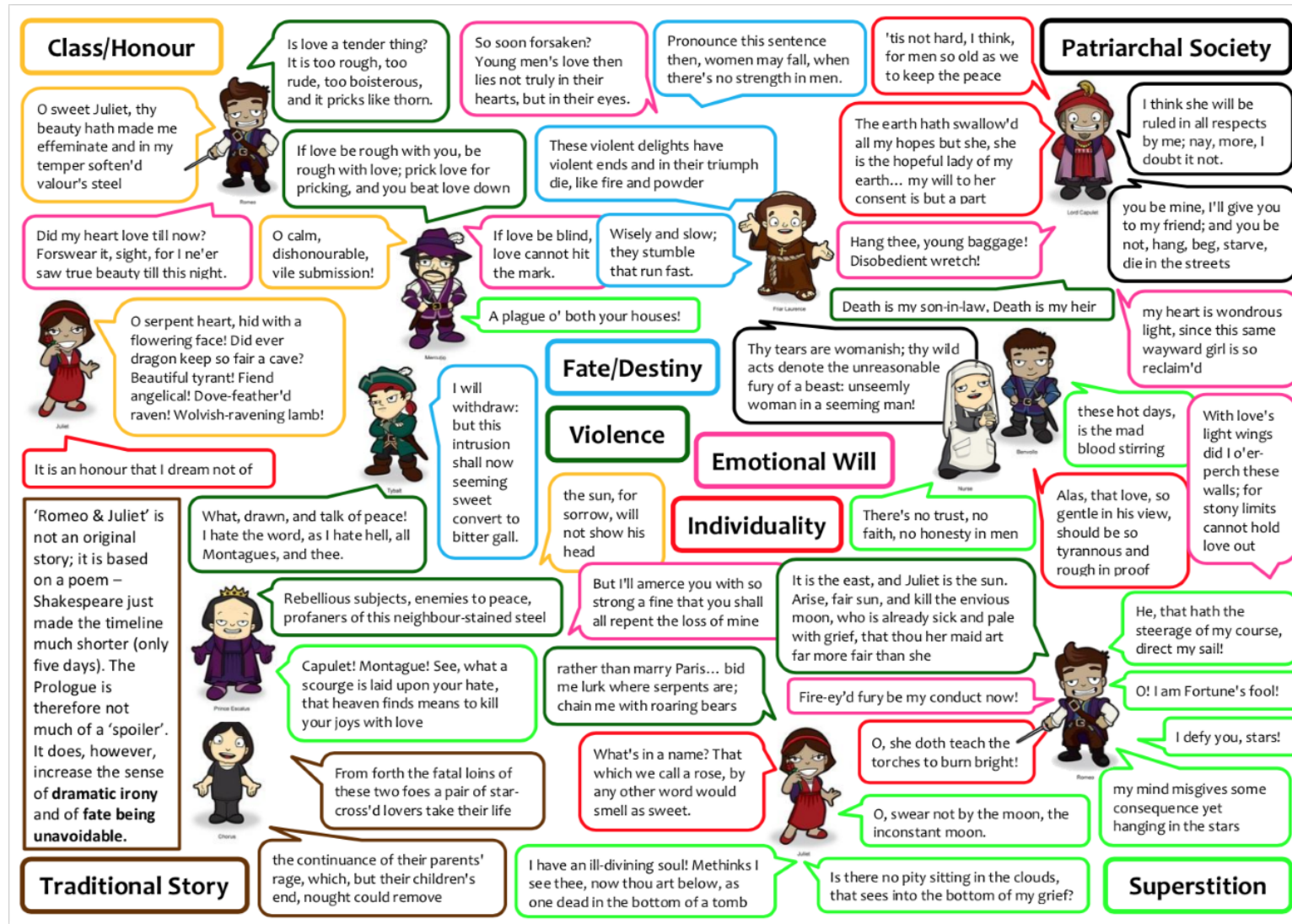
6d = The Church – the play is set in Catholic Verona and Shakespeare might have used the Friar Laurence as vehicle for criticising how the Catholic Church was seen to interfere too much in people's lives.

6e = Fate – the belief that your life is mapped out for you, or ‘written in the stars’. Many Elizabethans believed God decided your fate, and that astrology could help you identify your course in life.

6f = Bubonic Plague/Black Death – a plague that killed many people. Sufferers were quarantined in their houses, with a red ‘X’ painted on the door, and left to die.



Year 11 Learning Cycle 2 English - Romeo and Juliet



7. Authorial Intent

Shakespeare did not invent the story of Romeo and Juliet. He did not, in fact, even introduce the story into the English language. A poet named Arthur Brooks first brought the story of 'Romeus and Juliet' to an English-speaking audience in an epic poem. Many of the details of Shakespeare's plot are lifted from Brooks's poem, including the meeting of Romeo and Juliet at the ball, their secret marriage, the sleeping potion, and the timing of the lover's eventual suicides. Such appropriation of other stories is characteristic of Shakespeare, who often wrote plays based on earlier works. **However, he may have chosen to adapt Brook's poem for the stage to...**

7a = To highlight... the subordinate position of women in a patriarchal society, and particularly the traditional view that daughters were a commodity and could be used in marriage to forge useful alliances.

7b = To recognise... the futility of generational conflict and the human cost of warring and civil unrest.

7c = To question... the idea of agency and fate and make people consider the implications of their actions.

Year 11 Learning Cycle 2 Maths

1. Number

Topic	Topic Code	Rag Rating		
		R	A	G
Ordering positive integers	U600			
Ordering decimals	U435			
Ordering negative numbers	U947			
Adding and subtracting positive integers	U417			
Multiplying and dividing positive integers	U127, U453			
Adding and subtracting negative numbers	U742			
Multiplying and dividing negative numbers	U548			
Adding and subtracting decimals	U478			
Multiplying and dividing with place value	U735			
Multiplying and dividing with decimals	U293, U868			
Order of operations	U976			
Prime numbers, prime factorisation	U236, U739			
Factors, multiples, HCF and LCM	U211, U751, U529			
Powers and roots	U851			
Using standard form	U330, U534			
Calculating with standard form	U264, U290, U161			
Equivalent fractions and simplifying fractions	U704, U646			
Mixed numbers and improper fractions	U692			
Ordering fractions	U746			
Addition and subtraction of fractions	U736, U793			
Multiplication and division of fractions	U475, U544			
Converting and ordering fractions, decimals and percentages	U888, U594			
Fractions of amounts	U881, U916			
Percentages of amounts	U554, U349			
Percentage change	U773, U671			
Reverse percentages	U286, U278			
Simple interest	U533			
Rounding	U480, U298			
Rounding to significant figures	U731, U965			
Estimating answers	U225			
Value for money	M681			

2. Statistics

Topic	Topic Code	Rag Rating		
		R	A	G
Collecting data, frequency tables	U322, U120			
Two-way tables	U981			
Bar charts	U363, U557			
Pictograms	U506			
Pie charts	U508, U172			
Stem and leaf diagrams	U200, U909			
Mode	U260			
Mean	U291			
Median	U456			
Range	U526			
Choosing averages	U717			
Scatter graphs	U199, U277, U128			

3. Ratio and proportion

Topic	Topic Code	Rag Rating		
		R	A	G
Simplifying ratios	U687			
Sharing amounts in a ratio	U753, U577			
Converting between ratios, fractions and percentages	U176			
Direct proportion	U721, U640			
Inverse proportion	U357, U364			
Proportion graphs	U238			
Units of measure: Length, Mass and Capacity	U102, U388			
Units of measure: Time	U902			
Units of measure: Area	U248			
Currency conversion	U610			
Conversion graphs	U652, U638, U862			
Compound units: Speed	U151			

Year 11 Learning Cycle 2 Maths

4. Probability

Topic	Topic Code	Rag Rating		
		R	A	G
Probability scale	U803			
Probability of single events	U408, U510, U683			
Experimental probability	U580			
Expected outcomes	U166			
Listing elements in a set	U748, U296			
Probability from Venn diagrams	U4765			
Frequency trees	U280			
Sample space diagrams	U104			
Tree Diagrams	U558, U729			

5. Algebra

Topic	Topic Code	Rag Rating		
		R	A	G
Algebraic expressions	U322, U120			
Collecting like terms	U981			
Substitution	U363, U557			
Expanding brackets	U506			
Factorising expressions	U508, U172			
Index laws	U200, U909			
Changing the subject	U260			
Coordinates	U291			
Midpoints	U456			
Plotting straight line graphs	U526			
Equations of straight line graphs	U717			
Parallel lines	U199, U277, U128			
Distance-time graphs	U199, U277, U128			
Quadratic graphs	U199, U277, U128			
Linear equations	U199, U277, U128			
Quadratic expressions and equations	U199, U277, U128			
Linear sequences	U199, U277, U128			
Other sequences	U199, U277, U128			

6. Geometry

Topic	Topic Code	Rag Rating		
		R	A	G
Properties of 2D shapes	U121, U849			
Properties of 3D shapes	U719			
Nets of 3D shapes	U761			
Angles: Measuring, Drawing and Estimating	U447			
Angle on a line and about a point	U390			
Vertically opposite angles	U730			
Angles on parallel lines	U826			
Angles in a triangle	U628			
Combining angle facts	U655			
Angles in a quadrilateral	U732, U329			
Angles in polygons	U427			
Bearings	U525, U107			
Translations	U196			
Reflections	U799			
Enlargements	U519			
Rotations	U696			
Congruence	U790, U866			
Area and perimeter of simple shapes	U993, U970, U351, U226			
Area of triangles, parallelograms and trapeziums	U945, U575, U424, U265, U343			
Circles	U767			
Circumference	U604, U221			
Circle area	U950, U373			
Surface area	U929, U259, U871			
Volume of cuboids	U786			
Volume of prisms and cylinders	U174, U915			
Similar shapes	U551, U578			
Scale diagrams	U257			

Year 11 Learning Cycle 2 Maths - Higher

1. Number

Topic	Topic Code	Rag Rating		
		R	A	G
Calculating with roots and fractional indices	U851, U985, U772, U299			
Converting recurring decimals to fractions	U689			
Surds	U338, U663, U872, U499			
Rationalising the denominator	U707, U281			
Error intervals	U657, U301, U587			

2. Statistics

Topic	Topic Code	Rag Rating		
		R	A	G
Averages	U877, U717			
Cumulative frequency diagrams	U182, U642			
Box plots	U879, U837, U507			
Frequency polygons	U840			
Histograms	U814, U983, U267			
Capture-recapture	U328			

3. Probability

Topic	Topic Code	Rag Rating		
		R	A	G
Product rule for counting	U369			
Conditional probability	U246, U821, U806			
Probability from Venn diagrams	U476, U748, U699			

4. Geometry

Topic	Topic Code	Rag Rating		
		R	A	G
Congruence proofs	U866, U887			
Enlargements	U134			
Describe combined transformations	U766			
Circle theorems: Angles inside a circle	U459, U251			
Circle theorems: Tangents and chords	U489, U130			
Circle theorems: Tangents and chords	U808			
Prove circle theorems	U807			
Volume of frustums	U350			
Volume: Problem solving	U543, U426			
Similar Shapes: Area and volume	U630, U110			
Pythagoras' Theorem in 2D and 3D	U385, U541			
Right-angled trigonometry: Problem solving	U319, U283, U545, U967			
3D trigonometry	U170			
The area rule	U592			
Sine rule	U952			
Cosine rule	U591			
Trigonometry and bearings	U164			
Vectors problems	U781, U560			

5. Algebra

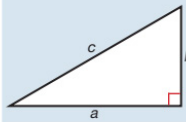
Topic	Topic Code	Rag Rating		
		R	A	G
Expanding triple brackets	U606			
Operations with algebraic fractions	U685, U457, U824			
Factorising quadratic expressions: ax^2+bx+c	U858			
Simplifying algebraic fractions	U294			
Factorising to solve quadratics equations	U228, U960			
Factorising to solve quadratics equations	U665			
Completing the square to solve quadratics	U397, U589			
Quadratic equations in context	U150			
Quadratic simultaneous equations	U547			
Index laws	U235, U694, U662			
Equation of a straight line: Perpendicular lines	U898			
Quadratic graphs: Turning points	U769			
Quadratic simultaneous equations on graphs	U875			
Exponential graphs	U229			
Exponential growth and decay problems	U988			
Trigonometric graphs	U450			
Graph transformations	U598, U487, U455			
Velocity-time graphs	U937, U562, U611			
Rate of change graphs	U638, U652, U862			
Estimating gradient from a curve	U800			
Estimating area under a curve	U882			
Equation of a circles and tangents	U567			
Linear inequalities as graph regions	U747			
Quadratic inequalities	U133			
Functions	U637, U895, U448, U996			
Recurrence relations	U171			
Quadratic sequences	U206			
Iteration and numerical methods	U434, U168			
Algebraic proof	U582			

Year 11 Learning Cycle 2 Maths - Key formulae

1. Pythagoras

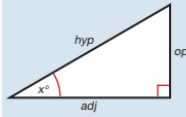
Pythagoras' Theorem

For a right-angled triangle,
 $a^2 + b^2 = c^2$



Trigonometric ratios (new to F)

$\sin x^\circ = \frac{\text{opp}}{\text{hyp}}$, $\cos x^\circ = \frac{\text{adj}}{\text{hyp}}$, $\tan x^\circ = \frac{\text{opp}}{\text{adj}}$

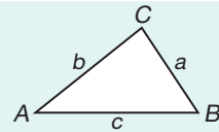


2. Trigonometric formulae

Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$

Area of triangle = $\frac{1}{2} ab \sin C$

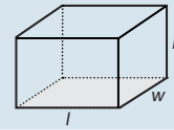


Foundation tier formulae

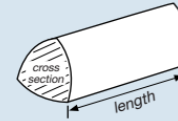
Higher tier formulae

3. Volumes

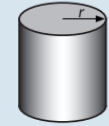
Cuboid = $l \times w \times h$



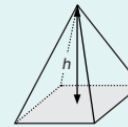
Prism = area of cross section \times length



Cylinder = $\pi r^2 h$

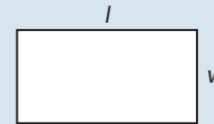


Volume of pyramid = $\frac{1}{3} \times$ area of base \times h

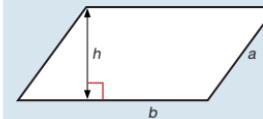


4. Areas

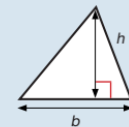
Rectangle = $l \times w$



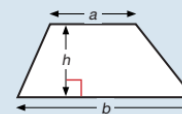
Parallelogram = $b \times h$



Triangle = $\frac{1}{2} b \times h$



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

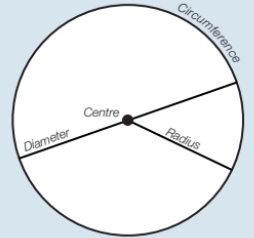


5. Circles

Circumference = $\pi \times$ diameter, $C = \pi d$

Circumference = $2 \times \pi \times$ radius, $C = 2\pi r$

Area of a circle = $\pi \times$ radius squared $A = \pi r^2$



6. Compound measures

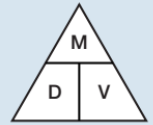
Speed

speed = $\frac{\text{distance}}{\text{time}}$



Density

density = $\frac{\text{mass}}{\text{volume}}$



Pressure

pressure = $\frac{\text{force}}{\text{area}}$



7. Quadratic equations

The Quadratic Equation

The solutions of $ax^2 + bx + c = 0$, where $a \neq 0$, are given by $x = \frac{-b \pm \sqrt{(b^2 - 4ac)}}{2a}$

Year 11 Learning Cycle 2 Maths

Command word	Meaning
Calculate	A calculator and some workings will be needed
Change	Usually convert from unit to another, either using known metric conversions or the use of a conversion graph
Complete	Fill in missing values
Describe	Write a sentence that gives the features of the situation
Draw	Produce an accurate drawing
Draw a sketch off.../Sketch	Produce a drawing that does not have to be drawn to scale or a graph that is drawn without working out each coordinate
Expand	Remove brackets
Expand and simplify	Remove brackets and collect the like terms
Explain	Write a sentence of mathematical statement to show how you got to your answer or reached your conclusion
Express	Re-write in another form, some working may be needed
Factorise	Insert brackets by taking out common factors
Factorise fully	Insert brackets by taking out all the common factors
Find	Some working will be needed to get to the final answer
Give a reason	Some working will be needed to get to the final answer
Justify	Must be clear and accurate reasons
Prove	More formal than "show", all steps must be present. In the case of a geometrical proof, reasons must be given
Show	All workings need to get a given answer or complete a diagram to show given information
Simplify	Simplify the given expression
Solve	Simplify the given expression
Write down	No working is needed

Year 11 Learning Cycle 2 Maths

x	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 expresses 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

o^o: This is the mean average time button and can do conversions between time units, as well as calculations with different times

Fraction button: can be used for any calculations with fractions

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



Sparx Maths

Homework will be set on Tuesdays and will be **due** at 7:30am on the following Tuesday

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

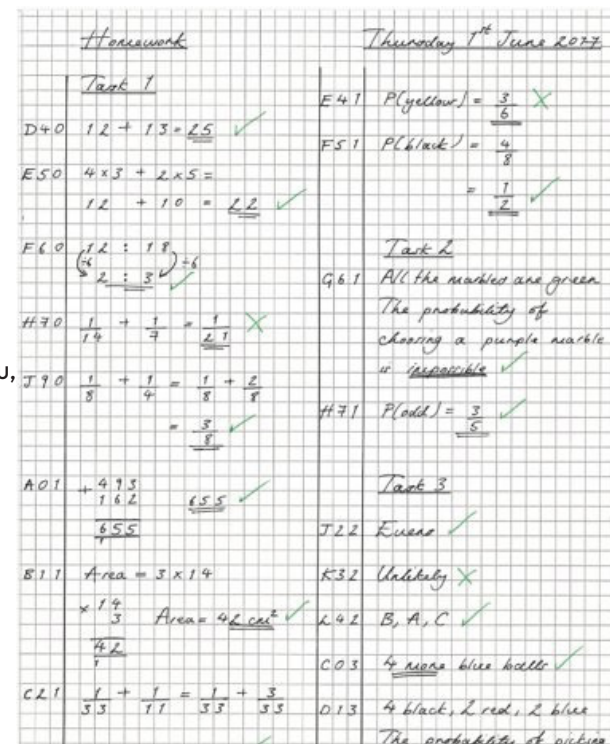
If you complete one of the extra homeworks- XP Boost or Target, you will receive another merit - they must be 100% complete

Sparx clinics will run Monday, Tuesday, Thursday in **W4** - a Maths teacher will be on hand to support you, if you are unsure of any of the notes covered

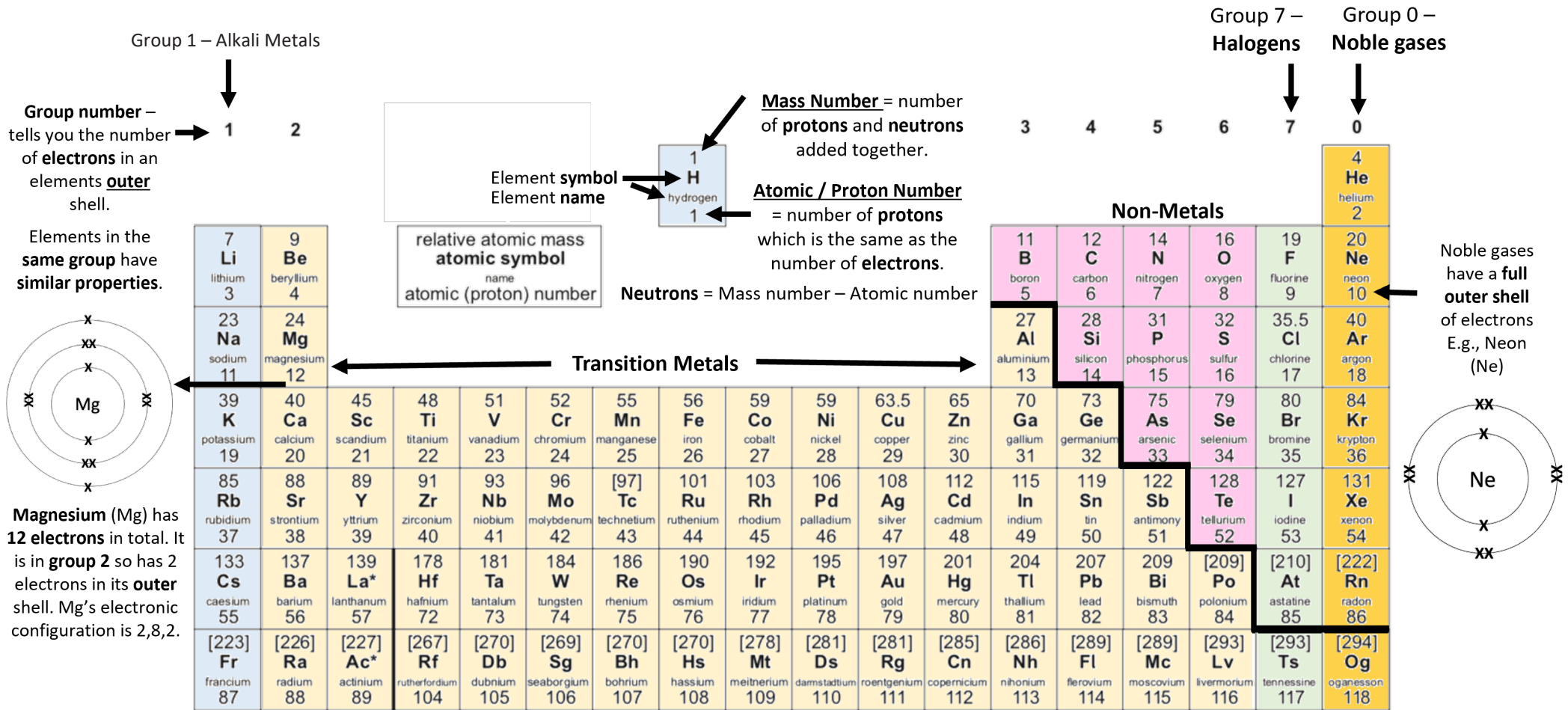
It is your responsibility to seek help **BEFORE** the deadline, if you get stuck

Your bookwork will be checked in lessons- you must write full workings for every question.

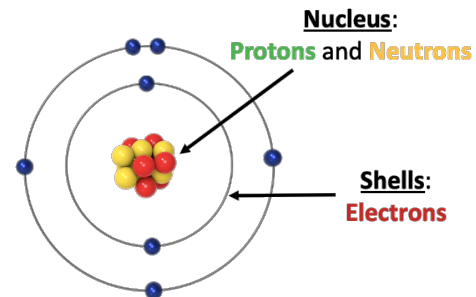
You must bring your homework book to the first lesson after Tuesday 7:30am- if you do not have your book, then you have not completed your homework



Year 11 Learning Cycle 2 Science - How can I use the Periodic Table?



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



Year 11 Learning Cycle 2 Science - Experiments

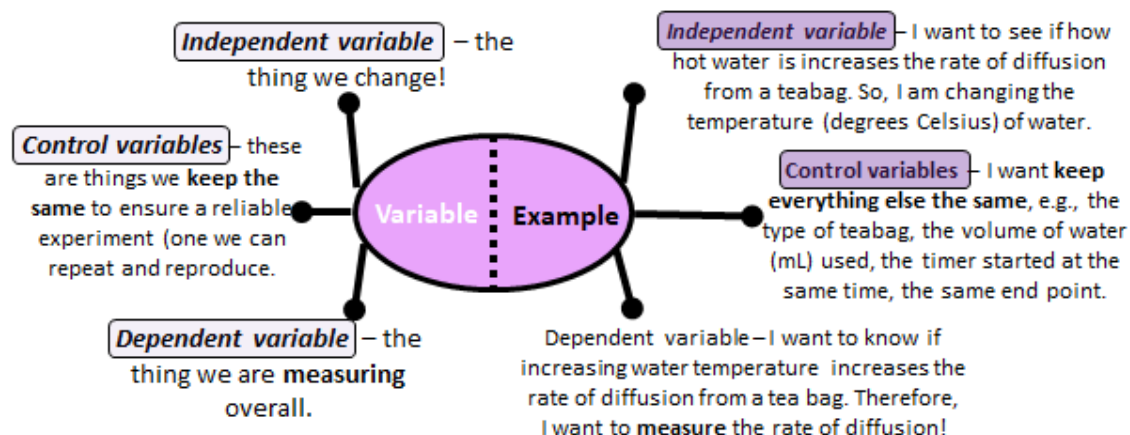
Key Terms	Description
Independent variable	The variable you change in an investigation
Dependent variable	The variable you measure in an investigation
Control variable	The variable you keep the same in an investigation
Hypothesis	A prediction of what will happen in an investigation
Reliability	We use 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.

1. 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**

2. The Variables



3. Presenting Data

SPLAT!

- Scale – evenly spread
- Plot – draw with a small, neat 'x'
- Line of best fit
- Axis – both X (bottom) and Y (side) axis have titles and units!
- Title

Axis: Dependent variable on Y-axis with Unit.

We must always draw a graph with a pencil and a ruler!

Title

Line: Line of best fit through near to as many points as possible.

Plot: Mark points with small, neat crosses

Axis: Independent variable in the X-axis with unit.

Drawing conclusions from data:

- State the **relationship** between the independent and dependent variable, e.g., **'as the time increases the product formed increases.'**
- Use statistics to support your answer.** 'For example, at 10 minutes there was 50g of product, compared to 160g at 20 minutes'
- 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 11 Learning Cycle 2 Science - How can I use the Physics equation sheet?

How can I use the Physics equation sheet?

Triple only equations

HT = Higher Tier only equations

kinetic energy = $0.5 \times \text{mass} \times (\text{speed})^2$	$E_k = \frac{1}{2} m v^2$
elastic potential energy = $0.5 \times \text{spring constant} \times (\text{extension})^2$	$E_e = \frac{1}{2} k e^2$
gravitational potential energy = mass \times gravitational field strength \times height	$E_p = m g h$
change in thermal energy = mass \times specific heat capacity \times 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 \times time	$Q = I t$
potential difference = current \times resistance	$V = I R$
power = potential difference \times current	$P = V I$
power = (current) ² \times resistance	$P = I^2 R$
energy transferred = power \times time	$E = P t$
energy transferred = charge flow \times potential difference	$E = Q V$
density = $\frac{\text{mass}}{\text{volume}}$	$\rho = \frac{m}{V}$

	thermal energy for a change of state = mass \times specific latent heat	$E = m L$
	For gases: pressure \times volume = constant	$p V = \text{constant}$
	weight = mass \times gravitational field strength	$W = m g$
	work done = force \times distance (along the line of action of the force)	$W = F s$
	force = spring constant \times extension	$F = k e$
	moment of a force = force \times 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 \times density of liquid \times gravitational field strength	$p = h \rho g$
	distance travelled = speed \times 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 \times acceleration \times distance	$v^2 - u^2 = 2 a s$
	resultant force = mass \times acceleration	$F = m a$
HT	momentum = mass \times 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 \times 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 \times current \times 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 \times current in primary coil = potential difference across secondary coil \times current in secondary coil	$V_p I_p = V_s I_s$

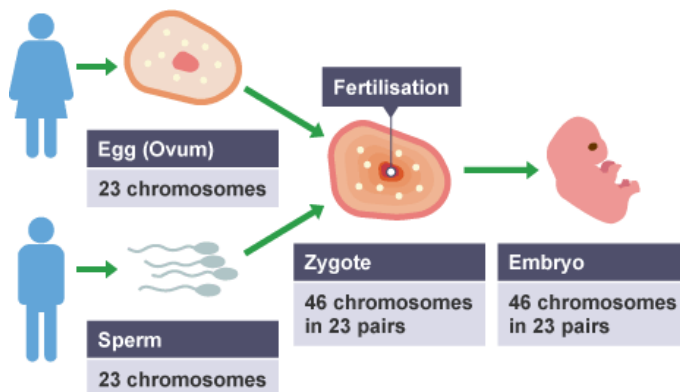
Give
Give
Want

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 11 Learning Cycle 2 Science - Inheritance, variation and evolution

1. Key Terms	Description
Asexual reproduction	Type of reproduction involving only one parent
Meiosis	A type of cell division which produces daughter cells with genetically varied DNA to the parent
Mitosis	A type of cell division which produces daughter cells identical to the parent
Sexual reproduction	Type of reproduction involving two parents
Species	A type of organism that can produce a fertile offspring
Gene	Small section of DNA on a chromosome that codes for a particular characteristic
Alleles	Different versions of the same genes

2. Fertilisation



3. Genetic inheritance

Monohybrid crosses

Genetic crosses of single gene combinations (monoherit inheritance) can be shown and examined using Punnett squares. This shows the possible offspring combinations that could be produced, and the probability of these combinations can be calculated.

Worked example 1

The height of pea plants is controlled by a single gene which has two alleles: tall or short.

The tall allele is dominant and is shown as T.

The small allele is recessive and is shown as t.

The female is TT - Tall

The male is tt - short

	T	T
t	Tt	Tt
t	Tt	Tt

If you add the combinations into each box you see that all the possible offspring have the same allele combination - Tt.

Note: You should always write the dominant allele first.

This means that all the offspring produced will be tall.

- males have two different sex chromosomes, X Y
- females have two X chromosomes, X X

4. Inherited disorders

Cystic fibrosis

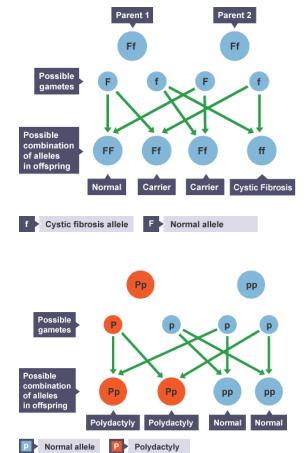
Cystic fibrosis is an inherited disorder of cell membranes that mainly affects the lungs and digestive system. They can become clogged with lots of thick, sticky mucus as too much is produced. Over many years, the lungs become increasingly damaged and may eventually stop working properly. A number of treatments are available

to help reduce the problems caused by the condition, but unfortunately average life expectancy is reduced for people who have it.

It is caused by a faulty recessive allele on chromosome 7. To be born with cystic fibrosis, a child has to inherit two copies of this faulty gene - one from each of their parents. Their parents will not usually have the condition themselves, because they will only carry one faulty gene and one that works normally.

In the diagram cystic fibrosis involves:

- the recessive allele (lower case), which can be shown as f
- the dominant allele (capital letter), which can be shown as F



Polydactyly

Polydactyly is an inherited condition in which a person has extra fingers or toes. It is caused by a dominant allele of a gene. This means it can be passed on by just one allele from one parent if they have the disorder.

Someone who is homozygous (PP) or heterozygous (Pp) for the dominant allele will develop polydactyly.

Genetic tests

Genetic testing involves analysis of a person's DNA to see if they carry alleles that cause genetic disorders. It can be done at any stage in a person's life.

5. Further reading



Inheritance, variation and evolution - GCSE Combined Science Revision - AQA Trilogy - BBC Bitesize

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

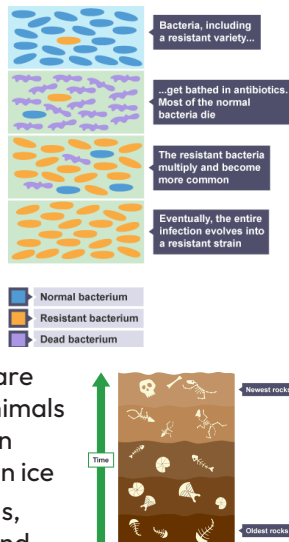
Year 11 Learning Cycle 2 Science - Inheritance, variation and evolution

1. Key Terms	Description
Evolution	The change of inherited characteristics within a population over time through natural selection, which may result in the formation of a new species
Natural selection	The natural process whereby the best-adapted individuals survive longer, have more offspring. Referred to as survival of the fittest
Variation	Difference between individuals, distance from the norm
Amber	Hardened tree resin
Extinction	No remaining individuals of a species alive

2. Evidence for evolution

A fossil is the preserved remains of a dead organism from millions of years ago. Fossils are found in rocks and can be formed from:

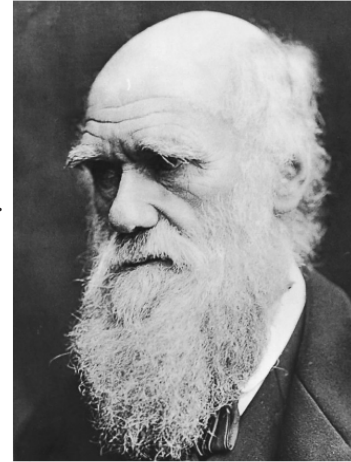
- hardy body parts, such as bones and shells, which do not decay easily or are replaced by minerals as they decay.
- parts of organisms that have not decayed because one or more of the conditions needed for decay are absent. For example, dead animals and plants can be preserved in amber, peat bogs, tar pits or in ice
- preserved traces of organisms, such as footprints, burrows, and rootlet traces - these become covered by layers of sediment, which eventually become rock



3. Charles Darwin

Darwin's theory of evolution

Charles Darwin was an English naturalist who studied variation in plants, animals and fossils during a five-year voyage around the world in the 19th century. Darwin visited four continents on the ship HMS Beagle.



Darwin observed many organisms including finches, tortoises and mocking birds, during his five week visit to the Galapagos Islands, near Equador in the Pacific Ocean. He continued to work and develop his ideas once he returned from his voyages.

Darwin's theory of evolution challenged the idea that God made all animals and plants that live on Earth, which contradicted the commonly held Christian views of the era. He did not publish his scientific work and ideas until 28 years after his voyage.

Darwin proposed that:

- individual organisms within a particular species show a wide range of variation for a characteristic
- individuals with characteristics most suited to the environment are more likely to survive to breed successfully
- the characteristics that have enabled these individuals to survive are then passed on to the next generation

This theory is called natural selection.

4. Problems with evolution

Darwin's ideas were documented in the book *On the Origin of Species*, which was published in 1859. The naturalist's ideas created controversy in Victorian society.

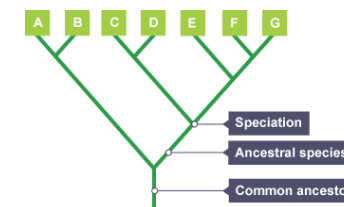
The theory of evolution through the process of natural selection was only gradually accepted because:

- the theory challenged the idea that God made all animals and plants that live on Earth (creationism)
- there was insufficient evidence when the theory was published to convince many scientists.
- the mechanism of inheritance and variation was not known until 50 years after the theory was published

Some scientists were reluctant to change their minds about the ideas of creationism, even when new evidence was discovered that contradicted their ideas.

Darwin's book, *On the Origin of Species*, was a world best seller and is still printed today. With every new edition of his book, more evidence was discovered to support Darwin's ideas. This led to the development of his theory over time. In a later edition, he introduced the famous term 'Survival of the fittest'.

Evolutionary trees



5. Further reading



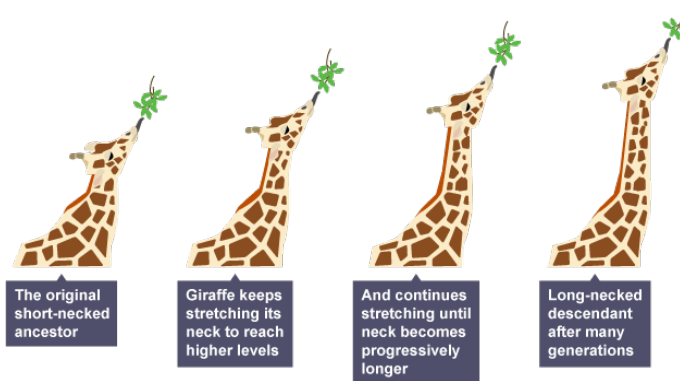
Inheritance, variation and evolution - GCSE Combined Science Revision - AQA Trilogy - BBC Bitesize

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

Year 11 Learning Cycle 2 Science - Inheritance, variation and evolution (Triple science only)

1. Key Terms	Description
Speciation	The formation of new and distinct species in the course of evolution
Extinction	No remaining individuals of a species alive

2. Lamarck's theory of evolution



Lamarck's theory suggested that the giraffe's original short-necked ancestor repeatedly stretched its neck to reach the higher branches to eat. Lamarck believed that the stretching elongated the giraffe's neck, which became a useful characteristic and was passed onto future generations. This resulted in the length of the giraffe's neck increasing over time.

It is now commonly accepted that Lamarck's ideas were wrong. For example, simple organisms are still detected in all varieties of life, plus it is now known that mutations can create variation such as long necks.

3. Speciation

Alfred Russel Wallace created pioneering work in speciation; however, additional evidence over time has led to our current understanding of the theory of **speciation**.

A **species** is a group of organisms able to interbreed and produce fertile offspring.

New species can arise as a result of the following things:

- **genetic variations** - each population has a wide range of **alleles** that can control their characteristics
- **natural selection** - the alleles which help an **organism** to survive are selected in each population
- **speciation** - the populations become extremely varied and successful interbreeding cannot happen anymore

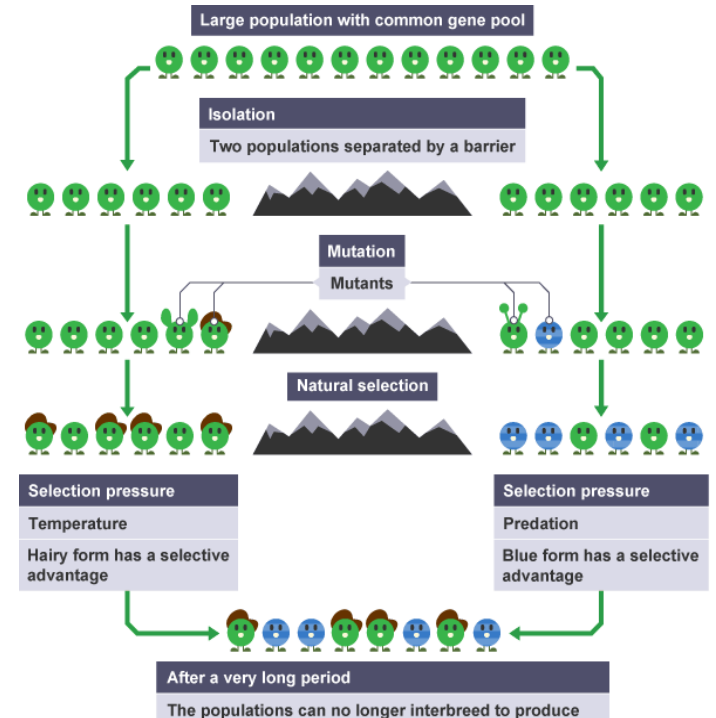
New species can also arise as a result of **isolation**:

- two populations of a species can become geographically separated because of the environment
- isolation can prevent interbreeding and the combination of genes within a species
- different mutations can take place in the isolated groups and create different **phenotypes** within a particular location
- over time species may evolve to be different to each other, and they will not be able to interbreed

Animals that have not adapted well to their environment are less likely to survive and reproduce than those that are well adapted. The animals that have not adapted to their environment may become extinct. Extinction has a role in evolution as some species disappear. Others survive and continue to evolve.

Several factors can cause a species to become extinct. They include:

- new diseases
- new **predators**
- new, more successful competitors
- changes to the environment over geological time, such as climate change
- a single catastrophic event such as a massive volcanic eruption or a collision between asteroid and the Earth



4. Further reading



Inheritance, variation and evolution - GCSE Biology (Single Science) Revision - AQA - BBC Bitesize

<https://www.bbc.co.uk/bitesize/topics/zpb7cj6>

Year 11 Learning Cycle 2 Science - Rates of reaction

1. Key Terms	Description
Activation energy	The minimum amount of energy that colliding particles must have for them to react
Catalyst	A substance that changes the rate of a chemical reaction without being changed by the reaction itself
Reaction profile	Chart showing how the energy of reactants and products changes during a reaction
Concentration	How much of a substance is dissolved in water. The higher the concentration, the more particles of the substance are present
Frequency	The total number of times an event occurs
Gradient (Higher only)	Another word for steepness. On a graph, the gradient is defined as being the change in the y value divided by the change in x value. It defines how steep a line is

2. Rate of reaction

The rate of a reaction is a measure of how quickly a **reactant** is used up, or a **product** is formed.

Collision theory

For a chemical reaction to happen:

- reactant particles must collide with each other
- the particles must have enough energy for them to react

A collision that produces a reaction is called a **successful collision**. The **activation energy** is the minimum amount of **energy** needed for a collision to be successful. It is different for different reactions.

3. Calculating mean rate of reaction

$$\text{mean rate of reaction} = \frac{\text{quantity of reactant used}}{\text{time taken}}$$

$$\text{mean rate of reaction} = \frac{\text{quantity of product formed}}{\text{time taken}}$$

4. Measuring mass and measuring volume

Measuring mass

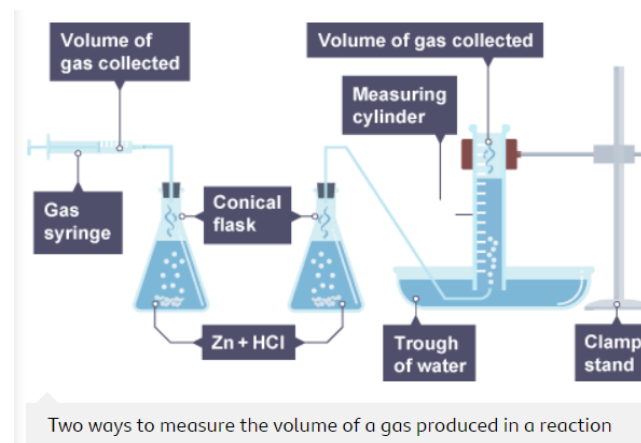
The change in **mass** of a reactant or product can be followed during a reaction. This method is useful when carbon dioxide is a product which leaves the reaction container. It is not suitable for hydrogen and other gases with a small **relative formula mass**, M_r .

The units for rate are usually g/s or g/min.

Measuring volume

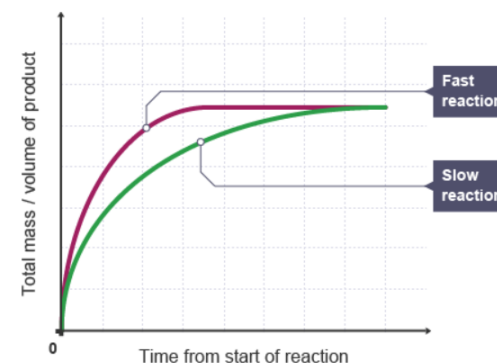
The change in **volume** of a reactant or product can be followed during a reaction. This method is useful when a gas leaves the reaction container. The volume of a gas is measured using a gas syringe, or an upside down **burette** or measuring cylinder.

The units for rate are usually cm^3s^{-1} or $\text{cm}^3\text{min}^{-1}$



5. Graphs

The rate of reaction can be analysed by plotting a graph of mass or volume of product formed against time. The graph shows this for two reactions.



The steeper the line, the greater the rate of reaction. Faster reactions - where the line becomes horizontal - finish sooner than slower reactions

The **gradient** of the line is equal to the rate of reaction:

- the steeper the line, the greater the rate of reaction
- fast reactions - seen when the line becomes horizontal - finish sooner than slow reactions

Units for rates of reaction - Higher only

The rate of a chemical reaction can also be measured in Mol s^{-1} .

Tangents can also be drawn at other points on the graph. As the reaction carries on, the steepness of the tangent to the curve decreases (e.g. the blue dashed line) so the reaction is slowing down.

6. Further reading



The rate and extent of chemical change - GCSE Combined Science Revision - AQA Trilogy - BBC Bitesize

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

Year 11 Learning Cycle 2 Science - Rates of reaction

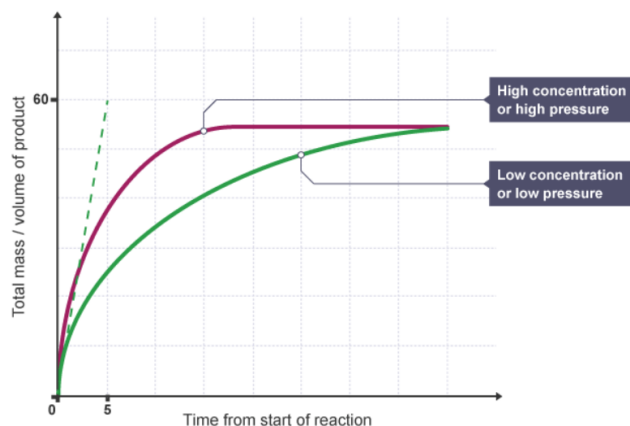
1. Calculating the gradient (Higher only)

Calculating the rate of reaction from the gradient of a tangent

To calculate the rate at the start of a reaction, you need to find the mathematical gradient (steepness) of the gradient. Use this equation:

$$\text{rate of reaction} = \frac{\text{change in mass or volume of product}}{\text{change in time}}$$

For example, using the green tangent below:



The green tangent shows lower pressure

2. Catalysts

A **catalyst** is a substance that:

- increases the rate of reaction
- does not alter the **products** of the reaction
- is not chemically changed or used up at the end of the reaction

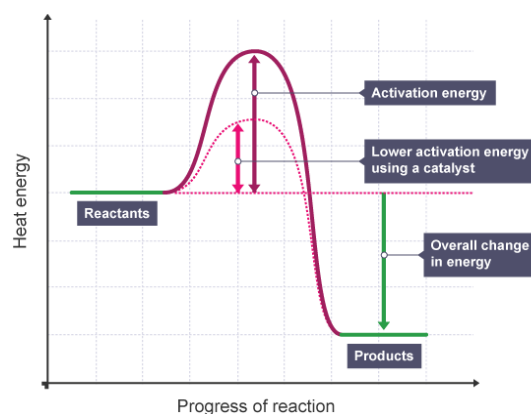
Only a very small mass of catalyst is needed to increase the rate of a reaction. However, not all reactions have suitable catalysts. Different substances catalyse different reactions.

Catalysts in biological reactions are called **enzymes**. Catalysts do not appear in the overall chemical equation for a reaction.

How catalysts work

A catalyst provides an alternative **reaction pathway** that has lower **activation energy** than the uncatalysed reaction. This does not change the frequency of collisions. However, it does increase the frequency of successful collisions because more particles have energy greater than the activation energy, therefore there are more successful collisions.

The effect of a catalyst on the activation energy is shown on a chart called a **reaction profile**. This shows how the **energy** of the **reactants** and products change during a reaction.



3. Required practical

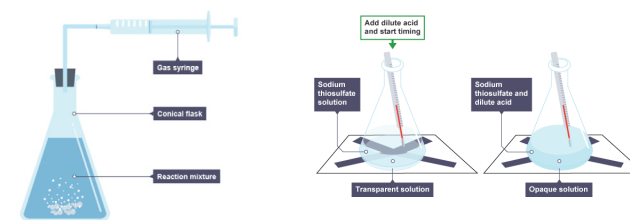
Aims

To investigate the effect of changing the concentration on the rate of reaction.

Calcium carbonate reacts with dilute hydrochloric acid:
calcium carbonate + hydrochloric acid → calcium chloride + water + carbon dioxide



The volume of carbon dioxide gas produced can be measured using a gas syringe.



Aims

To investigate the effect of changing the temperature on the rate of a reaction.

Sodium thiosulfate + hydrochloric acid → sodium chloride + water + sulfur dioxide + sulfur



The sulfur forms a cloudy yellow-white precipitate during the reaction. The time taken for this to achieve a given cloudiness provides a way to measure the reaction.



The rate and extent of chemical change - GCSE Combined Science Revision - AQA Trilogy - BBC Bitesize

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

Year 11 Learning Cycle 2 Science - Using resources (Triple Science only)

1. Key Terms	Description
Corrosion	When chemicals in the water dissolve minerals in the rocks, causing them to break up (also called solution)
Rusting	An example of corrosion. It occurs when iron or steel react with oxygen and water
Reactive	The tendency of a substance to undergo a chemical reaction
Desiccant	A substance that absorbs water vapour and keeps a metal dry
Electroplating	Involves the use of electrolysis to put a thin layer of a metal on the object
Sacrificial metal	A more reactive metal than iron, attached to an iron or steel object to prevent the object rusting
Galvanisation	Coating iron or steel with a layer of zinc to prevent rusting

2. Corrosion

Metals can oxidise in air. They react with oxygen and form metal oxides. For example, sodium is a very reactive metal. When sodium is cut, scratched, its freshly exposed shiny surface rapidly turns dull as a thin layer of sodium oxide forms.

sodium + oxygen → sodium oxide



Other metals may oxidise more slowly. Gold and other very unreactive metals do not oxidise in air at all.

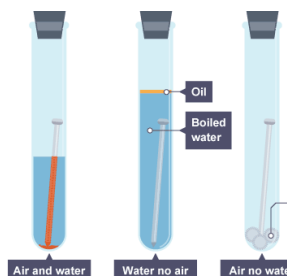
Corrosion happens when a metal continues to oxidise. The metal becomes weaker over time and eventually all of it may become metal oxide.

3. Rusting

Rusting is an example of corrosion. It occurs when iron or steel reacts with oxygen and water.

iron + oxygen + water → hydrated iron (iii) oxide

Hydrated iron (iii) oxide is the orange-brown substance seen on the surface of rusty objects.



The nail only rusts in the left-hand test tube. It does not rust:

- in the middle test tube, where there was water but no oxygen (because there was no air in the water)
- in the right-hand test tube, where there was oxygen (air) but no water

4. Preventing Corrosion

Rusting can be prevented by keeping oxygen or water away from the iron or steel:

- oxygen can be excluded by storing the **metal** in an atmosphere of **unreactive** nitrogen or argon

a **desiccant** is a substance that absorbs water **vapour**, so it keeps the metal dry

Physical barriers to oxygen and water

Many methods of rust prevention rely on creating a physical barrier to oxygen and water. These include:

- painting
- oiling and greasing
- coating with plastic

Different methods are used depending on the situation

5. Electroplating

Electroplating involves using **electrolysis** to put a thin layer of a metal on the object:

- the **cathode** is the iron or steel object
- the **anode** is the plating metal
- the **electrolyte** contains **ions** of the plating metal

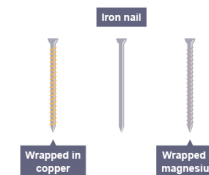
For example, steel cutlery can be electroplated with silver using a silver anode and silver nitrate solution. Electroplating improves the **corrosion** resistance of metal objects.

Sacrificial protection

Iron can be protected from rusting if it is in contact with a more **reactive** metal, such as zinc. The more reactive metal oxidises more readily than iron, so it 'sacrifices' itself while the iron does not rust. Once the **sacrificial metal** has corroded away, it can simply be replaced.

Worked example

Three nails are left in contact with air and water for a few days. A nail wrapped in magnesium does not rust. A nail alone rusts but a nail wrapped in copper rusts more. Explain these observations.



Galvanising

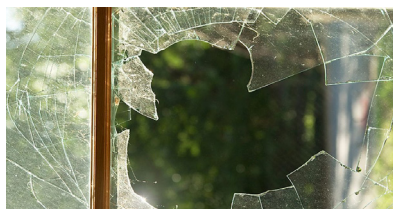
When iron is coated with zinc, the process is called **galvanisation**. The zinc layer stops oxygen and water reaching the iron. Zinc is more reactive than iron, so it also acts as a sacrificial metal. This protection works, even if the zinc layer is scratched.

Year 11 Learning Cycle 2 Science – Using resources (Triple Science only)

1. Key Terms	Description
Transparent	Able to see through
Brittle	Easily broken
Crystals	A solid containing particles joined together to form a regular arrangement or repeating pattern
Opaque	Not transparent or see-through
Polymers	A large molecule formed from many identical smaller molecules known as monomers
Monomers	A small molecule, usually containing a C=C bond, that can join end to end with other monomers to form a polymer molecule
Composite	A material made from two or more different materials with contrasting properties

2. Glass

Most of the glass we use is soda-lime glass. This is made by melting a mixture of sand (silicon oxide), sodium carbonate and limestone, then allowing the molten liquid to cool and solidify.



Borosilicate glass is made by heating sand with boron trioxide. Borosilicate glass has a much higher melting point than soda-lime glass.

3. Clay Ceramics

Clay ceramics include brick, china and porcelain. They are made by shaping wet clay and then heating it to a high temperature in a furnace, which causes crystals to form and join together.

Clay ceramics are often coated with a glaze, which hardens on heating to form a hard, smooth, opaque and waterproof layer. This explains why they are often used for dinner plates and bowls.

4. Preventing corrosion

Rusting can be prevented by keeping oxygen or water away from the iron or steel:

- oxygen can be excluded by storing the **metal** in an atmosphere of **unreactive** nitrogen or argon
- a **desiccant** is a substance that absorbs water **vapour**, so it keeps the metal dry

Physical barriers to oxygen and water

Many methods of rust prevention rely on creating a physical barrier to oxygen and water. These include:

- painting
- oiling and greasing
- coating with plastic

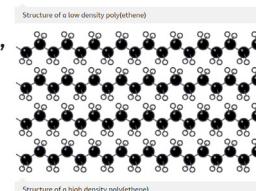
Different methods are used depending on the situation

5. Polymers

Different polymers have different properties, depending on the monomers they are made from and the conditions under which these monomers were joined together. This means that different polymers have different uses. For example, poly(ethene) can be made in low density and high density forms.

Polymer	Properties	Uses
Low density poly(ethene), LDPE	Flexible, unreactive, can be made into films	Most carrier bags, bubble wrap
High density poly(ethene) HDPE	Strong, flexible, resists shattering, resists chemical attack	Plastic bottles, pipes, buckets

Low density poly(ethene) has a structure where the polymer chains are branched and this means that the molecules are arranged randomly. High density poly(ethene) has less branching of the polymer chains, so the molecules line up much more closely.



6. Further Reading



Using resources – GCSE Chemistry (Single Science) Revision – AQA – BBC Bitesize

<https://www.bbc.co.uk/bitesize/topics/z9wqk2p>

Year 11 Learning Cycle 2 Science - Chemical analysis

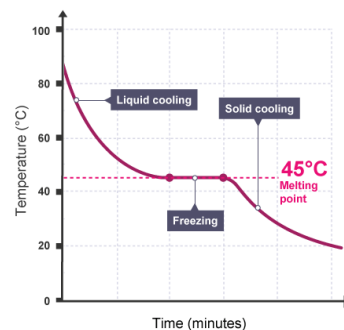
1. Key Terms	Description
Pure	A substance that consists of only one element or only one compound
Mixture	Consists of two or more elements not chemically combined together
Melting point	The temperature at which a solid changes into a liquid as it is heated
Formulation	A mixture which has been designed as a useful product e.g. fertilisers, alloys, foods, paints
Chromatography	Used to separate mixtures of soluble substances
Soluble	Able to dissolve in solvent. E.g. sugar in water

2. Chemical substances

Description	Example	Diagram
Pure element	Oxygen	
Pure compound	Carbon dioxide	
Mixture of elements	Oxygen and helium	
Mixture of compounds	Alcohol and water	
Mixture of elements and compounds	Air	

3. Pure substances and mixtures

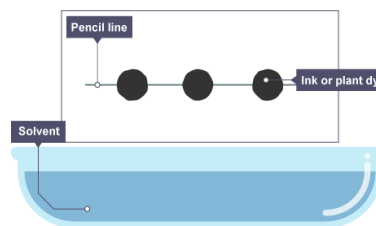
Pure substances have a sharp melting point but mixtures melt over a range of temperatures. This difference is most easily seen when the temperature of a liquid is measured as it cools and freezes. The graph shows the cooling curve for a sample of a compound called salol.



4. Paper chromatography

Chromatography relies on two different 'phases':

- the **mobile phase** is the solvent that moves through the papers, carrying different substances with it
- the **stationary phase** is contained on the paper and does not move through it

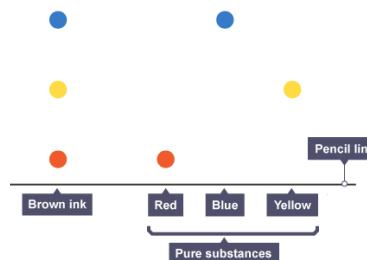


The different **dissolved** substances in a mixture are attracted to the two phases on different proportions. This causes them to move at different rates through the paper.

Interpreting a chromatogram

Separation by chromatography produces a **chromatogram**. A paper chromatogram can be used to distinguish between **pure** and **impure** substances:

- a pure substance produces one spot on the chromatogram
- an impure substance produces two or more spots

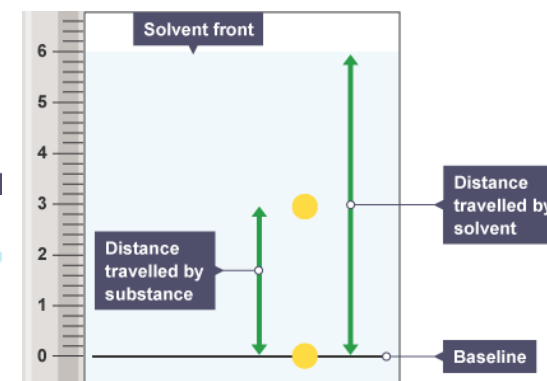


A paper chromatogram can also be used to identify substances by comparing them with known substances. Two substances are likely to be the same if:

- they produce the same number of spots, and these match in colour
- the spots travel the same distance up the paper (have the same R_f value)

5. Calculating R_f values

$$R_f = \frac{\text{distance travelled by substance}}{\text{distance travelled by solvent}}$$



6. Testing for gases

Test	Observation	Inference
Glowing splint held in a test tube	Splint relights	Oxygen is present
Lighted splint held in a test tube	Pop sound heard	Hydrogen is present
Gas bubbled through limewater	Limewater turns milky or cloudy white	Carbon dioxide is present
Damp litmus paper held in a test tube	Paper turns white	Chlorine is present

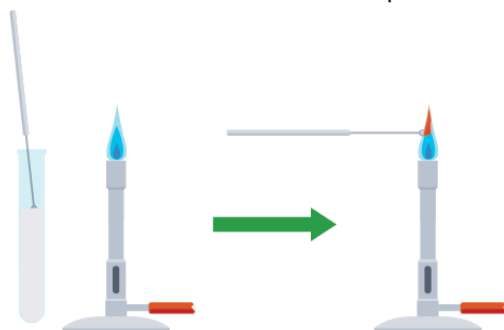
Year 11 Learning Cycle 2 Science - Chemical analysis (Triple Science only)

1. Key Terms	Description
Ions	Electrically charged particle, formed when an atom or molecule gains or loses electrons
Flame test	A qualitative identification technique where samples are heated and the metal ions present are identified by characteristic flame colours
Precipitate	A suspension of particles in a liquid formed when a dissolved substance reacts to form an insoluble substance, eg in a precipitation reaction
Spectroscope	An instrument used to measure properties of light, usually to identify materials
Vaporised	To turn from a liquid to a gas or a vapour

2. Flame test for metal ions

To carry out a flame test:

- dip a clean wire loop onto a solid sample of the compound being tested
- put the loop into the edge of the blue flame from a Bunsen burner
- observe and record the flame colour produced



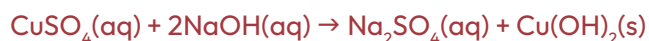
3. Metal cations

Ion present	Flame test colour
Lithium, Li ⁺	Crimson
Sodium, Na ⁺	Yellow
Potassium, K ⁺	Lilac
Calcium, Ca ²⁺	Orange-red
Copper, Cu ²⁺	Green

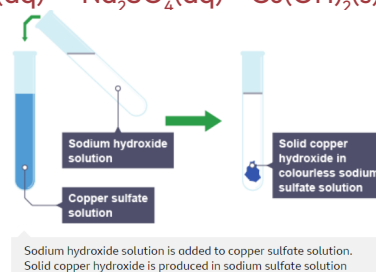
4. Metal hydroxide precipitate tests

Dilute sodium hydroxide solution is used in tests for some metal ions, which form metal hydroxides that are insoluble. This means that the metal hydroxides appear as precipitates. For example, copper sulfate solution reacts with a few drops of sodium hydroxide solution:

copper sulfate + sodium hydroxide → sodium sulfate + copper hydroxide



Copper hydroxide forms a blue precipitate.



Metal ion	Precipitate colour
Aluminium, Al ³⁺	White
Calcium, Ca ²⁺	White
Magnesium, Mg ²⁺	White
Copper(II), Cu ²⁺	Blue
Iron (II), Fe ²⁺	Green
Iron (III), Fe ³⁺	Brown

5. Required practical

Test for carbonate ions

Add a few drops of dilute hydrochloric acid. Bubbles are produced if carbonate ions are present. Confirms that the gas is carbon dioxide - limewater turns milky/cloudy

Test for sulfate ions

Add a few drops of dilute hydrochloric acid, then a few drops of barium chloride solution. A white precipitate forms if sulfate ions are present.

Test for halide ions

Add a few drops of dilute nitric acid, then a few drops of silver nitrate solution. Observe and record the colour of any precipitate formed.

6. Spectroscopy

Compared to simple laboratory tests, instrumental methods of analysis may give improved:

- speed
- accuracy
- sensitivity (they can detect very small amounts of a substance in a small amount of sample)

Flame emissions spectroscopy

The flame emission spectroscope is a scientific instrument based on flame testing. Data from a spectroscope can be used to:

- identify metal ions in a sample
- Determine the concentration of metal ions in dilute solutions.

7. Further reading



Instrumental methods of analysis - Analysing substances - AQA - GCSE Chemistry (Single Science) Revision - AQA - BBC Bitesize

<https://www.bbc.co.uk/bitesize/guides/zxtvw6f/revision/5>

Year 11 Learning Cycle 2 Science - Magnetism

1. Key Terms	Description
Magnet	An object capable of exerting a magnetic force
Induced magnet	A temporary magnet, made from a magnetic material placed in a magnetic field. The induced magnetism is lost when moved out of the magnetic field
Magnetic field	Area surrounding a magnet that can exert a force on magnetic materials
Transformer	An electrical device that increases, or decreases, the potential difference (voltage) of an alternating current
Solenoid	A straight coil of wire which can carry an electric current to create a magnetic field
Motor effect	The effect where a force is exerted on a wire carrying a current in a magnetic field

2. Magnetic fields

A magnet can exert a force on another nearby magnet. Magnets have two poles:

- a north pole
- a south pole

The magnetic force is strongest near the magnet's poles.

The rules of magnetism

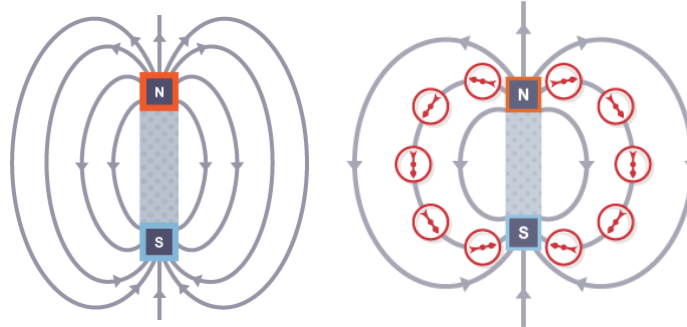
Two magnets will either attract or repel each other in the following way:

- like poles (N-N or S-S) repel
- unlike poles (N-S or S-N) attract

Magnetic forces are non-contact forces - this means that magnets affect each other without touching.



3. Detecting and drawing magnetic fields



4. Permanent and induced magnetism

A **permanent magnet** is often made from a magnetic material such as iron. A permanent magnet always causes a force on other magnets, or on magnetic materials. Key features of a permanent magnet:

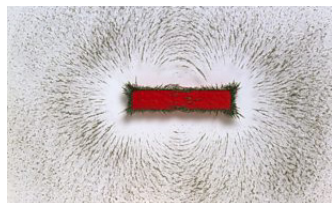
- it produces its own magnetic field
- the magnetic field cannot be turned on and off - it is there all the time

Bar magnets and horseshoe magnets are examples of permanent magnets.

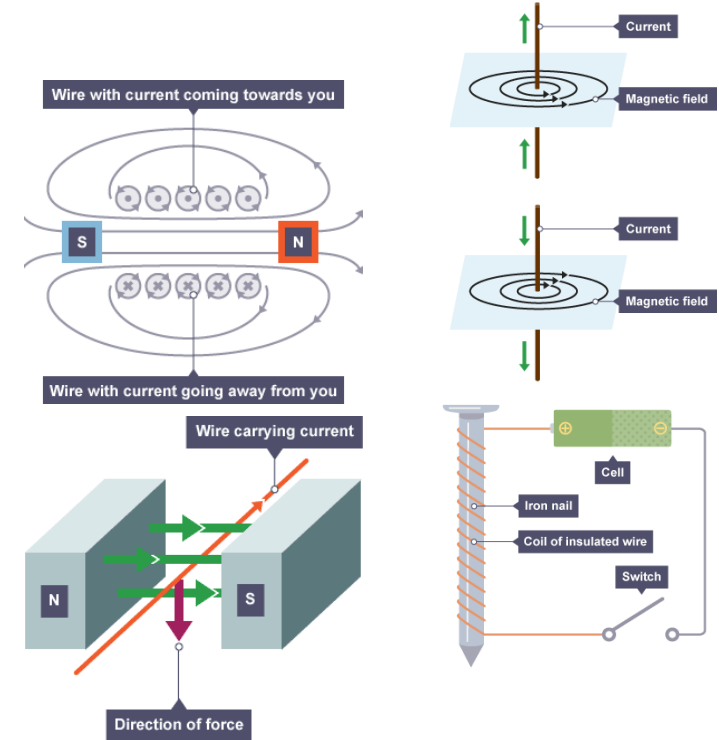
Unlike a permanent magnet, an **induced magnet** only becomes a magnet when it is placed in a magnetic field. The induced magnetism is quickly lost when the magnet is removed from the magnetic field.

The iron filings in the image become induced magnets when they are near the bar magnet. Like all induced magnets:

- they are only attracted by other magnets, they are not repelled
- they lose most or all of their magnetism when they are removed from the magnetic field.



5. Electromagnets



force = magnetic flux density x current x length

$$F = B I l$$

This is when:

F is force in newtons (N)

B is magnetic flux density (magnetic field strength) in tesla (T)

I is current in amperes - also referred to as amps (A)

l is length in metres (m)

6. Further reading



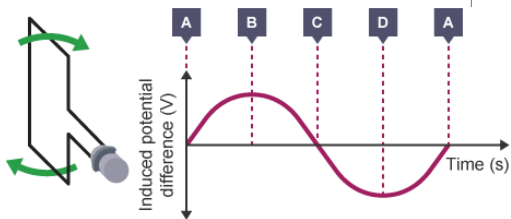
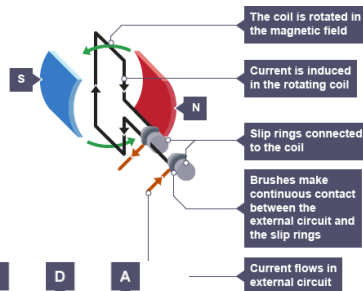
Magnetism and electromagnetism

<https://www.bbc.co.uk/bitesize/topics/zkwkw6f>

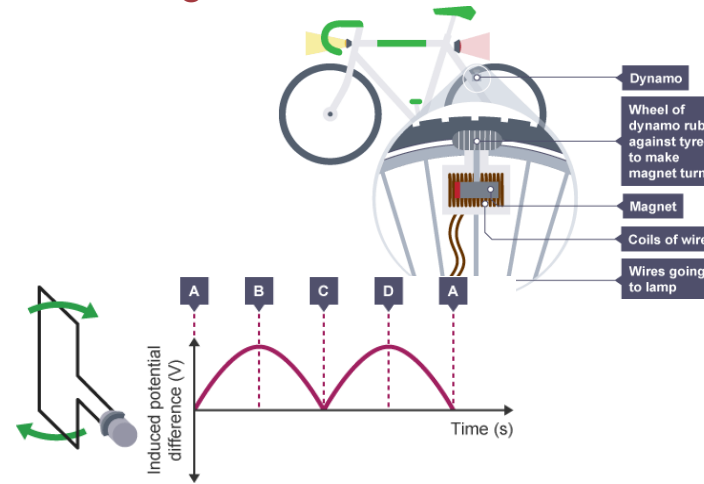
Year 11 Learning Cycle 2 Science - Magnetism (Triple Science only)

1. Key Terms	Description
Generator	A device that converts kinetic energy into electrical energy
Alternator	An electrical generator which produces alternating current, an ac generator
Dynamo	An electrical generator which produces direct current, a dc generator
Moving-coil-microphone	A microphone in which electrical signals are produced when the pressure vibrations in sound waves vibrate a coil of wire within a magnetic field
Transformer	A device that can change the potential difference or voltage of an alternating current

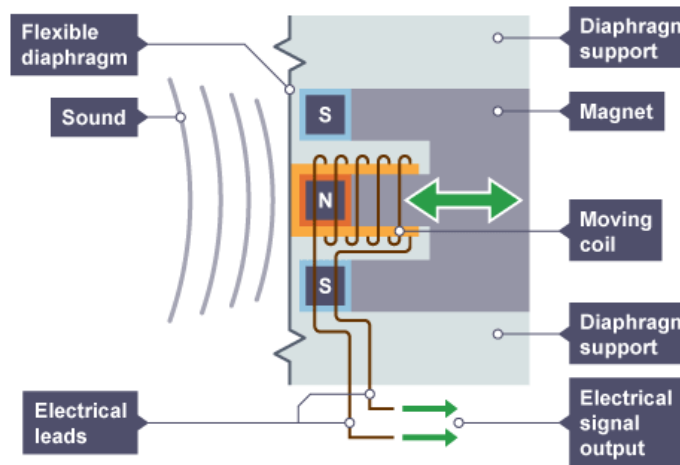
2. The alternator



3. The dc generator



4. Microphones

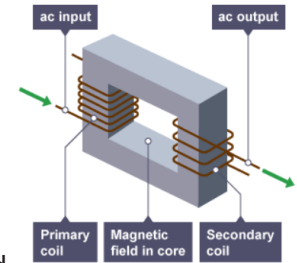


5. Transformers (higher only)

a step-up transformer increases the voltage
a step-down transformer reduces the voltage

Design and use of transformers

A basic transformer is made from two coils of wire, a primary coil from the alternating current (ac) input and a secondary coil leading to the ac output. The coils are not electrically connected. Instead, they are wound around an iron core. This is easily magnetised and can carry magnetic fields from the primary coil.



The ratio of potential differences on the transformer coils matches the ratio of the number of turns on the coils.

This equation can be used to calculate what the output

$$\frac{\text{primary voltage}}{\text{secondary voltage}} = \frac{\text{number of turns on primary coil}}{\text{number of turns on secondary coil}}$$

$$\frac{V_p}{V_s} = \frac{n_p}{n_s}$$

might be from a particular transformer, or to work out how to design a transformer to make a particular voltage change.

This is when:

V_p is the potential difference in the primary (input) coil in volts (V)

V_s is the potential difference in the secondary (output) coil in volts (V)

n_p is the number of turns on the primary coil

n_s is the number of turns on the secondary coil

In a step-up transformer, $V_s > V_p$. In a step-down transformer $V_s < V_p$

6. Further reading



Magnetism and electromagnetism - GCSE Physics (Single Science) Revision - AQA - BBC Bitesize

<https://www.bbc.co.uk/bitesize/topics/z39ry4j>

Year 11 Learning Cycle 2 Science - Waves

1. Key Terms	Description
Oscillations	The repeated and regular fluctuations, above and below the same position
Vibrations	Repeated movements back and forth (About a fixed point)
Longitudinal wave	A wave that moves in the same direction as the direction in which the particles are vibrating
Transverse wave	A wave that moves in a direction at right angles to the way in which the particles are vibrating

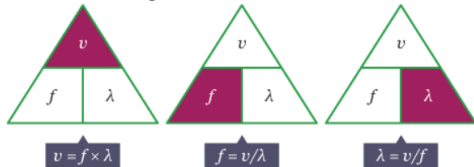
2. Wave period and wave speed

The speed of a wave can be calculated using the equation
 wave speed = frequency x wavelength

$$v = f \lambda$$

This is when:

- wave speed (v) is measured in metres per second (m/s)
- frequency (f) is measured in Hertz (Hz)
- wavelength (λ) is measured in metres (m)



The time period of a wave can be calculated using the equation: $Time\ period = \frac{1}{frequency}$

$$T = \frac{1}{f}$$

This is when:

- the period (T) is measured in seconds (s)
- frequency (f) is measured in hertz (Hz)

3. The parts of a wave

Waves are described using the following terms:

rest position - the undisturbed position of particles or fields when they are not vibrating

displacement - the distance that a certain point in the medium has moved from its rest position

peak - the highest point above the rest position

trough - the lowest point below the rest position

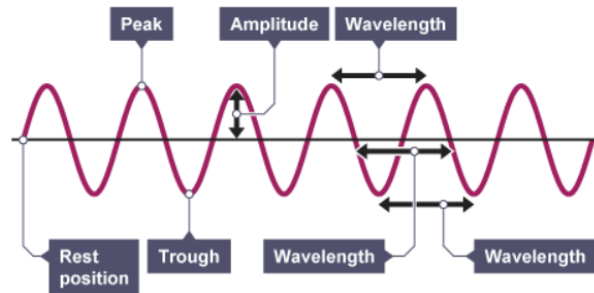
amplitude - the maximum displacement of a point of a wave from its rest position

wavelength - distance covered by a full cycle of the wave, usually measured from peak to peak, or trough to trough

time period - time taken for a full cycle of the wave, usually measured from peak to peak or trough to trough

frequency - the number of waves passing a point each second.

Diagram of a wave



4. Measuring the speed of sound in air and water

The air is made up of many tiny particles. When sound is created, the air particles vibrate and collide with each other, causing the vibrations to pass between air particles. The vibrating particles pass the sound through to a person's ear and vibrate the ear drum.

Light travels much faster than sound through air. For example, a person fires a starting pistol and raises their hand in the air at the same time. A distant observer stood 400 metres (m) away records the time between seeing the action (the light reaches the time keeper immediately) and hearing the sound (which takes more time to cover the same distance).

The speed of sound can be calculated using the equation

$$speed = \frac{distance}{time}$$

$$v = \frac{d}{t}$$

This is when:

- speed (v) is measured in metres per second (m/s)
- distance (s) is measured in metres (m)
- time (t) is measured in seconds (s)

5. Further reading



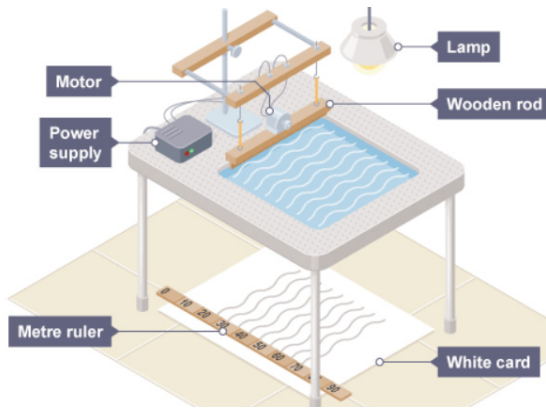
Waves - GCSE Combined Science Revision - AQA Trilogy - BBC Bitesize

<https://www.bbc.co.uk/bitesize/topics/z2j22nb>

Year 11 Learning Cycle 2 Science - Waves

Required practical

A ripple tank can be used to measure and calculate frequency, wavelength and the speed of waves on the surface of the water. A ripple tank is a transparent shallow tray of water with a light shining down through it onto a white card below in order to clearly see the motion of the ripples created on the water's surface. Ripples can be made by hand but to generate regular ripples it is better to use a motor.



Aim of the experiment

To measure the frequency, wavelength and speed of waves in a ripple tank.

Method

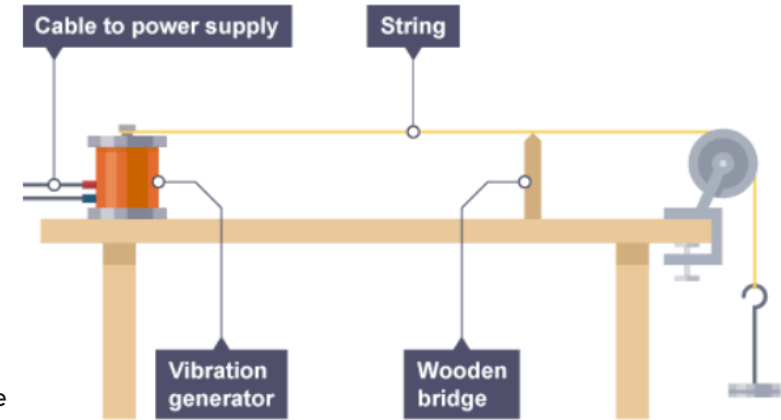
1. Set up the ripple tank as shown in the diagram with about 5cm depth of water
2. Adjust the height of the wooden rod so that it just touches the surface of the water
3. Switch on the lamp and motor and adjust until low frequency waves can be clearly observed
4. Measure the length of a number of waves then divide by the number of waves to record wavelength. It may be more practical to take a photograph of the card with the ruler and take measurements from the still picture.
5. Count the number of waves passing a point in ten seconds then divide by ten to record frequency
6. Calculate the speed of the waves using: $\text{wave speed} = \text{frequency} \times \text{wavelength}$

Aim of the experiment

To measure the frequency, wavelength and speed of waves in a string.

Method

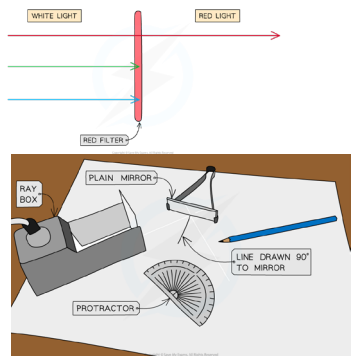
1. Attach a string or cord to a vibration generator and use a 200 gram (g) hanging mass and pulley to pull the string taut as shown in the diagram. Place a wooden bridge under the string near the pulley.
2. Switch on the vibration generator and adjust the wooden bridge until stationary waves can be clearly observed.
3. Measure the length of as many half wavelengths (loops) as possible, divide by the number of half wavelengths (loops). This is half the wavelength, doubling this gives the wavelength.
4. The frequency is the frequency of the power supply
5. Calculate the speed of the waves using: $\text{wave speed} = \text{frequency} \times \text{wavelength}$



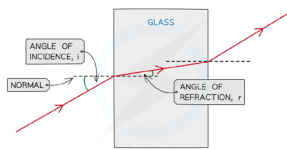
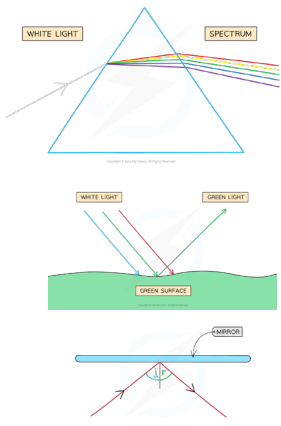
Year 11 Learning Cycle 2 Science - Waves (Triple Science only)

1. Key Terms	Description
Concave lens	Concave caves inwards and causes parallel rays of light to spread out (Diverge)
Convex lens	Convex bulges outwards and causes rays of light parallel to the axis
Colour filters	Filter out different wavelengths of light so that only certain colours are transmitted – the rest are absorbed
Ultrasound	Is sound with frequencies higher than 20000Hz.

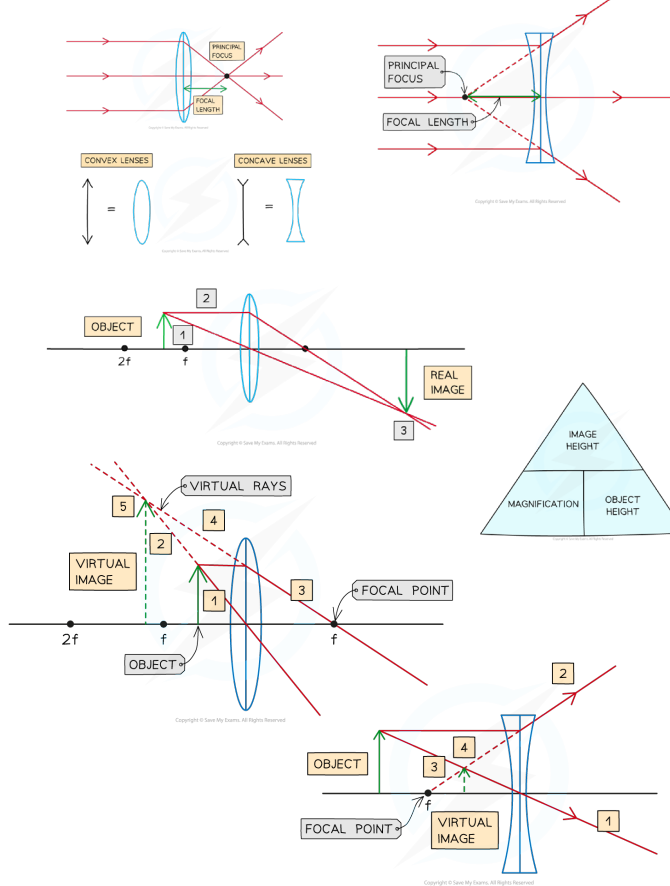
2. Investigating light



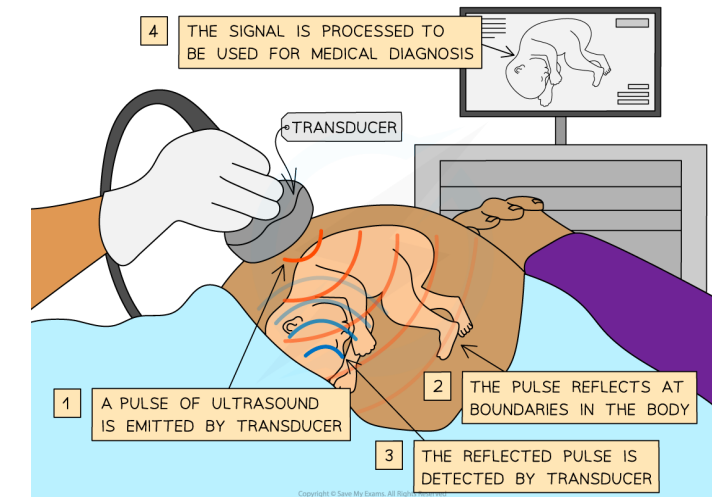
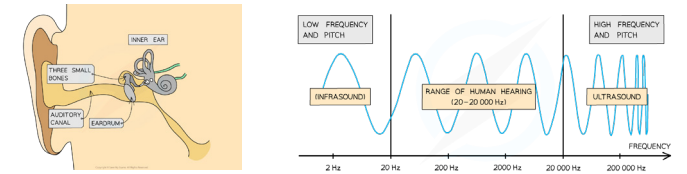
Equipment	Purpose
Ray Box	To provide a narrow beam of light to reflect in the mirror
Mirror with stand	To provide a reflective surface
Protractor	To measure the light beam angles
Sheet of Paper	To mark with lines for angle measurement
Pencil	To mark perpendicular line and angle lines on paper
Ruler	To draw lines on paper
Perapex Block	To refract the light beam



3. Lenses, images and ray diagrams



4. Sound waves and ultrasound



5. Further reading



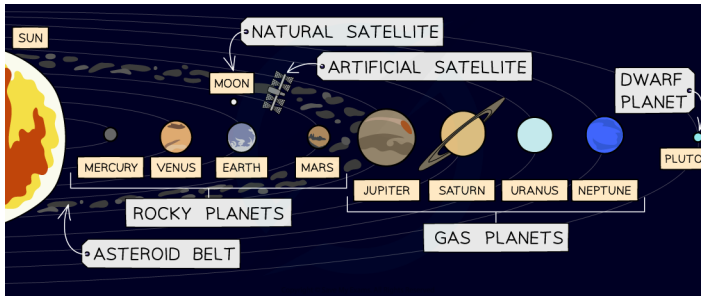
Colour & Reflection of Light (6.3.6) | AQA GCSE Physics Revision Notes 2018 | Save My Exams

<https://www.savemyexams.com/gcse/physics/aqa/18/revision-notes/6-waves/6-3-optics/6-3-6-colour--reflection-of-light/>

Year 11 Learning Cycle 2 Science - Space (Triple Science only)

1. Key Terms	Description
Nuclear fusion	Two light nuclei collide at high speed and join to create a larger heavier nucleus
Nebula	A cloud of gas and dust
Supernova	A bright and powerful explosion that happens at the end of a massive stars life

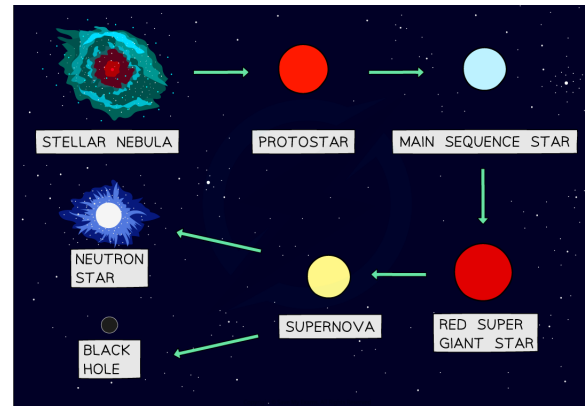
2. The solar system



- Our solar system is just one small part of the Milky Way galaxy
- There are billions of stars in the Milky Way galaxy
- Some of these stars also have planets which orbit them
- The universe is made up of many different galaxies



3. The lifecycle of a star



Larger stars

A large star is one which is bigger than the Sun
Stars that are larger than the Sun have much shorter lifespans - in the region of hundreds of millions of years (instead of billions)

This is because they burn through fuel in nuclear fusion much quicker than smaller stars

The life cycle of a star bigger than the Sun starts in the same way as a solar mass star.

Supernovae

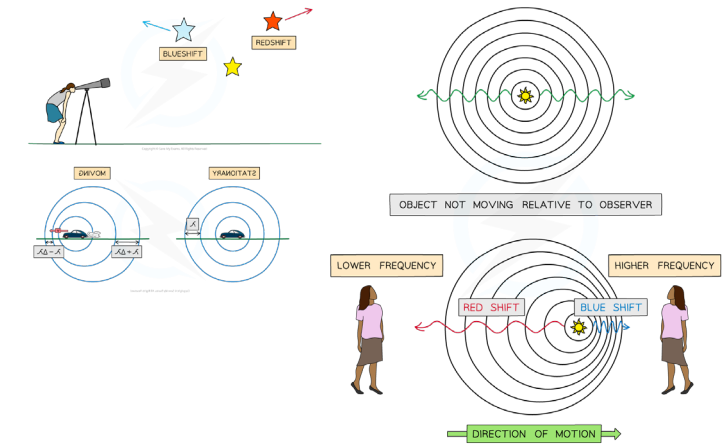
- A supernova is a bright and powerful explosion that happens at the end of a massive star's life
- It occurs when the star is bigger than the Sun
- The explosion releases a large amount of energy
- During a supernova, all of the elements which were produced by the fusion reactions are exploded out along with neutrons
- The neutrons combine with the elements to form even heavier elements
- These elements are ejected into the universe by the supernova explosion and form new planets and stars
- Since Earth contains many heavy elements up to iron, this is proof that it must have once been made from the remains of a supernova

4. Red shift and the big bang theory

The Big Bang Theory

- Around 14 billion years ago, the universe began from a very small region that was extremely hot and dense.
- Then there were a series of explosions, which we call the Big Bang
- This caused the universe to expand, cooling as it does so, to form the universe we currently observe
- Each point expands away from the others
- This is seen from galaxies moving away from each other, and the further away they are the faster they move

As a result of the initial explosions, the universe continues to expand



5. Further reading

The Solar System (8.1.1) | AQA GCSE Physics Revision Notes 2018 | Save My Exams



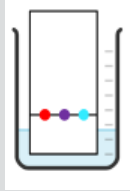
<https://www.savemyexams.com/gcse/physics/aqa/18/revision-notes/8-space-physics/8-1-solar-system-stability-of-orbital-motions--satellites/8-1-1-the-solar-system/>

Year 11 Learning Cycle 2 Science

1. How to approach 6 mark questions in Science - Waves

Question	Compare the uses of _____ and _____.
Info	<p>You could be asked to compare the uses for any of the parts of the electromagnetic spectrum including radio waves, microwaves, infrared, visible light, ultraviolet, x-rays and gamma rays</p> <p>To answer the question, you will need to:</p> <ol style="list-style-type: none"> 1. Identify the uses for the first named part of the electromagnetic spectrum 2. Identify the uses for the second named part of the electromagnetic spectrum 3. Describe the risks of the first named part of the electromagnetic spectrum 4. Describe the risks of the second named part of the electromagnetic spectrum
Top tip	Make sure when you have a compare question you use comparative language. Examples of comparative language have been highlighted in the model answer below
Model answer	<p>Compare the uses of X-Rays and ultraviolet</p> <p>X-rays can be used to detect broken bones and to detect dental problems. X-Rays can also be used to kill cancer cells.</p> <p>In comparison ultraviolet can be used in pre-natal scanning, removing plaque from teeth, removing kidney stones and helping to repair scar damage.</p> <p>X-Rays are ionising and can mutate DNA and damage cells which can lead to cancer.</p> <p>Ultraviolet light can also pose a risk and like X-Rays it is also ionising and can mutate DNA damaging cells which can lead to cancer.</p>
Practice	<ol style="list-style-type: none"> 5. Learn and practice the model answer above. 6. Prepare and learn model answers to compare the uses and risks of: Gamma and X-Rays, Visible light and infrared, microwaves and radiowaves

2. How to approach 6 mark questions in Science - Chemical analysis

Question	Plan an experiment to identify the colours in an _____
Info	<p>You could be asked this question for lots of different substances. Some that have come up in the past include:</p> <ul style="list-style-type: none"> • Inks • Paint • Food colouring • Additives • Drugs <p>To answer this question, you will need to do the following:</p> <ol style="list-style-type: none"> 1. Draw a labelled diagram of your equipment to show how equipment should be set up 2. Describe how you would carry out your experiment 3. Describe what measurements you would take 4. Describe what you would do with these measurements
Top tip	Be clear how you will use Rf values to identify an unknown substance. You need to describe how to find the Rf value and then that you will match this to a known sample
Model answer	<p>Plan a chromatography experiment to investigate the colours of an ink</p>  <p>I would set my equipment up as shown in the diagram. I would place the dots of known colours and a dot of unknown ink on the pencil line using a capillary tube. I would place the bottom of the chromatography paper in the solvent (water) making sure the pencil line was above the solvent. I would then leave it for the solvent to rise up the paper approximately three quarters of the way. I would then remove the chromatography paper and mark where the solvent reached up the paper. I would measure the solvent front and distance the sample moved to calculate the Rf value. If the substance has an Rf value that matches a known sample, it can be identified.</p>
Practice	<ol style="list-style-type: none"> 1. Learn and practice the model answer above. 2. Prepare and learn model answers to determine if a drink contained banned food colourings.

Year 11 Learning Cycle 2 Science

1. How to approach 6 mark questions in Science – Magnetism


Question	Explain how you could determine if a substance is magnetic or not, or a magnet. Describe how you would plot a magnetic field pattern around a bar magnet. Explain why a compass needle moves when placed near the bar magnet.
Info	At least one of the 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 highlighted in your model answers below)
Model answer	Explain how you could determine if a substance is magnetic, non magnetic or a permanent magnet. You would use a permanent magnet . If the magnet has no effect on the material then it is non magnetic. If the magnet attracts the material it is magnetic, while if the magnet can be repelled by the material the material is also magnetic.
Model answer	Describe how you would plot a magnetic field pattern around a bar magnet Place the magnet on a piece of paper and draw around the magnet. Mark a dot by a pole of the magnet and place the compass on the dot. Make a dot at the tip of the compass needle and then move the compass tail to the new dot, make a dot at the tip and then repeat until the compass reaches the other pole of the magnet . You then draw a line through the dots and add arrows to show direction of field line from north to south. You would then repeat for different starting positions at the poles.
Model answer	Explain why a compass needle moves when placed near the bar magnet The compass needle is a small bar magnet and so the compass needle and bar magnet exert a force on each other. This means the compass needle can be attracted and repelled by the bar magnet.
Practice	Learn and practice the model answers above


2. How to approach 6 mark questions in Science – Rates of Reaction


Question	Describe and explain the effect an increase/decrease in ____ has on the rate of reaction
Info	You need to be prepared to explain how temperature, pressure, surface area, concentration and the presence of catalysts affect the rate of reaction. Examples of questions that come up in the past include: State and explain the effect that increasing the temperature of the sodium thiosulfate solution has on the rate of reaction. State and explain the effect using magnesium powder instead of magnesium ribbon has on the rate of reaction. Predict the effect of increasing the concentration of hydrochloric acid when reacting hydrochloric acid and magnesium carbonate/ To answer a question like these you need to: Describe the effect. Include within this if there be an increase or decrease in rate of reaction. Explain why this occurs
Top tip	Make sure you link the idea of particles and collisions in your answer
Model answer	Describe and explain the effect an increase in temperature would have on the rate of reaction. If temperature were to increase, then the rate of reaction would increase also. This is because the particles will have more kinetic energy and so will be more likely to collide with each other. Not only are collisions more likely, but when the particles do collide, they are more likely to be colliding with enough activation energy for the reaction to occur.
Practice	<ol style="list-style-type: none"> Learn and practice the model answer above Construct the learn model answers for the effect on rate of reaction when there is an increase in pressure, surface area and concentration. Construct and learn model answers for the effect on rate of reaction when there is a decrease in pressure, surface area and concentration.

Year 11 Learning Cycle 2 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](#)

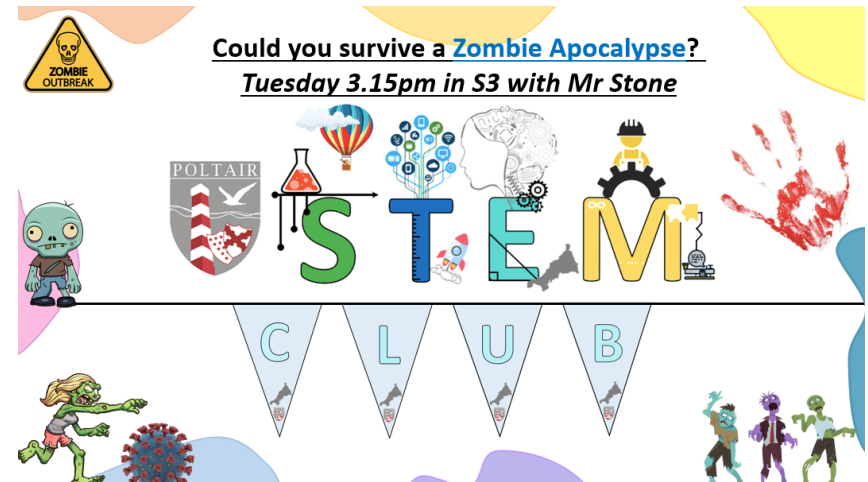
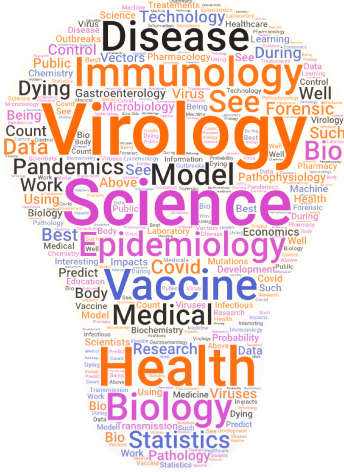
10. [Why is biodiversity so important? - Kim Preshoff | TED-Ed](#)

11. [KS5 Physics Transition workbook 2019.docx - Google Drive](#)

Post 16 GCSE inspirational journals to explore:

1. Physics World  

2. New Scientist



Careers in Science



Biology careers

A collection of videos for a variety of careers within biology



Chemistry careers

A collection of videos for a variety of careers within chemistry



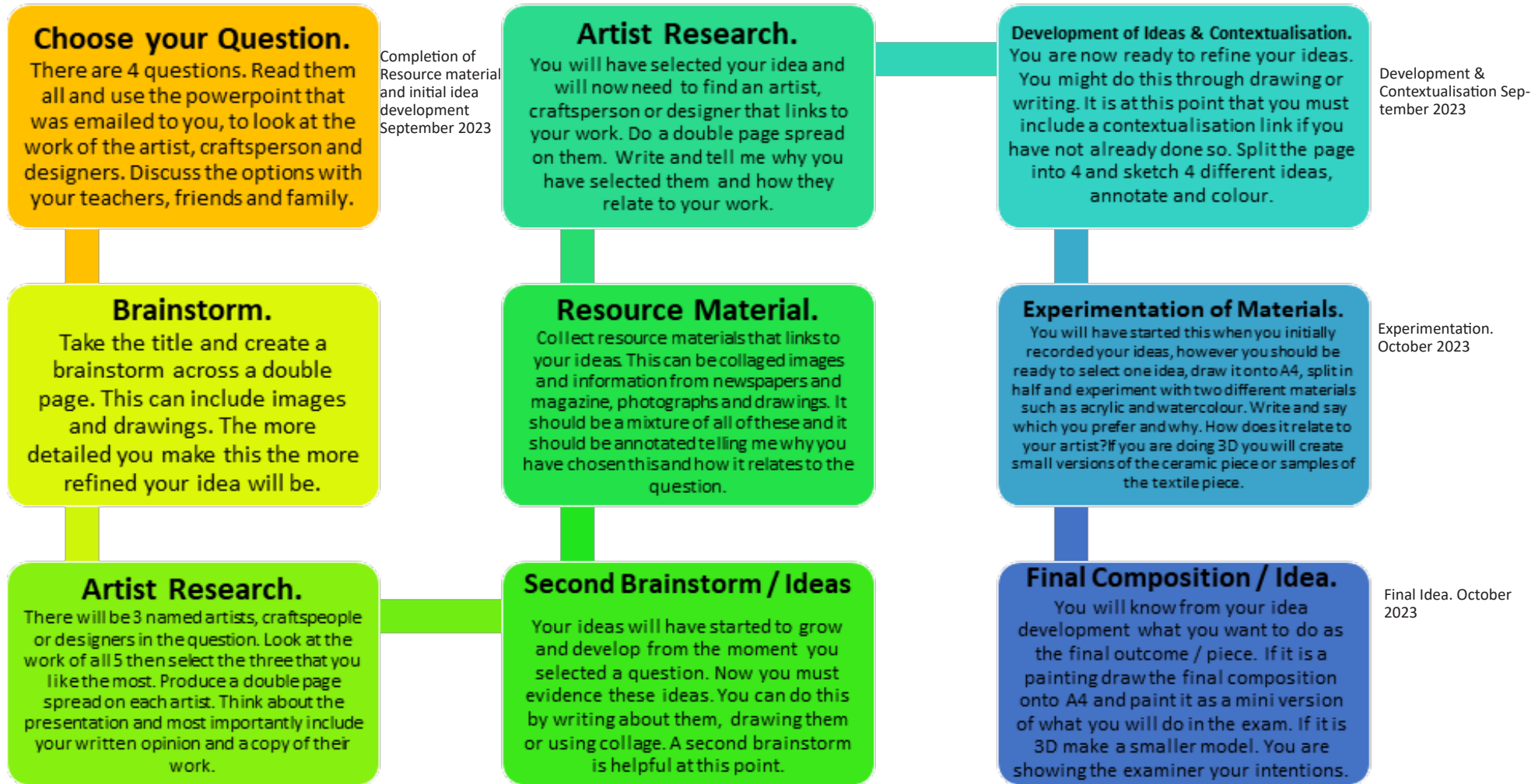
Physics careers

A collection of videos for a variety of careers within physics

Year 11 Learning Cycle 2 Art

Exam Paper out
June 2023.

Brainstorm & Artist
Research complete.
July 2023



Year 11 Learning Cycle 2 Computer Science - Computational thinking, algorithms and programming

1. Computational Thinking

Abstraction	Converting a real world problem into the inputs, processes and outputs needed to solve it. Simplifying and removing unnecessary detail.
Decomposition	Breaking a problem into sub-problems to make the task more manageable or to share tasks.
Algorithmic thinking	Identifying the steps to solve a problem in the right sequence.
Pseudocode	Not an actual programming language. Instead, it is a simple way of describing a set of instructions in a manner that resembles a programming language.

2. File Handling in Python

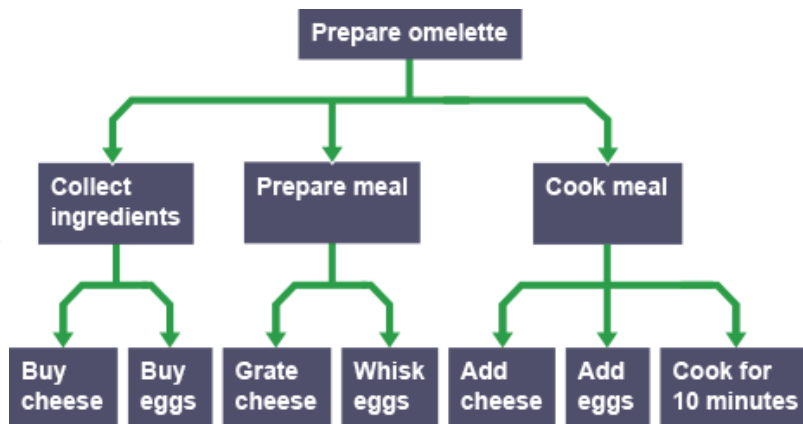
Bubble Sort	Compare the first value in the list with the next one up. If the first value is bigger, swap the positions of the two values.
Merge sort	The list is repeatedly divided into two until all the elements are separated individually. Pairs of elements are then compared, placed into order and combined. The process is then repeated until the list is recompiled as a whole
Insertion Sort	An insertion sort compares values in turn, starting with the second value in the list. If this value is greater than the value to the left of it, no changes are made. Otherwise this value is repeatedly moved left until it meets a value that is less than it. The sort process then starts again with the next value.

3. Searching Algorithms

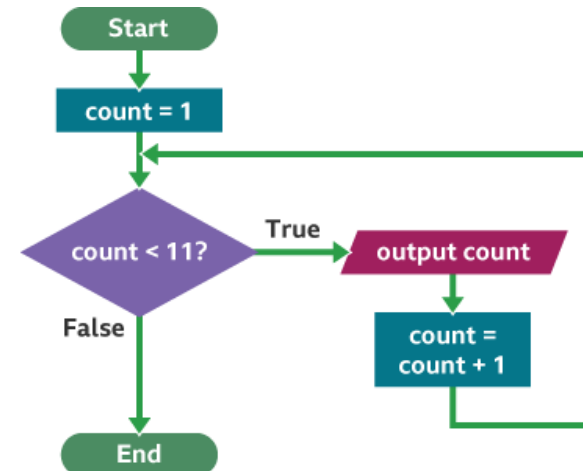
Linear Search	Starting at the beginning of the data set, each item of data is examined until a match is made. Once the item is found, the search ends. Can be quite inefficient.
Binary Search	More efficient algorithm than a linear search. Works on an ordered list, breaking it into 2 parts until the number is found. Divide and Conquer.

4. Structure Diagram

Break down the problem into smaller sections. These smaller sections can then be worked on one at a time.



5. Flow Diagrams



Year 11 Learning Cycle 2 Computer Science - Producing Robust Programs

1. Defensive Design

Protection against unexpected user inputs or actions , user entering a letter where a number was expected	
Maintainability	Ensuring code is readable and understandable: use comments, indents, variable names.
Errors	Minimising / removing bugs
	Error Types Syntax: errors - the writing of the code Logic errors – output unexpected

2. Test Data

Valid data - sensible, possible data that the program should accept and be able to process

Extreme data - valid data that falls at the boundary of any possible ranges

Invalid (erroneous) data - data that the program cannot process and should not accept

Example test table for 'Name'

Number	Input	Expected	Actual
1	Joe (valid)	No error	
2	X (extreme)	Re-enter	
3	12345 invalid	Re-enter	

3. Testing Types

Check	Example
Range check	A number or date is within a sensible/allowed range
Type check	Data is of the right type, such as integer, letter or text
Length check	Text entered is not too long or too short – for example, a password
Presence check	Checks that data has been entered, i.e. the field has not been left blank
Format check	Checks that the format of, for example, a postcode or email

Iterative testing is carried out while a program is being developed. The programmer writes a section of code (module) then tests it. The module may work fine, but more likely the programmer will amend or fix the code, and test it again. The process repeats (iterates) until the module works as intended.

Final (terminal) testing is carried out when all modules are complete and the program is tested as a whole to ensure that it functions as it should.

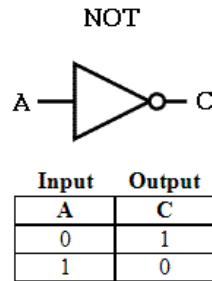
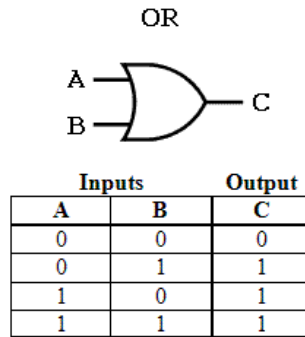
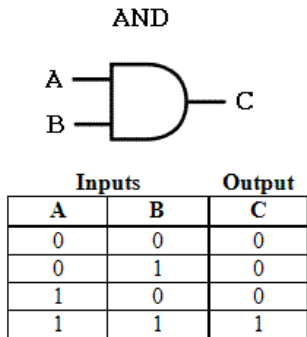
Year 11 Learning Cycle 2 Computer Science - Boolean Logic

1. Boolean Logic

Logic Diagrams

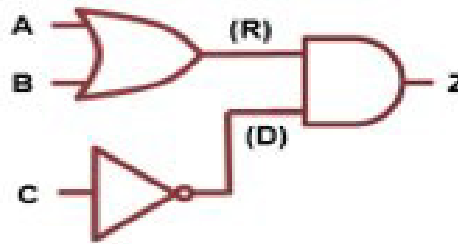
Boolean Operators

AND, OR, NOT Truth Tables



Logic Expressions

$$Z = (A \text{ OR } B) \text{ AND } (\text{NOT } C)$$



A	B	C	(R)	(D)	Z
0	0	0	0	1	0
0	0	1	0	0	0
0	1	0	1	1	1
0	1	1	1	0	0
1	0	0	1	1	1
1	0	1	1	0	0
1	1	0	1	1	1
1	1	1	1	0	0

2. Languages

Low level languages:

- Machine Code 101011 001001
- Assembly Language LDA 51

High level languages: (Python, Scratch, C#)

- Source code `total = qty * val`

Compiler translates program to object code

Interpreter translates and executes line by line

Translating into Machine Code

- **Assembler** Translates each mnemonic and value into binary 1:1

LDA 51 → 101011001001

- **Compiler** Translates the entire program



- **Interpreter** Translates and executes one line at a time. Must be present to run the program

Integrated development environment (IDE) is used because:

- Source code editor.
- Error debugger.
- Run time environment.
- Translator (compiler or interpreter).
- Automation tools

Year 11 Learning Cycle 2 DT - Briefs, Specifications, ideas & development

1. 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

2. 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.

3. 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • A 3D drawing method • Often used by interior designers and architects • Gives drawings depth • Only uses 1 vanishing point 	
2-Point Perspective	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Quick and easy way of getting ideas down • Range of ideas can be seen • Annotation helps explain designs further 	
Exploded View	<ul style="list-style-type: none"> • Helps see a final design of a product and all it's parts • Can see where all the parts fit • Great for manufacturers 	

4. 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.

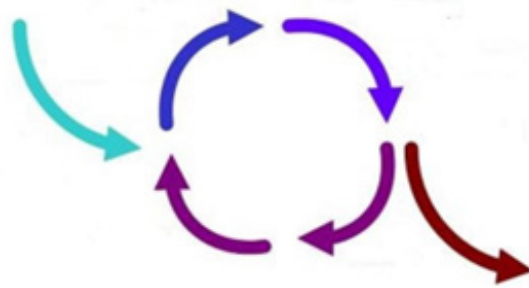
Modelling helps the designer get feedback from the customer, check aesthetics, function, sizes and even materials and production methods and change them if needed

Year 11 Learning Cycle 2 DT - Design strategies

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

1. 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
<ul style="list-style-type: none"> • Consistent testing helps solve problems earlier • Constant feedback • Easy evidence of progress 	<ul style="list-style-type: none"> • Designers can lose sight of “the big picture” • Time consuming

2. 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
<ul style="list-style-type: none"> • User feels listened to • Makes sure the product meets their needs 	<ul style="list-style-type: none"> • Requires extra time to get customer feedback • If focused on just one person it can limit appeal to others

3. 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
<ul style="list-style-type: none"> • Does not need specialist knowledge • Easy to communicate stages • Easy to find errors 	<ul style="list-style-type: none"> • Sometimes over-simplifies stages • Can lead to unnecessary stages

4. 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
<ul style="list-style-type: none"> • Gets multiple opinions and a range of views • Working in groups can produce more ideas 	<ul style="list-style-type: none"> • Can be difficult to design ideas with opposing views • Can be difficult to find time to communicate with multiple people

Year 11 Learning Cycle 2 DT - Environment

1. 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

2. 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.

3. 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • A 3D drawing method • Often used by interior designers and architects • Gives drawings depth • Only uses 1 vanishing point 	
2-Point Perspective	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Quick and easy way of getting ideas down • Range of ideas can be seen • Annotation helps explain designs further 	
Exploded View	<ul style="list-style-type: none"> • Helps see a final design of a product and all it's parts • Can see where all the parts fit • Great for manufacturers 	

4. 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.

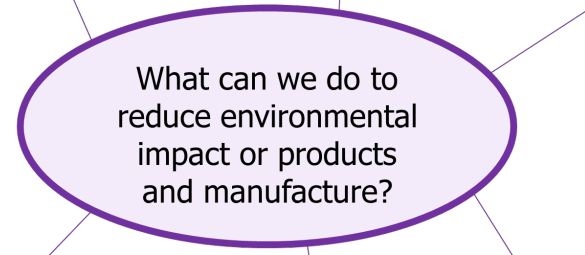
Modelling helps the designer get feedback from the customer, check aesthetics, function, sizes and even materials and production methods and change them if needed

Year 11 Learning Cycle 2 DT - Environment

1. 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

Reducing **Product Miles** buy making the product in the country it is sold in

Planting more trees to reduce **deforestation**



Reducing **Pollution** by using less plastics, efficient manufacture, less waste and

Recycling products and materials

2. 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)

3. 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-bred. Will not run out of

- Paper
- Boards
- Natural Timbers
- Cotton
- Leather

4. 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 resources

Year 11 Learning Cycle 2 DT - People, Society and Culture

1. 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.

2. 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 population, 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.



3. 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 benchmark 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

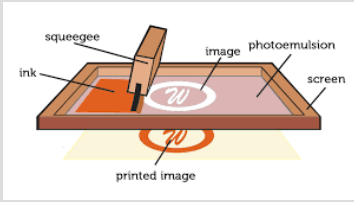
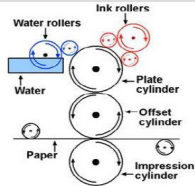
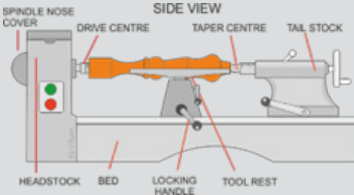
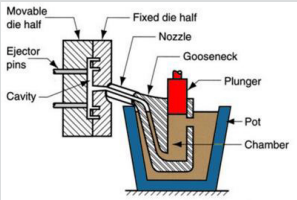
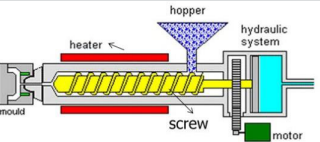
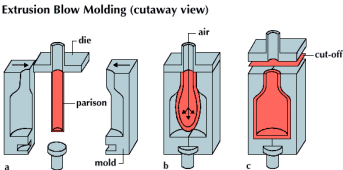


4. Inclusive vs. Exclusive Design


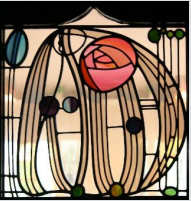

Inclusive Design: The aim to create a product that as many people as possible can use. Examples include; Cars, Doorframes, Adjustable Products, etc.



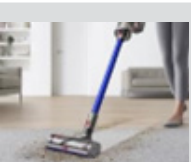
Exclusive Design: The aim to create a product for a particular group and their needs. Examples include; Car seats for babies, Wheelchairs, Stair Lifts

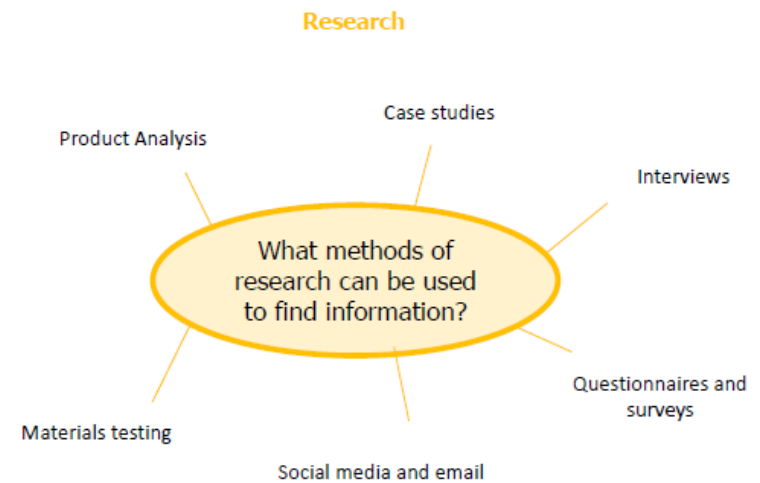
Year 11 Learning Cycle 2 DT - Production Processes

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, plastic 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 11 Learning Cycle 2 DT - Work of others and Customer Research

Image/ Example	Designer	Design Movement	Key info
	William Morris	Arts and Crafts	<ul style="list-style-type: none"> British designer in 1880s Simple natural crafts Useful and beautiful products (wallpapers, cushions, etc.)
	Charles Rennie Mackintosh	Art Nouveau	<ul style="list-style-type: none"> Scottish designer in 1860s – 1920s Known for light and shadow Created stained glass and furniture Inspired by nature and geometric lines
	Ettore Sottas	Memphis	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Italian Design Company Homeware and kitchen utensils “Post-modern” style Phillipe Starke is a major designer
	Apple	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<p>The application of anthropometrics to ensure products are safe and comfortable to use. This can also include; size, material, appearance, brightness, sound and texture.</p> <p>E.g. making sure the travel cup is the correct size, and an insulating smooth material to make it comfortable</p>

Year 11 Learning Cycle 2 Engineering - Understanding function & meeting requirements

1. Primary features of engineering products

Engineers need to be familiar with a range of components and parts that may appear in potential briefs or projects. These should include:

Electrical components

- **Connections:** these can include push fit electrical tabs, solder, screw down, etc..
- **LEDs:** a range of LED forms and sizes including bar graph, eight segment blocks and LED panels.
- **Resistors:** fixed and variable resistors.
- **Fuses:** their application and purpose.
- **Diodes:** identifying and understanding their use in a circuit.
- **Power supplies:** battery types, mains and low voltage systems.
- **Mechanical components**
- **Fixings:** nuts, bolts, washers, etc..
- **Clamping devices:** cam locks, level locks, etc..
- **Adjusting mechanisms:** screw threads, ratchet systems and cams.

Properties of component materials

- **Conductivity:** looking at conductivity of both heat and electrical current, plus how these can be isolated when needed.
- **Friction:** the effects that friction can have on a product including intentional friction.
- **Durability:** how durable is the product, look at the materials and construction.
- **Quality:** does the quality of the product look high or low grade, flash on mouldings, sink marks in plastic, uneven fit of parts, etc..

Identifying features of other engineering products

allows engineers to research and compare other similar products to determine if there are features that could be replicated or adapted to meet the criteria for the new-engineered product in the brief.

For example:

Aesthetics: looking at how the aesthetic of other similar products meet the brief. Aesthetics focus on how a product looks.

User/customer/client needs: how the products final outcome meet the needs of user and client.

Safety: what safety factors or features are evident in the design.

Ergonomics: how well do the ergonomics of the product function (comfort, use etc..).

Anthropometrics: does the product conform to standard anthropometric data.

Mechanisms: what mechanisms are featured, gears, levers, cranks, etc..

Electronics: how have electronics been incorporated, what components have been used.

Sustainability: has sustainable materials been used, is it easy to recycle the product?

Material properties: what properties are required or seen in the materials used. Look at hardness, toughness, malleability, brittleness, etc..

2. Function of the proposed solution

Functional requirements are identified in briefs and specifications for engineered products and are an explanation of what the expectations of the product are.

Engineers need to ensure that details of how the product functions is clearly explained. This is often undertaken using notes and sketches to further detail their solutions.

Details should be given on areas such as:

Mechanical function: should include any mechanisms in the solution, gears, cams and levers, as well as mechanical fixings such as clamps and catches should be explained.

Electrical function: should detail the electrical or electronic details of a solution. Details on inputs, outputs and components could feature in this area.

Interrelating components: should also be details, especially if unclear from an engineering drawing. Electrical input resulting in a mechanical output, for example.

Year 11 Learning Cycle 2 Engineering - Proposing Design Solutions

1. Generating a range of engineering solutions

Engineers create new products through a process of research and iterative development.

Research can include the analysis of products that may have similar solutions or even parts of them could be incorporated into a new idea.

The brief should be followed in all areas to ensure that solution and proposals meet the specific requirements of the task. If a specification is issued alongside the brief, then those points should also appear in annotation within the design process.

Sketches should be used to explore a range of ideas but should be fully supported by clear and detailed annotation. Where appropriate, links or references to a brief and specification should be present.

Development should be clearly annotated and form a part of an iterative process that clearly shows how the idea has progressed through to a final conclusion. Again, annotation and links to the specification and brief should clearly be evident.

CAD can be used to show clear development and is an excellent tool to make the iterative process clearer. Designs can be modified and saved in stages prior to presenting. It is also a good way of generating engineering drawings for the final solution. CAD also allows the production of high quality and realistic visuals.

Testing is used to support development of ideas and can focus on a number of areas:

Aesthetics: seeing how the overall product looks from a visual sense.

Materials: testing on materials to see if they are fit for purpose.

Ergonomics: can be tested to see if the interface between product and user meets expectations.

Mechanical: simple tests to check if mechanisms work in the way expected.

Electronic: tests on circuits using breadboards or prototypes.

2. Developing ideas through to a conclusion

Ensuring that all aspects linked to the brief and design specification are addressed is a vital part of the designing stages. As a part of this process, evaluative methods such as a SWOT analysis should be undertaken against a small number of design ideas.

SWOT analysis looks at four key areas of selected design proposals:

1. **(S) Strengths:** these focus on the strengths of the design, what works well, what makes it better than the competitors' products, etc..
2. **(W) Weaknesses:** explore areas that need improving to ensure the design is successful.
3. **(O) Opportunities:** unexpected benefits from the design.
4. **(T) Threats:** looks at what could be problematic for the design, such as a better product being launched by a competitor

3. Communicating design ideas

The information in design proposals needs to be relevant and use a suitable media to display the information. Sketches and CAD are the most common form of displaying ideas and development stages.

It's important that sketches have a logical structure so that the iterative nature of the development of ideas can be seen. Annotation should include appropriate terminology associated with design and engineering.

Ideas are often easier to explain when supported by models and detail sketches showing more complex sections in possibly enlarged details, exploded views or isometric.



Models, such as the above example (of a torch), can use a variety of materials including paper and card, foam, clay or other materials.

They are not required to be fully detailed or functional but to be a visual aid to assist in the design process

Year 11 Learning Cycle 2 Engineering - Using engineering tools and equipment

1. Producing a manufacturing specification

Before undertaking any making, a complete manufacturing specification should be produced. This should be a document to guide the manufacturers on how to produce the engineered product, as well as providing specification points that must be met during, and at the end of manufacture.

Parts of the information may already be given on sections of drawings from sketch sheets and testing outcomes however, the manufacturing specification pulls all of this information together into a concise document, making it easier to find key information. For example:

Materials information should be included to inform the manufacturer what materials each part should be made from. This may include stock material as well as any additional details about quality, etc..

Technical details should include details of any components used as well as specific tolerances linked to finished parts. This section should also identify bought in parts such as fixings, hinges, brackets, etc..

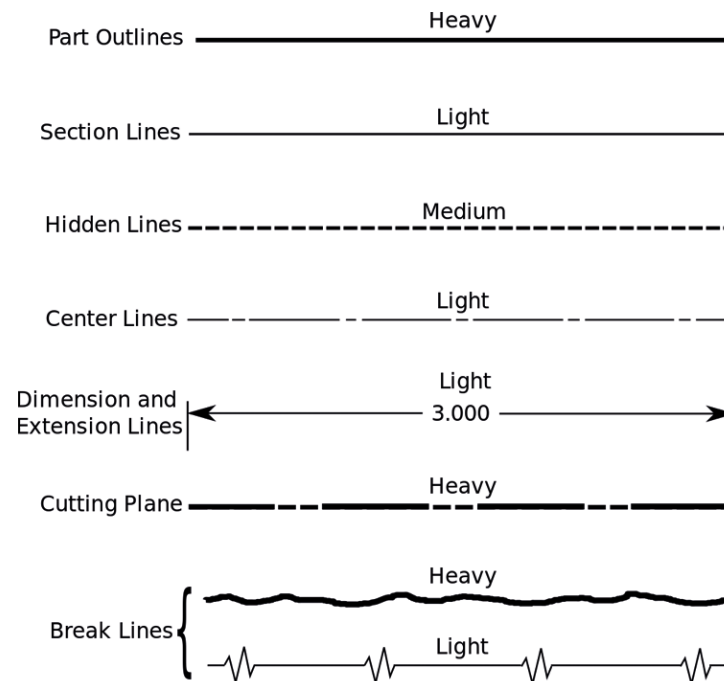
Finishing details focuses on the type of finish applied to each manufactured part, these could be machine finishes such as knurling or polishing or applied finish such as anodising or spray painting. Other finishes, such as printing or spark eroding, could also be covered here.

2. Drawing an engineering design to standards

Engineering drawings are used to provide all of the details for items to be manufactured in all areas of design and engineering.

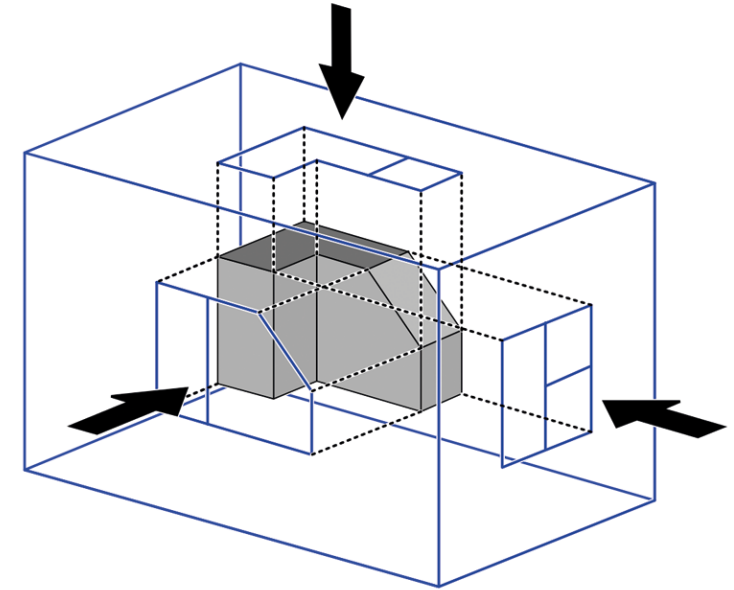
Engineering drawings must follow a set of conventions laid out by **British standards** and these dictate the way that the drawings should be laid out, dimensioned, what scales should be used as well as the types of lines to be used to depict certain views and actions.

In the United Kingdom, designers and engineers use the **third angle projection** method to layout their information on plans and drawings. Drawings undertaken using traditional drawing boards must follow the same conventions as those drawn on CAD (computer aided design) using PC's.



Line weights in engineering drawings also follow British standards and should again be used in traditional and CAD work.

Isometric drawings should be used to illustrate an accurate three dimensional representation of the part of product. Lines are set up on 30° angles using an isometric grid.



Associate symbols on drawings, including:

- Dimensions and associated symbols:
 - **Diameter:** the size of a line that runs from one side of a circle, through the centre to the opposite side
 - **Circumference:** the perimeter of a circle or ellipse
 - **Radius:** half of the diameter
 - **Height, depth and width.**
- Conventions, such as:
 - **Title block:** gives additional information on a drawing such as scale, name and title
 - **Dimension lines:** the actual sizes on an engineering drawing
 - **Extension lines:** continue or extend from the surface of the object and establish the size of the dimension
 - **Centre lines:** show the exact centre of a circle or arc
 - **Metric:** units of measurements to be used.

Year 11 Learning Cycle 2 Engineering - Solving applied engineering problems

1. Using mathematical techniques

Engineers use mathematical techniques to solve areas of engineering design problems across a wide range of areas, such as:

Area and volume is often required to be calculated to understand material us, cost, weight, etc..

Ohm's Law is commonly used in electronics for calculating the correct resistor to use with an LED or the amount of amps of a circuit.

Estimates are created to predict prices of material and production rates.

Ratios are calculated by equations to determine mechanical advantage in gears, levers and pulleys.

Linear dimensions often need to be calculated to ascertain a total dimension size on a drawing.

Scale may be applied to enlarge and reduce parts and components on engineering drawings.

Costings should be used to calculate the price totals of a range of items on a design such as:

- Cost of electronic components to be used in a circuit
- Unit process on parts created from stock sizes
- Quantity process of components parts such as nuts, bolts, washers, etc..

2. Justifying suitable materials for use in an engineered final solution

Engineers must specify what materials are to be used to produce each component part within their design solution.

The materials must be appropriate and fit for purpose to meet the requirements placed upon them such as friction, torsion, loads, etc..

To successfully achieve this, testing should be undertaken to ensure that the selected or proposed materials are suitable for the task intended. Test can include destructive and non-destructive tests such as:

Impact testing: how the material reacts to being struck by a weight or load.

Tension testing: how the material responds to forces pulling in opposing directions.

Compression test: the materials ability to resist deforming when squeezed together.

Shear test: the materials ability to resist snapping (sheering) when a load is applied to it.

All of these tests are in indications of a materials characteristics such as:

- Hardness
- Density
- Ductility
- Elasticity
- Plasticity

3. Justifying suitable processes for manufacturing the final engineered solution

Engineers need to suggest or select appropriate manufacturing techniques for their engineered solutions. These should include:

Method for material removal should focus on how forms can be achieved using cutting and filing techniques or using equipment such as lathes and millers.

Methods for shaping material should make recommendations to tools and equipment, which could be used to fabricate shapes through bending or forming. This could include the use of a sheet metal bender, vacuum former, strip heater for plastics, etc..

Joining methods covers both permanent and temporary fixings. Brazing, soldering and welding could be applied as well as riveting or using nuts and bolts or other temporary methods.

Assembly methods should look at how components and parts are put together. Is there a sequence? Does one part need to be assembled before another can be but in place?

Heat and chemical treatments should focus on the need to anneal or temper materials. Chemicals can be applied to clean or etch metals.

Finishing should state what finish is to be applied to a part such as knurling or painting.

Year 11 Learning Cycle 2 French

1. Essential verb phrases

I am	Je suis
He/she is	Il / elle est
I have	J'ai
He/she has	Il / elle a
I like	j'aime
He/she likes	il / elle aime
I go	je vais
He/she goes	il/elle va
I went	Je suis allé(e)
He / she went	Il est allé / elle est allée
I had a blast	je me suis éclaté
It was	c'était
There was	il y avait
I'm going to...	je vais + infinitive verb
He / she is going to	Il / elle va + infinitive
We are going to	Nous allons + infinitive
I would like to	Je voudrais + infinitive
He / she would like to	Il / elle voudrait + inf
I will go	j'irai
I will watch / see	je verrai
It will be	ce sera

2. Connectives

Furthermore	de plus/en outre
However	cependant/pourtant
Above all	cependant/pourtant
Because of (this)	à cause de (cela)
Therefore	donc par conséquent

3. Wow Phrases

Just add the infinitive of any verb!	
I am thinking of	je pense à
I am going to	je vais...
I was going to	j'allais...
I used to like	j'aimais
I would love	j'aimerais
I fancy (doing something)	j'ai envie de
I want	je veux
I wanted to	je voulais
I would have liked to	j'aurais voulu
I would have preferred to	j'aurais préféré
It's worth (doing)	ça vaut la peine de
I can (not)	je (ne) peux (pas)
I tend to	j'ai tendance à
I must	je dois
I should	je devrais
I had to	j'ai dû
I have been able to	j'ai pu
Just add the conditional - I would...	
If it were possible...	si c'était possible
If I were rich...	si j'étais riche
If I were a millionaire...	si j'étais millionnaire
If I were more...	si j'étais plus
If I had lots of money...	si j'avais beaucoup d'argent
If I had enough time...	si j'avais beaucoup d'argent
If I had	si j'avais
If I had more...	si j'avais plus de
If I could...	si j'avais plus de
If I went back	si j'y retournais
If I were there	si j'y retournais
If I lived there	si j'y retournais

4. Opinions

Giving an opinion	
from my point of view	de mon point de vue
In my opinion	à mon avis
In my eyes	dans mes yeux
In my way of seeing it	dans ma façon de voir
For me	pour moi
I would say that...	je dirais que...
He/she says that...	il/elle dit que...
He/she told me that	il/elle m'a dit que...
Not only... but also...	non seulement... mais...
There is not doubt that	il ne fait aucun doute que
It's a hot topic	il ne fait aucun doute que
An advantage	Un avantage
A disadvantage	Un inconvénient
Exclamations	
What a shame!	Quel dommage!
What a pity!	Quel malheur!
What a hassle!	Quelle histoire!
What a drag!	Quelle corvée!

5. Further Reading



Grammar revision:

<https://www.bbc.co.uk/bitesize/topics/zfs647h>

All topic revision:

<https://www.bbc.co.uk/bitesize/topics/zfs647h>



Top phrases for writing and speaking:

<https://www.youtube.com/watch?v=Gm48xHiLBIQ>

Year 11 Learning Cycle 2 Geography - UK Economy

Case Study: Economic Change in the UK

UK in the Wider World

The UK has one of the largest economies in the world.

The UK has huge political, economic and cultural influences.

The UK is highly regarded for its fairness and tolerance.

The UK has global transport links i.e. Heathrow and the Eurostar.



Causes of Economic Change

De-industrialisation and the decline of the UK's industrial base.

Globalisation has meant many industries have moved overseas, where labour costs are lower.

Government investing in supporting vital businesses.

Towards Post-Industrial

The quaternary industry has increased, whilst secondary has decreased.

Numbers in primary and tertiary industry has stayed the steady.

Big increase in professional and technical jobs.

Developments of Science Parks

Science Parks are groups of scientific and technical knowledge based businesses on a single site.

- Access to transport routes.
- Highly educated workers.
- Staff benefit from attractive working conditions.
- Attracts clusters of related high-tech businesses.

CS: UK Car Industry

Every year the UK makes 1.5 million cars. These

factories are owned by large TNCs. I.e. Nissan.

- 7% of energy used there factories is from wind energy.
- New cars are more energy efficient and lighter.
- Nissan produces electric and hybrid cars.

Change to a Rural Landscape

Social

Rising house prices have caused tensions in villages.

Villages are unpopulated during the day causing loss of identity.

Resentment towards poor migrant communities.

Economic

Lack of affordable housing for local first time buyers.

Sales of farmland has increased rural unemployment.

Influx of poor migrants puts pressures on local services.

Improvements to Transport

A £15 billion 'Road Improvement Strategy'. This will involve 10 new roads and 1,600 extra lanes.

£50 billion HS2 railway to improve connections between key UK cities.

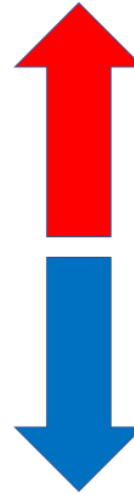
£18 billion on Heathrow's controversial third runway.

UK has many large ports for importing and exporting goods.

UK North/South Divide

- ✗ Wages are lower in the North.
- ✗ Health is better in the South.
- ✗ Education is worse in the North.
- ✓ The government is aiming to support a Northern Powerhouse project to resolve regional differences.
- ✓ More devolving of powers to disadvantaged regions.

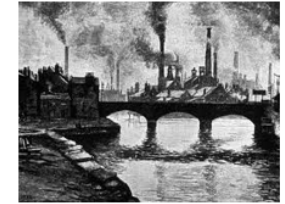
Why is there a north-south divide?



Industrial Revolution

UK growth was centred around the coalfields of Wales, N England and Scotland

Heavy industries thrived in Sheffield, Glasgow & Manchester

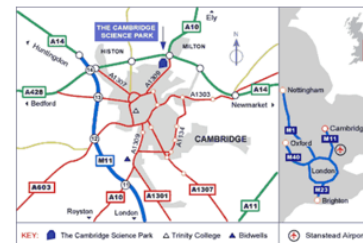


Industrial Decline

Since the 1970's steel & heavy industries have declined

Unemployment has increased

Coalfields have become exhausted



The location of Cambridge Science Park at a national and regional scale

By train from Cambridge Science Park it takes 52 minutes to get to London

Close to Stansted airport (Gatwick and Heathrow via the M25)



Background information

The Cambridge Science Park, founded by Trinity College in 1970 is the oldest Science Park in the United Kingdom. It is a concentration of science and technology related businesses, and has strong links with the nearby city of Cambridge. Cambridge Science park is home to more than 100 businesses which are involved in lots of areas of expertise such as medical, IT and environmental. There is a large range of services on site to help the people who work in the Park. Some of the environmentally friendly services include recycling facilities and landscaping to attract more wildlife to the area



The science Park is close to Cambridge University so that it can draw on scientific knowledge of many experts.

Facilities:

- Landscaped surroundings
- Nurseries
- Health and fitness centre
- Cafes
- Conference facilities

Microsoft

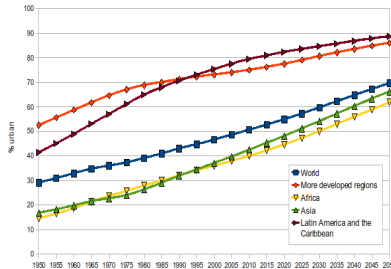
Cambridge science park received a huge boost when Microsoft pledged £50 million to build its first European computer research centre there in 1997.



Year 11 Learning Cycle 2 Geography - Urban Issues

1. What is Urbanisation?

This is an increase in the amount of people living in urban areas such as towns or cities. In 2007, the UN announced that for the first time, more than 50% of the world's population live in urban areas.



Where is Urbanisation happening?

Urbanisation is happening all over the world but in LICs and NEEs rates are much faster than HICs. This is mostly because of the rapid economic growth they are experiencing.

2. Causes of Urbanisation

Rural - urban migration (1)

The movement of people from rural to urban areas.

Push

- Natural disasters
- War and Conflict
- Mechanisation
- Drought
- Lack of employment

Pull

- More Jobs
- Better education & healthcare
- Increased quality of life.
- Following family members.

Natural Increase (2)

When the birth rate exceeds the death rate.

Increase in birth rate (BR)

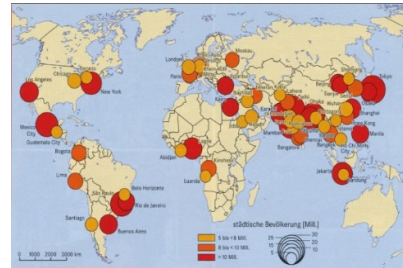
- High percentage of population are child-bearing age which leads to high fertility rate.
- Lack of contraception or education about family planning.

Lower death rate (DR)

- Higher life expectancy due to better living conditions and diet.
- Improved medical facilities helps lower infant mortality rate.

3. Types of Cities

Megacity - An urban area with over 10 million people living there.



More than two thirds of current megacities are located in either NEEs (Brazil) and LICs (Nigeria). The amount of megacities are predicted to increase from 28 to 41 by 2030

4. Sustainable Urban Living

Sustainable urban living means being able to live in cities in ways that do not pollute the environment and using resources in ways that ensure future generations also can use them.

Water Conservation

This is about reducing the amount of water used.

- Collecting rainwater for gardens and flushing toilets.
- Installing water meters and toilets that flush less water.
- Educating people on using less water.

Creating Green Space

Creating green spaces in urban areas can improve places for people who want to live there.

- Provide natural cooler areas for people to relax in.
- Encourages people to exercise.
- Reduces the risk of flooding from surface runoff.

Energy Conservation

Using less fossil fuels can reduce the rate of climate change.

- Promoting renewable energy sources.
- Making homes more energy efficient.
- Encouraging people to use energy.

Waste Recycling

More recycling means fewer resources are used. Less waste reduces the amount that eventually goes to landfill.

- Collection of household waste.
- More local recycling facilities.
- Greater awareness of the benefits in recycling.

Sustainable Urban Living Example: Freiburg

Background & Location

Freiburg is in west Germany. The city has a population of about 220,000. In 1970 it set the goal of focusing on social, economic and environmental sustainability.

Sustainable Strategies

- The city's waste water allows for rainwater to be retained.
- The use of sustainable energy such as solar and wind is becoming more important.
- 40% of the city is forested with many open spaces for recreation, clean air and reducing flood risk.

Integrated Transport System

This is the linking of different forms of public and private transport within a city and the surrounding area.

Brownfield Site

Brownfield sites is an area of land or premises that has been previously used, but has subsequently become vacant, derelict or contaminated.

Traffic Management

Urban areas are busy places with many people travelling by different modes of transport. This has caused urban areas to experience different traffic congestion that can lead to various problems.

Environmental problems

Traffic increases air pollution which releases greenhouse gases that is leading to climate change.

Economic problems

Congestion can make people late for work and business deliveries take longer. This can cause companies to lose money.



Year 11 Learning Cycle 2 Geography - Urban Issues

Social Problems

There is a greater risk of accidents and congestion is a cause of frustration. Traffic can also lead to health issues for pedestrians.

Congestion Solutions

- Widen roads to allow more traffic to flow easily.
- Build ring roads and bypasses to keep through traffic out of city centres.
- Introduce park and ride schemes to reduce car use.
- Encourage car-sharing schemes in work places.
- Have public transport, cycle lanes & cycle hire schemes.
- Having congestion charges discourages drivers from entering the busy city centres.



Traffic Management Example: Bristol

In 2012 Bristol was the most congested city in the UK. Now the city aims to develop its integrated transport system to encourage more people to use the public transport. The city has also invested in cycle routes and hiring schemes.



Greenbelt Area

This is a zone of land surrounding a city where new building is strictly controlled to try to prevent cities growing too much and too fast.

Urban Regeneration

The investment in the revival of old, urban areas by either improving what is there or clearing it away and rebuilding.

Urban Change in a Major NEE City: RIO DE JANEIRO Case Study

Location and Background

Rio is a coastal city situated in the South East region of Brazil within the continent of South America. It is the second most populated city in the country (6.5 million) after Sao Paulo.



City's Importance

- Has the second largest GDP in Brazil It is headquarters to many of Brazil's main companies, particularly with Oil and Gas.
- Sugar Loaf mountain is one of the seven wonders of the world.
- One of the most visited places in the Southern Hemisphere.
- Hosted the 2014 World Cup and 2016 Summer Olympics.

Migration to Rio De Janeiro

The city began when Portuguese settlers with slaves arrived in 1502. Since then, Rio has become home to various ethnic groups.

However, more recently, millions of people have migrated from rural areas that have suffered from drought, lack of services and unemployment to Rio. People do this to search for a better quality of life.

This expanding population has resulted in the rapid urbanisation of Rio de Janeiro.

City's Opportunities

Social: Standards of living are gradually improving. The Rio Carnival is an important cultural event for traditional dancing and music.

Economic: Rio has one of the highest incomes per person in the country. The city has various types of employment including oil, retail and manufacturing.

Environmental: The hosting of the major sporting events encouraged more investment in sewage works and public transport systems.

City Challenges

Social: There is a severe shortage of housing, schools and healthcare centres available. Large scale social inequality, is creating tensions between the rich and poor.

Economic: The rise of informal jobs with low pay and no tax contributions. There is high employment in shanty towns called Favelas

Environmental: Shanty towns called Favelas are established around the city, typically on unfavourable land, such as hills.

Self-help schemes - Rocinha, Bairro Project

- The authorities have provided basic materials to improve peoples homes with safe electricity and sewage pipes.
- Government has demolished houses and created new estates.
- Community policing has been established, along with a tougher stance on gangs with military backed police.
- Greater investment in new road and rail network to reduce pollution and increase connections between rich and poor areas.



Year 11 Learning Cycle 2 History - Weimar and Nazi Germany, 1918-1939

Key Topic 1: What was the impact of the First World War?

Constitution	System of rules by which a country is governed
Extremist	People on the far left/far right of the political scale.
Freikorps	Nationalist (right wing) ex-soldiers, who lost their jobs in the Treaty of Versailles cuts. They later became Hitler's SA.
Hyperinflation	Very rapid inflation. Increased prices and a fall in the value of money
Proportional Representation	Voting system where a 'proportion' of the seats are awarded based on the 'proportion' of the vote they get
Putsch	An uprising, an attempt to overthrow government
Reichstag	Germany's Parliament
Reparations	Compensation for war damages, paid by a defeated state.
Hyperinflation	Very rapid inflation. Increased prices and a fall in the value of money
Weimar	A town in Germany where the German Government was set up in 1919. It became known as the Weimar Republic.

Key Topic 2: How did Hitler rise to power?

Communists	<p>A left-wing party (KPD) which wanted to more equality for the working classes.</p> <p>Grew in power during the Great Depression, leading to many industrialists and middle classes turning to Hitler.</p>
Gau	Regional branch of the Nazi Party (e.g. Berlin) Run by a Gauleiter
NSDAP	National Socialist German Workers Party. Hitler became the leader in 1920
Propaganda	<p>Goebbels used posters, newspapers and the radio to spread the Nazi message and grow Hitler's support during the Great Depression. This included:</p> <ul style="list-style-type: none"> Ignore the Treaty of Versailles and stop paying reparations Create work schemes Blaming the Jews and Communists for Germany's problems
SA	Sturmabteilung. Mostly Freikorps (ex-soldiers) set up by Hitler to control violence at political meetings and to intimidate political opposition
25 Point Programme	The NSDAP's manifesto, written by Hitler. Contained ideas about nationalism pure German blood and anti-Semitism

Key Topic 3: How did the Nazis create a dictatorship?

Concentration Camp	Created initially as 're-education camps' for enemies of the Reich. These were initially for political prisoners but expanded to include Jews, Homosexuals, 'work-shy' and Jehovah's Witnesses. The first was Dachau.
Concordat	Agreement with the Catholic Church (Pope). Hitler would not interfere with the Church, if they Church stayed out of politics. Hitler broke the concordat by arresting priests and closing down Catholic youth groups.
Gestapo	Created as Secret Police (1933) Himmler was in charge.
Indoctrination	The process of teaching a person or group to accept a set of beliefs uncritically. (Brainwashing)
Propaganda	<p>Very important in making people think Nazi ideas.</p> <ul style="list-style-type: none"> The Nazis controlled all newspapers and encouraged everyone to have a radio. They held mass rallies with speeches, flags and marching. The Nazis made films which were anti-Semitic and showed German History in a positive way. Literature was also controlled - books by non-German or Jewish authors were banned and burnt.

Key Topic 4: What was life like in Nazi Germany?

Conscription	Calling men up to fight in the army
Euthanasia	'Mercy killing'. The Nazis introduced a programme of euthanasia for many people who were physically/mentally disabled
Hitler Youth	Youth Club for the Nazi party, different groups for boys and girls, they were taught Nazi ideas. Boys prepared for army, girls to be wives and mothers.
Invisible unemployment	Ignoring groups of unemployed people to make the unemployment figures look better.
Job creation schemes	Ways of creating jobs for those who were unemployed
Kristallnacht	'The night of the broken glass' November 1938 Jewish homes and synagogues were attacked, many were arrested and sent to concentration camps.
Nuremberg Laws	Passed in 1935 this was a series of laws removing Jewish people's citizenship rights
Rearmament	Rebuilding the army
Reich Labour Service (RAD)	Work scheme for men 18-25 to ensure they had a job (very much like military life in the way it is run)
Strength Through Joy (KdF)	Nazi organisation to reward workers (could go on holidays, save up for a car etc..)

Year 11 Learning Cycle 2 History - Weimar and Nazi Germany, 1918-1939

How do I answer questions for Germany - Paper 3 - 1 hour 20 minutes

<p>Question 1 (4 marks)</p> <p>What can you infer from the source...</p>	<p>P - One thing I can infer from the source is...</p> <p>E - Quote the source</p> <p>Remember - DO NOT use the same words in the inference as you do in the quote</p>
<p>Question 2 (12 marks) 20 minutes</p> <p>Explain how or why...</p> <p>3 x P.E.E paragraphs</p> <p>4 marks per paragraph</p> <p>*Same as Medicine/Elizabeth question</p>	<p>Each paragraph should include:</p> <p>P - state one factor E.g. Autobahns were one way in which the Nazi's reduced unemployment in the years 1933-1939</p> <p>E - Include specific historical information that supports your point. For example...</p>
<p>Question 3a (8 marks) 12 minutes</p> <p>How useful are sources A and B into an enquiry...</p> <p>Remember NOP</p> <p>Nature, Origin, Purpose</p> <p>*Same as Medicine 1st WW question</p>	<p>For each source you need to construct a paragraph like the following:</p> <p>Make an inference from Source A which links to the question - Source A is useful because it tells me...</p> <p>Give a short quote to support this</p> <p>Use NOP to support the utility of the source</p> <p>Provide your own specific historical details to support the source - From my own knowledge, O know that...</p> <p>No conclusion or comparison needed</p>
<p>Question 3b (4 marks)</p> <p>How do the interpretations differ? What is different?</p>	<p>Identify one difference (what does interpretations 1 talk about and what does interpretation 2 talk about)</p> <p>Give a short quote to support from both interpretations</p>
<p>Question 3c (4 marks)</p> <p>Why do the interpretations differ?</p>	<p>Think About</p> <p>One reason the interpretations differ could be because the historians have used different sources in their research. Interpretation 1 is more focussed on the (specific time period/positives) and is probably based on sources like Source B, whilst Interpretation 2 is more focussed on (different time period/negatives) and is probably based on sources like Source C.</p> <p>You should be able to link them to Sources B and C</p>
<p>Question 3d (16 marks)</p> <p>How far do you agree with the interpretation... about...</p> <p>3 x P.E.E paragraphs and a conclusion</p> <p>4 marks per paragraph</p> <p>Remember, you need to talk about both interpretations</p>	<p>Paragraph 1:</p> <p>Agree/disagree with interpretation 1 - Interpretation 1 suggests...</p> <p>Give a short quote, for example...</p> <p>Support with your own factual detail, this is supported by...</p> <p>Link back to the interpretation, therefore the interpretation is/isn't convincing because...</p> <p>Repeat for paragraph 2: Another reason I agree with interpretation 1 is that it suggests...</p> <p>Repeat for paragraph 3: However, Interpretation 2 suggests...</p> <p>Conclude - Do not fence sit - which do you agree with more and why?</p>

Explaining Phrases

This meant that...
 This shows that...
 This led to...
 As a result...
 If this hadn't happened...

Measuring Phrases

To an extent...
 Totally different...
 To a limited degree...
 To a large extent...
 Slightly similar...
 I acknowledge this but...

Connectives

Firstly...
 As a result of this...
 Consequently...
 In addition...
 This led to...
 Moreover...
 Furthermore...

Assess Phrases

Without this...
 In the long term...
 For the short term...
 If this hadn't happened...
 This is more important...
 This is less important...

What should I use as evidence? STEP D

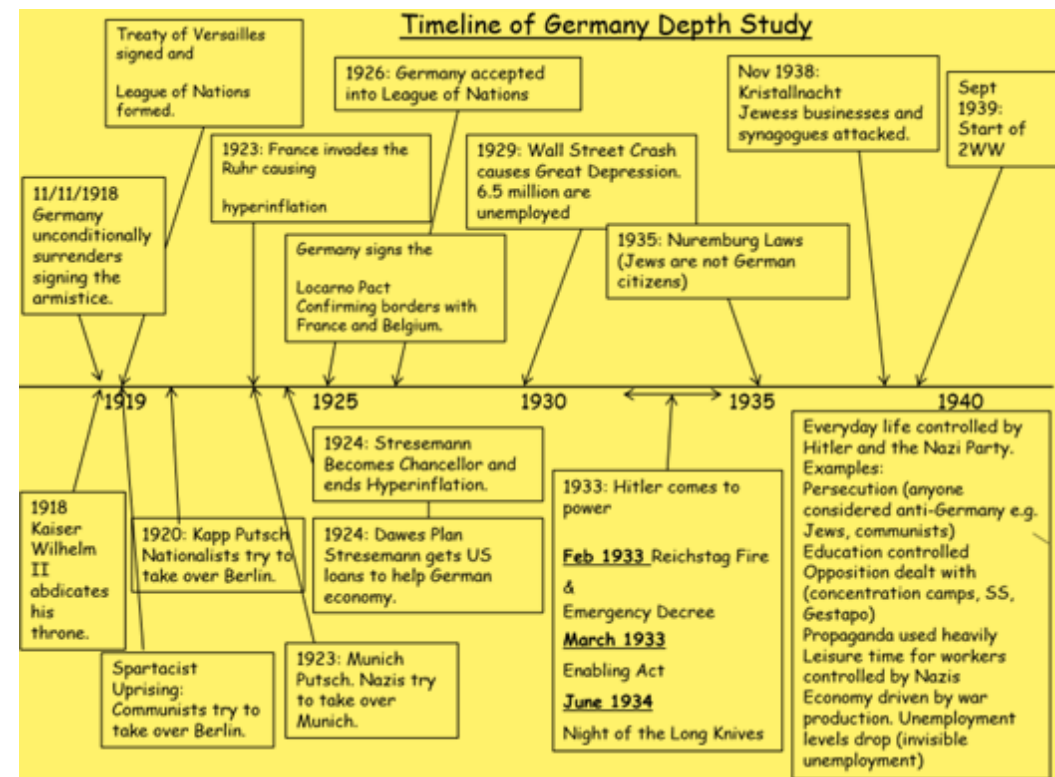
Statistics

Terms

Events

People

Dates



Year 11 Learning Cycle 2 History - Weimar and Nazi Germany, 1918-1939

Key Topic 1: What was the impact of the First World War?	
1 Who abdicated after the First World War?	Kaiser Wilhelm II
2 What were the strengths of the Weimar Republic?	Bill of Rights (freedom of speech and religion), Equal voting rights (for men and women aged 20+)
3 Why was Proportional Representation a weakness of the Republic?	It put lots of small parties in government and no one party was ever large enough to get be in control and get laws passed
4 Who was the 1st President?	Freidrich Ebert
5 What phrase is used to describe the betrayal German people felt at the end of the war?	'Stabbed in the back'
6 What land was taken away from Germany under the Treaty of Versailles?	Polish Corridor, Alsace-Lorraine, Rhineland demilitarised, Anschluss banned
7 What number of soldiers was the German army limited to under the Treaty of Versailles?	100, 000 men
8 What was the War Guilt Clause in the Treaty of Versailles?	Germany had to accept blame for losing the war
9 Which political group tried to take power during the Spartacist Uprising in 1919?	Communists
10 Which armed group tried to take power during the Kapp Putsch in 1920?	Freikorps and Right-wing nationalists
11 How did the government 'put down' the Kapp Putsch?	Asked the workers of Berlin to go on strike
12 What was the total cost of reparations that Germany had to pay the Allied powers?	£6.6 Billion
13 What happened when Germany missed a payment?	French Army occupied the Ruhr
14 What economic problem did this lead to in Germany?	Hyperinflation - poverty
15 Who solved hyperinflation by creating a new currency?	Gustav Stresemann
16 What was agreed in 1924 to solve the problem of reparations and strengthen Germany's economy?	Dawes Plan - loans from the USA
17 What was the Locarno Pact (1925)?	Agreement between Germany, France and Belgium not to alter western borders
18 When were Germany admitted into the League of Nations?	1926
19 Name two social changes made by the Weimar Republic	Introduced unemployment insurance, housing projects, and a welfare system. Workers benefited, but middle classes and farmers did not

20 Name three effects that Weimar had on German culture	Popularity of Jazz, Bauhaus Architecture, Cabaret, Street Theatre, Cinema, Literature + makeup, short hair and smoking for women
Key Topic 2: How did Hitler rise to power?	
1 When did Hitler join the German Workers' Party?	1919
2 What did he change the Party's name to?	National Socialist German Workers Party (NASDAP - Nazi)
3 What was the Twenty-Five Point Programme?	The policies (promises) made by the Nazi Party
4 Which groups of people liked the Programme?	Farmers, Middle Classes, The rich, Nationalists
5 Who were the SA?	An armed group who beat up people from other parties
6 When was the Munich Putsch?	November 1923
7 Which famous General did Hitler get to support the Munich Putsch?	Ludendorff
8 How long was Hitler in prison for?	9 months (5 Year sentence)
9 Why was his sentence so short?	Judges were right-wing and agreed with Hitler's views
10 What book did he write whilst in prison?	Mein Kampf
11 What three ideas did Hitler outline in his book?	Master Race (Herrenvolk), Lebensraum, Hatred of Jews and Communism
12 What did Hitler realise whilst in prison?	Nazis needed to take power legally
13 How did the Bamberg Conference settle problems within the Nazi Party in 1926?	Hitler established his complete rule over the party - there could be no questioning of his decisions
14 What event in October 1929 plunged the world into an economic depression?	Wall Street Crash
15 How many seats did the Nazi party have in the Reichstag by 1930?	107 (out of 577)
16 By January 1932, how many Germans were unemployed due to the depression?	30% - 6 million people
17 Why did the depression help Hitler come to power?	Hitler promised to stop paying reparations and to ignore the Treaty of Versailles
18 How many seats did the Nazi party have in the Reichstag by 1932?	230 (out of 577)
19 Why wasn't Hitler given the Chancellorship in 1932, even though the Nazis were the largest party?	Hindenburg didn't like Hitler
20 Why did Hindenburg agree to make Hitler Chancellor in January 1933?	He was the only one who could control the Reichstag and they believed they could control him (Political Deal with Von Papen)

Year 11 Learning Cycle 2 History - Weimar and Nazi Germany, 1918-1939

Key Topic 3: How did the Nazis create a dictatorship?	
1 What was Hitler's first act as Chancellor of Germany?	Called for another election 2 months later
2 What happened on 27th February 1933?	The Reichstag was burnt down
3 Which group were blamed for this under which decree?	Communists - Emergency Decree led to them being arrested
4 When was the Enabling Act passed?	March 1933
5 What was the Enabling Act?	Allowed Hitler to make laws without Reichstag support
6 Why was the SA a threat to Hitler's power in 1934?	Their leaders demanded control of the German Army
7 Who led the SA?	Ernst Rohm
8 How did Hitler get rid of these rivals within the Nazi Party (and other leading politicians)?	Night of the Long Knives, 85 leading Nazis inc. Rohm were executed
9 Who died in 1934 to allow Hitler total domination over Germany?	President Hindenburg
10 What did Hitler become known as from August 1934 onwards?	Der Fuhrer' (the leader)
11 What were the Gestapo? What did they do?	Secret Police, intimidated groups of people who were considered undesirable by the Nazi regime
12 Where were 'political enemies' of the Nazis sent?	Concentration Camps
13 How did the Nazis control the legal system in Germany?	Only members of the Nazi party could be judges
14 What were Nazi policies towards the church?	Non-Nazi priests and vicars were arrested - The Reich Church was set up
15 Who was the Nazi Minister of Propaganda?	Joseph Goebbels
16 Name 3 types of Nazi propaganda	Newspapers, radio, films, mass rallies and sporting events
17 How did the Nazis control culture and the arts?	Nazification - all art had to promote 'Nazi values'
18 Why did some Germans support the Nazis?	Propaganda encouraged loyalty, Terror prevented resistance, and support for economic policies
19 Why did Pastor Niemoller oppose the Nazis?	Opposed interference in the church and, later, anti-semitism too
20 How did many youths oppose the Nazis?	They rejected Nazi values by drinking alcohol and dancing to Jazz music
Key Topic 4: What was life like in Nazi Germany?	
1 What 3Ks did Hitler believe women should focus on?	Kinder, Kuche, Kirche (Children, Cooking, Church)
2 Name one way women were encouraged to have lots of children	Motherhood medals, marriage loans which didn't need to be paid back if they had children

3 Why might historians describe Hitler's attitudes towards women as old-fashioned?	Women forced out of employment, encouraged to have children and remain in the home
4 How many young Germans were in the Hitler Youth by 1939?	8 million
5 What was the purpose of the Hitler Youth?	Teach children military skills and ensure they were loyal to Hitler
6 What were German children taught in schools?	History that glorified Germany, hatred of the Jews, PE for fitness, cookery (for girls), and science + maths (for boys)
7 How did the Nazis control education?	Teachers had to join the German Teachers League; children encouraged to 'tell' on their teachers
8 Why was the KdF (Strength Through Joy) organisation set up?	To organise people's leisure time - happy people work harder
9 What was the 'KdF Wagon'?	The Volkswagon Beetle - The People's car. You could save up to buy one.
10 What was Beauty of Labour?	Idea that work was good and that everyone should do some form of work if they could. It also encouraged factory owners to improve conditions for workers, e.g. better lighting and washing facilities
11 Name one thing that was built by men employed by the National Labour Service (RAD)	Autobahn (German motorway), schools, hospitals
12 What was the most important reason for the fall in unemployment?	Rearmament
13 Name 3 successes the Nazis had which prevented people from opposing them	Reduced unemployment, began rearmament and expanded territory
14 What is anti-semitism?	Hatred and persecution of Jewish people
15 How did Hitler encourage people to hate Jews?	He used them as a scapegoat - blaming them for Germany's economic problems, losing the First World War, etc.
16 What year were Jewish businesses boycotted?	1933
17 What year were the Nuremberg Laws passed?	1935
18 Name two things the Nuremberg Laws did	Jewish people could not be citizens, could not vote, and could not marry German citizens
19 What was Kristallnacht?	Night of Broken Glass, 9th Nov 1938: Night of violence against Jewish people, Jewish businesses and synagogues burnt down
20 What other groups were discriminated against by the Nazis?	Gypsies, people with a disability, homosexuals, black people

Year 11 Learning Cycle 2 History - Weimar and Nazi Germany, 1918-1939

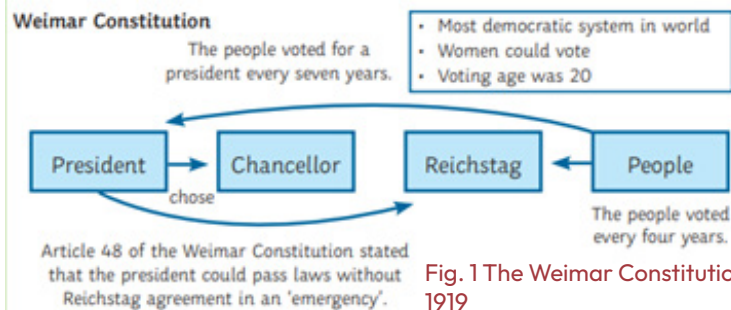


Fig. 1 The Weimar Constitution from 1919

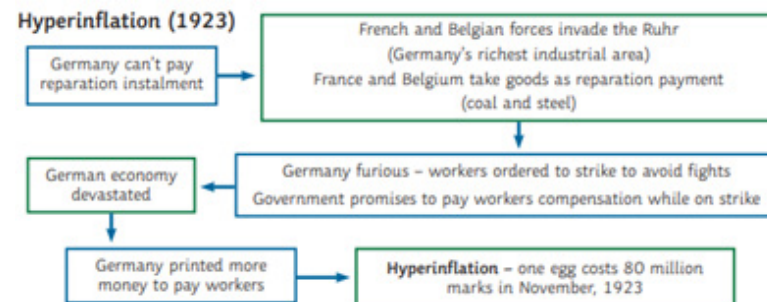


Fig. 2 The causes and effects of hyperinflation, 1923

How far did Gustav Stresemann solve Germany's Problems?

Positive

- ends the strike in the Ruhr
- promises to reparations
- introduces new currency 'The Rentenmark'
- Leads the 'Great Coalition' to ensure decisions are made in Reichstag
- Dawes Plan (1924) to pay reparations
- Locarno Pact (1925) to formally accept the TOV's land borders
- joins the League of Nations as main power (1926)
- Kellogg-Briand Pact (1928) to vow never to have war in Europe again
- introduced unemployment insurance
- rise in wages
- house building projects
- extra employment
- vibrant Weimar culture of new architecture, cabaret, modern art and women's rights
- Young plan (1929) replaced the Dawes Plan



Negative

- many felt Germany looked weak once more and should fight the TOV and refuse reparations
- some missed the strong leadership of the Kaiser
- dependent on the US economy - a short term fix?
- many felt Germany shouldn't accept the land orders of the Treaty of Versailles
- only helped the working classes
- only the working class saw a rise - the middle classes had lost their savings during hyperinflation with no compensation
- some were worried of a loss of traditional German culture and values
- fragile German economy dependant on USA

Fig. 3 The strengths and weaknesses of the 'Golden Age of Weimar'

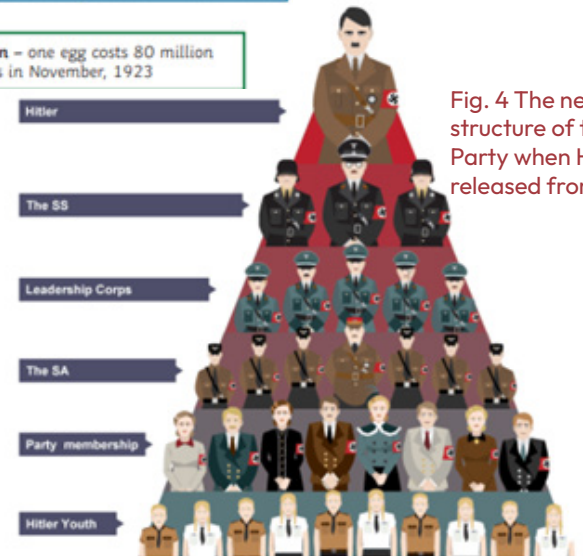


Fig. 4 The new structure of the Nazi Party when Hitler is released from prison

Fig. 5 The events leading to Hitler becoming Führer (dictator)



Fig. 6 The Hitler Youth for boys and girls (5-18)

How Hitler increased employment

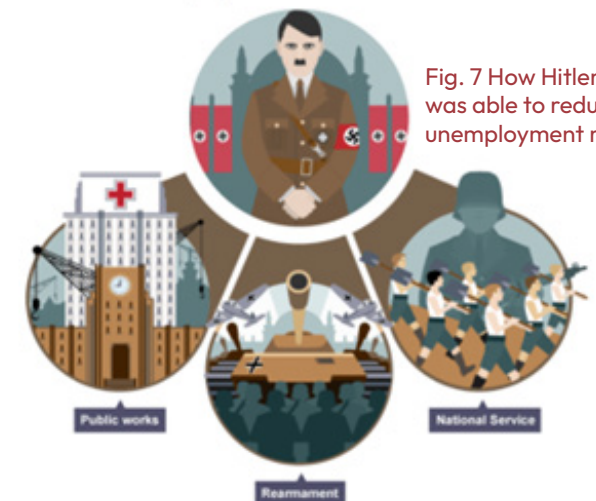


Fig. 7 How Hitler was able to reduce unemployment rates

Year 11 Learning Cycle 2 Hospitality and Catering - Types of Hospitality & catering provisions

1. Hospitality and catering providers

You must understand, be able to name, and explain the two different provisions in hospitality and catering.

Commercial: the business aims to make profit from the hospitality and catering provision that they provide.

Non-commercial: the service provider doesn't aim to make a profit from the service they provide.

2. Commercial (residential)

Commercial (residential): meaning the hospitality and catering provision aims to create a profit from the service they provide, but also offers accommodation.

For example:

- Hotels, motels & hostels
- B&B, guest houses and Airbnb
- Holiday parks, lodges, pods, and cabins
- Campsites and caravan parks.

3. Commercial (non-residential)

Commercial (non-residential): catering establishments that aim to make a profit from their service, but no accommodation is provided.

For example:

- Restaurants and bistros
- Cafes, tea rooms and coffee shops
- Takeaways
- Fast food outlets
- Public houses and bars
- Airlines, cruise ships, long distance trains
- Pop up restaurants
- Food and drink provided by stadiums, concert halls and tourist attractions
- Mobile food vans and street food trucks
- Vending machines.



4. Non-commercial (residential)

Non-commercial (residential): the hospitality and catering provision offers accommodation but does not aim to make a profit from the service they provide.

For example:

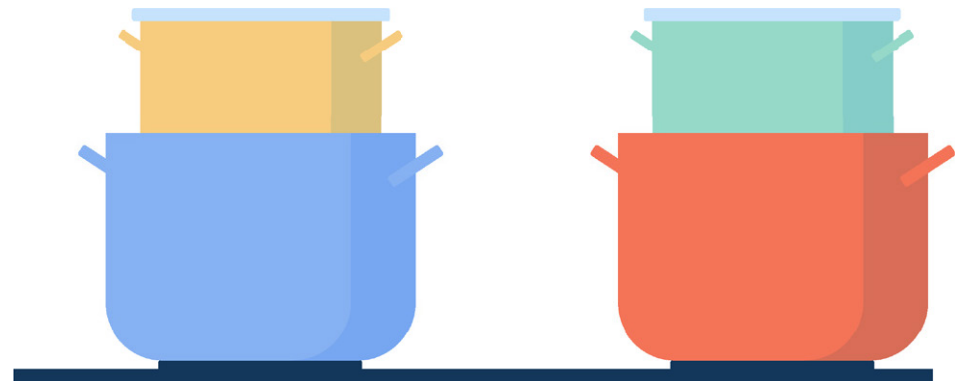
- Hospitals, hospices, and care homes
- Armed forces
- Prisons
- Boarding schools, colleges, and university residences

5. Non-commercial (non-residential)

Non-commercial (non-residential): catering establishments with no accommodation provided and don't aim to make a profit from their service.

For example:

- Schools, colleges, and universities
- Meals on wheels
- Canteen in working establishments (subsidised)
- Charity run food providers.



Year 11 Learning Cycle 2 Hospitality and Catering - Types of service

1. Types of service in commercial and non-commercial provision

You need to be able to understand and know the different types of service within commercial and non-commercial provision. They are split into two main categories of food service and residential service.



2. Food service

The different types of food services in the catering sector are listed below. You should know the meaning of each one and be able to provide examples. For instance;

Table service

- **Plate:** the food is put on plates in the kitchen and served by waiting staff. Good portion control and food presentation consistent.
- **Silver:** a waiter will transfer food from a serving dish to the customer's plate using a silver spoon and fork at their table
- **Banquet:** a range of foods suitable for large catered events such as weddings, parties, or award ceremonies.
- **Family style:** the food is placed on serving bowls on the customer's table for customers to share between them.
- **Gueridon:** is served from a trolley to the customer's table, the food is then cooked and/or finished and presented in front of the customer. Creates an atmosphere of sophistication and entertainment.

Counter service

- **Cafeteria:** all types of food and drink are shown on a long counter for customers to move along with a tray for them to choose what they want to eat.
- **Fast food:** the food and drink is displayed on a menu behind the counter, often with pictures. Quick, simple, and usually served with disposable packaging.
- **Buffet:** a range of foods served on a big serving table where customers walk up to collect their plate and help themselves to food and drink. The food can be hot or cold, and some items could be served by waiting staff.

Personal service

- **Tray or trolley:** the meals are served on trays from a trolley and customers sometimes order items in advance.
- **Home delivery:** the customer's order is made over the phone or online, and is then delivered by the business to their address.
- **Takeaway:** food that's cooked by the business onsite and then eaten elsewhere.

3. Residential service

Listed below are the different types of residential types of service in the hospitality and catering sector. You should know the different types of service offered in various hospitality provisions.

Rooms:

- Single/ double/ king/ family
- Suite (en-suite bath/ shower room, shared facilities).

Refreshments:

- Breakfast/ lunch/ evening meal
- 24-hour room service/ restaurant available.

Leisure facilities:

- Spa
- Gym
- Swimming pool

Conference and function facilities:

- Large rooms
- Overhead projector and computer
- Pens and paper provided
- Refreshments available.



Year 11 Learning Cycle 2 Hospitality and Catering - Standards and Ratings

1. Standards and ratings

You will need to be able to know the importance of standards and ratings within the hospitality and catering industry, they are hotel and guest house standards, and restaurant standards.

2. Hotel and guest house standards

Hotels and guest houses standards are awarded and given star ratings. You should know what criteria is needed to be met for an establishment to receive each star rating.

Star rating 1 = Basic and acceptable accommodation and facilities. Simple rooms with no room service offered.

Star rating 2 = Average accommodation and facilities, a small establishment, and would not offer room service or have a restaurant.

Star rating 3 = Good accommodation and facilities. One restaurant in the establishment, room service available between certain hours, and Wi-Fi in selected areas are provided. The establishment could have a pool and gym.

Star rating 4 = Very good accommodation and facilities. Large hotel & reception area of a very good standard. Certain hours of room service, with a swimming pool and valet parking offered.

Star rating 5 = Excellent standard of accommodation, facilities, and cuisine. Offer valet parking, 24 hr room service, spa, swimming pool, gym, and concierge service.

3. Restaurant Standards

Restaurant standards have three main possible awards or ratings that you should know.

AA Rosette award

Ratings between one and five rosettes could be awarded based on the following:

- Different types and variety of foods offered
- Quality of the ingredients used
- Where the ingredients are sourced
- How the food is cooked, presented and tastes
- Skill level and techniques used as well as the creativity of the chef.



<https://www.stirkhouse.co.uk/about-us/awards/attachment/award-rosette>

Michelin star

A rating between one and three Michelin stars could be awarded based on the following:

- Quality of ingredients used
- Cooking and presentation techniques
- Taste of the dishes
- Standard of the cuisine
- Value for money



<https://guide.michelin.com/us/en/california/to-the-stars-and-beyond>

Good food guide

A rating between one and 10 could be awarded based on the following:

- Cooking skills
- Quality of ingredients
- Techniques and cooking skills shown

Year 11 Learning Cycle 2 Hospitality and Catering -Types of employment roles and responsibilities

1. Types of employment roles and responsibilities within the industry

There are four main areas within the industry that you should know the roles and responsibilities within.

2. Front of house

- **Front of house manager:** oversees all staff at the restaurant, provides training, hiring of staff, and ensures good customer service.
- **Head waiter:** oversees the waiting staff of the restaurant in high-end eating establishments.
- **Waiting staff:** greets customers, shows them their table, takes food and drink orders from customers, and serves them their order. Makes sure customers' needs are met, and that the food order is made correctly.
- **Concierge:** advises and helps customers with trips and tourist attractions. Books taxis for customers and parks customer cars.
- **Receptionist:** takes bookings, deals with questions and complaints from customers, checks-in customers, takes payment, and provides room keys.
- **Maître d'hôte:** oversees the service of food and drinks to customers. They greet customers, check bookings, reservations, and supervise waiting staff.

3. Housekeeping

- **Chambermaid:** cleans guests' rooms when they leave, and restocks products that have been used, they also provide new bedding and towels.
- **Cleaner:** cleans hallways and the public areas of the establishment.
- **Maintenance:** repairs and maintains the establishment's machines and equipment, such as heating and air conditioning. These responsibilities could also include painting, flooring repair or electrical repair.
- **Caretaker:** carries out the day to day maintenance of the establishment.



4. Kitchen brigade

- **Executive chef:** in charge of the whole kitchen, developing menus and overlooking the rest of the staff.
- **Sous-Chef:** the deputy in the kitchen and is in charge when the executive chef isn't available.
- **Chef de partie:** in charge of a specific area in the kitchen.
- **Commis chef:** learning different skills in all areas of the kitchen. Helps every chef in the kitchen. • **Pastry chef:** prepares all desserts, pastry dishes and bakes.
- **Kitchen assistant:** helps with the peeling, chopping, washing, cutting of ingredients, and helps washing dishes and stored correctly.
- **Apprentice:** an individual in training in the kitchen and helps a chef prepare and cook dishes.
- **Kitchen porter/ plongeur:** washes the dishes and other cleaning duties.

5. Management

- **Food and beverage:** responsible for the provision of food and drink in the establishment which will include breakfast, lunch, dinner, and conferences.
- **Housekeeping:** ensuring laundering of bed linen & towels, ordering of cleaning products and overseeing housekeeping staff duties.
- **Marketing:** promotes events and offers to increase custom at the establishment, and is responsible for the revenue of the business.



Year 11 Learning Cycle 2 Hospitality and Catering - Working conditions

1. Types of employment contracts and working hours

You need to know the following types of employment contracts and working hours.

- **Casual:** this type of contract could be provided through an agency and used to cover employees that are absent from work due to illness. There is no sick pay or holiday entitlement with this type of employment.
- **Full time (permanent):** working hours including start and finishing times are fixed and stated in this type of contract. A contract of this nature allows the employee to have sick pay and holiday entitlement.
- **Part-time (permanent):** working hours mean that the employee works on certain days of the week. Work times are stated in the contract, including the starting and finishing times that are fixed in this type of contract. The employee has sick pay and holiday entitlement in this type of contract.
- **Seasonal:** this type of contract is used when a business needs more staff due to busy times throughout the year, such as the Christmas period. The contract will state for the employee to work for a specific time frame only. Also, the contract would not expect further or regular work after the contract is complete.
- **Zero hours contract:** this type of contract is chosen between the employer and the employee. This means that the employee can sign an agreement to be available for work when the employer needs staff. No number of days or hours is stated in the contract and the employer doesn't require to ask the employee to work, and neither does the employee have to accept the work offered. No sick pay or holiday entitlement is offered for this type of contract.

2. Pay and benefits in the industry

The following pay and benefits are what you should be aware of in the industry.

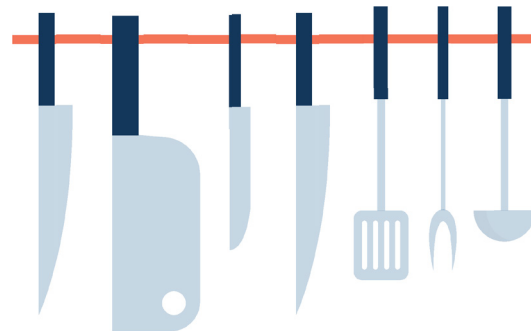
- **A salary:** this type of pay is a fixed amount of money paid by the employer monthly, but is often shown as an annual sum on the contract.
- **Holiday entitlement:** employees are entitled to 28 days paid a year. Part-time contracts are entitled less depending to their contract hours.
- **Pension:** on retirement age, an employee qualifies for a pension contribution by the employer and the government.
- **Sickness pay:** money paid to the employee with certain contracts when they are unable to go to work due to illness.
- **Rates of pay:** national minimum wage should lawfully be offered to all employees over 18 years of age. This rate is per hour and is reviewed each year by the government.
- **Tips:** money given to an employee as a 'thank you' reward for good service from the customer.
- **Bonus and rewards:** given from an employer to the employee as a way of rewarding all the hard work shown from the employee throughout the year, and helping make the business a success. Also known as remuneration.

3. Working hours

The working hours directive in the UK states that employees on average cannot work more than 48 hours which is worked out over a period of 17 weeks. Employees can choose not to follow this and work more hours if they want to.

People under the age of 18 cannot work more than eight hours a day and 40 hours a week.

Employees that work six hours or more a day must have a break of 20 minutes, and have the right to have at least one day off every week.



Year 11 Learning Cycle 2 Hospitality and Catering - Contributing factors to the success of hospitality and catering provision

1. Contributing factors

The hospitality and catering sector is very competitive, and many businesses fail in the first year of operation. There are many factors that must be managed carefully for hospitality and catering businesses to make a profit and continue to operate in the long term.

2. Basic costs

Labour: These costs include employee wages, National Insurance contributions and pension contributions.

Material: These costs include decoration, furnishings, kitchen and dining equipment, ingredients, printing and health and safety equipment.

Overheads: These costs include rent, rates, gas and electricity, insurance, licensing, training and maintenance.

3. New technology

New technologies have benefited the sector in positive ways. These include:

- Cashless systems such as contactless cards and mobile payment apps
- Digital systems such as online booking/ordering and key cards
- Office software such as stock ordering systems.

4. Profit

Gross Profit: The difference between how much a menu item costs to make and how much it sells for. Ingredient costs should not be more than 30% of the gross profit. If the ingredient cost for a chocolate brownie dessert is £1.50 and the menu price is £4.50, the gross profit is £3.00.

$$\text{Gross Profit \%} = (3.00 \div 4.50) \times 100 = 66.6\%$$

Net Profit = What is left from the gross profit once all costs (as listed above) are covered.

5. Environmental impact

Running a hospitality or catering provision uses a lot of resources. Businesses are encouraged to reduce, reuse, and recycle. Energy efficient equipment such as low energy light bulbs can save a business money.

Using local and seasonal ingredients reduces the amount of CO₂ released into the atmosphere during transport. All waste should be separated and recycled or composted when possible.

6. Economy

The value of the pound (£) can affect the hospitality and catering sector. If the economy is good, people will be willing to spend more. If the economy is weak (recession), people may decide that eating out or going on holiday is a luxury and will spend less.

VAT (Value Added Tax) is added to the final cost of goods and services offered in the hospitality and catering sector. The money from VAT goes to the government to pay for services everyone uses for example the NHS.

7. Media

The hospitality and catering sector is very competitive, so most businesses try to make good use of the media to advertise. Most businesses will have their own website, which customers can use to view menus and make bookings.

- **Print Media:** Ads in magazines and newspapers, flyers and money-off vouchers.
- **Broadcast media:** Television, radio and online ads.
- **Social media:** Customer feedback and reviews.

Consumers are increasingly using smartphones to book, order, pay and review.

Year 11 Learning Cycle 2 Hospitality and Catering - Equipment

1. Kitchen equipment

It is important that a business invests in good quality kitchen equipment to produce food safely. Even though good quality equipment is expensive, for example stainless steel pots and pans, in the long run they will pay for themselves as they should not need to be replaced often. Good quality electrical equipment will cost less to run, which will also save money and increase profits.

2. Large equipment

Storage:	Walk-in fridge, freezer, blast chiller, glass chiller.
Preparation:	Floor standing food mixer.
Cooking:	Conventional oven, deep fat fryer, hot water urn, standing bain-marie, hot plate/griddle, steamer, grill/salamander.
Cleaning:	Pass-through dishwasher, glass washer.

3. Small equipment

Preparation:	Mixing bowls, measuring jugs and spoons, whisks, spatulas, sieves, knives, chopping boards, zester, juicer, piping bags and tips, graters.
Cooking:	Pots and pans, baking dishes, baking trays, tongs, colanders.
Serving:	Plates, bowls, glassware.

4. Mechanical equipment

Preparation:	Weighing scales, electric whisk, food processor, blender, mincer, meat slicer, vegetable peeler, juicer, ice cream maker.
Cooking:	Temperature probes.
Specialist equipment:	Conveyor toaster, panini maker, coffee maker, pizza oven, sous vide, pasta maker

5. Cleaning and safety materials and equipment

Cleaning:	Detergents, cleaning chemicals, scouring pads, cloths, mops, dustpan and brush, buckets, recycling and waste bags and bins.
Preparation:	Date labels for food storage, foil, baking paper.
Safety:	Fire extinguisher/blanket, smoke/CO2 alarm, first aid box, oven gloves.

Year 11 Learning Cycle 2 Performing Arts - Responding to a Brief

1. What can I expect from Component 3?

This external component builds on knowledge, understanding and skills acquired and developed in Components 1 and 2 and includes synoptic assessment.

Learners will apply their skills and techniques creatively to devise a performance piece for a selected audience.

Learners will capture their ideas on planning, development and effectiveness of the production process in a written log and an evaluation report.

2. Assessment Objectives

AO1 Understand how to respond to a brief

AO2 Select and develop skills and techniques in response to a brief

AO3 Apply skills and techniques in a workshop performance in response to a brief

AO4 Evaluate the development process and outcome in response to a brief

3. Vocal Skills

Clarity	How clearly you speak.
Pause and Pace	Speed or speech and moments of pause between words and/or sentences.
Inflection	Changes in speech whilst talking. E.g. pitch rising at the end of a sentence.
Pitch	The particular level of a voice, e.g. high or low.
Tone	The emotional sound of the voice.
Accent	A distinctive way of pronouncing language, associated with a particular area, country or social class.
Timbre	The distinctive 'character' or quality of a voice.

4. Physical Skills

Facial Expression	The use of the face to convey emotion
Body Language	How you communicate feeling through the actions of your body.
Gesture	A movement, usually with the hand, arms or head that communicates something.
Gait	How your character walks.
Posture	The position in which someone holds their body when standing or sitting.
Proxemics	The position of characters on stage in relation to other characters and the meaning this communicates.
Mannerism	A peculiarity of speech, movement or behaviour.

5. Key Words	Definitions
Stimulus	The starting point to provide inspiration and ideas for devising a drama performance.
Explorative Strategies	A technique to explore and deepen understanding of the drama you create.
Plot Development	The organisation of building of the action in a play.
Target Audience	Who you will choose to aim your performance at.
Improvisation	Live theatre in which the events/ dialogue, characters are made up in the moment.
Still Image	Where the action on stage freezes to 'mark a moment'.
Theatre In Education	Drama that is created for a specific target audience in order to educate around a certain topic.
Verbatim	Verbatim theatre is a form of documentary theatre which is based on the actual spoken words of real people.

6. Links & Further Reading



Devising Strategies

<https://www.bbc.co.uk/bitesize/topics/z4vm2sg>

Building blocks for Devising

<https://www.youtube.com/watch?v=gUqZPfGIX6U>



Devising Process National Theatre

<https://www.youtube.com/watch?v=7mJ02mSvbEM>

Year 11 Learning Cycle 2 Spanish

1. Essential verb phrases

I am	soy
He/she is / it is	es
I have	tengo
He/she has	tiene
I like	me gusta(n)
He/she likes	le gusta(n)
I go	voy
He/she goes	va
I prefer	prefiero
He/she prefers	prefiere
I went	fui
I saw	vi
I had a blast	lo pasé bomba
It was	fue/era
There was/ were	había
I'm going to ...	voy a + infinitive
He/she is going to ...	va a + inf
We are going to ...	vamos a + inf
I would like to ...	me gustaría + inf
He/she would like to ...	le gustaría + inf
I will go	iré
I will watch/see	veré
It will be	será

2. Connectives

Furthermore	además
However	no obstante
Although	aunque
Above all	sobre todo
Because of this	por eso
Therefore	así que

3. Wow Phrases

Just add the infinitive of any verb!	
I am going to...	voy a...
I was going to...	iba a...
I would like...	me molaría...
I used to like...	me gustaba...
I fancy (doing something)	tengo ganas de...
I want...	quiero...
I wanted to...	quería...
I would have liked to...	me hubiera gustado...
I would have preferred to...	hubiera preferido...
It's worth (doing...)	vale la pena...
I can (not)...	(no) puedo...
I tend to...	suelo...
I tended to...	solía...
I must...	debo...
I should...	debería...
I have to...	tengo que...
I had to...	tuve que...
I have been able to ...	he podido...
Just add the conditional - I would....	
If it were possible...	Si fuera posible + conditional
If I were rich...	Si fuera rico/a
If I were a millionaire...	Si fuera millonario/a
If I were more...	Si fuera más...
If I had lots of money...	Si tuviera mucho dinero
If I had enough time...	Si tuviera bastante tiempo
If I had more...	Si tuviera más...
If I could...	Si pudiera...
If I lived there...	Si viviera allí...

4. Opinions

Giving an opinion	
From my point of view	desde mi punto de vista
In my opinion	a mi juicio
In my way of seeing it	a mi modo de ver
I would say that	diría que
I would say that	dice que
He/ she told me that	me dijo que
Not only... but also...	no solo...sino también...
There is no doubt that	no cabe duda de que
It's a complicated topic	es un tema complicado
An advantage	una ventaja
A disadvantage	una desventaja
A benefit	un beneficio
An inconvenience	un inconveniente
Exclamations	
What a shame!	¡Qué pena!
What a pity!	¡Qué lástima!
What a drag!	¡Qué rollo!
How embarrassing!	¡Qué vergüenza!
How lucky!	¡Qué suerte!

5. Further Reading



Grammar revision:

<https://www.bbc.co.uk/bitesize/topics/zvmxrj6>

All topic revision:

<https://www.bbc.co.uk/bitesize/examspecs/z799hbk>



Top phrases for writing and speaking:

<https://www.youtube.com/watch?v=c8cVzKe59Vc>

Notes Pages

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