BOURNEMOUTH SCHOOL

Year 9

Knowledge Organiser 2

Autumn Term

Name: Master 9

Registration Form: -

✓Hard Work ✓Discipline ✓Smart Appearance ✓Respect

Year 9 - Autumn Term 2

Welcome back Year 9!

I hope you had a good half-term break and are ready for the weeks ahead. You have now had a few weeks studying your GCSE option subjects and should have a better idea of what each course involves. Our motto this year is **'Strong foundations, future success'**. The work you do now, and the habits you develop, will help prepare you for Years 10 and 11.

Keep using your Knowledge Organiser regularly, both to prepare for assessments and to revisit topics you have already covered. Try testing yourself, making flashcards or answering practice questions. Checking what you can remember without looking at the page will help you see what needs more work.

Use the recommended daily revision guide to organise your time and try to follow the recommended amount of time for each subject. If you are finding it difficult to revise for a particular subject, ask your subject teacher for advice. They can talk you through how to revise and help you get started.

This half-term, think about anything you could do better following your first few weeks in Year 9. Whether that is starting homework sooner, taking more care with your work or asking questions in lessons, choose something you can work on.

If you need help getting organised or have any worries, please speak to your tutor. Mr Willis and I are always happy to help too.

Have a good half-term.

Mr Knight

Director of Learning – Year 9

What is a knowledge organiser (KO)?

This knowledge organiser provides you with the most important knowledge you need for each unit of study for this half term. Your aim is to transfer all of this information into your long-term memory so you can use it in your lessons.

How to use your knowledge organiser (KO):

1. Ensure you have your KO and Learning Journal with you at all times in school and at home for your home learning.
2. In lessons when you have covered information that appears on your KO, your teacher will ask you to put a tick next to that section. This means that is now added to what you must revise at home.
3. Initially, follow your home learning timetable to decide what to revise each evening.

The 4 learning strategies

There are 4 strategies that you can use to revise. They are progressively more challenging, so always start with the first in the list:

1. **Look Cover Write Check**

I. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
II. **LOOK** carefully at the subject and section of your KO you want to revise and try to remember as much as you can. Remember this should be a ticked section.
III. Now **COVER** this information so you can't read it.
IV. **WRITE** out what you can remember word for word in your Homework Learning Journal.
V. **CHECK** what you have written by comparing it to your KO. Tick each correct word in green pen and correct any errors you have made.
VI. Repeat this process until you are confident you can remember everything you need.

AIM: You should be able to repeat the information by rote.

2. **Self or peer quizzing**

I. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
II. Write out a list of questions you could ask either yourself or a friend about this section of the KO. Write these in your Learning Journal.
III. If you are working on your own, cover the KO and write a full answer to each question. If you are working with a partner, swap books and copy down their questions and have a go at answering them.
IV. Now uncover the KO and use a green pen to tick or correct your work.

AIM: You should be able to repeat the information by rote but with a good understanding

3. **Playing with words and sentences**

I. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections. You now want to check how well you have learnt the information in your KO.
II. Definitions – look at words that are used in this section. Can you write a definition in your own words?
III. Rephrasing – can you rewrite the sentences or explanations in your own words?
IV. Summary – can you summarise the main points of this section of the KO?
V. Synonyms – can you write synonyms for key words and ideas?
VI. New Sentences – can you write a sentence that includes the key vocabulary or definitions that you have learnt?

AIM: You should be able to use the information in your KO in a flexible and confident way in your writing.

4. **Think it, Link it**

This is a technique to use towards the end of the half term when you are revising all of the KO.

I. Think of the links or connections between different sections of your KO.
II. Write these out in your own words in your Learning Journal.
III. Think about the links between a particular section of your KO and what you have learnt in your lessons. Can you expand on this section by linking it to your wider knowledge?
IV. Write this out in your Learning Journal.

AIM: You should be able to link your home learning and your lessons to show a confident understanding of the work covered.

How to present work in your Learning Journal

1. Always write the subject and the date when you start your home learning.
2. Always write the strategy that you are going to use for your home learning.
3. Always use a ruler to underline titles and dates.
4. Use a blue or black pen to write, or a pencil if you need to draw. Drawing should never be done in pen.
5. Use a green pen to complete corrections of your work.
6. You are expected to complete half a side of your Learning Journal each evening as a minimum.
7. You can work every Monday to Thursday in room 53 until 5pm. This is a quiet room where you can complete your home learning rather than doing it at home.

Checking: Your teachers will check your Learning Journal at least once a cycle. If they are concerned that you aren't doing your home learning thoroughly, they will log a home learning referral on Arbor, and offer you support and guidance. If you don't respond to this guidance, you will be issued with an After-school Detention where you will be expected to complete your home learning.

Do Now tasks: At the start of every lesson, you should expect a Do Now task. This is a low stakes retrieval quiz on what you have learnt in lessons so far.

If you have completed your home learning, this should be easy. The aim is to get 100% in every Do Now task. If you miss this target occasionally, don't worry. If it happens regularly your teacher will have a chat and offer you support.

Maths: Your teacher will set you tasks to complete on Dr Frost Maths. This will be set every week on a Monday and will be collected in and checked on a Friday. If this has not been completed you will be issued a Detention on a Wednesday lunchtime.

How long should I spend on my home learning?

Below is an example of what your home learning timetable may look like. There is no expectation to work at the weekend, and you will see that one evening should be spent doing something other than school work, ideally a physical activity. You may adjust this according to your commitments outside of school. It doesn't have to be on a Wednesday. This timetable is a guide only. If you want to spend longer revising a subject that you find more difficult and less time on one you find easy, that is your choice.

Key Stage 4					
Week 1					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
5 mins	MFL	MFL	Physical Activity	MFL	MFL
10	Maths	English		Maths	English
10	Biology	RS		Chemistry	Physics
10	Option C	Option D		Option A	Option B
55	Reading / Revision	Reading / Revision		Reading / Revision	Reading / Revision
Week 2					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
5 mins	MFL	MFL	Physical Activity	MFL	MFL
10	Maths	English		Maths	English
10	Biology	RS		Chemistry	Physics
10	Option C	Option D		Option A	Option B
55	Reading / Revision	Reading / Revision		Reading / Revision	Reading / Revision

You should spend about 35 minutes revising each day. You should also spend about 55 minutes either reading or completing further revision each day.

Rewards at Bournemouth School

At Bournemouth School, we want to recognise the many different ways that students contribute and succeed. Rewards are not just about getting the highest marks. They recognise **achievement, effort, progress, excellent behaviour, attendance and contribution to our school community**.

There are two main ways your success is recognised: the **Bournemouth School 100** and **Achievement Points**.

The Bournemouth School 100

Every term, you will receive a **Bournemouth School 100 score**. This gives you a score out of 100 based on five areas of school life.
Each area is worth up to **20 points**:

Area	What counts?	Maximum
Behaviour	Consistently meeting our expectations and avoiding Behaviour Points	20
Achievement	The Achievement Points you earn in lessons and through wider school activities	20
Progress	The progress you are making across your subjects	20
Attendance	Attending school regularly – 97% or above earns the maximum score	20
Community	Leadership, volunteering, peer support and getting involved in school life	20
TOTAL		**100**

This means there are lots of ways to build a strong score. You don't have to be the highest-attaining student in your year: excellent behaviour, strong progress, good attendance and making a positive contribution all count.

Keep track of your score

You will receive an update at the end of each half term so that you can see how you are doing and where you could improve.
The full scoring charts for each category will be published in your **Knowledge Organiser** at the start of each half term.
Your Bournemouth School 100 score will also be included in your termly report to parents/carers.

Can you make the top 25%?

At the end of the year, we will calculate your average Bournemouth School 100 score across all three terms.
If your score places you in the **top 25% of your year group**, you will receive a **Bournemouth School 100 badge** to wear during the following academic year.
The challenge is to perform consistently across the whole year and across all five areas.

Achievement Points

Staff award **Achievement Points (APs)** throughout the year to recognise excellent work, effort, improvement and positive contributions to school life.

Your points build up across the year, allowing you to work towards three reward stages.

🥉 Bronze — 230 Achievement Points

You will receive:

- a **Bronze certificate** from your tutor
- **one entry into the school raffle**

🥈 Silver — 280 Achievement Points

You will receive:

- a **Silver certificate** from your Director of Learning
- **another entry into the school raffle**

🥇 Gold — 350 Achievement Points

You will receive:

- a **Gold certificate** from SLT
- **a third entry into the school raffle**
- an **early lunch served by SLT**
- entry into the **Achievement Points Leaderboard**

Reached Gold? Keep going.

Gold isn't the end of the challenge.
Once you reach **350 Achievement Points**, you will compete to finish among the highest Achievement Point earners in your year group.
The **top 30** will be displayed and updated each week.

At the end of the year:

1st place
🏆 **Achievement Cup** for your year group + **gift card**

2nd–10th place
⭐ **Framed certificate + gift card**

11th–30th place
⭐ **Framed certificate**

What should you aim for?

There isn't just one way to be successful at Bournemouth School.

Work hard. Make progress. Meet our expectations. Attend regularly. Get involved. Contribute positively.

Remember our core values: Hard work, discipline, smart appearance, and respect.

Having these aims at the forefront of your mind everyday in school will help you earn recognition — and gives you something to aim for throughout the year.

- ❑ Masks are used for different reasons and can be divided into masks that are used for **ritual reasons**, for **protection, disguise** and **entertainment.**

- ❑ Mod roc is another name for plaster impregnated gauze strips , and it can be used to make sculpture.

Annotating your work **Use these heading to explain each piece of work you have done in your book**		Tick
What?	**What is it?** Explain the piece of work you are annotating Examples: This is a first-hand drawing that I made of a …This is a series of photographs I took of… This is a collection of visual research about... This is information I gathered about… This is a copy that I made of a piece of artwork by… This is a mood board of…to show ideas relating…	
Why?	**Why did you make it?** Explain how this piece helped you in your project. Examples: to get ideas about… to get me thinking about… to show what I have learned about… to explore the ideas of… to examine the shape/form/line/texture/pattern of… to analyse the style of… to try out the technique of… to practice… to develop my skills in…	
How?	**How did you make it?** Explain how you created the piece of work Examples: I drew it using… I painted it with… I constructed it from… I built it up by collaging… I photographed/drew it from life… I drew/painted it from a photography… I gathered the images from the internet… I researched the information on a site called…	
Quality	**How good is it?** What are you pleased with? What could you improve? Examples: I am pleased with the way I… one good element of the work is… the best feature of this work is… a section of this work that is particularly successful is…I'm not happy with… one area I could improve is… the least successful part of the work is… I wish that I had…	
Learning	**What did you learn?** What have you found out? What are the next steps? Examples: I improved my skills in… I got better at working in the style of… I have a better idea of… I have a clearer understanding of… I feel more confident about… Next I will try… To follow this up, I will… To build on this piece of work I hope to…	

Painting your mask… Top tips

- ❑ When painting your masks whether it is the Mod Roc or Clay, it is always best to paint a base layer colour.
- ❑ Practice a range of techniques**, dry brushing**, **tissue and paint**, **foil and paint, sgraffito, stencilling** before applying them to your mask.

Types of paint

- ❑ **Acrylic**

Acrylic paints are extremely versatile, and ideal for fine brushwork, glazing, staining, water media techniques. This smooth paint has excellent pigment quality, colour strength, and durability.

- ❑ **Watercolour**

The paint has colour pigment suspended in water until the water dries and stains the surface. The paint brushes with fluidity and transparency and is built up in layers from light to dark.

- ❑ **Gouache**

Gouache is a water-soluble and opaque paint so the white of the paper surface does not show through.

Painting techniques

- ❑ **Dry brush-** The dry brushing painting technique uses a thin layer of paint that's roughly brushed over a surface to give rough textured surface. Ensure you have applied a base layer as it may show through depending on the amount of paint added.

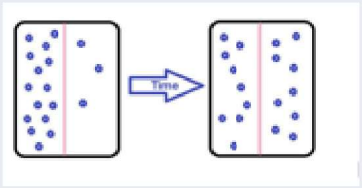
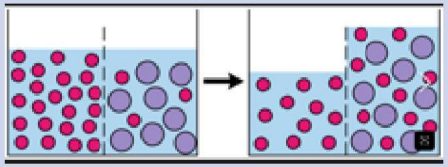
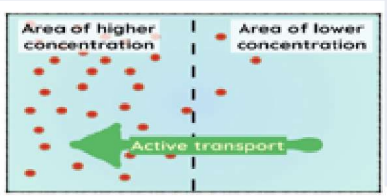
- ❑ **Tissue and paint-** Add tissue and smooth or scrunch, then paint on top.

- ❑ **Foil and paint-** Foil can add a metal type effect, you can paint over to create a tarnished appearance.

- ❑ **Sgraffito**, is the process of scratching through a surface to reveal the colours underneath.

- ❑ **Stencilling** a thin sheet of card, plastic, or metal with a pattern or letters cut out of it, used to produce the cut design on the surface below by the application of ink or paint through the holes

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Transport across membranes				✓
Process	Definition		Examples	
Diffusion	The passive movement of particles resulting in a net movement from an area of higher concentration to an area of lower concentration. Occurs in solutions and gases.		Movement of oxygen and carbon dioxide in gas exchange (lungs and leaves)	
Osmosis	The diffusion of water particles from a dilute to concentrated solution, across a partially permeable membrane		Movement of water across cell membranes into and out of cells	
Active transport	The movement of particles from an area of low concentration to a high concentration, using energy from respiration		• Absorption of mineral ions into plant root hairs • Absorption of sugar molecules from the gut into the blood	

EXAM SET PIECE EXPLANATION OF INCREASE IN MASS IN POTATOES

Water moves from X which is a dilute solution

to Y which is a concentrated solution

via osmosis

Large organisms = small surface area: volume ratio

Small organisms = large surface area: volume ratio

Adaptations to maximise diffusion		✓
Walls are 1 cell thick	Creates a short diffusion distance	
Good blood supply	Maintains concentration gradient	
Increased surface area	Maximises rate of diffusion	

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What are business aims and objectives?		☑
Aim	The general goal of a business	
Objective	A specific target that is set for a business to achieve	

Role of objectives in running a business (Look, cover, write, check)	☑
A business can have a variety of different objectives:	
1. Survival	
2. Growth (domestic and international markets)	
3. Increased market share	
4. Social and ethical	
5. Customer satisfaction	
6. Increased shareholder value	
7. Maximise profit	

Purpose of setting objectives	☑
1. Helps with decision making	
2. Potential investors understand the direction the business is heading in.	
3. Provides a target	
4. Motivates all employees	

Use of objectives in judging success (Think it, link it)	☑
Once a business has set objectives, it can check back after a period to monitor if these have been achieved, this is a way of measuring success.	
e.g. A business can measure the number of employees to assess if it has met its objective of growth *OR* Track share price or dividends paid if their objective s shareholder value.	

Changing Objectives (Playing with words & sentences)		☑
Factors affecting objective choice	**Changing over time**	
1. Size of the business	1. Survival to growth	
2. Level of competition in the market	2. Reflect new legislation	
3. Type of business	3. Changes in the economic environment	
4. Stakeholder views	4. Changes in environmental expectations	

Definitions		☑
Private sector organisation	Organisations owned by individuals	
Public sector organisation	Organisations owned and run by the government	

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Topic 3.1.4/5 Stakeholders and Location

Main stakeholders of a business

1. Employees
2. The government
3. Suppliers
4. Community
5. Customers
6. Shareholders

Definitions

Key term	Definition
Stakeholder	Any individual or group of individuals who can be impacted by a businesses actions.

Objectives of stakeholders

Look, cover, write, check

Stakeholder group	Typical objectives
Employees	1. Secure jobs 2. High earnings
Owners/Shareholders	1. High dividend payments 2. Share prices
Local Community	1. Local job creations 2. Minimise local environmental impact
Government	1. Tax paid, 2. Growth
Suppliers	1. Fast payment 2. Growth
Customers	1. Quality 2. Customer service

Impact of business activity on stakeholders

Peer & self assessment

Stakeholder	Impact
Employee	Employment opportunities Earnings
Local Community	Employment Investment in facilities Pollution
Suppliers	On time payments, Price negotiations & Abuse of power
Shareholders	Performance impacts share price and dividends
Government	Tax avoidance

Impact and influences stakeholders have on businesses

Think it, link it

1. Negotiation:
Employees can demand better pay. Suppliers can negotiate better terms and conditions

2. Direct Action:
Customers can stop buying products if they are unhappy
Employees can strike

3. Refusal to cooperate:
Local councils can refuse to cooperate if they feel a business is unethical for example they can refuse planning permission

4. Voting:
Owners such as shareholders can vote during AGM's to influence the objectives of a business.

Why is location important?

Cost: Rent varies according to location, London will have much higher rent costs than south wales.

Sales: Location can impact whether or not a business will get enough sales

Image: For some businesses, where they are located will have a big impact on their image for example a tourist shop in central London compared to on the outskirts of London

Location factors

Factor	Explanation
Proximity to market	A business will want to know where their customers are located and that they can reach them easily.
Availability of raw materials	Some businesses rely on raw materials, being close to these will reduce uncertainty and costs.
Availability of labour	Businesses may need to be located near highly skilled workers or highly populated areas for large numbers of employees.
Competition	Some businesses may want to be far from their competitors where as other may want to challenge their competitors by locating closer to them.
Costs	Location decision are often affected by costs and the amount of money the business can afford.

Factors influencing the location decision of a business

Five key factors that influence a location decisions:

Playing with words & sentences

1. Proximity to the market
2. Availability of raw materials
3. Availability of labour
4. Competition
5. Costs

Nature of the business can influence location

Retail: Want to be located as close to customers as possible
Service: Can be located anywhere as they may be able to offer their service remotely such as web designers. Taxi driver needs to be located close to customers
Manufacturing: Cheap rent due to size of land required. Good infrastructure for transportation.

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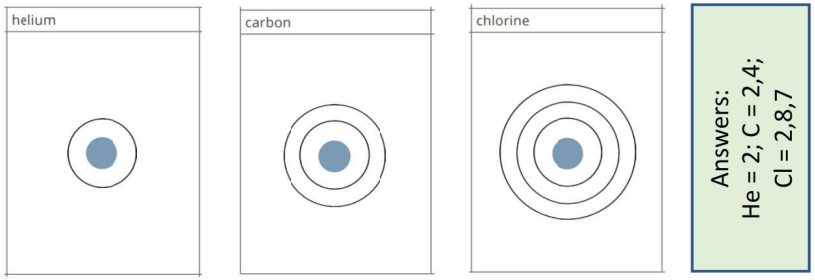
Chapter 1b – Atomic Structure and the Periodic Table

Keyword	Learn Look Cover Write Check	✓
Physical Property	A characteristic of a substance that can be observed or measured without changing the identity of the substance. Examples are: melting and boiling point, density, hardness, colour, electrical conductivity.	
Chemical Property	A characteristic of a substance that may be observed when it takes part in a chemical reaction. Examples are: reactivity, stability, flammability, toxicity.	
Metal	Element that forms positive ions by losing one or more electrons to get a stable, full outer shell.	
Non-metal	Element that forms negative ions by gaining one or more electrons to get a stable, full outer shell.	
Ion	A charged particle formed when an atom gains or loses electrons to form a full outer shell. The number of protons is different to the number of electrons in an ion, which is what makes them charged.	
Relative Atomic Mass	$\frac{\text{Sum of (isotope abundance X Isotope Mass number)}}{\text{Sum of abundances of all isotopes}}$	

Electron Configuration

Look Cover Write Check

You need to be able to draw the arrangement of electrons of the first 20 elements. Complete the examples below:

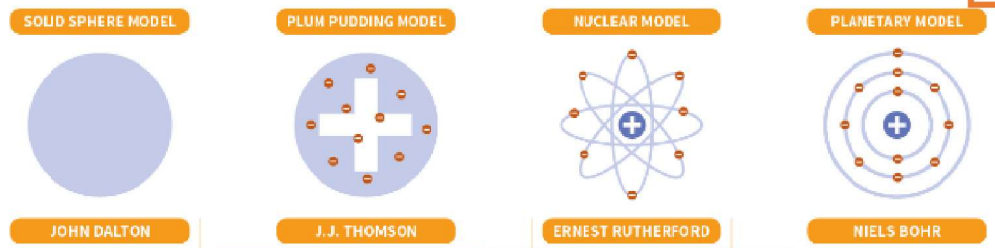


Answers:
He = 2; C = 2,4;
Cl = 2,8,7

Electrons are found in shells. A maximum of 2 in the innermost shell, which is filled first, then 8 in the second and third shells.

Development of the Atomic Model

Think It, Link It



JOHN DALTON	J.J. THOMSON	ERNEST RUTHERFORD	NIELS BOHR
Atom is a solid sphere.	Atom is a ball of positive charge with negatively charged electrons scattered throughout.	• Mass and positive charge concentrated in nucleus • Electrons orbit nucleus • Mostly empty space	Electrons orbit in shells at fixed distances from nucleus.

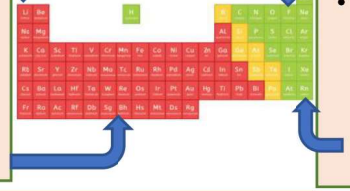
Trends in the Periodic Table

Playing with words and sentences

GROUP 1 (Alkali Metals)
- Reactivity increases down the group
- Outer shell electrons are further from the nucleus as atomic radius increases
- Attraction between nucleus and outer shell electrons becomes weaker
- Outer shell electrons are more easily lost

GROUP 7 (Halogens)
- Reactivity decreases down the group
- Outer shell electrons are further from the nucleus as atomic radius increases
- Attraction between nucleus and outer shell electrons becomes weaker
- Outer shell electrons are less easily gained

TRANSITION METALS
- Harder & denser than Group 1 metals, with higher melting & boiling points
- Less reactive than Group 1 metals



GROUP 0 (Noble Gases)
- Unreactive due to full outer shell of electrons
- Boiling point increases down group because number of electrons increases, so attraction between atoms gets stronger

Neutrons

James Chadwick discovered the neutron.
This explained the existence of isotopes. Atoms of the same element could have the same number of protons (atomic number) but a different atomic mass due to a different number of neutrons.

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Keyword	Definition / Example	✓
Iteration	Used to repeat a section of code a number of times.	

Count-controlled iteration	A block of code that repeats for a set number of times.
	Python
	`#Outputs 1-10`
	`for count in range (1,11,1):`
	`  print(count)`
	OCR Ref.
	`//Outputs 1-10`
	`for count = 1 to 10 step 1`
	`  print(count)`
	`next count`	

Condition-controlled iteration	A block of code that repeats until a condition is met
	Python
	`continue = "Y"`
	`while continue == "Y":`
	`  continue = input("Continue?")`	

Iteration with 1D array	**Python**
	`myArray = [1,2,3,4,5]`
	`for i in range(5):`
	`  print(myArray[i])`	

Iteration with 2D array	**Python**
	`myArray = [[1,2,3,4,5],`
	`  [6,7,8,9,10]]`
	`for row in range(2):`
	`  for column in range(5):`
	`  print(myArray[row][column])`	

Keyword	Definition / Example	✓
Subprogram	Small programs that are written within a larger, main program.	

Procedure	A subprogram that performs a specific task.
	Python
	`def add(num1, num2):`
	`  answer = num1 + num2`
	`  print(answer)`	

Function	A subprogram that performs a specific task and returns a result back to the main program.
	Python
	`def add(num1, num2):`
	`  answer = num1 + num2`
	`  return answer`	

Parameter	Variables declared when you define a subprogram.	
Argument:	A value sent to a subprogram when it is called.	
Random	To generate a random number between two values. **Python** `rand = random.randint(1,10)`	

How to practise at home?

- Code online using: https://vscodeedu.com
- Online tutorial 1: https://www.w3schools.com/python
- Online tutorial 2: https://time2code.today/python-course

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GCSE Design Technology — CORE 1.12 Woods

Tick	Hardwood	Uses	Properties
	Oak	• High quality furniture • Whisky barrels	• Compressive strength • Hard
	Mahogany	• Window frames • Jewellery boxes	• Fairly easy to work with • Finishes well
	Beech	• Toys • Tools	• Tough • Hard
	Balsa	• Modelling • Surf boards	• Extremely easy to work with/soft • Lightweight

Tick	Manmade board	Uses	Properties
	Plywood	• Building and construction • Flooring	• Strong • Resistant to warping and cracking
	MDF	• Inside of cabinets and storage units • Insides of flat pack furniture	• Very easy to machine and cut • Smooth surface (ideal for painting)

EXAM PRACTICE

1 Oak is used for barrels. State one property that makes it suitable. **(1)**
2 Give two uses of beech. **(2)**
3 Explain why balsa is a suitable material for modelling. **(2)**
4 Explain why cedar is used for sheds and boats. **(2)**
5 Explain why MDF is often used inside flat pack furniture. **(2)**
6 State two properties of plywood. **(2)**

Tick	Softwood	Uses	Properties
	Cedar	• Sheds • Boats	• Natural oils make it resistant to water and fungal growth • Low density
	Pine	• Construction • Inexpensive furniture	• Easy to work with • Lightweight

Tick	Facts	
	Softwood	• Originates from coniferous/evergreen trees • Trees grow all year round • Have needle like leaves • Tend to be cheaper then HWs as they grow all year round and are readily available • Take around 30-50 years to mature • Grow in cooler or temperate climates
	Hardwood	• Originates from deciduous trees • Trees grow ½ the year (Summer and Spring) • Have broad leaves • Tend to be more expensive as they are less available • Take 100s of years to mature • Grow in temperate or tropical climates
	Manmade board	• A.k.a. manufactured boards • Are not naturally grown • Made into large sheets/boards • Mostly made from scrap/waste wood so can be seen as more environmentally friendly

EXAM PRACTICE

1 Give three differences between softwoods and hardwoods. **(3)**
2 Explain why softwoods tend to be cheaper than hardwoods. **(2)**
3 Describe the type of tree that hardwoods come from. **(2)**
4 Describe what is meant by a manmade board. **(2)**
5 Explain why manmade boards can be seen as environmentally friendly. **(2)**

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GCSE Design Technology CORE 1.13 Material properties + 1.14 Design considerations

What is a mechanical property?
Elements of a material that resist deformation from external forces in a particular way.

Tick	Property	Definition
	Strength	Withstands forces by squashing (compressive strength) or stretching (tensile strength).
	Elasticity	Can return to its original shape once the deforming force has been removed.
	Plasticity	(plastics only) Ability to permanently deform without breaking when heated.
	Malleability	(metals only) Ability to deform in all directions without fracture.
	Ductility	To be drawn out, bent or twisted without fracture.
	Hardness	Resists deformation, indentation or penetration.
	Toughness	Withstands sudden shock or stress.
	Brittleness	Inability to withstand sudden shock or stress.
	Durability	Withstands deterioration over a long period of time.
	Stability	Resists changes in shape over time.
	Stiffness	Resists bending.

EXAM PRACTICE

1 State what is meant by a mechanical property. **(1)**
2 Describe the difference between toughness and brittleness. **(2)**
3 Explain the difference between elasticity and plasticity. **(2)**
4 Describe compressive strength and tensile strength. **(2)**

Tick	Criteria	Definition/ description
	Fairtrade Foundation	Tackles poverty and injustice across the world. It ensures farmers are paid a fair price and has better working conditions and tries to prevent child labour.
	Carbon Offsetting scheme	When companies or individuals reduce their carbon footprint through ways such as planting trees, encouraging staff to cycle to work, car sharing etc.
	Product disassembly	When a product an be taken apart so that individual parts can be recycled or reused.
	Disposal of waste	This is governed by laws at international, European, national and local levels to ensure that collection, transportation and disposal of waste has the least amount of impact on the environment.
	Human capabilities	When a design meets the needs of the user and operates within their capabilities.
	Cost of materials	Refers to all aspects i.e. the initial cost of the raw material, the costs of maintenance, transportation, recycling and disposal.
	Manufacturing capability	Considers the machinery/equipment available to manufacture and then the costings available to actually make the product.
	Modular	A design featuring parts of standard sizes so that they can be constructed in different ways.
	Consideration of 'green designs'	Global warming and rising energy costs have led to designers thinking about environmental factors when designing products without compromising function, quality or performance.

EXAM PRACTICE

1 Describe what the Fairtrade Foundation aims to do. **(2)**
2 Explain how a company could use carbon offsetting. **(2)**
3 Explain why designers consider product disassembly. **(2)**
4 Describe what is meant by a modular design. **(2)**
5 Give two costs that are included in the cost of materials. **(2)**

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Poem	Themes	✓	Content	✓	First class quotations	✓	Context	✓
Poppies	Loss, family, suffering, motherhood		Focuses on a mother's perspective of waiting for her son to come back from war and remembering his childhood.		"All my words flattened, rolled, turned into felt" "Like a treasure chest"		Weir was a textile designer. Conflict is ambiguous to give a timeless relevance to families left behind.	
Kamikaze	Patriotism, honour, nature, memories		Follows the journey of a pilot going into battle, his decision to return home, and how his family shun him afterwards.		"Dark shoals of fish flashing silver" "A shaven head full of powerful incantations"		Cowardice was a great shame in wartime Japan, it brought rejection from society.	
The Emigree	Identity, memory, childhood, displacement		A female is forced to leave her country for political or social reasons. Her positive memories of home cannot be lost.		"I comb its hair and love its shining eyes" "I am branded by an impression of sunlight"		Published in 1993, still topical. Country is not specified, gives the poem a timeless relevance.	
Ozymandias	Nature, decay, pride, leadership		The narrator meets a traveller who tells him about a decayed stature that he saw in a desert. Human power is temporary.		"Look on my works, ye mighty, and despair" "The lone and level sands stretch far away"		Romantic poetic, interested in nature and emotion. Inspired by the French revolution, opposed the oppressive monarchy.	
Prelude	Nature, fear, childhood, experiences		A boy confidently steals a boat, rows across a lake, sees a looming mountain ahead and gets scared, scared by the experience.		"An act of stealth/ and troubled pleasure" "Upreared its head"		Romantic poet. Part of a 14 book epic poem. Orphaned at 13, lived with family in the Lake District who treated him badly.	
Storm on the Island	Nature, fear, politics, community		The community prepares for a violent storm and describe the various sounds and sights during it.		"Exploding comfortably" "Spits like a tame cat turned savage"		Published during The Troubles in Northern Ireland. STORMONT is the name of the Northern Irish parliament.	
London	Corruption, inequality, poverty, loss of innocence		Narrator describes a walk around London, he is saddened by the sights and sounds of poverty.		"Mind-forged manacles" "Every black'ning church appals"		Romantic poet. Blake had radical political views, he believed in social and racial equality. From a collection focusing on lost innocence.	
My Last Duchess	Pride, control, jealousy, status		Shows a visitor around his art collection and points out a portrait of his dead wife. He was annoyed by her "flirtatious" behaviour.		"As if she ranked / My gift of a nine-hundred-years old name" "I gave commands; then all smiles stopped"		Based on the Duke of Ferrara (1533-1598) whose wife died suspiciously. He is the inspiration for Browning's poem.	
Checking Out Me History	Protest, identity, pride, culture		Represents the voice of a man who was frustrated by the Eurocentric history curriculum that he was taught at school.		"Dem tell me wha dem want" "I carving out me identity"		Born in British Guyana, moved to England when grown up. His poems challenge racism and prejudice.	
Tissue	Nature, control, identity, fragility		Explores the paradox that although paper is fragile, temporary and ultimately not important, we allow it to control our lives.		"The sun shines through their borderlines" "Let the daylight break through capitals and monoliths"		Taken from a collection that questions how well we know the people around us ("The Terrorist At My Table")	

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Creative Writing

Use the 'contained narrative' plan:

1. Describe the setting in detail – colours, sensory language, imagery, pathetic fallacy etc.. Create the tone you want to set. ☐

2. Shift to your character. What are they doing? Show the reader; don't tell. Introduce the character's problem. Experiment with a motif – it should be symbolic. ☐

3. Shift: use a shift in time as a powerful structural technique. ☐

4. Return to your character, and resolve the story. Experiment with a cyclical structure. ☐

Show feelings through actions and details. Keep characters and dialogue purposeful. ☐

Create atmosphere through precise details, sensory imagery and carefully chosen vocabulary. ☐

Vary sentence lengths and openings for a reason. Use punctuation accurately, not just for variety. ☐

Check sentence boundaries, tense, agreement, spelling, apostrophes and any speech punctuation. ☐

Techniques	Definition	✓
Motif	A dominant of recurring idea/object in a piece of writing.	
Sensory imagery	Use of the 5 senses in writing to create immersive imagery.	
Fragmented sentence	A sentence missing either its subject or main verb.	
Symbolism	Using words, images, people, locations or abstract ideas to represent something beyond the literal meaning.	
Pathetic fallacy	Using the weather or nature to set the tone of a piece of writing	
Atmosphere	The main tone/ mood of a piece of writing.	

Ending type	Definition	✓
Cyclical narrative	Where the ending resumes back to the beginning.	
Plot twist	Complete change in direction.	
Epiphany	Sudden moment of realisation for the character.	
Cliff hanger	The reader is unclear at the end.	
Resolved	The strands of the plot are brought together and completed.	
Converging storylines	Two or more different storylines converge at the end.	
Repeated motif or symbol	Ending with zooming back in on the motif that runs throughout.	

Glossary

Vocabulary	Meaning	✓
Varicose ulcer (1984)	An open sore caused by poor blood flow.	
Contrived (1984)	Deliberately created rather than arising spontaneously.	
Sanguine (1984)	Optimistic especially in hard times.	
Kerosene (Fahrenheit 451)	A flammable fuel source.	
Stolid (Fahrenheit 451)	Calm and dependable.	
Palimpsest (Handmaid)	Something reused but still bearing visible traces of its early form.	
Forlorn (Handmaid)	Lonely or neglected.	
Garland (Handmaid)	A festive necklace usually made with flowers.	
Insatiable (Handmaid)	An appetite or desire for something but impossible to satisfy.	
Fetid (Bees)	Smelling extremely unpleasant.	

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Protein 3.2.1.1

Amino acids: 20 total; 9 essential (must come from diet.
HBV (High Biological Value): Contains all essential amino acids e.g. meat, fish, poultry, eggs, dairy, soya and quinoa.
LBV (Low Biological Value): Lacks one or more essential amino acid. Pulses, beans, lentils, nuts, seeds and cereals.
Protein complementation: Combining 2 LBV to provide all essential amino acids e.g. beans on toast.
Alternatives: Tofu, Mycoprotein (Quorn), TVP (Textured Vegetable Protein).
Functions: Growth, repair, maintenance (enzymes, hormones and antibodies), energy (**only if insufficient carbohydrates are available**).

Vitamins 3.2.2.1

Fat-soluble vitamins (stored in body tissue)
Vitamin A (Retinol/Beta-carotene): Night vision, skin integrity, immune support, antioxidant. Found in liver, carrots. **Deficiency**: night blindness. **Excess**: Toxic to liver.
Vitamin D (Cholecalciferol): Aids calcium absorption for strong bones. Found in sunlight, oily fish, eggs.
Deficiency: Rickets (children), Osteomalacia (adults).
Vitamin E: Antioxidant, healthy skin/eyes
Vitamin K: Blood clotting

Water-soluble vitamins (not stored, lost via heat/water)
B Group (B1, B2, B3, B9 Folate, B12): releases energy from food, neural pathway maintenance. Found in wholegrains and dairy. **B9** (Folic acid) prevents Spina bifida. **Deficiency:** Fatigue, anaemia.
Vitamin C (ascorbic acid): Assists iron absorption, wound healing, antioxidant. Found in citrus fruit, peppers, potatoes. **Deficiency:** Scurvy

Fats 3.2.1.2

Structure: 1 Glycerol molecule bound to 3 Fatty Acids.
Saturated Fats: All single carbon bonds.
Mainly animal sourced (butter, lard) and coconut oil.
Linked to high LDL cholesterol and CHD.
Monounsaturated Fats: 1 double bond e.g. olive oil, avocado
Polyunsaturated Fats: 2+ double bonds e.g. sunflower oil, oily fish.
EFAs (Essential Fatty Acids): Omega-3 and Omega-6 cannot be made by the body must come in from the diet.
Examples include; oily fish, flax seeds, linseeds.
Functions: insulation/protection, formation of cell membranes, hormones.

Water 3.2.2.3

Elimination of waste: Toxic excretion through urine and sweat.
Temperature regulation: Cools core body temperature via perspiration.
Digestion and Transport: Forms blood plasma base to distribute nutrients, joint lubrication, fluid medium for cellular chemical reactions.

Requirements and Hydration Balance:
Daily loss channels: exhalation, perspiration, urination and faeces.
Recommended Intake: 6-8 glasses daily. Needs scale up with exercise, hot climates or high fever.
Dehydration (deficiency): Mild brings headaches and dark urine. Severe cases kidney failure and life-threatening heat stroke.

Carbohydrates 3.2.1.3

Key Concepts
Monosaccharides: single sugar molecule e.g. glucose, fructose and galactose. Fast energy.
Examples: fruit, milk
Disaccharides: two sugar molecules joined together e.g. sucrose, lactose and maltose.
Examples: table sugar, milk, wheat
Polysaccharides: Complex carbohydrates e.g. starch, pectin, dextrin and dietary fibre. Slow release energy.
Examples: Starchy carbohydrates
Non-starch polysaccharides: Dietary fibre.
Indigestible plant material.
Examples: wholegrain carbohydrates, fruit and vegetables lentils/beans, nuts/seeds.
Increase fibre by swapping white carbohydrates for wholegrain/wholemeal varieties. Add vegetables, lentils or beans to meals.
Free Sugars: Added sugars e.g. syrups, fruit juice.

Minerals 3.2.2.2

Calcium: formation of bones/teeth, blood clotting, nerve conduction. Sources: dairy, tofu, green leafy veg, fortified milk alternative drinks/foods.
Iron: formation of haemoglobin. Sources: haem – red meat, non-haem – green leafy veg, fortified foods.
Sodium: regulates fluid balance, assists nerve signal transmission and muscle contraction.
Sources: table salt, processed foods, cheese, cured meats.
Fluoride: strengthens enamel on teeth, helps to prevent tooth decay. Sources: toothpaste, fluorinated tap water.
Phosphorous: Works with calcium to strength bones/tooth. Sources: red meat, poultry fish, eggs, nuts, wholegrains.

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Les parties du corps Parts of the body		
la bouche	mouth	
le bras	arm	
le corps	body	
le dos	back	
l'épaule (f)	shoulder	
le front	forehead	
le genou	knee	
la jambe	leg	
la main	hand	
le nez	nose	
les oreilles (fpl)	ears	
le pied	foot	
la tête	head	
le visage	face	
les yeux (mpl)	eyes	
j'ai mal à	I have a pain in	

Manger sain - Eating healthily		
les boissons gazeuses	fizzy drinks	
les céréales (fpl)	cereals	
les chips (fpl)	crisps	
l'eau (f)	water	
les pommes de terre	potatoes	
les gâteaux (mpl)	cakes	
les légumes (mpl)	vegetables	
la nourriture salée	savoury food	
la nourriture sucrée	sweet food	
les oeufs (mpl)	eggs	
le pain	bread	
le poisson	fish	
les produits laitiers	dairy products	
la viande	meat	
la santé	health	
c'est sain	It's healthy	
c'est malsain	It's unhealthy	

Le sport et le fitness		
le sport diminue le stress	sport decreases stress	
c'est bon pour le moral	is good for morale	
c'est important pour la vie	is important in life	
ça me fatigue	it makes me tired	

On joue au paintball		
tu es touché?	have you been hit?	
je suis touché	I have been hit	
le terrain	grounds	
les billes (fpl)	paintballs	
le casque	helmet	
le matériel	materials/equipment	
les règles	rules	

Pour arriver en forme		
il faut...	you must...	
avoir un bon programme	have a good schedule	
bien manger	eat well	
manger équilibré	eat a balanced diet	
bien dormir	sleep well	
être motivé	be motivated	
faire du sport tous les jours	do sport every day	
faire de l'exercice	to do exercise	
jouer dans une équipe	play in a team	
prendre des escaliers	take the stairs	

Useful time/frequency phrases		
au moins	at least	
chaque semaine	each week	
d'abord	first	
de bonne heure	early	
deux fois par semaine	twice a week	
par jour	per day	
donc	so	
ensuite	then	
finalement	finally	
à l'avenir	in the future	

Verb endings in the simple future		For example
Je	-ai	Je mangerai
Tu	-as	Tu mangeras
Il/Elle/On	-a	Il/Elle/On mangera
Nous	-ons	Nous mangerons
Vous	-ez	Vous mangerez
Ils/Elles	-ont	Ils/Elles mangeront

The simple future:

It is used to describe what will happen in the future "I will eat".
To form it, use future stem plus appropriate ending
e.g je mangerai – *I will eat*.
For –er and –ir verbs, the future stem is the infinitive.
For –re verbs, drop the –e from the infinitive.
e.g. boire -> Je boirai – *I will drink*

Simple future common verbs		
Je ferai	I will do	
J'irai	I will go	
Je jouerai	I will play	
Je mangerai	I will eat	
Je boirai	I will drink	
Je prendrai	I will take	
Ce sera	It will be	

Simple future verb forms for irregular verbs

Irregular future stems

avoir	aur-	
être	ser-	
aller	ir-	
faire	fer-	

Bournemouth School Knowledge Organiser Year 9

FRENCH

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NIGERIA

2.4 Nigeria Background

Site – The actual location of a settlement on the Earth, composed of the physical characteristics of the landscape.
Situation - The location of a place relative to its surroundings and other places.

Historical – Nigeria was under British control from 1861-1960. It has had periods of conflict and military coups (1966-1979, 1983-1999). From 1999, there has been more stability, with a president elected in 1999.
Physical – Nigeria has an 853km coastline connected to the Gulf of Guinea, which has oil deposits in. It has plateaus and lowlands, and is on two major river basins. The natural environment varies from tropical rainforest to semi-desert.
Political – Nigeria is a federal republic, with 36 states and a federal capital territory (Abuja). It has central and regional governments. It is a democracy that votes every 4 years. It is a member of the UN, OPEC and the African Union. Corruption is seen as an issue within Nigeria.
Economic – Nigeria was the 27th largest economy in 2020. Oil accounts for 90% of foreign income and 70% of exports. It is Africa's largest economy.
Social – Nigeria is one of the most socially diverse countries in the world, with over 500 languages spoken and hundreds of ethnic groups. Nigeria's population is also religiously diverse, including significant Muslim (53.5%) and Christian (45.9%) communities, alongside followers of traditional African beliefs.
Cultural - Afrobeat and modern Afrobeats dominate radio and clubs. Sport also brings people together, with Nigeria winning the African Cup of Nations three times and producing many famous footballers. Nollywood, the Nigerian film industry, is the second-largest in the world by output—behind India's Bollywood and ahead of Hollywood.

2.5 Globalisation in Nigeria

Nigeria has undergone rapid economic growth for 5 key reasons:

- While the 1990s saw political instability, including a coup attempt, Nigeria also transitioned away from military rule in 1999, which paved the way for a more stable environment for economic growth.
- World oil price increases from 1973 onwards, including those in the 1990s, significantly boosted Nigeria's transportation, construction, manufacturing, and government services sectors.
- The government began privatising state-owned enterprises in the late 1990s, particularly in communications, power, and transportation, to improve service quality and reduce reliance on the government.
- The Nigerian Investment Promotion Commission (NIPC) Decree of 1995 liberalized foreign investment rules, allowing 100% foreign ownership of firms outside the petroleum sector.
- Nigeria saw a move towards manufacturing and services, with growth in IT and a large, relatively inexpensive workforce contributing to manufacturing expansion.

SHELL CASE STUDY:
Shell is one of the worlds largest oil companies with its headquarters in the Netherlands. Shell has been interested in the Niger Delta since the discovery of oil in 1958. The river delta is swampy, making it one the most difficult spaces to extract oil in the world.

Nigeria has the biggest ICT (Information and Communication Technology) market in Africa. That means more people in Nigeria use mobile phones and the internet than in any other African country. In fact, about 82% of people in Africa who have a phone live in Nigeria, and 29% users in Africa are Nigerian.

Outsourcing is where a TNC gives a contract to another company to complete part of their work. For example, they might outsource their call-centres to parts of the world where labour costs are lower. Many global TNCs do not make all of their products themselves and outsource the production. They simply attach their branding and logo to the good.

2.6 Impacts of growth

REGIONAL DIFFERENCES
Northern Nigeria: **31% GDP**, poverty **69–71%**, literacy **41%**, life expectancy **50.8 years**, infant mortality **56.6/1,000**, mainly subsistence farming.
Southern Nigeria: **69% GDP** (SW 35%, SS 21%), poverty **49.8–59.5%**, literacy **88%**, life expectancy **58.2 years**, infant mortality **46.6/1,000**, benefits from industry, oil, infrastructure, education, and healthcare.

AGE AND GENDER
Nigeria's youth, who make up 58% of the population, benefit from tech growth and better education but face severe unemployment—**37.2% (ages 25–34)**. Older generations have improved healthcare and receive remittances from younger relatives but suffer from weak pensions and poor rural services. Women face deep inequality: have low literacy, high early marriage rates (**78% before 18**), and high maternal deaths (**1 in 100**).

ENVIRONMENT
Nigeria's economic development has harmed the environment. Air pollution threatens all 218.6 million residents, cutting life expectancy by 1.8 years on average. Water pollution from oil, mining, industry, and sewage causes disease. Land is degraded by oil spills, waste, and deforestation. CO_2 emissions rose 126% since 2000, contributing to floods and droughts that threaten agriculture, food security, and livelihoods.

2.7 International Role

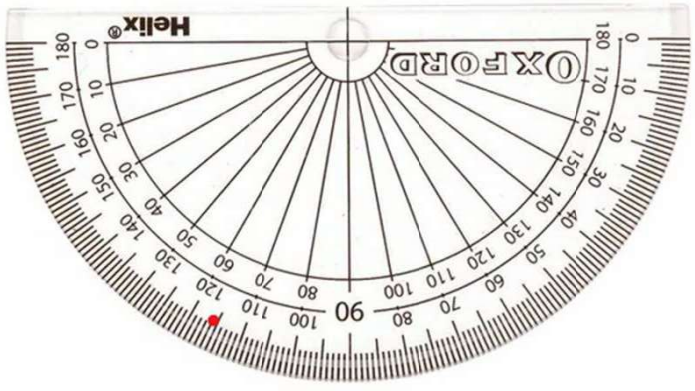
Nigeria is part of:

- African Union
- ECOWAS
- CEN-SAD
- OPEC
- UN
- Commonwealth

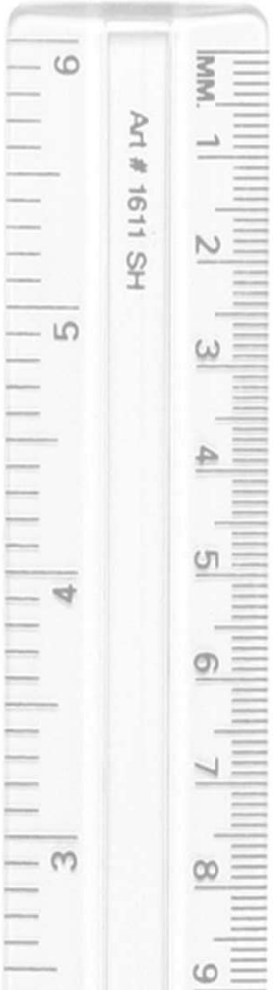
Nigeria's economic strength positions it as the leader in the Economic Community of West African states (ECOWAS), aiming to promote economic cooperation and political stability among its member countries.

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Equipment



ID Card



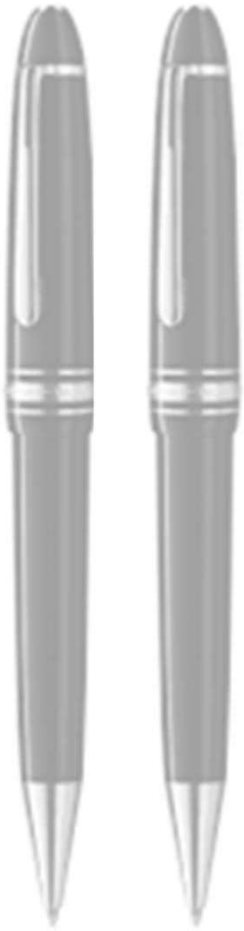






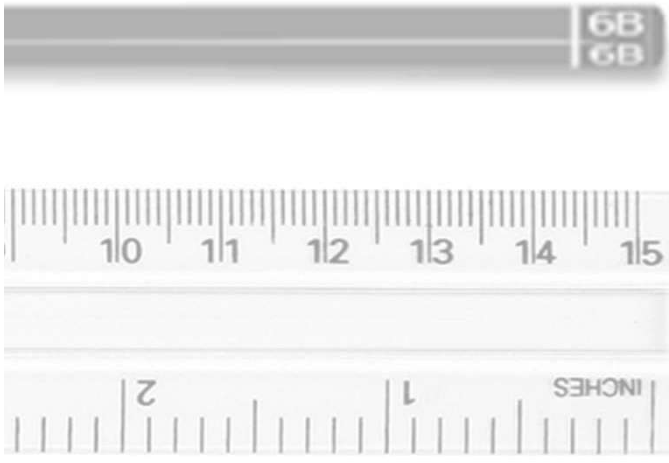


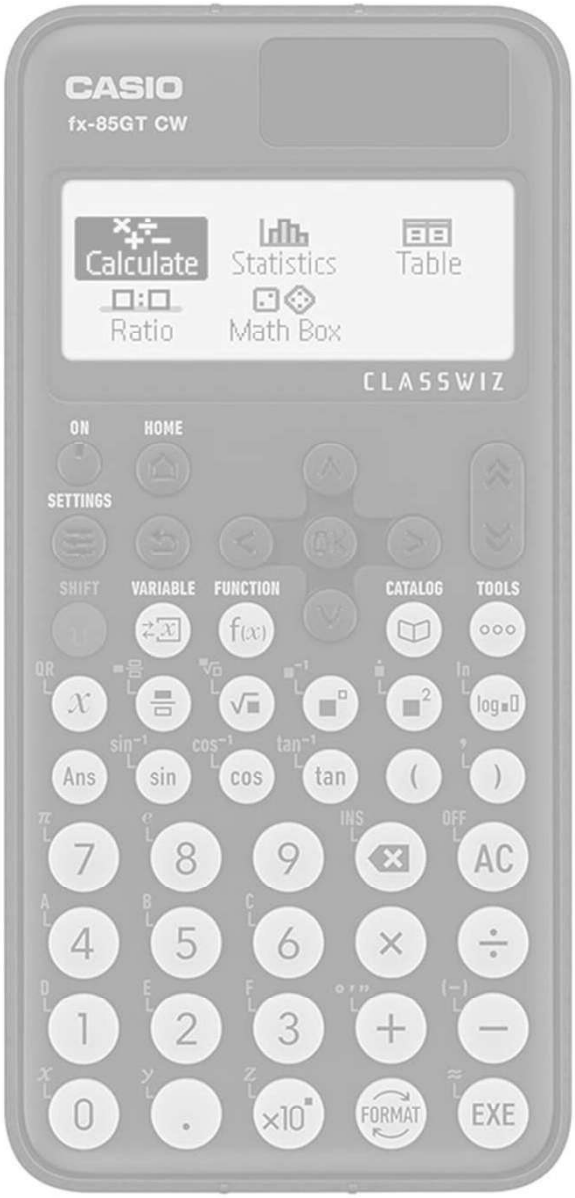
Check



- ID card
- Green and purple pens
- Whiteboard pens
- Black/blue pens
- Glue stick
- Pencil
- Ruler
- Calculator
- Whiteboard rubber

Whiteboard Rubber





To talk about actions in the past use the perfect tense. You need a form of haben or sein (for movement verbs) plus a past participle (ge+verb stem+t)		
Ich habe/er, sie hat/wir haben: ***gespielt/gemacht/ gekauft/gehört*** *some past participles are irregular* ***gesehen/gelesen***	*I/he, she/we* *played/did/ bought/listened* *saw/read*	
Ich bin/er, sie ist/wir sind: *some past participles are irregular* ***gefahren/gegangen/ geschwommen/geblieben***	*I/he, she/we* *travelled/went/ swam/stayed*	

Strong verbs in German change the vowel in the "du & er/sie/es/man" forms only		
fahren = fährst/fährt	to travel	
sehen = siehst/sieht	to watch	
lesen – liest/liest	to read	
Verbs with a stem ending in –d or –t add an extra "e" in these forms		
reiten = reitest/reitet	to go horse riding	
finden – findest/findet	to think/find	

spielen - to live		
ich spiele	I play	
du spielst	you play	
er/sie/es spielt	he/she/it plays	
wir spielen	we play	
ihr spielt	you (pl) play	
sie spielen/ Sie spielen	they/you (formal) play	

haben- to have		
ich habe	I have	
du hast	you have	
er/sie/es hat	He/she/it has	
wir haben	we are	
Ihr habt	you (pl) have	
sie haben/ Sie haben	they/you (formal) have	

Essential irregular verb

sein - to be		
ich bin	I am	
du bist	you are	
er/sie/es ist	he/she/it is	
wir sind	we are	
ihr seid	you (pl) are	
sie sind/ Sie sind	they/you (formal) are	

Mein Leben online – My Life online

Was machst du am Computer?	What do you do on your computer?	
Was machst du am Handy?	What do you do on your mobile?	
Ich chatte mit meinen Freunden auf Facebook.	I chat with friends on facebook.	
Ich lade Musik herunter.	I download music.	
Ich mache Fotos oder Filme.	I take photos or make films.	
Ich sehe Videos.	I watch videos.	
Ich simse.	I text.	
Ich spiele Computerspiele.	I play computer games.	
Ich suche und lese Infos für die Hausaufgaben.	I look for and read information for my homework.	
Ich surfe im Internet.	I surf the internet.	
Ich telefoniere mit Freunden.	I call my friends.	
Ich mache ziemlich viel auf meinem Handy.	I do quite a lot of things on my mobile.	

In German, the verb is always the second idea in a sentence.
If you start a sentence with a time phrase, the verb has to come immediately afterwards.
Am Abend spiele ich Xbox.
Jeden Tag mache ich Sport.

Bournemouth School – Knowledge Organiser – Year 9 HT2

GERMAN

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Sportarten - Sports

Ich bin (sehr) sportlich	I am (very) sporty	
Ich bin ziemlich sportlich	I am quite sporty	
Ich bin nicht sehr sportlich	I am not very sporty	
Was spielst du?	What do you play?	
Ich spiele	I play.....	
Badminton	badminton	
Basketball	basketball	
Eishockey	ice hockey	
Fußball	football	
Handball	handball	
Tennis	tennis	
Tischtennis	table tennis	

Opinions with verbs

Ich spiele gern	I like playing	
Ich spiele ziemlich gern ...	I quite like playing	
Ich spiele nicht gern	I don't like playing	
To say that you like doing / to do something, you add "gern" just after the verb You can also use qualifiers. **Remember:** **Ich mag/liebe/hasse + noun Verb + gern/nicht gern**		

Freizeitaktivitäten – Free time activities

Was machst du gern?	What do you like doing?	
Ich fahre Rad.	I ride my bike.	
Ich fahre Skateboard.	I go skateboarding.	
Ich fahre Ski.	I ski.	
Ich fahre Snowboard.	I snowboard.	
Ich lese.	I read.	
Ich mache Judo/Karate.	I do judo/karate.	
ich reite.	I go horse riding.	
Ich schwimme.	I swim.	
Ich sehe fern.	I watch TV.	
Ich spiele Gitarre.	I play the guitar.	
Ich tanze.	I dance.	
Ich chille.	I chill out.	
Ich esse Pizza oder Hamburger.	I eat pizza or hamburgers.	
Ich gehe einkaufen.	I go shopping.	
Ich gehe ins Kino.	I go to the cinema.	
Ich gehe in den Park.	I go to the park.	
Ich gehe in die Stadt.	I go into town.	
Ich höre Musik.	I listen to music.	
Ich mache Sport.	I do sport.	
Ich spiele Xbox oder Wii.	I play Xbox or on the Wii.	

Adjektive - Adjectives

Wie findest du das?	How do you find it?	
Ich finde es	I think it's	
Es ist	It's	
irre	amazing	
super	super	
toll	great	
cool	cool	
gut	good	
nicht schlecht	not bad	
okay	okay	
langweilig	boring	
nervig	annoying	
stinklangweilig	deadly boring	
furchtbar	awful	

Wann? – When?

jeden Morgen/Tag	every morning/day	
manchmal	sometimes	
immer/nie	always/never	
einmal/zweimal pro Woche/pro Monat	once/twice a week/a month	
am Wochenende	on the weekend	
heute	today	
morgen	tomorrow	
am Abend/am Montag	in the evening/on Monday	

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The Role of Colours in Poster Design

Colours speak volumes. A vibrant red can ignite passion, a deep blue can evoke tranquillity, and a refreshing green can bring peace. Psychologists have long studied colour theory, examining how different shades impact our minds and emotions.

Warm colours
Warm colours, such as red, orange, and yellow, are often ***associated with energy, joy, and optimism.***

Cool colours
On the other hand, cool colours like blue, green, and purple often ***symbolize peace, calm, and harmony.***

Cultural impact
However, colour perception isn't purely psychological; it's also cultural. For example, white represents purity in Western cultures, while in some Asian cultures, it symbolizes mourning.

Aesthetics and readability
Colour combinations also significantly impact a poster's aesthetics and readability. **Complementary colours** create a vibrant look with high contrast, **analogous colours** offer a rich, monochromatic look, while triadic colours provide a balanced and harmonious contrast.
Designers often adjust these schemes, ensuring the right balance between visual appeal and readability

Film Colour Palettes and Schemes
A film colour palette is a set of colours that a filmmaker uses to create a specific mood or tone. It can consist of two or more colours that work together to create a cohesive look and feel. Filmmakers use color palettes to help tell their story and convey their message. For example, a filmmaker might use a muted color palette to create a sense of nostalgia or a bright and vibrant color palette to create a sense of excitement.

Keyword	Principles of Design – read, cover, write, review	tick
Colour theory	Color theory is the collection of rules and guidelines which designers use to communicate with users through appealing color schemes in visual interfaces.	
Colour wheel	A color wheel is a tool that helps you to combine appropriately the colors, and its represented by a circle formed by primary, secondary, and tertiary colors.	
RGB	RGB Color model stands for Red, Green, and Blue and is mainly used for electronic displays including computers and smartphones, and is based on the additive color model of light waves.	
CMYK	CMYK Color model stands for Cyan, Magenta, Yellow, and Key (Black). CMYK is subtractive and is used for printing.	
Monochromatic	Monochrome is used to describe design or photographs in one colour or different shades of the single colour. An image created in black and white or in varying tones of only one colour.	
Complimentary	A complimentary colour scheme uses colours opposite each other on the colour wheel to create a high contrast aesthetic.	
Analogous	Analogous colours are next to each other on the colour wheel. They are often found in nature, for example in the changing colours of autumn leaves progressing around the colour wheel. An analogous colour scheme is characterised by a lack of contrast, unlike a complementary colour scheme	
Hue	Hue either refers to is a pure colour or the dominant colour. If black is added to a hue it becomes a shade and if white is added it becomes a tint.	
Saturation	Saturation refers to the intensity of a colour. Highly saturated colours appear more vibrant and bold, whereas less saturation appears dull.	

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Timeline of key events:

August 1914: WWI starts and Hitler joins the German army
1918: Hitler awarded the Iron Cross for bravery in WWI
Sept. 1919: Anton Drexler founds DAP
Feb. 1920: Twenty Five Point Programme written declaring the main policies of the Nazi Party
1921: SA formed by Ernst Rohm
1923: Hyperinflation
Nov. 1923: The Munich Putsch; the failed attempt by Nazi party to overthrow the regional government of Bavaria and national government of Germany by force
April 1924: Hitler sentenced to 5 years in Landsberg Prison (released after only 9 months)
1924: Ban on Nazi Party lifted
1926: Bamberg Conference
1928 Election: Nazis won 12 seats in the Reichstag
29 Oct. 1929: Wall Street Crash
1928-30: Muller government
1930-May 1932: Bruning government
Sept 1932 Election: Nazis win 107 seats in the Reichstag
1932: Presidential Election: Hindenburg wins, but Hitler polls 13.4m votes
July 1932 Election: Nazis win 230 seats in the Reichstag
November 1932 Elections: Nazis win 196 seats in the Reichstag
30 January 1933: Hitler appointed Chancellor of Germany by Hindenburg
27 February 1933: Reichstag Fire
24 March 1933: Enabling Act passed
30th June 1934: Night of the Long Knives
August 1934: Death of Hindenberg

✓

Key terms/definitions

Term	Definition	✓
Balanced budget	When a nation does not spend more than it earns	
Bamberg Conference	Nazi Party meeting where Hitler strengthened his power and reorganised the Nazi party	
Centre Party (ZP)	A Catholic Party occupying the middle ground in political views	
Charisma	A quality in leadership which arouses loyalty and enthusiasm for a public figure	
Civil Servants	Citizens who work for and are paid by the government	
Communist	Supporter of communism: a political idea where workers have power and wealth is shared	
DAP	German Workers Party; the early Nazi Party, established by Anton Drexler in 1919	
Fuhrer	Leader; title given to Hitler to define his role of absolute authority	
Fuhrerprinzip	The idea that the Nazi Party and Germany should have one leader, obeyed by all	
Gauleiter	The leader of branches of the Nazi Party (Gaue; single called Gau)	
General Elections	Elections held for the German people to choose deputies to sit in the Reichstag	
Great Depression	Slump in the economy in the 1930s which led to high unemployment	
Heil Hitler	Raised arm salute to Hitler	
Hitlerjugend	Hitler Youth movement, set up for the young in Germany, to convert them to Nazi ideas	
Indoctrination	Converting people to a set of ideas using education and propaganda	
Informant	Person who gives information to the authorities about the activities of other people	
Left wing	People who favour socialism and /or communism	
Manifesto	A public declaration of the policy of a political party	
Mein Kampf	Book containing autobiography/political views of Hitler written in 1924 in Landsberg Prison	
NSDAP	National Socialist Party or Nazi Party	
Presidential Election	Elections held for the people of Germany to choose the President of the Weimar Republic	
Political Intrigue	Trickery and secret deals used in politics instead of open political debate	
Propaganda	Use of a variety of means including newspapers, broadcasts and education to accept political ideas without question	
Querfront	'Cross front': bringing together different strands of left & right-wing parties to rule Germany	
RFB	Red Front Fighters; Communist private army (militia)	
Right Wing	People who favour groups that are nationalistic, patriotic and sometimes racist	
SA	Sturmabteilung; paramilitary storm troopers of the Nazi Party	
SS	Schutzstaffel: originally Hitler's bodyguard, they became the most powerful troops in Nazi Germany and were responsible for concentration camps and the Final Solution	
Stock market	The place where stocks and shares are traded; Wall Street in New York was the most important Stock Market in the world in the 1920s	
Taxes	Money paid by workers to the government to fund public works, schools, unemployment benefits etc	
Treason	The act of betraying your country; considered to be one of the most serious criminal acts	
Unemployment	The number of people who are without a job in a country	
Unemployment benefit	Money given to the unemployed by the government (unemployment insurance)	

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1. Keeping Control by using Terror		
Method	**Description**	✓
SS	Led by Himmler, oversaw the terror state including concentration camps.	
Concentration Camps (from Feb 1933)	Used to imprison the Nazi's enemies: different categories. The SD and SS ran the camps.	
Gestapo 1933	Secret Police, had power to arrest and send to camps without trial	
Night of the Long Knives (30th June 1934)	Also known as 'Operation Hummingbird' or the 'Blood Purge'; this event saw the purging of Hitler's military and political rivals in the SA in order to win the support of the army	

2. Keeping Control by using propaganda		
Method	**Description**	✓
Ministry of Propaganda	Led by Joseph Goebbels, oversaw all censorship and propaganda	
Censorship	Anti-Nazi papers closed, Radio controlled, pre-publication censorship, Jazz music banned, book burnings	
Propaganda	Spread Nazi message through: Posters, films, rallies (Nuremburg), architecture, theatre, literature, 1936 Olympics (4x Gold medals for Jesse Owens, pause on anti-Semitism). By 1935, more than 1600 newspapers had been closed down.	

3. Keeping control of the Law		
Method	**Description**	✓
Nazi Socialist League for the Maintenance of Law	All judges had to join this organisation and swear an oath of loyalty.	
German Lawyer's Front 1933	All lawyers had to join and swear oath, 10,000 members by end of 1933. From 1936 judges had to wear the swastika and eagle.	
People's Court 1934	Cases of treason tried and defendants summarily executed.	

4. Keeping control of the churches		
Method	**Description**	✓
Catholic Church	Concordat signed with Catholic Church 1933. Hitler agreed to allow Catholic schools, if the church stayed out of politics	
Protestant Church	All Protestant churches merged in 1933 under Bishop Muller, Nazification of the churches – swastikas in church etc.	
Faith Movement	Rival church set up in 1933 to worship traditional volk images – worship of the soil, crops etc	

5. What opposition did Hitler face from churches?	✓	6. What opposition did Hitler face from the youth?	✓	7. What opposition did Hitler face from ordinary Germans?	✓
1. **Catholic Church**: Catholic schools shut, 400 priests sent to camps, vocal opposition from Cardinal Galen. Pope Pius XI issued an encyclical in 1937: 'With burning anxiety', read out by priests in Catholic churches. This showed resistance to Nazi attempts of control but was met with retaliation 2. **Protestant Church** : "Confessional Church" led by Father Niemoller. Emergency Pastor's League 7000 members		1. **Edelweiss Pirates:** attacked Hitler Youth, listened to swing and jazz music. 2,000 members by 1939. Tended to be working class youths. 'Navajos' in Cologne, 'Kittelbach Pirates' in Dusseldorf and 'Roving Dudes' in Essen. Not considered a serious threat by Nazi authorities. 2. **Swing Youth:** they listened to Swing music (hated by the Nazis) and danced. Mainly from the middle classes. Rebelled against the order and discipline of the Nazis.		1. Genuine support as result of Germany's economic recovery 1933. 2. Many were happy to see Germany restored, Versailles reversed, army rebuilt. 3. Many were happy that Communists had been imprisoned. 4. Army: In 1938, 16 Generals were removed, including Blomberg, Fritsch and von Brauchitsch who were critical of Hitler's foreign policy. 5. Three failed assassination attempts by 1939	

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Unit 2: Algebra

Keyword		Definition
Identity		The ≡ symbol shows an identity. In an identity the two expressions are equal for all values of the variables.
Equation		An equation is only true for certain values of the variable. It can be solved to find the value of the variable.
Consecutive integers		Numbers one after the other in order.
Expression		An expression contains variable and/or constant terms but no equals sign.
Term		Separate parts of expressions, equations, formulae and identities separated by addition or subtraction.
Coefficient		The numerical value in an algebraic term.
Formula		A formula has an equals sign and letters to represent different quantities.

Keyword		Definition
Subject of a formula		The subject of a formula is the letter on its own, on one side of the equals sign.
n^{th} term		An algebraic rule to find any term.
u_n		The n^{th} term of a sequence.
Arithmetic sequence		A sequence where the term-to-term rule is adding a common difference
Geometric sequence		A sequence where the term-to-term rule is multiplying by a common ratio: General form $a \times n^r$ or $a \times n^{r-1}$
Quadratic expression		A quadratic expression contains a term in n^2 but no higher power of n. General form $an^2 + bn + c$
Factorise		Arrange an expression into a product of its factors by placing terms in brackets.

Algebraic Index laws

Fractional Indices

Negative Indices

Arithmetic sequences

Quadratic sequences

Expanding Brackets

Expanding Double Brackets

Rearrange Formulae

Factorising

Factorising Quadratics

Think it, Link it:

Y7 Unit 5, Introduction to Algebra.
Y7 Unit 13, Manipulating Expressions.
Y8 Unit 2, Complex Equations and Formulae.
Y8 Unit 7, Quadratic Expressions.

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Unit 3: Interpreting and Representing Data

Keyword		Definition
Qualitative		Describes a characteristic of the data.
Quantitative		Data counted or measured in numerical values.
Discrete		Data that takes fixed values.
Continuous		Data that can take any value.
Frequency polygon		Used for grouped data with even class-widths. Plot midpoint against frequency.
Pie chart		Shows portions of a whole, split into sectors.
Stem-and-leaf diagram		Simplifies writing long lists of numbers by using common digits as a stem. Must have a key.
Median		The middle piece of data when in order of size, found using $\frac{n+1}{2}$.
Range		A measure of spread. Difference between largest and smallest.

Keyword		Definition
Time-series		A graph that shows how data varies over time.
Scatter graph		Displays bivariate data. Used to show if there is a relationship.
Line of best fit		Drawn on a scatter graph to show the trend and predict data values.
Correlation		A description of the relationship of bivariate data.
Interpolation		Predicting within the range of data.
Extrapolation		Predicting outside of the range of data.
Anomaly		A piece of data that does not fit the trend.
Mode		The most common piece of data.
Mean		The sum of all the pieces of data, divided by how many there are.

Mean from individual data $= \frac{\Sigma x}{f}$

Mean from grouped data $= \frac{\Sigma fx}{\Sigma f}$

Pie chart

$$Sector\ angle = \frac{f}{\Sigma f} \times 360$$

Frequency Polygons

Stem & Leaf

Scatter graphs

Estimate the mean

Interpret Pie Charts

Think it, Link it:

Y7 Unit 9, Probability and Data.
Y8 Unit 5, Tabulated and Bivariate Data.

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Year 9
Unit: Star Wars
See set work support guide and other resources:
Student resources > 10 > AOS3 – Stage and Screen > Star Wars

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This QR code will take you to a Spotify playlist with listening for *Star Wars*. You will find it helpful to listen to it as you learn.

Context

Cue a self-contained section of music in a film

Diegetic music contained within the action of the film and included in the story—for example, music played in a bar. If a character in the story can hear the music, it is diegetic. Most film music is non-diegetic.

Fanfare a celebratory piece for brass instruments (and sometimes percussion) often marking the opening of an important event or ceremony. The music is short and loud and often features arpeggios and broken chords

Underscore (or **background**) **music** non-diegetic music adding to the mood of a scene, reinforcing character developments and aspects of character.

Dynamics

Crescendo gradually getting louder

Diminuendo gradually getting quieter

Rhythm

Homorhythmic when all the parts play in the same rhythm at the same time

Syncopation rhythm which emphasises the off beat

Triplets 3 notes played in the time it normally takes to play 2. Indicated with a number 3 and (usually) a horizontal square bracket.

Texture

Ostinato a persistent phrase or motif repeated over several bars or more

Imitation when one part copies or imitates another at a short time distance.

Structure

Ternary form music with an ABA structure

Melody

Conjunct movement by step

Disjunct movement by leap

Leitmotif a recurring musical idea which is associated with a particular theme, character or place

Lower auxiliary a melody note which goes to the note below and then back to the original note again

Motif a short melodic phrase

Sequence the repetition of a musical phrase at a higher or lower pitch than the original.

Instruments/Sonority

Glissando playing all the pitches between to points in rapid succession

Glockenspiel tuned percussion instrument with metal bars. High pitched – sounds 2 octaves above written pitch

Register How high or low in pitch a piece of music or an individual part sounds.

Roll a rapid succession of hits on a percussion instrument.

Snare a drum with a series of loosely strung metal wires in contact with the lower skin which create a distinct 'buzzing' or 'rattling' noise when the drum is struck.

Tam-tam orchestral gong

Tremolo/tremolando rapid repetition of the same note to create a wavering, tremulous sound.

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Year 9

Unit: *Star Wars*

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Tonality

Atonal music that does not have a key of any sort

Bitonal music that is in two keys at the same time

Polytonal music written in multiple keys at the same time.

Harmony

Block triads major or minor triads in root position, built up in thirds

Consonant Intervals or chords that don't clash—major/minor triads and intervals of a third or sixth are examples

Dissonant sounds that clash. Dissonant intervals are major and minor second and seventh, and the triton (augmented fourth or diminished fifth)

Dominant the fifth note (or chord) of the scale or key—the strongest after the tonic

Dominant seventh chord V (the dominant chord) with an added minor seventh

Imperfect cadence a cadence comprising two chords, ending on chord V. Because it ends on the dominant, an imperfect cadence sounds unfinished.

Neapolitan chord a chord built on the flattened supertonic

Perfect cadence a cadence comprising two chords; chord V followed by chord I. Because it ends on the tonic, a perfect cadence sounds finished.

Quartal Harmony chords made up of notes a 4th apart rather than the usual 3rd apart

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Pornography – printed or visual material containing the explicit description or display of sexual organs or activity, intended to stimulate sexual excitement.

Dopamine - a chemical released in the brain that makes you feel good. Having the right amount of dopamine is important both for your body and your brain.



Mental Health - a person's condition with regard to their psychological and emotional well-being.

Anxiety - a feeling of unease, such as worry or fear, that can be mild or severe.



Fraud – wrongful or criminal deception intended to result in financial or personal gain

Money Laundering - the concealment of illegally obtained money, typically by means of transfers involving other bank accounts.

Phishing - fraudulent practice of sending emails purporting to be from reputable companies to induce individuals to reveal personal information, such as passwords and credit card numbers

Money Mule – people are not aware that the money they are transferring or looking after is from illegal activity

Cybercrime - criminal activities carried out by means of computers or the Internet

Financial Exploitation - this happens when someone is deceived or coerced into handing over monetary funds or assets (something of value)

Signposting support:

Useful helplines and charities

Samaritans. Samaritans provide 24-hour online and phone support to people in distress. Call: 116 123.

Mind. Mind is a charity that provides advice and support for people experiencing a mental health problem in England and Wales. Call: 0300 123 3393 (Mon to Fri, 9am to 6pm)

Rethink Mental Illness. Support and advice for people living with mental health problems. Call: 0300 5000 927 (Mon to Fri, 9.30am to 4pm)

SANE. National out-of hours mental health charity offering emotional support, guidance and information. Call: 0300 304 7000 (4.30pm to 10.30pm)

Mental Health Foundation. Information and support for anyone with mental health problems or learning disabilities.

Childline. Support for people under 19 in the UK. Call: 0800 11 11

Young Minds. Child and adolescent mental health charity. Call: 0808 802 5544 (parents' helpline)

Personal Development
BOURNEMOUTH SCHOOL

Autumn Term 2

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Key words:

- **Omnibenevolent:** The state of being all loving and good. A characteristic attributed to God.
- **Omnipotent:** The all-powerful, almighty and unlimited nature of God.
- **Trinity:** The three persons of God; The Father, The Son and the Holy Spirit.
- **Incarnation:** God becoming human in the form of Jesus.
- **Atonement:** The belief that Jesus' death on the cross healed the rift between humans and God.
- **Resurrection:** The belief that Jesus rose from the dead-on Easter Sunday, conquering death.
- **Sacraments:** An outward sign of an invisible and inward blessing by God, for example baptism.
- **Evangelism:** Preaching the gospel to others with the intention of converting them to the Christian Faith.

Key quotes:

- "For nothing is impossible with God'.
- "For God so loved the world, he gave his One and Only Son" - God is omnibenevolent".
- " We believe in one God'
- "in the beginning, God created the heavens and earth"
- "The Word became flesh and made his dwelling among us."
- 'Father, into your hands I commit my spirit."
- 'He is risen!"
- "So, it will be the resurrection of the dead."
- "I am the way and the truth and the life. No one comes to the Father except through me"
- "For I was hungry and you gave me something to eat..."
- For the wages of sin is death, but the gift of God is eternal life in Christ Jesus our Lord'.
- Faith… without action is dead'
- 'For it is by grace you have been saved"
- Other sources can be Jesus, The Bible. The Church, Conscience and the Law or Commandments.

Key beliefs:

The nature of God (what is God like?)

- God is omnipotent (all powerful)
- God is omnibenevolent (all loving)
- God is just (fair)

Trinity –

- Christians believe there are three persons in the One God: Father, Son and Holy Spirit. Each person of the Trinity is fully God.
- The Father - creator of life
- The Son - became incarnate through Jesus. Fully God and fully human.
- The Holy Spirit - guides and comforts Christians.
- All parts are believed to have been there at creation.

Creation

- The act by which God brought the universe into being
- The Word – term used at the beginning of John's gospel to refer to God the Son.
- Christians believe that God created the earth and all living things. Some take the creation story in Genesis literally; therefore, they believe God created the world in 6 days and rested on the 7th
- Whereas other Christians believe it is symbolic and teaches them about what God is like.

Incarnation

- Jesus was fully God and fully human, which helps explain his miracles and resurrection.
- His words and teachings have authority because they are the word of God.
- Christians believe that Jesus is the Messiah (saviour).

Crucifixion

- Jesus was accused of blasphemy (proclaiming to be God) and was crucified on Good Friday
- Although he was fully God he still felt pain as he was also fully human
- Christians believe God understands suffering as Jesus suffered and therefore accept suffering as a part of life
- Jesus' death on the cross washed away humanities sins.

Resurrection and ascension

- Ascension - the event, 40 days after Jesus' resurrection, when Jesus returned to God, the Father in heaven
- Christianity is based on the belief that Jesus died and resurrected.
- Resurrection is important as it teaches Christians not to fear death and that their sins will be forgiven if they follow God's laws.
- Ascension is important as it shows Jesus is with God in heaven.

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Key to success:

- ❑ What is monotheism?
- ❑ Why has Church attendance declined in Britain?
- ❑ Do you think Britain is becoming a more secular society?
- ❑ Do we need to go to Church to be Christian?
- ❑ Why are there different Christian denominations?
- ❑ Why are Walsingham and Taize important places for Christians?
- ❑ What is a sacrament?
- ❑ What does Pluralist and Secular mean?
- ❑ Use KISSJO skills from Year 7 and 8.
- ❑ Can you think it link it to anything from the big questions from year 7 and 8?

Key exam questions:

A. Explain what is meant by the term Atonement. (2).
B .Describe Christian teachings on the Trinity. (5)
C. Explain why the afterlife is important to Christians. (8)
D. ' Belief in Jesus is the most important Christian belief'. Show that you have considered more than one viewpoint. (15)

Key Source:

The Apostles Creed:

I believe in God, the Father almighty,
creator of heaven and earth.
And in Jesus Christ, his only Son, our Lord,
who was conceived by the Holy Spirit,
born of the Virgin Mary,
suffered under Pontius Pilate,
was crucified, died, and was buried;
he descended to the dead. [Note 1]
On the third day he rose again;
he ascended into heaven,
he is seated at the right hand of the Father,
and he will come to judge the living and the dead.
I believe in the Holy Spirit,
the holy catholic Church, [Note 2]
the communion of saints,
the forgiveness of sins,
the resurrection of the body,
and the life everlasting.
Amen.

Key beliefs:

Resurrection and life after death:

- ❑ Christians believe that because Jesus resurrected, they will too.
- ❑ There are different Christian beliefs about resurrection: some believe a person's soul is resurrected straight after death, others believe it happens at the end of time when Jesus returns to play the role of judge.

The afterlife and judgement

- ❑ **Day of Judgement** - a time when the world will end and every soul will be judged
- ❑ Christians believe Jesus plays the role of judge as he has lived life as a human and set the path for Christians to follow
- ❑ They will be judged based on their behaviour and actions as shown in the Parable of the Sheep and Goats.
- ❑ **Heaven and hell**
  Heaven - a state of eternal happiness (with God)
  Hell - place of eternal suffering (separated from God for eternity).
- ❑ **Purgatory** - intermediate state where the soul is cleansed (Catholic belief).
- ❑ Christians believe if they have lived a good life and had faith in God they will be rewarded with heaven and if they have lived a bad life they will be punished with hell.
- ❑ Some believe that heaven and hell are physical places, whilst others believe they are spiritual places.

The role of Christ in salvation

- ❑ Jesus' crucifixion made up for the original sin of Adam and Eve.
- ❑ The death of Jesus restored the broken relationship between God and humans which allowed for salvation to be achieved.
- ❑ Christians can now be forgiven for their sins and go to heaven
- ❑ Jesus atoned for the sins of humanity.

Sin and salvation

- ❑ **Sin** - any thought or action that separates humans from God.
- ❑ Original sin - everyone is built with the urge to sin/Adam and Eve brought sin into the world.

Salvation:

- ❑ Saving the soul from sin, made possible by Jesus
- ❑ Grace - God's love which humans do not have to earn.
- ❑ **Salvation** through good works . Can be achieved by doing good and following God's laws. Can be achieved through faith in Jesus alone.

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How do MUSCLES WORK?

Muscles can only PULL they cannot push. This means that they must work in pairs to allow parts of the body to move back and forth. THESE PAIRS ARE CALLED **ANTAGONISTIC PAIRS.**

Antagonistic Pairs

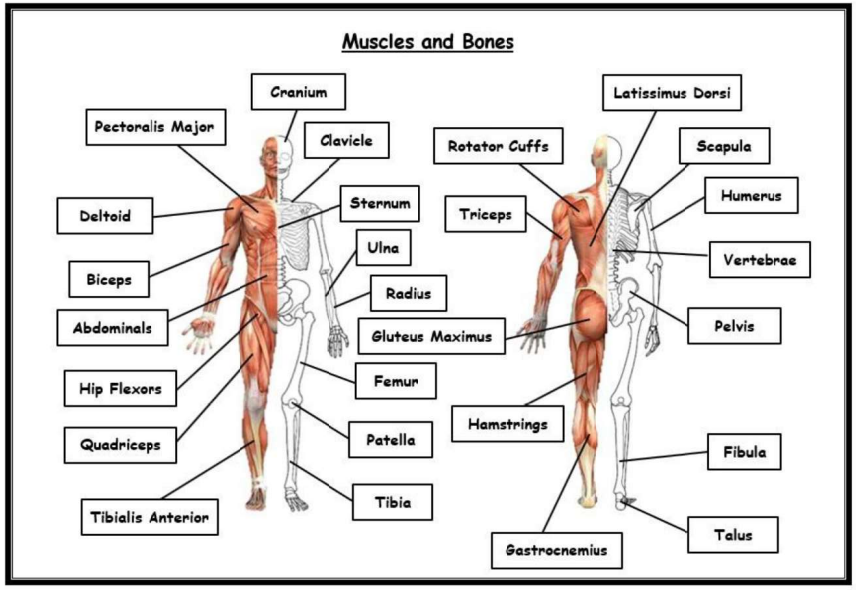
* A muscle must work in partnership with another muscle to allow movement to occur.
* The muscle that causes the movement (the pulling muscle) is called the **AGONIST** or **PRIME MOVER**. When this muscle contracts in becomes shorter.
* During this time the other muscle within this partnership is relaxing. This muscle is called the **ANTAGONIST** and is lengthening while it relaxes.

EXAMPLES:

When we flex our elbow, the biceps are the **agonist** and the triceps are the **antagonist**. However, these roles are reversed when the elbow extends, with the triceps becoming the **agonist** and the biceps becoming the **antagonist**.

When dorsiflexion occurs in our ankle the tibialis anterior is the **agonist** and the gastrocnemius is the **antagonist**. However, these roles are reversed when plantar flexion occurs at the ankle, with the gastrocnemius becoming the **agonist** and the tibialis anterior becoming the **antagonist.**

Muscles of the human body



Antagonistic Pairs	
HAMSTRINGS	QUADRICEPS
GASTROCNEMIUS	TIBIALIS ANTERIOR
BICEPS	TRICEPS
HIP FLEXORS	GLUTEALS
DELTOID	LATISSIMUS DORSI

Muscle Name	Movement when the agonist
Sternocleidomastoid	Lifts rib cage up and out when exercising
Pectorals	Lifts rib cage up and out when exercising
Intercostals	Lifts rib cage up and out
Triceps	Elbow extension
Biceps	Elbow flexion
Abdominals	Assists with exhaling
Quadriceps	Knee flexion
Hamstrings	Knee extension
Hip flexors	Hip flexion
Gluteal muscles	Hip Extension
Rotator cuffs	Shoulder rotation/Circumduction

Types of Muscle Contraction

Isotonic Concentric Contraction occurs when the muscle shortens e.g. biceps contracting concentrically during the upwards phase of a bicep curl.

Isotonic Eccentric Contraction occurs when the muscle lengthening (antagonist) is under tension. An eccentric contraction provides the control of a movement on the downward phase e.g. biceps contracting eccentrically when lowering the weight in a bicep curl.

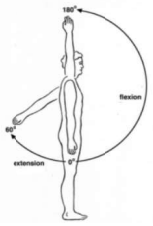
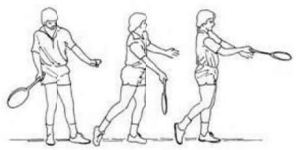
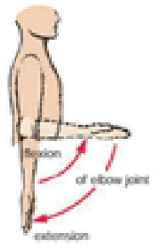
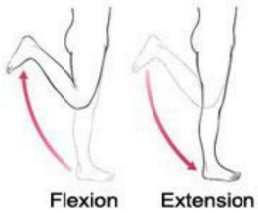
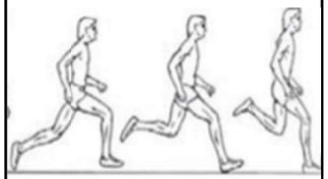
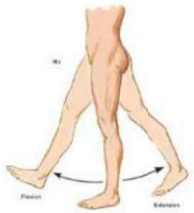
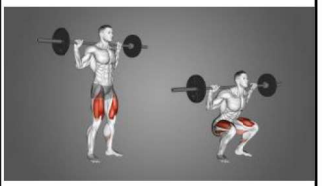
Isometric Contractions occur when the muscle that is contracting doesn't change length.

Sporting examples include:

- The rings in gymnastics.
- A rugby scrum.
- A handstand.

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of movement at a joint		Sporting Examples	
nsion at the shoulder - The **Deltoid** causes flexion at the shoulder (upwards) - The **Latissimus dorsi** causes extension at the shoulder (downwards)		**Flexion and extension at the shoulder** • **Badminton – smash if flexion at the shoulder, forehand high serve is extension at the shoulder**	
Flexion and extension at the elbow - The **Biceps** cause flexion at the elbow (upwards) - The **Triceps** cause extension at the elbow (downwards)		**Flexion and extension at the elbow** • **Push up – upwards is extension, downwards is flexion** • **Football throw-in – releasing the ball is elbow extension**	
Flexion and extension at the knee - The **Hamstrings** cause flexion at the knee (heel to buttock) - The **Quadriceps** cause extension at the knee (leg down)		**Flexion and extension at the knee** • **Running – heel lift in recovery leg is flexion, extension in drive leg when contacting the ground**	
Flexion and extension at the hip - The **Hip Flexors** cause flexion at the hip (leg up) - The **Gluteal muscles** cause extension at the hip (leg down)		**Flexion and extension at the hip** • **Squats – upward phase is extension, downwards phase is flexion** • **Running – drive leg moving backwards is hip extension, recovery leg coming forward is hip flexion**	
Plantar Flexion and Dorsiflexion at the ankle - The **Tibialis Anterior** causes dorsiflexion at the ankle (toes up) - The **Gastrocnemius** cause plantar flexion at the ankle (toes down)		**Plantar Flexion and Dorsiflexion at the ankle** • **Take off in long jump – plantar flexion** • **Vertical jump – prep is Dorsiflexion, execution is plantarflexion** • **Drive leg pushing off the ground is plantar flexion**	

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Vocabulary taught in Topic 1 - Energy		
Vocabulary	**Learn**	✓
Data	Information, either qualitative or quantitative, that has been collected	
Fair Test	A fair test is one in which only the independent variable has been allowed to affect the dependent variable	
Interval	The quantity between readings	
Reproducible	If the investigation is repeated by another person, or by using different equipment or techniques, and the same results are obtained	
Resolution	This is the smallest change in the quantity that can be measured by the measuring instrument	
Variables	These are physical, chemical or biological quantities or characteristics	
Categoric variables	These have values that are labels, e.g. names of plants or types of material	
Continuous variables	These can have values that can be given a magnitude either by counting or by measurement	
Control variable	This is one which may, in addition to the independent variable, affect the outcome of the investigation and therefore has to be kept constant or at least monitored	
Dependent variable	The variable of which the value is measured for each and every change in the independent variable	
Independent variable	The variable for which values are changed or selected by the investigator	

Vocabulary taught in Topic 5a – Forces		
Vocabulary	**Learn**	✓
Accuracy	A measurement result is considered accurate if it is judged to be close to the true value	
Measurement error	The difference between a measured value and the true value	
True value	This is the value that would be obtained in an ideal measurement	
Calibration	Marking a scale on a measuring instrument.	
Systematic error	These cause readings to differ from the true value by a consistent amount each time a measurement is made.	
Zero error	Any indication that a measuring system gives a false reading when the true value of a measured quantity is zero, eg the needle on an ammeter failing to return to zero when no current flows.	
Hypothesis	A proposal intended to explain certain facts or observations	
Prediction	A prediction is a statement suggesting what will happen in the future, based on observation, experience or a hypothesis	

Vocabulary taught in Topic 3 – Particle Model of Matter		
Vocabulary	**Learn**	
Anomalies	These are values in a set of results which are judged not to be part of the variation caused by random uncertainty	
Random Error	These cause readings to be spread about the true value, due to results varying in an unpredictable way from one measurement to the next. Random errors are present when any measurement is made and cannot be corrected. The effect of random errors can be reduced by making more measurements and calculating a new mean	
Range	The maximum and minimum values of the independent or dependent variables; important in ensuring that any pattern is detected.	
Precision	Precise measurements are ones in which there is very little spread about the mean value. Precision depends only on the extent of random errors – it gives no indication of how close results are to the true value	
Repeatable	A measurement is repeatable if the original experimenter repeats the investigation using same method and equipment and obtains the same results.	
Sketch graph	A line graph, not necessarily on a grid, that shows the general shape of the relationship between two variables. It will not have any points plotted and although the axes should be labelled they may not be scaled	

Vocabulary taught in Topic 8 - Space		
Vocabulary	**Learn**	✓
Evidence	Data which has been shown to be valid	
Validity	Suitability of the investigative procedure to answer the question being asked	
Valid conclusion	A conclusion supported by valid data, obtained from an appropriate experimental design and based on sound reasoning	

Prefix	Abbreviation	Power of ten
Giga–	G	10^9
Mega–	M	10^6
Kilo–	k	10^3
Centi–	c	10^{-2}
Milli–	m	10^{-3}
Micro–	μ	10^{-6}
Nano–	n	10^{-9}

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Physics topic 1 Energy

Keyword	Learn	✓
Energy store	Name the different stores: kinetic, chemical, thermal (internal), gravitational potential, magnetic, electrostatic, elastic potential and nuclear	
Energy transfer	Can be done by waves (light and sound), electrical and work.	
System	An object or a group of objects that interact	
Principle of conservation of energy	Energy can be transferred from one store to another, but energy cannot be created or destroyed	
Kinetic energy	The amount of energy stored in a moving object	
Gravitational potential energy	The amount of energy stored in an object raised above the ground	
Elastic potential energy	The amount of energy stored in a stretched spring	
Spring constant	The force needed to stretch a spring 1 metre	
Work	1 joule of work is done when a force of 1 N causes an object to move 1 m	
Power	The rate at which energy is transferred (or rate at which work is done)	
Specific heat capacity	The amount of energy required to raise the temperature of 1 kg of a substance by 1°C	
Dissipate	To scatter in all directions or to use wastefully	
Thermal conductivity	The higher the thermal conductivity of the material the more the material allows heat to conduct through,	
Efficiency	The proportion of energy that is usefully transferred	
Non-renewable energy resources	Coal, Oil, Gas and Nuclear. These will run out, because there are finite reserves, which cannot be replenished.	
Renewable energy resources	Solar, Wind, Hydroelectric, Wave, Tidal, Geothermal, Biomass/fuel. These will never run out. They are replenished as they are used.	

Quantity	Unit	Symbol
Energy	joule	J
Work	joule	J
Power	watt	W
Mass	kilogram	kg
Extension	metre	m
Height	metre	m
Force	newton	N
Temperature	degrees Celsius	°C
Speed	metres per second	m / s
Spring constant	newtons per metre	N / m
Gravitational field strength	newtons per kilogram	N / kg
Specific heat capacity	joules per kilogram per degree Celsius	J / kg°C

Equations

Kinetic energy = ½ x mass x speed^2 $E_k = \frac{1}{2} \times m \times v^2$

Elastic potential energy = ½ x spring constant x extension^2
$E_e = \frac{1}{2} \times k \times e^2$

Gravitational potential energy = mass x gravitational field strength x height
$E_p = m \times g \times h$

Work = force x distance moved in the direction of the force
$W = F \times s$

$Power = \frac{Energy\ transferred}{Time}$ $P = \frac{E}{t}$ OR $Power = \frac{Work\ done}{Time}$
$P = \frac{W}{t}$

$Efficiency = \frac{Useful\ output}{Total\ input}$

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Mi dieta		
Las naranjas	oranges	
Las manzanas	apples	
Los plátanos	bananas	
Los pimientos	peppers	
Las cebollas	onions	
El aceite de oliva	olive oil	
El marisco	seafood	
El arroz	rice	
Los pasteles	cakes	
Las galletas	biscuits	
Las hamburguesas	hamburgers	
Las patatas fritas	chips	
Una vez a la semana	once a week	
Dos veces a la semana	twice a week	

Direct object pronouns		
lo	**it (singular / masc.)**	
la	**it (singular / fem.)**	
los	**them (plural / masc.)**	
las	**them (plural / fem.)**	
e.g. Me gusta el arroz. Lo como todos los días. (I like rice. I eat it every day.) ***Me gustan las patatas fritas. Las como una vez a la semana (I like chips. I eat them every day.)***		

Qué comiste ayer		
Ayer	Yesterday	
Desayuné	I had breakfast / I had for breakfast	
Comí	I ate / I had lunch / I had for lunch	
Cené	I had dinner / I had for dinner	
Bebí	I drank	

-ar verb endings preterite			
é		**amos**	
aste		**asteis**	
ó		**aron**	

-er / ir verb endings preterite			
í		**imos**	
iste		**isteis**	
ió		**ieron**	

Los deportes		
Los sábados	On Saturdays	
Los domingos	On Sundays	
Juego al fútbol	I play football	
Juego al tenis	I play tennis	
Juego al voleibol	I play volleyball	
Juego al rugby	I play rugby	
Hago equitación	I do horse-riding	
Hago natación	I do swimming	
Hago artes marciales	I do martial arts	
Hago ciclismo	I do cycling	

Una vida sana	
Llevo una vida sana porque...	I lead a healthy lifestyle because...
Llevo una vida malsana porque...	I lead an unhealthy lifestyle because...
Para estar en forma	To keep fit
Hago atletismo	I do athletics
Como mucha fruta	I eat lots of fruit
Rico/a	Tasty
Asqueroso/a	Disgusting

Para ser más sano...	
beberé	I will drink
reduciré	I will reduce
dormiré	I will sleep
practicaré	I will practise
comeré	I will eat
dejaré de...	I will stop...
fumaré	I will smoke
haré	I will do
usaré	I will use
evitaré	I will avoid

Mi rutina diaria	
Me despierto	I wake up
Me levanto	I get up
Me ducho	I have a shower
Desayuno	I have breakfast
Me afeito	I shave
Me visto	I get dressed
Me lavo los dientes	I brush my teeth
Me acuesto	I go to bed

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Para ser más sano…	
Se debe...	You must
Dormir ocho horas al día	sleep eight hours a day
Comer más fruta	eat more fruit
Beber agua frecuentemente	drink water frequently
Entrenar una hora al día	train for one hour a day
No se debe...	You mustn't
Comer comida basura	eat junk food
Beber alcohol	drink alcohol

Para estar en forma…	
Soy adicto a	I am addicted to...
los videojuegos	video games
al móvil	my phone
las redes sociales	social media
la comida rápida	fast food
los refrescos	fizzy drinks
Tengo que...	I have to...
comer sano	eat healthily
hacer ejercicio	exercise
caminar todos los días	walk every day
tener una dieta equilibrada	have a balanced diet

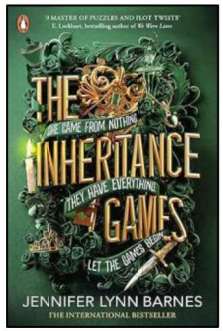
Me duele todo	
Me duele(n)…	My…hurts/hurt
La espalda	back
La mano	hand
La boca	mouth
La cabeza	head
La pierna	leg
El estómago	stomach
El pie	foot
El brazo	arm
Los ojos	eyes
Los dientes	teeth

Describing a photo		
En la foto	In the photo	
Hay	There is/are	
Puedo ver	I can see	
A la izquierda	On the left	
A la derecha	On the right	
En el centro	In the centre	
En el fondo	In the background	
En el primer plano	In the foreground	
En la imagen	In the image	
Está jugando	He / she is playing	
Están comiendo	They are eating	

Roleplay at the doctor's	
Me duele la cabeza.	My head hurts.
Tengo dolor de garganta.	I have a sore throat.
Estoy de vacaciones con mi familia.	I am on holiday with my family.
Estoy en España para visitar a mis abuelos.	I am in Spain to visit my grandparents.
¿Cuándo puedo ver al médico?	When can I see the doctor?
Voy a visitar un museo.	I am going to visit a museum.
Voy a ir a la playa con mis amigos.	I am going to go to the beach with my friends.
¿A qué hora abre el hospital?	What time does the hospital open?
¿A qué hora cierra el hospital?	What time does the hospital close?

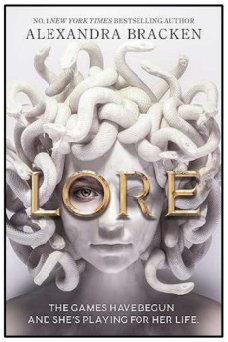
Me duele todo	
Tengo catarro.	I have a cold.
Tengo náuseas.	I feel sick.
Tengo quemaduras de sol.	I have sunburn.
Tengo tos.	I have a cough.
No me encuentro bien.	I don't feel well.

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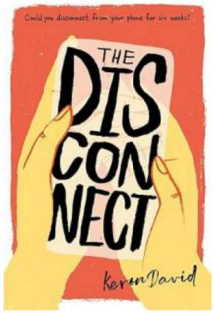
The Inheritance Games by Jennifer Lynn Barnes

A BILLION-DOLLAR FORTUNE TO DIE FOR. An eccentric billionaire dies, leaving Avery almost his entire fortune. And no one, least of all Avery, knows why. A DEADLY GAME. Now she must move into the mansion she's inherited. It's filled with secrets and codes, and the old man's surviving relatives -a family hell-bent on discovering why Avery got 'their' money.



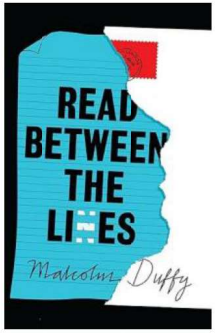
Lore by Alexandra Bracken

A lifetime ago, Lore Perseous left behind the brutal, opulent world of the Agon families - ancient Greek bloodlines that participate in a merciless game every seven years. A game that is about to begin again.



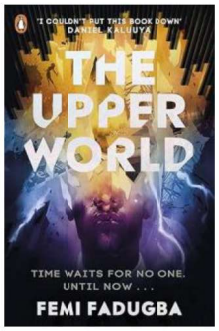
The Disconnect by Keren David

Could you disconnect from your phone for six weeks? An eccentric entrepreneur has challenged Esther's year group to do just that, and the winners will walk away with 1000. For Esther, whose dad, sister and baby nephew live thousands of miles away in New York, the prize might be her only chance to afford flights for a visit.



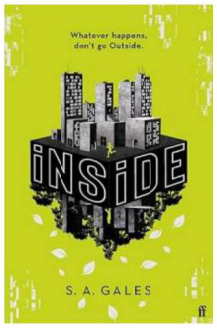
Read Between the Lines by Malcolm Duffy

Two very different boys, one new family, a shared struggle and a big secret. Tommy is talented, cool, a young offender, and dyslexic. Ryan is smart, uncool, well-behaved, and dyslexic. The two develop an unlikely friendship. As Ryan helps Tommy to read, a secret is revealed that will change their lives forever.



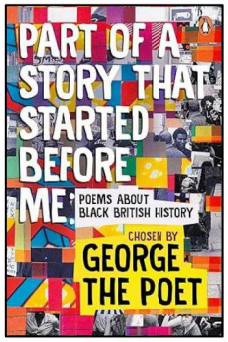
The Upper World by Femi Fadugba

2020: Close to getting expelled and caught up in a deadly feud, the tensions surrounding Esso seem to be leading to a single moment that could shatter his future. 2035: Stripped of everything, football prodigy Rhia has just one thing left on her mind - figuring out how to avert a bullet that was fired fifteen years in the past. An epic, game-changing thriller set outside of time.



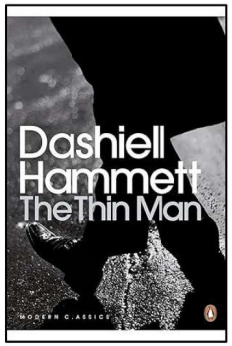
iNSiDE by S.A. Gale

Naya has spent her whole life training in an indoor world, but when her mother asks her to take on a dangerous assignment to the Outside, she accepts. Naya knew the risks in leaving the safety of her indoor home, that Outside would be quite so . . . wonderful. What if everything she thought she knew was wrong? How can she complete her mission when she can no longer tell truths from lies?



Part of the Story by George the Poet

Spoken word artist George the Poet brings together an incredible roster of Black British poets in this important and exciting new anthology, exploring people, moments and events from Black British history.



The Thin Man by Dashiell Hammett

Ex-ace detective Nick Charles attracts trouble like a magnet. He thinks his sleuthing days are over, but when Julia Wolf, a former acquaintance, is found dead, her body riddled with bullets, Nick can't resist making a few enquiries.

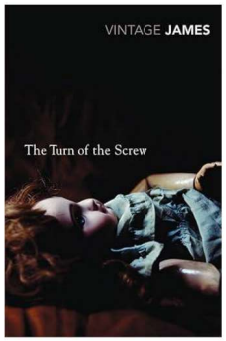
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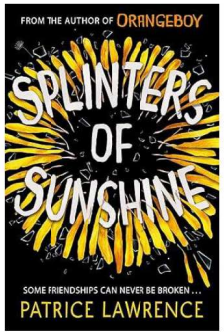
Across the Nightingale Floor by Lian Hearn

Sixteen-year-old Otori Takeo's family has been murdered by the warlord of the Tohan clan, Lord Iida Sadma. Seeking revenge Otori must navigate the hidden dangers within Iida's, including his famous nightingale floor.



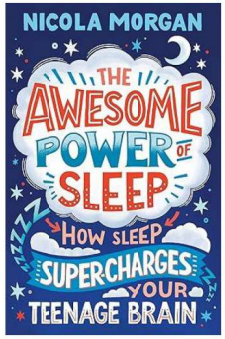
The Turn of the Screw by Henry James

A young governess is left in sole charge of two charming orphans. As she begins to see and hear strange things, she grows increasingly uneasy, and is swiftly drawn into a frightening battle against unspeakable evil. Forced to take action, the governess will soon discover terrible consequence



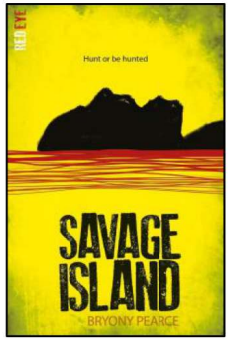
Splinters of Sunshine by Patrice Lawrence

Spey's friend Dee has disappeared off-grid. He has an idea of where she might be, but is he willing to accept help from his estranged father to track her down?



The Awesome Power of Sleep by Nicola Morgan

Just like adults, teenagers are sleeping less now than ever before, yet sleep is crucial to our health and well-being. Tackling the essential subject by asking why we desperately need a good night's sleep, what a lack of sleep does to your brains, and explaining how to have the best sleep possible.



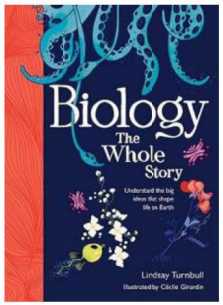
Savage Island by Byrony Pearce

When reclusive millionaire Marcus Gold announces that he's going to be staging an "Iron Teen" competition on his private island in the Outer Hebrides, teenagers Ben, Lizzie, Will, Grady and Carmen sign up - the prize is one million pounds . each. But when the competition begins, the group begin to regret their decision.



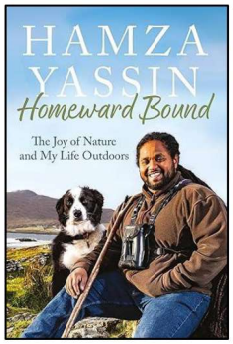
The Sixth Faction by Veronica Roth

Beatrice Prior stands on the brink of a decision every person in her world must make: five factions, five futures, five lives. She has a plan: she's going to make the bravest choice, and leave Abnegation behind to join Dauntless, even though it means leaving her family behind. But when tragedy strikes at her Choosing Ceremony, everything changes—her world, her plans, even Beatrice herself. Her ensuing decision thrusts her into the crosshairs of an underground rebellion.



Biology the Whole Story by Lindsay Turnbull

From the origins of life to the structure of modern ecosystems, this illustrated and full-colour book follows the story of life on Earth, stopping along the way to relate how key developments have influenced events in history.



Homeward Bound by Hamza Yassin

Join TV star Hamza Yassin as he travels around the British Isles to meet the fascinating wildlife at home to our shores.

Bournemouth School – Knowledge Organiser – Year 9

BOOK LIST

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Timetable

	1Mon	1Tue	1Wed	1Thu	1Fri	2Mon	2Tue	2Wed	2Thu	2Fri
Reg										
1										
2										
Break										
3										
4										
Reg										
Lunch										
5										
6										