



BOURNEMOUTH SCHOOL

Year 9

Knowledge Organiser 1

Autumn Term

Name: _____ Master 9

Registration Form: - _____

✓Hard Work

✓Discipline

✓Smart Appearance

✓Respect

Year 9 - Autumn Term 1

Welcome back Year 9!

This is an important year as you begin studying your GCSE option subjects. Although your exams may still feel a long way off, the knowledge and skills you develop this year will give you a strong foundation for Years 10 and 11.

Your Knowledge Organiser is one of the best revision tools you have, so try to use it little and often rather than only before a test. It is also a good opportunity to try different revision techniques and work out what suits you best. Everyone learns differently, so find a routine that works for you.

As your GCSE courses begin, homework and independent study become more important. Use the recommended daily revision guide to help plan your own revision timetable. Spending a little time revising each day is much easier, and far more effective than trying to do everything at the end of a topic.

If you're not sure how to revise, need help getting organised, or have any questions or concerns during the year, please speak to your tutor. Mr Willis and I are always happy to help if you need us.

We hope you have a successful and enjoyable first term in Year 9.

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.

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.

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.

Keyword	Definition – read, cover, write, review
Clay	Clay is a natural material made up of tiny particles of rock. When clay is mixed with enough water, it feels like soft, gluey mud. Unlike plain mud, however, clay holds its shape. Clay can be pinched, rolled, cut, or built up in layers to form shapes of all kinds.
Kiln	A special oven that gets super hot to turn clay into ceramics.
Slip	Used to join clay using a process of scoring and slip. This can be apply using your hands or a brush. It's made from soft clay and water mixed together to form a paste.
Score	Is when you cross hatch the clay on the surfaces you want to join, this creates a rough area to they apply slip and join the two pieces together.
Coil	Long thin role of clay made by rolling with your hands.
Pinch pot	A bowl made by pinching a sphere of clay.
Slab	A flat "pancake" of clay made hands, a rolling pin or clay press.
Glaze	Is what you paint onto clay when it is fired it becomes glassy.
Ceramics	Is the word for fired clay.
Pottery	Is a ceramic container like a bowl.
Bisque	Clay has been fired once, it can now be glazed or painted.
Bone dry	Room temperature, ready to be fired.
Glaze ware	A ceramic piece that has had glaze applied and has gone through the second firing process.

When working with clay

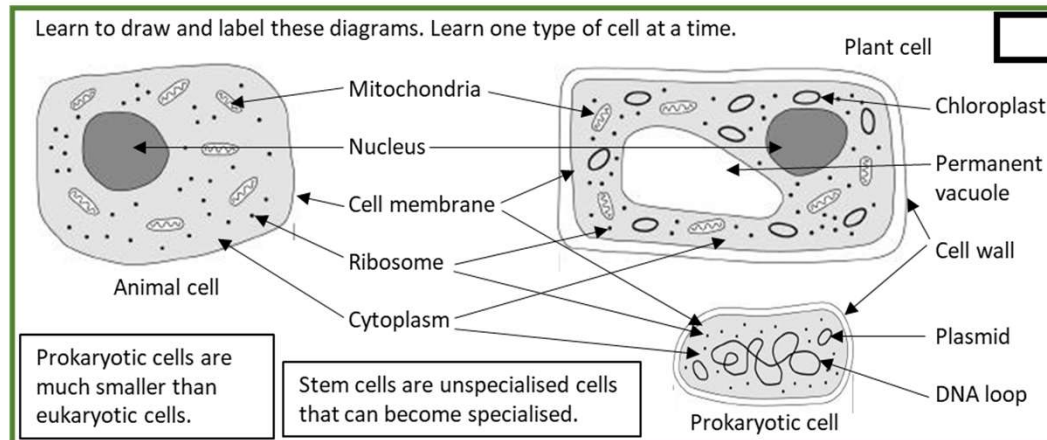
- Clay must be thoroughly covered up with PLASTIC to keep it from drying out. This applies to works in progress and wet clay.
- Clay DUST is harmful to breathe in if you are exposed to it for long periods of time, because it contains SILICA.
- Clay can be no thicker than your thumb. For clay to stick together it must be scored and slipped together while the clay is moist or leather hard.
- Tool selection – practise textures on a piece of scrap clay or purpose roll out clay to use as experiments, this will inform AO2.



- Slat and roller-slat are used to enable you to roll out an even slab of clay.

B1 Cell Structure

Keyword	Learn	✓
Eukaryotic cell	Plant and animal cells with DNA contained within a nucleus.	
Prokaryotic cell	Bacteria cell with genetic material NOT in a nucleus.	
DNA	The molecule that holds the genetic information in a cell.	
Chromosome	Found in the nucleus of a cell, made of DNA. Usually found in pairs. Humans have 46 chromosomes (23 pairs).	
Stem cell	Undifferentiated cell that can make copies of itself and can become specialized through differentiation.	
Cell differentiation	A cell becomes specialised by developing different sub-cellular structures to enable it to carry out a certain function.	
Magnification	Magnification = size of image ÷ size of real object	
Resolution	The level of detail you can see with a microscope. Higher resolution means seeing smaller detail.	
Light microscope	Maximum magnification of 1500x and low resolution. Cheaper and portable.	
Electron microscope	Higher magnification and resolving power, can see sub-cellular structure. Very expensive.	
Sub-cellular structure - Learn all nine names and descriptions.		✓
Nucleus	Contains genetic material; controls the cell's activities.	
Cytoplasm	A jelly-like substance; site of most of the chemical reactions.	
Cell membrane	Controls the movement of substances into and out of the cell.	
Mitochondria	Site of respiration.	
Ribosome	Site of protein synthesis.	
Chloroplast	Contains chlorophyll; site of photosynthesis.	
Plasmid	A small ring of DNA.	
Cell wall	Strengthens the cell and supports the plant; made of cellulose	
Vacuole	Filled with sap to help keep the cell turgid (stiff) to provide support.	



Sources of stem cells which can be used to help conditions such as diabetes and paralysis.

Embryo : can be cloned and made to differentiate into most types of cell.

Adult bone marrow : can form many types of cell including blood cells.

Meristem : Can differentiate into any type of plant cell, throughout the life of the plant.

Specialised cells - Learn how the structure relates to the function

Specialised cells - Learn how the structure relates to the function	✓
Nerve cell 	Elongated : Transmits electrical impulses over a distance
Sperm cell 	Tail : Allows it to swim Many mitochondria : Releases lots of energy
Muscle cell 	Can contract : Enables movement
Root hair cell 	Large surface area : Increases water and mineral absorption
Xylem cell 	Dead, no end walls, thickened with lignin : Transports water and dissolved ions. (up)
Phloem cell 	Alive : Transports dissolved sugars. (Up and down)

Purpose of Business		☒
Definition: Factors of production are the resources that business use to provide their goods and services		
Land	the natural resources used in the production of a product such as water, oil, fields or wood.	
Labour	the people that work in the business such as teachers, joiners, builders or doctors	
Capital	the money and equipment used to produce the product or service such as machinery or delivery trucks.	
Enterprise	having an idea of how to use the land, labour and capital to make a profit.	

Business Enterprise and Entrepreneurship		☒
Characteristics of an entrepreneur:	1. Hard working 2. Innovative 3. Organised 4. Willingness to take risks	
Objectives of an entrepreneur:		
1. Flexible working hours 2. To pursue an interest 3. Earn more money 4. Identify a gap in the market 5. Dissatisfaction with current job 6. Be their own boss		

Reasons for starting a business		☒
1. Producing goods 2. Supplying services 3. Distributing products 4. Fulfilling a business opportunity 5. Providing a good or service to benefit others		

Definitions		☒
Good	A physical product such as a car	
Service	An intangible product such as financial advice or a hair cut	
Need	Something that needs to be fulfilled in order for survival	
Want	Products we would like to have that are not essential	
Factors of production	Resources required to produce goods and services. These include Land, Labour, Capital and Enterprise	
Opportunity cost	The benefit lost from the next best alternative foregone	
Primary industry	Made of organisations that use and extract raw materials.	
Secondary industry	Made of organisations that use raw materials in the production of goods.	
Tertiary Industry	Made of organisations who provide a service	
Entrepreneur	Someone who is willing to take risks with the reward of profit.	
Enterprise	The process of identifying and taking advantage of business opportunities.	☒

Basic functions and types of business		☒
Four main function of a business	Marketing, Operations, Human Resources, Finance	
There are three main types of business. They operate in the following sectors:	Primary e.g. Farming Secondary e.g. Manufacturing cars Tertiary e.g. Financial Advice	

Dynamic Nature of Business	
Business face a constantly changing business environment due to changes in:	
1. Technology 2. Economic situation 3. Legislation 4. Environmental expectations	

Different Legal Structures					
Anyone starting up a business needs to think about what business ownership they will have.					
<u>Legal Structure</u>	<u>Definition</u>	<u>Advantages</u>	<u>Disadvantages</u>	<u>Examples</u>	
Sole trader	An Entrepreneur who sets up a business own their own.	Quick and easy to set up The owner keeps all profits The entrepreneur is their own boss	Unlimited liability Sole trader is required to be a specialist in all business functions Lack finance	Gardener Hair dresser Photographer	
Partnership	Two or more people entrepreneurs join together in a business enterprise	Share workload & skills Access to increased sources of finance	Unlimited liability Conflict between partners Slower decision making	Law firm Accountants	
Private Limited Company	A company that has shareholders who are sold shares privately	Limited liability Increased source of finance from share issues	Complicated to set up Financial documents are published Increased stakeholders	Medium size business LTD after the company name	
Public Limited Company	A company where shares are sold to the public via the Stock Exchange.	Access to high numbers of investors High status	Risk of hostile takeover Controlled by greater legislation Conflict between shareholders	Tesco Tesla	
Not for profit organisation	Set up to achieve objectives other than profit.	Access to grants and tax relief Good publicity	Rely on donations so income is unpredictable Reliance on volunteers	Oxfam Local sports team WWF	

Definitions		
Unlimited liability	Personal possessions of the owners of a business are at risk if the business accrues debt.	
Limited Liability	The owners of the business are only liable for the debts of the business up to the amount they invested.	
Dividend payment	Proportion of profit paid to shareholders.	
Deed of partnership	An agreement between partners that sets out the rules of the partnership such as voting rights.	
Shareholder	A person or organisation that owns part of a company.	

Chapter 1a – Atomic Structure and the Periodic Table

Keyword	Learn	✓
Atom	The smallest part of an element that can exist.	
Element	A substance made up of only one type of atom.	
Compound	A substance made up of two or more types of atom, chemically combined in fixed proportions.	
Mixture	A substance made up of two or more different elements or compounds, not chemically combined together.	
Formulation	A mixture designed as a useful product, made by mixing components in carefully measured quantities	
Filtration	The process of separating insoluble solids from liquids using filter paper and a filter funnel.	
Crystallisation	The process of obtaining crystals of a solid solute from a solution.	
Distillation	A technique used to obtain pure solvent from a solution by evaporating and condensing the solvent.	
Chromatography	A technique used to separate a mixture of soluble substances.	
Solute	The substance that is dissolved in a solution	
Solvent	A substance that dissolves a solute, making a solution.	
Solution	A mixture formed by a solid or gas (solute) dissolving in a solvent.	
Saturated	A solution in which no more solute can dissolve at that temperature.	

Molecules

Peer and self assessment

A particle made up of two or more atoms chemically bonded together.

Some non-metals form diatomic molecules containing only 2 atoms of an element e.g. Oxygen is O₂.

Other molecules use subscript numbers to indicate the number of each element present. E.g. water is H₂O so there are 2 atoms of Hydrogen and 1 atom of Oxygen.

Naming compounds

RULE 1: The element that is furthest left in the periodic table comes first in the compound name, e.g. sodium chloride, carbon dioxide

RULE 2: If there are only two elements in the compound then the compound's name ends in -ide, e.g. A compound of copper and sulfur only is called copper sulfide.

RULE 3: If the compound contains more than two elements, one of which is oxygen, then the compound name will end in -ate e.g. Calcium carbonate contains calcium, carbon and oxygen.

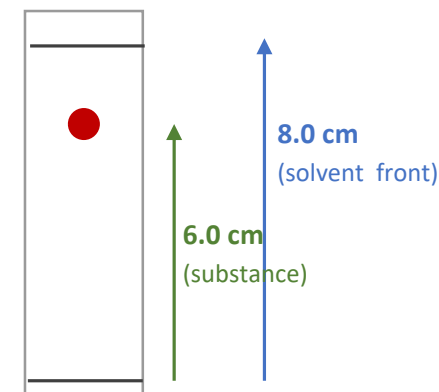
Chromatography – Required Practical (RP6)

Look Cover Write Check

Method

1. Draw a baseline in pencil near the bottom of the paper.
2. Add a small spot of the mixture on the baseline.
3. Stand the paper in a beaker with a little solvent – baseline above the solvent.
4. Cover the beaker; leave until the solvent rises near the top.
5. Remove the paper, mark the solvent front in pencil, then leave to dry.
6. Measure the distances and calculate R_f.

chromatogram



Key points

- Pencil baseline – ink would dissolve and run.
- Baseline must stay above the solvent.
- Pure substance → one spot; mixture → several spots.

Worked example

$$R_f = \frac{\text{Distance moved by substance}}{\text{Distance moved by solvent}}$$

$$R_f = 6.0\text{cm} \div 8.0\text{cm} = 0.75$$

Look Cover Write Check

Peer and Self Assessment

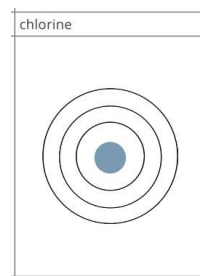
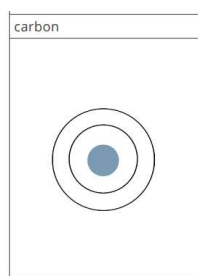
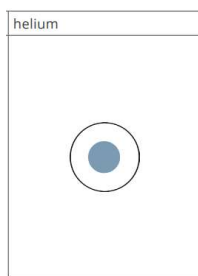
Chapter 1b – Atomic Structure and the Periodic Table

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

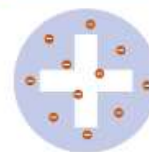
SOLID SPHERE MODEL



JOHN DALTON

Atom is a solid sphere.

PLUM PUDDING MODEL



J.J. THOMSON

Atom is a ball of positive charge with negatively charged electrons scattered throughout.

NUCLEAR MODEL



ERNEST RUTHERFORD

- Mass and positive charge concentrated in nucleus
- Electrons orbit nucleus
- Mostly empty space

PLANETARY MODEL



NIELS BOHR

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)

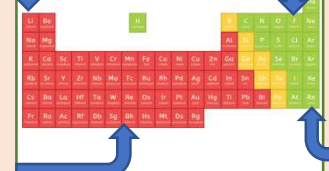
- Reactivity decreases down the group
- Outer shell electrons are further from the nucleus as atomic radius increases
- Attraction between nucleus and outer shell electrons becomes weaker
- Outer shell electrons are less easily gained

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

TRANSITION METALS

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



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.

2.2 Programming Fundamentals

Keyword	Definition / Example	✓										
Input	Data sent to a computer to be processed. <code>name = input("Please enter your name.")</code>											
Output	Processed information that is sent out from a computer. <code>print("Hello world!")</code>											
Sequence	A set of logical steps carried out in order.											
Selection	Making a decision as the result of a Boolean (true/false) condition.											
Iteration	Repeats a block of code.											
Concatenation	Joining strings (text) together. <code>print("Hello " + name + "!!")</code>											
Variable	A label/identifier which is used to identify a memory location used to store a value that can be changed while the program is running.											
Constant	A label/identifier which is used to identify a memory location used to store a value that cannot be changed while the program is running.											
Casting	Convert from one data type to another.											
Data Types	Determines what type of value a variable will hold. <table><tr><td><i>Integer</i> – Whole number</td><td><code>age = 12</code></td></tr><tr><td><i>Real / float</i> – Number that <i>can</i> have a fractional part</td><td><code>height = 1.52</code></td></tr><tr><td><i>Character</i> – A single letter, symbol or number</td><td><code>letter = 'a'</code></td></tr><tr><td><i>String</i> – Multiple characters</td><td><code>name = "Bart"</code></td></tr><tr><td><i>Boolean</i> – Has two values: true or false.</td><td><code>a = True</code> <code>b = False</code></td></tr></table>	<i>Integer</i> – Whole number	<code>age = 12</code>	<i>Real / float</i> – Number that <i>can</i> have a fractional part	<code>height = 1.52</code>	<i>Character</i> – A single letter, symbol or number	<code>letter = 'a'</code>	<i>String</i> – Multiple characters	<code>name = "Bart"</code>	<i>Boolean</i> – Has two values: true or false.	<code>a = True</code> <code>b = False</code>	
<i>Integer</i> – Whole number	<code>age = 12</code>											
<i>Real / float</i> – Number that <i>can</i> have a fractional part	<code>height = 1.52</code>											
<i>Character</i> – A single letter, symbol or number	<code>letter = 'a'</code>											
<i>String</i> – Multiple characters	<code>name = "Bart"</code>											
<i>Boolean</i> – Has two values: true or false.	<code>a = True</code> <code>b = False</code>											

Keyword	Definition / Example	✓																								
Arithmetic operators	<table><tr><th></th><th>Python</th><th>OCR Ref.</th></tr><tr><td>Add</td><td>7 + 2 = 9</td><td>7 + 2</td></tr><tr><td>Subtract</td><td>7 - 2 = 5</td><td>7 - 2</td></tr><tr><td>Multiply</td><td>7 * 2 = 14</td><td>7 * 2</td></tr><tr><td>Divide</td><td>4 / 2 = 2</td><td>4 / 2</td></tr><tr><td>Power</td><td>2 ** 3 = 8</td><td>2 ^ 3</td></tr><tr><td>Integer/floor division</td><td>7 // 2 = 3</td><td>7 DIV 2</td></tr><tr><td>Modulus</td><td>7 % 2 = 1</td><td>7 MOD 2</td></tr></table>		Python	OCR Ref.	Add	7 + 2 = 9	7 + 2	Subtract	7 - 2 = 5	7 - 2	Multiply	7 * 2 = 14	7 * 2	Divide	4 / 2 = 2	4 / 2	Power	2 ** 3 = 8	2 ^ 3	Integer/floor division	7 // 2 = 3	7 DIV 2	Modulus	7 % 2 = 1	7 MOD 2	
	Python	OCR Ref.																								
Add	7 + 2 = 9	7 + 2																								
Subtract	7 - 2 = 5	7 - 2																								
Multiply	7 * 2 = 14	7 * 2																								
Divide	4 / 2 = 2	4 / 2																								
Power	2 ** 3 = 8	2 ^ 3																								
Integer/floor division	7 // 2 = 3	7 DIV 2																								
Modulus	7 % 2 = 1	7 MOD 2																								
Relational operators	<table><tr><td>Less than</td><td><</td></tr><tr><td>Greater than</td><td>></td></tr><tr><td>Equal to</td><td>==</td></tr><tr><td>Not equal to</td><td>!=</td></tr><tr><td>Less than or equal to</td><td><=</td></tr><tr><td>Greater than or equal to</td><td>>=</td></tr></table>	Less than	<	Greater than	>	Equal to	==	Not equal to	!=	Less than or equal to	<=	Greater than or equal to	>=													
Less than	<																									
Greater than	>																									
Equal to	==																									
Not equal to	!=																									
Less than or equal to	<=																									
Greater than or equal to	>=																									
Selection (code)	<table><tr><th>Python</th><th>OCR Ref.</th></tr><tr><td>if value > 50: print("Over 50") elif value >= 20: print("20 or over") else: print("Under 20")</td><td>if value > 50 then print("Over 50") elseif value >= 20 then print("20 or over") else print("Under 20") endif</td></tr></table>	Python	OCR Ref.	if value > 50: print("Over 50") elif value >= 20: print("20 or over") else: print("Under 20")	if value > 50 then print("Over 50") elseif value >= 20 then print("20 or over") else print("Under 20") endif																					
Python	OCR Ref.																									
if value > 50: print("Over 50") elif value >= 20: print("20 or over") else: print("Under 20")	if value > 50 then print("Over 50") elseif value >= 20 then print("20 or over") else print("Under 20") endif																									

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>

GCSE Design Technology:

CORE 1.15 Designers and companies

Can describe the unique designs or achievements of these designers and companies?

Use LCWC to check your understanding of these differing design strategies.

We need to be aware of the 'work of others' as part of the D and T curriculum. These designers and brands have been chosen by the exam board as ones we will learn about.

Tick	Name	Example	What are they known for?
	<u>Alessi</u>		Kitchenware products – which are fun and unique. A company with lots of different designers.
	Apple		Ground breaking designs which broke away from tradition. Have a loyal customer base. Design company.
	<u>Heatherwick Studio</u>		Around 200 designers, architects and makers have worked on products from perfume bottles to buildings – original and unique designs.
	<u>Joe Casely-Hayford</u>		Fashion designer. Known for original but wearable designs, using traditional English tailoring techniques.
	Pixar		Among the first to develop computer animated feature films. Design company.
	Raymond Loewy		Designer. Combined simplicity with functionality. Known for the 'teardrop' design for aerodynamics.
	Tesla, Inc.		Is the leader in producing electric cars which don't compromise on power or quality.
	<u>Zaha Hadid</u>		An architect who integrated geometric forms with expressive, sweeping fluid curves. Promoted architecture as a visual art form for aesthetic pleasure.

GCSE Design Technology:

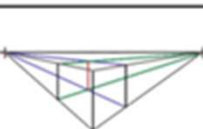
CORE 1.16 Design strategies

Tick	Design strategy	Definition/explanation
	User centred design	User-centred design revolves around putting your users' needs at the centre of every decision that is made throughout the whole designing process.
	Systems thinking	Used by Product Designers and Engineers to help solve complex problems and find solutions, usually using a flowchart. It is used to think about the functions of products and how users interact with them.
	Collabo-ration	When a team of designers come together and generate design ideas.
	SCAMPER	This is a technique used by designers to think of new ideas when developing them.
		The letters stand for:
		Substitute
		Combine
		Adapt
		Modify
		Put to another use
		Eliminate
		Reverse

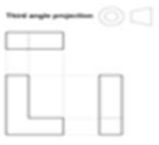
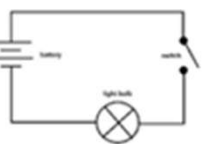
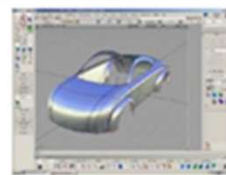
Which design strategies have you used in school? Would using another have helped?

You need to be aware of the pro's and con's of the different communication techniques on the page. At what stage of the design process would each be appropriate to use?

Try and use a variety of these methods in your design work, especially when you begin your NEA in Y10/11.

Tick	Method	Example	Explanation
	Freehand sketching		Very quick sketches drawn by hand. They are used as initial ideas as they are quick to do.
	Digital photography/media		Creates and develops designs. Tracing paper can be used to trace over ideas.
	Cut and paste techniques		Images are used to create and inspire their own ideas i.e. using a mood board.
	Oblique		A style of 3D drawing, drawn at 45°.
	Isometric		A style of 3D drawing, drawn at 30°.
	One point perspective		There is 1 vanishing point anywhere around the object which all points are drawn to.
	Two point perspective		There are 2 vanishing points either side of the object. Architects use this style when developing their ideas in 3D.

Convert this table into a mind map and then get a friend or someone at home to test your recall of the information in different sections.

Tick	Method	Example	Explanation
	Orthographic projection		3 main sides; plan, front and side are drawn in line with each other.
	Exploded drawing		Draws the product disassembled, along the same axis. Usually drawn in isometric.
	Assembly drawings		A chronological set of drawings - used to show manufacturers how to make a product.
	Schematic diagrams		Electronics - circuit diagrams to show where components are placed.
	CAD (Computer Aided Design)		Computer images drawn of products using specialist software.
	Annotated sketches		Added to sketches to allow the designer to communicate their thinking i.e. materials etc.

Who uses these?

Why are symbols used and not labels?

You can find out more at:
BBC Bitesize and
DesignandTechnologybase.com

Year 9 'Power & Conflict' Knowledge Organiser

Kamikaze by Beatrice Garland

Message & Context

- This poem explores a kamikaze pilot's journey towards battle, his decision to return, and how he is shunned when he returns home.
- As he looks down at the sea, the beauty of nature and memories of childhood make him decide to turn back.
- To surrender meant shame for you and your family, and rejection by society: "he must have wondered which had been the better way to die".

Language

- "dark shoals of fish flashing silver": Sibilant image links to a Samurai sword – conveys the conflict between his love for nature/life and his sense of duty.
- "journey into history" - act of sacrifice is seen as honourable.
- "they treated him as though he no longer existed": cruel irony – he chose to live but now must live as though he is dead.

Form & Structure

- Narrative and speaker is third person, representing the distance between her and her father, and his rejection by society.
- The first five stanzas are ordered (whilst he is flying on his set mission).
- Only full stop is at the end of Stanza Five: he has made his decision to turn back.
- The final two are in italics and have longer line to represent the fallout of his decision: his life has shifted and will no longer be the same.
- Direct speech ("My mother never spoke again/in his presence") personal – highlighting the extent in which he was rejected.

War Photographer by Carol Ann Duffy

Message & Context

- Duffy conveys both the brutality of war and the indifference of those who might view the photos in newspapers and magazines: those who live in comfort and are unaffected by war.
- Duffy was inspired to write this poem by her friendship with a war photographer. She was intrigued by the challenge faced by these people whose job requires them to record terrible, horrific events without being able to directly help their subjects.

Language

- "All flesh is grass": Biblical reference that means all human life is temporary – we all die eventually.
- "He has a job to do": like a soldier, the photographer has a sense of duty.
- "running children in a nightmare heat": emotive imagery with connotations of hell.
- "blood stained into a foreign dust": lasting impact of war – links to Remains and 'blood shadow'.
- "they do not care": 'they' is ambiguous – it could refer to readers or the wider world.

Form & Structure

- Enjambment – reinforces the sense that the world is out of order and confused.
- Rhyme reinforces the idea that he is trying to bring order to a chaotic world – to create an understanding. □
- Contrasts: imagery of rural England and nightmare war zones.
- Third stanza: A specific image – and a memory – appears before him.

Poppies by Jane Weir

Message & Context

- A modern poem that offers an alternative interpretation of bravery in conflict: it does not focus on a soldier in battle but on the mother who is left behind and must cope with his death.
- Set around the time of the Iraq and Afghan wars, but the conflict is deliberately ambiguous to give the poem a timeless relevance to all mothers and families.

Language

- Contrasting semantic fields of home/childhood ("cat hairs", "play at being Eskimos", "bedroom") with war/injury ("blockade", "bandaged", "reinforcements")
- Aural (sound) imagery: "All my words flattened, rolled, turned into felt" shows pain and inability to speak, and "I listened, hoping to hear your playground voice catching on the wind" shows longing for dead son.
- "I was brave, as I walked with you, to the front door": different perspective of bravery in conflict.

Form & Structure

- This is an Elegy, a poem of mourning.
- No rhyme scheme makes it melancholic
- Enjambment gives it an anecdotal tone.
- Nearly half the lines have caesura – she is trying to hold it together but can't speak fluently as she is breaking inside.

Remains by Simon Armitage	Exposure by Wilfred Owen	Charge of the Light Brigade by Alfred, Lord Tennyson	Bayonet Charge by Ted Hughes
Message & Context - To show the reader that mental suffering can persist long after physical conflict is over. - Poem coincided with increased awareness of PTSD amongst the military, and aroused sympathy amongst the public – many of whom were opposed to the war.	Message & Context - Owen wanted to draw attention to the suffering, monotony and futility of war. - Written in 1917 before Owen went on to win the Military Cross for bravery. - Killed in battle in 1918: the poem has authenticity as it is written by an actual soldier.	Message and Context - It is a celebration of the men's courage and devotion to their country, symbols of the might of the British Empire. - As Poet Laureate, he had a responsibility to inspire the nation and portray the war in a positive light: propaganda. - This was a controversial point to make in Victorian times when blind devotion to power was expected.	Message & Context - Steps inside the body and mind of the speaker to show how this act transforms a soldier from a living thinking person into a dangerous weapon of war. - Hughes dramatises the struggle between a man's thoughts and actions - Hughes' father had survived the battle of Gallipoli in World War 1, and so he may have wished to draw attention to the hardships of trench warfare.
Language "Remains" - the images and suffering remain. "Legs it up the road" - colloquial language = authentic voice "Then he's carted off in the back of a lorry" – reduction of humanity to waste or cattle "he's here in my head when I close my eyes / dug in behind enemy lines" – metaphor for a war in his head; the PTSD is entrenched. "blood-shadow" - metaphor. 'Shadow' has connotations of being followed/ haunted by the memory.	Language "Our brains ache" physical (cold) suffering and mental (PTSD or shell shock) suffering. - Semantic field of weather: weather is the enemy. -"the merciless iced east winds that knife us..." personification (cruel and murderous wind). Sibilance (cutting/slicing sound of wind) - Repetition of pronouns 'we' and 'our' – conveys togetherness and collective suffering of soldiers.	Language -"Into the valley of Death": this Biblical imagery portrays war as a supremely powerful, or even spiritual, experience. "jaws of Death" and "mouth of Hell": presents war as an animal that consumes its victims. "Honour the Light Brigade/Noble six hundred": language glorifies the soldiers, even in death.	Language "The patriotic tear that brimmed in his eye/Sweating like molten iron": his sense of duty (tear) has now turned into the hot sweat of fear and pain. "cold clockwork of the stars and nations": the soldiers are part of a cold and uncaring machine of war. "his foot hung like statuary in midstride.": he is frozen with fear/bewilderment.
Form & Structure - Monologue, told in the present tense to convey a flashback (a symptom of PTSD). - First four stanzas are set in Iraq; last three are at home, showing the aftermath. - Enjambment between lines and stanzas conveys his conversational tone and gives it a fast pace, especially when conveying the horror of the killing - Repetition of 'Probably armed, Possibly not' conveys guilt and bitterness.	Form & Structure - Contrast of Cold>Warm>Cold imagery conveys Suffering>Delusions>Death of the hypothermic soldier. - Refrain of "but nothing happens" creates circular structure implying never ending suffering - Rhyme scheme ABBA and hexameter gives the poem structure and emphasises the monotony. - Pararhymes (half rhymes) ("nervous / knife us") only barely hold the poem together, like the men.	Form & Structure - This is a ballad, a form of poetry to remember historical events – we should remember their courage. - First stanza tightly structured, mirroring the cavalry formation. - Structure becomes awkward to reflect the chaos of battle and the fewer men returning alive. - Dactylic dimeter (HALF-a league / DUM-de-de) mirrors the sound of horses galloping.	Form & Structure - The poem starts 'in medias res': in the middle of the action, to convey shock and pace. - Enjambment maintains the momentum of the charge. - Time stands still in the second stanza to convey the soldier's bewilderment and reflective thoughts.



Growth of Microorganisms ☐

3.4.1.1

Microorganisms (bacteria, yeasts and moulds) and **enzymes** drive food spoilage and pathogenic food poisoning.

4 Ideal Growth conditions:

Warmth, Moisture, Food and Time

High-Risk Foods: Ready-to-eat, moist, high-protein foods e.g. cooked poultry, meat, dairy, shellfish and cooked rice.

Enzymes: biological catalysts that accelerate chemical reactions, causing ripening, softening and tissue oxidation.

Preparing and Cooking Safely ☐

3.4.2.2

Personal Hygiene Checklist:

Tie long hair back, remove jewellery, wash hands with hot water and soap, cover cuts with a **blue plaster**.

Chopping Boards:

Red Raw Meat	Blue Raw Fish	Yellow Cooked Meat
Green Salad & Fruit	Brown Vegetables	White Bakery & Dairy

High Risk Processing:

Thoroughly defrost meats in the fridge prior to cooking to avoid frozen cores. Reheat food only once. Cool cooked rice within 1 hour and refrigerate immediately.

Signs of Food Spoilage 3.4.1.2 ☐

Enzymic Action:

Causes enzymic browning.

When plant cells are broken open, substances within the vacuole combine with oxygen (from the air) and oxidise.

This causes a colour change.

Mould Growth:

Visible as a furry appearance on the outside of the food.

Can spoil the appearance, smell, texture and flavour.

Yeast Action:

Wild yeast ferment sugars in alcohol and CO²

Appears as a pale brown, spotted growth on the skin of the fruit, which becomes brown and mushy as the yeast continues to grow.

Testing for Readiness 3.4.2.2 ☐

Using a Digital Food Temperature Probe

1. Clean and thoroughly sanitise the probe
2. Insert into the thickest part/core of the food
3. Wait for the display to stabilise. It must read at **least 75°C**.
4. Remove and immediately sanitise the probe again.

Alternative Practical Testing Methods:

Poultry/meats: insert a clean skewer, expressed juices must run clear

Cakes/baked items: insert a skewer, it should come out clean

Pasta/vegetables: Check for an ‘al dente’ bite

Buying and Storing Food 3.4.2.1 ☐

Date Marks

Use-By: food must be consumed by this date to prevent food poisoning. It is illegal and highly dangerous to sell or consume food past this date.

Best Before: food is at its best quality before this date, (except for eggs) – it may safely be eaten after this date. However, texture/flavour may degrade over time.

Storage Environments

Ambient: Dry, cool pantry storage (10-20°C) suitable for sealed, low-moisture foods e.g. cans, flour, dried pasta.

Domestic Fridge Layout: Keep all food covered. Raw meat/poultry **must** be placed on the bottom shelf to stop juices dripping onto and cross-contaminating ready-to-eat foods.

Critical Temperature Profile ☐

3.4.2.1

Temp	Zone Name	Impact on Bacteria
Below -18°C	Freezer Temp	Bacteria become dormant (cannot multiply).
0°C to < 5°C	Fridge Temp	Bacterial multiplication is slowed down .
5°C to 63°C	The Danger Zone	Rapid growth occurs. Max rate at 37°C.
75°C	Cooking / Reheat	Pathogens destroyed (hold for 2 mins).

Note: Hot holding of food must remain above 63°C to prevent bacterial growth

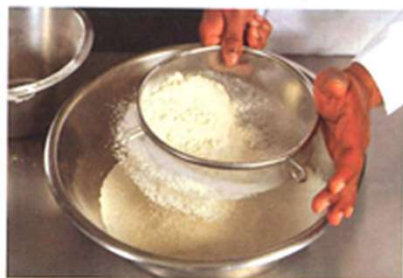
How to make fresh pasta

Ingredients

175 g pasta flour or strong plain flour

1 egg

3 egg yolks



Step 1 Sieve flour into a bowl.



Step 2 Make a well in the centre and add the beaten eggs.



Step 3 Gradually mix in the flour.



Step 4 Mix until the dough is formed.



Step 5 Knead the dough until it is smooth. Cover the dough and allow it to rest for 30 minutes.



Step 6 After resting, knead the dough again.

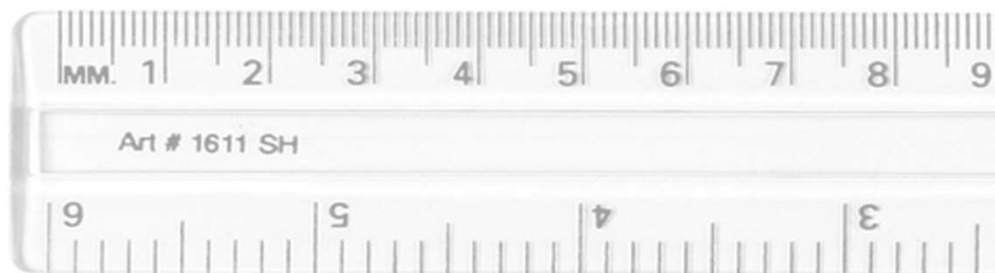
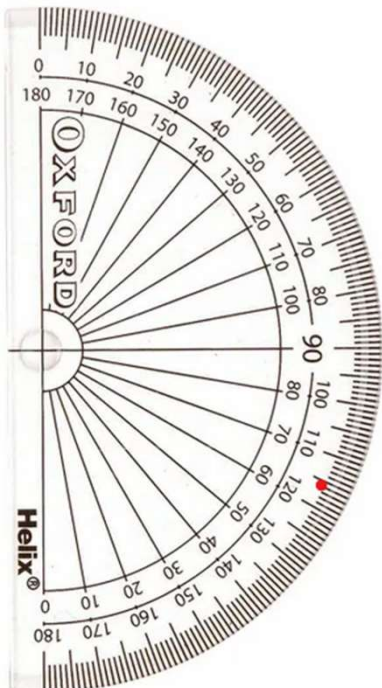
CRITICAL QUALITY CONTROLS & TROUBLESHOOTING

Cooking Test (Al Dente): Fresh pasta cooks incredibly quickly (1–3 minutes in rolling boiled salted water). Always check for a perfect 'al dente' texture (firm to the bite with absolutely no raw or chalky middle core)[cite: 2].

Troubleshooting Defect Analysis: If your dough tears, ripples, or jams in the mechanical rollers, it is too sticky. Dust the sheet lightly with extra '00' flour on both sides before passing it through again.



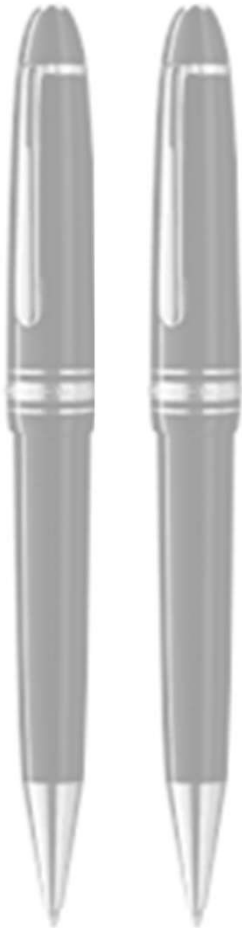
Equipment



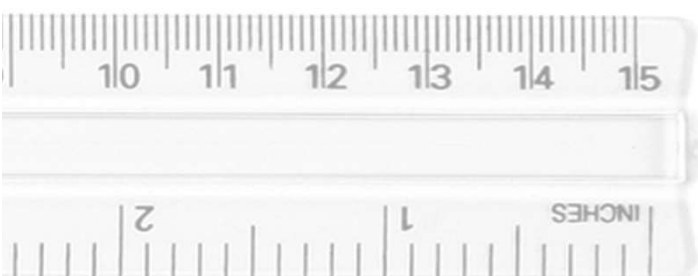
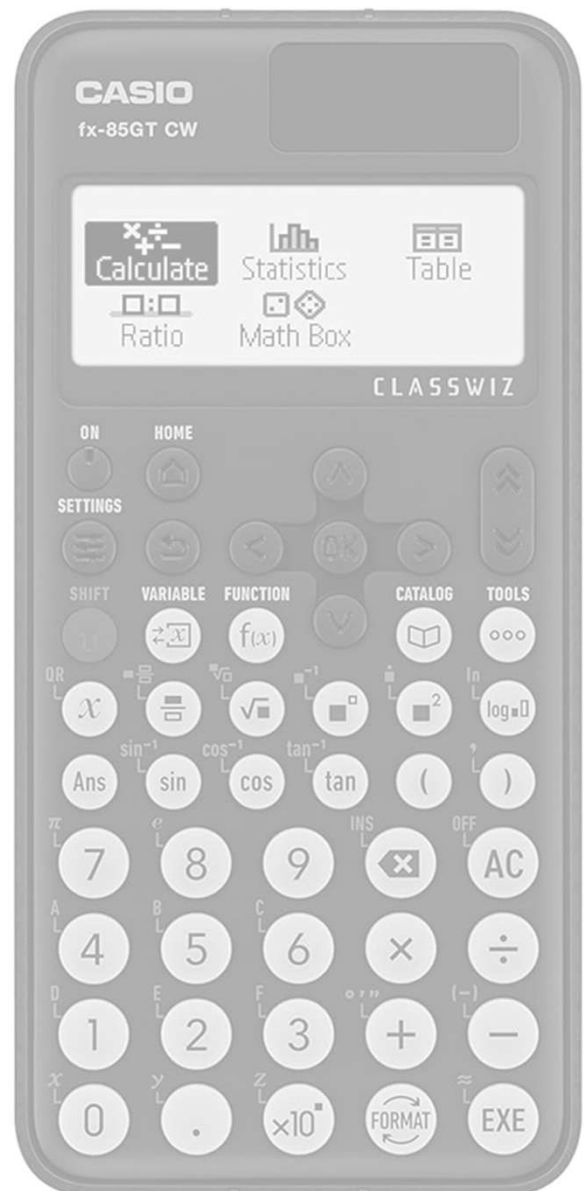
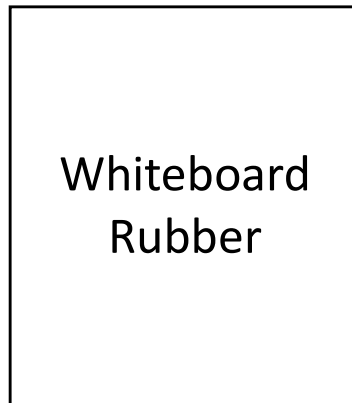
Check



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



Whiteboard
Rubber



Activities on line	
Je lis mes messages.	I read my messages.
Je poste des messages.	I post messages.
Je mets à jour ma page perso	I update my page.
Je télécharge des chansons	I download songs
Je fais des quiz.	I do quizzes.
Je joue à des jeux.	I play games.
Je commente des photos.	I comment on photos.
Je passe des heures...	I spend hours.
J'organise des sorties.	I organise outings.
Je partage des photos.	I share photos.
Les réseaux sociaux	Social media/network

Adjectives to describe people	
ennuyeux(-euse)	boring
barbant(e)	boring
amusant(e)	fun
drôle	funny
marrant(e)	funny
intéressant(e)	interesting
arrogant(e)	arrogant
beau/belle	beautiful
charmant(e)	charming
égoïste	selfish
génial(e)	great
casse-pieds	annoying
sympa	nice

Picture description	
Sur la photo	On the photo
Je peux voir	I can see
On peut voir	We/you can see
Il y a	There is/are
De plus je peux voir	Also I can see
À gauche	On the left
À droite	On the right
Au centre	In the centre
À l'arrière plan	In the background
Au gros plan	In the foreground
Il est en train de ...	He is in the middle of
Ils sont en train de ...	They are in the middle of

Opinion structures	
À mon avis	In my opinion
Le foot me plaît	I like football
Je m'intéresse à	I'm interested in
À mon avis	In my opinion
Je pense que	I think that
Je crois que	I believe that
Je trouve que	I find that
J'aime	I like
J'adore	I love
Je n'aime	I don't like
Je déteste	I hate
Mon père aime	My dad likes
Mes amis adorent	My friends love
On adore	We love

Past tense verbs (passé composé)	
Je suis allé(e)*	I went
Je suis resté(e)*	I stayed
J'ai téléchargé	I downloaded
J'ai bu	I drank
J'ai fait	I did
J'ai écouté	I listened
J'ai joué	I played
J'ai mangé	I ate
J'ai regardé	I watched
J'ai dansé	I danced
C'était	It was
Ce n'était pas	It wasn't
Il faisait beau	It was nice weather

The French verbs that take "être" in the passé composé are often remembered using the mnemonic "Mrs. Vandertramp." Here are the key verbs:

- Monter (to go up)
- Rester (to stay)
- Sortir (to go out)
- Venir (to come)
- Arriver (to arrive)
- Naître (to be born)
- Descendre (to go down)
- Entrer (to enter)
- Retourner (to return)
- Tomber (to fall)
- Rentrer (to go back)
- Aller (to go)
- Mourir (to die)
- Partir (to leave)

The past participle must agree in gender and in number: e.g je suis allée (f)

Avoir	To have
J'ai	I have
Tu as	You have
Il/Elle a	He/She has
Nous avons	We have
Vous avez	You all have
Ils/Elles ont	They have

Etre	To be
Je suis	I am
Tu es	You are
Il/Elle est	He/She is
Nous sommes	We are
Vous êtes	You all are
Ils/Elles sont	They are

Faire	To do
Je fais	I do
Tu fais	You do
Il/Elle/on fait	He/She does
Nous faisons	We do
Vous faites	You do
Ils/Elles font	They do

Aller	To go
Je vais	I go
Tu vas	You go
Il/Elle va	He/She goes
Nous allons	We go
Vous allez	You all go
Ils/Elles vont	They go

Regular ER verb endings. Remove the ER and add the following endings		For example Regarder = To watch
Je	-e	Je regarde
Tu	-es	Tu regardes
Il/Elle/On	-e	Il regarde
Nous	-ons	Nous regardons
Vous	-ez	Vous regardez
Ils/Elles	-ent	Ils regardent

Negatives go around the conjugated verb	
ne...pas	not any
nejamais	never
ne...rien	nothing
ne...que	only
ne...plus	no longer

Connectives and intensifiers		
très	very	
assez	quite	
un peu	a bit	
trop	too (much)	
vraiment	really	
parce que/ car	because	
donc	therefore	
puis	then	
ensuite	next	
cependant	however	
tandis que	whereas	
en plus	also	

Most adjectives go after the noun they are describing. They need to agree with their noun.
<u>Regular adjective endings</u>
Feminine sing – e
Feminine plural – es
Masculine plural – s

Common adjective endings
eur – euse
eux - euse
if – ive
ien - ienne

Adjective placement These adjectives go before the noun
B – Beauty
A – Age
N – Number
G – Goodness
S - Size

Irregular adjectives
Beau/belle/beaux/belles bel before a masc sing noun
Vieux/vieille/vieux/vieilles vieil before a masc sing noun

<u>The near future:</u>
It is the equivalent of 'I am going to do' in English.
Pronoun + form of ALLER + infinitive
e.g. Je + vais + faire



Stell dich vor

Wie heißt du?	What's your name?	
Ich heiße...	My name is...	
Hallo!	Hello!	
Guten Tag!	Good afternoon!	
Guten Abend!	Good evening	
Wie geht's?	How are you?	
Gut, danke und dir?	Good, thanks and you?	
Nicht schlecht	Not bad	
Tschüs(s)	Bye	
Auf Wiedersehen	Goodbye	
Wie alt bist du?	How old are you?	
Ich bin ... Jahre alt.	I am...years old.	
Wie alt ist ...?	How old is ...?	
... ist Jahre alt.	... is ... years old.	
Wo wohnst du?	Where do you live?	
Ich wohne in...	I live in...	
Ich komme aus ...	I come from ...	
Er/Sie/Es kommt aus ...	He/She/It comes from	

High frequency words

und	and	
auch	also	
aber	but	
sehr	Very	
ziemlich	quite	
nicht	not	

Essential verbs

sein - to be		
ich bin	I am	
du bist	you are	
er/sie/es ist	he/she/it is	
haben - to have		
ich habe	I have	
du hast	you have	
er/sie/es hat	he/she/it has	
wohnen - to live		
ich wohne	I live	
du wohnst	you live	
er/sie/es wohnt	he/she/it lives	
Wir wohnen	We live	
Ihr wohnt	You (all) live	
sie/Sie wohnen	They/you live	

Was hast du? What do you have?

Ich habe...	I have...	
einen Computer	a computer	
einen iPod	an iPod	
einen Fußball	a football	
eine Gitarre	a guitar	
eine Wii	a Wii	
eine Schlange	a snake	
ein Handy	a mobile phone	
ein Keyboard	a keyboard	
ein Skateboard	A skateboard	

Nouns gender

In German, there are three definite articles (words for 'the') and three indefinite articles (words for 'a').

	<u>M</u>	<u>F</u>	<u>NT</u>
the	der	die	das
a	ein	eine	ein

After haben

<u>Verb</u>	<u>article</u>	<u>noun</u>
Ich habe	einen	Computer
	den	
	eine	Gitarre
	die	
	ein	Handy
	das	

Fragewörter

Was?	What?	
Wie?	How?	
Wo?	Where?	
Woher?	Where from?	
Was? Du spinnst!	What? You're joking!	



Meine Familie		
Es gibt Personen in meiner Familie	There are people in my family	
meine Mutter	my mother	
mein Vater	my father	
mein Bruder	my brother	
mein Stiefbruder/ Halbbruder	my step/half brother	
meine Schwester	my sister	
meine Stiefschwester/ Halbschwester	my step/half sister	
meine Eltern	my parents	
meine Großeltern	my grandparents	
Hast du Geschwister?	Do you have any brothers and sisters (siblings)?	
Ich habe zwei Brüder	I have two brothers	
Ich habe drei Schwestern	I have three sisters	
Ich bin Einzelkind	I am an only child	
Ich habe keine Geschwister	I have no brothers and sisters (siblings)	
Er/Sie heißt ...	He/She is called ...	
Sie heißen ...	They are called	
Er/Sie ist ...	He/She is ...	
Sie sind ...	They are ...	

Adjektive		
Wie bist du?	What are you like?	
Ich bin...	I am...	
Er/Sie ist...	He/She is...	
faul	lazy	
freundlich	friendly	
intelligent	clever	
kreativ	creative	
launisch	moody	
laut	loud	
lustig	funny	
musikalisch	musical	
sportlich	sporty	

Infinitive		
sprechen	to speak	
fliegen	to fly	
spielen	to play	
laufen	to run	
lesen	to read	
Rad fahren	to ride a bike	
springen	to jump	
tanzen	to dance	

Länder		
England	England	
Deutschland	Germany	
Österreich	Austria	
die Schweiz	Switzerland	

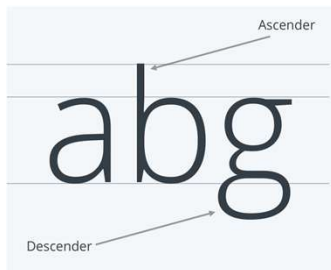
Haustiere		
Hast du ein Haustier?	Have you got a pet?	
Ich habe	I have	
einen Goldfisch	a goldfish	
einen Hamster	a hamster	
einen Hund	a dog	
einen Wellensittich	a budgie	
eine Katze	a cat	
eine Maus	a mouse	
eine Schlange	a snake	
ein Kaninchen	a rabbit	
ein Meerschweinchen	a guinea pig	
ein Pferd	a horse	
kein Haustier	no pet	

Augen und Haare		
Ich habe ...	I have	
Er/Sie hat ...	He/She has	
Sie haben ...	They have	
schwarze/ braune/blonde/ rote Haare	black/brown/ blond/red hair	
kurze/lange/ mittellange Haare	short/long/ mid-length hair	
blaue/braune/ grüne/graue Augen	blue/brown/ green/grey eyes	





Typography



x-height
kind

Though there are no set rules for when to use a serif or sans serif font, it's suggested that sans serif fonts should be used for online body text and serif fonts for headlines and print. Use script and fantasy fonts for accents or large headlines with very few words.

Keyword	Definition – Think it link it	tick
Script	Script typefaces are fonts or type based upon historical or modern handwriting styles and are more fluid than traditional typefaces.	
Slab serif	Slab serif fonts feature a geometric feel compared to traditional serif fonts and feature serifs that are square and larger, bolder.	

abcdefghijklmnopqrstuvwxyz
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 0123456789(!@#\$%&.,?;:~)
 abcdefghijklmnopqrstuvwxyz
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 0123456789 (!@#\$%&..?::)

Keyword	Definition – look cover write check	Tick
Typography	Typography is the visual component of the written word,". All visually displayed text, whether on paper, screen or billboard, involves typography.	
Kerning	Kerning refers to the space between two specific letters (or other characters: numbers, punctuation, etc.) and the process of adjusting that space improves legibility.	
Tracking	Tracking is similar to kerning in that it refers to the spacing between letters or characters. However, instead of focusing on the spacing between individual letters (kerning), tracking measures space between groups of letters.	
Hierarchy	Typographic hierarchy is an essential part of any design or layout. Hierarchy is a way to visually rank your design elements. It involves differentiating sections of text using various typographic techniques to guide the reader's attention to where it is most needed. Effective hierarchy makes documents easier to scan, understand, and navigate, enhancing both the usability and aesthetics of the design.	
Lorum Ipsum	Lorem Ipsum is simply dummy text used by the design industry. It's used as placeholder text and has a more-or-less average distribution of letters, making it look like readable English, as opposed to using 'Add content here, add content here' within designs when the copy isn't quite ready.	
Serif font	A serif is the little extra stroke or curves, at the ends of letters.	
Sans serif	"Sans" literally means "without", and a sans serif font does not include any extra stroke at the ends of the letters.	
Ascender / Descender	The ascender is the portion of a lowercase letter that extends above the mean line of a font (<i>the x-height</i>). On the other hand, the descender is the portion of a letter that extends below the baseline of a font.	
X-height	The x-height refers to the distance between the baseline and the mean line of lower-case letters in a typeface	

Bournemouth School: History Department: Knowledge Organiser: Year 9: Autumn 1: Weimar Germany

Weimar Germany: Key terms/definitions ✓			Weimar Germany: Timeline ✓	
Term	Definition			
Armistice	The agreement reached by the warring nations to end WWI		Nov. 1918: Kaiser Wilhelm II abdicates Nov. 1918: Armistice signed Dec 1918/Jan 1919: Spartacist Uprising Aug. 1919: Weimar Constitution established June. 1919: Treaty of Versailles signed 1920: Hitler sets up the Nazi Party March 1920: Kapp Putsch January 1923: French troops invade and occupy the Ruhr region of Germany Jan. - Nov. 1923: Hyperinflation Nov. 1923: Munich Putsch 1925: Mein Kampf published Sept 1926: League of Nations set up 1928: Nazis win 12 seats in Reichstag Oct. 1929: Wall Street Crash	
Weimar Republic	Germany's new government from 1919 - 'republic' because there was no Kaiser, and 'Weimar' after the town politicians relocated to due to the instability in Berlin after WWI			
Coalition	A government run by lots of small parties working together			
Constitution	A set of rules in which a country should be governed by.			
Dolchstoss Theory	Stab in the back theory - Germany had been betrayed during WWI by Jews and Socialists			
Bolshevik Revolution	The communists overthrew the government in Russia			
The Weimar Republic President – elected every 7 years Article 48 – the President could suspend the constitution in an emergency. He could make laws and keep the Chancellor in office without the support of the Reichstag. Chancellor – Chosen by the President. Had to have the support of a majority (more than 50%) of the Reichstag. Reichstag – was elected every 4 years. Could make laws. The Chancellor had to have majority support of its members. Voters – Men and women over the age of 20. Spartacists Uprising – Communist attempt in 1918 to overthrow the government. The regular army and Berlin Freikorps put down the revolt. Kapp Putsch – Right wing attempt to take over in 1920. Led by the Freikorps and the country was encouraged to not support the revolt.		✓	Key people ✓	
			Kaiser Wilhelm II - Emperor of Germany 1888-1918 Friedrich Ebert – New President of the Weimar Republic from 1918 Philipp Scheidemann – New Chancellor of the Weimar Republic from 1918 Karl Liebknecht and Rosa Luxemburg - led the Spartacist League who sought to establish a state based on communist ideals Gustav Stresemann - Foreign Secretary of Germany 1923-1929 and Chancellor of Germany August – November 1923 Wolfgang Kapp – Led the Kapp Putsch in 1920 Adolf Hitler – Chancellor of Germany – 1933-1934 and Fuhrer 1934-1945	
Treaty of Versailles			✓	Dolchstoss Theory ✓
Territorial terms included all colonies being given to the Allied Powers, Alsace-Lorraine returned to France, Saar to be administered by the League of Nations, Danzig created a Free city, Posen and West Prussia to Poland. Military terms included the German army not to exceed 100,000 men, no tanks, armoured cars of heavy artillery permitted, no aircraft, no naval vessel to be greater than 10,000 tons, no submarines and the Rhineland demilitarised. Financial terms included reparations fixed at £6.6bn, coal to be mined in the Saar by France War Guilt: Article 231 meant all Germans had to take responsibility for the war.				Criticism of the German Government grew and there was the idea that the politicians had stabbed the army in the back. The German cabinet actually initially rejected the treaty but the German public was not aware they didn't have a choice but to sign.

Bournemouth School: History Department: Knowledge Organiser: Year 9: Autumn 1: Weimar Germany and Hitler

Economic Challenges and Recovery in the 1920s				✓	Stresemann Abroad				✓		
1923: France and Belgium occupied the Ruhr in January 1923 when Germany again failed to pay reparations. They decided to take the goods they needed rather than wait for Germany to send them. The French occupation was met with passive resistance and some Germans carried out acts of industrial sabotage. The Germans went on strike and it led to hyperinflation. In Jan 1923, £1 = 71,888 marks and in Nov 1923 1,680,800,000,000,000marks. In the summer 1923, Gustav Stresemann became Chancellor, introduced a new currency, the Rentenmark. The Dawes Plan – Agreed in 1924. Reparation payments would begin at 1bn marks for the first year and would increase over 4 years to 2.5bn a year. The Ruhr to be evacuated, the Reichsbank reorganised and the USA to give loans to the USA. US loans – over 6 years, the US gave loans of nearly \$3000m. Rentenmark – November 1923 – a new currency was introduced and it was based on property values rather than gold. In 1924, the Rentenmark was converted into the Reichsmark, a new currency now backed by gold reserves. Young Plan – Reparations was reduced to £1,850m and Germany now had 59 years to pay it off, averaging around 2.05bn marks a year. Many workers were generally better off and there were fewer strikes between 1924-1929 Political instability and support for Weimar Germany due to successes economically and abroad. Some farmers were not doing well and they were affected by a worldwide depression, lack of profit and discouraged investment in new machinery.					Locarno Pact: Britain, France, Belgium and Italy. Agreed to keep existing borders between Germany, Belgium and France. League of Nations: Set up in 1920 and Germany became a member in September 1926, confirming it's Great Power status. Changes in Society By 1928 – 10% increase in real wages Unemployment generally fell but was high for professionals 1919 – women over 20 could vote By 1933 – 100k women teachers 3k doctors Cultural Changes New Objectivity – painters e.g. Otto Dix and George Grosz Bauhaus – “School of Building” founded by Walter Gropius Marlene Dietrich – popular film star						
Early Growth of the Nazis and the SA		✓		Munich Putsch		✓		Lean Years		✓	
- Anton Drexler founded the German Workers’ Party (DAP). It stressed the volkisch idea Hitler became an informant to the intelligence unit.. - Sept 1919 he attended a meeting and was told to report on it. He was angered and made a speech in reply. He was consequently asked to join and was also encouraged by his army superiors to join. - His standard themes were the Dolchstoß, disgust at the ToV, hatred of WG and the communist-Jewish conspiracy. - Feb 1920 – 25 point programme - Party became NSDAP/Nazi party - People’s Observer - 1921 – Hitler became leader - SA led by Ernst Rohm. Known as the Brownshirts.			- Hitler planned to seize Bavaria and then Berlin and would remove the weak Weimar politicians. - He wanted to remove the ToV, felt Germany was humiliated following the French occupation of the Ruhr, Nazi Germany had become more popular, the SA would be used as armed support. - 8th November 1923, Hitler and 600 Nazis seized the beer hall in Munich. - The Nazis had 2000 rifles and were no match for the well armed police force. - 16 Nazis and 4 police officers were killed. - Hitler was sentenced to 5 years in Landsberg Prison but he only served 9 months. He wrote Mein Kampf whilst there and was treated leniently.			1924-1929 – Nazi party lost support but was reorganised by Hitler - Ban on the Nazi party was lifted - Party branches called Gaue were created, each led by a Gauleiter - The Gauleiter pushed the idea of the Fuhrerprinzip - Bamberg Party Conference – 1926 – Hitler strengthened his position. - By 1926 – Hitler was the undisputed leader - The 1920 25pt programme was accepted - By the end of 1928, membership of the Nazis was over 100,000.					

Unit 1: Number

Keyword	Definition
Combinations	The number of ways of combining objects, found by multiplying the number of options for each choice
Estimating	Rounding values to 1 or 2 significant figures to simplify a calculation
Factor	A number that divides exactly into a given number
Multiple	A number in the given number's times table
Prime Factor Tree	Breaks up a number into products of its prime factors
Prime Factor Decomposition	A number written as a multiplication of its prime factors, normally in index form
HCF	The largest number that divides into two numbers with no remainder
LCM	The smallest number that two numbers divide into exactly
Standard form	A number written in the form $A \times 10^n$, where $0 < A \leq 10$ and n is an integer
Surd	An irrational number written exactly using square or cube roots
Rational	A number that can be expressed in the form $\frac{a}{b}$
Irrational	A non-terminating decimal with no recurring pattern
Rationalising a denominator	Multiplying $\frac{a}{\sqrt{b}}$ by $\frac{\sqrt{b}}{\sqrt{b}}$ to make the denominator an integer

Unit 2: Algebra

Keyword	Definition
Identity	The $\equiv$ 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.

Surd Laws

- $a\sqrt{b} \times c\sqrt{d} = ac\sqrt{bd}$
- $\frac{a\sqrt{b}}{c\sqrt{d}} = \frac{a}{c} \sqrt{\frac{b}{d}}$
- $\sqrt{a^2} = \sqrt{a^2} = a$

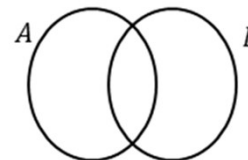
Index Laws

- $x^0 = 1$
- $x^a \times x^b = x^{a+b}$
- $x^{\frac{1}{a}} = \sqrt[a]{x}$
- $x^a \div x^b = x^{a-b}$
- $x^{-a} = \left(\frac{1}{x}\right)^a$
- $(x^a)^b = x^{ab}$

After completing a Prime Factor Decomposition for numbers A and B :

$$HCF = A \cap B$$

$$LCM = A \cup B$$



Standard form operations

- $(A \times 10^n) \times (B \times 10^m) = (AB) \times 10^{n+m}$
- $(A \times 10^n) \div (B \times 10^m) = \left(\frac{A}{B}\right) \times 10^{n-m}$
- $(A \times 10^n) \pm (B \times 10^n) = (A \pm B) \times 10^n$
note the powers must be the same

Self & Peer Assessment Revision Links:



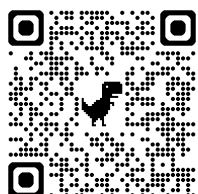
HCF & LCM



Standard Form



Surds (LHS only)



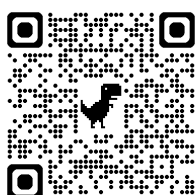
Numerical Indices



Algebraic Index laws



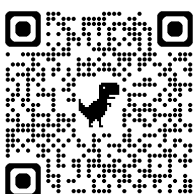
Fractional Indices



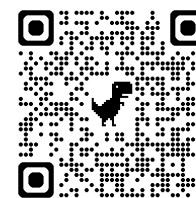
Negative Indices



Arithmetic sequences



Quadratic sequences



Expanding Brackets



Expanding Double Brackets



Rearrange Formulae



Factorising Quadratics



Factorising

Think it, Link it:

Y7 Unit 3, Primes, Factors and Multiples.
Y7 Unit 14, Units and Standard Form.
Y8 Unit 10, Limits of Accuracy.
Y8 Unit 12, Standard Form.
Y7 Unit 5, Introduction to Algebra.
Y7 Unit 13, Manipulating Expressions.
Y8 Unit 2, Complex Equations and Formulae.
Y8 Unit 7, Quadratic Expressions.

Year 9
Unit: Elements of music



Tempo

<i>Allegro</i>	Fast
<i>Andante</i>	Medium/walking pace
<i>Lento</i>	Slow
<i>Accelerando</i>	Getting gradually faster
<i>Ritenuato</i>	Getting gradually slower

Texture

Homophonic melody part and other accompanying parts.

Monophonic only one note heard at a time – a single melodic line.

Polyphonic two or more simultaneous and largely independent melody lines.

2-part texture music for two 'parts' (i.e. two melodic lines). Also 3-part, 4-part etc.

Imitation two or more parts share the same melodic idea (not necessarily in full, exactly or at the same pitch). Each new part enters separately, the preceding one continuing with shared or new material.

Instruments

String techniques

Arco using the bow

Pizzicato plucking

Harmonic touching the string to produce a higher-pitched ethereal sound

Double stopping playing 2 strings at once

Tremolo rapid, trembling movements of the bow

Muted (*con sordini*) using mutes

Glissando pitch slide

Guitar techniques

Hammer-on putting a finger down on the fret board once the note is sounded. Makes the pitch higher

Pull-off taking a finger off the fret board once a note is sounded. Makes the pitch lower

Harmonic Touching the string to produce a higher pitch ethereal sound

Palm muting lightly touching the strings with the palm of the right hand to produce a deadened sound

Melody

Direction – up or down: use the words **ascending** and **descending**

Movement – steps or leaps: use the words **conjunct** or **disjunct**

You can also talk about specific intervals

Phrase lengths:

- Are the phrases equal or unequal in length?
- Are they question and answer phrases?
- Are any phrases repeated?

Tonality

Major music composed using the notes of the major scale

Minor music composed using the notes of the minor scale

Modal music composed using a scale which is not major or minor, called a mode

Atonal music composed without a fixed scale or tonic (home note)

Modulation

Modulation means key change. Music usually changes key to a closely related key – one which shares a lot of notes with the original key.

Modulations usually go to:

- The **dominant** (fifth)
- The **subdominant** (fourth)
- The **relative** major or minor

Year 9

Unit: Music theory



Rhythm

Note	Rest	English	American
		Semibreve	Whole note
		Minim	Half note
		Crotchet	Quarter note
		Quaver	Eighth note
		Semiquaver	Sixteenth note

- Rhythm dot** adds half the value of the initial note
- Triplet** three notes taking the usual value of two
- Tie** one note with the value of both symbols

Time signatures (metre)

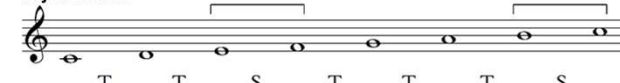
- 4 – the top number tells us how many beats
- 4 – the bottom number tells us the type of beats

The bottom number relates to the American time names:

- 2 = minim beats (half notes)
- 4 = crotchet beats (quarter notes)
- 8 = quaver beats (eighth notes)

In **simple metre** the beat divides into two
 In **compound metre** the beat divides into three
 To work out the time signature in a compound time, divide the top number by 3 to work out the number of beats. The bottom number gives you the value of $\frac{1}{3}$ of a beat.

Major scales



All major scales follow this pattern of tones and semitones.

Key signatures

Sharps always go in the order:

Father **C**harles **G**oes **D**own **A**nd **E**nds **B**attle

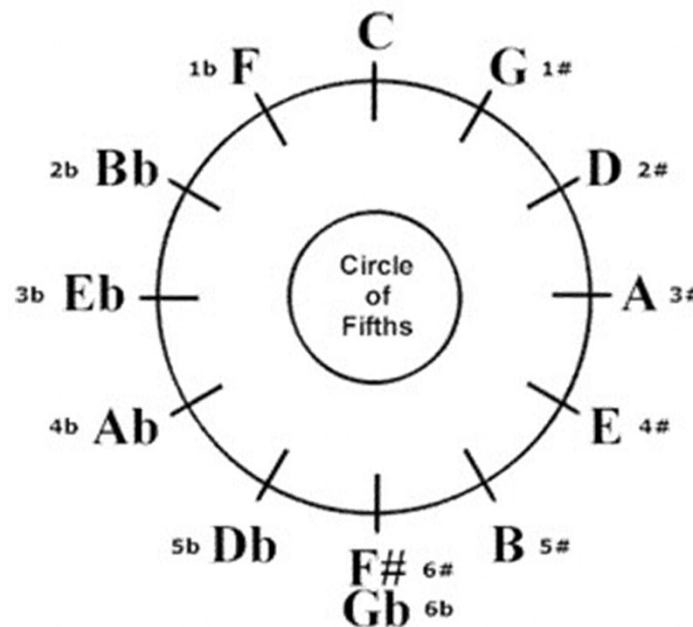
Flats always go in the order:

Battle **E**nds **A**nd **D**own **G**oes **C**harles' **F**ather

Minor scales

Every major scale has a minor scale which shares the same key signature – the **relative** minor.

In the **harmonic minor** scale we raise the 7th note of the scale by a semitone.



Intervals

An interval is the distance between two notes.

An interval is described by a number and an adjective.

To find the number, count the note names between the bottom and top notes, including both the notes themselves.

Once you have found the number, you need to be able to describe it using one of the following words.

Second, third, sixth, seventh: **major** or **minor** (semitone lower than major)

Fourth, fifth, octave: **perfect**

All intervals: **augmented** (semitone higher than major or perfect) or **diminished** (semitone lower than minor or perfect)

To work out the type of interval, start from the bottom note. Using the major scale of that note, go up the scale and see if you come to the top note. If you do the interval is **major** or **perfect**. If the note is not part of the major scale, work out whether it is higher or lower than the note in the major scale. If it's higher, the interval is **augmented**; if lower, it's **minor** or **diminished**.

Chords and cadences

In any major scale, we can build up chords on each of the notes of the scale. As well as giving them names (e.g. C, Dm) we also refer to them by their number within the scale:



Cadences are two chords which occur at the end of a phrase or section of music.

They act like musical punctuation. Some sound finished (like a full stop); some leave the music sounding like it wants to carry on (like a comma).

Finished cadences: **Perfect** (V-I; stronger); **Plagal** (IV-I; weaker)

Unfinished cadences: **Imperfect** (ends on V); **Interrupted** (V-vi)



Para relationships - a one-sided connection between a person and a media figure, that may feel two-sided to the fan, though it isn't.

Living vicariously - to experience something indirectly through another person's actions, achievements, or activities, rather than doing it yourself.



Stigma – a set of negative and unfair beliefs that a society or group of people have about something.



Long-term loans - to be approved for, but generally better deals with lower interest rates, paid back over months or even years.

Interest - The extra amount you pay on the money you borrowed, according to a set interest rate. The extra amount you pay on the money you borrowed, according to a set interest rate. If you are saving this will be the amount extra paid on to your savings, usually per year.

Debt - The amount of money you owe. This isn't necessarily a bad thing, as many people owe money for good reasons, such as buying a house or a student loan. However, this can be a bad thing, especially on short term loans with high interest rates.

Short-term loans - These tend to be easy to be approved for but have much higher interest rates. You are supposed to pay them back quickly.

Credit score - A number, available to all lending companies, which indicates how reliable you are to lend money to.

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)



Autumn Term 1

3.1.1.1 The structure and function of the Musculo-skeletal System (KO 1 of 3)

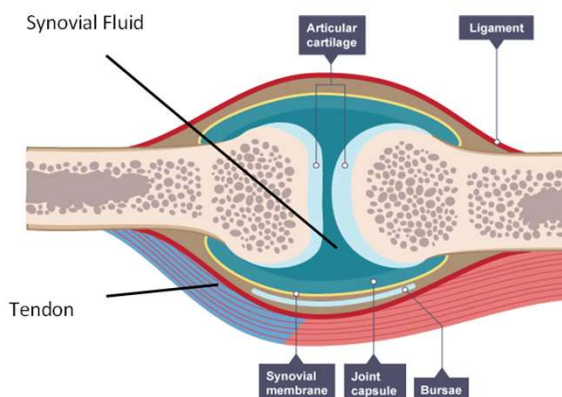
Types of Bones

FLAT bones	protect vital organs e.g. <u>cranium</u> protects your brain, <u>ribs</u> protect heart and lungs.
LONG bones	enable gross (large) movements e.g. <u>femur</u> , <u>tibia</u> and <u>fibula</u> in the leg which allow us to run, <u>humerus</u> , <u>radius</u> and <u>ulna</u> in arm which allows us to throw a ball.
SHORT bones	enable fine (small) movements e.g. fingers allowing you to spin a cricket ball.

Synovial Joint - Key Terms

<u>Ligaments</u>	Attaches bone to bone to keep the joint stable e.g. knee when kicking the ball or restricts movement/prevents movement to stop injury.
<u>Cartilage</u>	Found between bones and prevents friction by stopping the bones from rubbing together.
<u>Synovial Membrane</u>	Secrets synovial fluid.
<u>Synovial Fluid</u>	Is produced by the synovial membrane and helps lubricate the joint.
<u>Joint Capsule</u>	This is lined with synovial membrane. It encloses the joint making sure the cartilage and synovial fluid remain in place.
<u>Bursae</u>	Fluid filled sac providing cushion between bones and tendons. This stops friction at the joint.
<u>Tendons</u>	Attach muscle to bone. When a muscle contracts to move a joint, it is the tendon which pulls on the bone, keeps muscles/bones stable or holds joint in place.

Synovial Joints



Head and Neck =	Cranium and Vertebrae
Shoulder =	Scapula and Humerus
Chest =	Ribs and Sternum
Elbow =	Humerus, Radius, Ulna
Hip =	Pelvis, Femur
Knee =	Femur, Tibia (Patella doesn't articulate)
Ankle =	Tibia, Fibula, Talus

Function of a Skeleton

Support:	the bones are solid and rigid. They keep us upright and hold the rest of the body – the muscles and organs – in place.
Movement:	the skeleton helps the body move by providing anchor points for the muscles to pull against.
Structural shape and points for attachment:	the skeleton gives us our general shape such as height and build. The skeleton also provides anchorage points for the muscles to attach via tendons, so when muscles contract movement occurs.
Protection:	certain parts of the skeleton enclose and protect the body's organs from external forces e.g. the brain is inside the cranium. This function is especially important in activities that involve contact. E.g. rugby, boxing.
Production of Blood Cells:	the bone marrow in long bones and ribs produce red and white blood cells.
Mineral Storage:	bones store several minerals e.g. calcium, which can be released into the blood when needed.

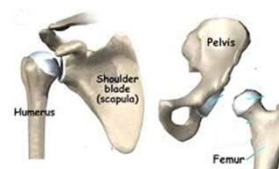
Types of Joint & Bones of the Skeleton

Hinge Joint

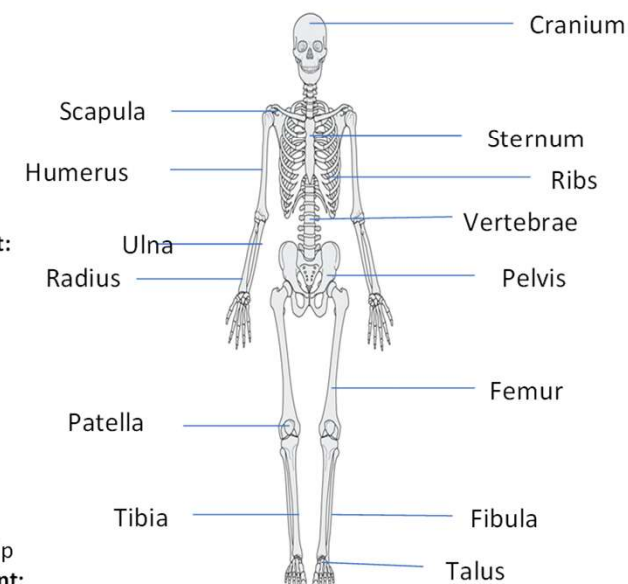


Location in Body: Knee and Elbow
Type of Movement Allowed by Joint:
 Flexion and Extension

Ball and Socket Joint



Location in Body: Shoulder and Hip
Type of Movement Allowed by Joint:
 Flexion, Extension, Adduction, Abduction, Rotation & Circumduction



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 = $\frac{1}{2} \times \text{mass} \times \text{speed}^2$ $E_k = \frac{1}{2} \times m \times v^2$

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

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

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

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}



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.



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.

The future tense

The future tense is formed by taking the infinitive and adding the endings seen below.
The endings are the same for AR, ER and IR verbs

Infinitive + ending = future tense
trabajar + é = trabajaré (I will work)

Trabajar	To work	
trabajar <u>é</u>	I will work	
trabajar <u>ás</u>	you will work	
trabajar <u>á</u>	he/she will work	
trabajar <u>emos</u>	we will work	
trabajar <u>éis</u>	you all will work	
trabajar <u>án</u>	they will work	

There are some irregular stems which are not the infinitive. Here are some examples:

har <u>é</u>	I will do	
tendr <u>é</u>	I will have	
podr <u>é</u>	I will be able to	

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	

Las responsabilidades

Preparo mis cosas	I prepare my things	
Escribo	I write	
Organizo	I organise	
Hablo con clientes	I speak with clients	
Leo mi agenda	I read my diary	
Trabajo con mi equipo	I work with my team	
Voy a la oficina	I go to the office	

Durante las vacaciones...

fui	I went	
fue	He / she went	
fue	It was	
recibí	I received	
comí	I ate	
jugué	I played	
bebí	I drank	
vi	I watched	
salí	I went out	

Essential words

porque	because	
dado que	given that	
sin embargo	however	
pero	but	
también	also	
además	furthermore	
si	if	
cuando	when	
por ejemplo	for example	
sobre todo	especially	

Mis ambiciones

Voy a...	I am going to...	
ganar mucho dinero	earn lots of money	
hacer un trabajo interesante	do an interesting job	
ir a la universidad	go to university	
ser famoso/a	be famous	
ser voluntario/a	be a volunteer	
tener hijos	have children	
viajar mucho	travel a lot	
vivir en el extranjero	live abroad	

¿Cómo será tu futuro?

En el futuro...	In the future	
ganaré mucho dinero	I will earn lots of money	
haré un trabajo interesante	I will do an interesting job	
iré a la universidad	I will go to university	
seré famoso/a	I will be famous	
seré voluntario/a	I will be a volunteer	
tendré hijos	I will have children	
viajaré mucho	I will travel a lot	
viviré en el extranjero	I will live abroad	
Será...	It will be...	

Mis vacaciones	
jugué al fútbol	I played football
comí en un restaurante	I ate in a restaurant
fui de compras	I went shopping
bebí un refresco	I drank a soft drink
descansé en casa	I relaxed at home
viajé	I travelled

Los trabajos		
Soy....	I am	
camarero/a	a waiter	
cocinero/a	a cook	
dependiente/a	a shop keeper	
esteticista	a beautician	
jardinero/a	a gardener	
limpiador(a)	a cleaner	
peluquero/a	a hairdresser	
repcionista	a receptionist	
Note: in Spanish we don't use the article un/una with jobs (e.g. soy camarero)		

¿En qué consiste tu trabajo?		
¿Tienes que...?	Do you have to...	
Tengo que....	I have to..	
contestar al teléfono	answer the phone	
cortar el pelo a los clientes	cut the customers' hair	
cuidar las plantas	to look after the plants	
limpiar habitaciones	clean rooms	
servir la comida en el restaurante	serve food in the restaurant	
vender productos en la tienda	sell products in the shop	

¿En qué trabajan tus padres?		
Mi padre / madre es	My father / mother is	
abogado/a	a lawyer	
médico/a	a doctor	
amo / ama de casa	a househusband/wife	
veterinario/a	a vet	
profesor/a	a teacher	
banquero/a	a banker	
enfermero/a	a nurse	

¿Qué te gustaría hacer?		
trabajar en una oficina	work in an office	
trabajar al aire libre	work outdoors	
hacer un trabajo creativo	do a creative job	
hacer un trabajo manual	do a manual job	
trabajar con animales	work with animals	
trabajar solo	to work alone	
me gustaría ser	I would like to be	
quiero ser	I want to be	
por eso	because of this	

Un día fatal		
Tuve un día fatal	I had an awful day	
Tuve un día malo	I had a bad day	
Mi día fue estresante	My day was stressful	
Fue un desastre	It was a disaster	
Llovió	It rained	
Perdí	I lost / I missed	
Tuve que	I had to	

-ar verb endings preterite			
é		amos	
aste		asteis	
ó		aron	

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

Common irregular verbs (preterite)		
jugué	I played	
fui	I went	
fue	it was	

¿Qué tipo de persona eres?		
En mi opinión, soy	In my opinion, I am	
creo / pienso que	I believe / think that	
soy muy / bastante	I am very / quite	
ambicioso/a	ambitious	
creativo/a	creative	
práctico/a	practical	
responsable	responsible	
independiente	independent	
organizado/a	organised	
inteligente	intelligent	
sociable	sociable	
paciente	patient	

Timetable

[illegible]