

# 100% book - Year 11 booster

Aim to memorise 100% of the knowledge on these Knowledge Organisers.

## Term 1



### Swindon Academy 2024-25

Name:

Tutor Group:

Tutor & Room:

*"If you are not willing to learn, no one can help you.*

*If you are determined to learn, no one can stop you."*

# How to use your 100% book of Knowledge Organisers and Quizzable Organisers

## Knowledge Organisers

Knowledge Organisers contain the essential knowledge that you **MUST** know in order to be successful this year and in all subsequent years.

They will help you learn, revise and retain what you have learnt in lessons in order to move the knowledge from your short-term memory to long-term memory.

## Quizzable Knowledge Organisers

These are designed to help you quiz yourself on the essential Knowledge.

Use them to test yourself or get someone else to test you, until you are confident you can recall the information from memory.

### Top Tip

Don't write on your Quizzable Knowledge Organisers! Quiz yourself by writing the missing words in your prep book. That way you can quiz yourself again and again!

## Expectations for Prep and for using your Knowledge Organisers

1. Complete all prep work set in your subject prep book.
2. Bring your prep book to every lesson and ensure that you have completed all work by the deadline.
3. Take pride in your prep book – keep it neat and tidy.
4. Present work in your prep book to the same standard you are expected to do in class.
5. Ensure that your use of SPAG is accurate.
6. Write in blue or black pen and sketch in pencil.
7. Ensure every piece of work has a title and date.
8. Use a ruler for straight lines.
9. If you are unsure about the prep, speak to your teacher.
10. Review your prep work in green pen using the mark scheme.

# How do I complete Knowledge Organiser Prep?

## Step 1

Check Epraise and identify what words /definitions/facts you have been asked to learn. Find the Knowledge Organiser you need to use.

The screenshot shows the Epraise website interface. On the left is a weekly planner for May 2020. On the right is a knowledge organiser for 'Particle Theory' with sections for 'What is particle theory?', 'What is the law of conservation of mass?', 'What are the different states of matter?', and 'What are the differences between the states of matter?'. It includes diagrams of particle arrangements for solid, liquid, and gas.

## Step 2

Write today's date and the title from your Knowledge Organiser in your Prep Book.

This screenshot shows the knowledge organiser from Step 1 with handwritten notes. The date '29th May 2020' is written at the top. The title 'Particle theory' is underlined. The 'What are the different changes of state?' section is filled with a table of phase changes.

Change of state	Energy change
Melting	gaining energy
Freezing	losing energy
Evaporation	gaining energy
Condensation	losing energy

## Step 3

Write out the keywords/definitions/facts from your Knowledge Organiser in FULL.

Handwritten notes on lined paper summarizing particle theory. The date '29th May 2020' is written at the top. The title 'Properties of the states of matter' is underlined. The notes define particle theory as 'all matter is made of particles' and describe the arrangements and movements of particles in solid, liquid, and gas states.

**Particle theory = all matter is made of particles**

**Solid = regular pattern**  
particles vibrate in fixed position

**Liquid = particles are arranged randomly but are still touching each other**  
Particles can slide past each other and move around.

**Gas = Particles are far apart and are arranged randomly. Particles carry a lot of energy**

## Step 4

Read the keywords/definitions/facts out loud to yourself again and again and write the keywords/definitions/facts at least 3 times.

Handwritten notes showing the definition of solid repeated three times: 'Solid = regular pattern particles vibrate in fixed position'.

## Step 5

Open your quizzable Knowledge Organiser. Write the missing words from your quizzable Knowledge organiser in your prep book.

This screenshot shows the quizzable knowledge organiser with handwritten answers. The date '29th May 2020' is written at the top. The title 'Self quizzing' is written. The 'What are the different changes of state?' section is filled with a table of phase changes.

Change of state	Energy change
Melting	gaining energy
Freezing	losing energy
Evaporation	gaining energy
Condensation	losing energy

## Step 6

Check your answers using your Knowledge Organiser. Repeat Steps 3 to 5 with any questions you got wrong until you are confident.

Handwritten notes showing the definition of solid with corrections. The date '29th May 2020' is written at the top. The title 'Particle theory = all matter is made of particles' is underlined. The notes define particle theory as 'all matter is made of particles' and describe the arrangements and movements of particles in solid, liquid, and gas states. Corrections are marked with checkmarks and 'X' marks.

**Particle theory = all matter is made of particles**

**Solid = regular pattern**  
particles vibrate in fixed position ✓

**Liquid = particles are arranged randomly but are still touching each other**  
Particles can slide past each other and move around ✓

**Gas = Particles are far apart and are arranged randomly. Particles carry a lot of energy** ✓

Make sure you bring in your completed Prep notes to demonstrate that you have completed your prep.

## KS4 MACBETH Foundation

### 1. Context

<p><b>Playwright:</b> Shakespeare (April 23<sup>rd</sup> 1564- April 23<sup>rd</sup>1616)</p> <p><b>Dates:</b> written around 1606</p> <p><b>Published:</b> in 'the First Folio, 1623</p> <p><b>Era:</b> Jacobean</p> <p><b>Genre:</b> Tragedy = <i>A play ending with the suffering and death of the main character.</i></p> <p><b>Set:</b> Scotland,</p> <p><b>Structure:</b> Five Act Play</p>	<p><b>Macbeth.</b> The plot is partly based on fact. Macbeth was a real 11<sup>th</sup> Century king who reigned Scotland from 1040-1057. Shakespeare's version of the story originates from the Chronicles of Holinshed (a well known historian). The play was most likely written in 1606 – the year after the Gunpowder Plot of 1605 – and reflects the insecurities of Jacobean politics.</p>
<p><b>The Divine Right of Kings</b> says that a monarch is not subject to earthly authority and that they have the right to rule directly from the will of God. It implies that only God can judge an unjust king and that any attempt to depose, dethrone or restrict his powers runs contrary to the will of God and may constitute a sacrilegious act. The action of killing a king is called regicide and is considered a terrible crime.</p>	<p><b>King James I of England (and VI of Scotland)</b> came to the throne in 1603 following the death of Queen Elizabeth I. The play pays homage to the king's Scottish lineage. The witches' prophecy that Banquo will found a line of kings is a clear nod to James' family's claim to have descended from the historical Banquo. James was convinced about the reality of witchcraft and its great danger to him leading to witch trials. The play is probably not written simply to please James, but certainly looks at relevant ideas.</p>
<p><b>Shakespearean Tragedy.</b> Macbeth is one of Shakespeare's tragedies and follows specific conventions. The climax must end in a tremendous catastrophe involving the death of the main character; the character's death is caused by their own flaw(s) (hamartia) yet the character has something the audience can identify with.</p>	<p><b>The Great Chain of Being</b> was a belief in a strict religious hierarchy (see key vocabulary) of all things which was believed to have been decreed by God. This idea was important in Elizabethan and Jacobean beliefs. The chain starts from God and progresses downward to angels, demons (fallen/renegead angels), stars, moon, kings, princes, nobles, commoners, wild animals, domesticated animals, trees, other plants, precious stones, precious metals, and other minerals.</p>

#### Conventions of a Shakespearean Tragedy

<p><b>A tragic hero</b> who falls from greatness through a flaw of their own character.</p>	<p><b>Hamartia</b> – the flaw in the tragic hero that destroys them.</p>	<p><b>A hero of status</b> – the central characters are people of importance, with power and status to lose.</p>
<p><b>External conflict</b> – his tragedies feature conflict between characters, and always lead to death.</p>	<p><b>Internal conflict</b> – there are frequent moments of self-doubt or internal torment.</p>	<p><b>Supernatural elements</b> – Many of Shakespeare's tragedies feature supernatural influences.</p>

### 2. Key Characters

<p><b>Macbeth:</b> The eponymous protagonist is the tragic hero of this play. He is both ambitious and ruthless. He falls from loyal and respected warrior to a paranoid, tyrannical king, before dying in battle in Act V.</p>
<p><b>Lady Macbeth:</b> A strong, ambitious and manipulative woman who exerts pressure on Macbeth to pursue his ambition of becoming king by murdering Duncan. Unable to deal with the guilt of these actions and is driven to madness and suicide.</p>
<p><b>The Witches / Weird Sisters:</b> Supernatural and manipulative beings who seem to be able to predict the future. They are unearthly and omniscient.</p>
<p><b>Banquo:</b> Macbeth's close friend and ally is astute and loyal. Macbeth sees him as a threat. He is virtuous, admired by audiences, and mistrustful of the supernatural witches.</p>
<p><b>Duncan:</b> King of Scotland at the beginning of the play. He is a virtuous, strong and respected leader, held up as the model of good kingship by others in the play. He is murdered by Macbeth in Act 2.</p>
<p><b>Macduff:</b> A soldier who is loyal to Duncan and is suspicious of Macbeth. His family is murdered by Macbeth's soldiers and he eventually exacts revenge by killing Macbeth. He was born by caesarian section and therefore was "not of woman born".</p>
<p><b>Malcolm:</b> Duncan's son and next in line to the throne. He is described as a good man in the play.</p>

### 3. Central Themes

<p><b>Ambition</b></p>	<p>The play is about the corrupting power of ambition. Both Lady Macbeth and Macbeth are urged to action by the prophecies of the witches, but they still commit their crimes themselves because they want greater power. Their ambition leads them to violence and death.</p>
<p><b>Kingship and Tyranny</b></p>	<p>The play contrasts the kind and wise rule of Duncan, who is described as a virtuous (good) king, with the brutal rule of Macbeth, who quickly becomes called a tyrant. The play shows how Macbeth has no divine right to rule and upsets the natural order by killing Duncan.</p>
<p><b>Order and Disorder</b></p>	<p>The play subverts the natural order of the world. Macbeth's actions are based on a supernatural belief in a prophecy. It depicts an anarchic world: Macbeth inverts the order of royal succession; his wife inverts the patriarchal hierarchy; the unnatural world disrupts the natural. The disruption underpins the conflict that is not only external and violent but internal as Macbeth and his wife come to terms with what they've done.</p>
<p><b>Appearance and Reality</b></p>	<p>Characters in the play are often not what they seem. Lady Macbeth and Macbeth are duplicitous towards Duncan, the witches equivocate (not say what they really mean) and cannot be trusted, Lady Macbeth seeks to manipulate Macbeth.</p>

### 4. Key Vocabulary

tyrant	cruel leader
duplicitous	deliberately dishonest
equivocation	a half truth
regicide	the act of killing a king
sceptical	someone who is unconvinced or doubtful
conflict	a serious disagreement or argument
valiant	great courage in the face of danger
ephemeral	lasting a very short time
transient	something that lasts for a short amount of time
androgyny	of indistinct gender
melancholy	deep sadness
emasculate	to deprive a man of his stereotypical role
catalyst	speeds up a reaction
sacrilege	destruction of something holy
motif	repeated image

### 5. Key Terminology, Symbols and Devices

<b>Motif</b>	A recurring image or idea that has symbolic importance. The best example in Macbeth would be blood.
<b>Soliloquy</b>	When a character is alone on stage and speaks their thoughts aloud to themselves.
<b>Iambic Pentameter</b>	A line of a play or poem that has ten syllables organised into five pairs of syllables, where the second in each pair is emphasised. e.g. "When you durst do it then you were a man"
<b>Foreshadowing</b>	When a hint or warning is given about a later event.
<b>Dramatic Irony</b>	When a character is unaware of something that the audience is aware of, so they don't know the full significance of their words.
<b>Symbolism</b>	When something symbolises a set of ideas e.g. "The raven himself is hoarse" – raven symbolic of death, supernatural.
<b>Aside</b>	When a character pauses in a conversation to speak only to the audience or another character, unheard by the rest.

## KS4 MACBETH Foundation

### 1. Context

<b>Playwright:</b>	Macbeth.	
<b>Dates:</b>		
<b>Published:</b>		
<b>Era:</b>		
<b>Genre:</b>		
<b>Set:</b>		
<b>Structure:</b>		
<b>The Divine Right of Kings</b>	King James I of England (and VI of Scotland)	
<b>Shakespearean Tragedy.</b>	The Great Chain of Being	
Conventions of a Shakespearean Tragedy		
A tragic hero.	Hamartia –	A hero of status –
External conflict –	Internal conflict	Supernatural elements –

### 2. Key Characters

Macbeth:
Lady Macbeth:
The Witches / Weird Sisters:
Banquo:
Duncan:
Macduff:
Malcolm:

### 3. Central Themes

Ambition	
Kingship and Tyranny	
Order and Disorder	
Appearance and Reality	

### 4. Key Vocabulary

tyrant

duplicitous

equivocation

regicide

sceptical

conflict

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melancholy

emasculate

catalyst

sacrilege

motif

### 5. Key Terminology, Symbols and Devices

Motif	
Soliloquy	
Iambic Pentameter	
Foreshadowing	
Dramatic Irony	
Symbolism	
Aside	



# Year 10 Term 1 Science / Physics P1 Energy

## Energy Stores

There are 8 energy stores:

Store	Stored in...
Kinetic	moving objects
Gravitational potential	objects raised above ground
Elastic potential	Stretched or compressed objects
Thermal	All objects due to particle movement
Chemical	Substances (foods, fuels) that can release energy in a chemical reaction
Nuclear	The nucleus of atoms
Magnetic	Magnets attracting or repelling
Electrostatic	Separation of charges

### Conservation of energy law:

Energy is **NEVER** created or destroyed

Energy is transferred by different pathways – by heating or when work is done

When energy is transferred, some is often transferred to the environment – this is wasted or dissipated energy

### Efficiency

Tells us how much of the energy is transferred usefully.

$$\text{Efficiency} = \frac{\text{Useful output energy transferred by the device}}{\text{Total input energy supplied to the device}}$$

$$\text{Efficiency} = \frac{\text{Useful power out}}{\text{Total power in}}$$

Wasted energy always ends up in the **thermal store** of the surroundings

## Calculating energy stores

The energy stored in a raised object can be calculated using:

$$\text{GPE} = \text{mass} \times \text{height} \times \text{gravitational field strength}$$

$$\text{GPE} = mgh$$

The energy stored in a moving object can be calculated using:

$$\text{KE} = \frac{1}{2} \text{mass} \times \text{velocity}^2$$

$$\text{KE} = \frac{1}{2} m v^2$$

Energy stored in a stretched or compressed object can be calculated using :

$$E = \frac{1}{2} \text{spring constant} \times \text{extension}^2$$

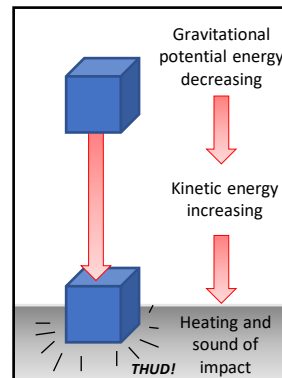
$$E = \frac{1}{2} k e^2$$

Transfers of energy:

E.g. An object above ground has GPE.

If that object falls:

1. Decreases its GPE store
2. Increases its KE store as it falls
3. Waste energy transferred to the environment by heating and sound



## Specific heat capacity

The amount of energy needed to change the temperature of 1Kg of a substance by 1°C

It is calculated by:

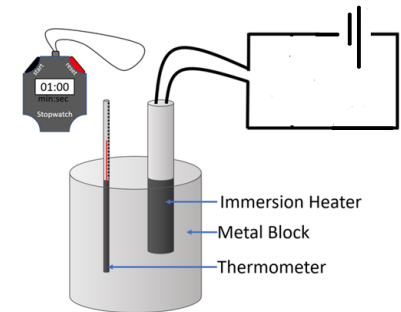
$$E = \text{specific heat capacity} \times \text{mass} \times \text{temp change}$$

$$E = \text{SHC} \times m \times \theta$$

### Units for SHC are J/Kg/°C

Different materials have different specific heat capacity values.

This can be investigated using the equipment below:



- Energy is supplied to the block by the immersion heater over a fixed time period (e.g 5 mins)
- The thermometer measures the temperature of the block at the start and the end of the experiment
- The stopwatch measures the time
- If the power of the heater is known (e.g 50W) the energy transferred to the block can be found using the equation:

$$\text{Energy (J)} = \text{Power (W)} \times \text{time (s)}$$

The specific heat capacity of different materials can be investigated by:

- changing the metal (**independent variable**)
- measuring the temperature increase (**dependent variable**)
- Keeping the energy supplied, mass and insulation the same (**control variables**)

**Insulating the block** reduces energy transferred to the thermal store of the environment, improving accuracy

### Energy Stores

Complete the table:

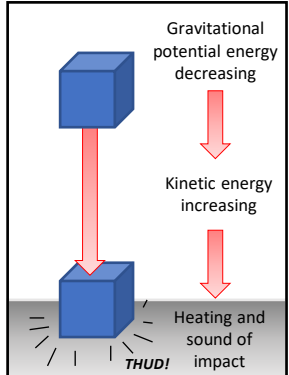
Store	Stored in...
kinetic	
	objects raised above ground
Elastic potential	
	All objects due to particle movement
Chemical	
	The nucleus of atoms
Magnetic	
	Separation of charges

1. What is the conservation of energy law?
2. In what two general ways is energy transferred?
3. What is wasted energy?

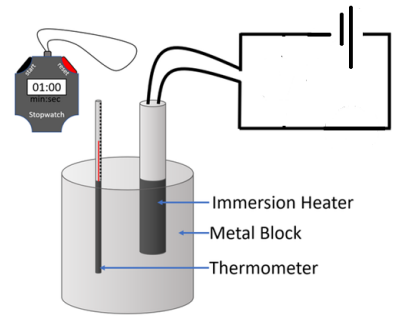
### Efficiency

1. What is the equation to calculate efficiency?
2. Where does wasted energy end up?

1. What is the equation linking gravitational field strength, GPE, height and mass?
2. What is the equation linking kinetic energy, mass and velocity?
3. What quantity is found in both equations?
4. What happens to the GPE store when a raised object falls?
5. What happens to the KE store of a raised object when it begins to fall?
6. By which two pathways is energy transferred to the environment when an object falls?



1. What is the specific heat capacity of a substance?
2. In the hypothesis 'different metals have different specific heat capacity values' what is the independent variable?



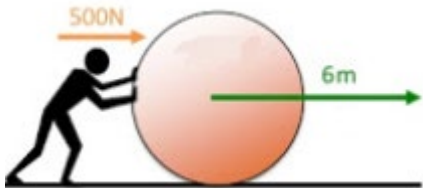
3. What does the immersion heater do?
4. What two readings are taken using the thermometer?
5. What is a sensible time period to use for transferring energy to the block?
6. What should be put round the block?

**Power and work done**

**Work done = energy transferred**

Energy transferred mechanically is calculated:

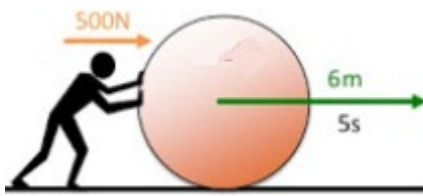
**Work done = force x distance**  
 $W (J) = F (N) \times s (m)$



**Work done = 500N x 6m**  
**= 3000 J**

**Power = energy transferred per second**  
**1 Watt = 1 Joule per second**

**Power = energy transferred ÷ time**  
 $P (W) = e (J) \div t (s)$



**Power = Energy ÷ time**  
**= 3000 J ÷ 5 s**  
**= 600W**

A more powerful appliance transfers more energy per second, eg:



**Reducing unwanted energy transfers**

Reducing wasted energy means lower costs

Materials that conduct heat well have a high **thermal conductivity**.

**WHERE DOES THE HEAT GO?**



**Reducing energy transfers in homes**

- Double glazing
- Thick walls
- Walls made of materials with low thermal conductivity
- Insulation – wall and loft

**Reducing energy transfers in appliances:**

- Lubrication – reduces friction



- Streamlining – reduces air resistance



**Energy resources**

We use energy resources for electricity generation, transport and heating

**Non-renewable** – ones that are being used faster than they can be replaced and will run out.

Example	+	-
Coal, oil, natural gas	Reliable method of generating electricity	Release CO <sub>2</sub> which contributes to global warming
nuclear	No CO <sub>2</sub> released	Produces radioactive nuclear waste

**Renewable resources:**

Ones that will not run out , they are being replenished as they are used

Example	+	-
Solar	No CO <sub>2</sub> released	Don't work at night or well on cloudy days
wind	No CO <sub>2</sub> released	Doesn't work if it isn't windy
Hydro	No CO <sub>2</sub> released	Damage to habitats
Geothermal	No CO <sub>2</sub> released	Only found in specific places
waves	No CO <sub>2</sub> released	Damage to habitats
Biofuel	Carbon neutral	Uses crop land to grow new forests



1. What are the units for work done?
2. What are the units for force?
3. What is the equation to calculate work done during mechanical work?
4. What is the equation to calculate power?
5. What is the unit for power?
6. What is the unit for time in the power equation?
7. What is 1 Watt equivalent to?
8. How would you recognise a more powerful lightbulb?
9. What is meant by a more powerful appliance?

1. Why is reducing unwanted energy transfers from the home important?
2. What is meant by 'high thermal conductivity'?

#### WHERE DOES THE HEAT GO?



3. Where is most of the heat lost through in a house?
4. Give two ways to reduce the heat lost through the walls of a house.

5. What does lubrication reduce?



6. What does streamlining reduce?



1. Give the three main uses for energy resources
2. What is a non-renewable energy resource?
3. Give 2 examples of non-renewable energy resources
4. Give two disadvantages of using coal and oil
5. Give one advantage to using nuclear resources to generate electricity.
6. What is a renewable energy resource?
7. Give 4 examples of renewable resources
8. Give 2 advantages of using renewable resources to generate electricity
9. Give two disadvantages of using renewable resources to generate electricity

# Year 10 Term 1 Science/Chemistry C2 – Bonding, structure, and the properties of matter

## Formation of Ions

- **Ions** = a charged particle made when atoms lose or gain electrons
- **Positive ion** = atom has lost electrons
- **Negative ion** = atom has gained electrons.

Metals form **positive ions**

Non-metals form **negative ions**

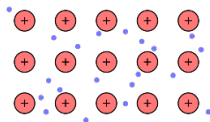
Group	Ions	Example
1	+1	$\text{Li} \rightarrow \text{Li}^+ + \text{e}^-$
2	+2	$\text{Ca} \rightarrow \text{Ca}^{2+} + 2\text{e}^-$
6	-2	$\text{O} + 2\text{e}^- \rightarrow \text{O}^{2-}$
7	-1	$\text{Br} + \text{e}^- \rightarrow \text{Br}^-$

Lost electrons

Gained electrons

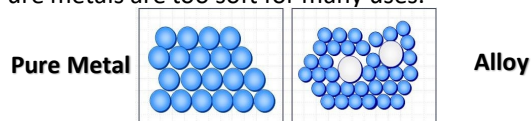
## Metallic Bonding

- Happens in **metals only**.
- Positive metal ions surrounded by **sea of delocalised electrons (can move)**.
- Ions tightly packed in rows.
- Strong **electrostatic forces of attraction** between positive ions and negative electrons.



## Alloys

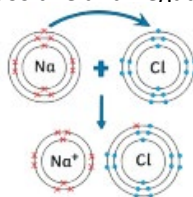
- **Alloys** = mixture of two or more metal atoms
- Pure metals are too soft for many uses.



- |                   |                         |
|-------------------|-------------------------|
| • Atoms same size | • Different sized atoms |
| • Layers slide    | • Layers cannot slide   |
| • Softer          | • Stronger              |

## Ionic Bonding

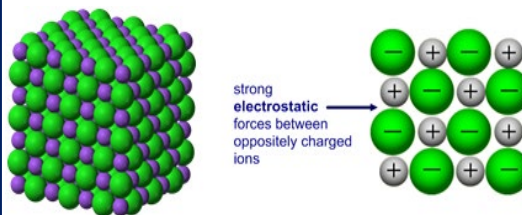
- Between a metal and non-metal.
- Metals give electrons to non-metals so both have a full outer shell.
- **Electrostatic force of attraction** between positive and negative ions.



E.g. Sodium loses one electron to become  $\text{Na}^+$ . Chlorine gains one electron to become  $\text{Cl}^-$ . The two ions attract to form sodium chloride.

## Ionic compounds

- Form **giant lattices, as the attraction between ions acts in all directions**



## Properties of Ionic Compounds

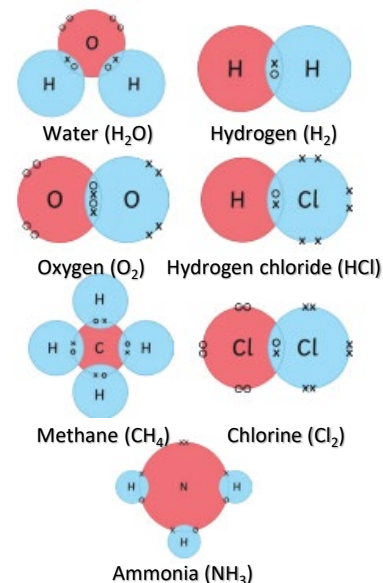
- **High melting point** – lots of energy needed to overcome electrostatic forces.
- **High boiling point**
- **Cannot conduct electricity as solid** – ions cannot move
- **Conducts electricity when molten or dissolved** – ions are free to move.

## Covalent Bonding

- **Covalent bonding** = sharing a pair or pairs of electrons for a full outer shell.
- Between **non-metals only**.

## Dot and cross diagrams

- Show the bonding in simple molecules.
- Uses the outer shell of the atoms
- Crosses and dots used to show electrons
- You should be able to draw the following:



## Simple Covalent Molecules

- Form when all atoms have full outer shells so bonding stops
- Examples are the molecules shown above.
- Have **low melting and boiling points**
- Due to **weak intermolecular forces**
- Do not conduct electricity

## Year 10 Term 1 Science/Chemistry C2 – Bonding, structure, and the properties of matter

1. What is an ion?
2. What happens to form a positive ion?
3. What happens to form a negative ion?
4. What type of ions are formed by:
  1. metals
  2. non-metals

1. What are metal ions surrounded by?
2. Name the type of attraction between the electrons and ions.
3. Why do metals conduct electricity?
4. What is an alloy?
5. Why are pure metals too soft for some uses?
6. Why are alloys stronger than pure metals?

1. Ionic bonding happens between..
2. What do metals give to non-metals?
3. What type of attraction is between the positive and negative ions?
4. What structure do ionic compounds form?
5. What are the melting points of ionic compounds like?
6. Why can solid ionic compounds **not** conduct electricity?
7. When can ionic compounds conduct electricity?

1. What is covalent bonding?
2. What type of atoms does covalent bonding happen between?
3. Draw dot and cross diagrams for the following:

Water (H<sub>2</sub>O)

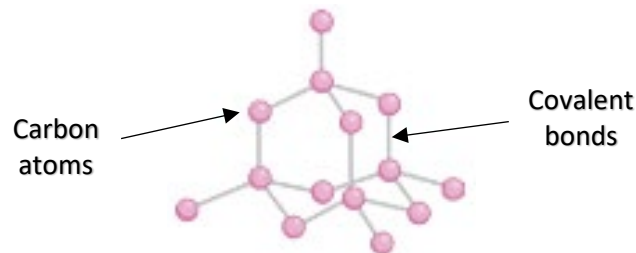
Methane (CH<sub>4</sub>)

Oxygen (O<sub>2</sub>)
5. Do simple covalent molecules have a high/low melting point?
6. Why is this?

# Year 10 Term 1 Science/Chemistry C2 – Bonding, structure, and the properties of matter

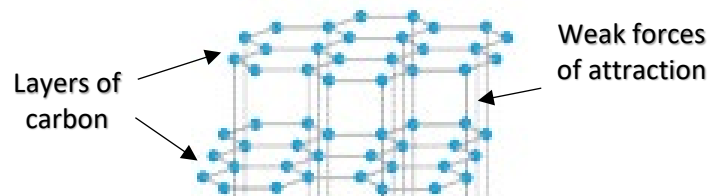
## Giant Covalent Structure – Diamond

- Each carbon atom **covalently** bonded to **four** others.
- Forms a giant structure
- This makes diamond **strong** → a lot of **energy** needed to break lots of strong covalent bonds.
- **Does not conduct electricity** – has no free electrons.



## Giant Covalent Structure – Graphite

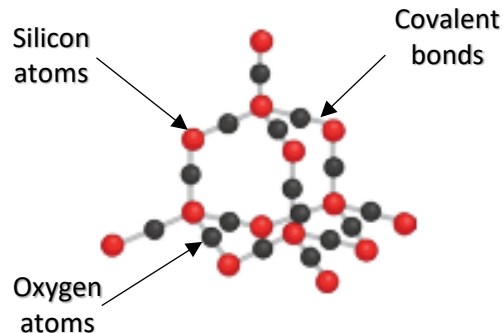
- Layers of **carbon** arranged in **hexagons**.
- Each carbon bonded to **three** other carbons.
- Leaves **one delocalised electron** → moves to carry electrical charge **throughout structure**.



- Layers held together by **weak forces**
- Layers can **slide** over each other easily
- Makes graphite **soft/slippery** → good lubricant.
- Has **high melting point** as has many strong covalent bonds.

## Silicon Dioxide

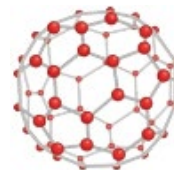
- Similar structure to diamond
- Giant covalent structure.
- Lots of **strong covalent bonds**.
- These require lots of **energy** to break.
- High melting and boiling points.



## Fullerenes and Nanotubes

- Molecules of carbon shaped into hollow tubes or balls.
- Used to **deliver drugs into body**

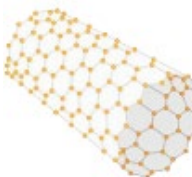
Buckminsterfullerene  
Formula =  $C_{60}$



- **Carbon nanotubes** = long narrow tubes
- Can conduct electricity

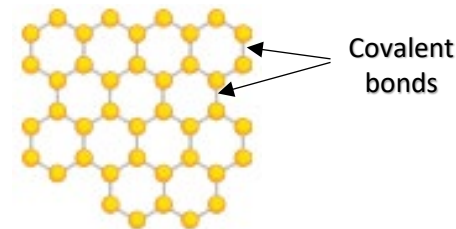
- Can strengthen materials without adding weight.

- Used in electronics and nanotechnology.



## Graphene

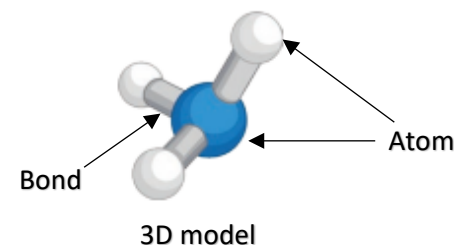
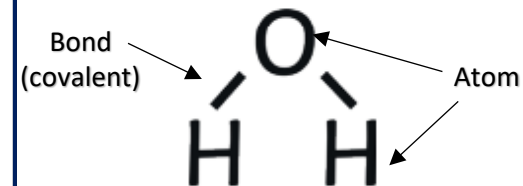
- Graphene = one layer of graphite.
- Very strong → lots of strong covalent bonds.



- Each carbon bonded to three others.
- One **free delocalised electron** → can move to **carry electrical current** throughout the structure.

## Molecular models

- There are different ways to show a molecule other than dot and cross diagrams.



## Year 10 Term 1 Science/Chemistry C2 – Bonding, structure, and the properties of matter

1. How many bonds do each carbon atom have in diamond?
2. What type of bonds are in diamond?
3. Why is diamond hard?
4. Why does diamond not conduct electricity?

1. What structure does silicon dioxide have?
2. Why does this structure have a high melting and boiling point?

1. What is graphene?
2. State a property of graphene.
3. How many bonds does each carbon have?
4. What does this allow graphene to do?

1. What element is graphite made from?
2. How many bonds does each carbon have?
3. Why can graphite conduct electricity?
4. What holds together the layers of graphite?
5. Why is graphite soft/slippery?
6. Does graphite have a high/low melting point?
7. Why?

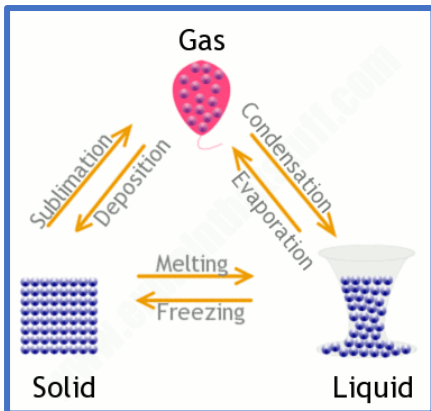
1. What can fullerenes be used for?
2. What is the formula of buckminsterfullerene?
3. State two uses of carbon nanotubes.

1. What are three ways that H<sub>2</sub>O could be drawn?

# Year 10 Term 1 Science/Chemistry C2 – Bonding, structure, and the properties of matter

## States of Matter

- Three states of matter: **solid, liquid & gas.**
- To change state, **energy** must be **transferred.**



- When heated, particles **gain energy.**
- **Attractive forces** between particles begin breaking when melting or boiling points are reached
- **Amount of energy** needed to change state depends on how strong forces are.

## Gas

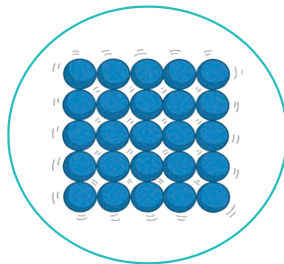
- Randomly arranged.
- Particles **move quickly** – all directions.
- Highest **amount of kinetic energy.**



- Gases **are able to flow** – fill containers
- **Can be compressed** as there is **space between particles**

## Solid

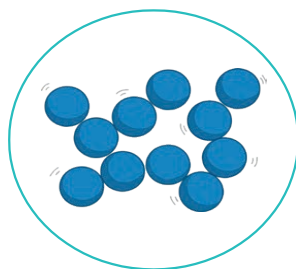
- **Regular** pattern (rows and columns)
- Particles **vibrate** in a **fixed position.**
- Particles have **low amount of kinetic energy.**



- Have a **fixed shape** – cannot flow because of strong forces of attraction between particles
- **Cannot be compressed** – particles close together.

## Liquid

- Particles **randomly** arranged and touching.
- Particles can **move around.**
- **Greater amount of kinetic energy** than solid



- Liquids **able to flow** – take shape of containers.
- **Cannot be compressed** – particles are close together and cannot be pushed closer

## State symbols

- States of matter shown in chemical equations:
- Solid (**s**)
- Liquid (**l**)
- Gas (**g**)
- Aqueous (**aq**)
- **Aqueous solutions** = substance dissolved in water.

## Identifying Physical State of Substances

- If the temperature is **lower** than a substance's melting point – substance is **solid.**
- If the temperature is **between** the melting point and boiling point – substance is **liquid.**
- If the temperature is **higher** than the boiling point – substance is a **gas.**

## Limitations of Particle Model (HT)

- No chemical bonds are shown.
- Particles shown as solid spheres – not the case, particles are mostly empty space like atoms.
- The diagrams don't show any of the forces between particles
- The diagrams are unable to show the movement of the particles.



## Year 10 Term 1 Science/Chemistry C2 – Bonding, structure, and the properties of matter

1. What are the three states of matter?
2. What happens to particles when they are heated?
3. What happens to attractive forces when particles are heated?
4. What does the amount of energy needed to change state depend on?

1. How are gas particles arranged?
2. How do gas particles move?
3. Do particles in a gas have more or less kinetic energy than those in solids and liquids?
4. Can gases be compressed? Why?

1. How are solid particles arranged?
2. Do solid particles move?
3. Do particles in a solid have a high or low amount of kinetic energy?
4. Can solid particles flow?
5. Can solids be compressed?

1. How are liquid particles arranged?
2. Do particles in a liquid move?
3. Do the particles in a liquid have more or less kinetic energy than solids?
4. Can liquid particles flow?
5. Can liquids be compressed?

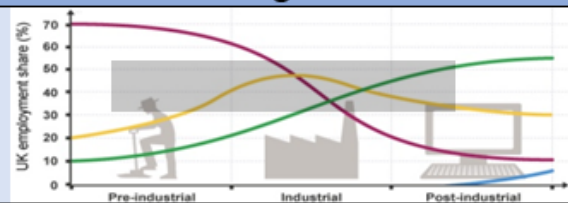
1. Where are state symbols used?
2. Write the symbols for solid, liquid, gas and aqueous.
3. What does aqueous mean?

1. If the temperature is lower than melting point, the substance is..
2. If the temperature is between melting and boiling point, the substance is..
3. When would a substance be gas?

1. State two limitations of the particle model.



### 1. Economic change in the UK



Primary	↘ due to mechanisation.
Secondary	↗ due to industrial revolution then ↘ due to de-industrialisation.
Tertiary	↗ due to wealth (↗ disposable income)
Quaternary	High-tech jobs including research and IT. ↗ due to government policies and the increase in technology.

#### Why has our economy changed?

De-industrialisation	The decline of a country's traditional manufacturing industry due to exhaustion of raw materials, loss of markets and competition from NEEs.
Government policies	A plan decided by a government to manage issues in a country.
Globalisation	The process which has created a more connected world; with increases in the movement of goods/people worldwide

### 2. Post industrial economy

Tertiary and quaternary sector employed 81% in 2011.	
IT	Employs over 60,000 people.
Services	Retail is the largest sector. Employs 4.4mill
Finance	London is the world's leading centre. HSBC
Research	Government invested £30bill in 2013.
Science parks	Groups of <u>high tech</u> industries and those doing scientific research. Located near universities (for graduates, share facilities).
Business parks	Purpose built areas of offices and warehouses (on edge of cities as less congestion, cheaper, good transport links).

### 3. Environmental impact of industry

Air and water pollution. Soil degradation.	
Releases CO <sub>2</sub> increasing the rate of global warming.	
Transport of materials is by road ↗ air pollution.	
<b>Example of modern industry being environmentally sustainable</b>	
Google	London Landscaper started 2018.
686 bikes spaces	Encourages cycling to work.
4 car spaces	< congestion/CO <sub>2</sub> emissions.
Solar panels.	Reduces fossil fuel consumption and reduces carbon footprint.
19,800 kWh	
Rooftop gardens	Urban greening. < CO <sub>2</sub> . Collects rainwater. Encourages wildlife.

### 4. Changes in the rural landscape

Population decline	Outer Hebrides (away from cities, limited opportunities).
Social changes	<ul style="list-style-type: none"> <li>⚡ Declined by &gt;50% since 1901.</li> <li>⚡ ↑ aging population = care issues.</li> <li>⚡ Less children &gt; schools shut.</li> </ul>
Economic changes	<ul style="list-style-type: none"> <li>⚡ Services close ie post offices.</li> <li>⚡ ↑ tourists but infrastructure not there.</li> <li>⚡ Government subsidies cost of ferries.</li> </ul>
Population growth	South Cambridgeshire (near large cities, people can commute).
Social changes	<ul style="list-style-type: none"> <li>⚡ Migrants from Cambridge, some now from Eastern Europe too.</li> <li>⚡ Proportion of elderly increasing (&gt;65).</li> <li>⚡ 80% car ownership = &gt; congestion.</li> <li>⚡ Young people are costed out.</li> </ul>
Economic changes	<ul style="list-style-type: none"> <li>⚡ ↑ house prices. Less affordable housing</li> <li>⚡ Petrol prices ↑.</li> </ul>

### 5. Improvements in infrastructure

Road	Upgrading 'Smart motorways' M4. Variable speeds, reducing accidents, extra lanes. 2014 Road investment strategy £15 bill. New construction jobs, boost economy.
Rail	Crossrail in London. Puts extra 1.5 million within 45 mins commute of capital city. HS2 to reduce journey times. London to Manchester in 1 hr 8 minutes.
Port	Liverpool 2. Doubles capacity to over 1.5 million containers a year. 96% of UK imports/exports through ports.
Airports	Heathrow expansion. 3 <sup>rd</sup> runway £18.6bill

### 6.. North-South divide

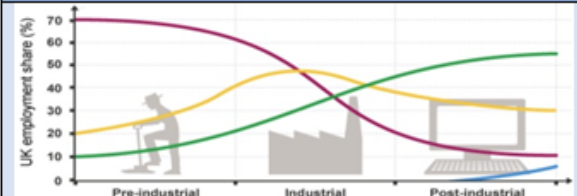
Causes	Decline of heavy industry in North (coal) Investment in finance and service industry in the South Investment in infrastructure in South
Impacts in north	Higher unemployment / lower wages (40%) Poor health, lower life expectancy (10 yrs) Poor education. There are SOME exceptions

#### Strategies attempting to resolve regional differences

Devolving more powers	Give more power to local councils and Welsh and Scottish governments. Plan best how to use their money.
Northern Powerhouse	A plan to attract investment to north. Improve transport links to northern cities. e.g. HS2, Liverpool2. BUT just a CONCEPT not a plan.
Enterprise Zones	55 EZs to encourage businesses to set up in areas of high unemployment. Reduce taxes, simple planning rules, superfast broadband to the area. Created more than 15,000 jobs.



### 1. Economic change in the UK



Primary	
Secondary	
Tertiary	
Quaternary	

#### Why has our economy changed?

De-industrialisation	
Government policies	
Globalisation	

### 2. Post industrial economy

Tertiary and quaternary sector employed 81% in 2011.	
IT	
Services	
Finance	
Research	
Science parks	
Business parks	

### 3. Environmental impact of industry


#### Example of modern industry being environmentally sustainable

Google	
686 bikes spaces	
4 car spaces	
Solar panels.	
19,800 kWh	
Rooftop gardens	

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Population decline	
Social changes	
Economic changes	
Population growth	
Social changes	
Economic changes	

### 5. Improvements in infrastructure

Road	
Rail	
Port	
Airports	

### 6.. North-South divide

Causes	
Impacts in north	

#### Strategies attempting to resolve regional differences

Devolving more powers	
Northern Powerhouse	
Enterprise Zones	



### 3. The Spanish Empire 1528-1555

#### Pizarro – First Expedition

Pizarro was with Balboa when they reached the Pacific. Pizarro was impressed by Cortes and his success in Mexico. Tales of vast wealth in Peru encouraged Pizarro to find his own success.

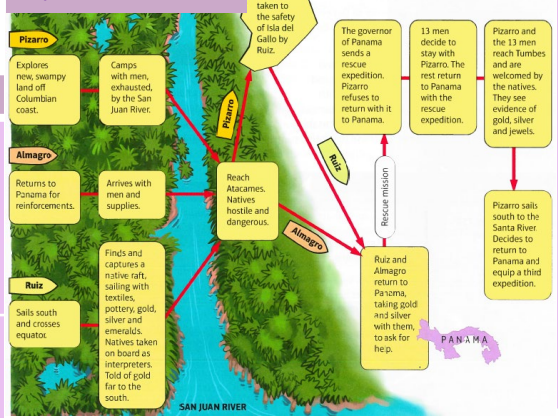
#### November 1524 – First expedition

Not a success. Only reached Columbia before bad weather, lack of food and attacks by hostile natives forced Pizarro to turn back. The mangrove swamps put off any idea of establishing a settlement too.

#### Impact of Gold and Silver on Spain

- Used to make 8 sided coins – ‘pieces of eight’. Widely accepted in Europe due to high silver content.
- The Crown took 25% of bullion coming into Spain .
- 75% of wealth went to Spanish merchants and conquistadors.
- European traders put up prices for the wealthy Spanish merchants.
- High prices led to inflation – workers demanded higher wages in Spain.
- Charles I invested money in the military – not industry and business.
- Spanish were getting wealthy by finding bullion instead of making products and selling.

#### Pizarro's Second Expedition



#### Pizarro's appeal to the Spanish King Charles I

In 1528 Pizarro returned to Spain with evidence of Inca wealth, including Llamas, silver and gold. Having been refused permission to launch a third expedition by the governor of Panama, he appealed to Charles I. Pizarro received a licence, the *Capitulacion de Toledo*, in July 1529, authorising him to conquer Peru.

#### Governing the Empire

The Spanish needed to find a way to govern the discovered territories to restore peace and stability. They needed to make sure basic essentials were available, laws were in place, conquistadors didn't fight among themselves and ensure daily life was managed effectively.

**Bartolome de las Casas** – was a priest that tried to encourage the fair treatment of natives in the New World. 1527 he wrote a book 'A Short Account of the Destruction of the Indies'.

#### The New Laws:

- It was made illegal to enslave natives.
- The amount of tribute that could be collected was limited.
- Encomiendas had to be passed back to the Spanish government on the death of the encomendero.

#### The role of the Viceroy:

The Council of the Indies appointed two viceroys to govern Spanish territories: one in Mexico city and one in Lima (Peru). They acted on behalf of the government. Justice was managed through the audiencias (courts), with judges who were independent of the viceroys.

#### The role of the **encomienda system**:

This was imposed officially across the Spanish Empire. An encomienda was land granted to a Spaniard, who was then called an encomendero. He could demand tribute from natives. In return he was responsible for their protection and their conversion to Christianity.

#### Significance of the New Laws 1542:

Laws introduced to improve the rights of native people, but encomenderos opposed them and the viceroy of Peru refused to implement them. Revolts in Peru: the most serious in 1544 had to be put down by the Spanish government and led to a temporary halt in the Spanish conquest of the New World in 1550. Although forced to suspend the laws, Charles I insisted encomiendas be passed back to the crown on the death of an encomendero. Natives continued to be exploited in the New World.

Date	Event
Dec 1518	Smallpox epidemic in Haiti.
Sept 1520	First cases of smallpox in Mexico
1525-1527	Smallpox spreads along the Caribbean coast.
1527	Smallpox reaches Peru. Huayna Capac dies from smallpox after returning to help his people.
1529	Civil War breaks out between Huascar and Atahualpa (Huayna Capac's son).
April 1532	Huascar is captured and killed. Atahualpa takes over Cuzco.
Nov 1532	The Battle of Cajamarca – Pizarro's men hid in the town square of Cajamarca. When Atahualpa's men entered the town they met with a priest who showed them a bible. Atahualpa threw the bible on the floor which was the signal needed for Pizarro's men to attack and they took Atahualpa prisoner.
July 1533	Atahualpa promised to fill his prison with treasure in order to secure his release. Although he did this, the Spanish still sentenced him to death. On 26 <sup>th</sup> July he was garrotted.
1533	Manco made puppet ruler of the Inca Empire.

#### Pizarro and the Conquest of the Inca Empire

#### Revolt of the Incas 1536

The Spanish saw Manco as a puppet king who would rule on their behalf. When Manco escaped from the Spanish he assembled an army and attacked the base at Cuzco.

#### The Siege of Cuzco 1536-1537

-10,000 Inca warriors faced 150 Spanish and 1000 native allies.  
 -The Inca warriors broke into town, burning buildings to try to drive out the Spanish, but the Spanish were able to put the fires out.  
 -The Spanish used their cavalry to attack the Inca warriors.  
 -The Spanish captured the fortress of Sacsahuaman from the Incas, which the Inca army then besieged.  
 -The siege ended when Spanish forces exploring Chile returned.  
 -Manco withdrew and established a separate kingdom which lasted until 1572.

#### Founding of La Paz, 1548

La Paz was founded to symbolise the end of the revolt and to demonstrate that Spain had the overall authority in the New World, not the conquistadors. It became the administrative centre of the Spanish Empire. The Viceroy and the audiencias (courts) were based here. It was founded close to trade routes to ensure it maintained control over the silver mines based in Potosi and Oruro.

#### Discovery of silver in Bolivia and Mexico

By 1550 silver had been discovered in Potosi (Bolivia) and in Guanajuato and Zacatecas (Mexico). Some was sent back to Spain but most was kept by the conquistadors. Large mining towns developed to house workers for the mines. Colonisation of the New World increased as adventurers, merchants, speculators and their employees came in search of wealth. 25% of silver shipped to Spain went straight into the treasury.

#### Conquistador Revolt in Peru 1544

A serious revolt took place as the encomenderos were unhappy with the New Laws. This revolt was led by Gonzalo Pizarro, brother of Francisco Pizarro. It was a success and Gonzalo ruled over the Inca territory for 2 years. The arrival of a Spanish army resulted in his execution and the restoration of Spanish authority. The revolt raised the issue of control. Spain needed to govern its territories and control the rebellious conquistadors and encomenderos. This led to the founding of La Paz in 1548.

#### Pirates and Privateers

Spanish treasure was a target for Pirates and Privateers (funded by government/monarchy).



The ships were easy to find as they took well-defined and predictable routes across the Atlantic.

War with France (1542-46) meant Spain had to adapt ships and develop systems to deal with French privateers.

Galleons patrolled the sea routes and started carrying treasure as they were well armed.

Treasure fleet system developed: the **Tierra Firme** (went to S. America) and the **New Spain** (went to Mexico).

#### Growth of Seville

All goods imported to Europe had to go through Seville. Merchants travelled from all over Europe to buy and sell goods. This gave Spain a monopoly over trade with the New World.

#### The Slave Trade

Due to the number of deaths of natives in the New World, there was a labour shortage. Under the Treaty of Tordesillas, Spain could not directly get slaves from W. Africa. Spanish merchants could get licences (asientos) to supply slaves to the New World. Licences sold to the highest bidder who could then buy from Portuguese merchants and sell to merchants in the New World.

#### Casa de Contratacion (House of Trade)

Established in 1503 by Isabella. Collected colonial taxes. Approved voyages of exploration and trade and kept secret information on new lands and trade routes. Licenced captains of ships. In theory, no Spaniard could sail anywhere without the approval of the Casa.

#### Council of the Indies

Formed in 1524 and based in Spain. Controlled all matters concerning the New World. Messages received from Viceroys would be discussed and advice given to the King. Decisions made were sent from the Council to the Viceroys. This was Spain's way of trying to maintain control over its empire in the New World.



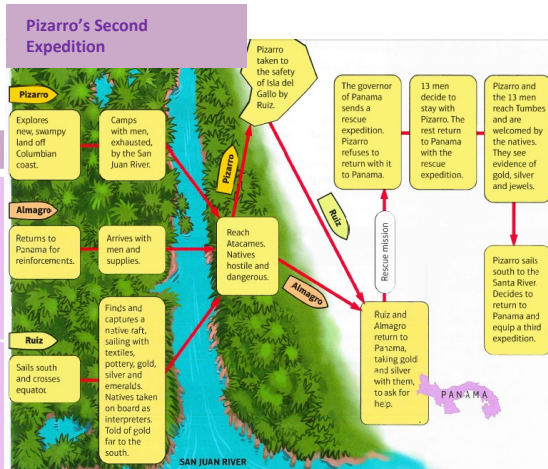


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#### The role of the Viceroy:

#### The role of the **encomienda system**:

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A.	Can you define these key words?
Key word	Key definition
Forgiveness	Pardoning someone for wrongdoing
Holy War	A war that is fought for religious reasons, usually backed by a religious leader
Just War	A Christian theory that asks whether a war is fought justly
Justice	Bringing about what is right and fair, according to the law or God's will or moral values
Pacifism	A belief that all forms of violence are wrong, commonly held by Quakers
Conflict	A serious disagreement
Jihad	The struggle to defend against that which threatens Islam/ the internal struggle to defend against temptation that might lead you away from God
Protest	A public expression of disapproval, often in a big group, can be peaceful or violent
Reconciliation	Restoring a relationship after conflict
Retaliation	Deliberately harming someone as a response to them harming you
Self-Defence	Protecting yourself or others from harm
Terrorism	Using violence in order to further a political or religious message and to achieve an aim

**What we are exploring this term:** Pacifism . Protest. Terrorism. Weapons of mass destruction Just war

C	Is violent protest or terrorism acceptable?	
	<ol style="list-style-type: none"> <li>1. A small minority of Christians may say yes if it truly brings an end to suffering- love thy neighbour and 'free the oppressed'</li> <li>2. A small minority of Muslims may agree due to the duty of jihad to defend the faith against true oppression.</li> <li>3. A humanist may agree in a rare occasion if it truly had the best consequences for humanity as a whole</li> <li>4. Hindus may point to their warrior class to justify a god given right to fight if needed</li> </ol>	<ol style="list-style-type: none"> <li>1. Most Christians consider terrorist acts of violence to be wrong, as Jesus did not accept violence. He said 'put your sword pack in its place' when his disciple tried to protest against his arrest.</li> <li>2. Muslims do not agree with terrorism because terrorist acts of violence are considered to be wrong and against the wishes of God, especially as the victims are usually innocent people. There is no justification for terrorist acts in the teachings of Islam- Qur'an says that innocents much not be harmed.</li> <li>3. Humanists might say that it does not help human wellbeing as it created disorder and fear. As such the consequences are rationally seen to be not worth it.</li> <li>4. Hindus might argue that all violence is wrong (Ahimsa) as it causes bad karma and keeps us in the cycle of samsara</li> </ol>

E	Is pacifism wrong? Yes	No
	<ol style="list-style-type: none"> <li>1. The Muslim duty of Jihad suggests pacifism can be wrong</li> <li>2. Christians are called to 'free the oppressed' and 'protect the weak and needy</li> <li>3. Humanists may argue that pacifism is not reasonable or realistic in a world of violence and may not help humanity protect each other</li> </ol>	<ol style="list-style-type: none"> <li>1. It works- see Ghandi and Martin Luther King</li> <li>2. Christians believe 'blessed are the peacemakers'</li> <li>3. Muslims believe that greater Jihad is the struggle to defend the faith against the internal struggle to fall from the right path</li> <li>4. Innocent people should not be harmed in all religions and pacifism is the only way to truly ensure this</li> </ol>

D	What are the rules of the just war theory?	Can just war theory make war fair?	
	<ol style="list-style-type: none"> <li>1. There must be a just cause such as to defend</li> <li>2. Intentions must be to do good and overcome evil</li> <li>3. War must be started by legitimate authority</li> <li>4. Innocents must not be harmed</li> <li>5. Force and damage must be proportionate to the good done by the war</li> <li>6. War must be the last resort</li> <li>7. There must be a reasonable chance of success</li> </ol>	<ol style="list-style-type: none"> <li>1. Yes as it protects innocents</li> <li>2. Yes as it allows us the right to self defence</li> <li>3. Yes as it has to be the last resort so it is really is the only option left</li> <li>4. It will mean the war is for a good/fair reason and not pointless greed</li> <li>5. It means nuclear weapons can't be used</li> </ol>	<ol style="list-style-type: none"> <li>1. No as innocents will always be harmed in war</li> <li>2. A 'legitimate' authority could still be corrupt</li> <li>3. You never know the harm of war until many years later so you can't calculate whether it is proportionate</li> <li>4. You cannot know whether it will be successful until you have fought it</li> <li>5. For success someone will have to use a greater force so the 'proportionate ' rule will never be followed</li> </ol>

B.	Religious and non religious beliefs about weapons of mass destruction	
1	It is wrong to damage the environment which is God's perfect creation. It would be a form of blasphemy to destroy God's Sacred work.	
2	They hurt many innocent people and this is against all religious teachings. Lif e is a sacred God given gift and only God has the right to take life.	
3	For humanists, if their use means we can end more human suffering than the weapons cause, then there might be a possible circumstance in which they could be deemed acceptable.	





A.	Can you define these key words?
Key word	Key definition
Forgiveness	
Greed	
Holy War	
Just War	
Justice	
Pacifism	
Conflict	
Jihad	
Protest	
Reconciliation	
Retaliation	
Self-Defence	
Terrorism	

**What we are exploring this term:** Pacifism . Protest. Terrorism. Weapons of mass destruction Just war

C	Is violent protest or terrorism acceptable?	
	1.	1.
	2.	2.
	3.	3.
	4.	4.

E	Is pacifism wrong? Yes	No
	1.	1.
	2.	2.
	3.	3.
		4.

D	What are the rules of the just war theory?	Can just war theory make war fair?	
	1. 2. 3. 4. 5. 6. 7.	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.

B.	Religious and non religious beliefs about weapons of mass destruction
1	
2	
3	



Year 11 RE Christianity Quotes: Peace and Conflict	
"Obey the authorities, for God is the one who put it there. All governments have been placed in power by God." Romans 13:1	Jesus said he was sent to 'free the oppressed' <b>Old Testament</b> 'let justice roll down like the waters, and righteousness like an ever-flowing stream.'
Genesis 9:5-6 From his fellow man I will require a reckoning for the life of man. "Whoever sheds the blood of man, by man shall his blood be shed, for God made man in his own image."	But I tell you, do not resist an evil person. If anyone slaps you on the right cheek, turn to them the other cheek also.
Beat your swords into ploughshares, and their spears into pruning hooks: nation shall not lift up sword against nation,	Old testament : 'When thou goest out to battle against thine enemies, be not afraid of them: for the LORD thy God is with thee'

Christianity Quotes For religion, peace and conflict	
'And the soldiers likewise demanded of him, saying, And what shall we do? And Jesus said unto them, "Put your sword back into its place; for all those who live by the sword, die by the sword."	Thou shalt not kill.
Luke 6:27 "But I say to you who hear, Love your enemies, do good to those who hate you,	New testament <b>Blessed are the peacemakers: for they shall be called the children of God.</b>
The catholic church and Church of England accept war under the conditions of just war theory.	Many weapons destroy the environment eg nuclear weapons. The quote below can be applied to this issue; <b>'You shall not defile the land</b> in which you live, in the midst of which I dwell'
Jesus violently protested when 'he made a whip out of cords, and drove all from the temple courts, he scattered the coins of the money changers and overturned their tables '	The Lord will fight for you; you have only to be still.'
'protect the weak and needy'	Peace alone, not war, is holy (said by Pope Francis in the 2000s)

Year 11 RE Christianity Quotes: Peace and Conflict	
"..... the authorities, for God is the one who put it there. ....have been....."	Jesus said he was sent to '..... the oppressed' <b>Old Testament</b> 'let .....roll down like....., and righteousness like an ever-flowing stream.'
Genesis 9:5-6 From his fellow man I will require a reckoning for the life of man. "Whoever sheds the blood of man, ....., for God made man....."	But I tell you, do not ..... on the right cheek, turn to them the other cheek also.
Beat your ..... into ....., and their spears into pruning hooks: nation shall not .....against .....,	Old testament 'When thou goest out to battle against thine enemies, be not afraid of them: for .....'

Christianity Quotes For religion, peace and conflict	
'And the soldiers likewise demanded of him, saying, And what shall we do? And Jesus said unto them, "Put your sword.....; for those who .....by the sword, ..... by the sword	Thou .....kill.
Luke 6:27 "But I say to you who hear, Love your enemies, do good to those who hate you,	New testament ..... are the peacemakers: for they shall be called the .....of God.
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Year 11 RE Christianity Quotes: Peace and Conflict	
<p>"..... <b>the authorities</b>, for God is the one who put it there. ....<b>have been</b>....."</p> <p>Romans 13:1</p>	<p>Jesus said he was sent to '<b>..... the oppressed</b>'</p> <p><b>Old Testament</b></p> <p>'let .....<b>roll down like</b>....., and <b>righteousness like an ever-flowing stream.</b>'</p>
<p>Genesis 9:5-6</p> <p>From his fellow man I will require a reckoning for the life of man. "<b>Whoever sheds the blood of man, ....., for God made man.....</b>"</p>	<p>But I tell you, do not ..... on the right cheek, turn to them the other cheek also.</p>
<p><b>Beat your ..... into</b> ....., and their spears into pruning hooks: <b>nation shall not .....against</b> .....,</p>	<p>Old testament</p> <p><b>'When thou goest out to battle</b> against thine enemies, be not afraid of them: for .....</p>

Christianity Quotes For religion, peace and conflict	
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<p><b>'protect the .....and needy'</b></p>	<p>..... <b>alone, not war, is holy</b> (said by Pope Francis in the 2000s)</p>

## Year 11 RE Christianity Quotes: Peace and Conflict

"..... **the authorities**, for God is the one who put it there. ....**have been**....."

Romans 13:1

Jesus said he was sent to '..... **the oppressed**'

Old Testament

'let .....**roll down like**....., and **righteousness like an ever-flowing stream.**'

Genesis 9:5-6  
From his fellow man I will require a reckoning for the life of man. "**Whoever sheds the blood of man, ....., for God made man**....."

But I tell you, do not .....  
..... on the right cheek, turn to them the other cheek also.

**Beat your** .....  
**into** ....., and their spears into pruning hooks: **nation shall not** .....  
.....**against** .....,

Old testament  
**'When thou goest out to battle** against thine enemies, be not afraid of them: for .....'

## Christianity Quotes For religion, peace and conflict

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**‘protect the .....and needy’**

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**What we are learning this term:**

A. Learning about Spanish life and routines  
 B. Learning about local customs  
 C. Talking about a Spanish festival  
 D. Learning about Latin American culture  
 E. Skim reading for key information  
 F. Using past expressions of time

**4.1F Algunas costumbres regionales**

la actuación	performance
agradable	pleasant
el ambiente	atmosphere
antiguo/a	old
la batalla	battle
el caballo	horse
la camisa	shirt
el concurso	competition
conmemorar	to commemorate
correr	to run
la costumbre	custom
demasiado	too much, too many
el desfile	parade, procession
el diablo	devil
divertirse	to enjoy oneself
emocionante	exciting
el encierro	bull run
encontrar	to find
enorme	enormous
entender	to understand
entrenarse	to train
el espectáculo	show, display
extraño/a	strange
fatal	awful
formar	to form
histórico	historic
humano	human
impresionante	impressive
incómodo/a	uncomfortable
llevar	to wear, take, carry
el Mediterráneo	Mediterranean
el/la moro/a	Moor (historically a person from North Africa)
nadie	no one
natural	natural
el origen	origin
pasarlo bien	to have a good time
el peligro	danger
peligroso/a	dangerous
por encima de	over
precioso/a	beautiful
el producto	product
saltar	to jump
la seguridad	safety, security
la suerte	luck
el toro	bull
la torre	tower
el traje	suit, costume
único/a	only, unique
varios/as	several
vestirse (de)	to dress (in)

**6 Key Words for this term**

1. divertirse	4. el desfile
2. hispánico	5. celebrarse
3. el turismo	6. los antepasados

**4.1G La vida en familia**

a media mañana	at mid-morning
acostarse	to go to bed
el bollo	bun
la cena	evening meal
coger	to catch
la comida	food, meal, lunch
el desayuno	breakfast
la dieta	diet
la leche	milk
levantarse	to get up
ligero/a	light
participar	to participate, to take part
probar	to try, to try out
el recreo	break
saludable	healthy
la sobremesa	sitting chatting at the table
after a meal	
el trabajador	worker
la tradición	tradition
traer	to bring
tranquilamente	calmly
el vaso	glass

**4.1H ¿Cambian las costumbres?**

acostarse	to go to bed
cerrarse	to close
coger	to catch
corto/a	short
empezar	to start
hace calor	it is hot
levantarse	to get up
el marido	husband
la mayoría	majority
el ordenador	computer

Celebrar To celebrate	Ir To go	Disfrutar To enjoy	Hacer – to do/make	Disfrazar To dress up
Celebro I celebrate	Voy I go	Disfruto I enjoy	Hago I do	Disfrazo I dress up
Celebras You celebrate	Vas You go	Disfrutas You enjoy	Haces You do	Disfrazas You dress up
Celebra – he/she celebrates	Va s/he goes	Disfruta He/she enjoys	Hace s/he does	Disfraza He/she dresses up
Celebramos We celebrate	Vamos They go	Disfrutamos We enjoy	Hacemos We do	Disfrazamos We dress up
Celebran They celebrate	Van They go	Disfrutan They enjoy	Hacen They do	Disfrazan They dress up

**4.2G Las fiestas de España – la Tomatina**

al final	at the end
americano/a	American
australiano/a	Australian
británico/a	British
el camión	lorry
la camiseta	T-shirt
el carnaval	carnival
divertirse	to enjoy oneself
duchar	to shower
empezar	to start
la entrada	(entry) ticket
la foto	photo
la gente	people
hace (+ tiempo)	(time) ago
japonés/esa	Japanese
limitar	to limit
limpiar	to clean
llegar	to arrive
la manguera	hose, hosepipe
mojado/a	wet, soaked
el montón	heap, pile
la plaza mayor	the main square
primero/a	first
pronto	soon
rojo/a	red
sucio/a	dirty
típico/a	typical
tirar	to throw
todo el mundo	everyone, everybody
el tomate	tomato
el turismo	tourism
varios/as	several
el/la visitante	visitor
el/la voluntario/a	volunteer
volver	to return, to go back

**4.2F Las fiestas del mundo hispano**

el altar	altar, shrine
los antepasados	ancestors
aparecer	to appear
el azúcar	sugar
la calavera	skull
celebrarse	to be held
el cementerio	cemetery
cerca de	close to, near to
la ciudad	city, town
comenzar	to start
completamente	completely
describir	to describe
el desfile	parade
el diablo	devil
disfrazado	dressed up, disguised
en honor a	in honour of
encendido/a	lit
el esqueleto	skeleton
el estaño	tin
los familiares	family members
famoso/a	famous
la flor	flower
hispánico	Hispanic (i.e. of the Spanish speaking world)
la mina	mine
el/la minero/a	miner
el mole	'mole' sauce / Mexican chocolate sauce
la montaña	mountain
muerto	dead
la normalidad	normality
el número	number
la plata	silver
proteger	to protect
el pueblo	village, (small) town

**What we are learning this term:**

A. Learning about Spanish life and routines  
 B. Learning about local customs  
 C. Talking about a Spanish festival  
 D. Learning about Latin American culture  
 E. Skim reading for key information  
 F. Using past expressions of time

**6 Key Words for this term**

1. divertirse	4. el desfile
2. hispánico	5. celebrarse
3. el turismo	6. los antepasados

**4.1G La vida en familia**

a media mañana \_\_\_\_\_  
 acostarse \_\_\_\_\_  
 el bollo \_\_\_\_\_  
 la cena \_\_\_\_\_

\_\_\_\_\_ to catch  
 \_\_\_\_\_ food, meal, lunch  
 \_\_\_\_\_ breakfast

la dieta \_\_\_\_\_  
 la leche \_\_\_\_\_

\_\_\_\_\_ to get up  
 \_\_\_\_\_ light  
 \_\_\_\_\_ to participate, to take part  
 \_\_\_\_\_ to try, to try out

el recreo \_\_\_\_\_  
 saludable \_\_\_\_\_  
 la sobremesa sitting chatting at the table  
 after a meal \_\_\_\_\_  
 el trabajador \_\_\_\_\_  
 la tradición \_\_\_\_\_

\_\_\_\_\_ to bring  
 \_\_\_\_\_ calmly  
 \_\_\_\_\_ glass

**4.1H ¿Cambian las costumbres?**

\_\_\_\_\_ to go to bed  
 \_\_\_\_\_ to close

coger \_\_\_\_\_  
 corto/a \_\_\_\_\_  
 empezar \_\_\_\_\_

\_\_\_\_\_ it is hot  
 \_\_\_\_\_ to get up

el marido \_\_\_\_\_  
 la mayoría \_\_\_\_\_

\_\_\_\_\_ computer

**4.1F Algunas costumbres regionales**

\_\_\_\_\_ performance  
 \_\_\_\_\_ pleasant

el ambiente \_\_\_\_\_  
 antiguo/a \_\_\_\_\_

\_\_\_\_\_ battle  
 el \_\_\_\_\_ horse

la camisa \_\_\_\_\_  
 el \_\_\_\_\_ competition  
 conmemorar to \_\_\_\_\_  
 correr \_\_\_\_\_

la \_\_\_\_\_ custom  
 \_\_\_\_\_ too much, too many  
 \_\_\_\_\_ parade, procession

el diablo \_\_\_\_\_  
 divertirse to \_\_\_\_\_  
 emocionante \_\_\_\_\_  
 el encierro \_\_\_\_\_

\_\_\_\_\_ to find  
 \_\_\_\_\_ enormous  
 \_\_\_\_\_ to understand

entrenarse \_\_\_\_\_  
 el espectáculo \_\_\_\_\_  
 extraño/a \_\_\_\_\_

\_\_\_\_\_ awful  
 \_\_\_\_\_ to form

histórico \_\_\_\_\_  
 humano \_\_\_\_\_

\_\_\_\_\_ impressive  
 \_\_\_\_\_ uncomfortable  
 \_\_\_\_\_ to \_\_\_\_\_

llevar \_\_\_\_\_  
 el Mediterráneo \_\_\_\_\_  
 el/la moro/a Moor (historically a  
 person from North Africa)  
 nadie \_\_\_\_\_

\_\_\_\_\_ natural  
 \_\_\_\_\_ origin

pasarlo bien \_\_\_\_\_  
 el peligro \_\_\_\_\_  
 peligroso/a \_\_\_\_\_

\_\_\_\_\_ over  
 \_\_\_\_\_ beautiful  
 \_\_\_\_\_ product  
 \_\_\_\_\_ to jump  
 la \_\_\_\_\_ safety, security

la \_\_\_\_\_  
 la suerte \_\_\_\_\_  
 el toro \_\_\_\_\_  
 la torre \_\_\_\_\_

\_\_\_\_\_ suit, costume  
 \_\_\_\_\_ only, unique

varios/as \_\_\_\_\_  
 vestirse (de) \_\_\_\_\_

To celebrate	To go	To enjoy	Hacer – to do/make	Disfrazar To dress up
I celebrate	Voy I go	Disfruto	Hago	Disfrazo
Celebras You _____	You go	You enjoy	You do	You dress up
Celebra – he/she celebrates	s/he goes	Disfruta He/she enjoys	Hace	Disfraza He/she dresses up
We celebrate	Vamos	Disfrutamos We enjoy	We do	Disfrazamos
Celebran	They go	They enjoy	They do	They dress up

**4.2G Las fiestas de España – la Tomatina**

al final \_\_\_\_\_  
 \_\_\_\_\_ American  
 australiano/a \_\_\_\_\_

\_\_\_\_\_ British  
 \_\_\_\_\_ lorry

la camiseta \_\_\_\_\_  
 el carnaval \_\_\_\_\_

\_\_\_\_\_ to enjoy oneself  
 \_\_\_\_\_ to shower  
 \_\_\_\_\_ to \_\_\_\_\_  
 \_\_\_\_\_ (entry) ticket  
 \_\_\_\_\_ photo

la \_\_\_\_\_  
 la gente \_\_\_\_\_  
 hace (+ tiempo) \_\_\_\_\_

\_\_\_\_\_ Japanese  
 \_\_\_\_\_ to limit  
 \_\_\_\_\_ to clean

llegar \_\_\_\_\_  
 la manguera \_\_\_\_\_  
 mojado/a \_\_\_\_\_

\_\_\_\_\_ heap, pile  
 \_\_\_\_\_ the main square  
 \_\_\_\_\_ first

pronto \_\_\_\_\_  
 rojo/a \_\_\_\_\_  
 sucio/a \_\_\_\_\_

\_\_\_\_\_ typical  
 \_\_\_\_\_ to throw

todo el mundo \_\_\_\_\_  
 el tomate \_\_\_\_\_  
 el turismo \_\_\_\_\_

\_\_\_\_\_ several  
 \_\_\_\_\_ volunteer  
 \_\_\_\_\_ to return, to go back, to  
 come back

**4.2F Las fiestas del mundo hispano**

\_\_\_\_\_ altar, shrine  
 los antepasados \_\_\_\_\_  
 aparecer \_\_\_\_\_  
 el azúcar \_\_\_\_\_  
 la \_\_\_\_\_ skull  
 \_\_\_\_\_ to be held  
 el \_\_\_\_\_ cemetery  
 \_\_\_\_\_ close to, near to

la ciudad \_\_\_\_\_  
 comenzar \_\_\_\_\_  
 completamente \_\_\_\_\_

\_\_\_\_\_ to describe  
 el \_\_\_\_\_ parade  
 el \_\_\_\_\_ devil  
 \_\_\_\_\_ dressed up, disguised

en honor a \_\_\_\_\_  
 encendido/a \_\_\_\_\_  
 el esqueleto \_\_\_\_\_  
 el estaño \_\_\_\_\_  
 los familiares \_\_\_\_\_  
 \_\_\_\_\_ famous

la flor \_\_\_\_\_  
 \_\_\_\_\_ Hispanic (i.e. of the  
 Spanish speaking world)

la mina \_\_\_\_\_  
 el/la minero/a \_\_\_\_\_

\_\_\_\_\_ 'mole' sauce /  
 Mexican chocolate sauce

la montaña \_\_\_\_\_  
 muerto \_\_\_\_\_  
 la normalidad \_\_\_\_\_

el \_\_\_\_\_ number  
 la \_\_\_\_\_ silver  
 \_\_\_\_\_ to protect

el pueblo \_\_\_\_\_

Translation Practice. G – blue F – orange H - Green	
Normalmente _____ cereals	Normally <b>for breakfast we have...</b>
Ayer _____ una manzana	Yesterday <b>I ate</b> an apple
Carmen _____ de casa a las ocho	Carmen <b>leaves</b> the house at 8.00
Esta tarde _____ con la familia de mi amigo	This afternoon <b>I chatted</b> with my friend's family
Muchas veces no _____ nada	Many times <b>they don't drink</b> anything
No hablamos _____	We don't speak <b>a lot</b>
El año pasado _____ Pamplona	Last year <b>I visited</b> Pamplona
El _____ es una tradición extraña	The <b>bull run</b> is a strange tradition
Fue muy _____	It was very <b>exciting</b>
_____ dos años fuimos a Burgos	2 years <b>ago</b> we went to Burgos
Ayer fuimos a ver el _____	Yesterday we went to see the <b>procession</b>
El pueblo _____ interesante	The town <b>was</b> interesting
Vimos un _____ muy interesante	We saw a very interesting <b>competition</b>
¿Qué _____?	What <b>did you do?</b>
Hoy me _____ muy temprano	Today <b>I got up</b> very early
Compré _____ para mi familia.	I bought <b>presents</b> for my family
La _____ fue que..	The <b>disadvantage</b> was that...
_____ mucha basura.	<b>There was</b> a lot of rubbish.

Key Questions: Answer the following in your own words. Use these model answers	
Describe una fiesta popular en España	Una fiesta muy popular en España es la Tomatina. La gente celebra la Tomatina en Agosto en Buñol cerca de Valencia. Durante la fiesta, la gente tira tomates, hay desfiles y bailes, se puede comer comida tradicional, la gente lleva disfraces. Después de la fiesta las calles están llenas de tomates. Es mi fiesta española favorita porque es muy entretenida y cómica.
Describe una fiesta popular en tu país	En Inglaterra celebramos la fiesta de Fuegos artificiales. Cada 5 de noviembre, celebramos el día de Guy Fawkes. Durante la noche, la gente va a parques o el centro de la ciudad y hay muchos fuegos artificiales. Celebra la noche cuando GuyFawkes intentó poner fuego al gobierno de Inglaterra. Es muy entretenida y cómica.
Describe tu experiencia la última vez que fuiste a una fiesta en tu país	La última vez que fui a una fiesta en Inglaterra fue muy entretenida y cómica. Fue en Noviembre cuando celebramos la fiesta de Guy Fawkes. Fuimos en el centro de la ciudad o el parque para ver muchos fuegos artificiales. Fue muy entretenido, porque comí algodón de azúcar y pasé la noche con mis amigos.
¿Qué diferencias notas entre la vida española y la vida de tu propio país?	La vida en España y en Inglaterra es un poco diferente. En España se come una dieta mediterránea, la gente come muchas frutas, verduras, mucho pescado y aceite de oliva. En Inglaterra comemos más patatas fritas y más carne y menos frutas y verduras. En Inglaterra los jóvenes suelen llevar uniforme para ir al colegio pero en España los jóvenes no llevan uniforme. ¡Qué bueno! También, en España los jóvenes de 17 o 18 años no suelen emborracharse durante el fin de semana pero en Inglaterra hay más problemas con los jóvenes y el alcohol.

Key Grammar	
Forming the preterite (past tense). Always remove the –AR, –ER, –IR endings first	Remember the preterite (past) tense endings for –AR, –ER, –IR verbs. They are: -AR: -é, -aste,-ó, -amos, -astéis, -aron -ER: -í, -íste, -ió, -imos, -istéis, -ieron -IR : -í, -iste, -ió, -imos, -istéis, -ieron
<b>Imperfect Tense</b> ( <i>Past, ongoing actions, descriptions, 'used to' or 'was doing'</i> )	-ar -aba, -abas, -aba, -ábamos, -abais, -aban -er and -ir -ía, -ías, -ía, -íamos, -íais, -ían
Using the immediate future tense IR + A + INFINITIVE	Voy a casarme = I'm going to get married Va a discutir con su padre = He / She is going to argue with his/her father

# Year 11 Computer Science – Term 1

What we are learning this term:	
A. Ethical Terms	
B. Networking Terms	
C. Laws	
C. Malware	
E. Stages of Software Development	

A.	Ethical Terms
<b>E-Waste</b>	Electronic Waste consisting of digital products.
<b>Planned Obsolescence</b>	Producing goods which are designed to become obsolete and require replacement.
<b>Ethical Concerns</b>	Ensuring public safety and the security of data.

B.	Networking Terms
	A network that covers a small area, e.g. a school or office.
	A piece of hardware used in Computer Networks to connect multiple devices.
	A network of personal devices, such as Bluetooth etc.
	A device for connecting multiple networks together.
	A group of two or more computers connected together and communicating with each other.
	A circuit board installed in a computer allowing it to connect to a network.
	A network which spans across a large geographical area. Multiple buildings, national, internet. Etc.

C.	Laws										
<b>Computer Misuse Act of 1990.</b>	<table border="1"> <thead> <tr> <th>Offence</th> <th>Penalty</th> </tr> </thead> <tbody> <tr> <td>Unauthorised access to computer material</td> <td>Up to six months in prison and/or an up to a £5,000 fine</td> </tr> <tr> <td>Unauthorised access to computer materials with intent to commit a further crime</td> <td>Up to a five-year prison sentence and/or an unlimited fine</td> </tr> <tr> <td>Unauthorised modification of data</td> <td>Up to a five-year prison sentence and/or an unlimited fine</td> </tr> <tr> <td>Making, supplying or obtaining anything which can be used in computer misuse offences</td> <td>Up to a ten-year prison sentence and/or an unlimited fine</td> </tr> </tbody> </table>	Offence	Penalty	Unauthorised access to computer material	Up to six months in prison and/or an up to a £5,000 fine	Unauthorised access to computer materials with intent to commit a further crime	Up to a five-year prison sentence and/or an unlimited fine	Unauthorised modification of data	Up to a five-year prison sentence and/or an unlimited fine	Making, supplying or obtaining anything which can be used in computer misuse offences	Up to a ten-year prison sentence and/or an unlimited fine
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<b>Data Protection Act 1998.</b>	Controls how your personal information is used by organisations, businesses or the government. You have the right to find out what information the government and other organisations store about you.										
<b>GDPR General Data Protection Regulation.</b>	<table border="1"> <tr> <td><b>Limit Storage of Personal Data</b></td> <td>Don't keep it longer than you need it.</td> </tr> <tr> <td><b>Integrity and Confidentiality</b></td> <td>Use encryption, 2FA, and tamper-evident logging.</td> </tr> <tr> <td><b>Accountability</b></td> <td>Keep a paper trail to demonstrate compliance.</td> </tr> </table>	<b>Limit Storage of Personal Data</b>	Don't keep it longer than you need it.	<b>Integrity and Confidentiality</b>	Use encryption, 2FA, and tamper-evident logging.	<b>Accountability</b>	Keep a paper trail to demonstrate compliance.				
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<b>Investigatory Powers Bill 2016</b>	Requires companies and internet service providers to store records on emails and browsing histories. It also gives the authority for police and security services to access computers and phones to search for data.										
<b>Copyright, Designs and Patents Act</b>	As soon as something is created, it becomes intellectual property and is protected by copyright. In the case of software, the copyright holder can choose to sell and license it (proprietary) or give that right away (open-source).										

D.	Malware	Legal? Tick or cross
<b>Adware</b>	Software which causes advertising popups and collects marketing data.	✓
<b>Ransomware</b>	Malware which encrypts a user's files then demands a ransom to decrypt them.	✗
<b>Spyware</b>	Malware which collects information about the user and their activities.	✗
<b>Trojan</b>	Malware which appears legitimate but performs malicious activity when running.	✗
<b>Virus</b>	Malware which replicates itself and damages computer systems and files.	✗

E.	Stages of Software Development
<b>Design</b>	This should be a representation of the algorithm such as in a flowchart or pseudocode.
<b>Implementation</b>	Implementing the designed algorithm in code in order to turn it into a working program/ solution.
<b>Testing</b>	Testing the implemented program for errors. This looks for valid, boundary and erroneous data.
<b>Evaluation</b>	Refining and assessing the implemented program based on testing.

# Year 11 Computer Science – Term 1

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D.	Malware	Legal? Tick or cross
	Adware	
	Ransomware	
	Spyware	
	Trojan	
	Virus	

E.	Stages of Software Development
	Design
	Implementation
	Testing
	Evaluation



## 1. Methods of growth

When a market is growing, it is important for a business to grow in order to retain market share.

Method of growth	Explanation
Internal/organic growth	A business can grow by creating new products, entering new markets, increasing their advertising and opening new premises.
External/inorganic growth	A business can grow by merging with another company or by winning a takeover of another company.

## 2. Finance for growth

A business must find sources of capital to pay for growth.

Term:	Definition:
Internal sources of financing.	A business can use 'retained profit' (capital they have saved from profit) or they could 'sell assets' (selling old or unused machinery/equipment). Internal sources of funding are from an internal sources such as an existing business owner or the business itself rather than from someone or an organisation outside of the business.
External Sources of financing.	A business could take out a loan (loan capital), or sell shares (share capital). External sources of funding are from an external sources such as a bank or an investor rather than from the business owners or the business itself.

## 3. Why do aims & objectives change?

As businesses evolve, they need to adapt their aims and objectives to changing circumstances.

Changing market conditions	Controlled by customer behaviour, what do customers want?
Changing technology	As technology changes, business needs to adapt to how customers use technology.
Changes in performance	If costs increase, the chances are the profit margin of the business will decrease. A business needs to be clear on whether they are aiming for quality or price.
Changes in legislation	If the law changes, this can bring uncertainty as the business may have to stop manufacturing/selling a certain product or be unable to predict future trends.
Internal Reasons	Changes in management or changes to the culture of the company.

### 1. Methods of growth

When a market is growing, it is important for a business to grow in order to retain market share.

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Internal/organic growth	
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Changing technology	
Changes in performance	
Changes in legislation	
Internal Reasons	

**4. Globalisation**

The increasing tendency for countries to trade with each other and to buy global goods such as Coca-Cola or services such as Costa Coffee.

Imports

Goods brought into one country from another.

Exports

Goods sold to one country from another

**4. Globalisation**

Barriers to trade

Definition: Measures put in place by a government to control the numbers of goods imported into a country.

Tariffs

Import taxes – taxes on imported goods.

Trade blocs

An agreement between some countries to trade freely without any tariffs, but countries not within the agreement will be charged tariffs.

**5. Ethics & business**

How the behaviour of a business is judged against human morals.

Term

Definition

Fair Trade

A global scheme that states that farmers or producers are paid a fair price for their goods. Business costs are higher, but customers will pay more for Fair Trade products.

Environmental

Businesses are constantly monitored for their environmental impact. Behaving in an environmentally ethically manner means to not pollute or damage the local/national/global environment – sea, land or sky.

Labour

Human morals dictate that a business should pay its workers fairly and that working conditions should be safe and clean. If a business sub-contracts work to international manufacturers in Asia, human morals dictate that those workers of the contractor are paid fairly and work in safe, clean conditions also.

**6. Ways to extend the Product Life Cycle of a Product**

Idea:

Explanation

Find new uses for the product

If a product can be used for multiple purposes, ensure that your target audience is aware of this

Change the appearance, format or packaging

Changing the appearance of a product can give it a new lease of life and allow the customer is perceive it as new again.

Encourage use of the product on more occasions

If a product can be used for multiples different occasions make sure the customer base is aware of this

Adapt the Product

Continue to make small adaptations to products to improve the quality of the product on offer.

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Find new uses for the product

Change the appearance, format or packaging

Encourage use of the product on more occasions

Adapt the Product



**A. New and emerging technologies** 


Companies are trying to **save money, improve products, develop new materials** and become more **efficient**. New technologies are developed to positively **impact** the **manufacturing industry** and **society**.

**Crowdfunding** Uses websites to advertise products as investment opportunities, where people can choose to back a project with a financial donation

**Virtual marketing and retail** Promotion of products online and sharing experiences, reviews and recommendations

**Cooperatives** Cooperatives are organisations with lots of people working together towards common goals.


**Fair trade** Fair trade is a trading partnership that ensures workers in developing countries are given suitable working conditions and are paid a fair wage.

**B. Sustainability** 

If materials are not reused or recycled, the planet will run out of them. If trees are not replanted as quickly as they are felled, we will run out of timber. A material is said to be sustainable if it can be replaced continuously or if it can be recycled or reused indefinitely.

**What we are learning this term:**

A. New and emerging technologies B. Sustainability  
C. Impact on environment D. Impact on People E. Informing design decision

**C. Impact on the environment** 

Modern companies are encouraged to be less wasteful and more considerate of how they affect the natural environment.

**Continuous improvement**

Continuous improvement is the practice of continually making small adjustments to production techniques to improve speed and quality and save resources.

**Efficient working**


It is important to ensure that companies work in an efficient manner. This includes increasing the speed of production, reducing errors and reducing waste, which can be done by utilising **automation** or **computer aided manufacture (CAM)**.

**Pollution**

Pollution is caused when harmful substances are released into the natural environment. Pollution can occur in the air, water or natural land. Legislation has been brought in to help with this issue.

**Global warming**

- Manufacturing processes in factories or the use of day-to-day products like cars can cause harmful chemicals, such as carbon monoxide and nitrogen oxides.
- These chemicals pollute the air and natural land.

**D. Impact on people** 

People influence how technology is developed to suit their own wants and needs; however, technological developments can change people's lifestyle and behaviours.

**Technology push**

- Research and development in science and industry can lead to new discoveries
- This is known as technology push, and it happens before there is consumer demand for a product.
- SMART phones are a good example of technology push

**Market Pull**

- Market pull is when product ideas are produced in response to market forces or customer needs.

**Changes in culture**

- Fashion trends continue to be influenced by changing technology.
- Wearable items embrace new technology, such as high-tech watches, while textile technology utilises electrically-conductive material or 3D-printing technology.

**E. Informing design decision** 

**Physical Disability**

Products aimed at users with physical disabilities will ensure they can use the product with ease.

- User needs are met by understanding the nature of the physical disability, eg visual impairment, mobility restrictions or motor control.

**Elderly**

When designing products aimed at elderly users, it is important to understand –

- The difficulties this user group may experience, such as mobility issues, visual impairment and hearing loss.

**Religious Groups**

Religious groups have a variety of preferences that can be addressed through design. The use of certain symbols, dietary restrictions and clothing requirements all need to be considered so that beliefs are upheld.

**User centred design**

**User-centered design (UCD)** is a design process in which designers **focus on the users and their needs** in each **phase of the design process**. In UCD, design teams **involve users** throughout the design process via a **variety of research and design techniques**, to create highly **usable and accessible** products for them.

**Universal Design**

**Universal Design:** focuses on serving the broadest range of users as possible (90%), rather than trying to address individual accessibility or inclusion objectives.



# Year 11 PRODUCT DESIGN Term 1



## A. New and emerging technologies

Companies are trying to \_\_\_\_\_  
\_\_\_\_\_ **improve products**, \_\_\_\_\_  
\_\_\_\_\_ and become more \_\_\_\_\_. New  
technologies are developed to positively  
**impact** the \_\_\_\_\_ and **society**.

### Crowdfunding

### Virtual marketing and retail

### Cooperatives

### Fair trade

## B. Sustainability

## What we are learning this term:

- A. New and emerging technologies
- B. Sustainability
- C. Impact on environment
- D. Impact on People
- E. Informing design decision

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Modern companies are encouraged to be  
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they affect the \_\_\_\_\_.

### Continuous improvement

### Efficient working

### Pollution

### Global warming

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\_\_\_\_\_ and \_\_\_\_\_.

### Technology push

### Market Pull

### Changes in culture

## E. Informing design decision

### Physical Disability

### Elderly

### Religious Groups

### User centred design

### Universal Design

Universal Design:





# Year 11 Food & Nutrition Term 1



## What we are learning this term:

A. Proteins    B. Carbohydrates    C. Fibre & Water    D. Fats    E. Minerals    F. Vitamins

A. Proteins – contain amino acids		B. Carbohydrates – used for energy		D. Fats		F. Vitamins	
	Used for growth, repair and maintenance of the body.		<b>Sugars</b> – digested quickly & energy released quickly. Monosaccharides or Disaccharides		Needed for energy, vitamins, insulation (warmth) and protecting your bones & organs, making cholesterol.		Micronutrients which help the body to function.
Source 	Seeds, meat, fish, dairy, nuts and beans. <b>Alternative:</b> soya, mycoprotein, TVP & tofu.	Source 	Fruit or added to food.	Saturated Fats	Unsaturated Fats	<b>Fat Soluble Vitamins</b>	
Excess 	Strain on liver and kidneys. These organs process the proteins consumed.	Source 	<b>Starch</b> – digested slowly & slow released of energy. Polysaccharides.	Usually come from animal sources	Mostly from vegetable sources.	Found in fatty food. Stored in fat tissue if not used up.	
Deficiency 	Slows growth, weak immune system, oedema, kwashiorkor, poor hair /skin / nails.	Source 	Potatoes, cereals. Have a lot of nutrients & fibre.	Excess 	Obesity, Type 2 Diabetes, higher Cholesterol (increased risk Coronary Heart Disease).	A	For good eyesight, healthy immune system / skin
High Biological Value Proteins 	<b>These contain ALL the essential amino acids.</b> These come from mainly animals sources (as well as soya and quinoa).	Excess 	Gets converted into fat (may lead to obesity), tooth decay, type 2 diabetes.	Deficiency 	Vitamin deficiency, weight loss, less insulation / bone & organ protection.	D	Helps absorb minerals (especially calcium)
Low Biological Value Proteins 	<b>These are missing <u>one or more</u> of the essential amino acids.</b> These come from plant sources.	Source 	Protein Completion: when you combine LBV proteins to get all the essential amino acids.	<b>E. Minerals</b>		E	For healthy skin, eyes & immune system
		Excess 	Glycaemic Index (GI): show how quickly carbohydrates affect blood sugar levels.	Calcium	Strong bones & teeth, healthy nerves & muscles, blood clotting	K	Helps heal wounds, keeps immune system / bones healthy
		Deficiency 		Iron	Forms part of haemoglobin in red blood cells	<b>Water Soluble Vitamins</b>	
<b>C. Fibre &amp; Water</b>				Sodium	Controls body's water content, helps nerves / muscle function	Vitamins that dissolve in water & lost through urine – need to take daily! They are also lost when fruit and vegetables are exposed to air.	
Fibre	Water			Phosphorus	Healthy bones & teeth	B	Keep the nervous system healthy
<ul style="list-style-type: none"> <li>Helps with digestion</li> <li>Prevents constipation</li> <li>Found in fruit, pulses, nuts, veg, wholegrain foods</li> </ul>	<ul style="list-style-type: none"> <li>Helps get rid of waste &amp; digest food</li> <li>Controls body temperature</li> <li>6-8 glasses of water a day</li> <li>More during a hot day or exercising</li> </ul>			Fluoride	Helps strengthen teeth & prevent tooth decay	B1, B2 & B3	Help with energy release
				Iodine	Helps make some hormones	B9 & B12	Help make red bloody cells.
						C	Protects body from infection, heals wounds
						<b>Antioxidants</b>	
						Vitamins A, C & E are antioxidants which may protect cells from <b>free radicals</b> - chemicals you encounter every day.	



# Year 11 Food & Nutrition Term 1



## What we are learning this term:

A. Proteins    B. Carbohydrates    C. Fibre & Water    D. Fats    E. Minerals    F. Vitamins

A. Proteins – contain amino acids	
Source	
Excess	
Deficiency	
High Biological Value Proteins	
Low Biological Value Proteins	
Protein Completion:-.	

B. Carbohydrates – used for energy	
	Sugars
Source	
	Starch
Source	
Excess	
Deficiency	
Glycaemic Index (GI): .	

D. Fats	
Saturated Fats	Unsaturated Fats
Excess	
Deficiency	

E. Minerals	
Calcium	
Iron	
Sodium	
Phosphorus	
Fluoride	
Iodine	

F. Vitamins	
Fat Soluble Vitamins	
A	
D	
E	
K	
Water Soluble Vitamins	
B	
B1, B2 & B3	
B9 & B12	
C	
Antioxidants	

C. Fibre & Water	
Fibre	Water
• -	• -
• -	• -
• -	• -



**What we are learning this term:**

- A. Client briefs and building specifications
- B. Product analysis
- C. Design generation and analysis
- D. Planning production

**A. Client briefs and building specifications**

As an engineer you may be given a **brief** of what the customer wants from their product. The steps to analyze this are:

1. Highlight the **key information**, what are they actually asking for?
2. Consolidate the information into a **bullet point list**
3. **Rank** the list in terms of importance, most important first. Make those points the focus of your design.

**Specifications:** Documents listing the specific properties a design should have. These are most useful when given as **quantitative information**, as you can more easily check if you have completed it.  
**Quantitative information** – can be measured/counted i.e number of wheels on a car, how much it weighs.  
**Qualitative information** – opinions based/ descriptive i.e how beautiful something is

**C. Design generation and analysis**

<b>S</b>	<b>C</b>	<b>A</b>	<b>M</b>	<b>P</b>	<b>E</b>	<b>R</b>
Substitute	Combine	Adapt	Modify	Put to another use	Eliminate	Reverse
Replace a part, material, or process with something else.	Join elements, ideas, or functions together in new ways – or find a new element you can merge with.	Modify something to better suit a new purpose, person or context.	Enlarge, reduce, change the shape, or alter attributes. Can a small change have a big effect?	Rather than changing the thing itself, consider changing the context it exists in.	Remove elements, simplify, or pare down to essentials.	Flip the script, re-order your priorities, invert cause and effect, and turn it all upside-down.

**Strengths**

- Key features that match the design brief
- Key features that match the specification
- Things that the target market would like

**Weaknesses**

- Limitations of the idea
- Things the target market might not like
- Points on the specification it did not meet

**SWOT evaluation for new design ideas**

**Opportunities**

- The ways in which the design could be improved
- New ideas or technology that could change the way the product could be used

**Threats**

- Other products in the market that are similar
- Extra resources needed to make it
- Extra money / time/ skills needed to make it

**B. Product analysis**

**A** is for **Aesthetics**



**Aesthetics** means **what does the product look like?**  
 What is the: Colour? Shape? Texture? Pattern? Appearance? Feel? Weight? Style?

**C** is for **Cost**



**Cost** means **how much does the product cost to buy?**  
 How much does it: Cost to buy? Cost to make?  
 How much do the different materials cost? Is it good value?

**C** is for **Customer**



**Customer** means **who will buy or use your product?**  
 Who will buy your product? Who will use your product?  
 What is their: Age? Gender?  
 What are their: Likes? Dislikes? Needs? Preferences?

**E** is for **Environment**



**Environment** means **will the product affect the environment?**  
 Is the product: Recyclable? Reusable? Repairable? Sustainable?  
 Environmentally friendly? Bad for the environment?  
**6R's of Design:** Recycle / Reuse / Repair / Rethink / Reduce / Refuse

**S** is for **Size**



**Size** means **how big or small is the product?**  
 What is the size of the product in millimeters (mm)? Is this the same size as similar products? Is it comfortable to use? Does it fit?  
 Would it be improved if it was bigger or smaller?

**S** is for **Safety**



**Safety** means **how safe is the product when it is used?**  
 Will it be safe for the customer to use? Could they hurt themselves?  
 What's the correct and safest way to use the product? What are the risks?

**F** is for **Function**



**Function** means **how does the product work?**  
 What is the products job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?

**M** is for **Material**

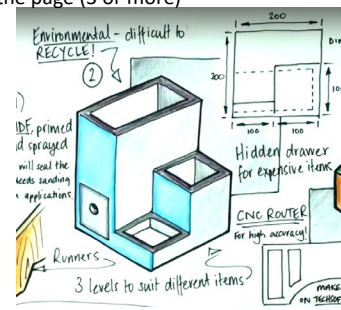


**Material** means **what is the product made out of?**  
 What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

**C. Design generation example**

Is part of a range of ideas on the page (3 or more)

Notes on material/ production choices and why



Notes link designs to the brief and specification

Very clear drawings, use of rendering to show depth

**D. Planning production**

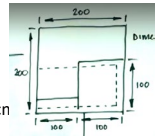
Calculating the cost of a product:

1. Calculate area/volume of material used
2. Research what **stock** is used and what price a **unit** of stock is
3. Calculate how many **whole products** can be made from that unit of stock
4. Divide the cost of the unit of stock by the number of **whole products** can be made from it

**Worked example**

Calculate the cost of the 20x20cm component if it is Made from a sheet of 100x100cm plywood that cost £4.

1. Component area = 20x20=40cm
2. Stock = £4 for 1000cm<sup>2</sup>
3. 1000 / 40 = 25
4. £4 / 25 = 400p/25 = **16p**





<b>What we are learning this term:</b>
A. Client briefs and building specifications
B. Product analysis
C. Design generation and analysis
D. Planning production

**A. Client briefs and building specifications**

Analyse this brief. Show you can: Highlight the **key information**, **bullet point list** the info, **Rank** the list.


*A company which sells products online is creating a new range of designs. Create a concept for a pendant light. The light must be low cost to manufacture so suitable processes and materials should be considered. To keep transportation costs down, the light must be lightweight. The dimensions of the light must not exceed 45cm in any direction.*

**Ranked Bullet points:**

**B. Product analysis**

A C C

M E



Analyse this collapsible plywood shade using ACCESSFM

F S S

**C. Design generation and analysis**

Use the SWOT tool to analyse the design of the existing lampshade.

<b>Strengths</b>	<b>Weaknesses</b>
<b>Opportunities</b>	<b>Threats</b>

Draw below how you would **adapt** the design to be more lightweight or attractive

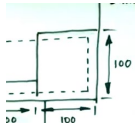
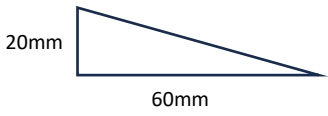
**D. Planning production**

Calculating the cost of a product:

1. Calculate area/volume of material used
2. Research what **stock** is used and what price a **unit** of stock is
3. Calculate how many **whole products** can be made from that unit of stock
4. Divide the cost of the unit of stock by the number of **whole products** can be made from it

**Pactice questions:**

1. What is the cost of the 100x100mm component if it is made from 1000x1000mm plywood that costs £4?
2. What is the cost of this component if it is made from 1000x1000mm plywood that costs £4?

What we are learning:	
A.	Key words
B.	What are the different types of health care services?
C.	What are the different types of social care services?
D.	What barriers are there to accessing care services?

A.	Key words for this Unit
Primary care	First point of contact when seeking health care
NHS	National Health Service – Tax funded health care in the UK.
Secondary care	Specialist health treatment and/or care
Tertiary care	Advanced specialist health treatment and/or care.
Allied health professionals	Professionals who are involved in patient care from diagnosis to recover
Clinical support staff	Support allied health professionals with the treatment and care of patients.
Foster care	A stable family home where care is provided on either a short or long-term basis.
Residential care	Accommodation and care for a number of children, young people or adults living together in one building.
Respite care	Short-term care which provides relief for family member who are carers.
Domiciliary care	Care received in the person's own home.
Sensory impairment	Difficulties with senses, most commonly vision and hearing.
Braille	Raised lettering to help visually impaired.
Occupational therapist	Offers support to develop independence for daily living activities.

B	What are the different types of health care services?
Primary Care	<ul style="list-style-type: none"> <li>Primary care is the first point of contact a patient is likely to have with the NHS – you can refer yourself to primary care providers.</li> <li>Primary care providers include pharmacists, Registered GPs/doctors, walk-in centres, accident and emergency departments (A&amp;E), dentists and Opticians.</li> </ul>
Secondary Care	<ul style="list-style-type: none"> <li>Secondary care is specialist treatment or care. A primary care provider will refer a patient for secondary care if they feel it is necessary for the patient to receive further advice, tests or treatment.</li> <li>Secondary care providers include cardiologists (heart), gynaecologists (female reproduction), paediatrics (children), obstetrics (childbirth and midwifery), psychiatry (mental health) and dermatology (skin).</li> </ul>
Tertiary Care	<ul style="list-style-type: none"> <li>Tertiary Care is advanced specialist treatment or care. A secondary care provider will refer a patient for tertiary care for long-term treatment and/or care.</li> <li>Tertiary care areas include spinal, cardiac (heart), cancer care, chronic pain, burns and neonatal (premature and ill new born babies).</li> </ul>
Allied Health Professionals	<ul style="list-style-type: none"> <li>Allied health professionals work in a range of specialities They support patients through all stages of care – from diagnosis to recovery. To work with the public they must register with the Health and Care Professions Council (HCPC).</li> <li>Allied health professionals include art therapists, dieticians, paramedics, physiotherapists, speech and language therapists and radiographers.</li> </ul>
Clinical Support Staff	<ul style="list-style-type: none"> <li>Clinical support staff work within a range of departments under the guidance of allied health professionals. They are trained in their roles but are not required to register with the HCPC.</li> <li>Clinical support staff include theatre support workers, prosthetic technicians, dietetic assistant, phlebotomist (collects blood samples), hearing aid dispensers and maternity support workers.</li> </ul>

C.	What are the different types of social care services?
Children and young people	<ul style="list-style-type: none"> <li>Children and young people may need support on a temporary or permanent basis because their parent or carer is ill; they have family problems, they have behavioural issues or additional needs.</li> <li>Types of support for children and young people include foster care, residential care and youth work.</li> </ul>
Children or adults with specific needs	<ul style="list-style-type: none"> <li>Children and adults may need support with specific needs including learning disabilities, sensory impairments and long-term health issues.</li> <li>Types of support for children and adults with specific needs include residential care, respite care and domiciliary care.</li> </ul>
Older Adults	<ul style="list-style-type: none"> <li>Older adults may need support with a range needs including arthritis, cardiovascular disease, dementia and depression.</li> <li>Types of support for older adults include residential care, carers and personal assistants.</li> </ul>
Informal Social Care	<ul style="list-style-type: none"> <li>Not all carers get paid for what they do – they are known as informal carers and social services would really struggle without them.</li> <li>Informal carers include a spouse or partner, children, friends and neighbours.</li> <li>Informal carers do practical household duties, shopping, laundry, walk the dog and help with personal care.</li> </ul>



<b>What we are learning:</b>
A. Key words
B. What are the different types of health care services?
C. What are the different types of social care services?
D. What barriers are there to accessing care services?









<b>A.</b>	<b>Key words for this Unit</b>
Primary care	
NHS	
Secondary care	
Tertiary care	
Allied health professionals	
Clinical support staff	
Foster care	
Residential care	
Respite care	
Domiciliary care	
Sensory impairment	
Braille	
Occupational therapist	









<b>B</b>	<b>What are the different types of health care services?</b>
Primary Care	
Secondary Care	
Tertiary Care	
Allied Health Professionals	
Clinical Support Staff	

<b>C.</b>	<b>What are the different types of social care services?</b>
Children and young people	
Children or adults with specific needs	
Older Adults	
Informal Social Care	












D.	What barriers are there to accessing care services?	
<b>Physical Barriers</b> 	<ul style="list-style-type: none"> <li>• Difficulty accessing care due to mobility and/or disability.</li> <li>• Obstacles include uneven and rough pavements and services, narrow doorways, no lift and transport.</li> <li>• Access could be improved by planning journeys in advance and reporting any problems to the council.</li> </ul>	
<b>Sensory Barriers</b> 	<ul style="list-style-type: none"> <li>• Sensory impairments can be a barrier to accessing care.</li> <li>• A person with poor vision may need glasses or documents in large print. Profound sight problems may benefit from Braille.</li> <li>• A person with a hearing impairment may benefit from a hearing aid or sign language interpreter.</li> </ul>	
<b>Social, Cultural and Psychological Barriers</b> 	<ul style="list-style-type: none"> <li>• Social, cultural and psychological barriers may leave people feeling nervous about accessing support.</li> <li>• These can include: religion/cultural barriers, negative experience, self-diagnosis, substance misuse, opening hours.</li> <li>• Care services can give individuals opportunities to share their concerns, offer different gender practitioners, facilities to worship and show respect and understanding.</li> </ul>	
<b>Language Barriers</b> 	<ul style="list-style-type: none"> <li>• Language can be a barrier to accessing care services because individuals and care providers may struggle to understand each other.</li> <li>• Support for individuals could include translated documents, translators and interpreters and support from family members.</li> </ul>	
<b>Geographical Barriers</b> 	<ul style="list-style-type: none"> <li>• Individuals may struggle to reach care services because public transport may not run regularly, specialist treatments may require long distance travel and travel can be expensive.</li> <li>• Support could include being provided with direct travel or having travel costs reimbursed.</li> </ul>	
<b>Intellectual Barriers</b> 	<ul style="list-style-type: none"> <li>• If an individual has a learning disability it can cause difficulty in them accessing care services.</li> <li>• Support might include a learning disability nurse, speech and language therapist or occupational therapist.</li> </ul>	
<b>Resource Barriers</b> 	<ul style="list-style-type: none"> <li>• As the population ages and more disorders are being successfully treated, there is a huge strain on health and social care resources – at times it might seem that not everyone can access what they need.</li> <li>• There are huge staff shortages which puts strain on people that work in the health and social care sector.</li> </ul>	
<b>Financial Barriers</b> 	<ul style="list-style-type: none"> <li>• Seeing a GP or using emergency services are free but some services, such as optical and dental care, often involve some payment.</li> <li>• This can be difficult for people if they are from a low-income household as they may not feel they can afford to access the care they need.</li> </ul>	

D.	What barriers are there to accessing care services?
<b>Physical Barriers</b> 	
<b>Sensory Barriers</b> 	
<b>Social, Cultural and Psychological Barriers</b> 	
<b>Language Barriers</b> 	
<b>Geographical Barriers</b> 	
<b>Intellectual Barriers</b> 	
<b>Resource Barriers</b> 	
<b>Financial Barriers</b> 	








<b>What we are learning:</b>
E. Define the key words
F. What are the care values and how can they be implemented?

E.	Define the key words
Self-respect	Valuing yourself
Person centred approach	Planning care around the wants and needs of a service user
Empowerment	Supporting people to take control of their lives and futures by involving them decisions on their care and treatment
Confidentiality	Not passing on information or discussing a private conversation to anyone
Dignity	Being respected and treated with care
Safeguarding	Policies to ensure children and vulnerable adults are protected from harm, abuse and neglect
Discrimination	Treating a person or group of people unfairly or less well than others
Compassionate	Feeling or showing sympathy and concern for others
Competence	The ability to do something successfully and efficiently
Consequences	A result or effect, typically one that is unwelcome or unpleasant
Review	Involves assessing or inspecting something with the intention of making change if necessary
Empathy	Being able to understand and share feelings and views of another person.
Insomnia	Difficulties in sleeping

F.	What are the care values and how can they be implemented?
Empowering and promoting independence 	<ul style="list-style-type: none"> <li>Empowerment is when an individual feels in control of their own life and have a say in what happens to them.</li> <li>Some people might need help with empowerment because of their age, circumstances or confidence e.g. elderly people, children, adult with learning disabilities.</li> <li>You can promote empowerment and independence by involving individuals, where possible, in making choices about their treatment.</li> </ul>
Respect for others 	<ul style="list-style-type: none"> <li>You can show respect for the individual by respecting their privacy, needs, beliefs and identity.</li> <li>Show respect by being patient when someone takes longer to perform simple tasks due to their age, disability or injury.</li> <li>Do not leave personal files around for others to see or discuss your patients' case with friends.</li> <li>Gain permission before entering a room, provide private place for personal conversations.</li> </ul>
Maintaining confidentiality 	<ul style="list-style-type: none"> <li>It is a person's right by law to have information about them kept confidential.</li> <li>Care workers are not allowed to talk about one service user to another, or someone who is not involved in helping them get better. This involves not having those private conversations in public places where other can overhear.</li> <li>Paper and electronic files are to be kept confidential and only shared with care workers which are involved in the treatment of the patient.</li> </ul>
Preserving dignity 	<ul style="list-style-type: none"> <li>Preserving the dignity of individuals to help them maintain self-worth, privacy and self-respect.</li> <li>You do this by involving the person in their own care; helping them go to the bathroom; giving the person time they need, checking what they would like to be called; closing door or curtain when they are changing; making sure their clothes are clean; dealing with embarrassing situations sensitively and professionally.</li> </ul>
Effective communication 	<ul style="list-style-type: none"> <li>In health and social care it is important to communicate effectively with service users in order to build trusting relationships. These can be lost if the care worker appears not to care or listen.</li> <li>Recognising different communication needs and trying to overcome them shows that care workers respect the individual e.g. when visually impaired providing a leaflet in braille; if can't speak English well, have a translator organised beforehand.</li> <li>Show you value the person through showing empathy, asking questions, not judging, smiling, using their name, giving appropriate eye contact, open body language, giving time to process.</li> </ul>
Safeguarding and duty of care 	<ul style="list-style-type: none"> <li>Health and social care workers have a legal duty to protect service users from harm, neglect or abuse. They must recognise the signs and symptoms of abuse so they can protect people.</li> <li>Signs of abuse include low self-esteem, STDs, unexplained injuries or bruises, insomnia, change in appetite, change of personality, self-harming, fear of being alone etc.</li> <li>What to do: report the abuse, never promise to keep the abuse secret, make it clear that you will have to tell someone e.g. your supervisor or the police.</li> </ul> <p><b>DUTY OF CARE</b></p> <ul style="list-style-type: none"> <li>Care workers must work in ways that never put individuals at any risk or harms. They need to know their responsibilities, procedures, deliver care as the care plan states and always report and record any concerns about the service user even if they appear minor.</li> </ul>
Promoting anti-discriminatory practice 	<ul style="list-style-type: none"> <li>Discrimination can be obvious but sometimes it can be subtle and hidden, and The Equality Act 2010 makes it illegal to discriminate against people because of their e.g. age, gender, race, disability, religion, sexual orientation, marital status etc.</li> <li>You can promote anti-discriminatory practice by: having patience with someone who doesn't speak English well; communicating in a way that the person will understand; showing tolerance towards people who have different beliefs and values from you; challenging unkind behaviour.</li> </ul>

What we are learning:	
E.	Define the key words
F.	What are the care values and how can they be implemented?

E.	Define the key words
Self-respect	
Person centred approach	
Empowerment	
Confidentiality	
Dignity	
Safeguarding	
Discrimination	
Compassionate	
Competence	
Consequences	
Review	
Empathy	
Insomnia	


F.	What are the care values and how can they be implemented?
Empowering and promoting independence 	
Respect for others 	
Maintaining confidentiality 	
Preserving dignity 	
Effective communication 	
Safeguarding and duty of care 	
Promoting anti-discriminatory practice 	

<b>What we are learning:</b>
G. How to apply care values in a compassionate way. H. Identifying own strengths and areas for improvement against the care values

<b>G</b>	<b>How to apply care values in a compassionate way?</b>
Show empathy and care by:	<ul style="list-style-type: none"> <li>• Being patient</li> <li>• Showing sensitivity</li> <li>• Understanding</li> <li>• Actively listening</li> <li>• Having a positive outlook</li> <li>• Being encouraging</li> <li>• Having genuine concern for other people.</li> </ul>
Care workers can check themselves against the ' <b>Six C's of Compassionate Care</b> ' checklist to make sure they are applying care values with compassion.	
Care	Helps to improve an individual's health and wellbeing. Care should be tailored to each person's needs and circumstances
Compassion	Shows the care worker understands what the individual is experiencing. Being empathetic to their situation shows care and value to the individual
Competence	Shows that care workers can safeguard and protect individuals from harm
Communication	How to adapt to individuals and their circumstances to ensure important information is given and shared- keeping the individual at the heart of everything that is done
Courage	Protecting individuals by speaking up if you think something is wrong; being brave enough to own up if you have made a mistake.
Commitment	Carrying out your duties to care for others to the best of your ability.

<b>H</b>	<b>Identifying own strengths and areas for improvement against the care values</b>
Working together	<ul style="list-style-type: none"> <li>• All care workers have the responsibility to uphold care values. If everyone works together, doing their 'bit', service users and colleagues alike will all be able to have positive experiences.</li> <li>• Put any feelings aside, some clients can show anger or aggressions towards you, continues to work in a way that respects each of the care values.</li> </ul> <p>Staff training:</p> <ul style="list-style-type: none"> <li>• Staff training keeps everyone updated. Even if they already had care values training it is important to have it again and remind them of their importance.</li> </ul>
Making mistakes	<ul style="list-style-type: none"> <li>• Everyone sometimes make mistakes. It is crucial that staff own up to mistakes that they have made, no matter how small. This is part of the duty of care to safeguard individuals, it demonstrates respect.</li> <li>• You need to be honest about your mistake, do not pretend it never happened and do not blame someone else.</li> <li>• You can: <ul style="list-style-type: none"> <li>• Tell your supervisor, admit it and apologise</li> <li>• Be honest and accurate about what happened,</li> <li>• Suggest ways to avoid it happening again</li> <li>• Earn back the trust of the person involved</li> <li>• Prove you can do the job</li> <li>• Do not be too hard on yourself; seek help and guidance from others.</li> </ul> </li> </ul>
Reviewing own applications of care values	<ul style="list-style-type: none"> <li>• One way to improve skills is to look carefully at the areas you are good at, what you are able to do well and things that you find difficult.</li> <li>• Knowing your strengths will allow you to take on tasks with ease and make you feel confident that you are doing a good job.</li> <li>• Knowing your weaknesses and what needs improving will help you work on them and develop. It is important to be open with yourself and others in order to progress further and be better at your job.</li> <li>• Regularly review your strengths and weaknesses because they change overtime</li> </ul>
Receiving feedback	<ul style="list-style-type: none"> <li>• The purpose of feedback is to let you know what you are doing well and the areas you need to improve.</li> <li>• This can be formal- like reports and following an observation at work and Informal- like chatting to colleagues at break time.</li> <li>• Both types encourage you to feel pleased with what you have done well and motivate you to improve in weaker areas, perhaps even provide a way forward.</li> <li>• Remember: when giving and receiving feedback, positives must be noted so that you know what you are doing well and continue to do so. Negatives are hard to uncomfortable to hear, but do not take them personally, you need them to get better at your job and feel more confident.</li> </ul>
Using feedback	<ul style="list-style-type: none"> <li>• Create yourself a SMART action plan to set yourself Specific, Measurable, Achievable, Realistic and Time-related targets or goals to help plan for your improvements</li> </ul>

<b>What we are learning:</b>
G. How to apply care values in a compassionate way. H. Identifying own strengths and areas for improvement against the care values

<b>G</b>	<b>How to apply care values in a compassionate way?</b>
	
Care	
Compassion	
Competence	
Communication	
Courage	
Commitment	

<b>H</b>	<b>Identifying own strengths and areas for improvement against the care values</b>
Working together	
Making mistakes	
Reviewing own applications of care values	
Receiving feedback	
Using feedback	





**What we are learning this term:**

- The different user groups who may participate in sport*
- The barriers which affect participation*
- The solution to these barriers*
- Factors affecting the popularity of a sport*
- Current trends in the popularity of a sport*
- Growth of new and emerging sports*

<b>A.</b>	<b>Key question from Assessment objectives?</b>
<b>Key word</b>	<b>Key definition</b>
Ethnic minorities	A group that has different national or cultural traditions
Disposable income	Money left over after paying all bills
Accessibility	How easy something is to access
Provision	Providing or supplying something
Infrastructure	The available space and facilities to take part in sport. EG- Tennis courts
Acceptability	How accepted and tolerated something is
Emerging	Becoming more mainstream
Concessions	Providing something cheaper for certain groups

<b>A.</b>	<b>What sports are growing in popularity in the UK?</b>
1.	Ultimate frisbee
2.	American Football
3.	Climbing
4.	Handball

<b>Main assessment objectives</b>
<b>Learning outcome: Understand the issues which affect participation in sport</b>

<b>C.</b>	<b>What are the most popular sports in the UK?</b>
Football, Rugby, Cricket, Netball, Walking, Cycling and fishing	
<b>How the factors can impact on the popularity of sport in the UK</b>	
<ol style="list-style-type: none"> <li>Climate- Lack of snow in the UK means the opportunities for snow sports are limited</li> <li>Provision- Lack of facilities such as tennis courts limit who can access them</li> <li>Elite success- cycling success at the Olympics leads to increased participation in cycling</li> </ol>	

<b>A.</b>	<b>The user groups who may participate in sport are...</b>
1.	Ethnic minorities
2.	Retired people/ over 50
3.	Families with young children
4.	Single parents
5.	Children
6.	Teenagers
7.	Disabled people
8.	Unemployed/ economically disadvantaged
9.	Working singles and couples

<b>A.</b>	<b>The possible barriers which affect participation...</b>
1.	Employment/time
2.	Work restrictions
3.	Disposable income
4.	Accessibility of facilities
5.	Lack of role models
6.	Provision of activities
7.	Awareness of activity provision
8.	Portrayal of gender issues

<b>G.</b>	<b>The possible solutions to barriers...</b>
<i>Provision-</i>	
<i>Programming of sessions</i>	
<i>Appropriate activity for user groups</i>	
<i>Timing of sessions</i>	
<i>Promotion-</i>	
<i>Targeted promotion</i>	
<i>Using role models</i>	
<i>Initiatives aimed at promoting participation</i>	
<i>Access-</i>	
To facilities	
To equipment	
Sensible pricing and concessions	

<b>Factors affecting popularity</b>	
Participation	Football has high participation rates due to the infrastructure already in place
Provision	The available equipment and facilities required to play
Environment/ climate	The UK weather is suitable for certain sports and not suitable for others
Spectatorship	The amount of people going to watch the sport
Media coverage	How much coverage the sport gets across various media platforms
Elite level success	Olympic success usually increase participation
Role models	A lack of role models can restrict participation levels
Acceptability	Some sports are not accepted in UK culture due to the nature of the sport



**What we are learning this term:**

- A. *The different user groups who may participate in sport*
- B. *The barriers which affect participation*
- C. *The solution to these barriers*
- D. *Factors affecting the popularity of a sport*
- E. *Current trends in the popularity of sport*
- F. *Growth of new and emerging sports*

**Main assessment objectives**

Learning outcome: Understand the issues which affect participation in sport

**Factors affecting popularity**

**A. Key question from Assessment objectives?**

**C. What are the most popular sports in the UK?**

Participation

Key word	Key definition
----------	----------------

**How the factors can impact on the popularity of sport in the UK**

Provision

Ethnic minorities	
-------------------	--

1
2
3

Environment/  
climate

Disposable income	
-------------------	--

**A. The user groups who may participate in sport are...**

**G. The possible solutions to barriers...**

Spectatorship

Accessibility	
---------------	--

1
2
3
4
5
6
7
8

*Provision-*

1
2
3

Media coverage

Provision	
-----------	--

*Promotion-*

1
2
3

Elite level success

Infrastructure	
----------------	--

**A. The possible barriers which affect participation...**

*Access-*

1
2
3

Role models

Acceptability	
---------------	--

1
2
3
4
5
6
7
8

Emerging	
----------	--

**A. What sports are growing in popularity in the UK?**

1
2
3
4

Acceptability

# BUILDING BRICKS:

Exploring the Elements of Music and the Functions of a Keyboard  
Why? – To excel in listening, analysis, composition & performance

## A. MELODY

Melody is a succession of pitches in rhythm. The melody is usually the most memorable aspect of a song, the one the listener remembers and is able to perform.

## B. ARTICULATION

Articulation refers to the way that notes should be performed. There are many types of articulation, with each having a different effect on how the note is played.

## C. DYNAMICS

The dynamics of a piece is the variation in loudness between notes or phrases. Musicians use a variety of dynamics to add excitement and emotion to songs.

KEYWORD	MEANING
Pitch	How high or low a sound is
Octave	A series of 8 notes e.g., C-C, D-D
Pentatonic	A musical scale with 5 notes
Range	The distance between the lowest and highest pitched note in a melody
Motif	A repeated theme that is memorable
Hook/Riff	A very catchy melodic phrase
Imitation	Repeated melody in a different instrument or voice

KEYWORD	MEANING
Staccato	Short and detached notes
Legato	Smooth and slurred notes
Accent	Emphasis placed on a particular note/beat
Pizzicato	Plucked strings
Arco	Bowed strings
Col Legno	Hitting strings with the wood of the bow
Glissando	Sweeping notes (think of the harp)
Vibrato	Subtly vibrating the sound by alternating the pitch between two notes

KEYWORD	MEANING	SYMBOL
Pianissimo	Very quiet	<i>pp</i>
Mezzo Piano	Moderately quiet	<i>mp</i>
Piano	Quiet	<i>p</i>
Mezzo Forte	Moderately loud	<i>mf</i>
Forte	Loud	<i>f</i>
Fortissimo	Very loud	<i>ff</i>
Crescendo	Gradually louder	
Diminuendo	Gradually quieter	

## D. TEXTURE

Texture describes how layers of sound within a piece of music interact. Texture is determined by how many instruments are playing and how many different parts there are.

## E. STRUCTURE

Structure is the order that different parts of the song are played in. The basic structure of a song can include an intro, verse, pre-chorus, chorus, and bridge.

## F. HARMONY

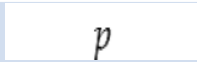
Harmony is the blending of simultaneous sounds of different pitch. A harmony differs from a melody in the way that it stacks multiple notes on top of one another to create a sound.

KEYWORD	MEANING
Unison	All playing or singing the same note
Thick/Thin	Number of layers of instruments/voices
Monophonic	A single line of musical notes
Homophonic	Moving together in chordal fashion
Polyphonic	Multiple layers, weaving melodic lines
Tutti	Meaning 'everyone' or 'all together'
Call & Response	Like question and answer – two parts having a musical conversation
Counter melody	A tune that complements the main melody

KEYWORD	MEANING
Binary	Two main sections, AB
Ternary	Three distinct sections, ABA
Rondo	Initial section that recurs, ABACADA
Theme & Variations	A melody is stated and is then repeated several times with changes
Verse	Tells the main story of a song
Chorus	A catchy part that is repeated in a song
Bridge	A contrasting section that prepares the listener for the return of the chorus

KEYWORD	MEANING
Chord	Three or more notes played together
Triad	Three notes: root, third, fifth
Arpeggio	Broken chord: notes are sounded individually
Perfect Cadence	Two chords at the end of a passage that sound as though the music has come to an end
Imperfect Cadence	Two chords at the end of a passage that make the music sound unfinished
Modulation	The change from one tonality to another
Dissonance	Two or more clashing notes

Question	Answer	Question	Answer
Identify this musical symbol		What is a <b>Motif</b> ?	
What does this symbol mean?		What does <b>pizzicato</b> mean?	
What does <b>Homophonic</b> mean?		What does <b>Fortissimo</b> mean?	
How many sections are there in a <b>Binary form</b> piece of music?	1 2 3 4	Draw the symbol for <b>Fortissimo</b>	
What sections are in a <b>Ternary</b> Form piece of music?	AB ABA ABACA	Identify this musical symbol	
Identify this musical symbol		What does the above symbol mean?	
What does this symbol mean?		Put these dynamic markings in order from quietest to loudest: <b>p ff f mp pp mf</b>	
What is the definition for a <b>hook/riff</b> ?		What is an <b>accent</b> ? The symbol is >	
How many beats is this note worth?		What's the musical term for notes that are played <b>short and detached</b> ?	
What is the musical term for notes that are played <b>smooth and slurred</b> ?		What does <b>Pentatonic</b> mean?	
What is an <b>Octave</b> ?		What <b>texture</b> has multiple layers and weaving melodic lines?	



## G. INSTRUMENTS

KEYWORD	MEANING
Strings	Violin, Viola, Cello, Double Bass, Harp
Brass	Trumpet, French Horn, Trombone, Tuba
Woodwind	Piccolo, Flute, Clarinet, Oboe, Bassoon
Percussion	Timpani, Xylophone, Glockenspiel, Maracas
Soprano	Highest female singing voice
Alto	A lower female singing voice
Tenor	Standard male singing voice
Bass	Low male singing voice

## H. RHYTHM

Rhythm involves time—the duration of musical sounds. Rhythm can exist without melody, as in the drumbeats of music, but melody cannot exist without rhythm.

KEYWORD	MEANING	SYMBOL
Semiquaver	¼ beat	
Quaver	½ beat	
Pair of Quavers	1 beat	
Crotchet	1 beat	
Minim	2 beats	
Dotted Minim	3 beats	
Semibreve	4 beats	
Breve	8 beats	

## I. TIMBRE

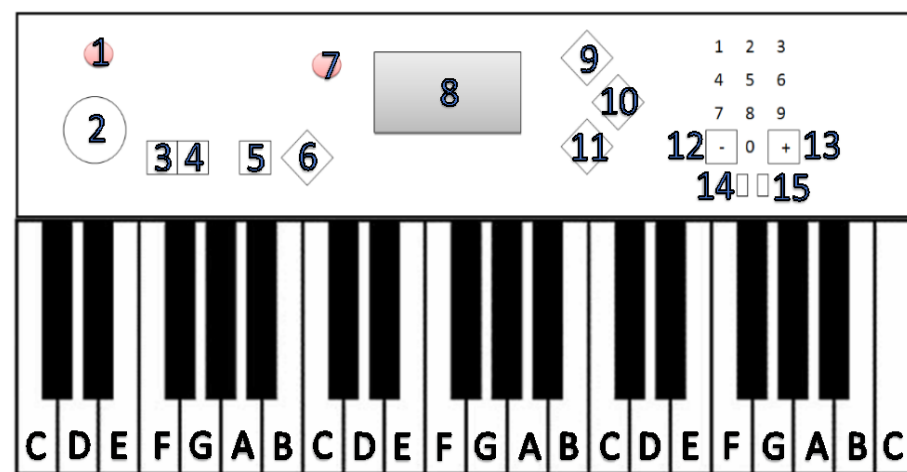
Timbre refers to the quality of a sound made by a particular voice or musical instrument. It is what makes a musical note sound different from another one.

ADJECTIVE	INSTRUMENT	ADJECTIVE	INSTRUMENT
Sweet	Flute	Hollow	Xylophone
Nasal	Oboe	Booming	Bass Drum
Tinkly	Glockenspiel	Muted	French Horn
Pounding	Timpani	Dull	Viola
Brassy	Trumpet	Breathy	Saxophone
Mellow	Clarinet	Shrill	Piccolo
Rich	Cello	Pure	Violin
Crashing	Cymbals	Rattly	Maracas
Dark	Double Bass	Reedy	Bassoon

## J. TEMPO

## K. LAYOUT AND FUNCTIONS OF A KEYBOARD

Tempo means the speed at which a piece of music should be played. As with many other musical terms, Italian words are used to describe different tempos of music.



1. Power Button (on/off)
2. Volume
3. Accompaniment
4. Intro/Ending
5. Sync. Start
6. Start/Stop Button
7. Tempo Button
8. Screen
9. Song
10. Voice
11. Style
12. Go left on options
13. Go right on options
14. Dual






KEYWORD	MEANING	SYMBOL
Presto	Very fast	168-200bpm
Allegro	Fast	120-168bpm
Moderato	Moderate	108-120bpm
Andante	Walking pace	76-108bpm
Adagio	Slow	66-76bpm
Largo	Very slow	40-66bpm
Accelerando	Gradually faster	accel.
Rallentando	Gradually slower	rall.

## L. DRILL TERMS

KEYWORD	MEANING
Treble Clef	Also known as the G Clef as it starts on the G line
Bass Clef	Also known as the F Clef as it starts on the F line
Stave	5 lines, 4 spaces that music notes are written on

KEYWORD	MEANING
Quaver	A note that lasts for ½ beat
Crotchet	A note that lasts for 1 beat
Minim	A note that lasts for 2 beats

KEYWORD	MEANING
Dotted Minim	A note that lasts for 3 beats
Semibreve	A note that lasts for 4 beats
Sharp/Flat	Higher/Lower by 1 semitone

Question	Answer	Question	Answer
How many <b>Semi-quavers</b> are in a <b>Crochet</b> ?		What <b>Instrument</b> has a <b>Dark Timbre</b> ?	
What does <b>Accelerando</b> mean?		What is the definition of <b>Allegro</b> ?	
Give the names of <b>4 Brass instruments</b> ...		How many <b>Quavers</b> are in a <b>Minim</b> ?	
How many <b>Beats</b> is this note?		What does <b>Alto</b> mean?	
What is the name the note?		What <b>Clef</b> is also know as the <b>F Clef</b> ?	
What does the word <b>Presto</b> mean?		Identify this musical symbol	
List <b>3 instruments</b> found in the <b>Brass</b> section of an orchestra		How many <b>beats</b> is this symbol?	
Solve this problem: 		List <b>3 instruments</b> found in the <b>Woodwind</b> section of an orchestra	
What <b>note</b> lasts for <b>4 beats</b> ?		What musical term is used for the <b>highest female singing voice</b> ?	
What does <b>Sharp/Flat</b> mean?		What <b>Timbre</b> does the <b>Violin</b> have?	
What does the key word <b>Andante</b> mean?		List <b>3 instruments</b> that can be found in the string section	





## Remember:

The Component is externally assessed by an Examiner. It counts for 20% (60 marks in total).

## Important Things!

**Remember:** Read your text, decide on your interpretation of the character and artistic intention. Be confident – full marks can be achieved in the Component.

### YOUR DRAMA:

After deciding on the play you want to perform:

**Remember:** Read the whole play in order to understand the style, the playwright's intention, the period involved before analysing and interpreting your role.

**Style:** The style of the play - Naturalistic, Realistic, Absurd, Symbolic, Brechtian, Physical Theatre.

**The Playwright's Intention:** Discuss contemporary themes, e.g. mental health, family problem, anorexia, drugs. Discuss a historical theme, e.g. War and its impact on society?

**Period:** Historical, Political, Cultural

**Research:** Go online, look at Youtube clips and write rough notes.

### ACTING ELEMENT:

**Remember:** Groups of 2 to 4

**Time:**

- groups of 2 actors – 5 to 10 minutes
- groups of 3 actors – 7 to 12 minutes
- groups of 4 actors – 9 to 14 minutes

**You must:** Perform two sections 10 minutes long that are key parts of the text.

**You must:** Perform a text that contrasts with the play you're studying for Component 3.

**The play must:** Be written by a different playwright, in different historical period and with different themes to the text in Component 3.

**Why?** To give you new experiences, and to be able to enjoy and challenge yourselves to learn and interpret different texts.

### CHARACTERISATION:

**Remember the criteria:**

You will be marked on your physical skills, vocal skills, interaction, interpretation, communication with the audience and individual contribution.

**Also remember:**

Your artistic intention must be written and submitted to the examiner before or on the day of the examination.

Once you know your text, you will need to focus on your character. Remember to use a range of practice techniques that will help you develop your role and create the rounded character: The Red Chair, Role on the Wall, Improvisation, Mime Work, The Missing Scene, Emotional Memory, The Magic If.

During the rehearsal periods, develop your vocal and physical skills:

**VOICE:** pronunciation, emphasis, pauses, tone and tempo, accent, pitch, constructiveness, highlights.

**MOVEMENT:** gesture, body posture, walk, position on the stage, characters' territories.

**INTERACTION:** distance, proximity, back turned, eye-rolling, facial response, moving away, approaching, physical gestures.

Discuss with your group what your stage shape will be, what type of set will be needed, stage equipment and props. It is also a good idea to use sound to create a mood and atmosphere either at the beginning, between scenes or at the end. You will need to carefully consider the costume, hair and make-up suitable for your role. Remember that you need consistent rehearsals and a full dress rehearsal before your final performance.



# Sentence Stems: Year 10 to Year 13



## Listen and Mark

Pay close attention to others and point out important moments.

- I notice you used the word / phrase \_\_\_\_, which implies \_\_\_\_ .
- When you said \_\_\_\_, it anchored the idea that \_\_\_\_ .
- Did anyone notice what \_\_\_\_ said about \_\_\_\_ ? This seems important because \_\_\_\_ .

## Defend and Unpack

Defend your perspective and explain your thought process.

- I understand your perspective on \_\_\_\_, but have you thought about \_\_\_\_ ?
- I actually think this because \_\_\_\_ . (Furthermore, finally).
- Actually, [evidence] suggests that \_\_\_\_ .

## Introduce and Invite

Begin your contribution and encourage others to participate.

- I suggest that \_\_\_\_ because \_\_\_\_ .
- \_\_\_\_, what is your perspective on \_\_\_\_, and why?
- We should discuss \_\_\_\_ because \_\_\_\_ .

## Build and Support

Add to others' ideas and bolster points by giving evidence.

- Your point about \_\_\_\_ implies \_\_\_\_, and I would like to further this by saying \_\_\_\_ .
- \_\_\_\_ supports the idea that \_\_\_\_ .
- Drawing upon points made by \_\_\_\_ and \_\_\_\_, we can conclude that \_\_\_\_ because \_\_\_\_ .

## Challenge and Verify

Disagree and ask others to prove or clarify information.

- You said \_\_\_\_ . How do you know?
- I think you said \_\_\_\_, which implies that you believe \_\_\_\_ . Is that right?
- I disagree with what you said about \_\_\_\_ because \_\_\_\_ .

## Summarise and Map

Draw together big themes and track the discussion.

- Our main findings were \_\_\_\_ .
- On the whole, we believe that \_\_\_\_ .
- Initially, we thought \_\_\_\_, but we eventually decided \_\_\_\_ .



# SWINDON ACADEMY READING CANON

## Year 7



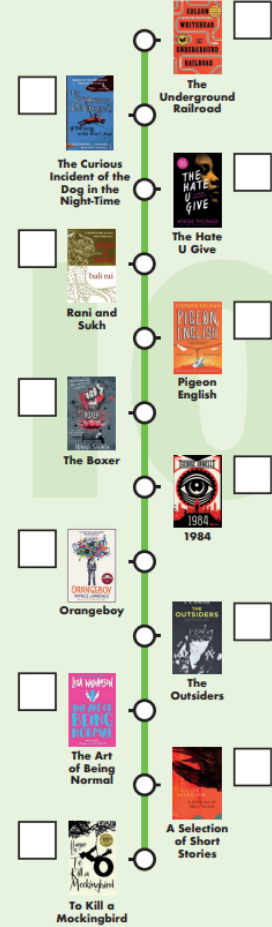
## Year 8



## Year 9



## Year 10



#ReadingisPower