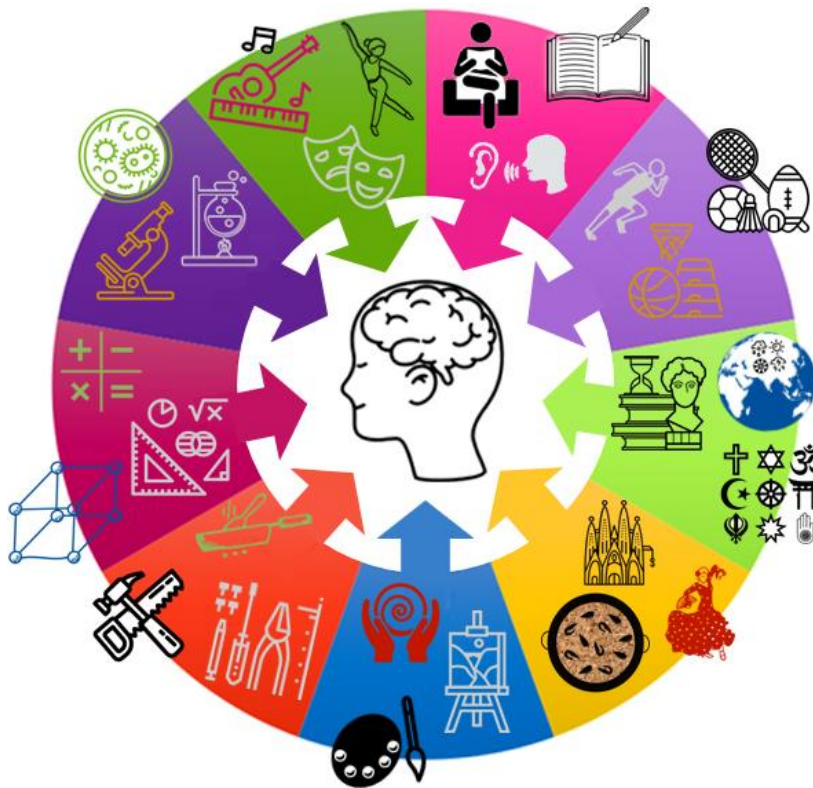


100% book - Year 10 Grammar

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

Term 3



Swindon Academy 2022-23

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 image shows a screenshot of the Epraise website. On the left is a 'Planner' for the week of 20th May to 26th May 2020, with columns for Sun, Mon, Tue, Wed, Thu, and Fri. On the right is a 'Knowledge Organiser' for 'Particle Theory'. It contains various sections: 'What is particle theory?', 'What is the law of conservation of mass?', 'What are the different states of matter?', 'What are the differences between the states of matter?', and 'What are the differences between the states of matter?'. There are also 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.

The image shows a screenshot of a knowledge organiser page with handwritten notes. The date '29th May 2020' is written at the top. The title 'Particle theory' is written in the middle. The page contains sections: 'A. What is particle theory?' (The theory that all matter is made up of particles), 'A. What is the law of conservation of mass?' (The Law of Conservation of Mass states that mass cannot be created or destroyed), 'B. What are the different changes of state?' (Melting: Change of state from solid to liquid; Freezing: Change of state from liquid to solid; Evaporation: Change of state from liquid to gas; Condensation: Change of state from gas to liquid), and 'C. What are the differences between the states of matter?' (Solid: Particles are in a regular pattern and vibrate in a fixed position; Liquid: Particles are arranged randomly but are still touching each other; Gas: Particles are far apart and are arranged randomly). There are also diagrams of particle arrangements for solid, liquid, and gas.

Step 3

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

The image shows handwritten notes on lined paper. The date '29th May 2020' is written at the top. The title 'Properties of the states of matter' is written. The notes are: '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', and '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.

The image shows handwritten notes on lined paper. The definition 'Solid = regular pattern particles vibrate in fixed position' is written three times.

Step 5

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

The image shows a screenshot of a quizzable knowledge organiser with handwritten answers. The questions are: 'A. What is particle theory?' (Answer: Self quizzing), 'A. What is the law of conservation of mass?' (Answer: Arrangement/movement of matter), 'B. What are the different changes of state?' (Answers: Solid = regular pattern, Liquid = pa, Gas =), and 'C. What are the differences between the states of matter?' (Answers: Solid, Liquid, Gas). There are also diagrams of particle arrangements for solid, liquid, and gas.

Step 6

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

The image shows handwritten notes on lined paper with corrections and checkmarks. The notes are: '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', and '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.

ENGLISH –A Christmas Carol- Grammar

1. Context	
<p>Writer: Charles Dickens (1812-1870)</p> <p>Dates: First published in 1843</p> <p>Genre: Allegorical; a ghost story.</p> <p>Era: Victorian</p> <p>Set: Victorian London</p> <p>Structure: The novella is divided into 5 staves (chapters).</p>	<p>Biography of Dickens</p> <ul style="list-style-type: none"> Born in Portsmouth in 1812 When Dickens was 12, his father was sent to debtors' prison as he was unable to pay his bills. His mother and youngest siblings were sent with him, whilst Dickens stayed with a family friend. In order to help his family, Dickens had to leave school and work in a factory sticking labels on bottles. Dickens dedicated his life to writing works that revealed the horrors of life in Victorian London for those living in poverty.
<p>Christmas: Dickens grew concerned that, due to capitalism, society had lost sight of traditional values (Christian morals, forgiveness, charity). He felt that Christmas was the perfect time to reconnect with these values and used his novella to do this. He also knew that Christmas would be a popular topic so it would sell well – therefore enabling his message to reach a wider audience.</p>	<p>London and inequality: Dickens juxtaposes scenes of middle-class comfort and poverty to emphasise the close proximity and contrast of the different classes. It highlights the Christian concept of 'love thy neighbour'. The urban setting allows Dickens to exercise his fondness for hyperbole, with the exaggerated extremes of poverty adding to the effect of the 'plight of the poor'.</p>
<p>The Poor Law, 1834 In order to deter poor people from claiming financial help, the government made claimants live in workhouses: essentially, prisons for the poor. Dickens hated this law. He spent 1843 touring factories and mines in England and wished to highlight the situation facing poor people. A Christmas Carol was published soon after – in December 1843.</p>	<p>Malthusian Theory The reformation of The Poor Law was partially informed by the writings of Thomas Malthus. Malthus argued that if living standards increased, population would increase and eventually the number of people would be too great for the food that could be produced. As a result, Malthus argued it was important not to support the poor or improve their standards of living, but to allow them to die if they couldn't support themselves because charity would only prolong their suffering.</p>
<p>The Supernatural: Victorian society was fascinated by the supernatural, including mediums, ghosts, and spiritualism. However, this belief in the supernatural was also heavily influenced by the church, with the belief that ghosts were souls who were trapped in purgatory (a place of suffering where the souls of sinners were trapped).</p>	

2. Key Characters	
<p>Ebenezer Scrooge: The protagonist is initially established as an archetypal villain who dismisses the goodwill and generosity associated with Christmas. After being forced to transform, he feels remorse for his avarice and becomes a symbol of Christmas spirit. Scrooge embodies the relentless capitalist spirit of the time, but also demonstrates that everyone has the capacity to reform.</p>	
<p>Bob Cratchit: Bob is Scrooge's downtrodden but loyal employee. His family are a symbol of Victorian poverty, cheerfulness in adversity, togetherness and Christmas Spirit. Bob shows pity for Scrooge, and provides a contrast to Scrooge's isolation and meanness. His son, Tiny Tim, is an emblem for noble poverty; he accepts his disability without complaint.</p>	
<p>Fred: Fred juxtaposes the character of Scrooge and epitomises the concept of goodwill and forgiveness, refusing to be discouraged by his uncle's misery. People speak highly of Fred and his generosity, in contrast to how they speak of Scrooge. Fred shows that Scrooge has chosen isolation and shows forgiveness to Scrooge, welcoming him in Stave Five.</p>	
<p>Marley's Ghost: Marley's ghost is the spiritual representation of Scrooge's potential fate. The chains that drag him down symbolize the guilt caused by his failure to help people in need. Marley's ghost warns Scrooge that he too will experience the same guilt if he continues to deny people help.</p>	
<p>The ghosts: The Ghost of Christmas Past is a symbol of childhood, truth and enlightenment. The Ghost of Christmas Present represents goodwill, plenty and the festival of Christmas. The Ghost of Christmas Yet to Come symbolises a catastrophic future for mankind.</p>	
<p>Belle: The woman that Scrooge was engaged to when he was a young man. Belle's role is crucial in Scrooge's transformation, as the scenes show Scrooge what he might have had in his life if he had not been so avaricious. Through the character of Belle, Dickens sets emotional love directly against Scrooge's love of money and suggests that avarice can lead to a deprivation of kindness, love and empathy.</p>	
3. Central Themes	
<p>Social injustice</p>	<p>Dickens highlights the unfairness within society through the juxtaposition of the poor and wealthy. Through Scrooge's refusal to give to charity and his exclamation that the poor should be in workhouses or die, Dickens illustrates the selfishness of the higher classes and the injustice of wealth distribution in Victorian society. The children, Ignorance and Want, personify the dangerous consequences of allowing poverty to continue.</p>
<p>Transformation and redemption</p>	<p>By establishing Scrooge as an archetypal villain, Dickens is able to emphasise the idea that everyone is capable of transformation and redemption. From starting as a greedy, avaricious miser, Scrooge is able to reflect upon his actions and to understand that he must live his life helping others to avoid Marley's fate.</p>
<p>Social responsibility</p>	<p>Dickens felt that every individual had a responsibility for those around them. Marley's Ghost conveys the message of the novella when he cries, 'Mankind was my business' demonstrating that the proper 'business' of life is not about seeking financial reward but having concern for others. Dickens highlights the importance of trying to make a difference- whether that be large financial contributions (Scrooge), smaller contributions (Fezziwig) or simply showing compassion and kindness to one another.</p>

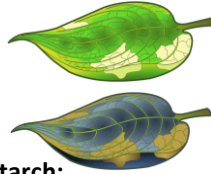
4. Key Vocabulary	
Avarice	Extreme greed of possessions or money
Salvation	Saving someone from harm or destruction
Miserly	someone who is greedy and does not like spending money
Callous	Mean or cruel
Antithesis	The exact opposite of something
Epiphany	A moment of sudden understanding
Redemption	The act of being saved or freed from sin or error
Benevolence	Kind and helpful towards others
Philanthropic	Showing concern for others by being charitable
Misanthropic	Someone who has a hatred for other people
Penitence	sincere regret for wrong or evil things that you have done
Remorse	a strong feeling of sadness and regret about something wrong that you have done
Deprivation	When someone is unable to have the things they need or want
Despotism	exercising power in a cruel and controlling way
Capitalism	A political system in which property, business, and industry are owned by private individuals and not by the government
5. Key Terminology, Symbols and Devices	
Stave	Chapters in the novella, but we normally associate staves with music, as if the book is a Christmas carol, and each chapter is part of the song. As Christmas carols are repetitive and easy to remember, it links to how Dicken's wishes his message to be remembered.
Intrusive Narrator	A narrator who interrupts the story to provide a commentary to the reader on some aspect of the story or on a more general topic. In 'A Christmas Carol' the narrator helps to shape our impressions of Scrooge.
Circular structure	Circular narratives cycle through the story one event at a time to end back where the story originated.
Allegory	A story that can be interpreted to reveal a hidden meaning, typically a moral or political one.
Allegorical figures	An allegorical figure is a character that serves two purposes: first, they are an important person in the story in their own right, and, second, they represent abstract meanings or ideas.
Foreshadowing	Foreshadowing is a literary device in which a writer gives an advance hint of what is to come later in the story.
Didactic	A type of literature that is written to inform or instruct the reader, especially in moral or political lessons.
Semantic Field	A set of words that are related in meaning. Dickens frequently uses semantic fields of warmth and coldness that are associated with the characters.

The Big Ideas	Notes
<p>Dickens promotes a social responsibility in which he argues that everyone must contribute.</p>	
<p>Dickens suggests that change is possible, and that everyone has capacity to redeem themselves and reform.</p>	
<p>Dickens illustrates the injustice of wealth distribution in Victorian society and highlights the dangerous consequences of allowing poverty to continue</p>	
<p>Dickens uses contrasting characterisation to demonstrate how we must be generous and socially responsible.</p>	
<p>Dickens uses contrasts in setting to highlight social injustice</p>	

Science T3 Y10 B2.8 Grammar Biology Photosynthesis

Photosynthesis

Endothermic chemical reaction that takes place in chloroplasts in leaves that produces glucose and oxygen from carbon dioxide and water



What do plants do with the glucose?

- Stored as starch
- Stored as fats and oils
- For making cellulose (for cell walls)
- For respiration
- For making amino acids (along with nitrates from soil)

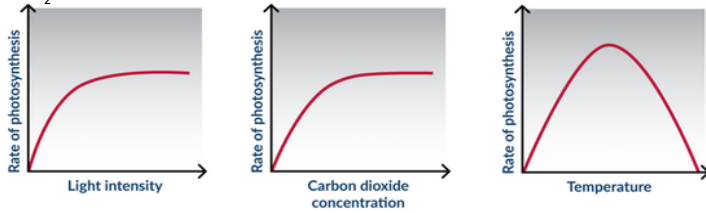
Testing the leaf for starch:

- Boil the leaf for 5 minutes to soften
- Put into heated ethanol to remove chlorophyll (turn off Bunsen burner!)
- Spread leaf on a white tile
- Add iodine
- In the places that contain starch the iodine will turn blue/black
- In a variegated leaf, only the parts containing chlorophyll turn blue black
- This shows chlorophyll is essential for photosynthesis

Factors that affect the rate of photosynthesis

- Light
- Temperature
- CO₂ concentration

Whichever one is in the shortest supply is called the **limiting factor** – as it is the one limiting the rate of photosynthesis

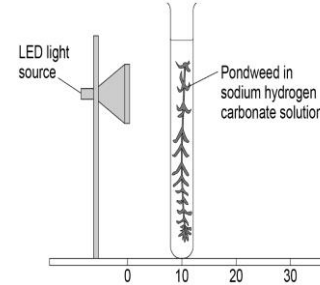


Increased light intensity increases the rate, but only up to a point, when CO₂ or temperature become limiting

Increased CO₂ conc increases the rate, but only up to a point, when light or temperature become limiting

Increased temperature increases the rate, but only up to a point, then the enzymes are denatured & rate drops

RP5 – Effect of light intensity on rate of photosynthesis



Independent variable: distance between lamp and plant (or light intensity)
Dependent variable – number of bubbles per second / rate of photosynthesis
Controls – temperature of solution, piece of pondweed

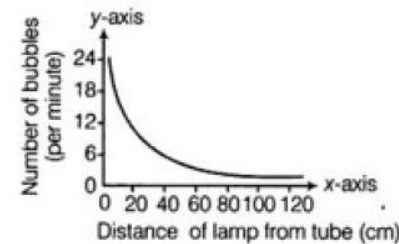
1. Measure 10cm length of pondweed and cut with scissors.
2. Place into beaker of 250ml NaHCO₃ solution. (this provides CO₂)
3. Place lamp 10cm away from pondweed – turn on lamp and leave for 2 minutes to adjust to light intensity.
4. Count number of bubbles produced in 60 seconds and record in table.
5. Repeat steps 3 and 4 for lamp distances of 20cm – 50cm at 10cm intervals.
6. Keep the temperature of the solution the same (LED light is used to not give off heat)

Inverse Square Law (HT only)

As distance of the lamp doubles the light intensity of the plant quarters

$$I = \frac{1}{d^2}$$

Typical results:

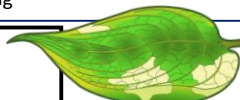


As the **distance** between the lamp and the pondweed **increases**, the **number of bubbles per minute decreases**

1. What is the independent variable in this investigation?
2. What needs to be kept the same?
3. What is the dependent variable?
4. Why is an LED lamp used rather than a regular lamp?
5. Why is sodium hydrogen carbonate solution used?
6. What is a good range and interval for the distance measurements?
7. Why is the plant left for 2 minutes every time the lamp is moved?
8. Describe the relationship between distance and the number of bubbles per minute

Factors that affect the rate of photosynthesis

1. What are the three main factors that affect the rate of photosynthesis?
2. What is a 'limiting factor'?
3. Why does increasing the temperature above a certain point cause the rate to drop?
4. Describe the effect of increasing the concentration of CO₂ on the rate of photosynthesis



1. What are the two reactants for photosynthesis?
2. What are the two products?
3. Where in a cell does this reaction happen?
4. Name two uses of glucose produced in photosynthesis.
5. What else is needed for plants to produce amino acids?
6. What chemical is used to test for starch?
7. Which parts of the leaf contain starch in a variegated leaf?

Science T3 Y10 B2.9 Grammar Biology Respiration

Respiration

Respiration is a chemical reaction that happens in the mitochondria of cells to release energy from glucose.

There are two types – Aerobic and Anaerobic.

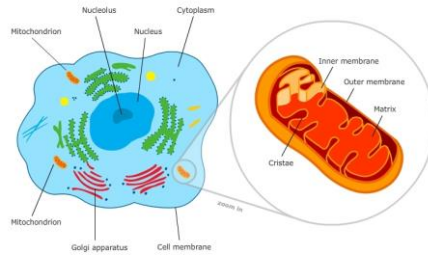
Aerobic: - with oxygen

oxygen + glucose → carbon dioxide + water



Organisms need energy for:

- chemical reactions to build larger molecules
- movement
- keeping warm.



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Anaerobic respiration

Respiration without oxygen

In animal cells = glucose → lactic acid

In plant/yeast cells = glucose → ethanol + carbon dioxide

In yeast, this is fermentation and is used in brewing and baking



	Aerobic	Anaerobic
Oxygen used?	Yes	No
Waste products	CO ₂ and H ₂ O	Lactic acid (animals) Ethanol + CO ₂ (plants/yeast)
Energy released	Lots	Much less

Respiration

1. What is respiration?
2. Where does respiration take place?
3. What does aerobic mean?
4. Give two uses for the energy released from respiration
5. What are the two types of respiration?
6. What are the reactants in respiration?
7. Write the equation for respiration below

Exercise

1. Describe two changes to breathing during exercise
2. Why does breathing need to change during exercise?
3. What happens to heart rate during exercise?
4. When does anaerobic respiration happen?
5. Which chemical builds up in muscles during anaerobic respiration?

Exercise

During exercise, more energy is needed so that muscles can keep contracting. This means more respiration is needed.

Increased breath depth -

Get more oxygen into blood per breath and remove CO₂

Increased breathing rate -

Get oxygen into blood quickly.



Increased heart rate -

Get more oxygenated blood to muscles.

Heart beats harder -

more blood is pumped with every beat.

During intense exercise, there is just not enough oxygen getting into the body.

The muscles start to respire anaerobically.

The build up of lactic acid can cause cramp/stitch.

(HT ONLY) When exercise is over, the lactic acid has to be oxidised to CO₂ and H₂O. The amount of oxygen needed to do this is called the oxygen debt

Metabolism

Metabolism is the sum of all the reactions in a cell or the body.

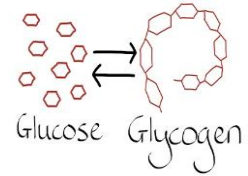
The 'metabolic rate' is the rate at which all of these reactions take place.

An example of a reaction = making proteins using amino acids from digestion.



More examples:

- glucose → glycogen (in muscles/liver)
- respiration
- protein → urea
- glycerol and fatty acids → fats



Anaerobic respiration

1. What is anaerobic respiration?
2. What is 'fermentation'?
3. What are the waste products of anaerobic respiration in humans?
4. What are the waste products of anaerobic respiration in plants and yeast cells?
5. Which type of respiration releases most energy?

Metabolism

1. What is the metabolic rate?
2. Give two examples of metabolic reactions other than respiration
3. What is glucose stored as in muscles?
4. What are fats made of?

Rate of reaction.

Measuring the rate of anything always involves a **measurement of time**

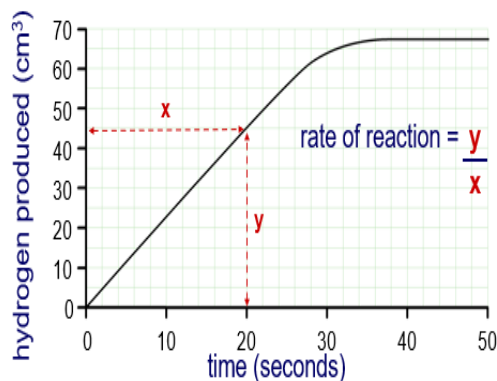
The rate of a chemical reaction can be found using:

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

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

Quantities for reactants or products are measured in **mass in g** or by **volume in cm³**

Rate calculations can be done from tables of data or graphs:



Volume of hydrogen produced = 45cm³

Time taken = 20 seconds

Rate = $\frac{45}{20}$ cm³

20 s

rate = 2.25 cm³/s

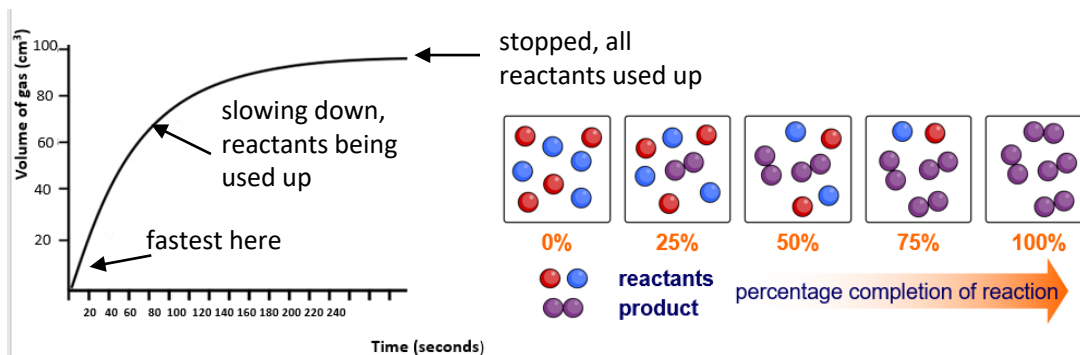
The progression of a chemical reaction

For a reaction to take place, reactant particles have to collide.

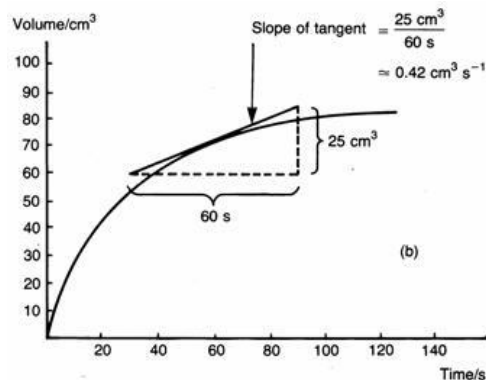
The rate of a reaction depends on the **frequency of collisions** and the **energy with which the particles collide**.

The minimum amount of energy needed to start a reaction is called the **activation energy**.

A reaction is always **fastest at the beginning** and slows down over time as the reactants get used up and the frequency of collisions decreases.



Using a tangent to calculate rate (HT)



- Draw a line along the point you're interested in. The line should touch the curve at the point given.
- Make a triangle. Try to make the angles either side of the line equal.
- Measure the change in volume and change in time
- Calculate the gradient
- Use units from the axes to determine the units for rate

1. Give two ways of calculating the rate of a reaction

2. What does a rate calculation always have to include?

3. What are solid reactants or products measured in?

4. What are liquid or gaseous products measured in?

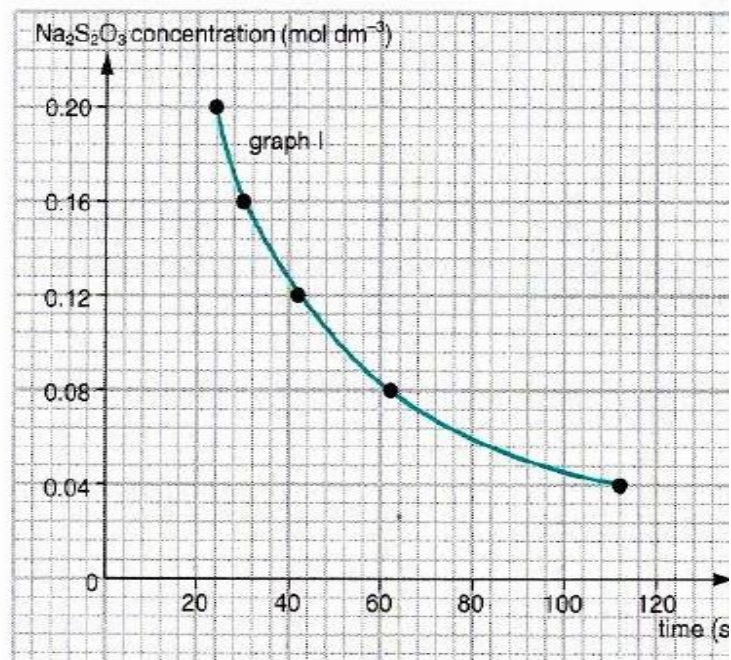
5. How is the rate calculated from a graph?

1. What point in a reaction is the fastest?

2. Why does a reaction slow down as it progresses?

3. Why do reactions stop?

4. What two factors affect the rate of a reaction?

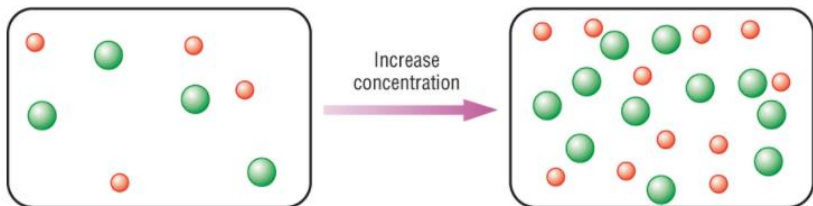


1. Describe how to draw a tangent at 50s.

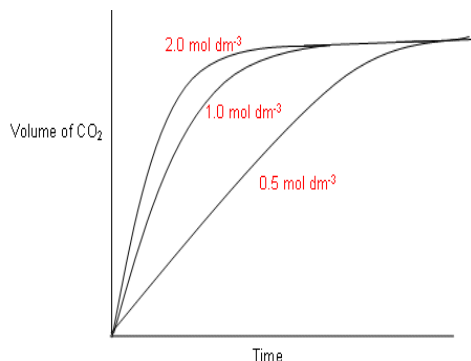
2. Draw the tangent at 50s

3. What will the units for the rate of this reaction be?

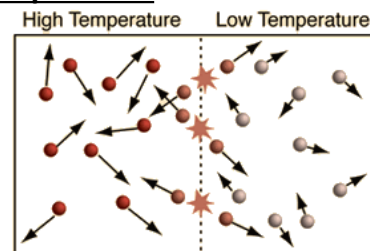
The effect of concentration



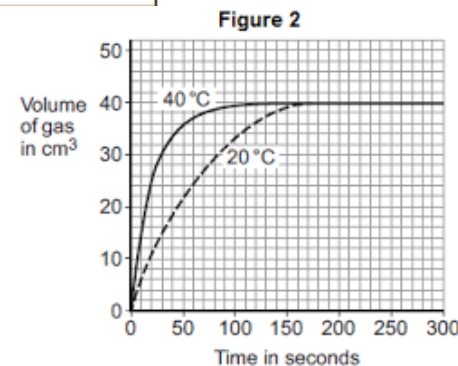
Concentration means number of particles per cm^3
 Increasing the concentration of any of the reactants increases the rate of the reaction
 This is because there are more particles per cm^3 so there are **more frequent collisions**, increasing the rate.



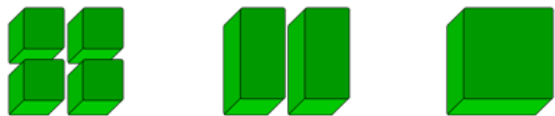
The effect of temperature



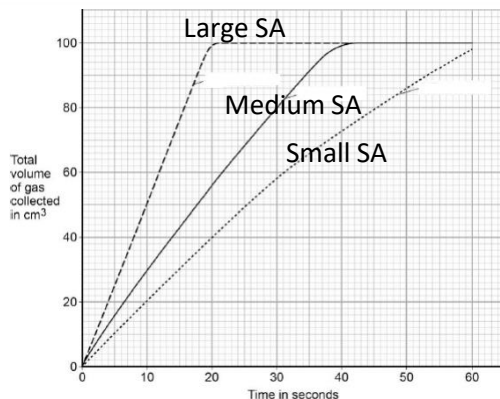
Increasing the temperature of the reactants increases the rate of the reaction.
 This is because the particles have more kinetic energy and therefore move faster, so there are **more frequent collisions**, increasing the rate.



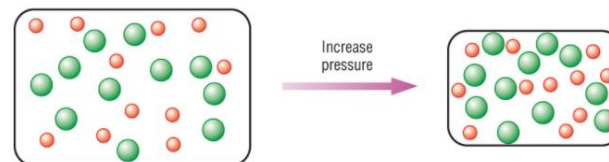
The effect of surface area



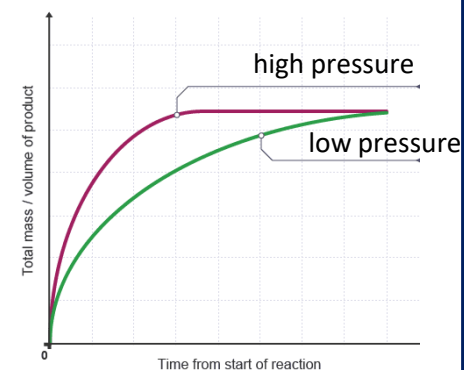
The smaller the pieces of a solid the higher the surface area
 Increasing the surface area of solid reactants increases the rate of reaction.
 This is because there is a greater area available for collisions to occur so there are **more frequent collisions**, increasing the rate.



The effect of pressure



Increasing the pressure of gaseous reactions increases the rate of the reaction.
 This is because the same number of particles are now in a smaller volume, so there are **more frequent collisions**, increasing the rate.

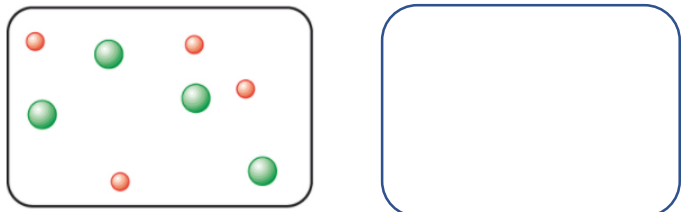


In all cases, the overall amount of product is the SAME, the end point of the reaction is just reached faster

Science T3 Y10 C3.8 Grammar Chemistry Rate and extent of chemical change

The effect of concentration

1. In the box below, draw a reaction involving a higher concentration of the green reactant molecules.



2. What happens to the rate of a reaction if you increase the concentration?

The effect of surface area

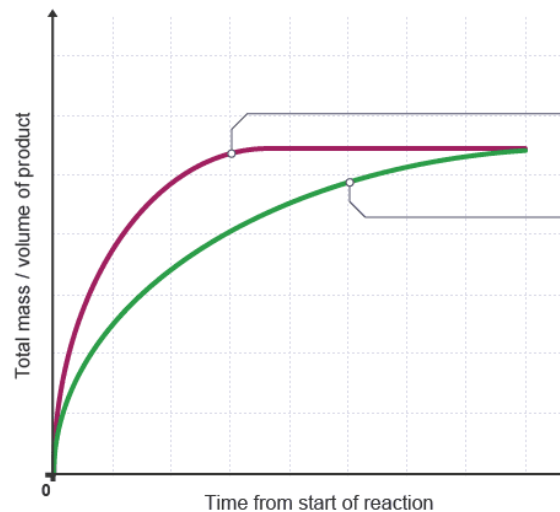
1. Reactions involving what sort of reactant are affected by surface area?
2. What type of piece has a large surface area?

The effect of temperature

1. Describe how increasing the temperature affects the rate of a reaction.
2. Explain why this happens in terms of particles.

The effect of pressure

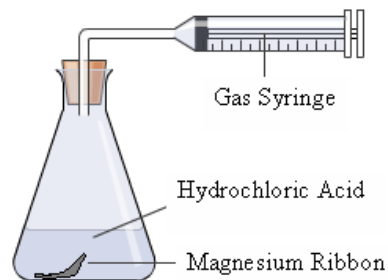
1. Reactions involving what type of reactants are affected by pressure?
2. Label the diagram with 'low pressure' and 'high pressure'



What happens to the overall amount of product if you change the rate of a reaction?

Experiment 1

Using volume of gas collected over time as a measure of the rate



Independent variable: concentration of HCl

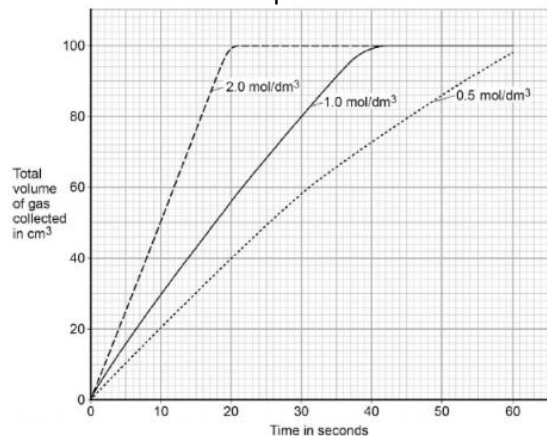
Dependent variable : Volume of gas produced / min

Control variables : volume of HCl, mass of Mg, temperature of acid

Method

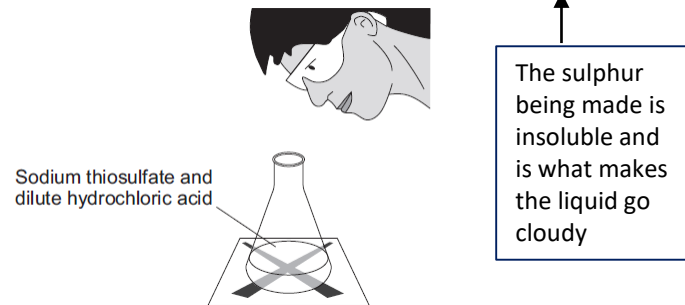
1. Measure 20cm³ 0.5M HCl into a conical flask.
2. Insert 2 x 2cm pieces of Mg and attach a gas syringe
3. Start a stopwatch and measure the volume of gas collected every 20 seconds until the reaction is over.
4. Repeat using different concentrations of HCl.

An increase in the concentration leads to an increase in the rate of the reaction, but the same volume of product overall



Experiment 2

Investigating the effect of changing the concentration of HCl on the rate of reaction



Independent variable: concentration of HCl

Dependent variable : Time taken for the cross to disappear

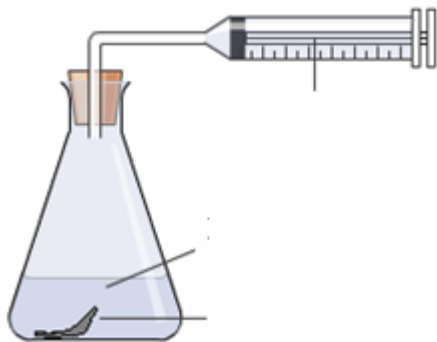
Control variables : volume of HCl, volume of sodium thiosulphate, temperature of both solutions, concentration of sodium thiosulphate

Method

1. Use a measuring cylinder to put 10 cm³ sodium thiosulfate solution into the conical flask.
2. Put the conical flask on the black cross.
3. Put 10 cm³ of 0.5M hydrochloric acid into the 10 cm³ measuring cylinder.
4. Put this acid into the flask. At the same time swirl the flask gently and start the stopwatch.
5. Look down through the top of the flask. Stop the stopwatch when you can no longer see the cross. Record the time.
6. Repeat steps 1-5 using different concentrations of HCl – 1M, 1.5M, 2M and 2.5M

Experiment 1

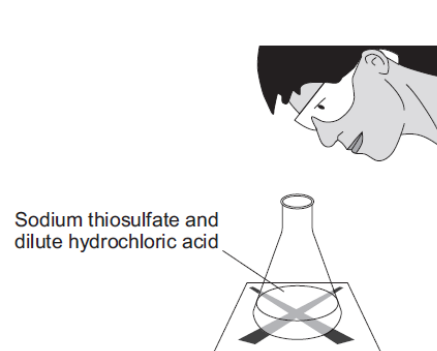
Using volume of gas collected over time as a measure of the rate



1. Label the diagram to show the equipment and chemicals used in this investigation
2. What is the independent variable?
3. Name two control variables.
4. What is a sensible volume of HCl to use?
5. Which piece of equipment, essential for a rate calculation, is not shown?

Experiment 2

Investigating the effect of changing the concentration of HCl on the rate of reaction

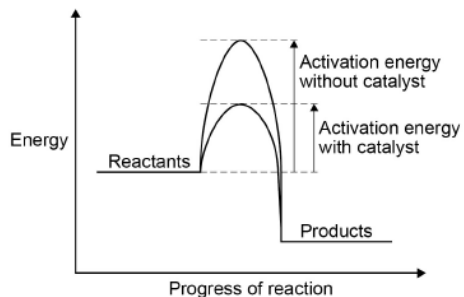


1. What is the dependent variable in this reaction?
2. Why does the solution go cloudy?
3. Name two control variables.

Science T3 Y10 C3.8 Grammar Chemistry Rate and extent of chemical change

Catalysts

- Catalysts are substances that speed up chemical reactions without themselves being used up.
- They provide a different pathway for the reaction with a lower activation energy.
- Different reactions require different catalysts.



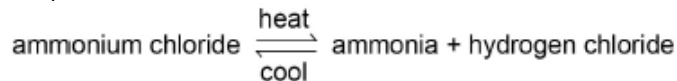
Reversible reactions

These are reactions in which the products can react to produce the original reactants

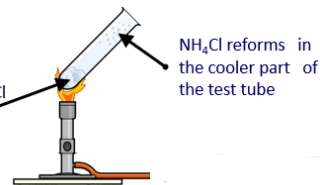
They are represented by the symbol \rightleftharpoons

The direction of the reaction can be changed by changing the conditions

For example:

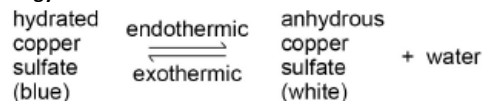


NH₄Cl decomposes back into NH₃ and HCl gases when heated



If a reaction is exothermic in one direction, it is endothermic in the opposite direction

The same amount of energy is transferred in each case.



When a reversible reaction takes place in sealed apparatus, then a point occurs when the forward and backward reactions occur at the same rate. This is **equilibrium**

The effect of changing conditions on equilibrium (Le Chatelier's principle)

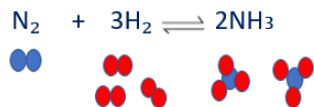
If a system is at equilibrium and a change is made to the conditions, then the system responds to counteract the change.

E.g. – if the temperature is increased, then the system will respond by increasing the rate of the endothermic reaction, to bring the temperature back down

If the concentration of the reactants is increased, then equilibrium will shift right and more products will be made.

In gaseous reactions, a change in pressure will result in equilibrium shifting to the side that restores the pressure.

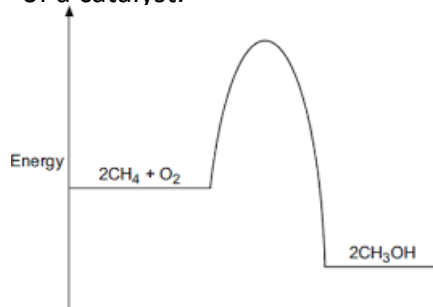
E.g. :



In this reaction, there are 4 moles of gas on the reactants side and only 2 on the product side

If the pressure is increased, equilibrium will shift right as there are fewer moles on the products side, and this will decrease the pressure.

1. What is a catalyst?
2. How do they speed up reactions?
3. Draw on the energy level diagram below to show how it would change in the presence of a catalyst.



1. What is a reversible reaction?
2. What symbol is used in an equation to represent a reversible reaction?
3. If a reaction is endothermic in the forward direction, what does this tell us about the backward reaction?
4. If 300J of energy is absorbed during an endothermic reaction, how much will be released in the opposite direction?
5. What is equilibrium?

1. When a change is introduced into a closed system, what does the system respond in order to do?
2. If the temperature of a reaction mixture at equilibrium is increased, what would the change aim to do?
3. What sort of reaction would achieve a drop in temperature?
4. If the pressure is increased in a gaseous reaction, which way would equilibrium shift?

Side with fewest moles/side with most moles

Crude oil

Crude oil = a mixture of **hydrocarbons**.

- It is a **non-renewable resource (fossil fuel)**
- Made from remains of dead sea creatures **compressed** over millions of years

Hydrocarbons - molecules containing **hydrogen** and **carbon only**.

Two types of hydrocarbons are **alkanes** and **alkenes**.
The hydrocarbons in crude oil are mostly alkanes.

Alkanes

- Alkanes are **saturated** hydrocarbons.
- Held together by **single covalent bonds**.
- General formula = C_nH_{2n+2}
- Have different boiling points – longer the chain, higher the boiling point

You need to remember the names, and formulas of the first 4 alkanes.

Name of Alkane	Structural Formula	Molecular Formula
methane	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$	CH_4
ethane	$\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{H} \quad \text{H} \end{array}$	C_2H_6
propane	$\begin{array}{c} \text{H} \quad \text{H} \quad \text{H} \\ \quad \quad \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \\ \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \end{array}$	C_3H_8
butane	$\begin{array}{c} \text{H} \quad \text{H} \quad \text{H} \quad \text{H} \\ \quad \quad \quad \\ \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\ \quad \quad \quad \\ \text{H} \quad \text{H} \quad \text{H} \quad \text{H} \end{array}$	C_4H_{10}

Fractional Distillation

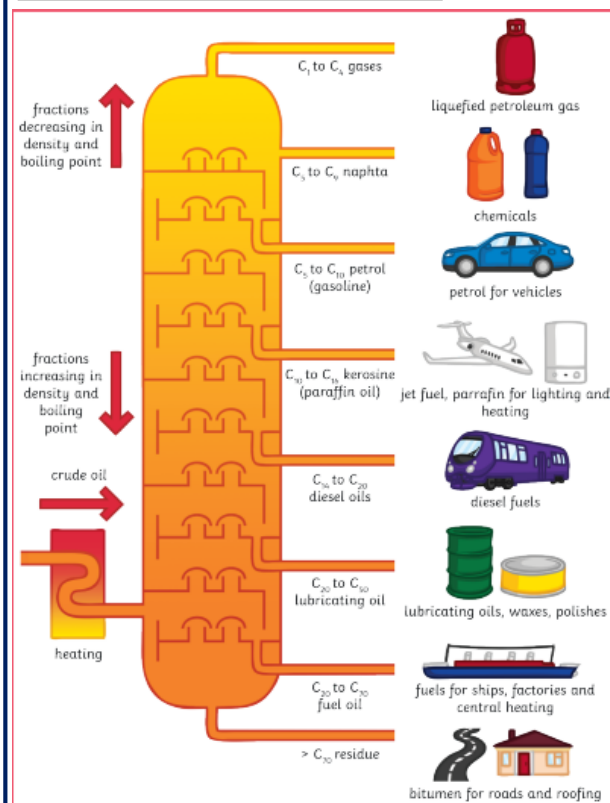
- Used to **separate** the mixtures of hydrocarbons in **crude oil**.

Steps in Fractional Distillation

1. Crude oil enters **fractioning column** and is heated to boiling point so the hydrocarbons evaporate.
2. It is **cooler** at the **top** of the fractionating column and **hotter** at the **bottom**.
3. Vapours rise up the column and, as they rise, they cool
4. The different hydrocarbons condense at different **boiling points**
5. The different 'fractions' have different properties

Short-Chain Molecules	Increasing Chain Length	Long-Chain Molecules
	As chain length increases, the boiling point of the hydrocarbon chains also increases.	
thin	Viscosity describes how easily a substance can flow e.g. treacle is very viscous; it is thick.	thick
	Flammability is a measure of how easily a substance burns.	

Uses of the different fractions



Supply and demand

Product	Supply in tonnes	Demand in tonnes
petrol	100	300
diesel	200	100
heating oil	250	50

After fractional distillation, we find:

- we have more of the long chain hydrocarbons than we need
- There are not enough short chain hydrocarbons.
- Short chain are more useful as they are more flammable so can be used as fuels.

Science T3 Y10 C3.9 Grammar Chemistry Crude oils and fuels

- | | | |
|---|--|---|
| <ol style="list-style-type: none">1. What is crude oil?2. What is a hydrocarbon?3. What type of hydrocarbons are alkanes?4. State the general formula for alkanes.5. Name the first four alkanes.6. What sort of bonding is found in hydrocarbons? | <ol style="list-style-type: none">1. What is the name for the process that results in the separation of the fractions of crude oil?2. What happens to the boiling point of hydrocarbons as the chain length increases?3. What happens to the viscosity of hydrocarbons as the chain length increases?4. What does flammable mean?5. What are the two changes of state that occur during fractional distillation?6. Which physical property is used to separate the fractions? | <ol style="list-style-type: none">1. What is one use for the hydrocarbons that are between 14 and 20 carbons long?2. What is the range of lengths of hydrocarbons in fuel oil?3. What are the smallest hydrocarbons used for?4. What happens to the flammability of hydrocarbons as the chain length increases?5. What is the range of hydrocarbon lengths found in petrol?6. What is the problem with supply and demand of the different hydrocarbon chains? |
|---|--|---|

Cracking

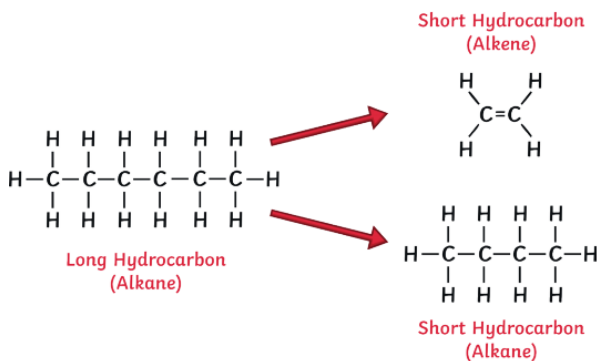
- This is done to solve the problem of having too many long chain hydrocarbons and not enough short ones
- Long hydrocarbons are **broken down** into smaller, more useful hydrocarbons.
- Short chain hydrocarbons are more useful as they are more flammable

Two types of cracking: catalytic and steam cracking.

Catalytic cracking – needs a **high temperature** and a **catalyst**.

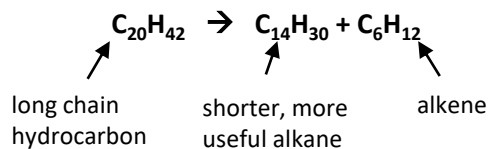
Steam cracking – high temperature and steam

- Cracking produces a **short-chain alkane** and an **alkene**.



Cracking equations

Same number of carbon and hydrogen atoms on both sides of the equation:



Alkenes

- Alkenes are **unsaturated** hydrocarbons.
- Contain carbon-carbon **double bonds**.

Test for Alkenes

Use bromine water to test for alkenes. If an alkene is present, the bromine water turns from orange/brown to colourless. Alkanes do not react with bromine water.

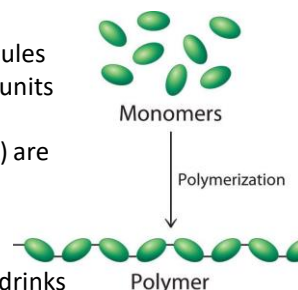


Uses for alkenes:

- Can be used as fuels
- Can be used as a starting material for other chemicals
- Can be used to make polymers (e.g. plastic)

Polymers

- Polymers are large molecules made of many repeating units (monomers)
- Alkenes (small molecules) are joined together to make polymers



Poly(ethene) – plastic bags/drinks bottles

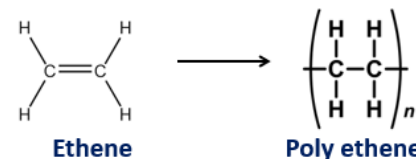
Poly(propene) – strong tough plastics

Drawing and naming polymers

1. Redraw the **monomer given**, but without the double bond. Make sure to copy all other elements exactly.
2. Put brackets around the monomer and extend joining bonds out through the brackets on both sides
3. Add an 'n' at the bottom right of the bracket
4. To name the polymer, you put **poly** in front of the monomer name

E.g.:

Draw and name the polymer made from the monomer ethene:



Combustion of Hydrocarbons

Combustion means burning.

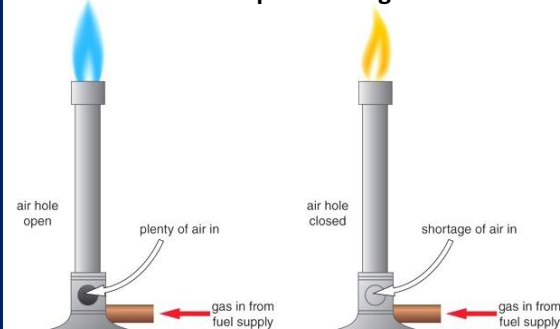
Complete combustion - when there is a good supply of **oxygen** for a fuel to burn.

Fuel + oxygen → carbon dioxide + water

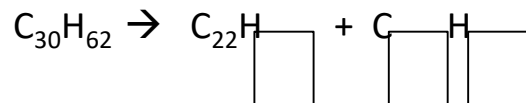
Incomplete combustion - not enough oxygen

Products are **carbon monoxide** and water.

Carbon monoxide = poisonous gas



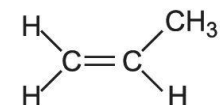
1. What is cracking?
2. Why is cracking done?
3. What are the two types of cracking?
4. What conditions are needed for catalytic cracking?
5. Complete this cracking equation by putting numbers in the boxes:



6. What two types of hydrocarbons are formed during cracking?

1. Why are alkanes called 'unsaturated'?
2. Which chemical is used to test for alkenes?
3. What is the colour change for a positive alkene test?
4. Give two uses for alkenes
5. What are polymers?
6. What is the name for the small molecules that make up polymers?

1. What is the name of the polymer formed from the monomer butene?
2. Draw the polymer made from the monomer propene given below:



3. Name the polymer made in question 2
4. What is combustion?
5. When does incomplete combustion happen?
6. What are the waste products of complete combustion?
7. Which toxic gas is formed during incomplete combustion?

Alkenes

Alkenes are hydrocarbons with a double carbon-carbon bond.

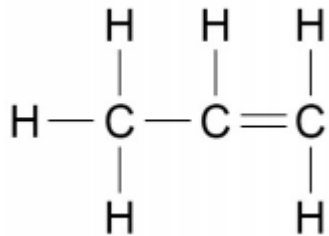
The general formula for the homologous series of alkenes is C_nH_{2n}

Alkene molecules are unsaturated because they contain two fewer hydrogen atoms than the alkane with the same number of carbon atoms.

The first four members of the homologous series of alkenes are ethene, propene, butene and pentene.

Alkene molecules can be represented in the following forms:

C_3H_6 (propene)



1. What an alkene?
2. What kind of bond is there in an alkene?
3. What is the general formula for an alkene?
4. List the first four members of the homologous series
5. Show the two ways which ethene can be represented

Scalar and Vector Quantities

Scalar quantities – have **magnitude** only
e.g. temperature, mass and speed.

Vector quantities – have both **magnitude** and **direction** e.g. velocity – speed in a given direction
displacement – the change in position of an object

Vectors can be shown using **arrows**:

- Size of arrow = magnitude of the quantity
- Direction of arrow = direction of quantity

Contact and Non-Contact Forces

Force = a push or pull that acts on an object due to interaction with another object.

All forces are either:

- **Contact forces** – objects are physically touching
e.g. friction, air resistance, tension and normal contact force.
- **Non-Contact forces** – objects are physically separated
e.g. gravitational force, electrostatic force and magnetic force.
- Forces are **vectors** – shown by arrows.



Resultant Forces

Resultant force = The sum of all forces or overall force acting on an object



Bike is being pushed forward with a force of 13N but there are resistive forces of 13N backwards.

Resultant force = 0N

What happens to the motion depends on what the bike was doing before these forces were applied:

- If the bike was stationary, it will stay stationary
- if the bike was moving, it will continue to move at a constant velocity



Car is being pushed to the left by a force of 350N. It is also pushed to the right by 500N.

Resultant force is: 500N – 350N = 150N

What happens to the motion depends on what the car was doing before these forces were applied:

- If the car was stationary, it will **accelerate** to the right
- If the car was already moving to the right, it will move faster (**accelerate**)
- If the car was moving to the left (ie reversing), it will slow down (**decelerate**)

1. What is a scalar quantity?
2. Give 2 examples of a scalar quantity.
3. Give 2 examples of a vector quantity.

1. What is a force?
2. Describe what is meant by a 'contact force'
3. Give 2 examples of contact forces.
4. Give 2 examples of non-contact forces.
5. Are forces scalar or vectors?

1. What is a resultant force?
2. What happens to a moving object if the forces are balanced?
3. What does 'decelerate' mean?
4. If an object is stationary and there is a 0N resultant force, what happens to the object?
5. What is needed to make an object accelerate?

Vector Diagrams (HT only)

- Used to calculate resultant forces that are not acting directly opposite each other, on a straight line.

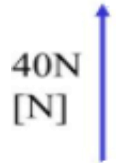
Rules ('tip to tail'):

- Draw first vector to scale, in the direction stated
- Draw second vector, from the tip of the first one in the direction stated.
- Join the two lines in a triangle and measure the resulting line
- Convert length to force using your scale – this is the resultant force

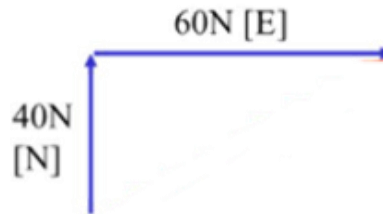
Example:

Two forces act on an toy boat - 40N acting north, 60N acting East. Calculate the resultant force and state the direction.

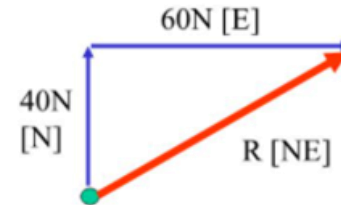
1. Draw the first vector to scale



2. Draw 2nd vector from tip of the first one. Again, to scale.



3. Join the two lines. Measure the resulting line.



Resultant force = 72N NE

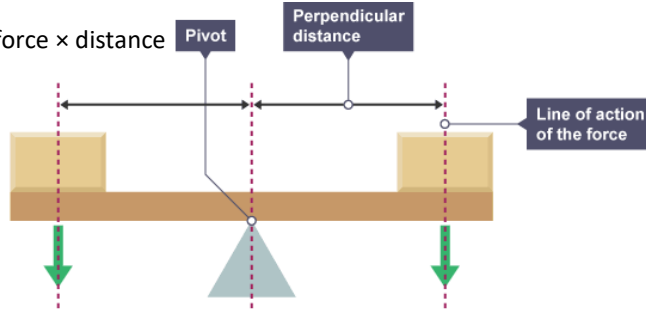
1. What are vector diagrams used to calculate?
2. Where do you draw the second force from?
3. Two forces act on a boat, pulling it along. The first force is 3N North and the second is 4N East. Follow the rules and draw the forces acting from the point of origin below:
4. What is the resultant force on the boat?

Moments

A force or a system of forces may cause an object to rotate. The turning effect of a force is called the moment of the force.

The size of the moment is defined by the equation:

moment of a force = force \times distance



$$M = Fd$$

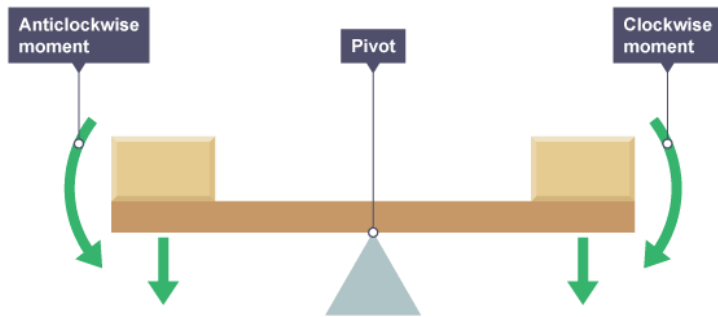
Moment of a force, M , in newton-metres, Nm

Force, F , in newtons, N

Distance, d , is the perpendicular distance from the pivot to the line of action of the force, in metres, m.

Equation

If an object is balanced, the total clockwise moment about a pivot equals the total anticlockwise moment about that pivot.

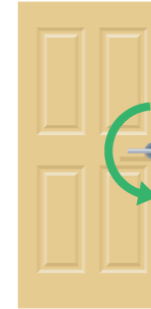


Examples of forces which cause rotation



A force of 40 N is applied to a spanner to turn a nut. The perpendicular distance is 30 cm.

$$40 \times 0.30 \text{ m} = 12 \text{ Nm}$$



A force of 15 N is applied to a door handle, 12 cm from the pivot. Calculate the moment of the force.

$$15 \times 0.12 \text{ m} = 1.8 \text{ Nm}$$

Levers and Gears

A simple lever and a simple gear system can both be used to transmit the rotational effects of forces.

As effort is applied to rotate one end about the pivot. The opposite end is also rotated about the pivot in the same direction. This has the effect of rotating or lifting the load. ... The longer the lever, and the further the effort acts from the pivot, the greater the force on the load will be.

1. What is a moment?
2. What is the calculation for a moment?
3. What are the units for moment?
4. The total clockwise moment about a pivot =
5. If 50 N of force is applied at a distance of 30 cm, what's the moment?
6. The longer the lever, the the force

Distance and Displacement

Distance

- How far an object moves
- Does not involve direction
- Distance = scalar quantity

Displacement

- Includes both the **distance** an object moves, measured in a straight line, from start to finish point and the **direction** of that straight line.
- Displacement = vector quantity

Speed

You should be able to recall the following typical speeds:

Activity	Typical Speed (m/s)
Walking	1.5
Running	3
Cycling	6
A car	25
A train	55
Speed of sound	330

Calculating speed:

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

E.g. A car travels 100 metres in 3.8 seconds. What is the average speed?

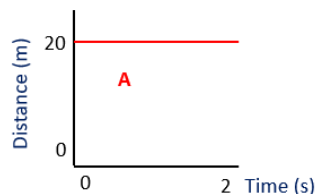
$$v = s/t$$

$$v = 100 \text{ m} / 3.8 \text{ s}$$

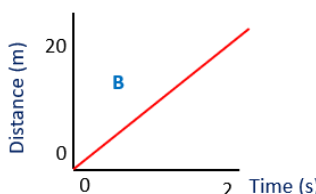
$$v = 26 \text{ m/s}$$

Distance time graphs

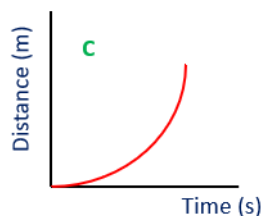
Distance time graphs show the motion of an object
The gradient tells us the speed of the object



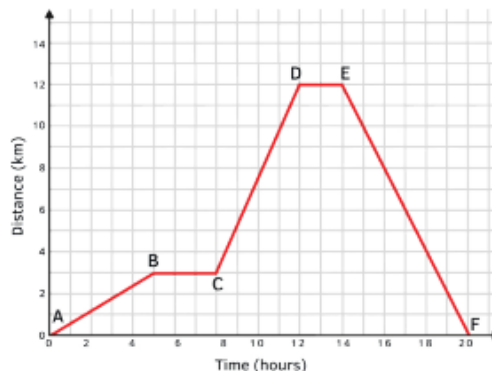
Object is stationary
(distance not changing)



Object is travelling at constant speed
 $v = 20/2$
 $v = 10 \text{ m/s}$



Object is accelerating
(HT only) Speed can be calculated by:
- Drawing a **tangent** and finding the **gradient** of the tangent



A journey generally has different speeds.
Average speed can be calculated by using total distance \div time

Velocity and Acceleration

Velocity & acceleration = vector quantities

1. Velocity = **speed** in a given **direction**

- positive velocity = forwards (eg +5 m/s)
- negative velocity = backwards (eg -5 m/s)

2. Acceleration is a **change in velocity**

- positive acceleration = speeding up
- negative acceleration = slowing down

Average acceleration of an object can be calculated using:

$$\text{acceleration} = \frac{\text{final velocity} - \text{initial velocity}}{\text{time taken}}$$

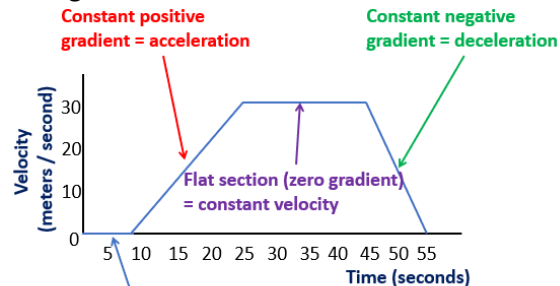
time taken

Units for acceleration are m/s^2

Velocity time graphs

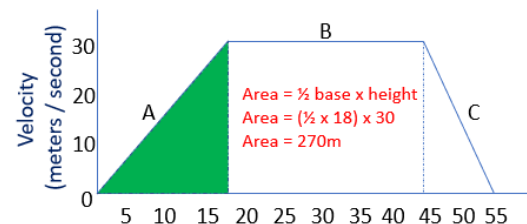
Show how velocity changes during a journey

The gradient shows the acceleration



Flat section along the x-axis (zero gradient) = constant zero velocity

HT only - area underneath a velocity time graph is the distance travelled by an object



1. What type of quantity is distance?
2. What is 'displacement'?
3. Why is displacement a vector quantity?

Speed

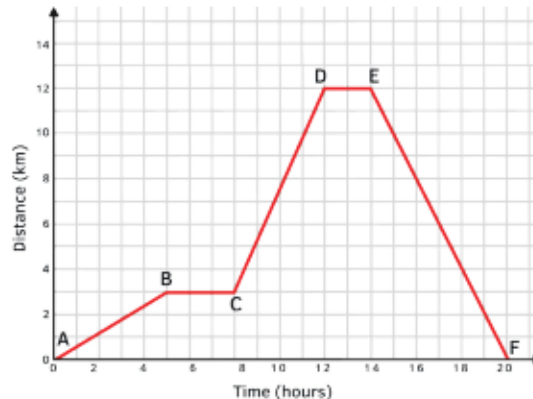
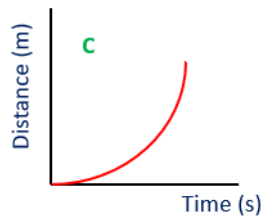
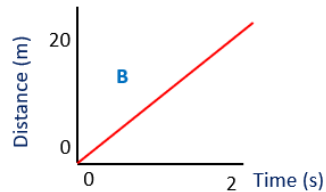
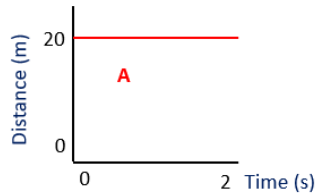
1. Complete the table:

Activity	Typical Speed (m/s)
Walking	
Running	
	6
A car	
	55
Speed of sound	

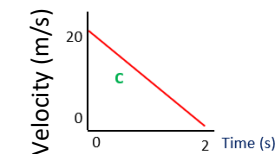
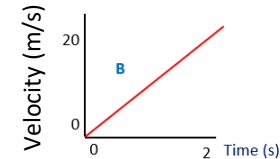
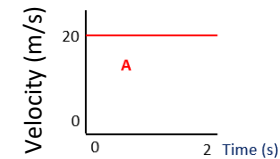
2. What is the equation linking distance, speed and time?

3. What are the units for speed?

1. Describe the motion of the objects:



1. Define velocity and acceleration. Give the units.
2. What does a negative velocity indicate?
3. What does a negative acceleration indicate?
4. What is the equation linking acceleration, final velocity, initial velocity and time?
5. Describe the motion of the objects shown in the graph (include numbers if you can!)



5. How do you calculate acceleration from a velocity time graph?
6. (HT) What does the area under the line on a velocity time graph show?

Science T3 Y10 P3.9 Grammar Physics Motion– Required Practical - Acceleration

Aim: To investigate the effect of **varying force** on the acceleration of an object of constant mass.

You may be given any of the following apparatus set-ups to conduct these investigations:

Independent variable = force applied

Dependent variable = acceleration

Control variables = mass of toy car and surface car is on.

Method (using toy car)

1) Place the car on a ramp. Incline the ramp until the car just does not move. This is to remove as much of the effect of friction as possible.

2) Set up a light gate at the end of the ramp

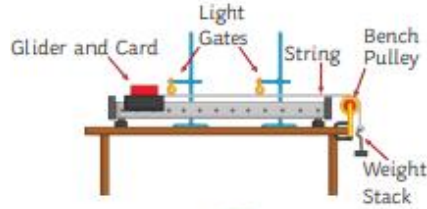
3) Place a 1N weight on the pulley attached to the toy car.

4) Allow the weight to drop and read the acceleration of the car from the light gate

5) Repeat the experiment several times, decreasing the weight on the pulley each time (e.g. 0.8N, 0.6N, 0.4N etc.) Place the removed mass onto the car to keep the mass of the system constant

Results

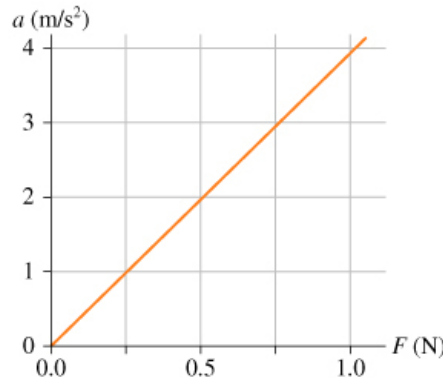
Acceleration is proportional to force applied



or



or



Aim: Investigate the effect of **varying mass** of an object on the acceleration produced by a constant force.

You may be given any of the following apparatus set-ups to conduct these investigations:

Independent variable = mass of glider

Dependent variable = acceleration of glider

Control variables = force applied and surface car is on

Method (using glider)

1) Place the glider on the track. Switch on the air blower and adjust until the glider just doesn't move. This is to remove as much of the effect of friction as possible.

2. Set up a light gate at the end of the air track

3) Add a 10g mass onto the glider. Place a 1N weight on the pulley attached to the glider and let go.

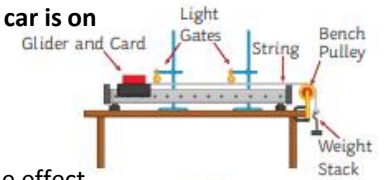
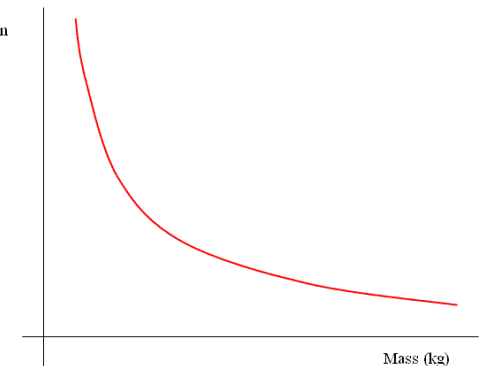
4) Record the acceleration from the light gate

5) Repeat the experiment several times, increasing the mass on the glider each time (e.g. 20g, 30g, 40g etc.) whilst keeping the weight (1N) on the pulley constant.

Results

Acceleration is inversely proportional to mass

Acceleration
(m/s²)



or



or

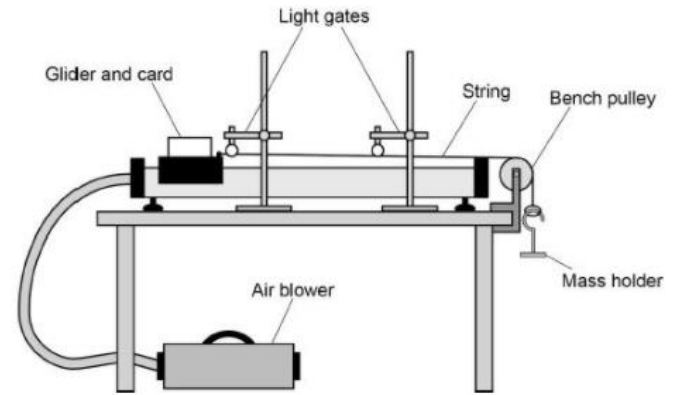


A student was investigating the effect of changing the force on the acceleration of a toy car down a ramp, using the equipment shown below:



1. What provides the force for the car to move?
2. Why is the ramp tilted?
3. What is the independent variable in the investigation?
4. What is the dependent variable?
5. How is force changed during the experiment?
6. What is the name of the piece of equipment shown that measures the acceleration?
7. How is mass kept constant throughout the experiment?
8. What relationship do you expect to see between force and acceleration?

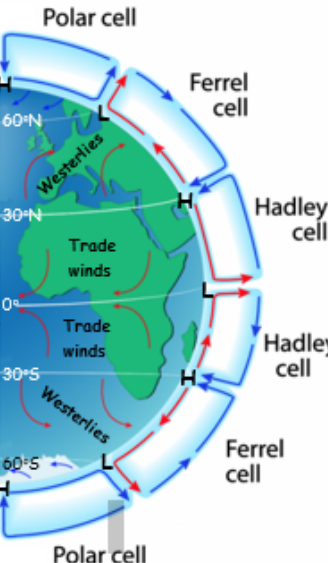
A student was investigating the effect of changing the mass of an object on the acceleration, using the equipment shown below



1. What is the independent variable?
2. What is the dependent variable?
2. What variables need to be controlled?
4. Why is the air blower switched on?
5. Describe the relationship you would expect to find between mass and acceleration



9. Global atmospheric circulation

Factor	Explanation
Global atmospheric circulation	Worldwide system of winds, which transport heat from the equator to the poles. Wind is large scale movement of air from HIGH to LOW pressure.
Key information	This is caused by differences in temperature at the Equator and the poles. The circulation is divided into loops called CELLS. Low pressure = Rising air = Rain. High pressure = Sinking air = Clear skies.
	At the poles, cool air sinks creating high pressure. (<250mm rainfall).
	At 60°N air rises between the <u>Ferrel</u> and Polar cell creating an area of low pressure. The UK gets lots of <u>low pressure</u> weather blown in from the Atlantic.
	At 30°N air sinks between the <u>Ferrel</u> /Hadley cell creating high pressure (deserts <250mm rain).
	On the equator air rises as the sun's heat is most concentrated. This creates a <u>low pressure</u> area with high rainfall. (Rainforests >2000mm of rain).
	Surface winds blow towards the equator (trade winds). Direct hurricanes to west.
	Here winds blow towards the poles and are called Westerlies. (From the west).
	The winds curve due to the spin of the earth (Coriolis effect).

10. Weather hazards in the UK

Hazard	Example
Extreme weather	A weather event that is significantly different from the average pattern and is especially severe or unseasonal.
Strong winds	Damage property / disrupt transport. 2018 Storm Ali killed 2 people.
Heavy rain	Can cause flooding, costing millions. Cockermouth 2009 314 mm in 24 hrs.
Snow	Injury, death, travel disruption. March 2018 Beast from East. 50 cm.
Drought	Crop failure, rules to conserve water. April 10-March 12 only 75% of rain.
Heatwaves	Pollution builds up- breathing problems. Death. BUT tourism benefits. 2018.

12. An example of a recent extreme weather event in the UK

Name	Somerset Floods, 2014
Causes	350mm rain fell in Jan and Feb High tides, rivers not dredged for 20 yrs
Impacts	<ol style="list-style-type: none"> £10 million damage 14,000 ha of farmland flooded 600 homes flooded Moorland and <u>Muchelney</u> cut-off Floodwaters contaminated Soil damaged for 2 years after
Management strategies	Immediate responses <ul style="list-style-type: none"> Army helped with rescue boats Volunteers and community groups Locals used boats to go shopping/school Long term responses <ul style="list-style-type: none"> £20 million flood action plan Rivers dredged Road levels raised Tidal barrage by 2024

11. Evidence that weather is becoming more extreme...

Our weather is naturally variable BUT extreme events are becoming more common and severe.

Hazard	Example
Temperature	10 warmest yrs all occurred since 1990 2018 joint hottest summer on record. Dec 2010 coldest month for 100 years.
Rainfall	More rainfall records broken between 2010 - 2014 than in any other decade. Dec 2015 wettest month on record.



9. Global atmospheric circulation	
Factor	Explanation
Global atmospheric circulation	
Key information	
<p>The diagram illustrates the three-cell model of global atmospheric circulation. It shows the Earth with latitude lines at 60°N, 30°N, 0° (Equator), 30°S, and 60°S. The Polar cell is located between the poles and 60° latitude, with air sinking at the poles and rising at 60° latitude. The Ferrel cell is between 60° and 30° latitude, with air sinking at 30° latitude and rising at 60° latitude. The Hadley cell is between the equator and 30° latitude, with air sinking at 30° latitude and rising at the equator. Wind patterns are shown: Westerlies between 30° and 60° latitude, and Trade winds between the equator and 30° latitude. High (H) and Low (L) pressure systems are marked at the boundaries of the cells.</p>	

10. Weather hazards in the UK	
Hazard	Example
Extreme weather	
Strong winds	
Heavy rain	
Snow	
Drought	
Heatwaves	

11. Evidence that weather is becoming more extreme...	
Temperature	

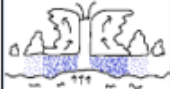
12. An example of a recent extreme weather event in the UK	
Name	
Causes	
Impacts	
Management strategies	



13. Tropical storms

Hurricanes, cyclones, typhoons. An area of low pressure with winds moving in a spiral around the calm central point called the eye of the storm. Winds are powerful and rainfall is heavy.

Factor	Explanation
Global distribution	5° – 30° north and south of equator (sea temp warm, wind shear low). More in the northern hemisphere. Move towards the west.
Relationship with ACM	Trade winds (from high to low pressure) send tropical storms to west.
Structure	Circular, can be 100s of km wide. Eye- calm in centre (air ↓, LOW). Eyewall- strong winds, torrential rain. Edges- Wind speed falls, rain reduces.



How will climate change affect them?

Distribution	Increase to higher latitudes (warmer sea temperatures).
Frequency	Number could increase. (Longer season)
Intensity	Stronger? More evaporation.

14. Formation of tropical storms

Include processes and ensure correct sequence.

Conditions	5-30° latitude. Ocean depth > 60m deep. Sea temperature > 27°C. Form summer and autumn.
	<ol style="list-style-type: none"> 1. Sun heats the ocean (27°C) > rapid evaporation. 2. Condensation occurs quickly leading to a large amount of cloud forming (tropical depression). 3. Due to the earth's rotation, this cloud mass starts to spin. An eye is formed in the centre. 4. Due to rising air, a low pressure area forms below. Air rushes into this creating high wind speeds. (>74mph = tropical storm) 5. The low pressure results in the ocean being uplifted forming a storm surge.

15. How can we reduce the impacts?


Strategy	Explanation
Prediction / monitoring	Satellites and aircraft to monitor storms. Computer models calculate the predicted track. Allows warnings so people can evacuate or protect their home.
Planning	New developments avoid high risk areas. Emergency services train and prepare. Plan evacuation routes. Reduces the injuries and deaths.
Protection	Building design- reinforced concrete, stilts to reduce flood risk. Flood defences along rivers and coasts. Reduces the number of buildings destroyed so fewer injuries and deaths.

16. Tropical storms affect people and environments.

	Generic	Typhoon Haiyan 2013 Philippines
Primary effects	Direct results of strong winds, high rainfall, storm surges. Flooding, buildings destroyed, death.	<ul style="list-style-type: none"> † 6,201 deaths. (Most drowned in storm surge.) † 1.1 million houses damaged. ⚔ 90% of Tacloban city destroyed.
Secondary effects	Homelessness > lead to poor health. Lack of sanitation > diseases (cholera) Food shortages, price increase.	<ul style="list-style-type: none"> † 4.1 million homeless. ⚔ Damage cost US\$12 billion. ⚔ 1.1 million tonnes of crops destroyed (rice).
Immediate responses	Evacuate before the storm. Rescue those affected. Provide food, water, blankets. Aid workers arrive from abroad. Recover dead bodies (prevent disease).	<ul style="list-style-type: none"> ➢ Over 1200 evacuation shelters set up. ➢ Philippines Red Cross delivered basic food aid. ➢ UK sent shelter kits. ➢ 800,000 evacuated (warnings given 2 days early).
Long term responses	Repair homes and infrastructure. Promote economic recovery.	<ul style="list-style-type: none"> ➢ More cyclone shelters built. ➢ No build zones. ➢ 'Cash for work' programmes.



13. Tropical storms

Factor	Explanation
Global distribution	
Relationship with ACM	
	
How will climate change affect them?	
Distribution	
Frequency	
Intensity	

14. Formation of tropical storms

Conditions	

15. How can we reduce the impacts?

Strategy	Explanation
Prediction / monitoring	
Planning	
Protection	

16. Tropical storms affect people and environments.


	Generic	Typhoon Haiyan 2013 Philippines
Primary effects		<ul style="list-style-type: none"> ↓ ⊖
Secondary effects		<ul style="list-style-type: none"> ↓ ⊖
Immediate responses		<ul style="list-style-type: none"> ➤ ➤ ➤ ➤
Long term responses		<ul style="list-style-type: none"> ➤ ➤ ➤



are learning this term:		B.	What can be inferred from a source about how well Germany was being governed in November 1918	
A. The situation in Germany at the end of WWI	<p>1 – Anarchy</p> <p>This means that a country is being run without a government and this is the situation that was developing in Germany at the end of WWI. After the Kaiser abdicated, a republic was declared to ensure that the anarchy in Germany did not take over</p>	2 – Ruins	<p>It was not just France and Belgium that had been damaged during the war. Parts of Germany was also in ruins at the end of the war and the country was in a lot of debt, which would make it much harder for the country to rebuild</p> <p>The people of Germany were in suffering by the end of the war, due to the navy blockades preventing food coming in and also due to the amount of men that had been killed or injured during the war</p> <p>The war had exhausted Germany and the people were also exhausted with the bad leadership that was being shown by their Kaiser</p>	
B. The strengths and weaknesses of the Weimar Republic		3 – Despairing		
C. Opposition to the Treaty of Versailles		4 – Exhausted		
D. Political challenges to the Weimar Republic		C.		Why did people oppose the Treaty of Versailles?
E. The occupation of the Ruhr and hyperinflation		1. Diktat – The Treaty of Versailles was seen as a 'diktat', meaning that the terms of the treaty (written by Britain, France and the USA) were imposed on Germany and not agreed by them		2. War guilt – The term that people hated term was the guilt clause. Article 231 of the treaty stated that Germany was to blame for the war, which the people did not agree with. They were not to blame for the war starting, but the Allies did not want Germany to start another war in the future so restriction were put on the country
F. The recovery of the Weimar Republic	3. Reparations – Germany had to pay money to the Allies as compensation for the war. The amount was fixed at £6.6 billion in 1921.	4. Land – Germany lost its colonies in Africa and the Far East. Parts of Germany were also lost to France, Belgium and Poland. This meant that people living in these areas were now part of a new country		
G. Changes to culture and standards of living	5. Military – The German army was limited to 10,000 men with no heavy artillery. The navy was limited as well with 6 battleships and cruisers and no submarines	6. Dolchstoss - The Treaty of Versailles was also seen as a 'stab in the back' to the army, as the people of Germany did not believe that its army had been defeated in war		
6 Key Words for this term				
1 Republic – A state where power is held by the people and the people who elected them				
2 Constitution – The rules for how a country is run				
3 Coalition – A government made up of two or more political parties				
4 Chancellor – The Head of Government in Weimar Germany				
5 Democracy – A system of government where the whole eligible population elects the people who they want to run the country				
6 Armistice – An agreement to end WWI, made between the Allies and Germany				
A.	What can you infer from a source about Germany at the end of WWI and how well it was being governed in 1918?			
Kaiser	This is the German word for Emperor. During the war, Kaiser Wilhelm II was in charge of Germany. By the end of the war, the Kaiser had lost control of Germany and the people wanted him gone.			
Abdication	The Kaiser was forced to abdicate which meant that he was forced to step down from his position. This is because he had lost the support of the people and the army in Germany.			
Riots	Before the war was officially declared over and before the Kaiser had abdicated, the people of Germany were rioting in the streets. This is due the suffering that the German people had faced throughout the war.			
Anarchy	This means that a country is being run without a government and this is the situation that was developing in Germany at the end of WWI. After the Kaiser abdicated, a republic was declared to ensure that the anarchy in Germany did not take over			
Blockades	During the war, British navy blockaded German ports, preventing German ships bringing food into the country. Over 750,000 Germans died because of food shortages during the war			
Weary	This means that someone is exhausted and tired. At the end of WWI, the people of Germany were tired of the ongoing war. This is due to the lack of food and the amount of men dying in the war – 55% of troops became casualties			
D.		What was the political situation like in 1920?		
1 Outrage	The people in Germany were outraged at the Treaty of Versailles and the terms that had been forced on them by the Allies in 1919			
2 Condemned	Versailles was condemned (criticised) by the people and they felt the Weimar government did not work hard enough to not have it forced on Germany			
3 Lacked support	The SPD party, who were the main party in the Weimar Republic, lacked support from the people in Germany following the treaty			
4 Spartacists	Left-wing group who wanted to force a communist government on Germany, This would mean that the workers in the country would set up a government			
5 Kapp Putsch	Right-wing group who wanted Germany to go back to the old way of being run with a Kaiser.			
		E.	What can you infer about life in Germany during hyperinflation?	
		1 Occupation of the Ruhr	France grew angry when Germany was no longer able to pay reparations and so they invaded the industrial area of the Ruhr to take what was owed to them	
		2 Industrial	The Ruhr contained many factories and around 80% of Germanys coal, iron and steel reserves, which was worth a lot of money.	
		3. Strike	The German government told the German people living in this area to go on strike, which means they are not working. This made Germany poorer as they were not making money	
		4. Inflation	There was a shortage of goods (things to buy) in Germany caused by the strikes in 1923 which meant the price of things rose. This is inflation	
		5 Hyperinflation	To pay back the money they owed France, the German government printed more money, which made the situation worse as the price of things went ridiculously high	
		6 Worthless	Money became worthless in Germany as there was suddenly so much of. This led to people using money for other things, like burning to keep their houses warm as cheaper than firewood	
		F.	How successfully did Stresemann help the Weimar Republic to recover?	
		1. Rentenmark – In 1923, Stresemann set up a new bank and issued a new currency. The supply of notes was limited which meant that they had real value	<p>2. Dawes Plan – This was a plan written up by an American banker. Under this plan reparations were temporarily reduced to £50m a year and US banks agreed to give loans to German industry</p> <p>3. Young Plan – This plan was put forward by a committee set up by the Allies. Reduced the reparation debt to £2 billion with a further 59 years to pay</p> <p>4. The Locarno Pact – This was a treaty between Germany, Britain, France, Italy and Belgium. Germany accepted its new border with France and talks were opened about Germany joining the League of Nations</p> <p>5. League of Nations – This was an Allied group that discussed ways of solving the world's population without resorting to war. In September 1926, Stresemann persuaded the other great powers to accept Germany as a member.</p> <p>6. Kellogg-Briand Pact – Germany and 61 other countries signed this pact. It promised that countries would not use war to achieve foreign policy aims. This showed that Germany was now included amongst the main global powers</p>	
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		6. Kellogg-Briand Pact – Germany and 61 other countries signed this pact. It promised that countries would not use war to achieve foreign policy aims. This showed that Germany was now included amongst the main global powers		
		E.	Changes to culture and standards of livings	
		1. Unemployment – Unemployment reduced from 1926 to 1928 by 700,000 and workers were being charged 3% of their wages to provide benefits if they became unemployed or sick	<p>2. Housing – from 1925-29, private companies built 37,000 new homes and building associations built 64,000, easing the housing shortage</p> <p>3. Changes for Women –more women were working in politics and high powered jobs by 1932, women were also working in other sectors such as retail, education and medicine, but only around 35% of the female population were working</p> <p>4. New Women – women had more freedom under the Weimar Republic. They had more independence, going out more, wearing make-up and their hair short. They drank and smoke and became less interested in marriage and families</p> <p>5. Artistic changes – The 1920s saw a surge in cultural activity due to New Objectivism, Modernism and Expressionism.</p> <p>6. Art and Architecture – Painters began to paint a more critical scene of Germany and architecture became more futuristic</p> <p>7. Cinema – Film became popular in the 1920s and films became more innovative. Horror and science fiction became popular</p>	
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are learning this term:		B. What can be inferred from a source about how well Germany was being governed in November 1918	
6 Key Words for this term 1 Republic – 2 Constitution – 3 Coalition – 4 Chancellor – 5 Democracy – 6 Armistice –	1 – Anarchy		
	2 – Ruins		
	3 – Despairing		
	4 – Exhausted		
	C. Why did people oppose the Treaty of Versailles?		
	1. Diktat – 2. War guilt – 3. Reparations – 4. Land – 5. Military – 6. Dolchstoß -		
A. What can you infer from a source about Germany at the end of WWI and how well it was being governed in 1918?			
Kaiser			
Abdication			
Riots			
Anarchy			
Blockades			
Weary			
			E. What can you infer about life in Germany during hyperinflation?
			1 Occupation of the Ruhr
			2 Industrial
			3. Strike
			4. Inflation
			5 Hyperinflation
		6 Worthless	
D. What was the political situation like in 1920?		F. How successfully did Stresemann help the Weimar Republic to recover?	
1 Outrage		1. Rentenmark – 2. Dawes Plan – 3. Young Plan – 4. The Locarno Pact – 5. League of Nations – 6. Kellogg-Briand Pact –	
2 Condemned		E. Changes to culture and standards of livings	
3 Lacked support		1. Unemployment – 2. Housing – 3. Changes for Women – 4. New Women –	
4 Spartacists		5. Artistic changes – 6. Art and Architecture – 7. Cinema –	
5 Kapp Putsch			

Year 10 GCSE Religious Education KO - Christianity Beliefs

Keywords	
Ascension	Jesus returning to be with God in Heaven after the crucifixion
Atonement	Making things better after sinning, asking for forgiveness from God
Benevolent	God's nature as all-loving
Crucifixion	Jesus' execution by the Romans on the cross
Incarnation	God becoming flesh in the form of Jesus Christ
Just	God's nature as fair
Omnipotent	God's nature as all-powerful
Original sin	The built-in tendency to do wrong which comes from Eve's disobedience
Resurrection	Jesus returning from the dead after he was crucified
Salvation	Being saved from sin and given eternal life in heaven by God
Sin	Any thought or action which goes against God's will
Trinity	God's nature as three-parts-in-one, the Father, Son and Holy Spirit.

What we are learning in this unit				
A. Nature of God B. Evil and suffering C. The Holy Trinity D. Creation E. Resurrection, judgement, Heaven and Hell		F. Incarnation G. Crucifixion H. Christ in Salvation I. Ascension and resurrection J. Sin and salvation		
A.	<i>The Nature of God</i>	<i>How is it shown in The Bible?</i>	B.	<i>Evil and suffering</i>
One God	<ul style="list-style-type: none"> Christians believe in one God who is the creator and sustainer of all that exists 	<ul style="list-style-type: none"> "the Lord he is God; there is none else beside him" 	What is the problem of evil	<ul style="list-style-type: none"> There is evil and suffering going on in the world suffering is physical or emotional pain a person goes through for any reason Christians may find it difficult to make sense of God allowing suffering to happen
Omnipotent	<ul style="list-style-type: none"> God is almighty and has unlimited power Nothing can defeat the power of God 	<ul style="list-style-type: none"> "For nothing is impossible with God" The creation of the universe miracles performed by Jesus Sending the 10 plagues to Egypt to help the Hebrews be free 	How do Christians solve the problem of evil and suffering?	<ul style="list-style-type: none"> Human beings have free will and have the ability to choose their own actions - God doesn't cause it, humans do Jesus Christ suffered on the cross and Christians believe they can learn from suffering too Christians believe they get rewarded for suffering in Heaven "God works in mysterious ways" – we cannot understand God Job – there is sin in the world, we need to keep faith
Benevolent	<ul style="list-style-type: none"> God is all-loving and all-good "agape" refers to a self-giving, sacrificial love 	<ul style="list-style-type: none"> "For God so loved the world, he gave his One and Only Son" Jesus' death on the cross is an example of that love The Parable of the Prodigal Son – the father forgave his son because he loved him how God is also loving 	C.	<i>The Holy Trinity</i>
Just	<ul style="list-style-type: none"> God is perfect and a fair judge 	<ul style="list-style-type: none"> "he is faithful and righteous to forgive us our sins" 	What is it?	<ul style="list-style-type: none"> The concept of the three persons of God Each person of the Trinity is fully God, but they are not the same "we believe in one God, Father, Son and Holy Spirit"
Problem of suffering	<ul style="list-style-type: none"> If God is benevolent, why would he allow bad things and suffering to happen to innocent people? Some Christians argue that if God is fair and just, why does he allow suffering? 		God The Father	<ul style="list-style-type: none"> God of the Old Testament – creator, ruler, judge The creator of all life
			God The Son	<ul style="list-style-type: none"> Jesus Christ – both fully human and fully God God became incarnate through Jesus
			The Holy Spirit	<ul style="list-style-type: none"> The unseen power of God at work in the world e.g. answering prayers, guides and comforts Christians
			Why is the trinity important?	<ul style="list-style-type: none"> It expresses who God is It expresses how humans can interact with God It allows humans to come face to face with God Helps to make the best sense of what Christians read in the Bible When Jesus was baptised, the Holy Spirit descended like a dove and said "you are my Son..."

Year 10 GCSE Religious Education KO - Christianity Beliefs

Keywords	
Ascension	
Atonement	
Benevolent	
Crucifixion	
Incarnation	
Just	
Omnipotent	
Original sin	
Resurrection	
Salvation	
Sin	
Trinity	

What we are learning in this unit			
A. Nature of God		F. Incarnation	
B. Evil and suffering		G. Crucifixion	
C. The Holy Trinity		H. Christ in Salvation	
D. Creation		I. Ascension and resurrection	
E. Resurrection, judgement, Heaven and Hell		J. Sin and salvation	
A.	<i>The Nature of God</i>	<i>How is it shown in The Bible?</i>	B.
One God			What is the problem of evil
Omnipotent			How do Christians solve the problem of evil and suffering?
Benevolent			C.
Just			<i>The Holy Trinity</i>
Problem of suffering			What is it?
			God The Father
			God The Son
			The Holy Spirit
			Why is the trinity important?

Year 10 GCSE Religious Education KO - Christianity Beliefs

D.	<i>Creation</i>
Beliefs about creation	<ul style="list-style-type: none"> The trinity must have existed before creation The trinity is the way in which the world was created
Genesis 1:1-3	<ul style="list-style-type: none"> "In the beginning, God created the Heavens and Earth" God created Earth and all living things Christians believe that everything created "was good" Most Christians interpret the story as a way of describing the creation of the world Not all believe it was in literally 6 days "now the Earth was formless and empty, darkness was over the face of the deep and the Spirit of God was hovering over the face of the waters"
John 1:1-3	<ul style="list-style-type: none"> "In the beginning was the Word, and the Word was with God" 'The Word' refers to God the Son. This shows the Son (Jesus) was involved in creation
Messages from the story	<ul style="list-style-type: none"> God is the omnipotent creator Every aspect of God's creation is good The world is sacred Humans have stewardship and dominion – they have authority over the rest of the world Humans are made in the image of God

E.	<i>Resurrection, judgement, Heaven and Hell</i>
What is Resurrection	<ul style="list-style-type: none"> Jesus overcame death through resurrection If Jesus lived after death, then so will they Makes Christians treat their body as a "temple of the Holy Spirit"
What do Christians mean by resurrection	<ul style="list-style-type: none"> Some Christians believe that God will raise them back to life before Judgement Day Catholics believe in purgatory – where the soul goes after death to be purified.
Judgement	<ul style="list-style-type: none"> There will be a Judgement Day at the end of time and will be judged by Jesus according to how they behaved Jesus "will come again in glory to judge the living and the dead" After judgement, they will wait to be rewarded with Heaven or punished with Hell The Parable of the rich man and Lazarus – ignoring the needs of others has eternal consequences The Parable of the sheep and the goats – on Judgement Day, some will be rewarded with Heaven for helping others and others are sent to Hell
Heaven	<ul style="list-style-type: none"> Heaven is being with God outside time and space Eternal happiness with no suffering Heaven is a state of being
Hell	<ul style="list-style-type: none"> Hell is eternal separation from God "God predestines no one go to hell; for this, a wilful turning away from God... is necessary and persistence in it until the end" Some Christians reject any idea of hell because they think it would mean God's love would not triumph over evil

F.	<i>Incarnation</i>
What is it	<ul style="list-style-type: none"> God took on human form as Jesus Christ "The Word became flesh and lived for a while among us" Jesus was fully divine and fully human
Jesus as the Son of God	<ul style="list-style-type: none"> Mary was impregnated by the Holy Spirit and gave birth as a virgin – proof that Jesus is the son of God
Belief in incarnation	<ul style="list-style-type: none"> The incarnation is important to teach Christians how to live

Year 10 GCSE Religious Education KO - Christianity Beliefs

D.	<i>Creation</i>	E.	<i>Resurrection, judgement, Heaven and Hell</i>
Beliefs about creation		What is Resurrection	
Genesis 1:1-3		What do Christians mean by resurrection	
John 1:1-3		Judgement	
Messages from the story		Heaven	
		Hell	
		F.	<i>Incarnation</i>
		What is it	
		Jesus as the Son of God	
		Belief in incarnation	

Year 10 GCSE Religious Education KO - Christianity Beliefs

I.	<i>Ascension and resurrection</i>
Resurrection	<ul style="list-style-type: none"> Jesus was buried in a rock tomb and left there due to the Sabbath When the women returned for the burial, Jesus' body was gone Jesus appeared for the next 40 days to his disciples and other believers
Ascension	<ul style="list-style-type: none"> Jesus appeared to his disciples and told them to spread the word of him The time between resurrection and ascension reminds Christians that God will forgive sins and they can become closer to God The ascension happened 40 days after the resurrection It assures Christians they will rise again after death and live in the afterlife
Why is Jesus' resurrection important	<ul style="list-style-type: none"> Christians interpret the resurrection as proof that he is the Son of God Shows God's triumph over evil and death

G.	<i>Crucifixion</i>
Why was Jesus crucified	<ul style="list-style-type: none"> Jesus was arrested and convicted of blasphemy He was sentenced to death by Pilate Crucifixion was a humiliating method which is slow and agonising
How does it influence a Christian	<ul style="list-style-type: none"> By accepting Jesus' sacrifice, their sins will be forgiven and they will go to Heaven Suffering is a part of life
Why did Jesus have to die?	<ul style="list-style-type: none"> Blasphemy – some of the things he said and did were considered blasphemy and threatened authority Pilate – Pilate was going to pardon him but was afraid of the consequences from Rome God – Jesus had to die to fulfil God's commands for him – this way, humans could be reunited with God

I.	<i>Sin and salvation</i>
Original sin	<ul style="list-style-type: none"> Christians believe humans are separated from God due to original sin which they have due to Adam and Eve (Genesis) God in Christ offered salvation
Salvation through law	<ul style="list-style-type: none"> Jews thought they needed to obey the law to be accepted by God Some Christian groups claim salvation depends on keeping to all the rules that are put in place However some say that the thoughts in our mind and love in our hearts for God is more important
Grace and spirit	<ul style="list-style-type: none"> Grace = unconditional love that God shows to everyone, even when it seems undeserved God loves humans despite what we do or do not do Parable of the Prodigal Son = the son did not deserve the forgiveness, but that is how God treats humanity Jesus' actions made forgiveness for the sins of the world and reconciliation possible Christians believe they receive God's grace through the presence of the Holy Spirit

H.	<i>Christ in salvation</i>
Atonement	<ul style="list-style-type: none"> Christians see Jesus' death as atonement
Reconciliation	<ul style="list-style-type: none"> Reconciliation is the restoration of relationships The relationship between God and human beings was damaged Human beings need to be reconciled with God to get to Heaven God sacrificed his Son to allow this to happen

Year 10 GCSE Religious Education KO - Christianity Beliefs

I.	<i>Ascension and resurrection</i>
Resurrection	
Ascension	
Why is Jesus' resurrection important	

G.	<i>Crucifixion</i>
Why was Jesus crucified	
How does it influence a Christian	
Why did Jesus have to die?	

I.	<i>Sin and salvation</i>
Original sin	
Salvation through law	
Grace and spirit	

H.	<i>Christ in salvation</i>
Atonement	
Reconciliation	

GCSE Unit 8 SPANISH Knowledge organiser.
Topic Holidays and Travel



What we are learning this term:

A. Talking about travelling to holiday destinations
 B. Talking about the weather
 C. Talking about holiday accommodation
 D. Talking about the regions of Spain
 E. Understanding tourist leaflets and websites

6 Key Words for this term

- | | |
|---------------|---------------|
| 1. alojarse | 4. vacaciones |
| 2. veranear | 5. un folleto |
| 3. la pensión | 6. el AVE |

8.1G ¡Me voy de vacaciones!

el aire acondicionado air conditioning
 el andén platform
 el asiento seat
 el autocar coach
 el AVE (tren de alta velocidad) high-speed train
 el avión plane
 barato/a cheap
 el barco boat
 la bici(cleta) bike, bicycle
 el coche car
 la consigna left-luggage office
 el crucero cruise
 desde luego of course
 echar de menos to miss
 Escocia Scotland
 estrecho/a narrow
 el equipaje luggage
 el ferrocarril railway
 el invierno winter
 la maleta suitcase
 el metro underground
 no fumador non smoking
 el otoño autumn
 la primavera spring
 la sala de espera waiting room
 Sudamérica South America
 el tranvía tram
 las vacaciones holidays
 el verano summer
 viajar to travel
 el viaje journey

8.1F ¿Dónde te alojas?

el abrebotellas bottle-opener
 el abrelatas tin-opener
 el aeropuerto airport
 a la derecha on the right
 a la izquierda on the left
 el albergue juvenil youth hostel
 Alojarse to stay (in a hotel)
 el bañador swimming costume
 la cama de matrimonio double bed
 camping campsite, camping
 la estación de servicio petrol station
 la estrella star
 fatal awful, terrible
 el folleto leaflet
 la gasolina (sin plomo) (unleaded) petrol
 el guía / la guía guide (person)
 la guía guidebook
 la habitación (doble/ (double/single) room individual)
 la llave key
 mojarse to get wet
 la oficina de turismo tourist office
 el papel higiénico toilet paper
 el parador state-owned hotel (in Spain)
 el pasaporte passport
 la pensión boarding house, B & B
 ponerse en camino to set off
 por desgracia unfortunately
 la recepción reception
 la reserva reservation
 el saco de dormir sleeping bag
 los servicios toilets
 la tarjeta de embarque boarding card
 la tienda (de campaña) tent
 la taquilla ticket office

8.2G ¿En qué región vives?

el desempleo unemployment
 la diversión entertainment
 muy poblado crowded
 nacer to be born
 Nací I was born
 nació he/she was born
 el país country
 Pescar to fish
 el río river
 la sierra mountain range
 tanto so much, so many

Key Verbs				
Quedarse To stay	Ir To go	Veranear To summer holiday	Hacer – to do/make	Volar To fly
Me quedo I stay	Voy I go	Veraneo I summer holiday	Hago I do	Vuelo I fly
Te quedas You stay	Vas You go	Veraneas You summer hol	Haces You do	Vuelas You fly
Se queda He/she/it stays	Va s/he goes	Veranea He/she summer hol	Hace s/he does	Vuela He/she/ it flies
Nos quedamos We stay	Vamos They go	Veraneamos We summer hol	Hacemos We do	Volamos We fly
Se quedan They stay	Van They go	Veranean They summer hol	Hacen They do	Vuelan They fly

8.2F Un folleto turístico

abrir to open
 abierto/a open
 callado/a quiet, reserved
 cargar to load
 cerrar to close, shut
 la cocina cuisine, cooking
 conocer to know (a person /a place)
 el cultivo crop
 entero/a entire, whole
 gruñón/oña grumpy
 ir de paseo to go for a walk
 la mina mine
 el monasterio monastery
 el monte hill, mountain
 la oveja sheep
 Pintoresco picturesque
 recomendar to recommend
 el recuerdo memory, reminder, souvenir
 la refinera (de petróleo) (oil) refinery
 la sombrilla sunshade, parasol
 el taller workshop
 tranquilo/a peaceful
 la vaca cow
 el valle valley
 el/la visitante visitor

8.2H Describiendo tu región

acostumbrado/a accustomed to, used (adj) to
 la barca pesquera fishing boat
 casero/a home-made
 la cita amorosa date (with someone)
 el clima climate

8.1H ¿Qué hiciste y qué te gustaría hacer durante las vacaciones?

aburrirse to get bored
 acabar de (+ infinitive) to have just (done something)
 broncearse to get a tan
 coger to catch, to take
 el crucero cruise
 descansar to rest
 el esquí acuático water skiing
 extranjero/a foreign
 el extranjero (en el __, abroad al __)
 Francia France
 genial brilliant, great
 Grecia Greece
 la insolación sunstroke
 la isla island
 las Islas Canarias Canary Islands
 a mediados de in the middle of (time)
 el Mediterráneo Mediterranean
 ocupado/a busy, engaged
 el oro gold
 la plata silver
 regresar to return
 relajarse to relax
 la sombrilla sunshade, parasol
 el vestuario changing room, cloakroom
 la vida nocturna night life
 volver to return
 el vuelo flight
 colocar to place, to put
 la empresa company, firm
 la época era, age, time

Key Verbs				
Quedarse To stay	To go	To summer holiday	Hacer – to do/make	Volar _____
Me quedo _____	Voy I go	_____ I summer holiday	Hago _____	_____ I fly
Te _____ You stay	Vas _____	Veraneas _____	_____ - You do	Vuelas _____
_____ queda He/she/it stays	_____ s/he goes	_____ He/she summer hol	Hace s/he does	Vuela He/she/ it flies
Nos quedamos We stay	Vamos They go	Veraneamos We summer hol	_____ We do	_____ We fly
Se _____ They stay	_____ They go	_____ They summer hol	Hacen They do	_____ They fly

What we are learning this term:	
A. Talking about travelling to holiday destinations B. Talking about the weather C. Talking about holiday accommodation D. Talking about the regions of Spain E. Understanding tourist leaflets and websites	
6 Key Words for this term	
1. alojarse	4. vacaciones
2. veranear	5. un folleto
3. la pensión	6. el AVE

8.1F ¿Dónde te alojas?
el abrebotellas _____ _____ tin-opener
el aeropuerto _____ _____ on the right
a la izquierda _____ el albergue juvenil _____ Alojarse _____ _____ swimming costume
la cama de matrimonio _____ camping campsite, camping la estación de servicio _____ la estrella _____ _____ awful, terrible
el folleto _____ la gasolina (sin plomo) _____ el guía / la guía _____ la guía _____ (doble/ (double/single) room individual)
la llave _____ to get wet la oficina de turismo _____ el papel higiénico _____ _____ state-owned hotel (in Spain)
el pasaporte _____ _____ boarding house, B & B ponerse en camino _____ _____ unfortunately
la recepción _____ _____ reservation
el saco de dormir _____ los servicios _____ la tarjeta de embarque _____ la tienda (de campaña) _____ la taquilla ticket _____

8.1G ¡Me voy de vacaciones!
el aire acondicionado _____ el andén _____ el asiento _____ el autocar _____ el AVE (tren de alta velocidad) _____ _____ plane _____ cheap _____ boat _____ bike, bicycle _____ car _____ left-luggage office _____ cruise
desde luego _____ echar de menos _____ _____ Scotland _____ narrow _____ luggage _____ railway
el invierno _____ la maleta _____ _____ underground _____ non smoking
el otoño _____ _____ spring la sala de espera _____ _____ South America _____ tram
las vacaciones _____ _____ summer
viajar _____ el viaje _____

8.2G ¿En qué región vives?
_____ unemployment _____ entertainment _____ crowded
nacer _____ Nací _____ _____ he/she was born
el país _____ pescar _____ _____ river
la sierra _____ _____ so much, so many

8.2F Un folleto turístico
abrir to _____ _____ open _____ quiet, reserved
cargar _____ _____ to close, shut _____ cuisine, cooking _____ to know (a person /a place)
el cultivo _____ _____ entire, whole
gruñón/oña _____ _____ to go for a walk
la mina _____ _____ monastery
el monte _____ _____ sheep
pintoresco _____ _____ to recommend _____ memory, reminder, souvenir _____ (de petróleo) (oil) refinery _____ sunshade, parasol
el taller _____ tranquilo/a _____ _____ cow _____ valley
el/la visitante _____

8.1H ¿Qué hiciste y qué te gustaría hacer durante las vacaciones?
aburrirse _____ _____ (+ infinitive) to have just (done something) broncearse _____ _____ to catch, to take _____ cruise
descansar _____ el esquí acuático _____ _____ foreign
el extranjero (en el ____, abroad al __)
Francia _____ _____ brilliant, great
Grecia _____ la insolación _____ _____ island
las Islas Canarias _____ a mediados de _____ _____ Mediterranean _____ busy, engaged
el oro _____ la plata _____ _____ to return
relajarse _____ _____ sunshade, parasol _____ changing room, cloakroom
la vida nocturna _____ volver _____ el vuelo _____ colocar to place, _____ la empresa _____ la época _____

8.2H Describiendo tu región
_____ accustomed to, used (adj) to la barca pesquera _____ _____ home-made _____ date (with someone) _____ climate

**GCSE Unit 9 SPANISH Knowledge organiser.
Topic My Studies**

Key Verbs

<u>Aprobar</u> To pass	<u>Elegir</u> To choose	<u>Suspender</u> To fail	<u>Estudiar</u> To study	<u>Pensar</u> To think
Apruebo I pass	Eligo I choose	Suspendo I fail	Estudio I study	Pienso I think
Apruebas You pass	Eliges You choose	Suspendes You fail	Estudias You study	Piensas You think
Aprueba He/she/it passes	Elige He/she/it chooses	Suspende He/she/it fails	Estudia He/she/it studies	Piensa He/she/it thinks
Aprobamos We pass	Elegimos We choose	Suspendemos We fail	Estudiamos We study	Pensamos We think
Aprueban They pass	Eligen They choose	Suspenden They fail	Estudian They study	Piensan They think

What we are learning this term:

A. Giving your opinion about different subjects
 B. Talking about your studies
 C. Talking about your school life and daily routine
 D. Talking about school rules and uniform
 E. Translating into English

6 Key Words for this term

1. asignaturas	4. suspender
2. notas	5. licenciatura
3. aprobar	6. elegir

9.1F ¿Cómo ser buen estudiante?

abrir to open
 Afectar to affect
 el apoyo support
 aprender to learn
 los apuntes notes
 asistir a to attend
 la biblioteca library
 el/la compañero/a classmate
 completar to complete
 Consultar to consult
 el debate discussion
 los deberes homework
 el diccionario dictionary
 la duda doubt, query
 el ejercicio exercise
 entender to understand
 la escuela school
 Esperar to hope, to wait, to expect
 el examen, exámenes exam, exams
 la excursión trip
 faltar a clase to miss lessons
 la frase sentence
 Intentar to try
 interrumpir to interrupt
 el instituto school
 levantar la mano to raise your hand
 la literatura literature
 llevar to take, to carry, to wear
 mejorar to improve
 mirar to look at
 el mundo world
 necesitar to need
 la nota grade
 ofrecer to offer
 el ordenador computer
 organizar to organise
 la palabra word
 la pantalla screen
 participar to take part
 pedir to ask for, to request
 pegado/a a glued to
 perder to lose, miss
 la pizarra blackboard
 la pizarra interactiva smartboard
 Preguntar to ask
 el/la profesor(a) teacher
 el progreso progress
 la prueba test
 Repasar to revise

9.1G El instituto y las asignaturas

el arte dramático drama
 la asignatura subject
 la carrera career, university course
 las ciencias science
 la clase class
 la cocina cooking, food technology
 continuar to continue, carry on
 los deberes homework
 dejar to drop
 el dibujo art
 difícil difficult, hard
 divertido/a fun
 la educación física PE
 Escoger to choose
 el español Spanish
 estudiar to study
 fácil easy
 el francés French
 la geografía geography
 la historia history
 el inglés English
 las matemáticas maths
 práctico/a practical
 próximo/a next
 la selección choice
 Útil useful

9.1F ¿Cómo ser buen estudiante?

el repaso revision
 responsable responsible
 resultar en to end up with, to lead to
 saber to know
 sacar buenas / to get good / bad grades
 malas notas
 serio/a serious
 las tareas homework
 el trabajo work, piece of work
 la tutoría tutorial
 Usar to use
 el vocabulario vocabulary

9.1H ¿Qué tal el instituto?

preocupar to worry
 la sala de informática IT room
 sencillo/a simple
 Sentirse to feel
 usar to use
 el viaje journey
 la zona área

9.1H ¿Qué tal el instituto?

el/la alumno/a pupil
 antiguo/a old
 asustado/a frightened
 asustar to frighten
 el atasco traffic jam, blockage
 atento/a attentive
 el aula (fem.) classroom
 ayudar to help
 buscar to look for
 cambiar to change
 cansado/a tired
 conocer to meet, to get to know
 contento/a glad, happy
 contestar to answer
 el curso school year, course
 los deberes homework
 deteriorado/a dilapidated, shabby
 distinto/a different
 la emoción excitement
 emocionante exciting
 encima on top
 encontrar to find
 explicar to explain
 feo/a ugly
 el gimnasio sports hall, gym
 hambriento/a hungry
 el idioma language
 inmenso/a immense
 el laboratorio laboratory
 largo/a long
 mejor better
 nervioso/a anxious, nervous
 el patio del recreo the school yard, playground
 la pregunta question

Translation Practice. G – blue F – orange H - Green	
Me _____ el francés	I like French
La historia es _____ divertida que el inglés	History is more fun than English
_____ a estudiar las matemáticas	I am going to study maths
La literatura es más _____ que el francés	Literature is more fun than French
Me encanta dibujo. Voy a _____ en Septiembre	I love art. I'm going to study it in September.
No, no _____ elegir esa opción	No, I don't want to pick that option
Pienso que las ciencias son muy _____	I think that science is really useful
No creo que voy a _____	I don't believe that I'm going to fail
_____ informática en la escuela primaria	I used to study ICT in primary school
Ayer _____ mis deberes	Yesterday I did my homework
La semana pasada _____ con mi profesora	Last week I spoke with my teacher
Voy a _____ estudiando tecnología	I'm going to continue studying technology
Si necesitas algo, _____ al profesor.	If you need anything ask the teacher
_____ mucho estudiar ciencias	I enjoy studying science a lot
Ya _____ hablado con el profesor	I have already spoken with the teacher
Va a _____ muy interesante	It's going to be very interesting
He _____ esta opción	I have chosen this option
Quiero _____ mucho	I really want to do it a lot
No sé _____ hacer	I don't know what to do

Key Questions: Answer the following in your own words. Use these model answers	
¿Qué estudias ahora, que te gustaría estudiar en el futuro, que vas a dejar?	Ahora en el colegio, estudio unas asignaturas obligatorias. Las asignaturas obligatorias son las matemáticas, las ciencias y el inglés. También he elegido estudiar el español, la geografía, la historia, la tecnología, el arte, el dibujo La asignatura que me interesa más es porque La asignatura que me molesta/irrita más es porque ...
¿Cómo es tu colegio, las reglas, los edificios, las instalaciones?	Mi colegio es un colegio grande que tiene circa ochocientos alumnos. Está en las afueras de Swindon en los barrios de Pinehurst y Penhill. Tenemos una biblioteca nueva, una cantina acogedora, un patio grande ... En el colegio no debes comer chicle, no debes acosar, no tienes que gritar, no deberías comportarse mal... En el colegio tienes que comportarse bien, llevar el uniforme, ir al baño solo durante el recreo, llegar al colegio a hora
¿Describe tu primer día en tu colegio?	El primer día, estaba un poco nervioso porque me preocupaban los profesores, los otros alumnos, las clases, ... me preocupaba que los profesores serian estrictos, me preocupaban los exámenes, me preocupaba que el colegio sería tan inmenso
Es obligatorio estudiar matemáticas. ¿Crees que es una buena idea? ... ¿Por qué (no)?	Si, en mi opinión me parece una buena idea porque ... las matemáticas son muy importantes en el futuro/para un buen trabajo bien pagado/para mi futuro/para ir a una buena universidad/porque las matemáticas se usan en todos los trabajos
En tu opinión, ¿cuáles son las características más importantes de un buen profesor?	En mi opinión, un buen profesor es siempre simpático, nunca malhumorado, es de vez en cuando gracioso, es comprensivo y cariñoso, es siempre alegre y no es nunca antipático
¿Qué cambiarías de tu colegio si tuvieras la oportunidad?	Si tuviera la oportunidad, cambiaría/me gustaría cambiar las reglas. Me gustaría cambiar el uniforme porque me parece que es tan feo, me gustaría cambiar las reglas porque son demasiadas estrictas, me gustaría cambiar unos profesores porque son tan antipáticos

Key Grammar	
Imperfect Tense (Past, ongoing actions, descriptions, 'used to' or 'was doing')	-ar -aba, -abas, -aba, -ábamos, -abais, -aban -er and -ir -ía, -ías, -ía, -íamos, -íais, -ían
Forming the conditional ('would like to' tense). Always remove the -AR, -ER, -IR endings first	Remember the conditional ('would') tense endings for -AR, -ER, -IR verbs. They are: -AR, -ER, -IR: -ía, -ías, -ía, -íamos, -íais, -ían
Future Tense ('will...')	All verb groups: -é, -ás, -á, -emos, -éis, -án <i>With this tense, do NOT take the verb ending away but ADD it on to the infinitive.</i>

Functions / Procedures / Subroutines

```
#defining the function
def greeting_function():
    name = input("Please enter your name: ")
    print(name+",", "I like it.")

#calling the function
greeting_function()

Please enter your name: Mr.Weston
Mr.Weston, I like it.
>>> |
```

String Manipulation

Using .upper() .lower() methods.

```
userName = input("Enter lowercase name: ")
userName = userName.upper()
print(userName) | Enter lowercase name: mr.weston
MR.WESTON
```

Concatenation (merging strings together).

```
firstName = input("Enter first name")
lastName = input("Enter last name")
fullName = firstName + lastName
print(fullName) | Enter first nameSamuel
Enter last nameWeston
SamuelWeston
```

```
userSentence = input("Enter a sentence")
sentenceList = userSentence.split()
print(sentenceList) | Enter a sentenceSphinx of black quartz, judge my vow
['Sphinx', 'of', 'black', 'quartz,', 'judge', 'my', 'vow']
```

Using .split() to put each word into a list.

Using .replace("wordToReplace", "wordReplacing") to replace individual words in a string.

```
userSentence = input("Enter a sentence for judgement")
judgedSentence = userSentence.replace("here", "leaving")
print(judgedSentence)
```

```
Enter a sentence for judgementI am here
I am leaving
```

Text Files

```
#setting the file which needs to be opened
fileName = "greeting.txt"
#instructing the program to open the file in "r" reading mode.
fileOpen = open(fileName, "r")
#reading and then printing the file
fileRead = fileOpen.read()
print(fileRead) | Hello there!
Good morning!
Hi everyone!
```

```
#opening the file in "a" append mode.
fileOpen = open(fileName, "a")
#adding a greeting at the end, on a new line "\n"
fileOpen.write("\nGreetings!")
#closing the file when we are done with it
fileOpen.close()
```

greeting - Notepad

File Edit Format View Help

```
Hello there!
Good morning!
Hi everyone!
Greetings!
```

```
#If the file doesn't exist, you can make it using open()
newFile = open("Newfile.txt", "w")
#writing to the new file and then closing it to save changes
newFile.write("Life as a file is great!")
newFile.close()
```

Newfile - Notepad

File Edit Format View Help

```
Life as a file is great!
```

Validation

```
userPassword = str(input("Enter password: "))
passwordLength = len(userPassword)
```

```
if passwordLength < 8:
    print("Password too short")
elif passwordLength >= 8:
    print("Password accepted")
```

```
Enter password: pencil
Password too short
>>>
= RESTART: C:/Users/samu
tion.py
Enter password: pencils!
Password accepted
```

```
try:
    #put all your program code here (indented) in order to catch any errors when they arise
    prin("Everything is fine")
```

```
#the catch to print an error message and end the program gracefully
except:
    print("An unhandled exception occurred.")
```

```
An unhandled exception occurred.
```

```
>>> |
```

Number Bases

Three common bases in computer science.

Decimal / Denary – Base 10, Our normal number system.

Binary – Base 2, used by Computers.

Hexadecimal – Base 16, easier for humans to understand and work with than binary and relates more to binary than denary does.

DECIMAL	HEX	BINARY
0	0	0000
1	1	0001
2	2	0010
3	3	0011
4	4	0100
5	5	0101
6	6	0110
7	7	0111
8	8	1000
9	9	1001
10	A	1010
11	B	1011
12	C	1100
13	D	1101
14	E	1110
15	F	1111

Uses for hexadecimal: Memory locations, error codes, colour codes, MAC addresses.

Units of Memory

Bits – Binary digits. Either 1 or 0.

Nibble – Four bits.

Byte – Eight bits.

1,000 bytes (1,000 B)	1 kilobyte (KB)
1,000 kilobytes (1,000 KB)	1 megabyte (MB)
1,000 megabytes (1,000 MB)	1 gigabyte (GB)
1,000 gigabytes (1,000 GB)	1 terabyte (TB)
1,000 terabytes (1,000 TB)	1 petabyte (PB)

Character Sets

Assigning a binary pattern to characters. There are two primary character sets.

ASCII -American Standard Code for Information Interchange. Uses seven bits for characters, which means it can hold at maximum 128 characters

Unicode - Uses sixteen bits as standard, allowing for just over 65,000 characters. Used for different languages, scientific symbols, emojis etc.

Terms

Term	Definition
Overflow Error	An overflow error occurs when the result of a calculation requires more bits than are in the available range.
Bit Depth / Sample Resolution	The number of bits we assign or are used for each sample
Colour Depth	The number of bits we assign for each pixel in an image. More bits means more colours available.
Pixel	Smallest part of a bitmapped image.
Bitmap Image	An image made up of a grid of pixels.
Resolution	The fineness of detail that the image contains, the higher the resolution, the more detail it contains and the higher the quality.
Compression	Compression reduces the file size by the reducing the number of bits inside the file. This makes transferring a file quicker and it takes up less storage.
Lossy Compression	Reduces digital file size by removing data.
Lossless Compression	Reduces digital file size without losing detail.

Run-Length-Encoding

Lossless compression where the data within the file is checked and when there is a consecutive series of the same data, they are stored as one entry instead of many. E.g. for the data below - 6 0 , 8 1, 6 0



Huffman Coding

A form of lossless compression which makes files smaller using the frequency with which characters appear in a message. This works particularly well when characters appear multiple times in a string as these can then be represented using fewer bits.

17. Business Aims & Objectives**Businesspeople like to use the term SMART objectives**

Which Objective?	Explanation of Objective
Specific	Businesses set very specific targets that are very clear and to the point
Measurable	Businesses set measurable targets that can be measured. For example: Business set themselves specific sales targets over a set period.
Achievable	Businesses set realistic targets that are ambitious yet achievable.
Realistic	Businesses set realistic targets that will motivate employees at the same time they will be achievable
Time- Bound	Businesses set their targets over a <u>period of time</u> as this creates a sense of excitement and urgency.

18. Aims and Objectives in Business**Businesses have both financial and non-financial aims**

Type of Objectives	Explanation
Financial Objectives	Profit. Sales. Market Share. Reduce costs.
Non-Financial Objectives	Social objectives. Independence. Control.

19. Business Revenue, Costs & Profits

Term	Definition
Fixed Costs	Costs that don't vary just because output varies for example 'rent'.
Profit (gross/net)	The difference between revenue and total costs; if the figure is negative the business is making a loss
Revenue	The total value of the sales made within a set period, such as a month.
Total Costs	All the costs for a set period, such as a month
Variable Costs	Costs that vary as output varies such as raw materials

20. Business Revenue, Costs & Profits

Term	Formulae
Sales Revenue	Price x Quantity Sold
Total Costs	Variable costs + Fixed Costs
(Gross) Profit	Total Revenue – Total Costs

21. Breaking Even

Term	Definition
Break - Even	The level of sales at which total costs are equal to total revenue. At this point the business is making neither a profit nor a loss.
Break-even Chart	A graph showing a company's revenue and total costs at all possible levels of output
Margin of Safety	The amount by which demand can fall before the business starts making losses

17. Business Aims & Objectives	
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21. Breaking Even	
Term	Definition
Break - Even	
Break-even Chart	
Margin of Safety	

22. The Importance of Cash

Question	Answer
Why does Cash matter to a Business?	Cash matters because, without it, bills go unpaid and a business can fail. If you have no cash, you can't pay suppliers or employees.
Why is cash important to a business?	Cash is required to pay suppliers, employees or other costs. Typical overheads include: Salaries/ Rent and Rates/ Utilities and Bills
What is the difference between cash and profit?	Cash flow shows the immediate impact of a transaction on a company's bank account; profit shows the longer-term impact after costs have been taken into account.

23. The Importance of Cash (definitions)

Term	Definition
Cash	The money the firm holds in notes and coins, and in its bank accounts
Cash Flows	The movement of money into and out of the firm's bank account.
Insolvency	When a business lacks the ability to pay its debts
Overdraft	A short-term form of credit. A bank will allow a business to spend more money than it actually has.
Overdraft Facility	An agreed maximum level of overdraft

25. Short Term Sources of Finance

Term	Definition
Bank Overdraft	If a company requires some short term finance they can negotiate to extend their overdraft facility with the bank
Trade Credit	When a supplier provides goods without immediate payment – This gives the business time to sell products in order to pay off the debt.

24. Cash Flow Forecasts

Cash flow forecasting means predicting the future flows of cash into and out of a Business.

Successful cash flow forecasts require:

- Accurate prediction of monthly sales
- Accurate predictions of when customers will pay for the goods they have bought
- Careful allowance of operating costs and the timing of payments
- Careful allowance for in flows and outflows of cash

Key Term	Definition
Opening Balance	The amount of cash in the bank at the start of the month
Net Cash Flow	Cash inflow minus cash outflow over the course of a month
Negative Cash Flow	When cash outflows are greater than cash inflows
Closing Balance	The amount of cash left in the bank at the end of the month

26. Long Term Sources of Finance

Term	Definition
Crowdfunding	Raising Capital online from many small investors (but not through the stock market).
Share Capital	Raising finance by selling a share of the business, Shareholders have the right to question the directors and take profit out the firm.
Venture Capital	A combination of share capital and loan capital, provided by an investor.
Retained Profit	Profit kept within the Business that is used for business growth.

22. The Importance of Cash

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Term	Definition
Bank Overdraft	
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Food science

Functions of ingredients

Ingredients provide a variety of functions in recipes.

Carbohydrate, protein and fat

Carbohydrate, protein and fat all have a range of properties that make them useful in a variety of food products.

Carbohydrates perform different functions in food.

They can:

- help to cause the colour change of bread, toast and bakery products (dextrinisation);
- contribute to the chewiness, colour and sweet flavour of caramel;
- thicken products such as sauces and custards (gelatinisation).

Maillard reaction

Foods which are baked, grilled or roasted undergo colour, odour and flavour changes. This is primarily due to a group of reactions involving amino acids (from protein) and reducing sugars.

Dextrinisation

When foods containing starch are baked they can also produce brown compounds due to dextrinisation. Dextrinisation occurs when the heat breaks the large starch polysaccharides into smaller molecules known as dextrins which produce a brown colour.

Caramelisation

When sucrose (table sugar) is heated above its melting point it undergoes physical and chemical changes to produce caramel.

Gelatinisation

When starch is mixed with water and heated, the starch granules swell and eventually rupture, absorbing liquid, which thickens the mixture. On cooling, if enough starch is used, a gel forms.

Proteins perform different functions in food products.

They:

- aerate foods, e.g. whisking egg whites;
- thicken sauces, e.g. egg custard;
- bind ingredients together, e.g. fishcakes;
- form structures, e.g. gluten formation in bread;
- gel, e.g. lime jelly.

Gluten formation

Two proteins, gliadin and glutenin, found in wheat flour, form gluten when mixed with water. Gluten is strong, elastic and forms a 3D network in dough. In the production of bread, kneading helps untangle the gluten strands and align them. Gluten helps give structure to the bread and keeps in the gases that expand during cooking.

Gelation

Gelatin is a protein which is extracted from collagen, present in animal connective tissue. When it is mixed with warm water, the gelatin protein molecules start to unwind. On cooling, a stable, solid network is formed, trapping the liquid.

Denaturation

Denaturation is the change in structure of protein molecules. The process results in the unfolding of the protein's structure. Factors which contribute to denaturation are heat, salts, pH and mechanical action.

Coagulation

Coagulation follows denaturation. For example, when egg white is cooked it changes colour and becomes firmer (sets). The heat causes egg proteins to unfold from their coiled state and form a solid, stable network.

Aeration

Products such as creamed cakes need air incorporated into the mixture in order to give a well-risen texture. This is achieved by creaming a fat, such as butter or baking spread, with sugar. Small bubbles of air are incorporated and form a stable foam.

Fats performs different functions in food.

They help to:

- add 'shortness' or 'flakiness' to foods, e.g. shortbread, pastry;
- provide a range of textures and cooking mediums;
- glaze foods, e.g. butter on carrots;
- aerate mixtures, e.g. a creamed cake mix;
- add a range of flavours.

Plasticity

Fats do not melt at fixed temperatures, but over a range. This property is called plasticity.

Colloidal systems

Colloidal systems give structure, texture and mouthfeel to many different products.

System	Disperse phase	Continuous phase	Food
Sol	Solid	Liquid	Unset jelly
Gel	Liquid	Solid	Jelly
Emulsion	Liquid	Liquid	Mayonnaise
Solid emulsion	Liquid	Solid	Butter
Foam	Gas	Liquid	Whipped cream
Solid foam	Gas	Solid	Meringue

Raising agents

Raising agents include anything that causes rising within foods, and are usually used in baked goods. Raising agents can be:

- biological, e.g. yeast;
- chemical, e.g. baking powder;
- mechanical, e.g. adding air through beating or folding.

Functional ingredients

These are ingredients that are specifically included in food for additional health benefits. They include:

- probiotics – 'good' bacteria that may have a positive impact on human health;
- prebiotics – food ingredients that promote the growth of beneficial microorganisms in the gut;
- sterols/stanols – compounds that can lower cholesterol;
- healthy fats (e.g. omega-3);
- added vitamins and minerals (more than in the original food).

Food is prepared and cooked to:

- make the food more palatable – improves flavour, texture and appearance;
- reduce the bulk of the food;
- provide variety and interest to meals.

Methods of cooking food

The methods of cooking are divided up into groups. These are based on the cooking medium used. They are:

- moist/liquid methods, e.g. boiling;
- dry methods, e.g. grilling;
- fat-based, e.g. frying.

Selecting the most appropriate way of preparing and cooking certain foods is important to maintain or enhance their nutritional value.

- Vitamins can be lost due to oxidation during preparation or leaching into the cooking liquid.
- Fat-based methods of cooking increase the energy (calories) of the food.
- The use of different cooking methods affects the sensory qualities of the food.

There are three ways that heat is transferred to food.

- Conduction – the exchange of heat by direct contact with foods on a surface.
- Radiation – energy in the form of rays.
- Convection – currents of hot air or hot liquid transfer the heat energy to the food.

Key terms

Conduction: the exchange of heat by direct contact with foods on a surface.

Convection: currents of hot air or hot liquid transfer the heat energy to the food.

Functional ingredients: Included in food for additional health benefits.

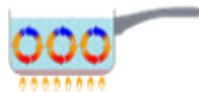
Heat transfer: transference of heat energy between objects.

Radiation: energy in the form of rays.

Tenderisation

• Mechanical tenderising – a meat cleaver or meat hammer may be used to beat the meat. Cutting into small cubes or mincing can also help.

• Chemical tenderisation (marinating) – the addition of any liquid to flavour or soften meat before cooking.



Tasks

- Choose a recipe that you enjoy or have made recently and explain in detail the functions of the ingredients.
- Explain the function of raising agents, giving examples of recipes.

KS4 FOOD AND NUTRITION KNOWLEDGE ORGANISER T2

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Conduction:

Convection:

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Heat transfer:

Radiation:

Food is prepared and cooked to:

-
-
-

Tenderisation

- Mechanical tenderising
- Chemical tenderisation (marinating)



Year 10 PRODUCT DESIGN Term 3



A. Physical & Working Properties	What we are learning this term:		E. 6 R's																									
Physical properties are the traits a material has before it is used.	A. Physical & Working Properties B. Forces & Stressors C. Types of Motion D. Paper & Card/Boards E. 6 R's F. Natural & Manufactured Timbers		You can use the 6R's when designing to help reduce the impact that new products have on the environment.																									
Absorbency Ability to soak up moisture, light or heat	B. Forces and Stressors	C. Types of Motions	Repair It's better to fix things instead of throwing them away.																									
Density How solid a material is			Reuse You can extend a products life by passing it on or using it again.																									
Fusibility Ability of a material to be heated and joined to another material when cooled	Forces apply stress to objects, causing them to break or change shape.	Linear Moves something in a straight line. E.g. a train moving down a track	Recycle The uses less energy than obtaining new materials.																									
Electrical Conductivity Ability to conduct electricity	Different materials can withstand different forces.	Reciprocating Has a repeated up and down motion or back-and-forth motion. E.g a piston or pump	Rethink You should think about your design carefully. Is it needed?																									
Thermal Conductivity Ability to conduct heat	Tension Is a stretching or pulling force. E.g. the ropes of a suspension bridge	Rotary Is where something moves around an axis or pivot point. E.g a wheel	Reduce Making long-lasting durable products. Think rechargeable!																									
Working properties are how a material behaves when it is manipulated.	Compression Is a pushing or squashing force, e.g. the weight of a building on its foundation	Oscillating Has a curved backwards and forwards movement that wings on an axis or pivot point. E.g a swing or clock pendulum	Refuse You can refuse to buy a product if you think it is wasteful. Such as plastic bags.																									
Strength Ability of a material to withstand compression, tension and shear	Bending Is a combination of tension and compression. It exerts tension on one side and compression on the other, e.g. bending anything	D. Paper & Card/Boards	F. Natural & Manufactured Timbers																									
Hardness The ability to withstand impact with damage	Shear Is a cutting force. The opposing forces are not directly opposite each other, e.g. cutting paper with scissors.	Paper and cards/boards both come from wood pulp.	Natural timber comes from trees.																									
Toughness Materials that are hard to break or snap are tough & can absorb shock	Torsion Is a twisting force that attempts to rotate two ends of a material in opposite directions, e.g. wringing out a wet cloth.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Paper</th> <th style="width: 50%;">Board</th> </tr> </thead> <tbody> <tr> <td>Cartridge Paper</td> <td>Corrugated Card</td> </tr> <tr> <td>Grid Paper</td> <td>Duplex Board</td> </tr> <tr> <td>Layout Paper</td> <td>Foil-Lined Board</td> </tr> <tr> <td>Tracing Paper</td> <td>Foam Core Board</td> </tr> <tr> <td>Corrugated Card</td> <td>Inkjet Card</td> </tr> <tr> <td></td> <td>Solid White Board</td> </tr> </tbody> </table>	Paper	Board	Cartridge Paper	Corrugated Card	Grid Paper	Duplex Board	Layout Paper	Foil-Lined Board	Tracing Paper	Foam Core Board	Corrugated Card	Inkjet Card		Solid White Board	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Hardwood</th> <th style="width: 50%;">Softwood</th> </tr> </thead> <tbody> <tr> <td>Ash</td> <td>Larch</td> </tr> <tr> <td>Beech</td> <td>Pine</td> </tr> <tr> <td>Mahogany</td> <td>Spruce</td> </tr> <tr> <td>Oak</td> <td rowspan="2">Softwoods are faster growing and cheaper to buy.</td> </tr> <tr> <td>Balsa</td> </tr> </tbody> </table>	Hardwood	Softwood	Ash	Larch	Beech	Pine	Mahogany	Spruce	Oak	Softwoods are faster growing and cheaper to buy.	Balsa
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Malleability Being able to bend or shape easily would make a material easily malleable			Manufactured Boards																									
Ductility Materials that can be stretched are ductile			Manufactured boards are usually made from natural timber waste and adhesive.																									
Elasticity Ability to be stretched and then return to its original shape			Medium-density fibreboard (MDF)																									
			Plywood																									
			Chipboard																									



Year 10 PRODUCT DESIGN Term 3



<p>A. Physical & Working Properties</p> <p>Physical properties are _____.</p> <p>_____.</p> <p>Absorbency </p> <p> How solid a material is</p> <p>Fusibility </p> <p> Ability to conduct electricity</p> <p>Thermal Conductivity Ability to conduct heat</p> <p>Working properties are _____.</p> <p>_____.</p> <p>Strength </p> <p> The ability to withstand impact with damage</p> <p>Toughness </p> <p> Being able to bend or shape easily would make a material easily malleable</p> <p>Ductility </p> <p>Elasticity Ability to be stretched and then return to its original shape</p>	<p>What we are learning this term:</p> <p>A. Physical & Working Properties B. Forces & Stressors C. Types of Motion D. Paper & Card/Boards E. 6 R's F. Natural & Manufactured Timbers</p> <p>B. Forces and Stressors</p> <p>Forces apply _____ to objects, causing them to _____ or _____.</p> <p>Different materials can withstand different forces.</p> <p>Tension</p> <p></p> <p> Is a pushing or squashing force, e.g. _____</p> <p>_____</p> <p>Bending</p> <p></p> <p> Is a cutting force. The opposing forces are not directly opposite each other, e.g. _____</p> <p>_____</p> <p>Torsion</p> <p></p>	<p>E. 6 R's </p> <p>You can use the 6R's when designing to help reduce the impact that new products have on the environment.</p> <p>Repair </p> <p> You can extend a products life by passing it on or using it again.</p> <p>Recycle </p> <p> You should think about your design carefully. Is it needed?</p> <p>Reduce </p> <p> You can refuse to buy a product if you think it is wasteful. Such as plastic bags.</p>														
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What we are learning this term:	
A.	Understanding professional works
B.	What is a professional work
C.	What is a practitioner
D.	How do we analyse a performance
E.	What are physical skills
F.	What are interpretive skills
G.	Three different performance styles / genres

6 Key Words for this term	
1 Practitioners	4 Performance material
2 Physical skills	5 Analyse
3 Interpretive skill	6 Intentions

A.	Key question – What is the artistic purpose of a performance work?
<p>When watching a professional performance, the key questions you need to think about are the following...</p> <p>How do we Explore artistic purpose?</p> <p>Explore artistic purpose (across all three disciplines/styles) including:</p> <ul style="list-style-type: none"> to educate to inform to entertain to provoke to challenge viewpoints to raise awareness to celebrate. 	

A.	Component 1 – Key focus
<p>In this component of the qualification students will develop their understanding of drama by examining the work of existing practitioners and the processes used to create performance. Students should experience a range of work across the discipline of drama by viewing recorded and/or live work.</p> <p>While this is primarily a theoretical study of the performing arts practical investigations, students will be working at developing practical skills through workshops and links with Component 2 Developing Skills and Techniques in the Performing Arts, to engage in primary exploration of specific repertoire.</p>	

C.	Key question from Assessment objectives
<ol style="list-style-type: none"> 1. What are physical skills 2. What are interpretive skills 3. How do we use these skills practically? 4. How do we IMPROVE on these skills? 	<ol style="list-style-type: none"> 1. What is a professional work 2. What is a practitioner 3. How do we analyse a performance 4. What are a practitioners creative intentions

G.	Key learning aims from Component 1
<p><i>Learning aim A: Examine professional practitioners' performance work</i></p>	<p>A1: Professional practitioners' performance material, influences, creative outcomes and purpose</p> <p>Examine live and recorded performances in order to develop understanding of practitioners' work with reference to influences, outcomes and purpose.</p> <p>Focus on thematic interpretation of particular issues and how artists communicate their ideas to an audience.</p> <p>Roles and responsibilities in theatre.</p>
	<p><i>Learning aim B: Explore the interrelationships between constituent features of existing performance material</i></p> <p>Processes used in performance</p> <ul style="list-style-type: none"> ● Responding to stimuli to generate ideas for performance material. ● Exploring and developing ideas to develop material. ● Discussion with performers. ● Setting tasks for performers. ● Sharing ideas and intentions. ● Providing notes and/or feedback on improvements.

E.	Keywords
Practitioners	A professional theatre maker who creates in a specific style led by a specific theatre ideology.
Performance material	The practical work that a practitioner creates for performance.
Creative Intentions	The ideas behind the choreography, why the choreographer choose to create the work.
Review	Look over your current work and the work of others and be able to review and comment on your own and others practice
Analyse/ Evaluate	Watch and then analyse your own performance and the work of others and giving comments and judgements on what you see
Influences	How the practitioner has been influenced by others, their experiences, their training and how this has affected the work they create.
Physical skills	The physical attributes that an actor uses, stamina, strength, flexibility, control, to dance with technical accuracy.



What we are learning this term:	
A.	Understanding professional works
B.	What is a professional work
C.	What is a practitioner
D.	How do we analyse a performance
E.	What are physical skills
F.	What are interpretive skills
G.	Three different performance styles / genres

6 Key Words for this term	
1 Practitioners	4 Performance material
2 Physical skills	5 Analyse
3 Interpretive skill	6 Intentions

A.	Key question – What is the artistic purpose of a performance work?
<p>When watching a professional performance, the key questions you need to think about are the following... How do _____? (across all three disciplines/styles) including: to _____ to _____ to _____ to _____ to _____ to _____</p>	

A.	Component 1 – Key focus
<p>In this component of the qualification students will develop their understanding of drama by examining the work of _____s and the _____ used to _____.</p> <p>Students should experience a range of work across the discipline of drama by viewing recorded and/or live work.</p> <p>While this is primarily a theoretical study of the performing arts practical investigations, students will be working at developing practical skills through _____s and links with Component 2 _____ and Te_____s in the Performing Arts, to engage in primary exploration of specific repertoire.</p>	

C.	Key question from Assessment objectives
<ol style="list-style-type: none"> 1. What are physical skills 2. What are interpretive skills 3. How do we use these skills practically? 4. How do we IMPROVE on these skills? 	<ol style="list-style-type: none"> 1. What is a professional work 2. What is a practitioner 3. How do we analyse a performance 4. What are a practitioners creative intentions

G.	Key learning aims from Component 1
<p><i>Learning aim A: Examine professional practitioners' performance work</i></p>	<p>A1: Professional practitioners' performance material, influences, creative outcomes and purpose</p> <p>Examine _____ and _____ performances in order to develop _____ of practitioners' work with reference to _____s, o_____s and p_____se. Focus on _____ i_____ of particular i_____ and how artists c_____te their ideas to an _____e. Roles and responsibilities in theatre.</p>
	<p><i>Learning aim B: Explore the interrelationships between constituent features of existing performance material</i></p> <p>Processes used in performance</p> <ul style="list-style-type: none"> • Responding to _____ to generate id_____s for performance material. • Exploring and developing ideas to develop material. • D_____on with performers. • Setting _____ for performers. • S_____ng ideas and intentions. • Providing _____ and/or fe_____ck on imp_____nts.

E.	Keywords
Practitioners	
Performance material	
Creative Intentions	
Review	
Analyse/ Evaluate	
Influences	
Physical skills	



Main assessment objectives	
Learning outcome: Know the personal qualities, styles, roles and responsibilities associated with effective sports leadership.	
Be able to plan sports activity sessions.	

What we are learning this term:	
A. Different leadership roles	
B. Role-related responsibilities	
C. Personal qualities	
D. Leadership styles	
E. Key considerations when planning sports activity	

Can you give examples of managers from different sports?	
Gareth Southgate Eddie Jones	

Role models	
Positive Mo Farah Nicole Adams	Negative Luis Suarez Nick Kyrgios

A. The different leadership roles within sport	
Role	Definition
Coach	A person involved in the direction, instruction and training of the operations of a sports team
Manager	Responsible for handling the business matters of athletes and sports teams
Captain	The leader of the team who is usually also a player
Teacher	A person who teaches, especially in a school
Expedition leader	Someone who leads groups on adventurous activities
Role model	A person looked to by others as an example

A. Role related responsibilities	
Knowledge of activity Enthusiasm for activity Knowledge of safety Knowledge of child protection issues Knowledge of basic first aid	

G. Considerations when planning sports activities	
Session content	Objectives for the session appropriate venue Equipment needs Supervision needs Timing of activities Introduction/conclusion of session Basic warm up/cool down Skills and technique development Engaging Organisation
Safety	Risk assessments- facilities, equipment/clothing checks, activity-specific risks Corrective action- wiping up puddles, removing litter, reporting faulty equipment Emergency procedures- procedures in the event of an accident, procedures in the event of other emergencies, summoning qualified help, completion of relevant documents

Personal qualities	
Reliability Punctuality Confidence Communicator Creativity	

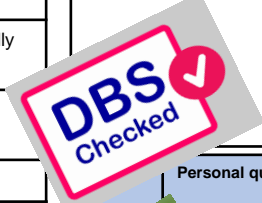
Key sections	
Different leadership roles and opportunities	

Captain Coach Expedition leader	Manager Teacher Role model
---------------------------------------	----------------------------------

Role related responsibilities	
Knowledge of; Activity Safety Child protection Basic first aid	Enthusiasm for activity

Personal qualities	
Reliability Punctuality Communication Confidence Creativity	

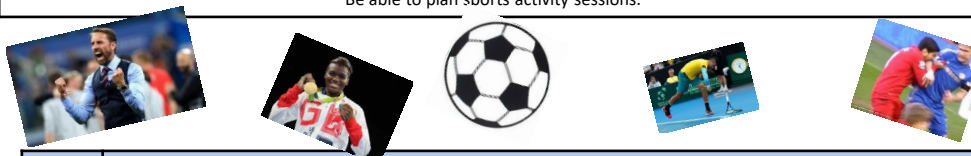
A. Leadership styles	
Autocratic- Relating to a ruler who has absolute power	
Democratic- Members of the group take a more participative role in the decision-making process	
Laissez-Faire- Leaders are hands-off and allow group members to make the decisions	





Main assessment objectives

Learning outcome: Know the personal qualities, styles, roles and responsibilities associated with effective sports leadership.
Be able to plan sports activity sessions.



What we are learning this term:

- A. Different leadership roles
- B. Role-related responsibilities
- C. Personal qualities
- D. Leadership styles
- E. Key considerations when planning sports activity

C.	Can you give examples of managers from different sports?
Role models	
Positive	Negative

A.	Role related responsibilities

G.	Considerations when planning sports activities
<i>Session content</i>	
<i>Safety</i>	

A.	Personal qualities

Key sections

Different leadership roles and opportunities

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Role related responsibilities

--	--

Personal qualities

--	--

Leadership styles





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A.	The different leadership roles within sport
Role	Definition
Coach	
Manager	
Captain	
Teacher	
Expedition leader	
Role model	

A.	Leadership styles





What we are learning this term:	
A.	Key words
B.	What are the main life stages
C.	What are the 4 areas of growth and development (PIES)?
D.	How do Humans develop physically (P)?

A. Key words for this Unit	
Characteristics	Something that is typical of people at a particular life stage.
Life stages	Distinct phases of life that each person passes through.
Growth	Increased body size such as height, weight.
Development	Involves gaining new skills and abilities such as riding a bike.
Gross motor development (G)	Refers to the development of large muscles in the body e.g. Legs
Fine motor development (F)	Refers to the development of small muscles in the body e.g. Fingers
Language development	Think through and express ideas
Contentment	An emotional state when people feel happy in their environment, are cared for and well loved
Self-image	How individuals see themselves or how they think others see them
Self-esteem	How good or bad an individual feels about themselves and how much they value their abilities.
Informal relationships	Relationships formed between family members
Friendships	Relationships formed with people we meet in the home or in situations such as schools, work or clubs
Formal relationships	relationships formed with non-family/friends – such as teachers and doctors.
Intimate relationships	romantic relationships.






B	What are the main life stages?		C	What are the 4 areas of growth and development (PIES)?	
Age Group	Life Stage	Developmental Characteristics and Progress	 Physical Development (P)	P = growth patterns and changes in the mobility of the large and small muscles in the body that happen throughout life.	
0-2 years	Infancy	Sill dependent on parents but growing quickly and developing physical skills.			
3-8 years	Early Childhood	Becoming increasingly independent, improving thought processes and learning how to develop friendships.		 Intellectual Development (I)	I = how people develop their thinking skills, memory and language.
9-18 years	Adolescence	Experiencing puberty, which bring physical and emotional changes.			
19-45 years	Early Adulthood	Leaving home, making own choices about a career and may start a family.		 Emotional Development (E)	E = how people develop their identity and cope with feelings.
46-65 years	Middle Adulthood	Having more time to travel and take up hobbies as children may be leaving home; beginning of the aging process.			
65+ years	Later Adulthood	The aging process continues, which may affect memory and mobility.	 Social Development (S)	S = describes how people develop friendships and relationships.	






D.	How do humans develop physically (P)?
0-2	<ul style="list-style-type: none"> Gross Motor Development (G) = life head, roll over, sit unaided, walk holding onto something, walk unaided, climb stairs, kick and throw, walk upstairs, jump. Fine Motor Development (F) = hold a rattle for short time, reach for an item, pass item from one hand to other, hold between finger and thumb, scribble, build a tower, use a spoon, draw lines and circles, turn page of a book.
3-8	<ul style="list-style-type: none"> G = ride a tricycle, catch a ball with two hands, walk backwards and step to the side, bounce a ball, run on tiptoes, ride a bike, catch a ball with one hand, balance along a thin line. F = hold a crayon to make circles and lines, thread small beads, copy letters and shapes with a pencil, make detailed models with construction bricks, joined up writing, use a needle to sew.
9-18	<ul style="list-style-type: none"> Girls = puberty starts at 10-13 years, breasts grow, hips widen, menstruation begins, uterus and vagina grow. Boys = voice deepens, muscles and strength increase, erections, facial hair, produce sperm. Both = pubic and underarm hair, growth spurts.
19-45	<ul style="list-style-type: none"> Physically mature, sexual characteristics are fully formed, peak of physical fitness, full height, women at most fertile. Later in the life stage people may put on weight, hair turn grey and men may lose hair, women's menstrual cycle was slow down
46-65	<ul style="list-style-type: none"> People may put on weight, hair turn grey and men may lose hair, women's menstrual cycle was slow down. Women go through the menopause – when menstruation ends and they can no longer become pregnant. Men may continue to be fertile throughout life but decrease in sperm production in this life stage.
65+	<ul style="list-style-type: none"> Women's hair becomes thinner, men may lose most of their hair, skin loses elasticity and wrinkles appear, nails hard and brittle, bones weaken, higher risk of contracting infections disease and illness. Stamina, reaction time, muscle and senses (hearing, sight, taste) all reduce.

What we are learning this term:	
A. Key words	
B. What are the main life stages	
C. What are the 4 areas of growth and development (PIES)?	
D. How do Humans develop physically (P)?	
A.	Key words for this Unit
Characteristics	
Life stages	
Growth	
Development	
Gross motor development (G)	
Fine motor development (F)	
Language development	
Contentment	
Self-image	
Self-esteem	
Informal relationships	
Friendships	
Formal relationships	
Intimate relationships	

B	What are the main life stages?		C	What are the 4 areas of growth and development (PIES)? Explain them.
Age Group	Life Stage	Developmental Characteristics and Progress		
0-2 years			Physical Development (P) 	
3-8 years			Intellectual Development (I) 	
9-18 years			Emotional Development (E) 	
19-45 years			Social Development (S) 	
46-65 years				
65+ years				

D.	<u>How do humans develop physically (P)?</u>
0-2	
3-8	
9-18	
19-45	
46-65	
65+	





What we are learning this term:		F. How do humans develop emotionally (E)?	
E. How do humans develop intellectually (I)? F. How do humans develop emotionally (E)? G. How do humans develop socially (S)?			
E. How do humans develop intellectually (I)?			
Infancy 	At birth brains are already well developed. Infants use all of their senses to learn about the world around them. Infancy is a time of rapid intellectual development. At 3 months infants can remember routines. At 9-12 months infants are developing their memory. At 12 months to 2 years infants understand processes and how things work. Language begins to develop during this stage.	Bonding and Attachment Bonding and attachment describe the emotional ties an individual forms with others. It starts in the first year of life between infants and their main carer because that person fulfils the infants needs which makes them feel safe and secure.	Adolescence and adulthood Self-image and Self-esteem Self-image is heightened during adolescence because of the physical changes we experience. Our self-esteem can change from day to day based on a variety of factors including employment and health status.
		Security For infants and young children, security is mainly the feeling of being cared for, being safe and loved – it is closely linked with attachment.	Security Adolescence may feel insecure because of puberty. Adults may feel insecure about relationships, job security of income. Later in life adults may feel insecure about staying in their own home or going into a care home. Feeling secure helps us cope better with everyday situations.
		Contentment Infants and young children are content if they have had enough food, love, are clean and dry and all other needs are met.	Contentment When people feel discontented with aspects of their life – for example, relationships or work – their emotions can be negatively affected.
Early childhood 	At 3-4 years of age children become more inquisitive and enjoy exploring objects and materials. They ask lots of questions and enjoy solving simple problems. At 5-6 years old children’s memory is becoming well developed. This helps them to talk about the past and anticipate the future.	Independence Independence is to care for yourself and make your own decisions. Infants are completely dependent on their carer. As children enter early childhood they develop more independence – feed self and get dressed. However, children still need a lot of help from their carer.	Independence Adolescence are dependent on their parents but are beginning to enjoy more independence and freedom to make their own choices. Adults enjoy living independently and controlling their own lifestyle and environment. Later in adulthood people become more dependent on others again.
		G. How do humans develop socially (S)?	
		Life Stage	Types of relationships and social development
Adolescence 	During this time abstract thought is developed – thinking logically and solving complex problems are possible by the end of this life stage. Adolescents may find it difficult to understand the consequences of their actions but they are developing empathy – seeing things from another’s point of view.	Infancy	<ul style="list-style-type: none"> • Solitary Play - From birth to 2 years, infants tend to play alone although they like to be close to their parent or carer; they may be aware of other children but not play with them.
		Early childhood	<ul style="list-style-type: none"> • Parallel Play - From 2 to 3 years, children enjoy playing next to other children but are absorbed in their own game; they are not socialising or playing with other children. • Cooperative or social play – from 3 years upwards, children start to play with other children; they have developed social skills that help them to share and talk together; they often make up games together, such as being a shopkeeper and customer.
		Adolescence	<ul style="list-style-type: none"> • People become more independent and build more informal and formal relationships. • Social development closely linked to emotions. • Often strongly influenced by peers – ‘peer group pressure’.
Early and Middle Adulthood 	By these life stages most adults have a good range of general knowledge. They use this knowledge and experience to solve problems that they come across in their personal and work lives.	Early adulthood	<ul style="list-style-type: none"> • Increased independence means greater control of decisions about informal relationships. • People may be developing emotional and social ties with partners and their own children. • Social life often centred on the family but social skills are required to build and maintain formal relationships.
Later adulthood 		Middle adulthood	<ul style="list-style-type: none"> • Children have often left home, but there are likely to still be strong family relationships. • Social circles may expand through travel, spending more time on hobbies or joining new groups.
		Later adulthood	<ul style="list-style-type: none"> • Retired by this stage and so may enjoy more social time with family and friends or join new groups. • However, later in the life stage people may begin to feel isolated if they struggle to get out or if partners and friends pass away.

What we are learning this term:		F. How do humans develop emotionally (E)? Explain each.	
E. How do humans develop intellectually (I)? F. How do humans develop emotionally (E)? G. How do humans develop socially (S)?		Infancy and Early Childhood	
E. How do humans develop intellectually (I)?		Adolescence and adulthood	
Infancy		Bonding and Attachment	
		Self-image and Self-esteem	
Early childhood		Security	
		Security	
Adolescence		Contentment	
		Contentment	
Early and Middle Adulthood		Independence	
		Independence	
Later adulthood		G. How do humans develop socially (S)?	
		Life Stage	
		Types of relationships and social development	
		Infancy	
		Early childhood	
		Adolescence	
		Early adulthood	
		Middle adulthood	
		Later adulthood	

What we are learning this term:	
H.	Key words
I.	How do physical factors affect development?
J.	How does lifestyle affect development?
K.	How do social and cultural factors affect development?
L.	How do relationships and isolation affect development?
M.	How do economic factors affect development?

H	Key words:
Genetic inheritance	Genes the person inherits from their parents
Genetic disorders	Health conditions that are passed on from parent to child through their genes. e.g. cystic fibrosis
Lifestyle Choices	Include the food you eat and how much exercise you do. They also include whether you smoke, drink alcohol or take illegal drugs.
Appearance	The way that someone or something looks
Factor	A circumstance, fact, or influence that contributes to a result
Gender role	The role and responsibilities determined by a person's gender.
Culture	ideas, customs, and social behaviour.
Role models	Someone a person admires and strives to be like.
Social Isolation	Lack of contact with other people
Material possessions	Things that are owned by an individual
Economic	To do with person's wealth and income.



I.	How do physical factors affect development?	
	Genetic Disorders	Disease and Illness
Physical Development	A person's physical build can affect physical abilities. Inherited diseases may affect strength and stamina needed to take part in exercise.	May affect the rate of growth in infancy and childhood. Could affect the process of puberty. Could cause tiredness and/or mobility problems. Could limit of prevent participation in physical activity.
Intellectual Development	Some genetically inherited diseases may result in missed schooling, or have a direct impact on learning – conditions such as Edward's syndrome impact learning.	School, college, university, work or training could be missed. Memory and concentration could be affected.
Emotional Development	Physical appearance affects how individuals see themselves (self-image), and how others respond to them impacts on their confidence and wellbeing.	May cause worry and/or stress. Individuals may develop negative self-esteem. Could lead to feelings of isolation.
Social Development	Physical characteristics or disease may affect opportunities or confidence in building friendships and becoming independent.	May cause difficulty in having opportunities to socialize with other and build wider relationships.

J.	How does lifestyle affect development?	
Lifestyle choices include; diet, exercise, alcohol, smoking, sexual relationships and illegal drugs, appearance.		
Positive lifestyle choices lead to: <ul style="list-style-type: none"> • Healthy hair, skin, nails and teeth • Positive self-image • Energy and stamina • Good health • Emotional security 		Negative lifestyle choices lead to: <ul style="list-style-type: none"> • Being overweight or underweight • Lack of energy • Ill health • Negative self-image • Sexually transmitted diseases (STDs) • Unplanned pregnancy 
Our appearance includes: body shape, facial features, hair and nails, personal hygiene and our clothing. Our appearance can affect the way we view ourselves- self-image		
Positive self-image: <ul style="list-style-type: none"> • Feel good about yourself. • Healthy hair, skin, nails and teeth • Big social circle. • High self-esteem. • High self-confidence. 		Negative self-image <ul style="list-style-type: none"> • Low self-esteem • Low self-confidence • Can lead to eating disorders e.g. anorexia • Can lead to anxiety or depression • Can lead to self-harm • Negative impact on building relationships- social circle decreases. 

What we are learning this term:	
H.	Key words
I.	How do physical factors affect development?
J.	How does lifestyle affect development?
K.	How do social and cultural factors affect development?
L.	How do relationships and isolation affect development?
M.	How do economic factors affect development?

H	Key words:
Genetic inheritance	
Genetic disorders	
Lifestyle Choices	
Appearance	
Factor	
Gender role	
Culture	
Role models	
Social Isolation	
Material possessions	
Economic	

I.	How do physical factors affect development?	
	<u>Genetic Disorders</u>	<u>Disease and Illness</u>
Physical Development		
Intellectual Development		
Emotional Development		
Social Development		

J.	How does lifestyle affect development?	
Lifestyle choices include; diet, exercise, alcohol, smoking, sexual relationships and illegal drugs, appearance.		
<u>Positive lifestyle choices lead to:</u>		<u>Negative lifestyle choices lead to:</u>
<ul style="list-style-type: none"> • • • • • 		<ul style="list-style-type: none"> • • • • •
Our appearance includes: body shape, facial features, hair and nails, personal hygiene and our clothing. Our appearance can affect the way we view ourselves- self-image		
<u>Positive self-image:</u>		<u>Negative self-image</u>
<ul style="list-style-type: none"> • • • • • 		<ul style="list-style-type: none"> • • • • •



K How do social and cultural factors affect development

Development can be influenced by the persons **culture or religion** because it affected their:

- **Values:** how they behave
- **Lifestyle choices:** diet, appearance

<p><u>Positive affects of a persons culture/religion:</u></p> <ul style="list-style-type: none"> • A sense of security and belonging from sharing the same values and beliefs with others. • Good self-esteem through being accepted and valued by others 	<p><u>Negative affects of a persons culture/religion:</u></p> <ul style="list-style-type: none"> • Feeing discriminated against by people who do not share their religion/culture which leads to low self-image • Feeing excluded and isolated because their needs like diet, are not catered for.
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Community refers to: local area where people live, school, religious group or hobby clubs. They have common values and goals.

<p><u>Belonging to a community:</u></p> <ul style="list-style-type: none"> • Brings sense of belonging essential for emotional development. • Building and maintaining relationships- social development • Feeling of security. • Increases self-image and self-confidence 	<p><u>Not belonging to a community:</u></p> <ul style="list-style-type: none"> • Minimal contact with others- isolation • Anxiety leading to depression • Making negative lifestyle choices • Feeling less secure • Difficulty in building relationships • Slow self-image and self-confidence
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Traditionally, men and women had distinctive responsibilities and expectations which for their gender called **gender roles**. However, nowadays UK equality legislation stops people being discriminated against because of their gender.

What happens when people face discrimination because of gender:

- They might be excluded from a group
- They may be refused promotion at work
- They may be expected to carry out a particular role
- They may be paid less.

What we are learning this term:

- K. How do social and cultural factors affect development?
- L. How do relationships and isolation affect development?
- M. How do economic factors affect development?

L How do relationships and isolation affect development?

1	In adolescence, young people often argue with parents because they want more independence- negative affect on family relationships- can lead to isolation from them.
2	In later life, older people might need to rely on their children for support. This then has a positive affect on their development because all their need are catered for.
3	Relationships are important because they provide emotional security, contentment and positive self- esteem.
4	The breakdown of personal relationships can have a negative effect on persons PIES development: Low self-esteem, loss of confidence, stress.
5	Isolation can happen when individuals do not have the opportunity of regular contact with others. They have no one to share their feelings, thoughts and worries with resulting in feeling insecure and anxious.
6	Isolation can happen because they live alone, are unemployed or retired, are discriminated against or have an illness or a disability.
7	People have role models- infants learn by copying others, and adolescence base their identity on their role models. Role models can influence how people see themselves compared to others and their lifestyle chices0 can be positive or negative.

M How do economic factors affect development

Having enough money gives individuals and their families feeling of content and security	Not having enough money causes stress and anxiety.
Having enough money means that the whole family is eating healthy.	Not having enough money can mean that the family is not about to eat well balanced diet, and this has a negative effect on their physical development
Elderly people rely on state pension to live which is not enough and have to cut down on travel, shopping, bills, therefore it speeds their aging process and lead to health decline.	
<p><u>Living in good housing with open spaces:</u></p> <ul style="list-style-type: none"> • Feeling good about themselves • Be more likely to stay healthy, • Space to take exercise • Feel safe ad secure • Warmth 	<p><u>Living in a poor housing with cramped and damp conditions:</u></p> <ul style="list-style-type: none"> • Have low self-esteem and self-image • Be more likely to experience ill health • Be lesson likely to exercise • Anxious and stressed.
Material possession like a new phone or coat has a positive effect on the persons development because they might have more friends as they look nicer, high self-image.	Not having a phone or the newest trainers can have a negative affect in the persons self-image and self-esteem. They might feel isolated from others.



K How do social and cultural factors affect development

Development can be influenced by the persons **culture or religion** because it affected their:

- **Values:** how they behave
- **Lifestyle choices:** diet, appearance

Positive affects of a persons culture/religion:

-
-

Negative affects of a persons culture/religion:

-
-

Community refers to:

Belonging to a community:

-
-
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-

Not belonging to a community:

-
-
-
-
-

Traditionally, men and women had distinctive responsibilities and expectations which for their gender called **gender roles**. However, nowadays UK equality legislation stops people being discriminated against because of their gender.

What happens when people face discrimination because of gender:

-
-
-
-

What we are learning this term:

- K. How do social and cultural factors affect development?
- L. How do relationships and isolation affect development?
- M. How do economic factors affect development?

L How do relationships and isolation affect development?

1	
2	
3	
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5	
6	
7	

M How do economic factors affect development

Having enough money.... • •	Not having enough money • •
→	→
Having enough money means that.... • •	Not having enough money can mean that... • •
→	→
Elderly people rely on state pension to live which is not enough and have to cut down on travel, shopping, bills, therefore it speeds their aging process and lead to health decline.	
<u>Living in good housing with open spaces:</u> • • • •	<u>Living in a poor housing with cramped and damp conditions:</u> • • • •
Material possession like a new phone or coat has a positive effect on the persons development because.....	Not having a phone or the newest trainers can have a negative affect on.... Because.... • • • •
→	→

What we are learning this term:	
<p>N. What are life events? O. How do people deal with life events? P. How is dealing with life events supported?</p>	
N.	What are life events?
Life Events	Life events are expected or unexpected events that can affect development. Examples include starting nursery, getting married or becoming ill.
Expected Life Events	Expected life events are life events that are likely to happen. Examples include starting primary school aged four and secondary school aged 11.
Unexpected Life Events	Unexpected life events are events which are not predictable or likely to happen. Examples could include divorce and bereavement (the death of a loved one).
Physical Events	Physical events are events that make changes to your body, physical health and mobility. Examples include illnesses such as diabetes and injuries and accidents such as car accidents.
Relationship Changes	Relationship changes could be new relationships such as the birth of a sibling, a new friendship or romantic relationship. Relationship changes can also be changes to existing relationships such as divorce.
Life Circumstances	Life circumstances are different situations that arise in our life that we must deal with. Examples include redundancy (losing a job), moving house or retirement (finishing work in later adulthood).

O.	How do people deal with life events?
Individual	<ul style="list-style-type: none"> The effects of life events vary from person to person based on how they deal with their new situation. Some people react to able to react to life events positively, others find it more difficult due to a range of factors.
Factors	<ul style="list-style-type: none"> Factors that may affect how people cope with life events: age, other life events happening at the same time, the support they have, their disposition (their mood, attitude and general nature), their self-esteem, their resilience (how quickly they recover).
Adapting	<ul style="list-style-type: none"> Adapt – to adjust to new conditions or circumstances. Expected on unexpected life events can often force people to make changes to their lives. Individuals must find their own way to adapt to the changes that life throws at them.
Resilience	<ul style="list-style-type: none"> Resilience – a person's ability to come to terms with, and adapt to, events that happen in life. Resilience is stronger in people who have a positive outlook on life, accept that change happens, has supportive family and friends and plans for expected life events.
Time	<ul style="list-style-type: none"> Sometimes people need a long time to adapt to unexpected life events. It can take time for people to move on from and accept difficult changes in their life.

P.	How is dealing with life events supported?
Types of Support	How this helps individuals deal with life events
Emotional Support	Emotional support is needed to help individuals deal with all life events – expected and unexpected. Having someone to talk to helps people feel secure and adapt to change. Sometimes individuals can find this support in family and friends or professionals to process difficult life events – such as bereavement.
Information and Advice	Life events, particularly unexpected ones, can cause people to feel like they do not know what to do. Information and advice can help people to have a better understanding of their situation, which allows them to deal with it more successfully. Information and advice help them know where to go for help, the choices that are available to them and how to make healthy choices.
Practical Help	<ul style="list-style-type: none"> Financial help – an individual may need money to help them adapt to a life change i.e. money to pay for a stair lift if their mobility has been effected. Childcare – an individual may need support looking after their children i.e. a lone parent after a divorce that needs to go to work. Transport – an individual may need support with transport if they have mobility problems i.e. a car could be adapted to support a person who has had an accident and can no longer walk.
Informal Support	Informal support is the support an individual receives from partners, family and friends. It is usually the first form of support an individual experiences after an expected or unexpected life event. Informal support can provide reassurance, encouragement, advice, a sense of security, someone to talk through options with and practical help.
Professional Support	Formal support may be provided by statutory care services (the state), private care services and charitable organizations. Professional support may include counsellors, teachers, careers advisers, occupational therapists, social workers and health specialists. Professional support may be needed to help people with a health condition, regain mobility, deal with life changes and emotions, get advice and information or change their lifestyle.
Voluntary Support	Organizations offering voluntary support are charities, community groups and religious groups. At voluntary support services, many staff are volunteers (they work for free), but they also employ qualified people who are paid by donations. Community groups work at a local level to meet the needs of people living in a specific neighbourhood i.e. foodbanks. Religious groups are formed by people who share the same religious or spiritual beliefs but they help all people in need regardless of their beliefs and background i.e. a church run soup kitchen for the homeless.

What we are learning this term:	
N. What are life events? O. How do people deal with life events? P. How is dealing with life events supported?	
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Life Events	
Expected Life Events	
Unexpected Life Events	
Physical Events	
Relationship Changes	
Life Circumstances	

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