


Year 10 English A Christmas Carol By Charles Dickens Knowledge Organiser



Task: WEEK ONE: Design a crossword to test knowledge of key characters. WEEK TWO: Look, cover, write, check information about the historical context. Challenge: check all of your spelling is correct. WEEK THREE: Choose two facts from the chapter summaries, then write a paragraph making connections between the two characters. WEEK FOUR: Write a paragraph about Scrooge's ghost. WEEK FIVE: Design a poster to test knowledge of the stylistic features list. Challenge: put the definitions in order from worst to best. WEEK SIX: Look, cover, write, check all the words highlighted in green. Challenge: on three separate lines, write your own piece of work. WEEK SEVEN: Design a quiz or game using the key words describing the key characters.

Character Summary:

- Ebenezer Scrooge:** A selfish business man who transforms into a charitable philanthropist.
- Jacob Marley:** Scrooge's dead partner who returns as a ghost to warn Scrooge to change his ways.
- Bob Cratchit:** Scrooge's clerk who doesn't have much money. He loves his family and is shown to be happy and morally upright.
- Tiny Tim:** Bob's ill son whose story plays a part in inspiring Scrooge's transformation.
- Past:** A strange combination of young and old, wearing white robes and looking like a candle.
- Ghost of Christmas Present:** A portly, jovial gentleman surrounded by a warm glow. He brings joy on the most lonely hour of the day.
- Ghost of Christmas Yet to Come:** A robed and hooded spirit who confronts Scrooge with his own tombstone.

Historical Context:

- 1824** - Dickens' father is sent to jail for debt and Dickens has to give up his education until his father inherits some money and he goes to a private school.
- 1832** - The Great Reform Bill gave many middle class property owners the right to vote for the first time. Large sections of the middle classes, the working classes and women still didn't have the right to vote.
- 1834** - Poor Law Amendment Act - Led to a cut in aid given to paupers to help them stay in their own homes. Workhouses were created which poor people would have to live and work in, if they were unable to pay for their own housing.
- September 1843** - Dickens visits a "ragged school".
- December 1843** - Dickens writes A Christmas Carol focusing on how many of society's life can be blamed on greed for money and status.

Stylistic Features:

- Satire:** Use of humour to ridicule or criticise. Ghost of Christmas Present delivers satire when reporting Scrooge's statements.
- Allegory:** A story or poem that can be interpreted to reveal a hidden meaning, typically a moral or political one. Scrooge represents the values that are opposed to the Ghost of Christmas.
- Narrator:** A person who recounts the events of a story. Usually an impartial individual voice. A Christmas Carol has a narrator.
- Pathetic fallacy:** Used to represent Scrooge's nature; cold hearted - "no warmth could warm, no wintry weather could fire."
- Symbolism:** When a word, phrase or image stands for or evokes a complex set of ideas; use of light for charity; chains for entrapment; holly for redemption and new life.
- Allusion:** Reference to another idea or belief without explicitly mentioning it. There is no doubt Marley was dead. "If he were not perfectly convinced himself, Father died before the play began, there would be nothing more remarkable [...] Narrator make allusion to Shakespeare's Hamlet which is a character that embarks on a potentially fateful journey."
- Pathos:** A quality that evokes pity or sadness. Tiny Tim provides the pathos - "Tiny Tim's appearance convinces Scrooge to change his attitude. Scrooge curses people for no reason but Tim is joyful and being despite his disability."
- Semantic field:** A set of words that are relating to the same meaning: "cold and sharp as flint", "solitary as a yearn" - linked to loneliness.
- Imagery:** Use of description to create a picture in your mind in order for the reader to form an opinion about a character: "The Phantom slowly, gravely, silently, approached suggests an element of fear."
- Personification:** When an inanimate object has human qualities: "the church bell is described as 'gruff and peevish'."

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Character	Scrooge	Bob Cratchit	Fred	The Ghosts
Marley's Ghost	This character	Devised	Accepting	The Past:
Ghost of Christmas Past	Changeful	Family-minded	Artless	Commanding
Ghost of Christmas Present	Condemned	Fearful	Cheerful	Compassionate
Ghost of Christmas Yet to Come	Disappointed	Fearful	Artless	Commanding
Scrooge	Altruistic	Generous	Confident	Ephemeral
Bob Cratchit	Artistic	Hard-working	Elegant	Forgivable
Fred	Caritative	Handsome	Enthusiastic	Firm
The Past	Cold-hearted	Imaginative	Impassioned	Regretful
The Present	Compassionate	Kind	Impassioned	Regretful
The Future	Deluded	Kind	Impassioned	Regretful
Marley's Ghost	Disappointed	Kind	Impassioned	Regretful
Ghost of Christmas Past	Disappointed	Kind	Impassioned	Regretful
Ghost of Christmas Present	Disappointed	Kind	Impassioned	Regretful
Ghost of Christmas Yet to Come	Disappointed	Kind	Impassioned	Regretful

[E] Key words for the main characters, find definitions for unknown words.

Year 10 Maths - Autumn Term 2

Topic: Simultaneous Equations

Key Words - Research Definitions and LEARN

Equation
Simultaneous
Linear
Quadratic
Distance
Sum

What is the value of m & n?

Solving Simultaneous Equations Graphically

One problem, three methods - at least three through the topic, decide which you prefer, why?

Solving Simultaneous Equations using bar models

Solving Simultaneous Equations algebraically

Topic: Circles, Sector and Arcs

The angle in a semi-circle is 90°

Two tangents from a point to the circumference of a circle are equal length

Area of a sector = $\frac{\theta}{360} \times \pi r^2$

Area of a segment = $\frac{\theta}{360} \times \pi r^2 - \frac{1}{2} \times r^2 \times \sin \theta$

Key Words - Research that meaning and LEARN

Ac, Radius, Diameter, Chord, Tangent, Circumference, Sector, Segment

SEPARATE

Biology - Infection and response

Week 1 - Pathogens and disease

Week 2 - Human defense responses

Week 3 - Vaccination

Week 4 - Antibiotics

Week 5 - Developing drugs

Antibiotics

Antibiotics are substances that slow down or stop the growth of bacteria. They are commonly prescribed medicines, especially for bacterial infections. They include penicillin and amoxicillin. There are also natural antibiotics like penicillin from mould. Antibiotics were first discovered in 1928 by Alexander Fleming. He noticed that some bacteria he had left in a petri dish had been killed by the naturally occurring *Penicillium mould*.

SEPARATE

Section 1: Key vocabulary *look, look up, write, copy*

Term	Definition
Relative atomic mass (A _r)	The average mass of the atoms of an element, compared with carbon-12.
Relative formula mass (M _r)	The total of the relative formula masses, added up in the ratio shown in the chemical formula of a substance.
Mole	The amount of substance that contains 6.02 × 10 ²³ atoms or molecules.
Yield	An amount produced.
Concentration	The amount of a chemical dissolved in a certain volume of a solution.
Titration	A method of measuring the volume of one solution that reacts exactly with a known volume of another solution.
End point	The point in a titration where the reaction is complete, and titration should stop.
Conservation of mass	Mass cannot be created or destroyed.
Indicator	Substances that indicate by a change in color the completion of a chemical reaction.
Percentage yield	The actual mass of product collected in a reaction divided by the maximum mass that could have been formed in theory, multiplied by 100.

Quantitative Chemistry

Section 2: Required practical: copying out a titration.

- Use the pipette and pipette filler to add 25 cm³ of acid to a clean conical flask.
- Add a few drops of indicator and put the conical flask on a white tile (so you can see the colour of the indicator more easily).
- Fill the burette with acid and note the starting volume.
- Slowly add the acid from the burette to the alkali in the conical flask, swirling to mix.
- Stop adding the acid when the end-point is reached (the appropriate colour change in the indicator happens). Note the final volume reading.
- Repeat steps 1 to 5 until you get consistent readings. It is important to repeat the titration several times to check that your final value is consistent so that your calculations are reliable.
- When calculating, you use the colour change produced through a range of titrations. On the other hand, a single indicator like **Bromo** or **phenolphthalein** gives a sharp end-point where the colour changes suddenly.

Task 1: describe a method to find the exact volume of sodium hydroxide that reacts with 25cm³ of hydrochloric acid using the equipment above. (6 marks)

Task 2: calculate the mean volume of sodium hydroxide added.

Titration	Volume of sodium hydroxide solution added (cm ³)
1	22.40
2	22.20
3	22.30

Section 3: Relative atomic masses *look, look up, write, copy*

Relative atomic mass (A_r) is based on 12. You always need to find the element on the periodic table and look for the atomic mass next to the chemical symbol.

Find the A_r of the following elements:

- H
- He
- Li
- Be
- B
- C
- N
- O
- F

The **Relative formula mass (M_r)** is calculated using the A_r of the atoms making up the molecule.

M of CaCO₃ = (A_r of Ca) + (A_r of C) + (A_r of O)₃
 = 40 + 12 + 3(16) = 100

Task: Calculate the A_r of carbon dioxide (CO₂). Calculate the M_r of CaCO₃.

Section 4: Concentration of solution *Practicals*

What are the units for concentration of a solution? Calculate the mass of solute dissolved in 250 cm³ of solution.

Use the equation: $\text{Substance in known volume} = \frac{\text{Concentration} \times \text{Volume}}{1000}$

Example: $4 \text{ g dm}^{-3} \times 250 \text{ cm}^3 = 1000 \text{ mg}$

Example: $100 \text{ g dm}^{-3} \times 250 \text{ cm}^3 = 25000 \text{ mg}$

Task 1: Calculate the concentration of a solution if 2g of solute is dissolved in 50 cm³.

Task 2: Calculate the concentration of a solution if 4g of solute is dissolved in 100 cm³.

Task 3: Calculate the concentration of a solution if 10g of solute is dissolved in 200 cm³.

SEPARATE

Section 1: Key vocabulary *look, look up, write, copy*

Term	Definition
Circuit	Complete loop.
Current	A flow of charge.
Potential Difference	The energy transferred to the lamp by each coulomb of charge that passes through it.
Resistance	Opposition to the flow of an electric current.
Power	The energy transferred or transformed per second.
Conductor	A material that readily transfers electrical energy through the movement of free electrons.
Insulator	A material that does not readily transfer electrical energy through it.
Series	Components connected in a circuit so that the same current passes through them all in turn with each other.
Parallel	Components connected in a circuit so that the current can pass through more than one path to a common point.

Section 2: Types of circuits and electrical symbols *Practicals*

Draw the following circuits:

- A series circuit.
- A parallel circuit.

Section 3: Knowledge needed for PRACTICES

- Draw the path of electrons used to measure current in a circuit.
- What is meant by electrical resistance?
- State the difference between a series and parallel circuit.
- State the equation that links resistance, current and potential difference.
- State an equation that links current, charge and time.
- State the role of a fuse in a circuit.
- State what a conductor is.

Physics Electricity

Section 4: Charge around a sphere *Practicals*

Charge is a property of matter. It can be positive or negative.

Section 5: Knowledge needed for PRACTICES

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ELC

Section 1: Key vocabulary - LOOK, COVER, WRITE, CHECK

Keyword	Definition
Cell	The basic building block of all living things
Nucleus	Controls the activities of the cell and contains the genetic material
Chloroplast	Where most chemical reactions take place
Cell wall	Controlled the contents of the cell
Chlorophyll	Structure where photosynthesis occurs
Chloroplasts	Structures where photosynthesis occurs
Spore	A cell that has the ability to survive for a long time without nutrients
Tissue	A group of cells working together
Organ	A group of tissues working together
Organ system	A group of organs working together
Organism	A group of organ systems working together
Organism	Biological entity, which is made up of one or more organ systems
Organism	The measurement of particles from one area of concentration to another area of concentration
Active transport	The movement of particles from one area of low concentration to an area of high concentration, using energy

Section 2: Health and Disease

Section 3: Amino acid and plant cells - LOOK, COVER, DRAW, CHECK

Section 4: Knowledge recall - LOOK, COVER, WRITE

Section 5: Photosynthesis - LOOK, COVER, WRITE

ELC

Section 1: Key vocabulary - LOOK, COVER, WRITE, CHECK

Keyword	Definition
Photosynthesis	The process by which plants make food using carbon dioxide, water and light
Producer	An organism that makes its own food by photosynthesis
Consumer	An organism that eats other organisms to gain energy
Competition	The process by which living organisms compete with each other for limited resources
Adaptation	A special feature that makes an organism well suited to the environment it lives in
Survivability	The ability of an organism to survive in its environment
Deflection	The process by which organisms adapt to their environment
Evolution	The gradual change in species over time

Section 2: Food chains - READ, ANSWER, DRAW, COVER, WRITE, CHECK

Section 3: Photosynthesis - LOOK, COVER, WRITE

Section 4: Knowledge recall - LOOK, COVER, WRITE

Section 5: Photosynthesis - LOOK, COVER, WRITE

ELC

Section 1: Key vocabulary - LOOK, COVER, WRITE, CHECK

Keyword	Definition
Bond	The thing that holds atoms together in compounds and molecules
Ion	A charged atom
Valence bond	A bond between a metal atom and a non-metal atom
Covalent bond	A bond between two non-metal atoms
Ionic bond	A bond between two metal atoms
Phosphorus	A non-metal element
Metals	Elements that are good conductors of heat and electricity
Quartz	A form of silicon dioxide
Insulator	The material that does not allow heat or electricity to pass through it easily
Substrate	The material on which a chemical reaction takes place

Section 2: Properties of substances

Section 3: Metals and alloys - Answer the 4 marks of structure and properties

Section 4: Bonding diagrams - Copy and explain

Section 5: Bonding diagrams - Copy and explain

ELC

Section 1: Types of force - NAME THE FORCE ON A CAR, EXPLAIN AN AIRPLANE, SAY IF THEY ARE CONTACT OR NON-CONTACT

Section 2: Work done - CHOOSE THE BEST TO COMPLETE THE SENTENCE

Section 3: Power and work - CHOOSE THE BEST TO COMPLETE THE SENTENCE

Section 4: Weight - COMPLETE THE SENTENCE

Section 5: Thinking distance - SUGGEST THE FACTORS THAT WOULD AFFECT THE THINKING DISTANCE AND THE BRAKING DISTANCE OF A CAR

Chemistry 3

Section 1: Metals and alloys - Answer the 4 marks of structure and properties

Section 2: Properties of substances

Section 3: Metals and alloys - Answer the 4 marks of structure and properties

Section 4: Bonding diagrams - Copy and explain

Section 5: Bonding diagrams - Copy and explain

Physics 5

Section 1: Types of force - NAME THE FORCE ON A CAR, EXPLAIN AN AIRPLANE, SAY IF THEY ARE CONTACT OR NON-CONTACT

Section 2: Work done - CHOOSE THE BEST TO COMPLETE THE SENTENCE

Section 3: Power and work - CHOOSE THE BEST TO COMPLETE THE SENTENCE

Section 4: Weight - COMPLETE THE SENTENCE

Section 5: Thinking distance - SUGGEST THE FACTORS THAT WOULD AFFECT THE THINKING DISTANCE AND THE BRAKING DISTANCE OF A CAR

Year 10 Religious Education

Task 1: Use the key words and...

Task 2: Copy out the information and explain why you think there may be differences between Sunni and Shi'a

Task 3: Copy out and rank the importance of the eight characteristics of Allah - write a sentence to explain your choice

- 1 - Tawhid - Muslims only accept one God - this is the most fundamental belief of the religion
- 2 - Immanence - Allah is close and involved within the world
- 3 - Transcendence - the idea that Allah is above and beyond human understanding
- 4 - Omnipotence - idea that Allah is more powerful than anything in existence
- 5 - Benevolence - the idea that Allah is caring and loves his creation
- 6 - Mercy - Allah forgives people for the wrong things they do
- 7 - Justice - Allah is fair and just and will judge humans after death in this way
- 8 - Adalat - Allah is equitable and just

Task 4: Using the information from Task 3 write a summary of NEW information you have learnt about Islam

Task 5: Muslims believe Allah is the designer and creator of the world. He is given 99 names to help Muslims understand what he is like. EXPLAIN why this may be the case - use Key Words from this KO to help

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Sunni - the Six Beliefs	Shi'a - the five roots of 'Isul al-din
Tawhid - the belief in the oneness of Allah	Tawhid - the oneness of Allah
Malakah - the belief in angels	Adl - divine justice
Authority of kutub (holy books)	Nabuwah - prophethood
Nabuwah (prophethood) - following the prophets of Allah	Imamah - successors to Muhammad
Belief in al-Qadr (predestination)	Mirad - the Day of Judgement and the Resurrection
Akhirah - teachings about life after death	

There are many schools of Islam. These schools agree on most beliefs and practices within the Islamic faith, although there are differences. One of the main schools is Sunni. The Six Beliefs of Islam are accepted by Sunni Muslims. Shi'a Muslims accept many of the ideas of the Six Beliefs but refer to them differently - some are part of the Five Roots of 'Isul al-din.

Physical Education Year 10 Term 2 Fitness Testing

Section 1: Key Words: Goal, Cover, Write, Check

Section 2: Fitness on the steps with the correct equipment

Section 3: Test administration method

Section 4: Importance of testing

Section 5: Test Preparation - Create a warm up, identify 3 activities (aerobic, anaerobic and skill) and the procedures (equipment, conditions) for each test.

Section 6: Knowledge recall - create subcards for each question

Section 7: Test Preparation - Create a warm up, identify 3 activities (aerobic, anaerobic and skill) and the procedures (equipment, conditions) for each test.

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Section 43: Test Preparation - Create a warm up, identify 3 activities (aerobic, anaerobic and skill) and the procedures (equipment, conditions) for each test.

Section 44: Knowledge recall - create subcards for each question

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Section 100: Knowledge recall - create subcards for each question

Key Terms - Task 1 - READ, COVER, WRITE

Key Term	Definition	Image
Offensive	An attacking military campaign	
Revolution	A forcible overthrow of a government or social order	
Stomptrooper	A specialist soldier in the German Army	
Rearfoot	To withdraw from enemy forces	
Armistice	A form of agreement to stop fighting, signed on the 11th November 1918	
Reichstag	A revolutionary political group in Russia - they government and took control of the country	

History: End of World War 1

Key Dates - Task 2 - Create a timeline

- 1914 - Russians defeated at the Battle of Tannenberg
- 1915 - American liner 'Lusitania' sunk by a German U-boat
- March 1917 - The Communist Party begin the Russian Revolution
- April 1917 - The USA declares war on Germany
- March 1918 - Russia and Germany sign the Treaty of Brest-Litovsk
- March 1918 - The Germans began the Ludendorff Spring Offensive
- July/August 1918 - The Allies counter, which begins the Hundred Days
- October 1918 - The German Navy begin the 1st Mutiny
- November 1918 - The Kaiser abdicates, and Germany signs the armistice - so fighting on the Western Front ends

Key People - Task 3 - Create fact files for the following people

1. Field Marshall Douglas Haig
2. General Ludendorff

Research these key people, and include the following in their fact files:

- Date of Birth/Death
- Nicknames
- Important roles/achievements
- Famous quotes

Key Words and Definitions - Task 4 - Create flashcards

Create flashcards for the following key words, and find out their definitions:

- Mobilise
- Mutiny
- Neutrality
- Abdication
- Infiltration Tactics
- Hindenburg Line
- Zimmermann Telegram

Year 10: Geography The Living World HOT DESERTS

What are hot deserts like?

- Deserts are mostly found in dry continental interiors away from coasts, in a belt approximately 30°N and 30°S
- There are some coastal desert like Atacama Desert in South America

Where are hot deserts found?

- Deserts are mostly found in dry continental interiors away from coasts, in a belt approximately 30°N and 30°S
- There are some coastal desert like Atacama Desert in South America

What is the climate like?

- There are three factors which form desert areas:
 1. the presence of high pressure, creating cloud-free conditions
 2. cold ocean currents
 3. mountain ranges to create rain shadows

Where is the Desert?

- The Thar desert is one of the major hot deserts of the world
- It is the most densely populated desert in the world
- It stretches across north south India into Pakistan
- The Thar desert is slightly smaller than the whole of the UK

Opportunities for development in hot deserts

Mineral extraction	Tourism	Energy	Farming
The desert region has valuable reserves of minerals Gypsum for making plaster for construction and cement Potash used to make ceramics Phosphate used for making fertiliser	The Thar Desert has become a popular tourist destination Desert safaris on camel have become very popular with foreigners An annual Desert Festival held each winter is very popular	The Thar Desert is a rich energy source Coal Oil Wind-renewable form of energy Solar-ideal conditions for solar power generation	Most of the people are involved in subsistence farming They graze animals on the grassy areas and cultivate vegetables and fruit trees Commercial farming has been made possible by irrigation

Challenges of development in hot deserts

Water supply

- As the population has grown and farming and industry have developed, demand for water has increased
- What are the water sources?
 1. Traditionally, drinking water for people and animals is stored in ponds (natural and man-made)
 2. There are few rivers and streams that flow through the desert, these are intermittent and flow only after rainfall. Most settlements are built on floodplains
 3. Some water can be obtained from underground sources (aquifers) using wells but the water is salty and not very good quality

Accessibility

- Due to extreme weather and the presence of vast barren areas there is a limited road network
- The high temperatures can cause the tarmac to melt and the strong winds often blow sand over the roads
- Many places are accessible only by a camel
- Public transport often involves seriously overloaded buses

What are the characteristics of a desert? (What is the climate like?)

1. Research the top 5 largest deserts around the world. Where are they? What are they?
2. Describe the types of opportunities people in the Thar desert have
3. Describe the challenges that desert living brings?
4. Research all of the hot desert adaptations of the animals on this sheet.

INDEPENDENT LABELS:

A record label that doesn't have the branding of major record labels. The Arctic Monkeys started out on indie labels and artists like Adele went to an indie label after becoming famous with a major label. Most famous were the indie labels.

MAJOR RECORD COMPANIES:

The top THREE record labels. One of the last 100, they own 70% of the world's music.

Major record companies (MRC) trademark labels, production, marketing, distribution, promotion and copyright of music recordings and music videos.

ADVANTAGES:

- They have more money for production, marketing, advertising and distribution.
- They have more connections with other record labels.
- They have more marketing power.

DISADVANTAGES:

- They are more difficult to sign.
- They are more expensive to sign.
- They are more difficult to sign.
- They are more difficult to sign.

SUBLABELS

Labels that are owned by a major record label but operate independently.

Labels include: Atlantic Records, Columbia Records, Island Records, EMI, Warner Bros. Records, Capitol Records, RCA Records, Sony Music Entertainment, Universal Music Group, Def Jam Recordings, Interscope Records, Geffen Records, Elektra Records, Nonesuch Records, Parlophone Records, Virgin Records, Island Records, EMI, Warner Bros. Records, Capitol Records, RCA Records, Sony Music Entertainment, Universal Music Group, Def Jam Recordings, Interscope Records, Geffen Records, Elektra Records, Nonesuch Records, Parlophone Records, Virgin Records.

Art and Design Knowledge Organiser

Colour Theory	Art and Design Knowledge Organiser	Assessment Objective 2: Create a drawing, make work by exploring ideas and experimenting with appropriate media, materials, techniques and processes
<p>Primary: RED, YELLOW, BLUE</p> <p>Secondary: GREEN, ORANGE, PURPLE</p> <p>Tertiary: BROWN, PINK, GREY</p> <p>Quaternary: TAN, LIGHT BLUE, LIGHT GREEN, LIGHT PURPLE</p> <p>Shades: add black</p> <p>Tint: add white</p>	<p>Pencil: The basic tool for drawing, can be used for linear work or for shading.</p> <p>Biro/Fineliner: Drawings can be completed in biro and shaded using hatching or cross hatching.</p> <p>Pastel Chalk/Oil: Oil and chalk pastels can be used to blend colours smoothly, chalk pastels give a lighter effect.</p> <p>Colour Pencil: Coloured pencil can be layered to blend colours, some are water soluble.</p> <p>Acrylic Paint: A thick heavy paint that can be used smoothly or to create texture.</p> <p>Watercolour: A solid or liquid paint that is to be used watered down or layered.</p> <p>Line print: A design is carved into tin with a specialist tool - can be used in more than 1 layer.</p> <p>Monoprint: Where ink is transferred onto paper by drawing over a prepared surface.</p> <p>Mixed Media: Layering and combining a variety of wet and dry media in one piece of work.</p> <p>Photography: Composing an image, experimenting with subject matter, angles, repeated images, and lighting.</p>	<p>Media: The substance that an artist uses to make art. The same as media but can also refer to the basis of the art work (e.g. canvas, paper, clay).</p> <p>Techniques: The method used to complete the art work. Can be general such as painting or more formal such as shading.</p> <p>Processes: The method used to create artwork that usually follows a range of steps rather than just one step.</p>

Week 1: create 10 cards on colour theory

Week 2: write in own words from guide

Week 3: Look, cover, write, check off the types of media

Week 4: Create Flashcards

Week 5: write down mixed media used in both paintings?

<https://www.bbc.com/bitesize/guides/z8pfj6/revision/1>

<https://www.bbc.com/bitesize/guides/zgtgdm/revision/1>

Section 1: Components of Physical Fitness

Component	Definition
Cardio Endurance	The ability of the cardiorespiratory system to work efficiently to supply oxygen and glucose to the muscles during prolonged physical activity.
Muscular Endurance	The ability of the muscular system to work efficiently when a muscle can continue contracting continuously against a light resistance (resistance band).
Flexibility	Having adequate range of motion in all parts of the body. The body is more physically fit through a complete range of movement.
Speed	Distance travelled in a short time taken. There are two types of speed: acceleration speed, and constant speed.
Muscular Strength	Maximum force that can be generated by muscle. Measured in kilograms (kg) or newtons (N).
Body Composition	The ratio of mass to fat free mass in the body.

Section 2: Components of Skill Related Fitness

Component	Definition
Agility	The ability to quickly and precisely change direction without losing balance.
Balance	The ability to maintain your centre of mass over a base of support from the feet (standing), a chair (sitting) and a dynamic (moving).
Coordination	The way parts of the body together to move smoothly and accurately. There are three types of balance: static, dynamic and functional.
Reaction Time	The ability to use length or speed.
Speed	The time taken to respond to a stimulus and the initiation of the response.

Section 3: Knowledge Recall

Question	Answer
1. Write out the definitions of the components of physical fitness or fitness.	Cardio: aerobic means in the presence of oxygen. Anaerobic: means without oxygen.
2. Write out the definitions of the selected components of fitness on flashcards.	Aerobic endurance is also known as cardiorespiratory endurance and aerobic fitness.
3. What does aerobic mean?	Aerobic means in the presence of oxygen.
4. What does anaerobic mean?	Anaerobic means without oxygen.
5. Give an example of a sport where each physical component of fitness would be used for the sport performer.	Endurance: long distance running, swimming, cycling, rowing, etc. Speed: 100m sprint, 50m sprint, etc. Strength: weightlifting, etc. Flexibility: gymnastics, etc. Balance: tightrope walking, etc. Coordination: basketball, etc. Reaction time: tennis, etc.

Section 1: Key Terms

Term	Definition
Heart Rate (HR)	The number of times your heart beats per minute. (It is measured in beats per minute (bpm)).
Resting heart rate	Your heart rate at rest.
Maximum Heart Rate (MHR)	The maximum recommended safe heart rate for an individual during exercise.
Exercise Intensity	How hard you are working in a training session.

Section 2: Calculating the maximum heart rate

In order to estimate your maximum heart rate you need to use the following formula:

$$\text{MAXIMUM HEART RATE} = 220 - \text{Age}$$

This means that if Bobby is 18 years old his maximum heart rate would be $220 - 18 = 202$.

Section 3: Target Heart Rate

Target heart rate is the recommended maximum heart rate appropriate for a training zone or physical activity. It is the most common method of measuring exercise intensity. You need a different target heart rate depending on what you are trying to achieve. A target heart rate is the optimal/best heart rate you need to achieve in order to get specific adaptations.

Section 4: Knowledge Recall

Question	Answer
1. What is exercise intensity and why do you think it's important?	It is important to get the intensity of your training correct. Training at the wrong intensity may not help to improve the element of fitness you are trying to improve.
2. How do you calculate your maximum heart rate? Write the formula out then calculate the maximum heart rate for two members of your family.	$\text{MHR} = 220 - \text{Age}$
3. What is a target heart rate?	A target heart rate is the recommended maximum heart rate appropriate for a training zone or physical activity.
4. Why is exercise intensity important?	It is important to get the intensity of your training correct.
5. What is the BORG scale used to measure?	The Borg scale is used to measure how hard you feel you are working. This is called your rating of perceived exertion (RPE). It is a scale from 6-20, where 6 is no exertion at all and 20 is maximum effort. You can use the BORG scale (RPE) to predict the exercise heart rate using the formula: $\text{RPE} \times 10 = \text{Heart Rate (HR)}$. For example: A rating of 12 on the RPE or BORG Scale would be $12 \times 10 = 120 \text{ BPM}$.
6. Copy the BORG scale table into your book.	
7. Use the formula in section 5 to work out your heart rate of the following RPE on the BORG scale.	6, 11, 13, 20

Section 1: The FITT Principles

F - Frequency	How often you train. It should be gradually increased over time.
I - Intensity	How hard you train. It should be gradually increased over time.
T - Time	How long you train. It should be gradually increased over time.
T - Type	How specific your training should be. If a training method is selected to improve a specific component of fitness there is more likely to be a positive improvement in performance.

Section 2: Additional Principles of Training

Specificity	Training should be specific to the individual sport, activity or fitness goals.
Overload	Training needs to be hard enough to make the body change and adapt. In order to make fitness gains training must put more demanding over time.
Individual Differences	Fitness training programmes should be designed to meet the needs of the individual. They should take into account individual differences.
Adaptation	Requires using recovery following a training session. It's the way your body increases its ability to cope with training loads.
Reversibility	Fitness can be lost if training is stopped. For example in the result of injury or a lack of training intensity.
Variation	Variation in training routines can prevent adaptation (muscle endurance, lean muscle change) in routine can produce fitness gains.

Section 3: Muscular Adaptation / Changes

Muscle hypertrophy or enlargement is an example of an adaptation related to weight training. Over time, training results in an increase in the size of muscular cells called myofibrils. This increases the size of the muscles and results in an increase in strength.

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Section 4: Rest and Recovery

Rest is the period of time provided for the recovery to take place. It's important to allow enough time to recover so it's when training adaptations occur. Recovery also allows damage to be repaired and energy stores to be replenished.

Section 5: Lifestyle Factors

Cardio lifestyle factors such as smoking, poor diet and low levels of physical activity may impact on an individual's training loads. It's important to be aware of these during the day they would need to train only in the morning or in the evening. This depends on individual differences.

Section 6: The Plateau

If an athlete loses repeatedly out of the same intensity the body will become used to it and stop adapting. This is called a 'training plateau'.


Section 7: Increasing Intensity

In a fitness training programme, progressive overload can be applied by increasing the intensity of training. Target load for fitness:

- Week 1 = 15 kg x 10 set
- Week 2 = 20 kg x 10 set
- Week 3 = 25 kg x 10 set

Section 8: Knowledge recall - Questions

1. What are the FITT principles of training?
2. Explain how 'Overload' in section 2 is linked to muscular adaptation in section 3.
3. Explain why rest and recovery are important after training or a competition.
4. Explain which lifestyle factors could affect a 13 year old football player.
5. What is meant by the term 'training plateau' in section 6 and how could you avoid this if you were an Olympic athlete?
6. Give an example of how you could use overload to develop your sprinter. Use section 7 to help you.



Section 7: Key Words: Look, Cover, Write, Check

Multi-stage fitness test	Equipment needed: Mark stage fitness test, flat surface, 200kg tape measure, flat road, whistle.
End-point Aerobic Distance	Equipment needed: Stop watch, 400m for male/200m for female, stopwatch, metronome or cadence from, body weight scales.
1 minute sit-up	Equipment needed: Flat mat, stopwatch, partner.
30s Sprint test	Equipment needed: 20m tape measure, stopwatch, cone/markers, partner.
50m Sprint test	Equipment needed: Handstop watch/Gymnometre.
C10	Equipment needed: Bioelectrical impedance analyser/scale, tape measure, 200m night cone.
Vertical Jump test	Equipment needed: Flat non-do surface, cone/markers, stopwatch, tape measure.
Hand Grip Test	Equipment needed: Flat non-do surface, stopwatch, no shoes, partner.
Watt Test	Equipment needed: Tape measure, cones, tennis ball, Forman.
Vertical Jump test	Equipment needed: Tape measure, stop, partner.
Water Drop Test	Equipment needed: 1 meter stick, calculator, partner.

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Section 8: Importance of Rest and Recovery

What are the potential benefits of stress recovery? Are there any limitations of stress recovery?

Consider the following points:





- Are both sport specific?
- What do we do with the results of tests?
- Do results help to motivate and focus?
- Are both always lost?
- Can we use the tests to measure improvement/loss?

Section 9: Fitness on the Edge with the Correct Components

When things don't go well in the testing programme, you need to be able to monitor whether the testing is working.

Section 10: Knowledge recall - Questions

1. Give four sporting examples where it is important to have good reaction time and state why it is beneficial.
2. What is the difference between muscular strength and power?
3. What is the main difference between aerobic endurance and muscular endurance?
4. Define what is meant by the term reaction time.
5. Explain why aerobic endurance is important for a reaction time.

Section 1: Components of Physical Fitness and Related Training Methods

Component of Physical Fitness	Training Method
Aerobic Endurance	Continuous training / Fartlek training / Interval training
Muscular Endurance	Circuit training / Weight training
Flexibility	Dynamic stretching / Static stretching / PNF stretching / Proprioceptive Neuromuscular Facilitation training
Speed	Acceleration Sprint / Interval training / Follow Sprint
Muscular Strength	Weight training
Power	Plyometric training

Section 2: Training Methods

Continuous Training Includes lots of different training methods. Can be sport specific or tailored to improve certain components of fitness. Can be adapted to meet the needs of the individual.

Interval Training Periods of exercising are followed by a rest and recovery period.

Plyometric Training Lots of explosive movements. Muscles exert their maximum force for a short time period. Essential for: bounding, lunging, hopping and pouncing with steps.

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Section 3: Speed Training Methods

Acceleration Sprints Pace a gradually increased from standing to jogging then walking and maximal sprint.

Follow Sprint: Starts to Sprint followed by 'follow' periods of jogging or walking.

Interval Training: Warm period followed by a rest period.

Section 4: Stretching Training Methods


Active Stretching: Requires the help of another person or object to provide external force causing the muscle to stretch.

Ballistic Stretching: Uses the force of a trip to stretch muscles beyond their normal range of movement.

Proprioceptive Neuromuscular Facilitation (PNF): Uses an object to provide resistance. The stretch is held in it is relaxed and it is a stretch.

Section 5: Knowledge recall - Questions

1. Copy out the table in section 2.
2. List 6 components for the training methods in section 2.
3. What are the three speed training methods?
4. Name three flexibility training methods that can be used for a gymnast.
5. List which training methods are used to develop which components of fitness. (Section 1)
6. Think back to term 2. List 10 fitness tests.
7. Think back to term 2. How are the 10 fitness tests you have listed used to train for the components of fitness they are used to train for.
8. Think back to term 1. List the 4 components of physical fitness.
9. Think back to term 1. List the 4 components of all related fitness.



Section 1: Components of Physical Fitness

Component	Definition
Aerobic Endurance	The ability of the cardiorespiratory system to work efficiently.
Muscular Endurance	The quality of the muscular system to work efficiently.
Flexibility	Having adequate range of motion in a joint.
Speed	Distance travelled divided by time taken.
Muscular Strength	Maximum force that can be generated by muscle.
Body Composition	The ratio of mass to fat free mass in the body.

Section 2: Components of Skill Related Fitness

Component	Definition
Agility	The ability to quickly change direction without losing balance.
Balance	The ability to maintain your centre of mass over a base of support.
Coordination	To use parts of the body together to move smoothly.
Power	The ability to use strength of speed.
Reaction time	The time taken to respond to a stimulus.

Section 3: Components of Physical Fitness and Related Fitness Test

Component of Physical Fitness	Fitness Test
Aerobic Endurance	Multi-stage fitness test and forty step test
Muscular Endurance	1 minute sit-up and press-up test
Flexibility	50 and reach test
Muscular Strength	30s Sprint test
Body Composition	Bioelectrical impedance analysis

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Section 4: Components of Skill Related Fitness and Related Fitness Test

Agility Clock agility test

Balance Vertical jump test

Power Vertical jump test

Reaction Time Vertical jump test

Section 5: Training Methods

Includes lots of different training methods. Can be sport specific or tailored to improve certain components of fitness. Can be adapted to meet the needs of the individual.

A form of continuous training, intensity is changed by running at different speeds over different terrain.

Periods of exercising are followed by a rest and recovery period.

Lots of explosive movements. Muscles exert their maximum force for a short time period. Essential for: bounding, lunging, hopping and pouncing with steps.

Section 6: Knowledge recall - Questions

1. Write out the definitions of the components of physical fitness.
2. Give out the definitions of the skill related components of fitness.
3. Use the components of fitness to correct fitness test.
4. Describe which sports the training methods in section 3 would be good for and explain why.
5. Go back to term 2 section 3 and name the three types of speed training.
6. Go back to term 3 section 4. Name the four types of flexibility training methods.

