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Knowledge Organiser

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Tutor Group:

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| Key Terminology | | |
|-----------------|-----------------------|---|
| 1 | Bias | An inclination or prejudice for or against one person or group. |
| 2 | Tone | Attitudes toward the subject and toward the audience implied in a literary work, for example: formal, informal, sarcastic, etc. |
| 3 | Empathy | The ability to understand and share the feelings of another. |
| 4 | View | A particular attitude towards or way of regarding something. |
| 5 | Imperatives | Verbs used to give orders, commands, warning or instructions. |
| 6 | Expert opinion | A belief or judgement about something given by an expert on a subject. |
| 7 | Fact | Something that is known to happen or to exist, especially for which proof exists. |
| 8 | Objective | Based on real facts and not influenced by personal beliefs or feelings. |
| 9 | Perspective | A particular attitude towards or way of regarding something. |
| 10 | Subjective | Influenced by or based on personal beliefs or feelings, rather than based on facts. |

| Key Knowledge: Non-fiction forms | | |
|----------------------------------|----------------------------|--|
| 11 | Autobiography | The account of a person's life written by that person. |
| 12 | Biography | The account of a person's life written by another person. |
| 13 | Diary | A book in which one keeps a daily record of events and experiences. |
| 14 | Essay | A short piece of writing on a particular subject. |
| 15 | Letter | A written or printed message which from one person to another, usually put in an envelope and delivered as mail. |
| 16 | Article | A piece of writing which reports news and is published in a newspaper or magazine. |
| 17 | Opinion Piece | An article in which the writer expresses their personal opinion on a particular issue or subject. |
| 18 | Speech | A formal talk usually given to a large number of people on a special occasion. |
| 19 | Review | A critical appraisal of a book, play, film, etc., often published in a newspaper or magazine. |
| 20 | Information leaflet | A leaflet is a little book or a piece of paper containing information about a particular subject. |

Key Terminology

| | | |
|---|-------------------------|---|
| 1 | Alliteration | The repetition of the same consonant sound, often at the beginning of words. |
| 2 | Emotive language | Word choice which is used to evoke emotion in the reader. |
| 3 | Imagery | A literary device used to create a particular image to convey the key ideas/messages of themes in a text. |
| 4 | Metaphor | A comparison in which one thing is said to be another. |
| 5 | Personification | The attribution of human feelings, emotions, or sensations to an inanimate object. |
| 6 | Repetition | A literary device which repeats the same word or phrase a few times to make it memorable. |
| 7 | Rhyme scheme | The pattern of a poem's rhyme, often identified using letters e.g. ABABCC. |
| 8 | Simile | A comparison that uses 'like' or 'as'. |
| 9 | Stanza | A group of lines forming a unit in a poem. |

Key Terminology

| | | |
|----|------------------|---|
| 10 | Structure | The way a poem is organised. |
| 11 | Symbolism | The use of symbols to express ideas or qualities. |
| 12 | Tone | Feelings or ideas suggested by the language used by the poet. |
| 13 | Verse | Another word for poetry; a group of lines forming a unit in a poem, also known as a stanza. |
| 14 | Volta | A 'turning point' in a poem. |

Form

| | | |
|----|---------------------------|---|
| 15 | Form | The way a poem is set out, or a term used to categorise poems which follow particular conventions. |
| 16 | Villanelle | A 19-line poem consisting of five units of three lines, rhymed or unrhymed, followed by a quatrain. |
| 17 | Petrarchan sonnet | A poem that has 14 lines and a particular pattern of rhyme, for example ABAB CDCD EFGFG. |
| 18 | Ballad | A narrative poem which is typically written in short stanzas. |
| 19 | Dramatic monologue | A poem in which an imagined speaker addresses a silent listener. |

Prose Study (Bildungsroman)

| Key Terminology | | |
|-----------------|-------------------------------|---|
| 1 | Bildungsroman | A type of novel which focuses on the education, spiritual, psychological and moral development of its protagonist from childhood to adulthood (also known as a 'coming of age novel'). |
| 2 | Characterisation | A literary device in which an author builds a character in a narrative. |
| 3 | Quest narrative | A quest is used as a plot device in mythology and fiction. The story follows a difficult journey towards a goal, often symbolic or allegorical. |
| 4 | Protagonist | The central character or leading figure in a poem, narrative, novel or any other story. Sometimes can also be referred to as a "hero" by the audience or readers. |
| 5 | Stock characters | A fictional character based on common stereotypes. Stock characters rely heavily on cultural types or names for their personality, manner of speech, and other characteristics. |
| 6 | Archetype | A very typical example of a certain person or thing. |
| 7 | First-person narrative | A narrative or mode of storytelling in which the narrator appears as the 'I', recollecting his or her own part in the events which occur, either as a witness of the action or as an important participant in it. |
| 8 | Literary device | Literary devices are methods used by writers to hint at larger themes, ideas, and meaning in a story or piece of writing. |
| 9 | Adventure | Fast-paced, action-packed stories featuring elements of danger. |
| 10 | Setting | Setting is the time and place of the story, including the physical location, weather or cultural surroundings. |

| Key Vocabulary | | |
|----------------|------------------------|--|
| 11 | Hero | A main character in a literary work who, in the face of danger, combats adversity through feats of resourcefulness, bravery or strength. |
| 12 | Heroism | The qualities of a hero or heroine; exceptional or heroic courage when facing danger. |
| 13 | Villain | A character in a novel, play or film whose evil actions or motives are important to the plot. |
| 14 | Moral | Concerned with the principles of right and wrong behaviour. |
| 15 | Moral ambiguity | A lack of certainty about whether something is right or wrong. |

| Key Knowledge – Bildungsroman | |
|---|--|
| 16 | How to pronounce bildungsroman: bill-dungs-rome-ahn. |
| 17 | The word is a combination of two German words: bildung means education, and roman means novel. |
| A Bildungsroman typically consist of three stages: | |
| 18 | The set-up: The protagonist is introduced, often during his or her childhood. |
| 19 | Experiences that shape the protagonist's character, often involving some kind of crisis. |
| 20 | The protagonist reaches maturity, often involving them finding a sense of peace with themselves, or of belonging in the world. |

Prose Study (Narrative Structure)

| Key Terminology | | |
|-----------------|--|---|
| 1 | First-person limited narrative | The narrator's thoughts, feelings, and knowledge of situations closely follow one character's perspective. |
| 2 | Third-person omniscient narrative | Related by a narrator who knows the thoughts and feelings of all the characters in the story. |
| 3 | Characterisation | A literary device in which in an author builds a character in a narrative. |
| 4 | Pathetic fallacy | The attribution of human feelings and emotions to inanimate things or animals, often associated with the attribution of human emotions to aspects of nature (sun, sky, wind, etc.). |
| 5 | Symbolism | The use of symbols to express ideas or qualities. |
| 6 | Protagonist | The central character or leading figure in a poem, narrative, novel or any other story. Sometimes can also be referred to as a "hero" by the audience or readers. |
| 7 | Antagonist | A person who actively opposes or is hostile to someone or something; an adversary. |
| 8 | Foreshadowing | A literary device in which a writer gives an advance hint of what is to come later in the story. |
| 9 | Setting | Setting is the time and place of the story, including the physical location, weather or cultural surroundings. |

| Key Vocabulary | | |
|----------------|------------------|---|
| 10 | Eerie | Strange and frightening. |
| 11 | Suspense | A state or feeling of excited or anxious uncertainty about what may happen. |
| 12 | Impetuous | Acting or doing something quickly without thought or care. |
| 13 | Predatory | Seeking to exploit others. |
| 14 | Menacing | Threatening or intimidating. |

| Key Knowledge – Narrative Structure | | |
|-------------------------------------|-----------------------|--|
| 15 | Exposition | Refers to part of the story used to introduce background information about events, settings, characters, etc. to the reader. |
| 16 | Rising action | A related series of incidents in a literary plot that build toward the point of greatest excitement/interest. |
| 17 | Climax | The point of highest tension. |
| 18 | Falling action | Occurs immediately after the climax. |
| 19 | Resolution | Presents the final outcome of the story. |

Prose Study (Gothic)

Key Vocabulary

| | | |
|----|---------------------|---|
| 1 | Melodramatic | Showing much stronger emotions than are necessary or usual for a situation. |
| 2 | Grotesque | Repulsively ugly or distorted, especially in a comical or frightening way. |
| 3 | Insidious | Something dangerous or unpleasant gradually and secretly causing harm. |
| 4 | Macabre | Disturbing because concerned with or causing a fear of death. |
| 5 | Malignant | Evil in nature; malevolent. |
| 6 | Pallor | An unhealthy pale appearance. |
| 7 | Redemption | The action of saving, or being saved from, sin, error, or evil. |
| 8 | Repulsion | A feeling of intense distaste or disgust. |
| 9 | Supernatural | Something that cannot be explained by the laws of science and that seems to involve gods or magic. |
| 10 | Superstition | The belief that particular events cannot be explained by reason or science and/or the belief that particular events bring good or bad luck. |

Key Terminology

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| 11 | Gothic fiction | Refers to a style of writing that is characterised by elements of fear, horror, death, gloom, and extreme emotions. |
| 12 | Epistolary novel | A novel written as a series of documents, usually in the form of letters, although newspaper clippings, diary entries and other documents can be used. |
| 13 | Characterisation | A literary device in which an author builds a character in a narrative. |
| 14 | Mood | The feelings or atmosphere perceived by a reader in a piece of literature. |
| 15 | Symbolism | The use of symbols to express ideas or qualities. |

Key Context

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| 16 | The Gothic genre became popular in the late 18th and 19th centuries, during a time of great discovery and change. |
| 17 | Gothic novels emphasise mystery, horror, and the uncanny. |
| 18 | Typical Gothic settings are: medieval castles, old graveyards, crumbling buildings, gloomy chambers, dark forests, and wild, strange or dangerous locations. |
| 19 | Famous novel novels include <i>Frankenstein</i> by Mary Shelley (1818), <i>Dracula</i> by Bram Stoker (1897) and <i>Rebecca</i> by Daphne Du Maurier (1938). |
| 20 | 'The Gothic sensibility in literature is seen by some as an attempt to deal with the feared and unknown consequences of social change.' (Steve Roberts, University of Brighton) |

Prose Study (Dystopian Fiction)

| Key Vocabulary | | |
|----------------|----------------------|---|
| 1 | Dystopia | An imagined place or state in which everything is unpleasant or bad, typically a totalitarian or environmentally damaged one. |
| 2 | Dehumanise | To deprive someone of positive human qualities. |
| 3 | Totalitarian | A system of government that is centralised and dictatorial and requires its people to obey the government or state without questions. |
| 4 | Fatalistic | Relating to or characteristic of the belief that all events are predetermined and therefore inevitable. |
| 5 | Futuristic | Having or involving very modern technology or design. |
| 6 | Oppressive | Something or someone that limits freedom of thought or action. |
| 7 | Paranoia | Unjustified suspicion or mistrust of people. |
| 8 | Rebellion | The action or process of resisting authority, control, or convention. |
| 9 | Societal norm | The unwritten rules of behaviour that are considered acceptable in a group or society. |
| 10 | Tyranny | Cruel, unreasonable and/or oppressive rule or government. |

| Key Terminology | | |
|-----------------|--------------------------|--|
| 11 | Dystopian fiction | Refers to a genre of writing which explores the loss of civil liberties, living under constant surveillance, laws controlling a woman's reproductive freedom, and denial of the right to an education. |
| 12 | Foreshadowing | A literary device in which a writer gives an advance hint of what is to come later in the story. |
| 13 | Mood | The feelings or atmosphere perceived by a reader in a piece of literature. |
| 14 | Motif | A dominant or recurring idea. |
| 15 | Symbolism | The use of symbols to express ideas or qualities. |

| Key Knowledge (Dystopian Fiction) | |
|-----------------------------------|---|
| 16 | Dystopia comes from the Greek dys ('bad') and topia ('place'). |
| 17 | The worlds depicted are often controlled by a totalitarian or authoritarian government. |
| 18 | Dystopian stories are usually set in the future. |
| 19 | Dystopias are often thought to be 'cautionary tales' but are also used to explore the ideas of what it is to be human. |
| 20 | In dystopian stories, society itself is typically the antagonist as society is actively working against the protagonist's aims and desires. |

Prose Study (Detective Fiction)

Key Vocabulary

| | | |
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| 1 | Deduce | Arrive at a fact or a conclusion by reasoning; draw as a logical conclusion. |
| 2 | Deduction | The process of reaching a decision or answer by thinking about the known facts. |
| 3 | Idiosyncratic | A word to describe behaviour which is considered to be distinctive or peculiar. |
| 4 | Indiscretion | Behaviour that is indiscreet or lacks good judgement. |
| 5 | Temperament | A person's or animal's nature/traits of personality, which have a permanent impact on their behaviour. |

Key Terminology

| | | |
|----|-------------------------|---|
| 6 | Protagonist | The central character or leading figure in a poem, narrative, novel or any other story. Sometimes can also be referred to as a "hero" by the audience or readers. |
| 7 | Symbolism | The use of symbols to express ideas or qualities. |
| 8 | Tone | The choice of writing style the writer employs to convey specific feelings, emotions or attitudes. |
| 9 | Characterisation | A literary device in which an author builds a character in a narrative. |
| 10 | Red herring | A literary device that leads readers toward a false conclusion. |

Key Terminology

| | | |
|----|---|--|
| 11 | Detective fiction | A sub-genre of crime fiction and mystery fiction in which an investigator or a detective (professional, amateur or retired) investigates a crime, often murder. |
| 12 | Literary conventions | Defining features of particular genres such as novel, short story, ballad, sonnet, or play. |
| 13 | First person peripheral narrator | A type of narrative perspective in which the narrator is the another character in the story who witnesses the main character's story and conveys it to the reader. |
| 14 | Exposition | Refers to the part of the story used to introduce background information about events, settings, characters etc. to the reader. |
| 15 | Antagonist | A person who actively opposes or is hostile to someone or something. |

Key Knowledge – Sherlock Holmes

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| 16 | The Sherlock Holmes stories are a group of short stories about a fictional detective, written in the late 1880s and 1890s by Arthur Conan Doyle. |
| 17 | Doyle was influenced by Dr Joseph Bell, who was a master of logic, deduction and reasoning. Doyle felt that these were ideas that had been missing from the genre of detective fiction. |
| 18 | Doyle's Sherlock Holmes stories changed detective fiction forever, introducing many of the literary conventions that are now frequently seen in the genre. |
| 19 | One of Doyle's most important additions to the genre was including a first-person peripheral narrator (Dr Watson) who needs the events of the investigation explained to him by the protagonist (Sherlock Holmes). |
| 20 | "The love of books is among the choicest gifts of the gods." <i>Sir Arthur Conan Doyle</i> |

Shakespeare Study (Comedy)

Key Terminology

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|----|---------------------------|--|
| 1 | Magic realism | A literary genre when magic elements are a natural part in an otherwise ordinary, realistic environment. |
| 2 | Play within a play | A literary device in which an additional play is performed during the performance of the main play. |
| 3 | Soliloquy | A speech or passage in a drama when a character on stage speaks to himself or herself, expressing their inner thoughts and feelings. |
| 4 | Blank verse | Unrhymed lines written in a poetic meter and usually written in iambic pentameter (see below). |
| 5 | Rhymed verse | Poem or verse having a regular correspondence of sounds, especially at the end of lines. |
| 6 | Prose | Ordinary writing not organised with rhymes or fixed line lengths. It is the language that people speak in. |
| 7 | Rhyming couplets | Two successive lines of verse of which the final words rhyme with another. |
| 8 | Iambic pentameter | A line of verse consisting of one short (or unstressed) syllable followed by one long (or stressed) syllable, with the accent (or emphasis) placed on the second syllable. |
| 9 | Stage directions | Instructions written into the script of a play, indicating stage actions, movements of performers, or production requirements. |
| 10 | Setting | The time and place in which the story takes place in a piece of literature. |

Key Vocabulary

| | | |
|----|------------------------|---|
| 11 | To reciprocate | To return affection or love for someone in the same way that they feel it. Also: to respond to a gesture or action by returning a similar gesture or action. |
| 12 | Cupid | Ancient Roman God of Love. |
| 13 | Besotted | To be intensely in love with someone. |
| 14 | To elope | To run away secretly in order to get married. |
| 15 | Unrequited love | When one person feels love for another but the other person does not return their feelings, or does not realise they feel that way about them. |

Key Knowledge: Shakespeare's comedies

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| 16 | Marriage | Comedies head towards marriage. Marriage would represent the achievement of happiness. |
| 17 | Misunderstandings | In Shakespearean comedies much that is funny arises from the misunderstandings of lovers or potential lovers. |
| 18 | Disguise | Shakespeare's comedies involve characters in disguise, particularly the disguising of women as young men. |
| 19 | Dramatic Irony | When the implications of something are not known by the characters on stage but are clear to the audience / reader. |
| 20 | Gender | The fact that women had to be played by young male actors adds to the dramatic irony of the use of gender disguises. |

Shakespeare Study (History)

| Key Vocabulary | | |
|----------------|---------------------------|---|
| 1 | Lamentation | The passionate expression of grief or sorrow, which can include weeping and wailing. |
| 2 | Amoral | Not following any moral rules and not caring about what is right and wrong. |
| 3 | Corrupt | Having or showing a willingness to act dishonestly in return for money or personal gain. |
| 4 | Charismatic | Someone or something with a compelling and charming personality or traits that are attractive and alluring to others. |
| 5 | Machiavellian | Cunning, scheming, and unscrupulous, especially in politics. |
| 6 | Self-determination | The ability or power to make decisions for yourself. |
| 7 | Treacherous | Guilty of, or involving betrayal or deception. |
| 8 | Tyrant | A cruel and oppressive ruler. |
| 9 | Usurp | To take a position of power or importance illegally, or by force. |
| 10 | Villainous | Wicked or criminal behaviour. |

| Key Terminology | | |
|-----------------|-------------------------|--|
| 11 | Aside | A remark or passage in a play that is intended to be heard by the audience but is supposed to be unheard by the other characters on the stage. |
| 12 | History play | A play based on a historical narrative, often set in the medieval period. |
| 13 | Juxtaposition | The placement of two contrasting objects, images or ideas next to each other. |
| 14 | Rhyming couplets | Two successive lines of verse of which the final words rhyme with another. |
| 15 | Soliloquy | A speech or passage in a drama when a character on stage speaks to himself /herself or the audience, expressing their inner thoughts and feelings. |

| Key Knowledge | |
|---------------|---|
| 16 | Shakespeare's history plays are set in late medieval England. |
| 17 | Shakespeare's source for historical material, however, is generally believed to be Raphael Holinshed's The Chronicles of England, Scotland and Ireland. |
| 18 | Each historical play is named after, and focuses on, the reigning monarch of the period. |
| 19 | The history plays are based on real events but are not entirely accurate. |
| 20 | Shakespeare's history plays usually focus on the downfall of a leader. |

Shakespeare (Tragedy)

Key Vocabulary


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|----|-----------------------|--|
| 1 | Abdication | When a monarch renounces (gives up) their throne. |
| 2 | Realm | A kingdom. |
| 3 | Disintegration | The process of losing cohesion, strength or breaking down. |
| 4 | Regicide | The killing of a king. |
| 5 | Treacherous | Guilty of, or involving, betrayal or deception. |
| 6 | Tyrant | A cruel and oppressive ruler. |
| 7 | Corrupt | Having or showing a willingness to act dishonestly in return for money or personal gain. |
| 8 | Machiavellian | Cunning, scheming, and focused on the acquisition of personal power, especially in politics. |
| 9 | Transgressive | Violating (crossing) moral and social boundaries. |
| 10 | Primogeniture | The right of succession to the throne belonging to the first born, usually the son. |

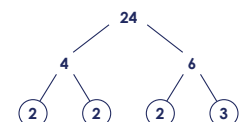
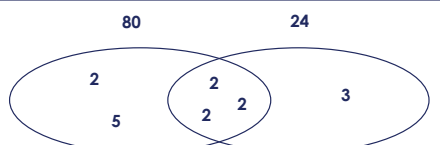
Key Terminology

| | | |
|----|--------------------|--|
| 11 | Tragedy | A play ending with the suffering and death of the main character. |
| 12 | Hamartia | The fatal flaw of a tragic hero. |
| 13 | Anagnorisis | The point in the plot, especially of a tragedy, at which the protagonist recognises their own character's true identity or discovers the true nature of their situation. |
| 14 | Catharsis | The process of releasing strong or pent-up emotions which can bring a release from tension. |
| 15 | Soliloquy | A speech or passage in a play when a character on stage speaks to himself or herself, expressing their inner thoughts and feelings. |

Key Knowledge – Tragedy

| | | |
|----|--------------------------|--|
| 16 | Tragic hero | A virtuous character whose downfall is caused by their flaws in their character. |
| 17 | Good and Evil | A struggle between good and evil take place as part of the plot or exists within the main character. |
| 18 | Tragic Waste | By the end of the play, good has been destroyed as well as evil. |
| 19 | External Conflict | The problem facing the hero as a result of evil forces or characters, or the events in the play. |
| 20 | Internal Conflict | The hero's struggle with their fatal flaw. |

| KPI 8.01 Indices | |
|----------------------------|---|
| 1) Square number | The result of multiplying a number by itself. It will always be positive. The first 12 square numbers are: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144. |
| 2) Square root | The opposite of squaring a number to find the original factor. e.g. $\sqrt{64} = 8$ or -8 because $8^2 = 64$ and $(-8)^2 = 64$ |
| 3) Cube number | The result of multiplying a number by itself, then itself again. The first 10 cube numbers are: 1, 8, 27, 64, 125, 216, 343, 512, 729, 1000. |
| 4) Cube root | The opposite of cubing a number to find the original factor. e.g. $\sqrt[3]{8} = 2$ because $2^3 = 8$ Note: $(-2)^3 = -8$ so $\sqrt[3]{-8} \neq -2$ |
| 5) Index notation | <p>Example $a \times a \times a \times a = a^4$. The number 4 is called the index (plural indices). This tells us how many times the "base" a has been multiplied by itself.</p>  |
| 6) Multiplying powers | $a^m \times a^n = a^{m+n}$ ADD the powers only if the bases are the same. E.g. $a^5 \times a^3 = a^{5+3} = a^8$ |
| 7) Dividing powers | $a^m \div a^n = a^{m-n}$ SUBTRACT the powers only if the bases are the same. E.g. $a^6 \div a^2 = a^{6-2} = a^4$ |
| 8) Indices with brackets | $(a^m)^n = a^{m \times n}$ MULTIPLY the powers. E.g. $(a^3)^5 = a^{3 \times 5} = a^{15}$ |
| 9) Indices with brackets | $(ab)^n = a^n \times b^n$ Raise each number or variable to the same power. E.g. $(2p)^4 = 2^4 \times p^4 = 16p^4$ |
| 10) Power of 0 | $a^0 = 1$. Any number or variable to the power of zero equals 1. |
| 11) Power of $\frac{1}{2}$ | $a^{\frac{1}{2}} = \sqrt{a}$ E.g. $16^{\frac{1}{2}} = \sqrt{16} = 4$ |

| KPI 8.02 Prime Factorisation | |
|----------------------------------|---|
| 1) Prime numbers | A prime number only has two distinct factors: 1 and itself. 2 is the only even prime number. 1 is not a prime number. Prime numbers between 1 and 100: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97. |
| 2) Factor | Any whole number that divides exactly into another number leaving no remainder. The factors of 20 are: 1, 2, 4, 5, 10, 20 |
| 3) Prime factor | A factor that is also a prime number. The prime factors of 20: 2 and 5 |
| 4) Prime factor decomposition | The process of expressing a number as a product of its prime factors. $24 = 2 \times 2 \times 2 \times 3 \rightarrow 24 = 2^3 \times 3$ |
| 5) Prime factor trees |  |
| 6) HCF & LCM using Venn diagrams | <p>E.g. Find the HCF & LCM of 80 and 24. $80 = 2 \times 2 \times 2 \times 2 \times 5$ $24 = 2 \times 2 \times 2 \times 3$</p> <p>HCF = Venn intersection $\rightarrow 2 \times 2 \times 2 = 8$ LCM = HCF x rest $\rightarrow 8 \times 2 \times 3 \times 5 = 240$</p>  |

KPI 8.03 Rounding

| | | | | | | | |
|---|--|---------------------|---------------------|---------------------|-------------------|-------------------|-------------------|
| 1) Significant figures | The total number of digits in a number, not counting zeros at the beginning of a number or at the end of a decimal number. 345 000 has 6 significant figures. 0.3047 has 4 significant figures. 10.500 has 3 significant figures. | | | | | | |
| 2) Rounding to significant figures | Round to... | 0.007638 to 3 sf | 0.007638 to 2 sf | 0.007638 to 1 sf | 2.0507 to 3 sf | 2.0507 to 2 sf | 2.0507 to 1 sf |
| | Answer | 0.00764 | 0.0076 | 0.008 | 2.05 | 2.1 | 2 |
| 3) Estimate | Find a rough or approximate answer by calculating with numbers rounded to one significant figure. e.g. $2.3 \times 18.4 \approx 2 \times 20 = 40$ \approx "approximately equal to" | | | | | | |

KPI 8.04 Fractions

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|---|--|---|---|
| 1) Converting an improper fraction to a mixed number | $\frac{15}{7} = 2\frac{1}{7}$ | 2) Converting a mixed number to an improper fraction | $3\frac{4}{5} = \frac{(3 \times 5) + 4}{5} = \frac{19}{5}$ |
| 3) Adding and subtracting fractions | Make the denominators the same (find the LCM). Use equivalent fractions to ensure fractions have a common denominator. Add/subtract the numerators only. | | $\frac{2}{7} + \frac{2}{5} = \frac{10}{35} + \frac{14}{35} = \frac{24}{35}$ |
| 4) Multiplying fractions | Multiply the numerators. Multiply the denominators. Simplify where possible. | | $\frac{4}{5} \times \frac{3}{8} = \frac{12}{40} = \frac{3}{10}$ |
| 5) Dividing fractions | Keep the first fraction the same. Change the second to its reciprocal. Multiply the fractions. Simplify or convert to a mixed number where possible. | | $\frac{4}{5} \div \frac{3}{8} = \frac{4}{5} \times \frac{8}{3} = \frac{32}{15} = 2\frac{2}{15}$ |

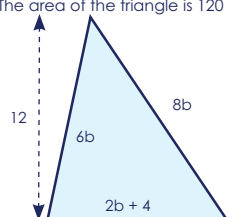
KPI 8.05 Negative Number Review

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|--|--|-------------------------------------|--|
| 1) Double signs | When we subtract a negative, we add. -5 ⊖ -1 -15 ⊖ -1 15 ⊖ -1 -5 + 1 -15 + 1 15 + 1 | 2) Double signs | When we add a negative, or subtract a positive, we subtract. -5 ⊕ 1 -15 ⊕ 1 15 ⊕ 1 -5 - 1 -15 - 1 15 - 1 |
| 3) Multiplying negative numbers | Negative x Negative = Positive Positive x Positive = Positive Negative x Positive = Negative Positive x Negative = Negative | 4) Dividing negative numbers | Negative ÷ Negative = Positive Positive ÷ Positive = Positive Negative ÷ Positive = Negative Positive ÷ Negative = Negative |

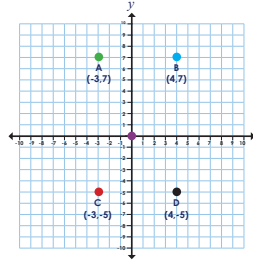
KPI 8.06 Linear Equations

| | | | |
|---------------------------------|--|---|---|
| 1) Inverse operations | Addition and Subtraction are inverse operations. Multiplication and Division are inverse operations. Squaring and taking the square root are inverse operations. | 2) Variable | A letter used to represent any number. |
| 3) Coefficient | The number to the left of the variable. This is the value that we multiply the variable by. $4x \rightarrow$ The coefficient of x is 4. $x \rightarrow$ The coefficient of x is 1. | 4) Term | A single number, variable or numbers and variables multiplied together. |
| 5) Collecting like terms | Combining the like terms in an expression. $7x + 3y - 2x$ is simplified to $5x + 3y$. | 6) Expression | A mathematical statement which contains one or more terms combined with addition and/or subtraction signs e.g. $4x + 3y$. |
| 7) Linear equation | Contains an equals sign (=) and has one unknown. E.g. $5x - 2 = 2x + 7$. | | |
| 8) Solve | Use inverse operations to find the solution of an equation. | | |
| | E.g. 1. (One step) $\begin{array}{r} \frac{x}{4} = 12 \\ \times 4 \qquad \qquad \times 4 \\ \hline x = 48 \end{array}$ | E.g. 2. (Two step) $\begin{array}{r} 3p - 7 = 8 \\ +7 \qquad \qquad +7 \\ \hline 3p = 15 \\ \div 3 \qquad \qquad \div 3 \\ \hline p = 5 \end{array}$ | E.g. 3. (Unknown on both sides) $\begin{array}{r} 2x + 10 = 19 - 9x \\ +9x \qquad \qquad \qquad +9x \\ \hline 11x + 10 = 19 \\ -10 \qquad \qquad \qquad -10 \\ \hline 11x = 9 \\ \div 11 \qquad \qquad \div 11 \\ \hline x = \frac{9}{11} \end{array}$ |

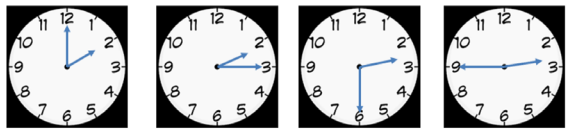
KPI 8.07 Forming and Solving Linear Equations

| | | |
|--|--|--|
| 1) Form and solve a linear equation | E.g. 1 Jake is y years old. Lily is 15. Kobe is 3 years younger than Jake. They have a total age of 36. Work out their individual ages. $\begin{array}{l} y + 15 + y - 3 = 36 \\ 2y + 12 = 36 \\ 2y = 24 \\ y = 12 \end{array}$ Jake: 12, Lily: 15, Kobe: 9 | E.g. 2 The area of the triangle is 120 cm^2 . Find the value of b . |
| |  | $\frac{12(2b + 4)}{2} = 120$ $\frac{24b + 48}{2} = 120$ $12b + 24 = 120$ $12b = 96$ $b = 8 \text{ cm}$ |


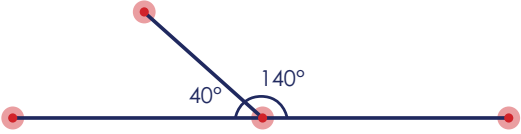
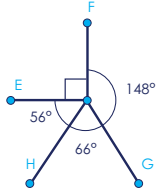
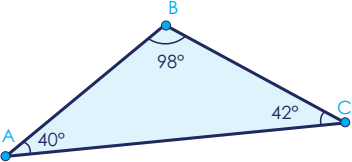
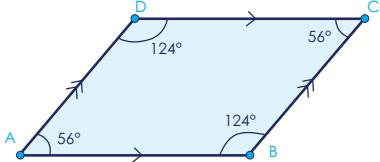
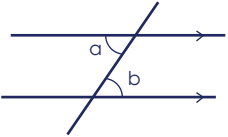
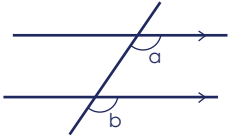
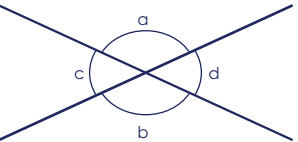
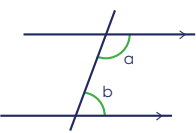
KPI 8.08 Coordinates and Basic Graphs

| | | | |
|---|---|--|--|
| <p>1) Coordinates</p> | <p>Written in pairs and inside a bracket (x, y). The first variable is the x-coordinate and shows horizontal position. The second variable is the y-coordinate and shows vertical position.</p> |  | <p>Point A is in the SECOND quadrant</p> <p>Point B is in the FIRST quadrant</p> <p>Point C is in the THIRD quadrant</p> <p>Point D is in the FOURTH quadrant</p> <p>The coordinate (0,0) is also known as the ORIGIN</p> |
| <p>2) Origin</p> | <p>The coordinate (0,0) is where the x-axis and y-axis intersect.</p> | <p>3) Axis Plural-Axes</p> | <p>x-axis is horizontal (y = 0). y-axis is vertical (x = 0).</p> |
| <p>4) Vertical lines</p> | <p>Always in the form x = a.</p> | <p>5) Horizontal lines</p> | <p>Always in the form y = a.</p> |
| <p>6) Mid-point of two coordinates</p> | <ol style="list-style-type: none"> 1. Add the x coordinates, divide by 2. 2. Add the y coordinates, divide by 2. 3. Write as a coordinate (x, y). | <p>E.g. The mid-point of (2, 2) and (8, 4) = (5, 3)</p> <p>mid-point of x coordinates: $\frac{2 + 8}{2} = \frac{10}{2} = 5$</p> <p>mid-point of y coordinates: $\frac{2 + 4}{2} = \frac{6}{2} = 3$</p> | |

KPI 8.09 Units of Measurement

| | | | | | |
|----------------------------------|--|--|---|--|--|
| <p>1) Analogue</p> |  | | | | |
| <p>2) Digital</p> | <p>Times will appear differently on digital clocks depending on whether they are in 12-hour clock or 24-hour clock mode.</p> | <p>2:00 am → 02:00 2:00 pm → 14:00</p> | <p>2:15 am → 02:15 2:15 pm → 14:15</p> | <p>2:30 am → 02:30 2:30 pm → 14:30</p> | <p>2:45 am → 02:45 2:45 pm → 14:45</p> |
| <p>3) Hours</p> | <p>1 hour = 60 minutes</p> | <p>4) Minutes</p> | <p>1 minute = 60 seconds</p> | | |
| <p>5) Units of length</p> | <p>1 cm = 10mm; 1 m = 100 cm; 1 km = 1000 m</p> | <p>6) Units of capacity</p> | <p>1 L = 1000 ml; 1 L = 1000 cm³</p> | | |
| <p>7) Units of mass</p> | <p>1 kg = 1000 g; 1 tonne = 1000 kg</p> | <p>8) Units of area</p> | <p>1 cm² = 100 mm²; 1 m² = 10,000 cm²</p> | | |

KPI 8.10 Angles in Parallel Lines

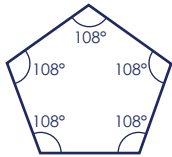
| | | | |
|--------------------------------------|---|---|---|
| <p>1) Parallel lines</p> | <p>Always equidistant. Parallel lines have the same gradient. They never meet however far they are extended.</p> |  | |
| <p>2) Angles on a straight line</p> | <p>Angles on a straight-line sum to 180°</p>  | <p>3) Angles around a point</p> | <p>Angles in a quadrilateral sum to 360°</p>  |
| <p>4) Angles in a triangle</p> | <p>Angles in a triangle sum to 180°</p>  | <p>5) Angles in a quadrilateral</p> | <p>Angles in a quadrilateral sum to 360°</p>  |
| <p>6) Alternate angles</p> | <p>Alternate angles are equal, so $a = b$</p>  | <p>7) Corresponding angles</p> | <p>Corresponding angles are equal, so $a = b$</p>  |
| <p>8) Vertically opposite angles</p> | <p>Vertically opposite angles are equal, so, $a = b$ and $c = d$</p>  | <p>9) Co-interior angles</p> | <p>Co-interior angles sum to 180°, so $a + b = 180^\circ$</p>  |

KPI 8.11 Angles in Polygons

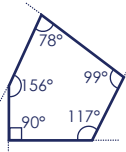
1) Polygon

A polygon is a two-dimensional shape with 3 or more straight sides. A polygon is either regular or irregular:

Regular – side lengths are equal, and all angles are equal.
Irregular – side lengths are unequal, and angles are unequal.



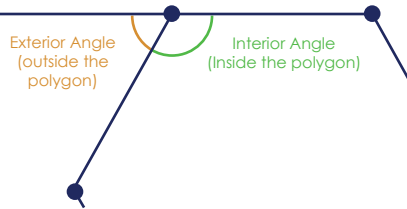
Regular Pentagon



Irregular Pentagon

2) Interior angle

The measure of turn between one side length, a vertex, and the next side length.



3) Exterior angle

The measure of turn between a side length, and the next side length extended.

Exterior Angle = $360^\circ \div$ Number of sides

Sum of Ext. Angles for any polygon = 360°

Interior angle + Exterior angle = 180°

E.g. exterior angles = $360 \div$ number of sides.

KPI 8.12 Circumference

1) Diameter

A straight line going straight through the centre of the circle and touching the circumference at each end.

2) Radius Plural-radii

A straight line joining the centre to the circumference.

3) Chord

A straight line joining any two parts of the circumference.

4) Tangent

A straight line that touches the circumference at a single point.

5) Arc

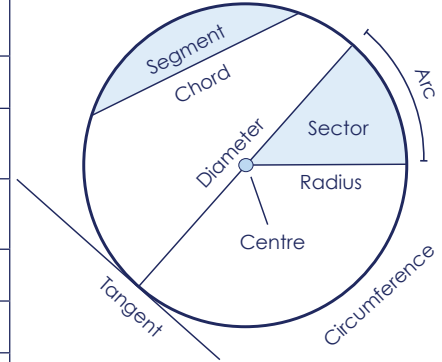
A section of the circumference.

6) Sector

The area bound by two radii and an arc.

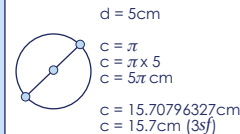
7) Segment

The area bound by the circumference and a chord.



8) Circumference

The perimeter of the circle.
 $C = \pi \times$ diameter
 $C = \pi d$



9) π (Pi)

The ratio of a circle's circumference to its diameter.
It has an estimated value of $\frac{22}{7}$ or 3.14 rounded to 3 significant figures.

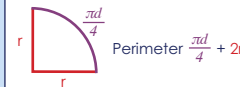
10) Revolution

A revolution is a full turn of a circle. The distance covered by one revolution is equal to the circumference of the circle.

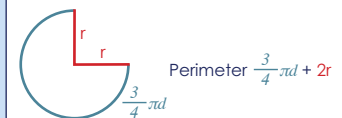
13) Semi-circle



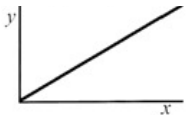
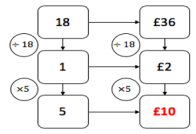
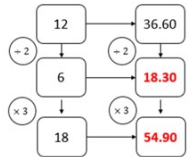
12) Quarter-circle



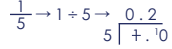
14) Three-quarter circle



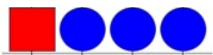
KPI 8.12 Proportional Reasoning

| | | | |
|---|---|------------------------------------|---|
| <p>1) Proportion</p> | <p>A relationship between two quantities.</p> | <p>2) Direct proportion</p> | <p>A relationship between two variables where, as one increases, the other also increases. The graphical representation of this relationship is a straight line through the origin.</p>  |
| <p>3) Unitary method</p> | <p>To find the value of one unit first.</p>  | <p>5) Best buy</p> | <p>Better value for money means that the cost is cheaper when buying an identical item or amount. Equal quantities must be compared.</p> |
| <p>4) Multiple intersections</p> |  | <p>6) Recipes</p> | <p>Option 1: Find the amount of ingredients needed for a specific number of people. Option 2: Find how much of the recipe can be made with the quantities available in the question.</p> |

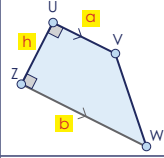
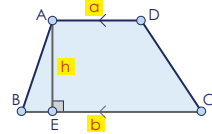

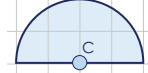

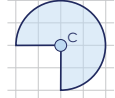
KPI 8.13 Fractions, Decimals and Percentages

| <p>1) Common conversions</p> | <table border="1"> <thead> <tr> <th>Fraction</th> <th>Decimal</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>$\frac{1}{10}$</td> <td>0.1</td> <td>10%</td> </tr> <tr> <td>$\frac{1}{8}$</td> <td>0.125</td> <td>12.5%</td> </tr> <tr> <td>$\frac{1}{5}$</td> <td>0.2</td> <td>20%</td> </tr> <tr> <td>$\frac{1}{4}$</td> <td>0.25</td> <td>25%</td> </tr> <tr> <td>$\frac{1}{3}$</td> <td>0.33333....</td> <td>33.3% (1dp)</td> </tr> <tr> <td>$\frac{1}{2}$</td> <td>0.5</td> <td>50%</td> </tr> <tr> <td>$\frac{3}{4}$</td> <td>0.75</td> <td>75%</td> </tr> <tr> <td>$\frac{1}{1}$</td> <td>1</td> <td>100%</td> </tr> </tbody> </table> | Fraction | Decimal | Percentage | $\frac{1}{10}$ | 0.1 | 10% | $\frac{1}{8}$ | 0.125 | 12.5% | $\frac{1}{5}$ | 0.2 | 20% | $\frac{1}{4}$ | 0.25 | 25% | $\frac{1}{3}$ | 0.33333.... | 33.3% (1dp) | $\frac{1}{2}$ | 0.5 | 50% | $\frac{3}{4}$ | 0.75 | 75% | $\frac{1}{1}$ | 1 | 100% | <p>2) Fraction to decimal</p> | <p>Divide the numerator by the denominator. $\frac{1}{5} \rightarrow 1 \div 5 \rightarrow 0.2$</p>  |
|---|---|-------------|------------|------------|----------------|-----|-----|---------------|-------|-------|---------------|-----|-----|---------------|------|-----|---------------|-------------|-------------|---------------|-----|-----|---------------|------|-----|---------------|---|------|--------------------------------------|---|
| | Fraction | Decimal | Percentage | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | $\frac{1}{10}$ | 0.1 | 10% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | $\frac{1}{8}$ | 0.125 | 12.5% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | $\frac{1}{5}$ | 0.2 | 20% | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{4}$ | 0.25 | 25% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{3}$ | 0.33333.... | 33.3% (1dp) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{2}$ | 0.5 | 50% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{3}{4}$ | 0.75 | 75% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| $\frac{1}{1}$ | 1 | 100% | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3) Decimal to percentage</p> | <p>Multiply by 100 and add the percentage symbol. $0.09 \rightarrow 0.09 \times 100 = 9\%$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4) Percentage to fraction</p> | <p>Write the percentage as the numerator and make 100 the denominator. Simplify if possible. $30\% \rightarrow \frac{30}{100} = \frac{3}{10}$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>4) Percentage change</p> | <p>Percentage Increase or Decrease = $\frac{\text{Change}}{\text{Original}} \times 100$</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

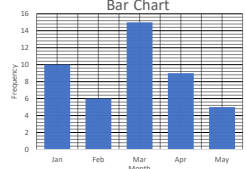
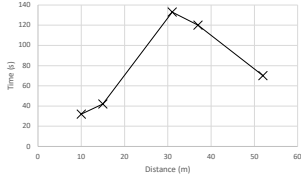
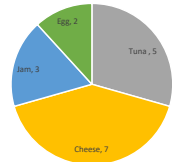
KPI 8.15 Ratio

| | | | |
|-------------------------------------|---|---|--|
| <p>1) Ratio</p> | <p>A part-to-part comparison. The ratio of a to b is written as: a:b</p> | <p>2) Ratio as a fraction</p> | <p>Fraction of shapes which are squares: $\frac{1}{4}$</p>  |
| <p>3) Equivalent ratios</p> | <p>Found by multiplying or dividing all parts of the ratio by the same number.</p> | <p>5) Sharing into a given ratio</p> | <p>Fraction of shapes which are circles: $\frac{3}{4}$</p> |
| <p>4) Simplifying ratios</p> | <p>Ratios can be simplified by dividing each part of the ratio by the same number.</p> <p>+5 $\left(\frac{25}{5} : \frac{15}{5} \right) \rightarrow 5 : 3$ +5</p> | <p>6) Unitary Ratio</p> | <p>Add the parts together. Divide the total by this. Multiply this by each part of the ratio.</p> <p>Share £18 in the ratio of 5:4</p> |
| <p>6) Unitary Ratio</p> | <p>Write the ratio 5:3 in the form 1:n</p> <p>+5 $\left(\frac{5}{5} : \frac{3}{5} \right) \rightarrow 1 : \frac{3}{5}$ +5</p> | <p>5) Sharing into a given ratio</p> | <p>Add the part $\rightarrow 4 + 5 = 9$ parts $\pounds 18 \div 9 = \pounds 2 \rightarrow 1$ part = $\pounds 2$ 5 parts: $5 \times \pounds 2 = \pounds 10$ 4 parts: $4 \times \pounds 2 = \pounds 8$ $\pounds 10 : \pounds 8$</p> |

KPI 8.16 Area- Trapezia and Circles

| | | | |
|-----------------------------|---|---|--|
| 1) Trapezium | Quadrilateral with one pair of parallel sides. | 2) Isosceles trapezium | Quadrilateral with one pair of parallel side and two right angles. |
| 3) Area of trapezium | Sum of the parallel sides. Divide by 2. Multiply by the vertical height. | $A = \left(\frac{a+b}{2}\right) \times h$ |   |
| 4) Area of a circle | $A = \pi r^2$ $A = \pi \times 9^2$ $A = 81\pi \text{ cm}^2$  | 5) Area of a semi-circle | $A = \frac{\pi r^2}{2}$  |
| 6) Area of a quarter-circle | $A = \frac{\pi r^2}{4}$  | 7) Area of a three-quarter circle | $A = \frac{3\pi r^2}{4}$  |



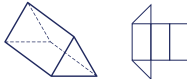
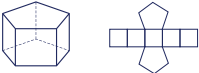
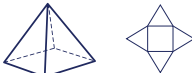




KPI 8.17 Presenting and Interpreting Data

| 1) Frequency table | <p>A table showing how often (frequent) something occurs. Can include tally charts.</p> <table border="1"> <thead> <tr> <th>Score</th> <th>Tally</th> <th>Frequency (f)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td> </td> <td>4</td> </tr> <tr> <td>2</td> <td> </td> <td>9</td> </tr> <tr> <td>3</td> <td> </td> <td>6</td> </tr> <tr> <td>4</td> <td> </td> <td>8</td> </tr> <tr> <td>5</td> <td> </td> <td>3</td> </tr> <tr> <td>6</td> <td> </td> <td>1</td> </tr> </tbody> </table> | Score | Tally | Frequency (f) | 1 | | 4 | 2 | | 9 | 3 | | 6 | 4 | | 8 | 5 | | 3 | 6 | | 1 | 2) Bar chart | <p>A way of displaying data, using horizontal or vertical bars which are the same width and have gaps between them.</p>  |
|--------------------|--|---------------|---|---------------|---|--|---|---|--|---|---|--|---|---|--|---|---|--|---|---|--|---|--------------|---|
| Score | Tally | Frequency (f) | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | 4 | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | 9 | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | 6 | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | 8 | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | 3 | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| 3) Line graph | <p>Uses lines to join points on a graph to represent a data set.</p>  | 4) Pie chart | <p>Method of displaying proportional information by dividing a circle up into different-sized sectors.</p>  | | | | | | | | | | | | | | | | | | | | | |

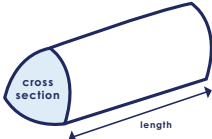
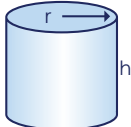
KPI 8.18 Averages

| | | | |
|------------------------------|--|--|---|
| 1) Average | The central or typical value in a data set. There are three types of averages- mode, median and mean. | 2) Mode | The most common/frequent value from a set of data. Mode of 3, 3, 6, 7 , 7, 8, 9, 10 = 7 |
| 3) Median | The middle value when the data is in order. Median of 9, 5, 15, 6, 8 → 5, 6, 8 , 9, 15 = 8 | 4) Mean | Add up all the numbers and divide the total by how many numbers there are. Mean of 7, 8, 9: $\frac{7+8+9}{3} = \frac{24}{3} = 8$ |
| 5) Range | A measure of the spread of the data, = <i>Largest Value – Smallest Value</i> . | | |
| 6) Reversing the mean | If we have the mean but one of the data points is missing, we can find the missing value by: 1) Multiplying the 'mean' by the number of data points to get the total of the values; 2) Subtracting the sum of the known values from the total of all values. | E.g. The mean of three numbers is 5. Two of the numbers are 3 and 10. Find the third value. Total of the values: $5 \times 3 = 15$ $15 - (3 + 10) = 2$ The third value is 2 | |

KPI 8.20 3D Visualisation

| | | | | | |
|----------------------------|---|--------------------------------|---|------------------------------------|---|
| 1) Face | A face is a single flat surface | 2) Edge | An edge is a line segment between faces | 3) Vertex | A vertex is a corner |
| 4) Cube | 6 faces 12 edges 8 vertices  | 5) Cuboid | 6 faces 12 edges 8 vertices  | 6) Triangular prism | 5 faces 9 edges 6 vertices  |
| 7) Pentagonal prism | 7 faces 15 edges 10 vertices  | 8) Square-based pyramid | 5 faces 8 edges 5 vertices  | 9) Triangular-based pyramid | 4 faces 6 edges 4 vertices  |
| 10) Cylinder | 3 faces 2 edges 0 vertices  | 11) Cone | 2 faces 1 edge 1 vertex  | 12) Sphere | 1 face 0 edges 0 vertices  |

KPI 8.21 Volume

| | | |
|-----------------------------|---|--|
| 1) Volume | The volume of a solid body is the amount of 'space' it occupies. It is measured in cubic units e.g. cubic centimetres (cm ³). | |
| 2) Volume of a prism | Volume of a prism = area of cross section × length Volume of cylinder = $\pi r^2 h$ |   |

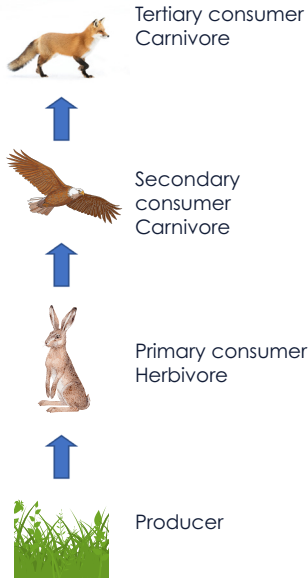
8BE Ecological Relationships And Classification

1. Food Chains

A **food chain** shows the different **species** of an organism in an **ecosystem**, and what eats what.

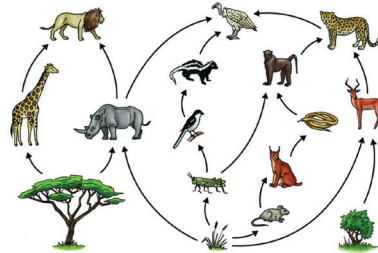
- A food chain always starts with a **producer**.
- A food chain ends with a **consumer**.

Here is an example of a simple food chain:



2. Food Webs

When all the food chains in an ecosystem are joined up



Food webs are just several food chains joined together. Some of the food chains in this food web are:

- Tree > giraffe > lion
- Tree > rhino > lion
- Grass > rhino > eagle
- Grass > grass hopper > small bird > raccoon > eagle

4. Decomposers

Decay - when dead plant and animal materials are broken down by **decomposers**.

Decay releases the nutrients locked up in the dead material, back into the ground, so that it can be used for new plant growth.

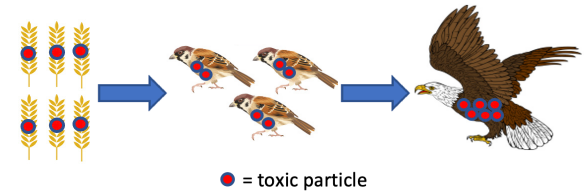
This is important because there is only a finite amount of nutrients on our planet. Decay means that the nutrients can be constantly recycled.

The ideal conditions for decay are:

1. Plenty of oxygen, so that decomposers can respire.
2. Warm temperatures so that decomposers are more active.
3. Some moisture as this allows important chemical reactions to take place.

3. Bioaccumulation

Bioaccumulation - the build up of toxic material through a food chain.



5. Adaptations

Adaptations - features helping organisms compete, and survive in their environment. For example:



- White coat > camouflage
- Big feet > spread weight to reduce pressure on snow/ice
- Thick layer of fat > insulation & food store
- Greasy fur > water runs off easily after swimming



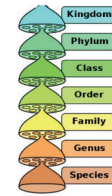
- Hump that stores fat > reduce heat loss over rest of the body
- Sandy colour > camouflage
- Big feet > spread weight to reduce pressure on sand

6. Natural Selection

1. Individuals in a species show a wide range of **genetic variation** due to **mutations**.
2. Individuals who are best adapted to the environment are **more likely to survive and reproduce**.
3. The **genes** that allow these individuals to be successful are **inherited** by their offspring.
4. Over many generations these small differences add up to the new evolution of species.

7. Classification Is The Sorting Out Of Organisms Into Groups Based On Their Similarities

- Today's classification system is designed by Carl Linnaeus
- Organisms were divided into kingdoms.
- Each kingdom was then sub-divided into smaller groups (phylum) and these into even smaller groups (e.g. class)
- Species are the smallest group.



Many organisms with few similar characteristics



One type of organism, with many similar characteristics

8. Extinction

Extinction – when an entire species is unable to compete successfully and reproduce it will lead to extinction, because changes in the environment may leave individuals less well adapted to compete for resources (e.g. food, water and mates).

Changes in the environment that can cause a species to become extinct:

- A new disease;
- A new predator;
- A change in the physical environment (e.g. climate change);
- Competition (from another species that is better adapted, including competition from humans).

9. Factors That Can Affect The Population Of Individual Organisms

Temperature (land/water)
Seasonal changes
Rainfall
Increased predation/hunting
Deforestation
pH of soil/water
Use of chemicals in farming
Disease
Pollution
New predators



Might lead to:

- A shortage of food
- Loss of habitat
- Lack of partners to reproduce with
- Less water

10. Estimating Populations

Method:

Count the numbers of a species within a small section of the area being sampled by:

1. Using a quadrat to make multiple random small samples.
2. A mean is then calculated and multiplied up to the whole area.

11. Biodiversity

Biodiversity - variety of living organisms on Earth.

Biodiversity is important because:

- Moral and cultural reasons;
- Some plant species might be identified for medicines;
- Reduces damage to food chains and food webs
- Protects future food supply.

Protecting biodiversity:

- **Seed banks** - a store of seeds so that new plants may be grown in the future.
- Seed banks are an example of a **gene bank**, which preserve genetic animals and plant material for the future.

1. Reflection

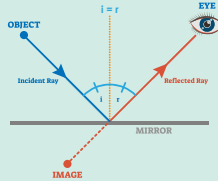
A ray diagram shows how light travels, including what happens when it reaches a surface. In a ray diagram, you draw each ray as:

- A straight line;
- With an arrowhead pointing in the direction that the light travels;
- Always use a ruler and a sharp pencil.

2. The law of reflection

When light reaches a mirror, it reflects off the surface of the mirror:

- **Incident ray** is the light going **towards the mirror**;
- **Reflected ray** is the light coming **away from the mirror**.



The law of reflection states:

- The **angle of incidence = the angle of reflection, $i = r$** .

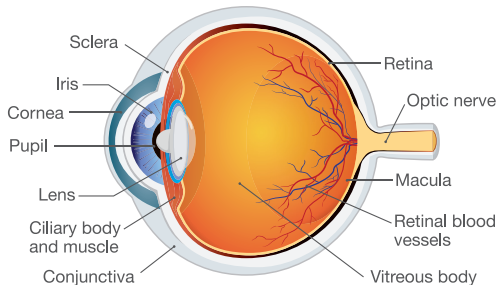
3. Diffuse scattering

- If light meets a rough surface, each ray obeys the law of reflection;
- Different parts of the rough surface point in different directions;
- So the light is not all reflected in the same direction;
- The light is reflected in all directions.
- This is called **diffuse scattering**.

4. Ray diagram of reflection

- The hatched vertical line on the right represents the mirror;
- The dashed line is the **normal**, drawn 90° to the surface of the mirror;
- The **angle of incidence**, i , is the angle between the normal and incident ray;
- The **angle of reflection**, r , is the angle between the normal and reflected ray;
- The reflection of light from a flat surface such as a mirror is called **specular reflection** – light meeting the surface in one direction is all reflected in one direction.

3. The Eye



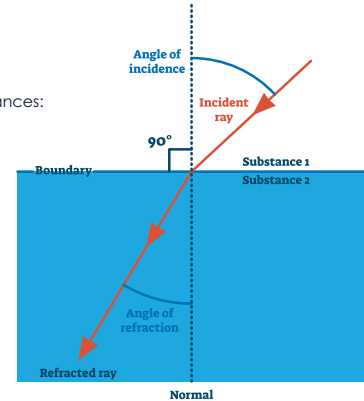
2. Refraction

When light waves pass across a boundary between two substances with a different density, e.g. air and glass. They:

- Change speed;
- Causing them to change direction;
- This is called refraction.

At the boundary between two transparent substances:

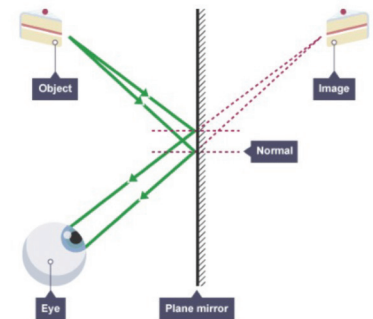
- The light slows down going into a denser substance, and the ray bends towards the normal;
- The light speeds up going into a less dense substance, and the ray bends away from the normal.



4. Imaging In Mirrors

- A plane mirror is a flat mirror.
- When you look into a plane mirror, you see a reflected image of yourself. This image:
 - Appears to be behind the mirror
 - Is the right way up
 - Is 'laterally inverted' (letters and words look as if they have been written backwards)

- 'Real' rays, the ones leaving the object and the mirror, are shown as solid lines.
- 'Virtual' rays, the ones that appear to come from the image behind the mirror, are shown as dashed lines.
- Each incident ray will obey the law of reflection.



1. Colour

- White light is a mixture of many different colours;
- Each colour has a different frequency;
- White light can be split up into a **spectrum** using a prism, a triangular block of glass or Perspex;
- Light is refracted when it enters the prism;
- Each colour is refracted by a different amount;
- Light leaving the prism is spread out into different colours;
- This is called **dispersion**.

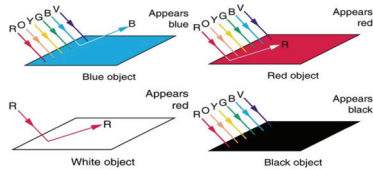
The spectrum

The seven colours of the spectrum listed in order of their frequency, from the lowest frequency (fewest waves per second) to the highest frequency (most waves per second):

- Red Orange Yellow Green Blue Indigo Violet
- 'Richard Of York Gave Battle In Vain'.

Coloured light

- There are three primary colours in light: red, green and blue;
- Light in these colours can be added together to make the secondary colours magenta, cyan and yellow.
- All three primary colours add together make white light;
- When light hits a surface, some of it is absorbed and some of it is reflected.
- The colour of an object is the colour of light it reflects;
- All other colours are absorbed.



5. Detecting Light

Cameras and eyes detect light. They both have:

- A material that is sensitive to light.
- A change that happens when this material absorbs light

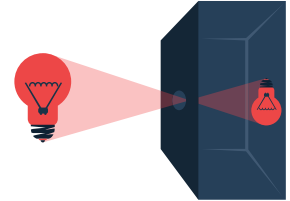
2. Focusing

- Light rays can be focused so that they meet at a single point;
- Focusing is important for getting clear images in our eye;
- Images that are not focused appear blurred.

3. The pinhole camera

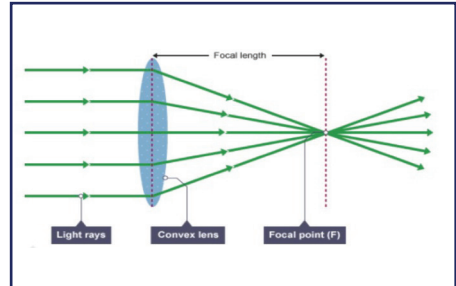
A pinhole camera consists:

- Of a box with a **translucent screen** at one end;
- A tiny hole (the pinhole) in the other end;
- Light enters the box through the pinhole;
- It is focused by the pinhole onto the screen;
- The image is inverted (upside down) and smaller than the object.



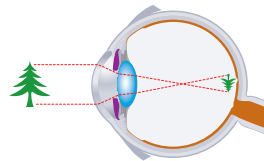
3. The Convex Lens

- A convex lens is made from a transparent material that bulges outwards in the middle on both sides.
- It can focus light so that appears to meet at a single point, called the focal point. Light is refracted as it passes into, then out of, the lens.
- Convex lenses are found in:
 - **Magnifying glasses;**
 - **Spectacles** for people with long-sight (who can see distant objects clearly but not nearby ones);
 - **Telescopes.**



4. The Eye

- The eye is like the camera: The eye focuses light from an object;
- Onto the photo-sensitive retina;
- The **retina** contains cells sensitive to light;
- They produce electrical impulses when they absorb light;
- These impulses are passed along the **optic nerve** to the **brain**;
- Which interprets them as vision.



6. The Camera

Cameras focus light onto a photo-sensitive material using a lens.

In old cameras, the photo-sensitive material was camera film;

- The film absorbs light;
- A chemical change produces an image, called the 'negative';
- This was used to produce a photograph on photo-sensitive paper.

In a modern camera or the camera in a mobile phone:

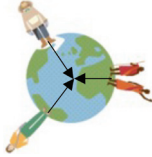
- The photo-sensitive material produces electrical impulses;
- Which are used to produce an image file;
- This can be viewed on the screen.

1. Gravity

Gravity is a force that attracts objects towards each other.

The greater the mass, the greater its force of gravity:

- Gravity between Earth and Moon keeps Moon in orbit around Earth;
- Gravity between Sun and Earth keeps Earth in orbit around Sun.



Gravity only becomes noticeable when there is a really massive object like a star. We are pulled down towards the ground because of gravity. The gravitational force pulls in the direction towards the centre of any object.

2. Mass, Weight And Gravitational Forces

Mass - is the **amount of matter** or 'stuff' it contains. It is measured in kilograms, **kg**.

An object's mass stays the same wherever it is, E.g. a 5 kg mass on Earth has a 5 kg mass on the Moon.

Weight is a force that acts upon a mass. It is measured in newtons, **N**.

The weight of an object is the gravitational force between the object and the Earth.

The weight of an object depends upon its mass and the **gravitational field strength**.

Gravitational field strength is given the symbol g (Do not confuse this with g for grams).

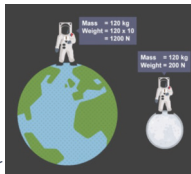
You can use this equation to calculate the weight of an object:

$$\text{weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/kg)}$$

On Earth, g is about 10 N/kg. This means that a 1 kg object on the Earth's surface has a weight of 10 N ($1\text{kg} \times 10\text{N/kg} = 10\text{N}$).

Mass and weight

- The mass of an object stays the same wherever it is.
- Weight can change if the object goes where the gravitational field strength is different from the gravitational field strength on Earth, e.g. into space or another planet.
- The Moon is smaller and has less mass than the Earth, so its gravitational field strength is only about one-sixth of the Earth's. So, for example, a 120kg astronaut weighs 1200 N on Earth but only 200 N on the Moon. Remember that their mass would still be 120kg.



3. The Speed Of Light

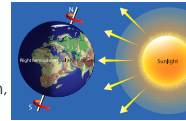
- Light travels extremely quickly.
- Its maximum speed is 300,000,000 m/s (3×10^8 m/s) when it travels through a vacuum.

The speed of light is much faster than the speed of sound in air (343 m/s). This explains why you:

- See lightning before you hear it;
- See a firework explode before you hear it.

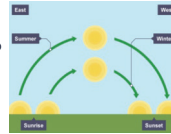
4. Days And Nights

- A planet spins on its axis as it orbits the Sun;
- A day is the time it takes for a planet to turn once on its axis;
- An Earth day is 24 hours long;
- The Sun lights up one half of the Earth, and the other half is in shadow;



6. Path of the Sun at different times of the year

- A planet spins on its axis as it orbits the Sun;
- A day is the time it takes for a planet to turn once on its axis;
- An Earth day is 24 hours long;
- The Sun lights up one half of the Earth, and the other half is in shadow;



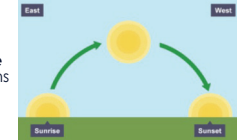
5. Path of the Sun

- During the day, the Sun appears to move through the sky;
- This happens because the Earth is spinning on its axis;
- The Sun appears to move from east to west. This is because the Earth turns from west to east.

The Sun appears to:

- Rise in the east;
- Set in the west;
- Be due south at midday;

- One way to remember which way the Earth turns is "We spin"....we (the Earth) spins from west to east.



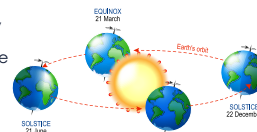
7. Years And Seasons

- A year is the time it takes to make one complete orbit around the Sun;
- The Earth goes once round the Sun in one Earth year, which takes 365 Earth days;
- The further a planet is from the sun, the longer its year.

Seasons

The Earth's axis is tilted slightly (23.4° from vertical). We get different seasons because the Earth's axis is tilted:

- It is summer in the UK when the Northern Hemisphere is tilted towards the Sun.
- It is winter in the UK when the northern hemisphere is tilted away from the Sun.



8. Stars And Galaxies

- Our Sun is a star.
- It seems much bigger than other stars in the sky because it is much closer to Earth;
- Stars form immense groups called **galaxies**.
- A galaxy can contain **many millions of stars**, held together by gravity.
- Our Sun is in a spiral galaxy called the **Milky Way**.

The **light year** is the distance travelled by light in one year.



1. The 7 nutrients

| Nutrient | Use in the body | Good sources |
|------------------------|--|--|
| Carbohydrate | To provide energy | Cereals, bread, pasta, rice and potatoes |
| Protein | For growth and repair | Fish, meat, eggs, beans, pulses and dairy products |
| Lipids (fats and oils) | To provide energy. Also to store energy in the body and insulate it against the cold | Butter, oil and nuts |
| Minerals | Needed in small amounts to maintain health | Salt, milk (for calcium) and liver (for iron) |
| Vitamins | Needed in small amounts to maintain health | Fruit, vegetables, dairy foods |
| Fibre | To provide roughage to help to keep the food moving through the gut | Vegetables, bran |
| Water | Needed for cells and body fluids | Water, fruit juice, milk |

2. Chemical Food Tests

| Nutrient | Use in the body | Good sources |
|----------|-------------------------------------|--|
| Starch | Iodine solution | Iodine solution turns from orange/brown → blue black |
| Sugar | Benedict's solution & heat | Benedict's solution turns from: blue → green /yellow/brick red |
| Fat | Ethanol & shake, then water & shake | Ethanol turns cloudy white |
| Protein | Biuret reagent | Biuret reagent changes from blue to purple |

3. Respiration

A chemical reaction that takes place in all living cells to release the energy in food:



4. Using Energy

Energy released from food is used for things like:

- Muscle contraction
- Keeping warm
- Making new cells

Each person needs a different amount of energy depending on factors such as:

- 'Biological sex' (male or female)
- Age
- Amount of daily activity

Energy in food is measured in **kilojoules**, kJ.

5. Balanced Diet

Balanced diet - contains the right energy intake **and** the correct amounts of necessary nutrients.

Imbalanced diet - contains too much or too little of a particular nutrient and/or energy.

6. Nutrient Deficiency Diseases:

Mineral deficiency diseases -

Caused when your diet is lacking in a particular mineral:

- **Iron** deficiency causes **anaemia**, where there are too few red blood cells;
- **Iodine** deficiency can cause a swelling in the neck called **goitre**.

Vitamin deficiency diseases -

caused when your diet lacks a particular vitamin:

- **Vitamin A** deficiency can cause **blindness**;
- **Vitamin C** deficiency causes **scurvy**, which makes the gums bleed;
- **Vitamin D** deficiency causes **rickets**, which makes the legs bow outwards in growing children.

7. Energy Imbalances In Diets

If the amount of energy you get from your food is different from the amount of energy you use, your diet will be imbalanced:

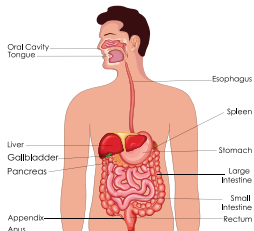
- Too little food/ energy can make you underweight
 - Too much food/ energy can make you overweight
- Imbalanced energy intake diseases:

Starvation - if you eat so little food that your body becomes very underweight. This can eventually cause death.

Obesity - when you eat so much food that your body becomes very overweight. Diseases linked with obesity include heart disease, diabetes, arthritis and stroke.

8. Stages of digestion

1. Digestion starts in the **mouth**, where teeth **mechanically digest** food during chewing. **Chemical digestion** begins here when the food mixes with saliva.
2. Food is swallowed as passes down the **oesophagus**.
3. When food reaches the **stomach**, the food continues to be **mechanically digested** when the stomach muscles contract to churn food. **Chemical digestion** also continues when the food mixes with acid and enzymes inside the stomach.
4. Most **digestion** happens inside the **small intestine** when the food mixes with **enzymes** and bile (**chemical digestion**), and is moved along the canal by **muscle contractions (mechanical digestion)**.
5. Digested food is **absorbed** into the bloodstream, by diffusion from the small intestine. Water is reabsorbed into the body in the small intestine.
6. Undigested food passes out of the anus as faeces.



The role of liver and pancreas

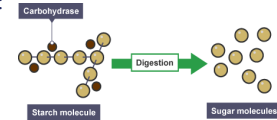
- The liver produces **bile**, which helps the digestion of lipids (fats and oil).
- The pancreas produces biological **catalysts** called digestive **enzymes** which speed up the digestive reactions.

9. Digestion

Digestion - when large **insoluble** food particles are broken down into small **soluble** particles so that they can be absorbed into our bloodstream. This is carried out by **enzymes** - special proteins that can break large molecules into small molecules.

Different enzymes can break down different nutrients:

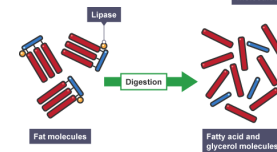
- **Carbohydrates** (e.g. starch) are broken down into **sugar** - by **carbohydrase** enzymes



- **Proteins** are broken down into **amino acids** - by **protease** enzymes;



- **Lipids** (i.e. fats and oils) are broken down into **fatty acids** and **glycerol** - by **lipase** enzymes.



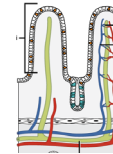
At very high temperatures, these enzymes will be **denatured**.

Digestive enzymes cannot break down dietary fibre, which is why the body cannot absorb it. Minerals, vitamins and water are not digested, as they are already small enough to be absorbed.

10. Villi

Absorption by diffusion across a surface happens efficiently if:

- The surface is thin;
 - Its area is large.
- The inner wall of the small intestine is adapted. It has:
- A thin wall, just one cell thick;
 - Many tiny **villi** to give a really big **surface area**.
- The villi contain blood **capillaries** to carry away the absorbed food molecules.



11. Role Of Bacteria

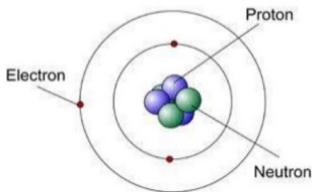
Bacteria in the digestive system are important because they:

- Can digest certain substances humans cannot digest;
- Reduce chance of harmful bacteria multiplying, causing disease;
- Produce vitamins that humans need e.g. vitamins B & K.

1. Atoms

Atoms are tiny particles that everything is made of. They are made of smaller particles called:

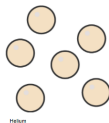
- **Protons** (+ positive)
- **Neutrons** (neutral)
- **Electrons** (- negative)



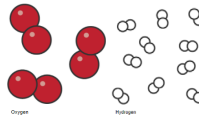
2. Elements

There are over a hundred different elements. Atoms have the same number of protons as each other.

Atoms of differing elements have a different number of protons. The atoms of some elements do not join together, but instead they stay as separate atoms, e.g. helium.



The atoms of other elements join together to make **molecules**, e.g. oxygen and hydrogen.

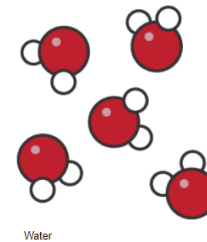


3. Compounds

A compound contains atoms of **two or more different elements**, and these atoms are **chemically joined together**.

For example, water is a compound of hydrogen and oxygen.

Each of its molecules contains two hydrogen atoms and one oxygen atom.



4. Chemical Formulae

Remember that we use chemical symbols to stand for the elements. For example, **C stands for carbon**, **O stands for oxygen**, **S stands for sulfur** and **Na stands for sodium**.

For a molecule, we use the chemical symbols of the atoms it contains to write down its formula. For example, the formula for **carbon monoxide is CO**.

It tells you that each molecule of carbon monoxide is made of one carbon atom joined to one oxygen atom.

Be careful about when to use capital letters. For example, CO means a molecule of carbon monoxide but **Co is the symbol for cobalt** (an element).

5. Chemical Symbols

Each element is given its own chemical symbol, like **H for hydrogen** or **O for oxygen**.

Chemical symbols are usually one or two letters long.

Every chemical symbol **starts with a capital letter, with the second letter written in lower case**. For example, Mg is the correct symbol for magnesium, but mg, mG and MG are wrong.

| Mg | mg | mG | MG |
|----|----|----|----|
| ✓ | ✗ | ✗ | ✗ |

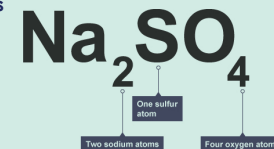
6. Numbers In Formulae

We use numbers to show when a molecule contains more than one atom of an element. The numbers are written **below** the element symbol. For example, CO₂ is the formula for carbon dioxide.

It tells you that each molecule has **one carbon atom** and **two oxygen atoms**.

The **small numbers go at the bottom**.

For example: CO₂ is correct; CO² and CO₂ are wrong.



Some formulae are more complicated. For example, the formula for sodium sulfate is Na₂SO₄. It tells you that sodium sulfate contains two sodium atoms (Na x 2), one sulfur atom (S) and four oxygen atoms (O x 4).

7. Properties of elements in the same group (1 and 7)

| Group 7 | Melting point | Density | Reactivity | Group 1 | Melting point | Density | Reactivity |
|----------|-------------------------------|-------------------------------|-------------------------------|-----------|-------------------------------|-------------------------------|-------------------------------|
| Fluorine | Increases down the group ↓ | Increases down the group ↓ | Decreases down the group ↓ | Lithium | Decreases down the group ↓ | Increases down the group ↓ | Increases down the group ↓ |
| Chlorine | | | | Sodium | | | |
| Bromine | | | | Potassium | | | |
| Iodine | | | | Rubidium | | | |

8. Metals

Metals have properties in common. They are:

- **Shiny**, especially when they are freshly cut.
- **Good conductors** of heat and electricity.
- **Malleable** (they can be bent and shaped without breaking).

9. Properties of metals

Most metals also have other properties in common. They are:

- **Solid** at room temperature, except mercury.
- **Hard and strong**.
- They have a **high density**.

10. Periodic Table

The elements are arranged in a chart called the periodic table. A Russian scientist, Mendeleev, produced the first periodic table in the 19th century.

The modern periodic table is based closely on the ideas he used:

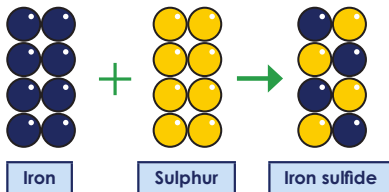
- The elements are arranged in order of increasing atomic number (number of protons).
- The **horizontal** rows are called **periods**.
- The **vertical** columns are called **groups**.
- Elements in the same group have the same number of electrons in their outside shell.

| | 1 | 2 | ← Group Number → | | | | | | | | | | 3 | 4 | 5 | 6 | 7 | 0 |
|--|----|----|------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | Li | Be | | | | | | | | | | | | | | | | He |
| | Na | Mg | | | | | | | | | | | | | | | | Ne |
| | K | Ca | Sc | Ti | V | Cr | Mn | Fe | Co | Ni | Cu | Zn | Ga | Ge | As | Se | Br | Kr |
| | Rb | Sr | Y | Zr | Nb | Mo | Tc | Ru | Rh | Pd | Ag | Cd | In | Sn | Sb | Te | I | Xe |
| | Cs | Ba | La | Hf | Ta | W | Re | Os | Ir | Pt | Au | Hg | Tl | Pb | Bi | Po | At | Rn |
| | Fr | Ra | Ac | | | | | | | | | | | | | | | |

■ Metals ■ Non-metals

1. Chemical Reactions

When chemicals react, the atoms are rearranged. For example, iron reacts with sulfur to make iron sulfide.



Iron sulfide, the compound formed in this reaction, has different properties to the elements from which it is made.

| | Iron | Sulfur | Iron sulfide |
|--|-----------------|-------------|--|
| Type of substance | Element | Element | Compound |
| Colour | Silvery grey | Yellow | Black |
| Is it attracted to a magnet? | Yes | No | No |
| Reaction with hydrochloric acid | Hydrogen formed | No reaction | Hydrogen sulfide formed, which smells of rotten eggs |

- The atoms in a compound are joined together by forces called **bonds**.
- The properties of a compound are different from the elements it contains.
- You can only separate its elements using another chemical reaction.
- Separation methods like filtration and distillation will not do this.

2. Chemical Equations

We summarise chemical reactions using equations:

Reactants → products

- **Reactants** are shown on the **left** of the arrow;
- **Products** are shown on the **right** of the arrow.

Do not write an equals sign instead of an arrow.

If there is more than one reactant or product, they are separated by a + sign. For example:

Copper + oxygen → copper oxide

Reactants: copper and oxygen

Products: copper oxide

A **word equation** shows the names of each substance involved in a reaction, and **must not include any chemical symbols or formulae**.

4. Conservation Of Mass

When atoms are rearranged in a chemical reaction, they are not destroyed or created.

- **Reactants** - the substances that react together
- **Products** - the substances that are formed in the reaction
- **Mass is conserved** in a chemical reaction, this means...
- Total mass of the reactants = total mass of the products

3. Symbol equations

A balanced **symbol equation** includes the **symbols** and **formulae** of the substances involved. For example:

Word equation:

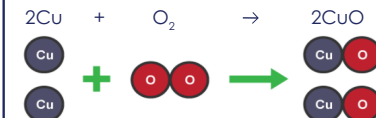
Copper + Oxygen → Copper Oxide

Symbol equation (unbalanced):

$\text{Cu} + \text{O}_2 \rightarrow \text{CuO}$

There is one copper atom on each side of the arrow, but two oxygen atoms on the left and only one on the right. This is **unbalanced**.

A **balanced equation** has the **same number of each type of atom on each side of the arrow**. Here is the balanced symbol equation:



Some more examples of balanced symbol equations

- $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$
- $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$
- $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$
- $\text{CuCO}_3 \rightarrow \text{CuO} + \text{CO}_2$
- $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$

Take care when writing formula – e.g. for carbon dioxide: CO_2 NOT CO^2 or Co_2

1. Electric charge

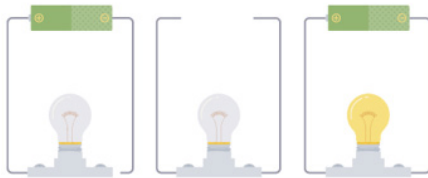
Some particles carry an electric **charge**.
In electric wires these particles are **electrons**.

Electric current

An electric current is a flow of charge, and in a wire this will be a flow of electrons.

We need two things for an electric current to flow:

- Something to transfer energy to the electrons, such as a battery or power pack.
- A complete circuit for the electrons to flow through.

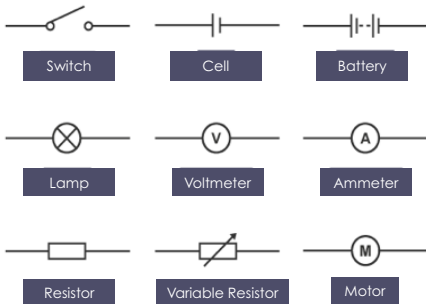


incomplete circuit

No battery

Complete circuit

2. Circuit Symbols



3. Conductors And Insulators Of Electricity

Different materials have different resistances:

- An electrical **conductor** has a **low resistance**;
- An electrical **insulator** has a **high resistance**.

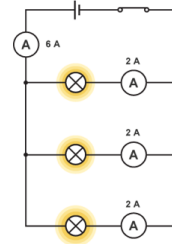
| Conductors | Insulators |
|--|---|
| Metal elements | Most non-metal elements, e.g. sulfur, oxygen |
| Graphite (a form of carbon, a non-metal element) | Diamond (a form of carbon, a non-metal element) |
| Mixtures or metals, e.g. brass, solder | Plastic |
| Salt solution | Wood |
| Liquid calcium chloride | Rock |

4. Parallel circuits

In a parallel circuit, the components are connected on different branches of the wire.

When components are connected in parallel, the current is **shared** between the components.

If a bulb breaks in a parallel circuit, the other bulb will remain lit.



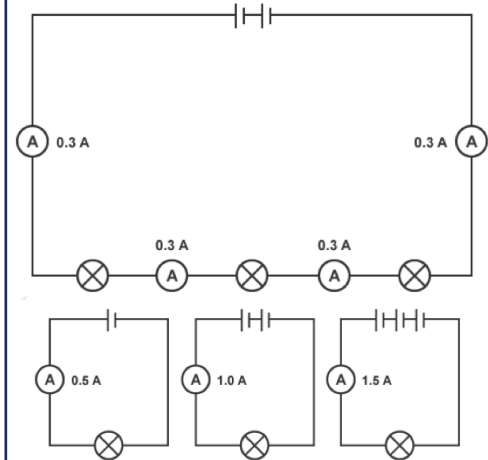
5. Series circuits

In a series circuit, the components are connected in series (one after the other) on a single loop of wires.

The current is **the same** everywhere in the circuit.

Current is **not** used up by the components.

Adding cells, increases the current.

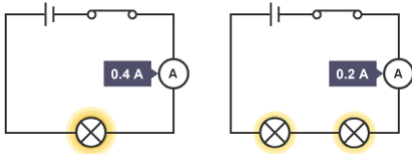


6. Resistance

Wires and the components in a circuit reduce the flow of charge. This is called **resistance**. The unit of resistance is the ohm (Ω).

Adding components

The resistance increases when you add more components in series.



7. Calculating Resistance

To find the resistance of a component, you need to measure:

- The potential difference across it;
- The current flowing through it.

The resistance is the ratio of potential difference to current. We use this equation to calculate resistance:

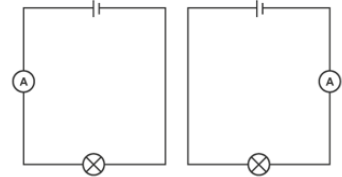
Resistance = potential difference \div current

8. Current

The more charge that flows, the bigger the current. Current is measured in **amperes (A)**. This can be shortened to **amps**.

Measuring current

We measure current using an **ammeter**. It is connected in **series**.

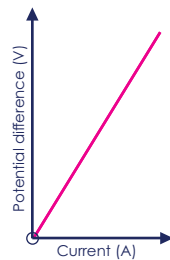
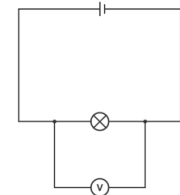


9. Potential Difference

Potential difference is a measure of the difference in energy between two parts of a circuit. The bigger the difference in energy, the bigger the potential difference. Potential difference is measured in **volts (V)**. It is sometimes called **voltage**.

Measuring potential difference

Potential difference is measured using a device called a voltmeter. It is connected in **parallel**.



| | Current | Potential difference |
|---|-------------------|-----------------------|
| Unit | ampere. A | volt. V |
| Measuring device | Ammeter in series | Voltmeter in parallel |
| Circuit symbol of measuring device | | |

1. Bar Magnets

Most materials are not magnetic.
A magnetic material can be **magnetised** or will be attracted to a magnet.

Not all metals are magnetic.

These metals are magnetic:

- Iron
- Cobalt
- Nickel
- Steel (because it contains iron).

A bar magnet is a **permanent magnet** - its magnetism cannot be turned on or off.

A bar magnet has two magnetic poles:

- North pole (or north-seeking pole)
- South pole (or south-seeking pole)



Attract and repel

Opposite poles will attract, and like poles will repel.

Testing for magnets

You can only show that an object is a magnet if it repels a known magnet.

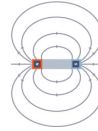
2. Magnetic Fields

A magnet creates a magnetic field around it (you cannot see a magnetic field)

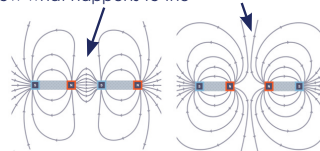
A **non-contact force** is exerted on a magnetic material brought into a magnetic field. It is **non-contact force** because the magnet and the material do not have to touch each other.

We represent magnetic fields using diagrams

- Each field line has an arrow from **north to south**;
- The field lines are more concentrated at the poles;
- The magnetic field is strongest at the poles.

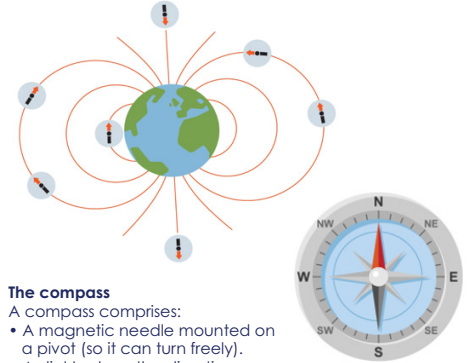


Field lines also show what happens to the magnetic fields of two magnets during attraction or repulsion.



3. The Earth's Magnetism

The Earth behaves as if it contains a giant bar magnet. Its magnetic field lines are most concentrated at the poles. This magnetic field can be detected using magnetic materials or magnets.



The compass

A compass comprises:

- A magnetic needle mounted on a pivot (so it can turn freely).
- A dial to show the direction.

If the needle points to the N on the dial, you know that the compass is pointing north.

4. Electromagnets

When an electric current flows in a wire, it creates a magnetic field around the wire.

The magnetic field around an electromagnet is the same as around a bar magnet.

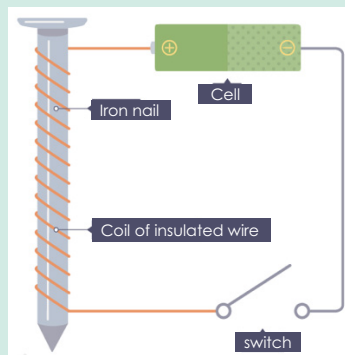
We can make the electromagnet stronger by:

- Wrapping the coil around a piece of iron (such as an iron nail)
- Adding more turns to the coil
- Increasing the current flowing through the coil

Too much current can cause heating.

Advantages of electromagnets:

- They can be turned on and off
- The strength of the magnetic field can be varied
- Reversing the current (turning the battery around), reverses the direction of the field (swaps the poles)



5. Uses of Electromagnets

Electric bells and DC motors contain electromagnets.

DC motors

Passing an electric current through a wire in a field will make the wire move.

This is called the **motor effect**.

The diagram shows a simple electric motor:

- There is an electric current in the coil of wire;
- This generates a magnetic field;
- Which interacts with the fixed magnets;
- This makes the coil rotate.

The speed of the motor can be increased by:

- Increasing the **strength of the magnetic field**;
- **Increasing the current** flowing through the coil.

6. Atoms And Electrons

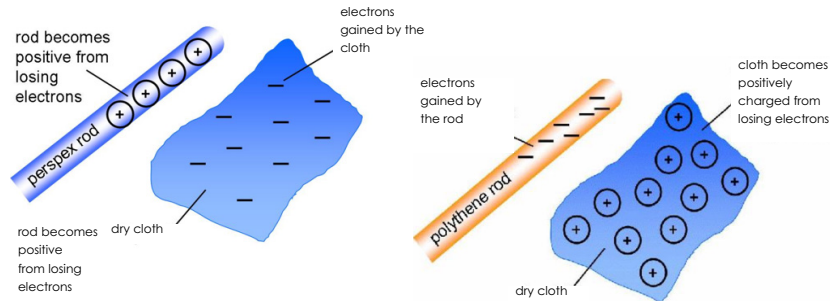
All substances are made of **atoms**.
These are often called **particles**.
An atom has no overall electrical charge (**electrically neutral**);
Each atom contains even smaller particles called **electrons**.
Each electron has a negative charge.

- Atom **gains** an electron, it becomes **negatively charged**.
- Atom **loses** an electron, it becomes **positively charged**.

Electrons can move from one substance to another when objects are rubbed together.

7. Moving Charges

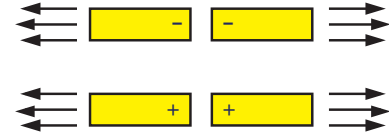
When you rub two different materials against each other, they become electrically charged. This only works for electrically insulated objects and not with materials like metals, which conduct and the duster becomes positively charged.



8. Atoms And Electrons

A charged object creates an **electric field** (you cannot see an electric field).
If another charged object is moved into the electric field, a force acts on it.
The force is a non-contact force because the charged objects do not have to touch for the force to be exerted.

opposite charges attract



like charges repel

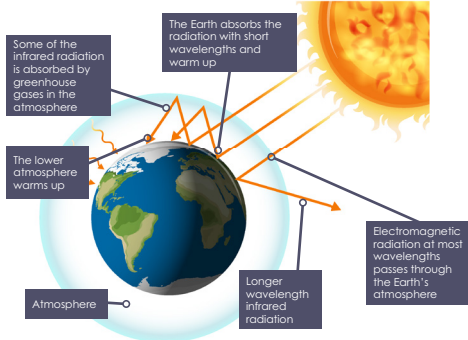
Electric fields

We represent electric fields using diagrams (just like with magnetic fields):

- Each field line has an arrow from **positive to negative**;
- The field lines are more concentrated where the field is strongest.

1. The Greenhouse Effect

- Thermal energy from the Earth's surface escapes into space.
- If too much thermal energy escaped, the planet would be very cold.
- Greenhouse gases in the atmosphere trap escaping thermal energy.
- This causes some of the thermal energy to pass back to the surface.
- This is called the greenhouse effect, and it keeps our planet warm.
- Carbon dioxide is an important greenhouse gas.

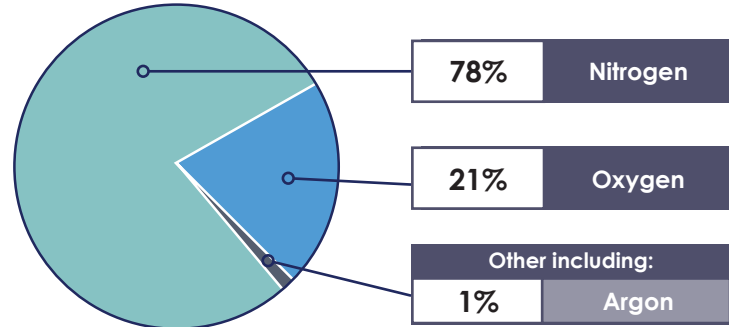


- Humans burn fossil fuels which releases carbon dioxide, increasing the greenhouse effect.
- More thermal energy is trapped by the atmosphere, causing the planet to become warmer than it would be naturally. This increase in the Earth's temperature is called **global warming**.

Climate change and its effects as a result of global warming includes:

- Ice melting faster than it can be replaced in the Arctic and Antarctic.
- The oceans warming up – their water is expanding and causing sea levels to rise.
- Changes in where different species of plants and animals can live.

2. The Earth's Atmosphere

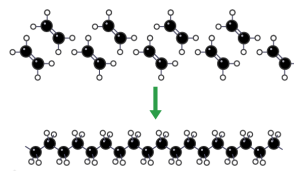


3. Ceramic Materials

- Solids made by baking a starting material in a very hot oven or kiln
- Are hard and tough
- Have very many different uses
- Examples: brick and pottery

4. Polymers

Polymers are made by joining lots of small molecules together to make long molecules.



Properties of polymers:

- Chemically unreactive
- Solids at room temperature
- Plastic – they can be moulded into shape
- Electrical insulators
- Strong and hard-wearing
- usually chemically unreactive

Advantage: plastic bottles will not react with their contents.
Disadvantage: they do not rot quickly and they can cause litter problems.

5. Composites

Composite materials are made from two or more different types of material.

E.g. MDF is made from wood fibres and glue; fibreglass is made from glass fibres and a tough polymer.

Reinforced concrete is a composite material made from steel and concrete. When the concrete sets, the material is:

- Strong when stretched (because of the steel)
- Strong when squashed (because of the concrete)

6. Sedimentary Rocks

Sedimentary rocks are formed from the broken remains of other rocks that become joined together.

Transport → **deposition** → **sedimentation** → **compaction** → **cementation**

- **Transport:** A river carries pieces of broken rock as it flows along.
- **Deposit:** When the river reaches a lake/sea, it settles at the bottom.
- **Sedimentation:** The deposited rocks build up in layers, called sediments.
- **Compaction:** Weight of sediments on top squashes sediments at bottom.
- **Cementation:** Water is squeezed out from between pieces of rock and crystals of different salts form. The crystals stick the pieces of rock together.

7. Igneous Rocks

Igneous rocks are formed from molten rock that has cooled and solidified.

Molten (liquid) rock is called magma. If it:

- Cools **slowly**, it will form rock with **large** crystals
- Cools **quickly**, it will form rock with **small** crystals

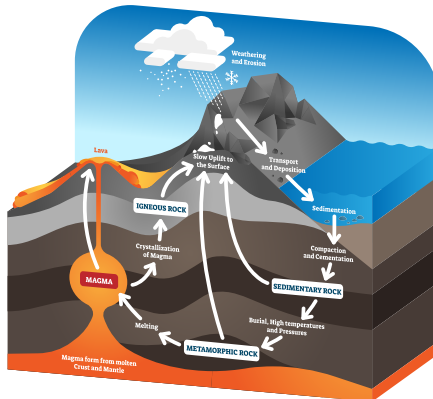
| | Extrusive | Intrusive |
|---------------------------|---------------------|--------------------|
| Where the magma cooled | On the surface | Underground |
| How fast the magma cooled | Quickly | Slowly |
| Size of crystals | Small | Large |
| Examples | Obsidian and basalt | Granite and gabbro |

8. Metamorphic Rocks

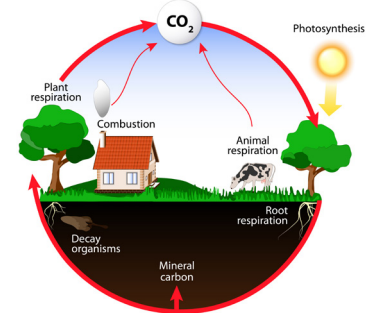
Metamorphic rocks are formed from other rocks that are changed because of heat or pressure.

- Earth movements can cause rocks to be deeply buried or squeezed.
- These rocks are heated and put under great pressure.
- They do not melt, but the minerals they contain are changed chemically, forming metamorphic rocks.
- Metamorphic rocks rarely contain fossils. Any that were present in the original sedimentary rock will not normally survive the heat and pressure.

9. The Rock Cycle



10. The Carbon Cycle



11. Recycling

The Earth's resources are limited. We can recycle many resources, including:

- **Glass:** It can be melted and remoulded to make new objects.
- **Metal:** It takes less energy to melt and remould metals than it does to extract new metals from their ores.
- **Paper:** It is broken up into small pieces and reformed to make new sheets of paper.
- **Plastic:** Recycling means that we use less crude oil, the raw material needed for making plastics.

A. Key People

1. **Martin Luther:** A German monk who triggered the Reformation with his 95 Point Thesis.
2. **Henry VIII:** King 1509-47 who began the English Reformation with his divorce.
3. **Thomas Wolsey:** Henry VIII's Lord Chancellor from 1515 to 1529 and the Pope's representative in England.
4. **Catherine of Aragon:** Henry VIII's first wife who provided him with one daughter (Mary) and who was the daughter of the king and queen of Spain. She promoted education for women and led the English army to a victory in Scotland when her Henry VIII was fighting in France.
5. **Anne Boleyn:** Henry VIII's second wife, who was executed in 1536 for adultery after birthing him a daughter (Elizabeth).
6. **Thomas Cromwell:** Henry VIII's chief minister from 1532, a lawyer and a strong Protestant.
7. **John Blanke:** African trumpet player, successful in Henry VIII's court, there were thought to have been around 200 Africans living in England during Henry's reign.
8. **Walter William:** Merchant selling cloth and wool to foreign countries.
9. **Humphrey Middlemore:** A monk devoted to God lived in a monastery.
10. **Herry Beryes:** A farmer living off the land, his crops would mainly go to his lord.

B. Catholic Church v Protestantism

Keywords:

1. **Absolutism:** The forgiving of a person's sins.
2. **Corruption:** The dishonest behaviour by those in power.
3. **Transubstantiation:** A Catholic belief that the bread and wine taken during Mass actually transform into the physical body and blood of Christ.
4. **Vestments:** Garments worn by priests.
5. **Heretic:** Someone with religious views that disagree with official church teaching.
6. **Printing Press:** A revolutionary invention created by Gutenberg in 1455.
7. **Reformation:** A movement in the 16th century which led to a break with the Catholic church and the beginning of the Protestant church.
8. **Protestant:** A new form of Christianity emerging in the 16th century in protest against Catholicism.
9. **Salvation:** To be delivered from sins and its consequences.



C. What Type Of King Was Henry VIII?

Keywords:

1. **Heir:** A person who inherits the throne.
2. **Usurper:** A person who has taken a position of power illegally or by force.
3. **Machiavellian:** To be cunning and scheming, especially in politics.
4. **Renaissance Man:** To be well-read, cultured, artistic and thoughtful.



D. Why Did Henry Break With Rome?

Keywords:

1. **Annulment:** To declare that a marriage never actually existed.
2. **Dissolution of the monasteries:** Henry VIII's actions to strip English monasteries of their wealth and treasures.
3. **Revenue:** The annual amount earned by the King and country to pay for wars and other expenses.
4. **Faction:** Political groups who fought for power and influence over Henry.
5. **Royal Supremacy:** The king replaced the Pope as supreme religious power in England.
6. **Superstition:** Believing in ideas that seem magical and supernatural.
7. **Litany:** A long prayer, usually led by a priest, involving responses from the worshippers.

Key dates:

- 1509 - Henry VIII comes to the throne.
- 1517 - Martin Luther nails his 95 Thesis to the Church door in Gutenberg, Germany.
- 1525 - Henry loses interest in Catherine of Aragon and meets Anne Boleyn.
- 1528-29 - Henry attempts to divorce Catherine of Aragon for failure to produce an heir.
- 1529 - Wolsey is stripped of his title.
- 1533 - Henry and Anne Boleyn marry in secret.
- 1534 - The Act of Supremacy is passed.
- 1536 - Henry dissolves the monasteries for the funds; Anne Boleyn is executed.
- 1539 - Parliament passed the Six Articles.

Unit 2: Elizabethan Religion

A. Changes To The Church

Key people:

1. **Edward VI:** Henry VIII's only son and heir. King 1547-53. He was a stricter Protestant than his father.
2. **Mary I:** Henry's daughter by Catherine of Aragon. Queen 1553-58. She was a devout Catholic.
3. **King Philip II of Spain:** A devout Catholic, married Mary I.

Keywords:

1. **Book of Common Prayer:** A book of prayers written for Church of England services in English.
2. **Counter-Reformation:** The Catholic fight back against the spread of Protestantism.
3. **Martyr:** A person who is killed for their beliefs.
4. **Propaganda:** A piece of biased art or information used to promote a particular point of view.

Key dates:

- 1547 - Edward VI crowned king.
1553 - Lady Jane Grey queen for nine days before Mary I crowned.
1554 - Mary I marries Phillip I and begins Catholic counter-reformation.

B. The Religious Settlement

Key people:

Elizabeth I: Henry's daughter by Anne Boleyn. Queen 1558-1603. A Protestant and more tolerant than her brother and sister.



Keywords:

1. **Act of Supremacy:** Made Elizabeth supreme governor of the Church of England.
2. **Act of Uniformity:** Established the appearance of churches and the form of services held.
3. **Royal Injunctions:** Set of instructions enforcing the Acts of Supremacy and Uniformity.
4. **Papal Bull:** A formal announcement made by the Pope.
5. **Puritans:** A group of radical Protestants who wore simple clothing and tried to live without sin.
6. **Recusants:** Catholics who were unwilling to attend church services laid down by the religious settlement.

Key dates:

- 1559 - The Acts of Uniformity and Supremacy are passed.

C. The Catholic Threat

Key people:

1. **Mary Queen of Scots:** Great-granddaughter of Henry VIII and devout Catholic.
2. **William Cecil:** Elizabeth's chief advisor, a Protestant, who uncovered a plot.
3. **Francis Walsingham:** Elizabeth's spymaster who uncovered several plots.
4. **Roberto Ridolfi:** Arranged a plot to murder Elizabeth, launch a Spanish invasion and put Mary Queen of Scots on the throne.

Keywords:

1. **Priest hole:** Secret hiding places in the homes of Catholics sheltering Catholic priests.
2. **Turning point:** A moment at which a decisive change in a situation occurs.

Key dates:

- 1570 - The Pope issues a Papal Bull against Elizabeth declaring her a heretic.
1571 - The Ridolfi Plot.
1583 - The Throckmorton Plot.
1586 - The Babington Plot.

D. The Armada

Key people:

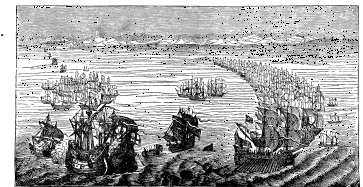
King Philip II of Spain: A former king of England and the most powerful monarch in Europe who was determined to bring England under Catholic control.

Keywords:

1. **Armada:** Fleet of Spanish warships sent to invade England in 1588.
2. **Anglicanism:** The religion of the Church of England.

Key dates:

- 1588 - The Spanish Armada sets sail for England.



Unit 3: The English Civil War

A. Gunpowder Plot

Key people:

- James I:** Protestant King of Scotland becomes King of England in 1603.
- Robert Catesby:** Led the group of conspirators to blow up parliament.
- Guy Fawkes:** An explosive expert caught red-handed lighting the barrels of gunpowder under Parliament.

Keywords:

- Conspiracy:** A secret plan to do something unlawful or harmful.
- Parliament:** A collection of people representing all parts of England, who approve or reject laws.

B. Long-Term Causes

Key people:

- Charles I:** King of England from 1625, suspected to be secretly Catholic (pictured).
- Henrietta Maria:** Charles I's French Catholic wife.
- Archbishop Laud:** Appointed by Charles I, tried to end Puritan practices.



Keywords:

- Absolutist:** A ruler who has supreme authority and power.
- Eleven-Years Tyranny:** From 1629 until 1640 Charles I ruled without calling Parliament once.
- Ship money:** A tax imposed on coastal towns to pay for their defence from naval attack during a war.

C. Short-Term Causes

Key people:

John Pym: The leader of a group of five MPs who were particularly critical of Charles.



Keywords:

- Bishops' War:** An uprising against Charles I's religious reforms which began in Scotland.
- Grand Remonstrance:** A summary of the criticisms that parliament had of the king.
- Eleven-Years Tyranny:** From 1629 until 1640 Charles I ruled without calling Parliament once.
- Long Parliament:** A parliament, which met, on and off, from 1640-1660.

D. What Happened After The War?

Key people:

Oliver Cromwell: Former leader of the New Model Army, becomes Lord Protector in 1653 (pictured).



Keywords:

- Commonwealth:** The period when England ceased to be a monarchy, and was at first ruled by Parliament.
- Godly Providence:** A belief that events are governed by the direct intervention of God in the world.
- Newcastle Propositions:** A series of Parliament's demands in 1646, rejected by Charles.
- Rump Parliament:** The remaining members of Parliament after it was purged.

E. Why Was The Monarchy Restored?

Key people:

- Charles II:** Charles I's son appointed king, restoring the monarchy.
- General Monck:** Took it upon himself to close down parliament and order elections for the first time in almost 20 years.

Keywords:

- Declaration of Breda:** A set of promises made by Charles II prior to his restoration to the monarchy.
- Regicide:** The deliberate killing of a monarch, or the person responsible for doing so.
- Eleven-Years Tyranny:** From 1629 until 1640 Charles I ruled without calling Parliament once.
- Restoration:** The return of the monarch to England with Charles II's coronation in May 1660.

Timeline

| | | | | | | | | | | | |
|--------------------------------------|------------------------------------|---|---|--|--|--|---|--|--|---|--|
| 1603 James I becomes king. | 1605 The Gunpowder Plot. | 1625 Charles I becomes King of England. | 1629 The start of the 'eleven-years tyranny'. | 1637 Archbishop Laud introduces his prayer book to Scotland. | 1640 Charles I recalls Parliament to pay for the Bishops' War. | 1642 The English Civil War breaks out. Lasted until 1651. | 1648 Parliament wins the Second Civil War; trial and execution of Charles I; England declared a Commonwealth. | 1653 Oliver Cromwell becomes 'Lord Protector'. | 1658 Death of Oliver Cromwell. | 1660 Charles II is crowned King, beginning the Restoration . | 1688 The Glorious Revolution. Mary and her Dutch husband overthrow of Catholic James II. |
|--------------------------------------|------------------------------------|---|---|--|--|--|---|--|--|---|--|

Unit 4: The Transatlantic Slave Trade

A. Key People

1. **John Newton:** Worked on slave ships as a young man. After a Christian conversion he renounced the slave trade and became a prominent abolitionist.
2. **Thomas Clarkson:** A key campaigner for abolition. He formed the **Society for the abolition of the Slave Trade** in 1787.
3. **Toussaint L'Ouverture:** Led the St Domingue, or Haitian, rebellion which defeated the French and British.
4. **William Wilberforce:** An MP for Yorkshire between 1784-1812. In 1787 he was persuaded to lead the political movement for abolition. He proposed multiple bills.
5. **Olaudah Equiano:** An ex-slave who had fought repeatedly for his freedom. He wrote an autobiography in 1789 called 'The interesting narrative of the life of Olaudah Equiano'.
6. **Adam Smith:** A leader of The Enlightenment movement; he was an economist and a philosopher from Scotland.

B. Africa and the British Empire

Keywords:

1. **Transatlantic slave trade:** The forced movement of around 12-15 million Africans across the Atlantic Ocean to the Americas, where they were used as slaves, between the 16th-19th centuries.
2. **Empire:** A group of countries ruled over by a single monarch, ruler, or sovereign state.
3. **Colony:** An area of land settled by and under the control of people from another country.
4. **The Americas:** Refers to anywhere Slaves were shipped to in the region.

Key dates:

1607-1732 - British colonies were established in North America.

C. The Transatlantic Slave Trade

Keywords:

1. **Trade Triangle:** The trade routes for the slave trade.
2. **Middle Passage:** The second section of the Trade Triangle which transported slaves between West Africa across the Atlantic to the Americas.
3. **Slave auction:** A place where slaves were sold by the traders and bought by the plantation owners.
4. **Plantation:** Farms or estates in The Americas where crops were grown, usually, cotton, sugar, coffee and tobacco.

Key dates:

November 1781 - 133 sick slaves thrown off the slave ship Zong.

D. Abolition

Keywords:

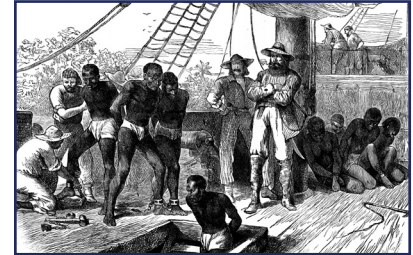
1. **Abolition:** Banning or getting rid of something.
2. **Campaign:** An organised course of action to achieve a goal.
3. **The Enlightenment:** New ways of thinking that emerged in the 18th century which emphasised reason and logic over tradition and superstition.
4. **Slave rebellions:** An armed uprising by slaves.
5. **Resistance:** Refusing to cooperate.
6. **Free market:** An economic system based on supply and demand.
7. **Petitions:** A list of requests or demands signed by many people.
8. **Boycott:** When people refuse to buy something as a protest.

Key dates:

1791 - Haitian/St Domingue rebellion led by Toussaint L'Ouverture.

1804 - The independent state of Haiti declared.

1807 - The slave trade was abolished by parliament.



E. Harriet Tubman

Keywords:

1. **Manumission:** Released from Slavery.
2. **Underground Railroad:** A secret network for helping slaves escape from South to North, in the years leading up to the American Civil War.
3. **Emancipation:** The process of being set free.

Key dates:

1849 - Harriet Tubman escapes from slavery, twice.

1850 - Harriet Tubman became a conductor on the **underground railroad**.

1863 - Harriet Tubman helps Northern Union Soldiers during the American Civil War.

1913 - Harriet Tubman dies.



Unit 5: The Industrial Revolution

A. Keywords

- Agriculture:** Production of food by farming of plants or raising animals.
- Commodities:** A raw material that can be bought and sold, such as coffee and cotton.
- East India Company:** The main trading company with India, Britain imported cotton from India.
- Economy:** The system of how money is used within a country.
- Industrial Revolution:** The change from an agrarian (farming) society to an industrial one, which fuelled the empire.
- Revolution:** A change which means nothing will ever be the same again.
- Telegram:** Used to communicate over long distance since 1881.
- The British Empire:** The British Empire was the mechanism to import raw materials and export manufactured products to sell and make profit.

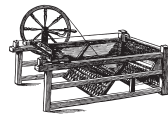
B. Inventors

- Isambard Kingdom Brunel:** An engineer who designed the Great Western Railway, dockyards and steamships.
- George Stephenson:** Known as the 'father of railways' he engineered the first passenger train between Stockton and Darlington in 1825.
- James Hargreaves:** Handloom weaver who designed the Spinning Jenny (pictured), which spun 8 threads at once.
- James Watt:** An engineer who designed an efficient steam engine for commercial use in 1776.
- Richard Arkwright:** An industrialist who designed the water frame (used water power to spin cotton) and built many factories, such as Cromford in 1771. (Water wheel in picture).



C. Factories

- Cottage Industry:** Industry that was carried out in people's homes before factories, such as weaving.
- Cromford Mill:** Arkwright's first factory (pictured).
- Factory System:** The production of manufactured goods on a large-scale using machines in factories, introduced in Britain in the late 18th century.
- Luddite:** A person opposed to new technology or ways of working, they destroyed equipment in factories.
- Manufacturing:** The making and production of things on a large scale e.g. cloth.
- Mass Production:** The production of many products in one go.



D. Transport

- Canals:** A system of transportation, such as coal from collieries to mills, factories and towns, it was slow and expensive.
- Collieries:** A coal mine.
- Locomotive:** An early steam train.

E. Poverty and Reform

Keywords:

- Overcrowding:** Many families living together in slums led to poor health and spread of disease.
- Philanthropy**
- Poverty:** The lack of basic human needs such as clean water, nutrition, healthcare, education and shelter.
- Reform**
- Sanitation:** The system that helps get rid of human waste.
- Slums:** Inadequate housing where the poorest in society live.
- Trade Union Congress:** Founded in 1864 to support the rights of workers in factories.
- Workhouses:** Institution built to provide work and accommodation for the poor and unemployed.

Key people:

- Elizabeth Fry:** A philanthropist and social reformer known for her work on prison reform.
- Edward Jenner:** Jenner discovered vaccination in 1796. This discovery saved millions of lives.
- Robert Peel PM:** Conservative Home Secretary and Prime Minister that founded the Metropolitan Police.
- Seebohm Rowntree:** Rowntree researched people living in poverty and argued that the government needed to do more to help them.
- John Snow:** A doctor who traced cholera to a pump in Broad Street and challenged the belief in miasma.

Timeline

| | | | | | | | | | | | | |
|--|---|---|---|---|--|--|--|---|---|--|--|--|
| 1717 The steam engine was pioneered. | 1750 The Battle of Plassey (India) saw Britain control Indian cotton. | 1761 The Bridgewater canal was opened to supply coal to Manchester. | 1764 Hargreaves invents the Spinning Jenny. | 1769 Arkwright invents the Water Frame. | 1771 Arkwright's first factory opened at Cromford. | 1776 Watt builds his first functioning steam engine. | 1794 The cotton gin was invented cotton from America valuable. | 1813 In one day, 14 Luddites were hung in Manchester. | 1814 Stephenson invents the locomotive. | 1830 Opening of Liverpool to Manchester railway. | 1818 The Factory Act was passed to protect children at work. | 1912 British manufacturing reached its peak. |
|--|---|---|---|---|--|--|--|---|---|--|--|--|

Unit 6: The British Empire

A. Keywords

- Colony:** A country ruled by another.
- Colonisation:** The process of establishing control over others and claiming land.
- Commonwealth:** An association of former colonies that retain strong links to the British Crown today.
- Crystal Palace Exhibition:** Opened in 1851 by Queen Victoria it exhibited the best of Britain and the Empire.
- Decolonisation:** The process of a colony leaving an empire and becoming independent.
- Empire:** A group of countries ruled over by one leader or monarch.
- Independence:** Political and economic freedom.
- Indigenous:** A native person that comes from the land, pre-colonisation.
- Industrial Revolution:** The change from an agrarian (farming) society to an industrial one, which fuelled the empire.
- Legacy:** What is left behind and remembered.
- Mutiny:** A rebellion or protest.
- Partition:** When a state is divided in two.
- Queen Victoria:** The monarch that ruled at the height of the British Empire.

B. The Americas

- 13 Colonies:** The original 13 British colonies that formed America in 1783.
- American war of Independence:** When American 13 colonies fought against the British to gain independence, 1775-1783.
- Hudson Bay Trading Company:** Traded furs along the Hudson River (Canada) from 1670.
- Napoleonic wars:** Between the British and French Empires, conflicted over colonies like Canada.
- Walter Raleigh:** The explorer who founded Britain's first Colony for Queen Elizabeth I.



C. India

- British Raj:** Also called direct rule, this is when the British crown ruled India.
- Caste system:** A system in India that divides society into groups that they cannot move out of because it is based on race.
- Dadabhai Naoroji:** The first Asian to be an MP, 1892-1895 for the Liberal party.
- East India Trading Company:** The main trading company with India, Britain imported cotton from India prior to the Americas.
- Mahatma Gandhi:** An Indian lawyer who believed in peaceful protest and Indian independence.
- Marital race:** The way the British classified each caste after the Indian rebellion on their abilities.
- Migration:** The movement of people, e.g. Indians to work in Africa.
- Resistance:** Can be military or passive, such as working slowly.
- Sake Dean Mohamed:** An Indian immigrant who wrote books and opened up many enterprises, including the first Indian restaurant in London.

D. Africa

- Cecil Rhodes:** Pro-colonial businessman/ politician who spent a lot of time in South Africa, Rhodesia was named after him.
- Royal African Company:** An English trading company with connections to the crown (Charles II).
- Scramble for Africa:** When European nations competed between 1880-1900 for African territory.
- Transatlantic slave trade:** This trade fuelled the financial success of the British Empire.

E. Ireland

- Black and Tans:** British militia brought in to police Ireland and renowned for brutality.
- Home Rule:** A policy advocating that Ireland gets its own government.
- Easter Rising:** An Irish rebellion in 1916.
- Michael Collins:** The leader of the IRA during the Irish war of independence, 1919-1921.

F. Australia

- Aborigines:** Indigenous people of Australia.
- Penal Colony:** Where convicts were exiled to as a punishment.
- Genocide:** The deliberate killing of a large number of people from an ethnic group with the aim to destroy their race.
- King Billy Lanney:** The last full blooded Tasmanian aborigine man, treated inhumanely in life and whose body was experimented on after he died.
- Truganini:** The last full blooded Tasmanian aborigine woman who suffered greatly.
- William Cuffey:** A successful black charist campaigner who was sent to the Tasmanian penal colony.

Timeline

| | | | | | | | | | | | |
|--|--|---|---|--|--|--|---|--|--|--|--|
| 1584 Sir Walter Raleigh founds a colony in America, called Virginia. | 1757 The East India Company takes control of Bengal (India). | 1770 Britain 'claim' Australia. | 1783 American Independence and USA is formed. | 1802 Tasmanian genocide began. | 1857 The 'Indian Mutiny', or the First War of Independence | 1858 The British government took control of India. | 1899 The British use concentration camps for the first time during the South African war. | 1919 Amritsar massacre, India. | 1922 Ireland is partitioned. | 1947 India and Pakistan gain independence. | 1957 Ghana gains independence. |
|--|--|---|---|--|--|--|---|--|--|--|--|

Background

1. Coastlines are dynamic changing landscapes, which are affected by the action of the waves.
2. Waves can have differing features; these features can influence the processes and landforms which may develop. **(A)**
3. Destructive waves can erode the coastline. **(B)**
4. Through erosion a number of distinctive coastal features can form. **(D, E, F)**
5. Further processes act on the coastline, leading to material being transported along the coastline. **(C)**
6. This material will eventually be deposited leading to the formation of landforms such as spits. **(G)**
7. Coastal erosion can impact the landscape and people.
8. Different strategies are used to reduce erosion. **(H)**
9. Often these strategies can be controversial. **(I)**

A - The Three Types Of Rock (5)

| | |
|--------------------------|--|
| Swash | Movement of a wave up the beach. The direction is dependent upon the prevailing (common) wind direction. |
| Backwash | Movement of a wave back down the beach, this happens at 90° due to gravity. |
| Constructive Wave | Have a strong swash and weak backwash; they cause deposition. |
| Destructive Wave | Have a weak swash and strong backwash; they cause erosion. |
| Fetch | The distance a wave has travelled. |

B - Types Of Erosion – Wearing Away Of Rock (4)

| | |
|-------------------------|--|
| Hydraulic Action | Waves compress pockets of air in cracks in a cliff, causing the crack to widen, breaking off rock. |
| Abrasion | Eroded material is hurled or scraped against the cliff, breaking off rock. |
| Attrition | Eroded material in the sea hits into each other, breaking down into smaller pieces. |
| Solution | The water dissolves certain types of rocks e.g. limestone. |

C - Other Coastal Processes (4)

| | |
|------------------------|---|
| Transportation | The movement of sediment e.g. traction, saltation, suspension and solution. |
| Deposition | When waves drop the sediment they are transporting, either due to a loss of energy or change in direction of coastline. |
| Longshore Drift | The movement of sediment along the coastline in a zig-zag motion, due to the wind. |
| Weathering | Breaking down of rocks by physical and chemical processes. |

D - Headlands And Bays (3)

| | |
|-----------------|--|
| Geology | Different rock types e.g. resistant rock (granite) and less resistant rock (clay). |
| Headland | Resistant hard rock which is slowly eroded so sticks out to sea. |
| Bay | Less resistant soft rock which is quickly eroded, retreating to form a bay. |

E - Wave Cut Platforms (2)

| | |
|--------------------------|---|
| Wave Cut Notch | These form at the foot of a cliff due to erosion. This undercuts the cliff above leaving it unsupported. |
| Wave Cut Platform | When the unsupported cliff collapses, the process repeats and the cliff retreats leaving a sloping wave cut platform. |

I - Case study example: Holderness coast, Mableton

| | | | |
|--|---|--|--|
| Where? | The fastest eroding coastline in Europe, in East Yorkshire. | | |
| Reasons to protect (2) | Management strategies (2) | Success (2) | |
| <ol style="list-style-type: none"> 1. Rocks are made of soft rock (fill), eroding at 2m per year. 2. The B1242 runs through Mableton and would be expensive to re-route. | <ol style="list-style-type: none"> 1. Rock groyne put in place to trap sediment being transported by longshore drift, creating a wider beach to absorb the power of the waves. 2. Rip-rap has been placed in front of the cliffs to absorb the wave energy. | <ol style="list-style-type: none"> 1. Good – erosion in front of Mableton has reduced, so the road has been saved. 2. Bad – beaches further south have been starved of sediment so erosion has increased e.g. at Great Cowden. | |

F - Cave Stacks And Arches (3)

| | |
|--------------|---|
| Crack | A weakness in the headland is eroded by hydraulic pressure, forming a cave. |
| Cave | This is eroded further, until the cave erodes all the way through the headland forming an arch. |
| Arch | The roof of the arch has no support, so collapses to form a stack. |

G - Spits (3)

| | |
|----------------------------|---|
| Change In Coastline | Leads to material transported by longshore drift being deposited into the sea, forming a spit. |
| Hooked Ends | A hooked end forms on a spit due to a change in the prevailing wind direction. |
| Salt Marsh | An area of salty marshland found behind a spit, which has dried out as the sea can no longer reach this area. |

H - Coastal Management (2)

| | |
|-------------------------|---|
| Hard Engineering | Human-made structures that help to deal with coastal erosion, such as: <ol style="list-style-type: none"> 1. Sea walls, which reflect the waves' energy back out to sea 2. Groynes, which trap longshore drift. |
| Soft Engineering | Adaptations which work with nature, such as managed retreat , where the coastline is allowed to erode, and people are moved away. |

Background

1. The world's population is not spread evenly. **(A)**
2. There are many factors that influence where we live. These factors have caused some places to be densely populated, whilst others are sparsely populated. **(B)**
3. Total population is constantly changing, both within countries and world-wide. **(C)**
4. We can look at changes in population by comparing past and predicted population structures. **(D)**
5. The level of development within a country will influence its population structure. However, as countries develop economically, these structures will change. **(E)**
6. In many developed countries the population is ageing. This process brings many impacts. **(F)**
7. Migration is also an important population process world-wide and is one of the biggest drivers of population change. **(G, H)**

A - Population Distribution (4)

| | |
|--------------------------------|---|
| Population Density | The number of people who live within 1km ² . |
| Population Distribution | How people are spread out over an area. |
| Densely Populated | Places which contain many people per km ² . |
| Sparsely Populated | Places which contain few people per km ² . |

B - Factors Influencing Population

| | |
|---------------------|---|
| Physical (4) | <ol style="list-style-type: none"> 1. The relief of the land (flat or steep). 2. Natural resource availability. 3. Climate. 4. Fertility of the soil. |
| Human (3) | <ol style="list-style-type: none"> 1. Transport links. 2. The availability of jobs. 3. The availability of local services e.g. hospitals, education. |

C - Population Change (5)

| | |
|-------------------------------------|---|
| Birth Rate | The number of births per 1000. |
| Death Rate | The number of deaths per 1000. |
| Natural Increase | The difference between birth and death rates. |
| Population Explosion | A sudden rapid rise in the number of people. |
| Demographic Transition Model | A model which shows the changes a population is likely to go through over time. |

E - Population Structure Differences

| | |
|---------------------------------|--|
| Developing Countries (2) | <ol style="list-style-type: none"> 1. High birth rates, so a large young dependent population. 2. A lower life expectancy, so a small elderly dependent population. |
| Developed Countries (2) | <ol style="list-style-type: none"> 1. A declining birth rate, so a small young dependent population. 2. A rising life expectancy, so a large elderly dependent population. |

F - An Ageing Population (4)

| | |
|------------------------------|--|
| Life Expectancy | The average age you are expected to live to in a country. |
| Possible Problems (3) | <ol style="list-style-type: none"> 1. Pressure on the NHS, waiting times could increase. 2. The government may have to support the funding of pensions. 3. Government investment into more care homes and carers might be costly. |
| Possible Benefits (2) | <ol style="list-style-type: none"> 1. Grandparents can help look after their grandchildren, reducing the cost of childcare for parents. 2. Some elderly have more disposable income so spend more in shops. |
| Solutions (3) | <ol style="list-style-type: none"> 1. Increase the retirement age. 2. Raise taxes. 3. Offer incentives for couples to have children e.g. longer maternity pay. |

D - Population Structure (4)

| | |
|-----------------------------|---|
| Population Structure | The number/proportion of people in each age range, for each gender. |
| Population Pyramid | A graph showing population structure, by age and sex. |
| Economically Active | Those people who work, receive a wage and pay tax. |
| Dependent Population | Those who rely on the economically active for support e.g. the young and elderly. |

G - Migration (5)

| | |
|-------------------------|---|
| Economic Migrant | A person who leaves one area or country to go to another, to seek better job opportunities. |
| Push Factor | Things that make people want to leave an area. |
| Pull Factor | Things that attract people to live in an area. |
| Host Country | The destination country for a migrant. |
| Source Country | The home country of a migrant. |

H - Impacts Of Migration

| | |
|-------------------------------------|---|
| Positives For The Source (2) | <ol style="list-style-type: none"> 1. Money sent home (remittances) can support families. 2. Potential for increased trade between host country and source country. |
| Negatives For The Source (2) | <ol style="list-style-type: none"> 1. Fewer economically active citizens. 2. Less tax, as fewer working people in the country. |
| Positives For The Host (2) | <ol style="list-style-type: none"> 1. Migrants can work in jobs that are difficult to fill, therefore contribute tax. 2. New shops and restaurants open, which is positive for the economy. |
| Negatives For Host (1) | <ol style="list-style-type: none"> 1. Potential pressure on public services e.g. health care. |

Background

1. The Earth's structure is made up of layers. **(A)**
2. The characteristics of these layers fuel tectonic plate theory. **(B)**
3. There are four different plate boundaries, each with their own characteristic and resulting hazards. **(C)**
4. Volcanoes can be found along constructive and destructive boundaries, although the volcanoes found at these boundaries are different. **(D)**
5. Earthquakes take place along all of the boundaries, but are often most significant at conservative boundaries. Earthquakes have key features and are measured using the Richter scale. **(E)**
6. People continue to live in tectonic areas for a number of reasons. **(F)**
7. Some of these reasons relate to how we monitor, protect and plan for such hazards. **(G)**
8. However, the impacts of these hazards can still be significant; although they can vary based upon a country's level of development. **(H, I)**

A - The layers of the Earth (3)

| | |
|---------------|--|
| Crust | The thin outer layer of the Earth which is divided into plates called tectonic plates. |
| Mantle | Middle layer of the earth, between the crust and the core, approx. 2900km thick. |
| Core | The centre, hottest layer of the Earth, broken into the inner (solid) and outer core (liquid). |

B - Theory (4)

| | |
|----------------------------|--|
| Plate Boundaries | The place where plates meet. |
| Convection Currents | Currents in the Earth's mantle which rise from the Earth's core and are strong enough to move tectonic plates. |
| Oceanic Crust | The part of the Earth's crust under the oceans, usually 6-8km thick. |
| Continental Crust | The part of the Earth's crust which contains land and is 30-50km thick. |

C - Different Plate Boundaries (4)

| | |
|-------------------------|--|
| Plate Boundaries | Where two tectonic plates move apart and new crust is created. |
| Destructive | Where two tectonic plates come together. The denser oceanic plate is subducted, leading to violent volcanic eruptions. |
| Conservative | Where tectonic plates move alongside, or past each other. |
| Collision | Where two continental plates collide, forcing the land upwards and forming mountains. |

D - Volcanoes (3)

| | |
|--------------------------|--|
| Shield Volcano | A gently sloping volcano formed by runny lava (low viscosity), usually at constructive boundaries. |
| Composite Volcano | A steep volcano formed by alternating layers of lava and ash, on destructive boundaries. |
| Pyroclastic Flow | Torrent of hot ash, rock, gas and steam from a volcano. |

E - Earthquakes (4)

| | |
|----------------------|---|
| Epicentre | The point on the Earth's surface directly above the focus of an earthquake. |
| Focus | The source of an earthquake beneath the Earth's surface. |
| Seismic waves | Fast waves of energy generated from the focus. |
| Richter scale | A scale that measures the energy released by an earthquake. |

F - Why People Live In Tectonic Danger Zones

| | |
|------------------------|---|
| Volcanoes (4) | <ol style="list-style-type: none"> 1. Jobs in tourism. 2. Geothermal energy created. 3. Ash makes the ground fertile, which is good for farming. 4. Diamonds and gold from previous eruptions can be mined. |
| Earthquakes (3) | <ol style="list-style-type: none"> 1. Friends and family live in the area. 2. It has not happened in such a long time, so people take the risk. 3. Employment in the area. |

G

Volcanoes

Earthquakes

| | | |
|-----------------------|--|--|
| Monitoring (2) | <ol style="list-style-type: none"> 1. The shape may change. 2. Increase in gases given off e.g. sulphur dioxide. | <ol style="list-style-type: none"> 1. Irregular tremors measured. 2. Radon gas levels increase as rocks crack. |
| Protect | Lava diversion channels. | Earthquake proof buildings. |
| Planning (2) | <ol style="list-style-type: none"> 1. Evacuation. 2. Emergency services trained. | <ol style="list-style-type: none"> 1. Earthquake drills. 2. Emergency services on-call. |

H - Effects Of Tectonic Hazards (2)

| | |
|--------------------------|---|
| Primary Effects | Direct impacts of an event e.g. people killed, injured, or buildings collapse. |
| Secondary Effects | The indirect impacts of an event, usually occurring in the weeks, hours, months after the event e.g. the outbreak of disease from contaminated water. |

I - Examples

| | |
|---|--|
| Developing Haiti Port Au Prince | <ol style="list-style-type: none"> 1. 318,000 dead. 2. 1.5 million homeless. 3. Cholera outbreak killed 8,000. |
| Developed New Zealand Christchurch | <ol style="list-style-type: none"> 1. 181 dead. 2. 80% of the city without electricity. 3. The Rugby World Cup was cancelled. 4. Schools closed for 2 weeks. |

Background

1. An ecosystem is a community of things that are linked together to make up a type of environment. **(A, B)**
2. An ecosystem contains biotic (living) and abiotic (non-living) parts. **(B)**
3. The climate of an ecosystem is very important as it influences what you will find there. **(C)**
4. The main world biomes can be found in specific parts of the world, they have very different climatic conditions & features. **(C, D)**
5. The rainforest biome has some distinctive features. **(F)**
6. However, deforestation is a major challenge facing rainforests worldwide. **(E)**
7. The deserts worldwide also have some key characteristics. **(G)**
8. The Sahara Desert is a place with opportunities for people, but there are also challenges which need to be overcome. **(H)**

A - Classification Of Ecosystem (4)

| | |
|---------------------|--|
| Ecosystem | A community of things linked together in an environment. |
| Biome | An ecosystem on a large scale that covers parts of continents and whole countries. |
| Habitat | A place where plants and animals live. Example: a pond, or hedgerow. |
| Biodiversity | The amount of variety of life there is in a place. |

B - Features Of An Ecosystem (3)

| | |
|-------------------|---|
| Biotic | The living parts of an ecosystem. Examples: plants, animals, humans. |
| Abiotic | The non-living parts of an ecosystem. Examples: soil, climate, river. |
| Food Chain | A diagram that shows what is eating what in an ecosystem. |

C - Climatic Features (4)

| | |
|------------------------------|---|
| Climate Graph | A graph showing rainfall and temperature in a place over a whole year. |
| Precipitation | Any form of water falling from the sky. |
| Convictional Rainfall | Rain that is produced when warm air rises, cools and condenses, forming clouds and then rainfall. |
| High Pressure | Areas where air is sinking, this air has little moisture, thus condensation can not happen. |

E - Deforestation In The Rainforest (6)

| | |
|--------------------------|---|
| Deforestation | The cutting down and removal of forest. This happens due to many factors. |
| Logging | Cutting down trees to sell the wood for a profit, sometimes this is done illegally. |
| Cattle Ranching | Removing trees from a large part of the rainforest and keeping cows on the land. These are sold for meat. |
| Slash And Burn | A type of farming where you cut down a small area of trees, burn the vegetation and then grow crops on this land. |
| Soil Erosion | When the soil in an area loses its minerals (water or wind erosion) so that it becomes difficult to grow crops there. |
| Indigenous Tribes | A group of people who live traditional lives in places (like the rainforest). |

D - Major Global Biomes (4)

| | |
|--------------------------------|--|
| Tundra (2) | 1. Found at the far north and south of the planet. 2. A cold ecosystem, little rainfall. |
| Hot Desert (2) | 1. Found along the Tropic of Cancer and the Tropic of Capricorn. 2. Hot environments with little rain. |
| Tropical Rainforest (2) | 1. Found in places along the Equator. 2. Hot and humid environments with huge amounts of rainfall. |
| Temperate Forest (2) | 1. The main biome of the UK and other places along the same lines of latitude. 2. Warm summers, mild winters. No extremes of temperature, rainfall. |

F - Rainforest Features (3)

| | |
|--------------------------|---|
| Rainforest Layers | Forest floor, understorey, canopy, emergent layer. |
| Nutrient Cycle | Nutrients move from living things to litter and the soil in a continuous cycle, keeping both plants and soil healthy. |
| Drip Tip Leaves | A plant adaptation that lets excess water drip off leaves quickly. |

G - Desert Characteristics (4)

| | |
|----------------------|--|
| Diurnal Range | Differences between the highest day and lowest night time temperature. |
| Nocturnal | Animals only come out at night. |
| Cactus | Long root systems to get as much water as possible from dry ground. |
| Camel | Webbed feet to help walk in sand. |

H - Opportunities And Challenges For Development In The Sahara Desert

| | | |
|--|---|--|
| Where? | The Sahara is found in Northern Africa. | |
| Opportunities (2) | Challenges (2) | |
| 1. In Algeria, oil extraction accounts for 60% of the GDP. 2. Farming in Egypt happens because the Aswan Dam provides water all year round to grow crops, providing an income to farmers. | 1. Extreme temperatures can cause illness or death because of dehydration. 2. Water is scarce and so farming can be unreliable meaning an unreliable income for farmers. | |

Background

1. Weather and climate are different, however both are influenced, measured and described by a few factors. **(A)**
2. The climatic conditions of an area are determined by several factors. **(B)**
3. There are four distinct climatic zones in the UK, which are determined by the direction of the prevailing wind. **(C)**
4. Precipitation is caused when warm air rises. There are three ways that this can happen. **(B, D)**
5. High pressure air systems bring warm, settled weather conditions. **(E)**
6. Low pressure air systems bring wet, changeable weather conditions. **(F)**
7. Tropical storms (an example of a low pressure climatic hazard) need certain conditions to form. **(G)**
8. Hurricane Katrina is a famous tropical storm that affected the USA in 2005. **(H)**

A - Weather And Climate (5)

| | |
|----------------------|--|
| Weather | The day-to-day conditions of the atmosphere which change quickly. |
| Climate | The average weather conditions over longer periods of time. |
| Precipitation | Any form of water falling from the sky. |
| Humidity | The amount of moisture in the air. |
| Air Pressure | The force exerted onto the Earth's surface by the weight of the air. |

B - Factors Affecting Weather And Climate (4)

| | |
|--------------------|---|
| Latitude | Higher latitudes are colder. Lower latitudes (nearer the equator) are hotter. |
| Winds | Wind can bring different weather conditions depending on where it comes from. |
| Altitude | Higher areas get more rainfall and are colder than low land. |
| Urban Areas | Can be 2.2°C warmer than the surrounding rural areas. |

C - The UK's Air Masses (4)

| | |
|-----------------------------|--|
| Tropical Maritime | Wind from the south-west brings wet weather, with warm temperatures in the summer, but mild in the winter. |
| Tropical Continental | Wind from the south-east brings dry weather with hot temperatures in the summer, but mild in the winter. |
| Polar Continental | Wind from the north-east brings dry weather with cold temperatures in the summer, and often freezing conditions in the winter. |
| Polar Maritime | Wind from the north-west brings wet weather with cold temperatures. |

D - The Types Of Precipitation (3)

| | |
|---------------------|---|
| Convictional | Produced when warm air rises, cools and condenses, forming clouds and then rainfall. |
| Frontal | Warm air meets cold air and rises because it is less dense. It cools, condenses forming clouds, then precipitation. |
| Relief | Warm air is forced to rise as it meets a hill or mountain. It cools at high altitude, condenses and forms clouds, then precipitation. |

E - High Pressure Systems

| | | |
|---|---|---|
| How is the air moving? | Areas where air is sinking, this air has little moisture. | |
| Conditions (3) | Positive impacts (2) | Negative impacts (2) |
| <ol style="list-style-type: none"> 1. Calm weather with a cloudless sky. 2. Hot weather in summer, cold weather in winter. 3. Morning frost is common. | <ol style="list-style-type: none"> 1. Lots of sunlight means farmers can grow more crops. 2. Increase in tourism, which boosts the local economy. | <ol style="list-style-type: none"> 1. Places such as Spain and Portugal are at high risk of forest fires during prolonged dry periods. 2. Can cause fog in the winter, which can lead to traffic accidents. |

F - Low Pressure System

| | | |
|---|--|---|
| How is the air moving? | Air is rising, it cools and condenses causing high levels of precipitation. | |
| Conditions (3) | Positive impacts (2) | Negative impacts (3) |
| <ol style="list-style-type: none"> 1. Unsettled weather which can change quickly. 2. High winds and high cloud cover. 3. Precipitation occurs as rising air cools and condenses. | <ol style="list-style-type: none"> 1. Rainfall refills stores of water, such as reservoirs. 2. Wind farms will generate more energy. | <ol style="list-style-type: none"> 1. Low pressure systems can cause large, destructive storms. 2. Bad weather can harm the tourist industry as tourists are put off. 3. Areas can be flooded. |

G - Causes Of Tropical Storms (3)

| | |
|--------------------------|---|
| High Temperatures | Oceans have to be 26.5°C or higher. |
| Weather System | A low pressure system means air rushes in and causes high winds. |
| Deep Ocean | Warm water is the power source for a tropical storm and should be 60 metres deep or more. |

H - Case Study Example: Hurricane Katrina 2005

| | | |
|---|---|--|
| Where? | New Orleans, south coast of the USA. | |
| Effects (3) | Responses (2) | |
| <ol style="list-style-type: none"> 1. 1,836 died. 2. 10,000 people homeless. 3. Floods were up to 3 metres deep in places. | <ol style="list-style-type: none"> 1. \$105 billion was spent on rebuilding. 2. 10,000 people evacuated to the Superdome for shelter. | |

Background

1. Africa is a continent with spectacular human and physical features. Some of these features have influenced Africa's population distribution. **(A, B)**
2. Africa is home to some very large and important rivers, such as the amazing Nile. **(C, D)**
3. Kenya is a country with amazing physical features. **(E)**
4. Kenya has distinct climatic zones, which have influenced the activities which take place across the country. **(F)**
5. Kenya is an important country due to its trade links with countries around the world. **(G)**
6. Tourism is an important industry for the Kenyan economy. **(H)**
7. The capital city of Kenya, Nairobi, is a city of opportunities and challenges. **(I)**

A - Africa's Human And Physical Features (4)

| | |
|---------------------------|--|
| Human Geography | Studying what people do to the Earth. |
| Physical Geography | Studying what is naturally occurring on Earth. |
| Relief | The shape of the land surface and its height above sea level. |
| Megacity | A very large city with a population of over 10 million people. |

B - Africa's Population (4)

| | |
|---------------------------|---|
| Population Density | The number of people who live within 1km ² . |
| Physical Geography | How people are spread out over an area. |
| Densely Populated | Places which contain many people per km ² . |
| Sparsely Populated | Places which contain few people per km ² . |

C - The Amazing Nile (5)

| | |
|-----------------------|--|
| Deposition | When a river loses energy so drops its load. |
| River load | The material which the river is transporting. |
| Delta | Formed where layers of sediment are deposited at river mouths. |
| Distributaries | A smaller river channel created where a river splits, often to form a delta. |
| Silt | The fertile, eroded material transported by a river. |

D - Human Use Of The Nile (3)

| | |
|-----------------------------|---|
| Irrigation | Addition of water to farmland by artificial means. |
| Agriculture | Farming. |
| Hydro-electric power | The use of fast flowing water to turn turbines which produce electricity. |

E - Kenya's Physical Features (3)

| | |
|----------------------------|--|
| Constructive Margin | Where tectonic plates move apart and new land is created. |
| Fertile | Rich in nutrients. |
| Rift Valley | Steep-sided valley formed by the sinking of land between two faults or cracks caused by plate movements. |

I - Opportunities And Challenges In Nairobi

| | | |
|---|---|--|
| Where? | The capital and the largest city of Kenya, situated in the south central highlands. | |
| Opportunities (3) | | Challenges (3) |
| <ol style="list-style-type: none"> 1. There are many global companies in Nairobi such as Shell, General Motors, Barclays, and many others. 2. Nairobi has beautiful natural parks and gardens such as Uhuru Park. 3. Nairobi is home to the Kenyan parliament. | | <ol style="list-style-type: none"> 1. Estimates suggest that over 1 million people live in shanty settlements such as Kibera. 2. In Kibera there is poor sanitation, with sewage running through the streets. Water must be purchased from pumps. 3. Unemployment in Kibera is estimated to be 50%. |

F - Kenya's Climate (3)

| | |
|----------------------|--|
| Climate | The average weather conditions over longer periods of time. |
| Precipitation | Any form of water falling from the sky. |
| Altitude | Higher areas get more rainfall and are colder than low land areas. |

G - Kenya's Trade Links With The World (6)

| | |
|----------------------|--|
| Trade | The exchange of goods and materials between countries. |
| Trade Deficit | Cost of imports is greater than the money obtained from exports. |
| Trade Surplus | Money from exports is greater than the money made from imports. |
| Imports | Goods brought into a country. |
| Exports | Sending goods to another country for sale. |
| Colony | An area, or country, ruled by another country. |

H - Tourism In Kenya (3)

| | |
|------------------------|---|
| Tertiary Sector | Industries which provide a service such as; teaching, accounting, health care, sales etc. |
| Coral Reef | A marine ecosystem formed by the growth of coral that protects the coast from erosion and provides a habitat for marine plants and animals. |
| Mass Tourism | A form of tourism that involves tens of thousands of people going to the same resort often at the same time of year. |

5.1.1: Où es-tu allé(e) en vacances l'année dernière? - Where did you go on holiday last year?

| | |
|--------------------------------|-----------------------|
| Je suis allé(e)/on est allé(e) | I went/we went |
| Je suis resté(e) | I stayed |
| Au bord de la mer | By the sea |
| À la campagne | To/in the countryside |
| À la montagne | To/in the mountains |
| En /Au/Aux + country | To/in + country |
| Dans un hôtel/appartement | In a hotel |
| Dans un camping | On a campsite |
| Dans une caravane | In a caravan |
| Près de | Near to |

5.1.2: Comment as-tu voyagé? - How did you travel?

| | |
|-------------------------|--------------------------|
| Comment as-tu voyagé ? | How did you travel? |
| J'ai voyagé/on a voyagé | I travelled/we travelled |
| En avion | By plane |
| En voiture | By car |
| En train | By train |
| En bateau/ferry | By boat/ferry |
| À vélo | By bike |

5.2: Qu'est-ce que tu as fait? - What did you do?

| | |
|--|--------------------------------|
| J'ai nagé/On a nagé dans la mer | I /we swam in the sea |
| Elle/il a nagé dans la piscine | S/he swam in the pool |
| J'ai/On a visité les monuments | I/we visited the monuments |
| Elle/il a visité les sites touristiques | S/he visited the tourist sites |
| J'ai bronzé/On a bronzé | I/we sunbathed |
| J'ai/on a pris des photos | I/we took photos |
| J'ai/on a fait de la plongée | I/we went diving |
| J'ai/on a mangé | I/we ate |
| Je me suis/on est détendu(e) | I/we/relaxed |
| J'ai/on a fait du shopping | I/we went shopping |
| J'ai/on a acheté des souvenirs | I/we bought souvenirs |
| Je suis/on est allé(e) a un parc aquatique | I/we went to a water park |
| J'ai/on a vu les sites historiques | I/we saw the historic sites |

5.3: C'était comment? - How was it?

| | |
|-----------------------------------|----------------------|
| C'était... | It was... |
| décevant | Disappointing |
| Je me suis/on s'est bien amusé(e) | I/we had a good time |

5.4: Parle-moi de tes meilleures/dernières vacances -

Tell me about your best/last holiday(s)

| | |
|--|---|
| Mes meilleures/dernières vacances étaient...(+adjective) | My best/last holiday was/holidays were... |
| Pendant les grandes vacances | During the summer holidays |
| Pendant les vacances de Noël | During the Christmas holidays |
| L'année dernière | Last year |
| Le premier jour/le deuxième jour | On the first/second day |

5.5.1: Où passes-tu tes vacances? - Where do you go on your holidays?

| | |
|--|-------------------------------------|
| Qu'est-ce que tu fais normalement en vacances? | What do you normally do on holiday? |
| Où passes-tu tes vacances ? | Where do you go on holiday? |
| Je vais/on va | I go/we go |
| Je/on voyage | I/we travel |
| Je me détends/On se détend | I relax/we relax |

5.5.2: Quelle sorte de vacances préfères-tu? -

What sort of holidays do you prefer?

| | |
|------------------------------------|----------------------------|
| Les vacances actives/culturelles | Active/cultural holidays |
| Les vacances relaxantes/reposantes | Relaxing holidays |
| Rester en Angleterre | To stay/staying in England |
| Explorer | To explore/exploring |
| Me détendre | To relax/relaxing |
| Le temps (le soleil) | The weather (the sun) |
| La nourriture | The food |

5.6.1: Quels sont tes projets pour les vacances? -

What are your plans for the holidays?

| | |
|---------------------------------------|-------------------------|
| Cet été | This summer |
| Cette année | This year |
| Je vais/On va (+infinitive) | I'm/We're going |
| Je veux/on veut (+infinitive) | I want/we want |
| Je voudrais/On voudrait (+infinitive) | I/we would like |
| Aller (+ en/au/aux/à/à la/au) | To go (to) |
| Passer une semaine/un week-end | To spend a week/weekend |
| Rester | To stay |
| Se détendre | To relax |

5.6.2: Qu'est-ce que tu voudrais faire pendant les vacances? -

What would you like to do during the holidays?

| | |
|------------------------------------|-----------------------|
| Je voudrais/J'aimerais | I would like |
| Passer un mois (+à/au/en/aux/à la) | To spend a month (in) |
| C'est mon rêve de | It's my dream |
| Ce serait... | It would be... |

Unit 6: Going Out and Staying In

6.1.2: Qu'est-ce que tu aimes faire? - What do you like doing?

| | |
|---|--|
| Pendant mon temps libre | In my free time |
| J'ai une passion pour (le sport/le cinéma /les animaux/ la lecture) | I have a passion for (sport/cinema/animals/ reading) |
| Le meilleur sport est...(+/le/la) | The best sport is... |
| Le pire sport est...(+/le/la) | The worst sport is... |
| Depuis (un an/deux ans) | For (one year/two years) |

6.2.1: Qu'est-ce que tu vas faire ce weekend? - What are you going to do at the weekend?

| | |
|------------------------|-------------------|
| Ce weekend | This weekend |
| Je vais (+ infinitive) | I'm going (to...) |

6.2.2: Tu veux aller au cinéma ce soir/samedi soir? -

Do you want to go to the cinema this evening/on Saturday evening?

| | |
|--------------------------------------|-------------------------------------|
| Samedi après-midi | Saturday afternoon |
| À quelle heure ? | At what time? |
| À huit heures/À huit heures et demie | At eight o'clock/at half past eight |
| Oui, bonne idée | Yes, good idea |
| Je veux bien | I want to/ I'd like to |
| D'accord | OK |
| Peut-être | Maybe |
| Je n'en ai pas envie | I don't want to |
| Non, je ne peux pas | No, I can't |
| Non, je suis désolé(e) | No, I'm sorry |

6.3.1: Qu'est-ce que tu regardes à la télé? - What do you watch on television?

| | |
|------------------------------|------------------------|
| Je regarde | I watch |
| J'aime regarder | I like watching |
| Les infos | The news |
| Un documentaire | A documentary |
| Un feuilleton | A soap opera |
| Un jeu télévisé | A gameshow |
| Une série (américaine) | An (American) series |
| Une émission de télé-réalité | A TV reality programme |
| Une émission de sport | A sports programme |
| Un film historique | A historical film |
| Un film d'action | An action film |
| Un film de science-fiction | A science fiction film |
| Un film fantastique | A fantasy film |
| Une comédie | A comedy |
| Est-ce que tu aimes... ? | Do you like...? |
| Elles/ils sont... | They are... |

6.3.2: Quelle musique écoutes-tu? - What music do you listen to?

| | |
|-----------------------------------|----------------------------------|
| J'écoute (+du/de la) | I listen to |
| J'aime écouter (+du/de la) | I like listening to |
| Le rap/rock/métal/reggae | Rap/rock/Metal/Reggae |
| La pop | Pop |
| La musique électronique/classique | Electronic music/classical music |
| Mon chanteur préféré est | My favourite singer (male) is |
| Ma chanteuse préférée est | My favourite singer (female) is |
| Mon groupe préféré est | My favourite band/group is |
| Les paroles (sont...) | The lyrics (are...) |
| La mélodie (est...) | The tune (is...) |

6.5: On fête! - Let's party!

| | |
|---|---|
| Qu'est-ce que tu vas acheter ? | What are you going to buy? |
| Qu'est-ce que tu vas apporter à la fête ? | What are you going to bring to the party? |
| Je vais acheter | I'm going to buy |
| Je vais porter | I'm going to wear |
| Nouveau/nouvel/nouvelle | New |
| Chic | Stylish |
| À la mode | Fashionable |
| Un pantalon | Trousers |
| Un jean | Jeans |
| Un costume | A suit |
| Une robe | A dress |
| Une jupe | A skirt |
| Une veste | A jacket |
| Une chemise | A shirt |
| Des baskets | Trainers |
| Je vais apporter | I'm going to bring |
| La nourriture | Food |
| Un gâteau | A cake |
| Des chips | Crisps |
| Des pâtes | Pasta |
| Du chocolat | Chocolate |
| Des boissons (gazeuses) | (Fizzy) drinks |

6.6: Role-plays

| | |
|-------------------------------------|------------------------------|
| (Est-ce que) je peux vous aider ? | Can I help you? |
| Dans le magasin | In the shop |
| Vous avez... ? | Do you have...? |
| Une autre taille | Another size |
| Quelle taille voulez-vous ? | Which size do you want? |
| Une taille plus grande/petite | A bigger size/ smaller size |
| Une autre couleur | Another colour |
| Où est... ?/Où sont... ? | Where is.../where are...? |
| Ça coûte combien ? | How much does that cost? |
| Ça coûte... | It costs... |
| Combien de personnes ? | How many people? |
| Une table pour deux/trois personnes | A table for two/three people |
| Avez-vous une carte ? | Do you have a menu? |
| Je n'ai pas de (fourchette/couteau) | I don't have (a fork/knife) |
| Il y a un problème | There is a problem |

Unit 7: Daily Routine, Health and Fitness

7.1: Comment est ta routine? - What's your daily routine like?

| | |
|---------------------------------------|---|
| Je me lève | I get up |
| Je me lave | I have a wash |
| Je me brosse les dents | I brush my teeth |
| Je me douche | I shower |
| Je prends le petit-déjeuner | I have breakfast |
| Je vais au collège (à/en + transport) | I go to school (by + transport) |
| Je quitte le collège | I leave school |
| Je rentre chez moi | I return home |
| Je me repose | I relax |
| Je me couche | I go to bed |
| À ... heures (et demie/quart) | At ... o'clock (half past/quarter past) |
| À ... heures moins le quart | At quarter to ... |

7.1.2: Que changerais-tu au sujet de ta routine? - What would you change about your routine?

| | |
|-------------------------------------|----------------------------------|
| Je changerais beaucoup/peu | I would change a lot/little |
| Je voudrais pouvoir (+infinitive) | I would like to be able (to...) |
| Me lever | To get up |
| Me coucher | To go to bed |
| Rentrer chez moi | To return home |
| Avoir plus de temps au lit/chez moi | To have more time in bed/at home |
| Tôt | Early |
| Tard | Late |
| Plus tôt | Earlier |
| (Une heure) plus tard | (An hour) later |

7.1.3: Qu'est-ce que tu as fait hier? - What did you do yesterday?

| | |
|----------------------|----------------|
| Je me suis levé(e) à | I got up at... |
| Je me suis douché(e) | I showered |

7.2.1: Es-tu en forme? - Are you fit?

| | |
|---|-------------------------------|
| Je (ne) suis (pas) en bonne forme | I'm (not) fit/healthy |
| Je (ne) suis (pas) sain(e)/en bonne santé | I am (not) healthy |
| Je bois de l'eau | I drink water |
| Je bois des boissons gazeuses | I drink fizzy drinks |
| Je (ne) mange (pas) sainement | I (don't) eat healthily |
| Je mange des sucreries | I eat sweets |
| Je mange du chocolat | I eat chocolate |
| Je mange des légumes | I eat vegetables |
| Je mange des fruits | I eat fruit |
| J'adore manger du fast-food | I love eating fast food |
| Ne...jamais | Never |
| Je fais de l'exercice | I exercise |
| Je (ne) suis (pas) actif/active | I am (not) active |
| Je dors huit heures par nuit | I sleep eight hours per night |

Unit 7: Daily Routine, Health and Fitness

7.2.2: Qu'est-ce que tu vas faire pour rester en forme? - What are you going to do to stay fit?

| | |
|-----------------------|-------------------|
| Je vais (+infinitive) | I'm going |
| Je dois (+infinitive) | I have to/must |
| Je peux (+infinitive) | I can |
| Je veux (+infinitive) | I want |
| Manger sainement | To eat healthily |
| Manger moins de | To eat less/fewer |
| Boire plus de | To drink more |
| Dormir plus | To sleep more |
| Éviter de | To avoid |

7.3.2: Chez le médecin

| | |
|-------------------------------------|----------------------------|
| Depuis quand ? | Since when? |
| Depuis (un jour/deux jours) | For (a day/two days) |
| Il faut (+infinitive) | You must |
| Rester au lit/au chaud | Stay in bed/warm |
| Prendre du sirop | Have/take some cough syrup |
| Prendre des pastilles pour la gorge | Have/take throat sweets |
| Prendre ce médicament | Take this medication |
| Aller chez le dentiste | Go to the dentist |
| Aller à la pharmacie | Go to the pharmacy |

7.3.1: Qu'est-ce qui ne va pas? - What's the matter?

| | |
|-----------------------------|---------------------|
| Où as-tu mal ? | Where does it hurt? |
| J'ai mal (+au/à la/aux) ... | My ... hurts |
| à la tête | Head |
| à la gorge | Throat |
| à la jambe | Leg |
| au bras | Arm |
| au cou | Neck |
| au dos | Back |
| au pied | Foot |
| au ventre | Stomach |
| aux oreilles | Ears |
| aux yeux | Eyes |
| aux dents | Teeth |
| J'ai vomi | I've been sick |
| J'ai un coup de soleil | I have a sunburn |
| J'ai un rhume | I have a cold |
| J'ai la grippe | I have flu |
| J'ai de la fièvre | I have a fever |
| J'ai une toux/je tousse | I have a cough |

Unit 8: School and future plans

8.1.1: C'est comment ton collège? - What's your school like?

| | |
|-------------------------------|----------------------------|
| C'est un collège mixte | It's a mixed school |
| Un collège de filles/garçons | It's a girls'/boys' school |
| Est situé à... | Is situated in... |
| Il y a ... bâtiments | There are ... buildings |
| On porte un uniforme scolaire | We wear a school uniform |
| Un pull | A jumper |
| Un blazer | A blazer |
| Un chemisier | A blouse |
| Un pantalon | Trousers |
| Une chemise | A shirt |
| Une cravate | A tie |
| Une jupe | A skirt |
| Des chaussures | Shoes |
| Des chaussettes | Socks |

8.1.2: Parle-moi de la vie extra-scolaire - Tell me about extra-curricular opportunities

| | |
|--|---|
| On a ... cours par jour | We have ... lessons a day |
| La journée commence à... | The day starts at... |
| La journée finit à... | The day finishes at... |
| Il y a beaucoup de clubs | There are lots of clubs |
| Une activité extra-scolaire | Extra-curricular activity |
| On peut (+infinitive) | You can |
| Participer à la chorale/au concours de talents | Participate in the choir/talent competition |
| Aller à l'étranger | Go abroad |

8.1.3: Que penses-tu des règles de ton collège? - What do you think of the rules in your school?

| | |
|-----------------------------------|--------------------------|
| Il y a trop de règles | There are too many rules |
| Il faut/On doit (+infinitive) | You have to |
| Il est interdit de/on ne peut pas | You're not allowed to |
| Mâcher le chewing-gum | Chew chewing gum |
| Fumer | Smoke |
| Être à l'heure/en retard | Be on time/late |
| Écouter le prof | Listen to the teacher |
| Harceler les autres | Bully others |
| Utiliser un portable | Use a mobile phone |
| Avoir un piercing | Have a piercing |
| Porter du maquillage | Wear make up |
| C'est juste/injuste | It's fair/unfair |

8.1.4: Que changerais-tu? - What would you change?

| | |
|-----------------------------------|----------------------------|
| Je (ne) changerais (pas) beaucoup | I would (not) change a lot |
| Les règles sont... | The rules are... |
| Je voudrais (+infinitive) | I would like |
| Arriver plus tard | To arrive later |
| Finir les cours plus tôt | To finish lessons earlier |

Unit 8: School and future plans

8.2.1: Que font-ils/elles comme travail? - What do they do for a living?

| | |
|---|------------------------------|
| Ma mère/mon père est... | My mum/dad is... |
| Cuisinier/cuisinière | A cook |
| Infirmier/infirmière | A nurse |
| Pompier/pomprière | A firefighter |
| Vendeur/vendeuse | A salesperson/shop assistant |
| Serveur/serveuse | Waiter/waitress |
| Chauffer/chauffeuse (de taxi/de bus) | (Taxi/bus) driver |
| Chômeur/chômeuse | Unemployed |
| Chanteur/chanteuse | A singer |
| Programmeur/programmeuse | A programmer |
| Danseur/danseuse | A dancer |
| Médecin | Doctor |
| Maçon | Builder |
| Électricien/électricienne | Electrician |
| Mécanicien/mécanicienne | Mechanic |
| Footballeur professionnel/professionnelle | A professional footballer |
| Avocat/avocate | Lawyer |
| Professeur | Teacher |
| Pilote | A pilot |
| Ingénieur | An engineer |
| Elle/il travaille dans un bureau | S/he works in an office |

8.3: Qu'est-ce que tu voudrais faire à l'avenir? -

What would you like to do in the future?

Que serait ton métier idéal? - What would your ideal job be?

| | |
|----------------------|----------------------|
| Je voudrais être | I would like to be |
| J'espère être | I hope to be |
| Je voudrais avoir | I would like to have |
| Ma propre entreprise | My own business |
| Ça serait... | That would be... |
| Mon rêve | My dream |
| Bien payé(e) | Well paid |

8.2.2: Est-ce qu'il/elle aime son boulot/métier? -

Does he/she like his/her job?

| | |
|---------------------------------------|-----------------------------------|
| Elle/il aime son boulot/métier | S/he likes his/her job |
| Elle/il n'aime pas son boulot/métier | S/he does not like his/her job |
| Elle/il travaille avec des autres | S/he works with others |
| Elle/il travaille avec des enfants | S/he works with children |
| Elle/il travaille seul(e) | S/he works alone |
| C'est... | It's |
| Elle/il doit (+infinitive) | S/he has to/must |
| Nettoyer | To clean |
| Cuisiner | To cook |
| Parler avec les clients | To speak with customers |
| Travailler dehors/à l'extérieur | To work outside |
| Travailler sur un ordinateur | To work on a computer |
| Aider les autres | To help others |
| Elle/il a beaucoup de responsabilités | S/he has lots of responsibilities |

8.4: Que vas-tu faire à l'avenir/dans cinq-dix-vingt ans? -

What are you going to do in the future/in 5-10-20 years?

| | |
|--------------------------------------|------------------------------|
| Je vais/veux/voudrais (+infinitive) | I'm going/want/would like |
| J'espère (+infinitive) | I hope |
| Me marier | To get married |
| Avoir des enfants/une maison/voiture | To have a children/house/car |
| Avoir ma propre entreprise | To have my own business |
| Habiter à l'étranger | To live abroad |
| Étudier à l'université | To study at university |
| Voyager | To travel |
| Être content (e) | To be happy |

Unit 5: Holidays

5.1.1 ¿Adónde fuiste de vacaciones el año pasado? - Where did you go on holidays last year?

| | |
|---|--|
| Fui a | I went to |
| Fuimos a | We went to |
| Me alojé | I stayed |
| En la costa / En el campo / En la montaña | By the sea/in the countryside/in the mountains |
| En un hotel/apartamento | In a hotel/apartment |
| En un camping | On a campsite |
| En una caravana/roulotte | In a caravan |
| Cerca de | Near to |
| Lejos de | Far from |

5.1.2 ¿Cómo fuiste? - How did you travel?

| | |
|------------------|--------------------------|
| Viajé / viajamos | I travelled/we travelled |
| En avión | By plane |
| En coche | By car |
| En tren | By train |
| En barco/ferry | By boat |
| En bici(cleta) | By bike |

5.2 ¿Qué hiciste? - What did you do?

| | |
|---|---------------------------------------|
| Nadé en el mar/en la piscina | I swam in the sea/pool |
| Nadamos / nadó | We swam/ s/he swam |
| Visité los monumentos/los sitios turísticos | I visited the monuments/tourist sites |
| Visitamos / visitó | We visited/ s/he visited |
| Tomé / tomamos / tomó el sol | I/we/s/he sunbathed |
| Tomé / tomamos / tomó muchas fotos | I/we/s/he took photos |
| Hice / hicimos / hizo submarinismo/ buceo | I / we/s/he went scuba diving |
| Comí / comimos / comió | I/ we/s/he ate |
| Me relajé / nos relajamos / se relajó | I/ we/ s/he relaxed |
| Fui / fuimos / fue de compras | I/we/s/he went shopping |
| Compré / compramos / compró recuerdos | I/we/s/he bought souvenirs |
| Fui / fuimos / fue a un parque acuático | I/we/s/he went to a water park |
| Vi / vimos / vio sitios históricos | I/we/s/he saw the historic sites |

5.3 ¿Cómo lo pasaste? - How was it?

| | |
|---|--|
| Fue/era... | It was... |
| Una desilusión | Disappointing |
| Lo pasé/pasamos genial/bomba/fenomenal Lo pasé/pasamos fatal/muy mal/regular | I/we had a good time I/we had a terrible time |

Unit 5: Holidays

5.4 Háblame de tus mejores/últimas vacaciones -

Tell me about your best/last holiday

| | |
|--|-------------------------------|
| Mis mejores/últimas vacaciones fueron... | My best/last holidays were... |
| Durante las vacaciones de verano | During the summer holidays |
| Durante las vacaciones de Navidad | During the Christmas holidays |
| El año pasado | Last year |
| El primer/segundo día | On the first/second day |

5.5.1 ¿Qué haces normalmente en vacaciones? -

What do you normally do on holidays?

| | |
|---------------------------|-----------------------------|
| ¿Dónde vas de vacaciones? | Where do you go on holiday? |
| Normalmente | Normally |
| En general | In general |
| Voy / Vamos a | I / we go to |
| Viajo / viajamos | I / we travel |
| Me relajo / nos relajamos | I relax / we relax |

5.5.2 ¿Qué tipo de vacaciones prefieres? -

What type of holidays do you prefer?

| | |
|------------------------------------|----------------------------|
| Prefiero/me encanta(n)/me gusta(n) | I prefer / I love/ I like |
| Las vacaciones activas | Active holidays |
| Las vacaciones relajadas | Relaxing holidays |
| Las vacaciones culturales | Cultural holidays |
| Quedarme en Inglaterra | To stay/staying in England |
| Explorar | To explore/exploring |
| El tiempo (el sol) | The weather (the sun) |
| La comida | The food |

5.6.1 ¿Qué planes tienes para las próximas vacaciones -

What are your plans for the next holidays?

| | |
|--------------------------------------|-------------------------|
| Este verano | This summer |
| Este año | This year |
| Voy/Vamos a + infinitive | I'm/We're going |
| Quiero + infinitive | I want |
| Me gustaría / quisiera (+infinitive) | I /We would like |
| Pasar una semana/ un fin de semana | To spend a week/weekend |
| Relajarme | To relax |
| Alojarme | To stay (accommodation) |

5.6.2 ¿Cómo serían tus vacaciones ideales? -

What would your ideal holiday be?

| | |
|-----------------------|-----------------------|
| Me gustaría/ quisiera | I would like |
| Ir a | To go (to) |
| Pasar un mes en | To spend a month (in) |
| (Este) es mi sueño | This is/It's my dream |
| Sería... | It would be... |

Unit 6: Going Out And Staying In

6.1.2 ¿Qué te gusta hacer en tu tiempo libre? -

What do you enjoy doing in your free time?

| | |
|--|--|
| En mi tiempo libre | In my free time |
| Me apasiona (+ noun or infinitive) Me apasiona el esquí acuático / Me apasiona practicar el esquí | I have a passion for I am passionate about water ski / I am passionate about practising water ski |
| Desde hace... años | For ... years |

6.2.1 ¿Qué planes tienes para el fin de semana?

- ¿Qué vas a hacer este fin de semana? -

What are you going to do at the weekend?

| | |
|----------------------|--------------------------------|
| Este fin de semana | This weekend |
| Voy a (+ infinitive) | I'm going to (+ verb/activity) |

6.2.2 ¿Quieres ir al cine el sábado por la tarde? -

Do you want to go out Saturday afternoon?

| | |
|---------------------------------|---------------------------------------|
| ¿Quieres + infinitive? | Do you want (to)...? |
| Salir conmigo | To go out with me |
| El sábado por la tarde/noche | Saturday afternoon/evening |
| ¿A qué hora? | At what time? |
| A las ocho / a las ocho y media | At eight o'clock / at half past eight |
| Sí, buena idea | Yes, good idea |
| De acuerdo, vale | OK |
| Quizá(s) | Maybe |
| No me apetece | I don't fancy it |
| Lo siento, no puedo | Sorry, I can't |

6.3.1 ¿Qué prefieres ver en la tele? -

What do you prefer watching on tv?

| | |
|--|--------------------------------------|
| Prefiero / me gusta ver | I prefer to watch |
| Las noticias | The news |
| Los documentales | Documentaries |
| Las telenovelas | Soap operas |
| Los concursos | Gameshows |
| Las series americanas | (American) series |
| Los realitys | TV reality programmes |
| Las emisiones deportivas | Sports programmes |
| ¿Qué tipo de película te gusta ? | What genre of films do you like? |
| Las películas históricas | Historic films |
| Las películas de acción | Action films |
| Las películas de ciencia ficción | Science fiction films |
| Las películas de fantasía | Fantasy films |
| Las comedias | Comedies |
| Las películas de terror | Horror films |
| ¿Te gusta... ? | Do you like...? |
| ¿Cuál es tu programa de televisión favorito? | What is your favourite TV programme? |
| Son... | They are... |

Unit 6: Going Out And Staying In

6.3.2 ¿Qué tipo de música prefieres? - What type of music do you prefer?

| | |
|--|---|
| Escucho/prefiero | I listen to/I prefer |
| Me gusta/prefiero escuchar | I like listening to/I prefer listening to |
| El rap / rock / heavy metal / reguetón | Rap / rock / metal / regeton |
| El pop / la música pop | Pop |
| La música electronica / clasica | Electronic music / Classical music |
| Mi cantante / artista / grupo favorito/a | My favourite singer / artist / band |
| La letra | The lyrics |
| La melodía | The tune |

6.5 Vamos de fiesta - Let's party

| | |
|------------------------------------|---|
| ¿Qué vas a comprar ? | What are you going to buy? |
| ¿Qué vas a llevar a la fiesta? | What are you going to bring to the party? |
| Voy / va / vamos a comprar | I'm going to buy |
| Voy / va / vamos a llevar | I'm going to wear |
| Bisutería, joyas | Jewellery |
| Un pantalón | Trousers |
| Unos vaqueros | Jeans |
| Un traje | A suit |
| Un vestido | A dress |
| Una falda | A skirt |
| Una chaqueta | A jacket |
| Una camisa | A shirt |
| Zapatillas de deporte / deportivas | Trainers |
| La comida | Food |
| Una tarta | A cake |
| Patatas fritas | Crisps |
| Bocadillos | Sandwiches |
| Chocolate | Chocolate |
| Bebidas (gaseosas) | (Fizzy) drinks |

6.6 Role Plays

| | |
|---------------------------------------|------------------------------|
| ¿(en qué) Puedo ayudarle? | Can I help you? |
| En la tienda | In the shop |
| ¿Tiene... ? | Do you have...? |
| Un espejo | A mirror |
| Otra talla | Another size |
| ¿Qué talla necesita? | Which size do you want? |
| Quisiera | I would like |
| Una talla más grande / pequeña | A bigger size/ smaller size |
| ¿Dónde está(n)? | Where is.../where are...? |
| ¿Cuánto es? | How much does that cost? |
| Son... euros | It costs... |
| En el restaurante | At the restaurant |
| ¿Cuántas personas? | How many people? |
| Una mesa para dos/tres personas | A table for two/three people |
| La cuenta, por favor | Please |
| ¿Tiene menú ? | Do you have a menu? |
| No tengo (tenedor, cuchillo, cuchara) | I don't have (a fork/knife) |
| Hay un problema | There is a problem |

Unit 7 : Daily Routine, Health & Fitness

7.1.1 ¿Cómo es tu rutina diaria? - What's your daily routine like?

| | |
|------------------------------|----------------------------|
| Me levanto | I get up |
| Me lavo | I have a wash |
| Me lavo los dientes | I brush my teeth |
| Me ducho | I shower |
| Desayuno | I have breakfast |
| Voy al instituto | I go to school |
| Termino el instituto | I leave school |
| Vuelvo a casa | I return home |
| Meriando | I have a snack |
| Ceno | I eat dinner |
| Me relajo | I relax |
| Me acuesto | I go to bed |
| A las... | At ... o'clock |
| A las ... y cuarto / y media | At quarter / half past ... |
| A las ... menos cuarto | At quarter to ... |

7.1.2 ¿Qué cambiarías de tu rutina?

| | |
|---------------------------------|-----------------------------|
| Cambiaría mucho/poco | I would change a lot/little |
| Me gustaría (+infinitive) | I would like |
| Me gustaría poder (+infinitive) | I would like to be able |
| Levantarme | To get up |
| Acostarme | To go to bed |
| Volver a casa | To return home |
| Tener más tiempo | To have more time |
| Pronto | Early |
| Tarde | Late |
| Antes/ más pronto | Earlier |
| (Una hora) más tarde | (An hour) later |

7.1.3 ¿Qué hiciste ayer?

| | |
|---------------------|----------------|
| Me levanté a las... | I got up at... |
| Me duché | I showered |
| Fue... | It was... |

7.2.1 ¿Llevas una vida sana?

| | |
|--|--|
| ¿Estás en forma? | Are you fit? |
| (No) Estoy en (buena) forma / estoy sano/a | I'm (not) fit/healthy |
| (No) Llevo una vida sana | I am (not) healthy/I lead a healthy life |
| Bebo suficiente/poca agua | I drink enough/little water |
| Bebo muchas bebidas gaseosas | I drink a lot of fizzy drinks |
| (No) como sano | I (don't) eat healthily |
| Como demasiados caramelos | I eat too many sweets |
| Como pescado (muy) a menudo | I eat fish (very) often |
| (No) como suficiente verdura | I (don't) eat enough vegetables |
| Como fruta dos veces al día | I eat fruit twice a day |
| Me encanta la comida rápida | I love fast food |
| (No) soy activo/a | I am (not) active |
| Duermo ocho horas (al día) | I sleep eight hours per night |

Unit 7 : Daily Routine, Health & Fitness

7.2.2 Qué debemos hacer para llevar una vida sana? & ¿Qué vas a hacer para mantenerte en forma? - What should we do to keep healthy?

| | |
|---------------------------|--------------------------|
| Para llevar una vida sana | To have a healthy life |
| Para mantenerse en forma | To stay fit |
| Voy a (+infinitive) | I'm going to |
| Debemos (+infinitive) | We should |
| Se debe (+infinitive) | One/you should |
| Hay que (+infinitive) | We must |
| Comer equilibradamente | To eat a balanced diet |
| Comer más/menos | To eat more/less (fewer) |
| Beber más | To drink more |
| Dormir más | To sleep more |
| Evitar | To avoid |

7.3.2 En el médico - At the doctor's

| | |
|---------------------------------|----------------------------|
| ¿Qué le pasa ? | What's the matter? |
| ¿Dónde le duele ? | Where does it hurt? |
| ¿En qué puedo ayudarle ? | How can I help? |
| ¿Desde hace cuánto tiempo ? | Since when? |
| Desde hace (un día/dos días) | For (a day/two days) |
| Debe | You must |
| Tomar un jarabe | Have/take some cough syrup |
| Tomar pastillas | Have/take pills |
| Tomar este medicamento/medicina | Take this medication |
| Ir al dentista | Go to the dentist |
| Ir a la farmacia | Go to the pharmacy |
| Dormir | Sleep |
| ¿Qué me recomienda ? | What do you recommend? |

7.3.1 ¿Qué te pasa?

| | |
|--|---------------------|
| ¿Dónde te duele ? | Where does it hurt? |
| Tengo dolor de/en (+article)... Tengo dolor de cabeza Me duele(n) la cabeza (los brazos) | My ... hurts |
| Cabeza (la) | Head |
| Garganta (la) | Throat |
| Pierna (la) | Leg |
| Brazo (el) | Arm |
| Cuello (el) | Neck |
| Espalda (la) | Back |
| Pie (el) | Foot |
| Vientre (el) | Stomach |
| Oído(s) (el/los) | Ears |
| Ojo(s) (el/los) | Eyes |
| Diente(s) / muela(s) (el/los; la/las) | Teeth |
| He vomitado | I've been sick |
| Me he quemado con el sol | I have a sunburn |
| Tengo un resfriado | I have a cold |
| Tengo la gripe | I have flu |
| Tengo la fiebre | I have a fever |
| Tengo tos | I have a cough |

Unit 8: School and Future plans

8.1.1 ¿Cómo es tu instituto? - What is your school like?

| | |
|--------------------------------|-------------------------------|
| Es un colegio/instituto mixto | It's mixed school |
| Es un colegio de chicas/chicos | It's an all-girls/boys school |
| Está en/cerca de... | It is situated in/close to... |
| Hay... edificios | There are ... buildings |
| Llevamos uniforme | We wear a school uniform |

8.1.2 ¿Qué actividades extraescolares haces? & ¿Cómo es un día típico en tu instituto?

What co curricular activities do you do? & What is a typical day at school like?

| | |
|--------------------------------|--------------------------------|
| Tenemos... clases al día | We have ... lessons a day |
| El día empieza a las ... | The day starts at... |
| El día termina a las... | The day finishes at... |
| Después del instituto | After school |
| Hay muchas actividades y clubs | There are activities and clubs |
| Una actividad extracurricular | An extra-curricular activity |
| Se puede | You can |
| Participar en el coro | Participate in the choir |

8.1.3 ¿Qué opinas de las reglas de tu instituto? - What do you think about the school rules?

| | |
|------------------------------|--------------------------|
| Hay demasiadas reglas/normas | There are too many rules |
| Hay que (+infinitive) | You have to... |
| No se puede (+infinitive) | You're not allowed to... |
| Masticar chicle | Chew chewing gum |
| Fumar | Smoke |
| Ser puntual | Be on time |
| Llegar tarde | Be late |
| Escuchar al/a la profe | Listen to the teacher |
| Acosar a los demás | Bully others |
| Utilizar el móvil | Use a mobile phone |
| Tener un piercing | Have a piercing |
| Llevar maquillaje | Wear make up |

8.1.4 ¿Qué cambiarías? - What would you change?

| | |
|------------------------------|----------------------------|
| (No) cambiaría muchas cosas | I would (not) change a lot |
| Las reglas/normas son | The rules are |
| Me gustaría (+infinitive) | I would like |
| Llevar vaqueros | To wear jeans |
| Llevar zapatillas de deporte | To wear trainers |
| Llevar maquillaje | To wear make up |
| Llegar más tarde | To arrive later |
| Terminar las clases antes | To finish lessons earlier |
| Utilizar mi móvil | To use my mobile phone |

Unit 8: School and Future plans

8.2.1 ¿En qué trabaja(n)? ¿Qué hacen tus padres? - What do your parents do?

| | |
|---|--------------------------------|
| Mi madre/padre es... | My mum/dad is... |
| Cocinera/o | A cook |
| Enfermera/o | A nurse |
| Bombero/a | A firefighter |
| Dependiente | A salesperson/shop assistant |
| Camarera/o | Waiter/waitress |
| Médica/o | Doctor |
| Obrera/o | Builder |
| Electricista/o | Electrician |
| Conductora/conductor (de taxi/de bus) | (Taxi/bus) driver |
| Abogada/o | Lawyer |
| Mecánica/o | Mechanic |
| Profesora/profesor | Teacher |
| Madre/padre a tiempo completo | Stay-at-home mum/dad |
| Trabaja en | He/she works |
| Una oficina / una fábrica / al aire libre | In an office/a factory/outside |
| Está en paro | S/he is unemployed |
| Está jubilada/o | S/he is retired |

8.2.2 ¿Qué les gusta de su trabajo?

| | |
|--------------------------------|-------------------------------------|
| Le encanta su trabajo | He/she likes his/her job |
| No le gusta su trabajo | He/she does not like his/her job |
| Trabaja con otros | He/she works with others |
| Trabaja con niños | He/she works with children |
| Trabaja sola/o | He/she works alone |
| No le gusta (+infinitive) | He/she likes/doesn't like |
| Tiene que (+infinitive) | He/she has to/must |
| Limpiar | To clean |
| Cocinar | To cook |
| Hablar con los clientes | To speak with customers |
| Trabajar al aire libre | To work outside |
| Trabajar con el ordenador | To work on a computer |
| Ayudar a los demás | To help others |
| Tiene muchas responsabilidades | He/she has lots of responsibilities |
| Un buen sueldo | A good salary |

Unit 8: School and Future plans

8.2.2 ¿Qué les gusta de su trabajo?

| | |
|--------------------------|-----------------------------|
| Me gustaría/quiero ser | I would like/want to be |
| Espero ser | I hope to be |
| Piloto | A pilot |
| Ingeniera/o | An engineer |
| Cantante | A singer |
| Bailarina/bailarín | A dancer |
| Programadora/programador | A programmer |
| Deportista profesional | A professional sportsperson |
| Tener mi propio negocio | Have my own business |
| Viajar por todo el mundo | Travel the world |
| Sería | That would be... |
| Mi sueño | My dream |

8.4 ¿Qué harás en el futuro / dentro de 5-10-20 años? - What will you do in the future / in 5-10-20 years from now?

| | |
|------------------------------------|--------------------------|
| Dentro de 5-10-20 años | In five/ten/twenty years |
| Voy a (+infinitive) | I'm going to... |
| Quiero (+infinitive) | I want to... |
| Espero (+infinitive) | I hope to ... |
| Me gustaría/quisiera (+infinitive) | I would like to... |
| Casarme | To get married |
| Tener hijos | To have children |
| Tener una casa/un coche | To have a house/car |
| Tener mi propio negocio | To have my own business |
| Vivir en el extranjero | To live abroad |
| Estudiar en la universidad | To study at university |
| Viajar por todo el mundo | To travel |
| Ser feliz | To be happy/rich |
| Ser rica/o y famosa/o | To be rich and famous |
| Tendré | I will have |
| Podré (+ infinitive) | I will be able to |



Knowledge Organiser | Islam

| | | | | | |
|----|-------------------------|--|----|-------------------------|--|
| 1 | Islam | The religion of the Muslims, a monotheistic faith regarded as revealed through Muhammad as the Prophet of Allah. | 11 | Sunnah | The traditions and practices of the Prophet Muhammad. |
| 2 | Allah | "The God" in Arabic. | 12 | Sunni | The branch of Islam with the majority of followers, Sunni meaning followers of the Sunnah. |
| 3 | Tawhid | The belief in the oneness of God. | 13 | Shia | The branch of Islam with the minority of followers, Shi'a meaning 'House of Ali'. |
| 4 | Revelation | A message from God to human beings. | 14 | Sunni/Shia Split | A division in Islam which occurred after the death of the Prophet Muhammad on who should lead the Ummah. |
| 5 | Prophet Muhammad | An Arab religious, social, and political leader and the founder of Islam. | 15 | Caliphate | An area ruled by a Muslim leader. |
| 6 | Qur'an | The central religious text of Islam, believed by Muslims to be the final revelation from God. | 16 | The Five Pillars | The basic acts in Islam, considered mandatory by believers, and are the foundation of Muslim life. |
| 7 | Mecca | Holy city for Muslims established by Ibrahim and Ishmael. | 17 | Hajj | The Hajj is an annual Islamic pilgrimage to Mecca, Saudi Arabia, the holiest city for Muslims. |
| 8 | Hijrah | The migration of Muhammad from Mecca to Medina. | 18 | Greater Jihad | The spiritual struggle within oneself against sin. |
| 9 | Ummah | The worldwide Muslim community. | 19 | Lesser Jihad | Defending Islam from threat but must meet a range of strict conditions to be declared. |
| 10 | Hadith | The sayings of the Prophet Muhammad. | 20 | Islamophobia | Dislike of or prejudice against Islam or Muslims. |



Knowledge Organiser | Hinduism

| | | | | | |
|----|-------------------------|---|----|----------------------|---|
| 1 | Indus Valley | An area in modern day Pakistan and Northwest India. | 11 | Avatar | The incarnation or earthly manifestation of a deity. |
| 2 | Sanatana dharma | Eternal teaching. | 12 | Bhagavad-Gita | 'Song of the Lord'; regarded as the crowning achievement of Hindu sacred literature. |
| 3 | Veda | Any of the four collections forming the earliest body of Indian scripture. | 13 | Bhakti | Devotional service to a personal god. |
| 4 | The Caste System | A method of dividing up society into a hierarchy according to professions and trades. | 14 | Brahman (God) | The spiritual oneness of all reality. |
| 5 | Brahman (people) | A member of the highest Hindu caste, originally that of the priesthood. | 15 | Guru | A spiritual teacher. |
| 6 | Kshatriyas | The second highest of the Hindu caste; warriors and rulers. | 16 | Krishna | Incarnation of the Hindu god Vishnu, who appears as a main character in the Bhagava-Gita. |
| 7 | Vaishyas | Third highest of the Hindu caste; farmers, traders and merchants. | 17 | Maya | False or illusory reality. |
| 8 | Shudras | Fourth highest of the Hindu caste, known as labourers. | 18 | Meditation | Focused, disciplined concentration intended to help people experience the sacred. |
| 9 | Dalits | The lowest in the Hindu caste; street/toilet cleaners. | 19 | Vishnu | Hindu god of preservation and love. |
| 10 | Atman | Eternal soul. | 20 | Shiva | Hindu god of destruction and rejuvenation. |



Knowledge Organiser | Atheism

| | | | | | |
|----|---------------------------|---|----|---|--|
| 1 | Atheism | Disbelief or lack of belief in the existence of God or gods. | 11 | Theory of Evolution by Natural Selection | Organisms produce more offspring than are able to survive in their environment. Those that are better physically equipped to survive, grow to maturity, and reproduce. |
| 2 | Philosophy | The study of the fundamental nature of knowledge, reality, and existence. | 12 | Morality | Principles concerning the distinction between right and wrong or good and bad behaviour. |
| 3 | Scepticism | Doubting the truth of something. | 13 | Friedrich Nietzsche | German philosopher who argued that we need to create meaning for ourselves in life without religion. |
| 4 | Plato | An ancient Greek philosopher. | 14 | Übermensch (Superman) | The ideal superior person of the future who could rise above conventional Christian morality to create and impose their own values. |
| 5 | Plato's Cave | A story which explores the true nature of reality. | 15 | Militant Atheism | A movement of atheists who campaign against religion due to its irrational beliefs. |
| 6 | Empirical Evidence | Evidence for something based on observation or experience. | 16 | Richard Dawkins | Militant atheist and scientist who campaigns against religion due to its irrational beliefs. |
| 7 | Biblical Criticism | The use of critical analysis to understand and explain the Bible. | 17 | Christopher Hitchens | Militant atheist, author and journalist who campaigned against religion due to its irrational beliefs. |
| 8 | The Enlightenment | A period of time in the 17th and 18th centuries which emphasised reason and individualism rather than tradition. | 18 | Humanism | A rationalist outlook or system of thought attaching prime importance to human rather than divine or supernatural matters. |
| 9 | Science | The systematic study of the structure and behaviour of the physical and natural world through observation and experiment. | 19 | Trans-humanism | The belief that the human race can evolve through science and technology. |
| 10 | Rationalism | The practice or principle of basing opinions and actions on reason and knowledge rather than on religious belief or emotional response. | 20 | Artificial Intelligence | The theory and development of computer systems able to perform tasks normally requiring human intelligence. |



Knowledge Organiser | Philosophy of Religion

| | | | | | |
|----|------------------------|---|----|------------------------------|---|
| 1 | Omnipotent | The belief that God is all-powerful. | 11 | Analogy | A comparison between things that have similar features, often used to help explain a principle or idea. |
| 2 | Omniscient | The belief that God is all-knowing. | 12 | Fallacy | A mistaken belief, especially one based on unsound arguments. |
| 3 | Omnibenevolent | The belief that God is all-loving. | 13 | Cosmological Argument | The argument for the existence of God which argues that God is the cause of the universe. |
| 4 | Omnipresent | The belief that God is present everywhere at once. | 14 | Thomas Aquinas | Thinker argued for the cosmological argument. |
| 5 | Transcendent | The belief that God is outside of the universe. | 15 | Causation | The relationship between cause and effect. |
| 6 | Theism | The belief in God. | 16 | Problem of Evil | The argument that the existence of evil undermines belief in an omnipotent and omnibenevolent God. |
| 7 | Atheism | Disbelief or lack of belief in the existence of God or gods. | 17 | Epicurus | Thinker who came up with the problem of evil argument. |
| 8 | Agnosticism | The belief that nothing can be known about the nature or existence of God. | 18 | Theodicy | An argument which defends God against the problem of evil. |
| 9 | Design Argument | The argument for the existence of God based on evidence of design in the world. | 19 | Religious Experience | An experience which has a religious meaning for the person who experienced it. |
| 10 | William Paley | Thinker who argued for the design argument. | 20 | Empirical Evidence | Evidence for something based on observation or experience. |

Unit 1: Tonality & Structure

1. Musical Context

- Edvard Grieg was a Norwegian composer.
- Incidental music is used in the background of a film or play.
- 'In the Hall of the Mountain King' is from Peer Gynt (1875).
- Antonín Dvořák was a Czech composer.
- Symphony No. 7 in E minor 'From the New World'.
- Music inspired by African-American spirituals.

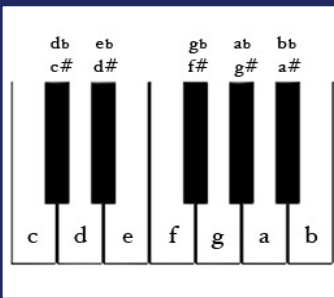
2. Terminology

| | |
|---------------------|--|
| Tonality | The key of a piece. |
| Pitch | High/low sound of a note. |
| Melody | The tune. |
| Articulation | How a note is played. |
| Structure | The order of the sections in a piece of music, the 'form'. |
| Dynamics | The loudness of the music. |

3. Vocabulary

| | |
|-----------------------------|---|
| Scale | Pitches moving by step in a sequence. |
| Tone | A whole step i.e. C to D. |
| Semitone | A half step i.e. C to C#. |
| Major | 'Bright' sound – Tone – tone pattern. |
| Minor | 'Sad' sound – Tone – semitone pattern. |
| Binary Form | Two sections, 'A B' structure. |
| Ostinato | Repeated rhythm. |
| Chromatic | Moving pitch by semitones. |
| Diatonic | Moving pitch by notes of the scale. |
| Legato | Notes played smoothly and attached. |
| Staccato | Notes played separated and detached. |
| Accent | Individual notes played louder. |
| Pentatonic | 5 note scale. |
| Ternary | Three sections where the first and last are the same, 'A B A' structure. |
| Crescendo | Getting louder. |
| Diminuendo | Getting softer. |
| Phrase | A musical sentence – often balanced, using question and answer. |
| Theme And Variations | Original musical idea, followed by changed versions of the idea, A A' A'' A'''. |
| Melodic Decoration | Adding notes to the melody to change the shape and rhythm. |

Keyboard Layout



4. Theory

b Flat

Sharp

Unit 2: Ensemble Musician

1. Musical Context

Mento

- **Mento music** originated in Jamaica in the 1950s.
- Typically, there are acoustic instruments i.e. rumba box.
- **Syncopated rhythms**, including off beat guitar strumming.
- Repetitive melodic phrases.
- Simple chords – primary triads and 7th chords.

Ska

- **Ska** music originated in Jamaica in the 1960s.
- **Faster tempo** than mento.
- Instruments inspired by American rhythm and blues, horns (trumpets and saxophones) and rhythm section (bass, drum kit).
- Organ or guitar 'skank'.
- Simple chords – primary triads.
- Toasting.

Reggae

- **Ska** music originated in Jamaica in the 1960s.
- Bob Marley.
- Swung rhythm.
- 4/4 metre and slow tempo.

Roles in an ensemble

- **The drum kit:** Sets the tempo and count in.
- **The bass guitar:** Drives the rhythm with the drum kit.
- **The keyboard:** Can play chords, riffs and the bass line.
- **The 'rhythm' guitar** (or uke): Plays chords.
- **Vocalist:** Typically leads the band, and takes control in rehearsals.

2. Terminology

| | |
|------------------|--|
| Rhythm | Length of notes and how they are organised. |
| Structure | The order of the sections in a piece of music. |
| Tempo | Speed of the music. |
| Tonality | The key of a piece. |
| Metre | Beats in a bar. |

3. Vocabulary

| | |
|----------------------------|--|
| Pulse | The main heartbeat of the music. |
| Ostinato | Repeated rhythm. |
| Syncopation | Off beat rhythm. |
| Chord | A group of notes heard at the same time. |
| Acoustic | Instrument without amplification. |
| 7th Chord | Adding 7th note of the scale to the chord. |
| Riff | Repeated rhythmic musical phrase/idea. |
| Skank Rhythm | Off beat chords. |
| Toasting | Spoken word over music, a style that led to rap. |
| Swung Rhythm | The first quaver in a pair is played longer than the second. |
| Root Position Chord | A chord where the root is the lowest sound. |
| Inversion | A chord where the root is not the lowest sound. |
| Harmonic Rhythm | The rate of change of the chords. |
| Ensemble | A group of musicians playing together. |

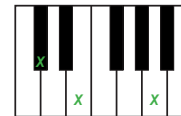
4. Theory

Major chord in root position: Root + 4 semitones + 3 semitones

D MAJOR



A MAJOR - Inversion

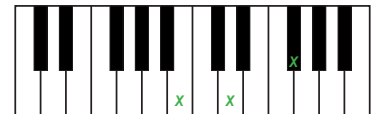


Primary Chords - I, IV and V



Major chord in root position: Root + 4 semitones + 3 semitones

B MINOR



Unit 3: Creative Musician

| 1. Musical Context |
|--|
| <p>Spirituals (1500s to 1860s)</p> <ul style="list-style-type: none"> • Music of slaves. • A combination of West African cultures and European hymn tunes. |
| <p>Ragtime (late 1800s)</p> <ul style="list-style-type: none"> • Developed from the cakewalk used in minstrel shows. • Solo piano. • Quick tempo. • Oom-pah accompaniment and syncopated melody. |
| <p>The Blues (1920s)</p> <ul style="list-style-type: none"> • One singer plus guitar/banjo, or small band (piano, trumpet, guitar/banjo). • Tempo is slow. • Structure is strophic, with AAB verses. • 12 Bar Blues and 17th Chords. |
| <p>Jazz</p> <ul style="list-style-type: none"> • Swing (1925-1945) Developed from Ragtime and Dixieland, Jazz music led by the voice. Improvisation based around riffs. • Boogie Woogie – a dance form of swing with strong piano bass. • Head arrangements, a piece organized around the 'head', and with sections of improvisation. • Bebop (1940s) Fast, complex jazz. • Modal Jazz (1950s) Slower tempo, more relaxed style. • Improvisation based on blues scale and modal scales. |
| <p>Rhythm and Blues</p> <ul style="list-style-type: none"> • Uncomplicated music with a steady beat and a focus on strong gospel vocals. |
| <p>Rock and Roll</p> <ul style="list-style-type: none"> • Started from electrified RnB. • Influence of blues seen in the rhythm section, 12 bar blues and 7th chords. • Boogie Woogie. |

| 2. Terminology | |
|------------------------|--|
| Rhythm | Length of notes and how they are organised. |
| Structure | The order of the sections in a piece of music. |
| Tempo | Speed of the music. |
| Melody | The tune of a piece of music. |
| Texture | The layers of sound in music. |
| Instrumentation | The instruments being played. |

1. Musical Context

Twelve Bar Blues: Some or all of the chords can be Seventh Chords.

| | | | |
|----------|----------|---------|---------|
| CHORD I | CHORD I | CHORD I | CHORD I |
| CHORD IV | CHORD IV | CHORD I | CHORD I |
| CHORD V | CHORD IV | CHORD I | CHORD I |

Boogie Woogie Bass line

| 3. Vocabulary | |
|--------------------------|---|
| Call and response | One voice or instrument (monophonic) makes a 'call' and the rest of the group 'respond' with a similar musical phrase (homophonic). |
| Syncopation | Off beat rhythm. |
| Accompaniment | A group of notes heard at the same time. |
| Strophic | Structure featuring verses. |
| Polyphonic | Two or more musical ideas happening at the same time. |
| Homophonic | The accompaniment has the same rhythm as the melody i.e. a melody with chords. |
| 12 Bar Blues | Harmonic structure used in blues. |
| Blue note | Bending the pitch in the blues style. |
| Improvisation | When music is created 'in the moment'. |
| The Head | Main riff/melody in a jazz composition. |
| Soloing | Player will create a new melodic line to fit with a song's chord progression. |
| Backing | The accompaniment in jazz. |
| Blues scale | Scale used in jazz melodies and improvisation. |
| Dorian Scale | A minor scale with a 'flattened' 7. |
| Modal scale | A name given to type of scale, i.e. Dorian. |

4. Theory

7th chord – (Dominant 7th chord)

C7 Chord
C major chord with a minor 7th.

Major 7th Chord

Cmajor7 Chord
C major chord with a major 7th.

Rhythm Section Accompaniment & Backing

Double Bass ("Bass") or "String Bass"
Drum Kit/Drums
Piano
Electric Guitar (or could be Acoustic)

Frontline Instruments ("Reeds")

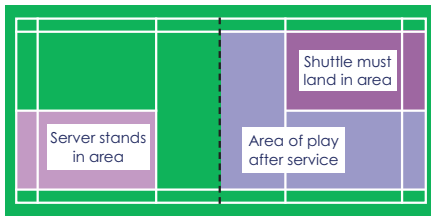
Trumpets
Trombones
Saxophones
Clarinets

Perform SOLOS as well as with the ensemble/band

Badminton

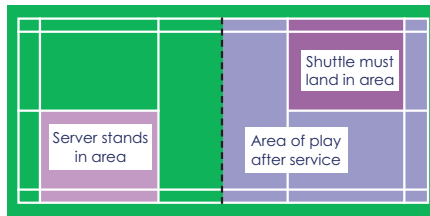
Singles Serving And Area Of Play

Singles

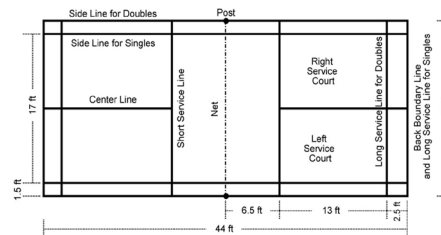


Doubles Serving and Area of Play

Doubles



Badminton Court Lines



Key Skills

| | Key Skills | What is it? | Why is it used? |
|-------------------|----------------|---|---|
| Serving | Short | Shuttle to be hit towards the front of the court, past the 'service line'. | To bring the opponent closer to the front of the court, therefore hitting your return shot to the back of the court. |
| | Long | Shuttle to be hit towards the back of the court. | To move the opponent to the back of the court, therefore your return shot should be hit towards the front of the court. |
| | Flick | A serve that is disguised to look like a short serve. | To trick your opponent to think you are going to serve short, but you hit it long towards the back of the court. |
| Forehand Clears | Overhead | Use the overhead clear to move your opponent to the backcourt. | A defensive shot that will create space for you to move up the court and give you time to regain centre position on the court. |
| | Underarm | To clear the shuttle to the back of the court when it is low down. | A defensive shot to put pressure back on your opponent and give you time to regain court position. |
| Doubles Positions | Side to Side | Partners play next to each other and take responsibility for their side of the court. | Both players are positioned by the net, side to side. You are offensive and can cover most of the court. Most effective positioning in doubles. |
| | Front and Back | One player plays at the net whilst their partner covers the back of the court. | Communication must be strong between you and your team-mate as there is a big open target between the front and back player, giving your opponents an opportunity to land the shuttle in that area. |
| Shot | Drop | The forehand overhead drop shot is like the action of throwing a ball. | To disguise your shot to make it look like a back court shot and then play it to the front of the court, putting pressure on your opponent. |
| | Smash | The smash is a shot hit with power and speed downward to your opponent's court. | The angle and the steepness of the shuttle's trajectory will make it hard for your opponent to retrieve. |

Key Rules

| | |
|---|--|
| Service Fault | <ul style="list-style-type: none"> • Server puts foot on or over the service line. • The shuttle does not cross the service line on opponents' side. • Racket contacts shuttle above the wrist. |
| Net Fault | <ul style="list-style-type: none"> • Player reaches over the net to play the shuttle. • When a player contacts the net. • Player steps over the centre line under the net. |
| <ul style="list-style-type: none"> • Games are played, first to 21. • Whoever wins the rally wins the point. • You keep serving until you lose the point. After the point is won, the players will move to the opposite serving area. • No second serves. • You are not allowed to touch the net. • No double hits allowed. • You must serve from behind the service line and diagonally across the net. | |

Warm Up

| Phases of Warm up | What it is? | Specific Examples | Benefits of Warm up |
|-------------------|---|---|--|
| Pulse Raiser | Slowly increasing HR | Jogging around the football pitch | <ul style="list-style-type: none"> • Warming up muscles • Increase body temperature - Improve flexibility of muscles and joints. • Reduce chance of injury. |
| Stretching | Static – stationary Dynamic - moving stretches | Hamstring stretch or lunges | |
| Dynamic movements | Show a change in speed and direction | Sprint shuttles, fast feet and bounding | |
| Skill rehearsal | Practising movement patterns and skills that will be used in the activity | Pass and moving – rondo | |

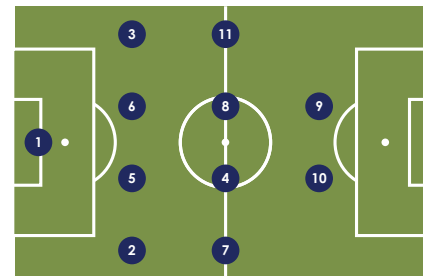
Key Skills

| | Teaching points | Why is it used? |
|----------------------|--|---|
| Dribbling | Moving the ball into space quickly and efficiently, keeping close control of the ball. | An attacking skill to cover as much space as possible towards your attacking goal. Change of speed to challenge the opposition. |
| Short Passing | Using the inside of your foot to move the ball to a teammate who is in space over a short distance. | To retain the ball within your teammates. |
| Long Passing | Using accuracy and power to move the ball over a long distance to a teammate. | To create attacking opportunities for your team or to prevent losing possession in defensive areas. |
| Defending | A role within the team all players must fulfil. Keeping a low body position to put pressure on the opposition. | To prevent opposition from scoring the defender must decide whether to press the attacker with the ball or block the pass to intercept. |
| Shooting | Using accuracy and power to create opportunities to score in front of the goal. | To create a scoring opportunity for your team. |

Rules

| | |
|--|--|
| How long is a football match? | <ul style="list-style-type: none"> - 45-minute halves - 90 minutes overall |
| When and where is a free kick given? | <ul style="list-style-type: none"> - A free kick is given for a foul OUTSIDE the 18-yard box. |
| What happens if the ball is kicked out? | <ul style="list-style-type: none"> - Corner – if it is kicked out the goal line by a defensive player. - Goal kick - if it is kicked out the goal line by an attacking player. - Throw in – If it is kicked out the touch line. |
| How many players on a football team? | <ul style="list-style-type: none"> - Each team can have a maximum of 11 players on the pitch with 3 substitutions. |

Formations = 4-4-2



Key Skills

| | Teaching Points | What Does It Look Like? | Why Is It Used? |
|---------------|--|--|---|
| Dribbling | Keep your head up and think where you are moving towards next. |  | An attacking skill to cover as much space as possible towards your attacking goal. Change of speed to challenge the opposition. |
| | Use inside and outside of BOTH feet. | | |
| | Change of speed to deceive defenders. | | |
| Short Passing | Place dominant foot at a right angle in line with the ball. Non-dominant foot next to the ball. |  | To retain the ball within your teammates. The fastest way to move the ball towards the other end of the pitch. |
| | Use inside of the foot to pass the ball. | | |
| | Receive with an open body on back foot. | | |
| Long Passing | Use the top/laces of boots to pass the ball over the longer distance. |  | To create attacking opportunities for your team or to prevent losing possession in defensive areas. |
| | Follow through with your kicking leg to create more power. | | |
| | Accuracy is important. | | |
| Defending | Side on, low to the ground body position. |  | To prevent opposition from scoring the defender must decide whether to press the attacker with the ball or block the pass to intercept. |
| | Put pressure on the attacker but do not dive in. | | |
| | Keep your eye on the ball. | | |
| Shooting | Power and accuracy aiming for the corners. | | To create a scoring opportunity for your team. Inside or outside of the opponent's penalty box. |
| | Non-dominant foot next to the ball. | | |
| | Strike the ball with your dominant foot using the inside for accuracy or laces of your boot for greater power. | | |

Gymnastics – Sports Acro

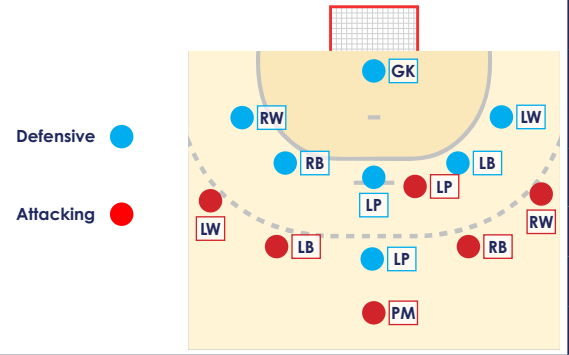
| Key Skills | | |
|-------------------------|--|---|
| Key Skill | What is it? | Why is it used? |
| Balance | Holding a position/shape for a minimum of 3 seconds without falling or wobbling, with or without another person. | <ul style="list-style-type: none"> To demonstrate different shapes. To demonstrate body tension. To create partner/group work. |
| Counter Tension | Balances that involve being in contact with another person and leaning away to create a balance. | <ul style="list-style-type: none"> To add difficulty to an individual balance/skill. To create different levels. To create new shapes. |
| Counter Balance | Balances that involve using another person to lean on to, lift, hold or balance on top of. | <ul style="list-style-type: none"> To create different levels. To add difficulty to an individual balance/skill. To create new shapes. |
| Linking | Moving from one skill to another without stopping. | <ul style="list-style-type: none"> Increase difficulty of skills Create sequences and routines. |
| Entry | The movement INTO a pair/group balance. | Allows you to link a variety of skills together easily. |
| Exit | The movement OUT of a pair/group balance. | Allows you to link a variety of skills together easily. |
| Sequence | A series of skills and balances linked together. | To demonstrate ability to link skills together. |
| Change Direction | Performing different skills to take you to different parts of the floor area. | To help you to travel around the floor area. |

| Key Terminology | |
|---|--|
| Term | Definition |
| Extension | Straightening/extending the arms and legs to show clarity of shape. E.g. point the toes, keeping legs straight. |
| Balance | The ability to hold a centre of mass over a base of support E.g. an arabesque requires you to be able to balance on one foot. |
| Control of movement | How the movement is held at the start, during (balance, speed), and at the end – there should be no wobbling or falling over! |
| Aesthetics | How a skill looks to the audience. |
| Fluency | Moving from one skill to another easily and smoothly. |
| Body tension | Tensing & stretching the muscles in order to keep the body in line & held in a shape during a skill. |
| Shape | The position the body holds during a skill. |
| Points of contact or support (POC/S) | The different parts of the body you can use to balance on and the number of them you use when creating a balance. E.g. a headstand uses the head and both hands to maintain the balance (3 POC/S). |
| Strength | Maximum force that can be generated by a group of muscles E.g. being able to hold another person's body weight in a pair balance. |

Handball

Positions

| | | |
|-----------|-------------|--|
| LW | Left Wing | Defends and attacks down the left-hand side of the court. |
| LB | Left Back | Defends and attacks in the centre of the court to the left of the Play Maker. |
| PM | Play Maker | To play in the centre of the court and control the ball when attacking. |
| LP | Line Player | To play on the line when attacking and be available for scoring opportunities on the line. |
| RB | Right Back | Defends and attacks in the centre of the court to the right of the Play Maker. |
| RW | Right Wing | Defends and attacks down the right-hand side of the court. |
| GK | Goalkeeper | To play in goal and stop the ball going in. |



Tactics

| | |
|------------------------|---|
| Passing | <ul style="list-style-type: none"> Using the correct passes at the correct time. Avoid missing players out when passing. Always pass to the person next to you. |
| Receiving | <ul style="list-style-type: none"> When receiving the pass in attack, move away from defender to stop intercept the pass. Do not run straight to the line, stand off the line to receive the pass. |
| Shooting | <ul style="list-style-type: none"> Look to beat defenders using a feint and dodge. Use the jump shot to get a better angle of shot and to get closer to the goal. |
| Defending | <ul style="list-style-type: none"> Always stand together and make yourself as tall as possible to make it difficult for the opposition to score. Always defend on the 6 metre line and do not leave any space for attackers to move into. |
| Attacking | <ul style="list-style-type: none"> Using feints to beat defenders or be fouled. Keep moving, never standing still. Using the 3 steps to get around the defender and shoot. |
| Decision Making | <p>Make the correct choices during game situations:</p> <ul style="list-style-type: none"> Who to pass to? Which pass to make – bounce, shoulder, side? Do I pass, or do I shoot? When to use the dribble. |

Key Rules

Remember the 3 C's: 3 Seconds (to pass/shoot) 3 Metres and 3 Steps (you can move 3 steps)

| Rule | Definition |
|----------------------|--|
| Offside | Going into the lined area around the goal. No player except the GK can enter this area, except when shooting and the ball must be released whilst still in the air. |
| Footwork | Can take three steps before either passing, shooting or dribbling the ball. Can take as many steps as they like whilst dribbling. After dribbling, the three steps are reset. |
| Free Throw | A free throw is awarded to any team breaking the rules, every opposition player must be at least three meters away. |
| Centre Passes | Attacking players must start in their own half. You do not have to wait for the defending team to be back. |
| Held Ball | 3 seconds to pass/ dribble or shoot with the ball. If no movement from the ball has been made, the ball will be turned over. |

Health Related Fitness

Health Related Components of Fitness

| Component | Definition | Fitness Test |
|-------------------------------|---|--|
| Cardiovascular Fitness | Work the body for long periods of time without tiring. | Multi-stage fitness test. Cooper Run. |
| Muscular Endurance | Work muscles long periods of time without the timing. | 1 minute sit up test/press up test. |
| Flexibility | Having an adequate range of motion in all joints of the body; the ability to move a joint fluidly through its complete range of movement. | Sit and reach test. |
| Body Composition | The relative ratio of fat mass to fat-free mass (vital organs, muscle, bone) in the body. | Body Mass Index. |
| Muscular Strength | The maximum force that can be exerted by a muscle. | Hand grip dynamometer. |
| Speed | How quickly you cover a distance. | 20m Sprint Test. |

Skill Related Components of Fitness

| Component | Definition | Fitness Test |
|----------------------|---|------------------------|
| Agility | The ability to change direction without losing balance quickly. | Illinois agility test. |
| Balance | The ability to maintain centre of mass. | Stork balance test. |
| Power | Strength x speed = power. | Vertical/board jump. |
| Reaction Time | The time taken to respond to a stimulus. | Ruler drop test. |
| Co-ordination | Moving more than 1 body part at once. | Wall toss. |

Key Terms Around Heart Rate, Training Intensities and Testing

| | | | |
|-------------------|---------------------------------|--------------------------|---|
| Aerobic | With oxygen (60-80%). | Aerobic threshold | 60-80% of Maximum heart rate (HR). |
| Anaerobic | Without oxygen (80-90%). | Reliability | Result should be consistent even when repeated. |
| Maximum HR | Maximum heart rate = 220 - AGE. | Validity | The accuracy of the test results. |
| RHR | Resting Heart Rate. | Practicality | How easily is the test carried out. |

Netball

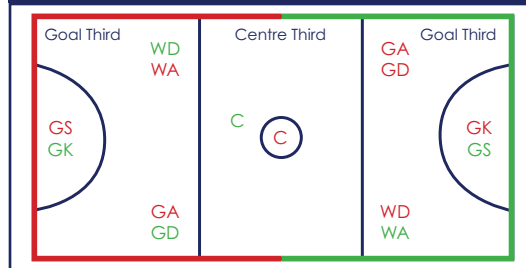
Positions

| Positions | Roles |
|-----------|--|
| GS | GS – GA – Main role is to shoot goals, by working closely together to achieve positions in the shooting circle where one can receive passes from the feeding midcourt players. |
| GA | |
| WA | Main role is to move the ball from centre court to an attacking end. |
| C | Involved in defensive and attacking plays, and responsible for restarting play after a goal is scored. |
| WD | WD - Normally involved in blocking attacking plays from the opposing team. |
| GD | |
| GK | GD – GK – To turn over ball and get rebounds when GS/GA miss the shot. |

Key Skills

| | Key Skills | What is it? | Why is it used? |
|---------------|------------------------------|---|---|
| Passing | Chest | Fast and powerful – short distance. | Used during centre passes and getting the ball quickly in and out of circle. |
| | Bounce | Go under a defender – short distance. | Used in and around the circle to go under a defender. |
| | Overhead And Shoulder | Loop a player – distance. Feeding into the circle over a defender. | Power and distance – BUT not over a third used for side-line or back line to clear a defender. |
| Ball Handling | On The Move | Picking up the ball during movement – the ball may be slightly in front, behind or low. | Turn over play or be able to attack with speed. |
| | In The Air | Can turn over ball when jumping or feet off ground. | To regain possession – normally when intercepting the ball. |
| Shooting | Stationary | Shooter being balanced in the circle taking a shot. | Correct technique – Using: BEEF - Balance, Elbow, Eye & Follow Through/Flick getting the ball high above head. Bend and push. Harder for defenders to defend. |
| | On The Move | Shooter either stepping or performing a split leap. | |
| Defend | Rebounds | Quick reactions to jump higher to retrieve the ball. | When the shooter misses a shot. Turn over ball and regain possession. |
| | Intercepting | Turn over the ball. This can be a tip or a full two-handed interception. | To take advantage of a slow or misplaced pass. |
| | Marking | 1M away – feet first then reach with hands. This is known as man to man. | To limit passing options and block view. |
| Attack | Dodging | Sprint dodge – at speed drive out to receive ball. | Used effectively during centre passes, back or side-line passes. |
| | | Feint dodge – you fake going one way and signal and move the other to receive the ball. | To get free to receive the ball. |

Court Layout



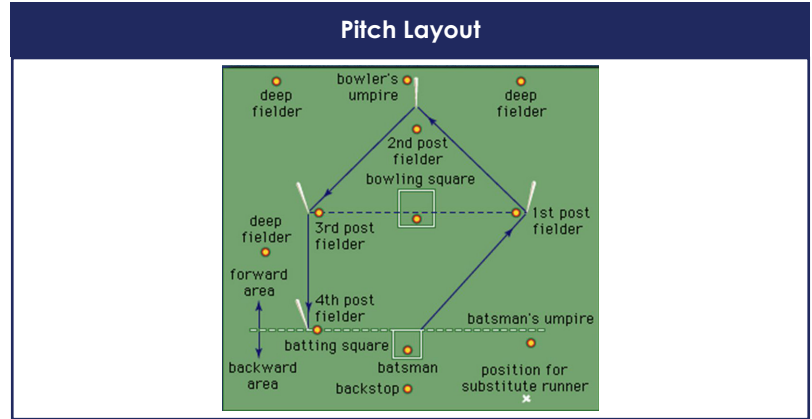
Key Rules

| Rule | Definition | Sanction |
|--------------------------------|---|-----------|
| Replayed Ball | The player cannot catch the ball with both hands, drop it and pick it up again. | Free Pass |
| Penalty Pass | When a rule is broken that does not directly affect another player. This is when a penalty pass is awarded. No players are out of play. | |
| Penalty Pass | When a rule is broken that directly affects another player. The player who committed the foul must stand next to the player taking the penalty and remain out of play until the penalty has been taken. | |
| Short Pass | When a defender cannot put in a hand as the ball is passed too close. | Free Pass |
| Over a Third | The ball cannot be thrown over a complete third of the court without being touched or caught by a player. | Free Pass |
| Repossession (shooting) | After releasing the ball, the GS or GA may not replay the ball until it has been touched by another player or it rebounds from the goalpost. | Free Pass |
| Advantage | Called by the umpire (when an infringement is seen) if the non-offending team would be disadvantaged. | |

Rounders

| Info | Roles |
|-----------------|--|
| Teams | A team consisting of a maximum of 15 players and a minimum of 6. 9 may be on the field at one time. |
| Fielders | 3 deep fielders, 4 post fielders, bowler and backstop. |
| Batters | 9 batters who go in order – best to worst and must stay in that order. |
| Umpires | Batting umpire – call for balls, no bowls – short or height and ins/outs at 1st and 4th base. Bowling umpire – calls for wide no balls and 2nd base and obstructions. |

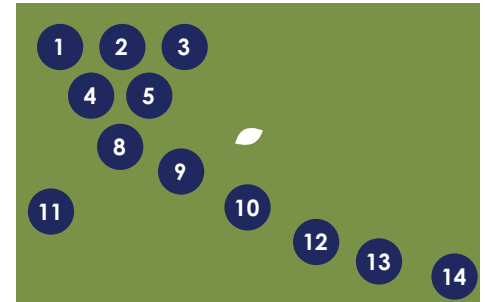
| Key Skills | | | |
|------------|----------------------------------|---|--|
| | Key Skills | What is it? | Why is it used? |
| Fielding | Overarm Throw | Fast and powerful throw over a distance. | To get the ball back into bowler or post fielders from deep field to try and stump a batter out. |
| | Underarm Throw | Short but quick throw. | During a bowl. When the ball hasn't travelled far, and fielders passes into a base. |
| | Catching | Retrieving the ball from the air. | A fielder throwing the ball into a base for you to catch and stump post. |
| | Long Barriers On The Move | To stop a ball which is going along the ground. Position yourself ready for pickup. | More accurate and fielders are less likely to miss the ball - prevents the ball from passing. |
| Batting | Distance | To hit the ball consistently into deep field. | The further the ball goes the more likely a batter is to get back to 4th base. |
| Bowling | Fast | To add speed to the bowl to outwit opponent. | With speed added to a ball it will make it more challenging for the batter. |



| Key Rules | |
|-----------------------------|---|
| Rule | Definition |
| Scoring | <ul style="list-style-type: none"> - ½ rounder if hitting the ball and making it to 2nd base. - ½ rounder of 2 no balls from bowler. - If batter misses ball but makes to 4th base ½ rounder is scored. - A fielder obstructs a batter running to a post, a half-rounder is scored. - Hitting a ball and getting all the way round on a no ball 1 rounder. - 1 rounder if you hit the ball and make it round to 4th base. |
| 1st Base Only | <ul style="list-style-type: none"> - If a batter hits the ball behind. - Batter can only go to 1st base until a fielder throws the ball crosses the front of batting box. |
| Obstruction | <ul style="list-style-type: none"> - Post/Base Fielder must stand on the inside of their posts. - Must not get in the way of a batter running around the pitch. - If they do ½ a rounder is awarded to batting team. |
| Getting A Player Out | <ul style="list-style-type: none"> - The batter loses contact with a post when the bowler has the ball inside the bowler's square. - Batter overtakes another batter when running around posts. - The batter's foot is outside the batter's square when the ball is bowled. |

Positions

| Positions | Roles | Numbers |
|-------------------|---|---------------|
| Props | Props are in the front row of the scrum, aim to drive the scrum forward. | 1 + 3 Forward |
| Hooker | Hooker in the middle of the front row. The hooker's job is to hook the ball back towards his team in the scrum. | 2 Forward |
| Second Row | Second Row are locked in behind and in between the prop and hooker. Their job is pushing the front row forward. | 4 + 5 Forward |
| Number 8 | Number 8 is at the back of the scrum, between the two second rows. Aim to control ball at the back of the scrum. | 8 Forward |
| Scrum Half | Scrum Half is the key passer of the team. They will pass the ball to the fly half from most rucks. | 9 Back |
| Fly Half | Fly Half job is to distribute the ball and bring other players into the game. | 10 Back |
| Centres | Centres are in commonly found in the middle of the pitch and must be able to perform all the main skills (passing, tackling & rucking). | 12+13 Back |
| Wingers | Wingers are usually on the outsides of the pitches and their job is to run and score tries. | 11+14 Back |



Key Skills

| | Key Skills | What is it? | Why is it used? |
|--------------------------------|---------------------------------|---|---|
| Passing/ Decision making | Drawing the player | The ball carrier must "draw" the defender, by getting into a position where the defender has no choice but to tackle. | To give your teammate more time and space. |
| | Attack in pods 3 vs 2 | Attacking in packs of three to isolate parts of the defensive line i.e., 2 forwards (Props) as they are less agile players and cover distance slower. | Expose gaps in defence and create a mismatch in the defensive line. |
| Ball Handling | Switch | A switch is where two players cross over, and the ball carrier pops the ball to the other. The running lines of each player should make an X. | To change the point of the attack. |
| | Loop | A loop is where the ball carrier passes to the player outside of them and follows their pass. The original passer then continues to run around the outside of the ball carrier, to receive the ball back from them. | To create more space for the attack. |
| Rucking | Rucking (Golden Meter) | This means the first player going past the ball (1 meter), in the ruck, clearing out any opposing team members. | To retain possession after a tackle. |
| | Counter Rucking (Jackal) | If the attacking team are slow to the ruck, the initial player from the defending team should look to 'Jackal' the tackled player. | To steal possession off the attacking team after a tackle. |
| Attack | Sidestep | The ball carrier looks steps one way and then quickly changes in their line of running in the opposite direction. | To outwit a defender and avoid a tackle. |

Key Rules

| Rule | Definition |
|------------------------|---|
| Fly Hack | Players are allowed the kick the ball when it is in the floor. This is called a fly hack. |
| Strike and Push | <ol style="list-style-type: none"> When scrummaging players are now allowed to strike (hookers, competing for the ball). The forwards in the scrum are also allowed to push against one another. |
| Offside | A player is in an offside position if that player is further forward (nearer to the opponents' goal line) than the teammate who is carrying the ball or the teammate who last played the ball. |
| Ruck | <ol style="list-style-type: none"> Players must enter the ruck through the gate and not from the side. Players must always remain on their feet and not use their hands in the ruck. |
| Tackle | <ol style="list-style-type: none"> The tackler must release the ball carrier once the tackle has been made. The tackler must then roll away or get back to their feet, before re-joining play. The ball carrier must also release the ball once they have been tackled to the floor. |

Key Terms

| | |
|--------------------------|---|
| Singles side-line | The two lines that run the full length of the court and mark the boundary on the width of the court. |
| Net | The additional area on the sides of the court used in doubles play. |
| Doubles tramlines | Used to break a tie for a game. This is where both players have a score of 40. The player who wins the point following the deuce is said to have the "advantage". If the player holding the advantage loses the following point, the score returns to deuce. The first player to win a point while holding the advantage wins the game. |

| Number of points won | Corresponding Call |
|----------------------|--------------------|
| 0 | "LOVE" |
| 1 | "15" |
| 2 | "30" |
| 3 | "40" |
| 4 | "Game" |

| Points Score Example | Corresponding Call |
|---------------------------|--------------------|
| 3 - 4 | "Advantage out" |
| 4 - 3 | "Advantage in" |
| 4 - 4, 5 - 5, 6 - 6, etc. | "Deuce" |
| 4 - 6, 3 - 5 | "Game" |


Key Skills

| | Key Skills | What is it? | Why is it used? |
|----------------|---------------------------|---|---|
| Ground strokes | The ready position | A front on stance, feet shoulder width apart with the racket in the middle of the body. | Allows the player to push off in either direction to return the serve. |
| | Backhand | A ground stroke hit on a player's non-dominant side; can be hit with a one- or two-handed grip. | Allows a player can hit the ball on both sides of their body saving time. |
| | Smash/overhead | A shot that is hit powerfully above the hitter's head with a serve-like motion. | Usually following a poorly hit lob close to the net to win the point easily. |
| Volley | Volley | A ball that is hit in mid-air, before it bounces on the hitter's side of the court. | Normally hit when the players are near the net to return the ball quickly or if the returning player. |
| | Half volley | A ball hit immediately after it bounces on the court. | When there isn't enough time to get to the ball and execute a traditional volley or get back and hit a ground stroke. |

Key Rules

| Rules | Definition |
|-----------------------|--|
| Service Fault | A serve that does not land in the service box, a server is allowed 2 attempts to serve. |
| Double Fault | A serve in tennis is a shot to start a point. If the ball is served out or hit the net the server is allowed another attempt. If there have been two faults on this point, the point is awarded to the receiver. |
| Let | When a player serves and the ball, the ball hits the net but lands in the service box, this is known as a let and the server must reserve the ball. This does not count as a service fault. |
| Double Strike | If the player must not strike the ball twice in a row. If this happens the opponent will win the point. |
| Tie-Break Game | When a game score of 6-6 is reached and tie-break set rules are used, players must play a tie-break game in order to decide who wins the set. Players need to reach 7 points with a two-point advantage to win. |

Positions

| Positions | Roles | Cricket batting shots | | |
|----------------------|---|--|---|---|
| Teams | Cricket is played between 2 teams made up of 11 players each. | Drive shot | Defensive shot | Pull shot |
| Aim of Game | Games compromise of at least 1 innings where each team will take turns in batting and bowling/fielding. |  |  |  |
| Batting team | The batsmen will try to score as many runs as possible before getting out. | | | |
| Fielding Team | The fielding team try to get the batsmen out. | | | |
| Bowling | Bowl the ball in certain areas according to fielding positions. | | | |

Key Rules

| Rules | Definition |
|------------------|---|
| 4 Runs | Scored if the ball goes over the boundary with bouncing at least once. |
| 6 Runs | Scored if the ball goes over the boundary without touching the ground. |
| Wide Ball | The bowler bowls a ball deemed to wide to hit by the umpire. |
| No Ball | The bowler balls a ball that bounces twice or more, or bounces dangerously over the batsman's head. |
| Bye | The batsmen run between the wickets despite the ball not being hit and score runs. The wicketkeeper may have mis fielded. |
| Leg Bye | The batsmen run between the wickets with the ball hitting the batting pads and not the bat. The umpire will give not out for LBW. |
| Dead Ball | The bowler stops his run up and the umpire allows him to try again. |

Key Skills

| | Key Skills | What is it? | Why is it used? |
|-----------------|---|--|---|
| Batting | Drive shot | Straight batted shot played along the floor, either on the on or offside. | Attacking shot designed to score runs in front of square. |
| | Defensive shot | Straight batted shot normally scoring no runs. | Defensive shot played to not get out, block the ball from hitting the stumps. |
| | Pull shot | Attacking, cross batted shot played towards square leg. | To score runs on the leg side to a ball that has pitched (landed) halfway down the wicket on or around the leg stump. |
| Fielding | Orthodox and unorthodox catching | Orthodox – catching with fingers pointing down. Unorthodox – catching with fingers pointing up. | Orthodox – designed to catch the ball from approx. your chest or below. Unorthodox – designed to catch the ball from approx. chest or above. |
| Bowling | Run up | Running up to bowl from the crease. | To bowl quicker and designed to make the batsman play a false shot in the hope of getting him out. |

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