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# Knowledge Organiser

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# DNA by Dennis Kelly (2008)

When?	Summary and Themes/Ideas	Quotations
Act 1	Mark and Jan discuss that someone is dead. The audience are thrown into the middle of the action.	<p>1.1. Jan: "Like dead, dead."            1.1. Mark: "It's not funny because it's not a joke, if it was a joke it would be funny."            1.1. Jan: "What are we going to do?"</p>
	The nature of Leah and Phil's relationship is revealed – Leah is presented as insecure.	<p>1.2. Leah: "What are you thinking? (No answer)."            1.2. Leah: "Not that I'm bothered. I'm not bothered, Phil, I'm not, it doesn't, I don't care."            1.2. Leah: "You're not scared. Nothing scares, there, I've said it; scared. Scared, Phil. I'm scared."</p>
	John struggles to maintain control as the <b>leader</b> of the group. The gang fails to take <b>responsibility</b> for their <b>bullying</b> of Adam which results in his supposed death. Instead, Phil plans to frame a non-existent person to absolve the gang of their guilt.	<p>1.3. John: "You're going to have to listen to me on this one, and you are going to have to believe me."            1.3. John: "Everyone respects you and everyone's scared of you and who made that, I mean I'm not boasting, but who made that happen?"            1.3. John: "Don't say it again, Richard, or I'm gonna hurt you."            1.3. Danny: "I want to say nothing, just like you, you're right, you're right, John."            1.3. Mark: "I mean we were just having a laugh, weren't we, we were all, you know..."            1.3. Mark: "Adam was, he was laughing harder than anyone."            1.3. Mark: "Oh, he was terrified, he was completely, but like you know, pretending."            1.3. Mark: "You're having a laugh, together, what is this nutter gonna do next."            1.3. Jan: "Stubbed out cigarettes on him."            1.3. Phil: "Cathy, Danny, Mark, you go to Adam's house, you wait until his mum's out, you break in."</p>
	Leah's monologue reveals the nature of <b>bullies</b> and highlights her own <b>moral</b> character.	<p>1.4. Leah: "They kill and sometimes torture each other to find a better position within the social structure. A chimp'll just find itself on the outside of a group."            1.4. Leah: "For years we've thought that chimps were our closest living relative, but now they saying it's the bonobos."            1.4. Leah: "Empathy. That's what bonobos have."</p>
Act 2	Brian's <b>morality</b> begins to kick in as he feel <b>guilty</b> and refuses to partake in Phil's plan.	<p>2.1. Mark: "He's not going."            2.1. Jan: "Is he insane? Is he off his head?"            2.1. Jan: "What are we going to do?"</p>
	Leah tries to gain Phil's affection and attention which reinforces her insecurities. Her fears about the gang are evident.	<p>2.2. Leah: "Are you happy? No, don't answer that, Jesus, sorry, what's wrong with me?"            2.2. Leah: "I can talk to you, because you can see the incredibly precious beauty and fragility of reality."            2.2. Leah: "Where will it stop. Only been four days but everything's changed."</p>

# DNA by Dennis Kelly (2008)

When?	Summary and Themes/ Ideas	Quotations
Act 2	The <b>lack of responsibility</b> by the gang backfires as their plan begins to fall apart when a real man is found by the police in connection to Adam's disappearance.	<p>2.3. Leah: "The man who kidnapped Adam doesn't actually exist."                      2.3. Leah: "Phil? Any ... any thoughts? Any words, any comments any ... ideas?"                      2.3. Lou: "What if he goes to prison?"                      2.3. Danny: "How am I gonna get references?"                      2.3. Cathy: "It was great .. They wanted to interview me ... get on the telly."                      2.3. Richard: "What we wanted was to cover up what had happened, not to frame someone else."                      2.3. Brian: "I can't identify him, I can't go in there, don't make me go in there, I'm not going in there."                      2.3. Phil: "We'll take you up the grille now. We'll get you by the arms. By the legs. And we'll swing you onto the grille."</p>
	Leah continues to feel <b>guilty</b> whilst Phil disconnects from reality.	<p>2.4. Leah: "Do you think it's possible to change things?"                      2.4. Leah: "D'you think we're doomed to behave like people before us did?"</p>
Act 3	It is hinted that Adam is found alive.	<p>3.1. Jan: "I mean are you...there's no mistake or..."                      3.1. Mark: "In the woods, Cathy found him in the woods."</p>
	Leah's <b>morality</b> compels her to leave but her attachment to the gang keeps her. The priorities of the other characters reveal their level of <b>responsibility</b> .	<p>3.2. Leah: "I'm going. I'm out of here, I'm gone."                      3.2. Leah: "Well, its not all roses, you know. Brian's on medication. Did you know that? Phil?"                      3.2. Leah: "You're not even thinking of thinking of stopping me. The only thing in your brain at the moment is that waffle."</p>
	Adam is alive and things descend into chaos. The gang attempt to protect themselves as a <b>collective</b> group, causing Phil to make the <b>immoral</b> decision to murder Adam.  Leah and Phil's relationship crumbles as a result of their different <b>moral</b> compasses and willingness to take <b>responsibility</b> .	<p>3.3. Brian: "I found him, I found him, I found Adam living in a hedge, I found him."                      3.3. Cathy: "Like a warren in this hedge and he's dragged bits of cardboard and rags to make it better, more waterproof."                      3.3. Brian: "Shall we rub our faces against the earth? What do you think, shall we rub our faces against the earth?"                      3.3. Cathy: "I used violence. I threatened to gouge one of his eyes out."                      3.3. Adam: "I felt like the dark was my fear, do you know what I mean? I was wrapped in it. Like a soft blanket."                      3.3. Adam: "I caught a rabbit once and ate that...I found a dead bird and ate some of that."                      3.3. Phil: "If you go now and you say nothing to no one about this, you won't be in trouble."                      3.3. Leah: "Phil, he's off his head. He's injured, he's been living of insects for week, he's insane Phil, he needs help."                      3.3. Leah: "It's Adam, Phil, Adam! We used to go to his birthday parties, he used to have that cheap ice cream."                      3.3. Phil: "I'm gonna do an experiment with this plastic bag. I want you to stay still while I do this experiment."</p>
Act 4	Leah has finally left as a result of her <b>guilt</b> and the gang's <b>lack of responsibility</b> .	<p>4.1. Jan: "What, she's gone?"                      4.1. Mark: "Without saying a thing."</p>
	Richard reveals the fractured state of the gang and the loss of their <b>leader</b> .	<p>4.2. Richard: "When's Phil going to come down from that stupid field?"                      4.2. Richard: "John Tate's found god. Yeah, Yeah I know. He's joined the Jesus Army."                      4.2. Richard: "Brian's on stronger and stronger medication. They caught him staring at a wall and drooling last week."                      4.2. Richard: "She's insane. She cut a first year's finger off, that's what they say anyway."                      4.2. Richard: "Jan and Mark have taken up shoplifting, they're really good at it."</p>



# Frankenstein by Mary Shelley (1818)

When?	Summary and Themes/Ideas	Quotations
Prologue	<b>Letter 1.</b> Captain Robert Walton writes to his sister Margaret to tell her he is ready for his journey. He is <b>ambitious</b> and excited about gaining <b>new knowledge</b> to benefit all.	<b>Letter 1. Walton:</b> 'My daydreams become more fervent and vivid.' <b>Letter 1. Walton:</b> 'I shall satiate my ardent curiosity with the sight of a part of the world never before visited.'
	<b>Letter 2.</b> Walton is <b>isolated</b> and feels nobody understands him.	<b>Letter 2. Walton:</b> 'I desire the company of a man who could sympathise with me'.
	<b>Letter 3.</b> Walton writes that he expects his <b>ambition</b> to be fulfilled. Shelley introduces the concept that <b>being overly ambitious can lead to loneliness and unfulfillment</b> .	<b>Letter 3. Walton:</b> 'Success shall crown my endeavours.' <b>Letter 3. Walton:</b> 'What can stop the determined heart and resolved will of man?'
	<b>Letter 4.</b> Trapped in the ice, Walton sees a mysterious stranger; Victor Frankenstein. After being rescued, Victor explains how he got to the North Pole and how his <b>ambitions</b> led to his downfall.	<b>Letter 4. Frankenstein (to Walton):</b> 'Do you share my madness? Have you drunk of the intoxicating draught? Hear me... and you will dash the cup from your lips.' <b>Letter 4. Frankenstein (to Walton):</b> 'You seek for knowledge and wisdom, as I once did; and I ardently hope that the gratification of your wishes may not be a serpent to sting you, as mine has been.'
Chapters 1-4	<b>Chapter 1.</b> Victor describes his perfect childhood, and how his father adopted Victor's cousin Elizabeth after her parents died, thus establishing the <b>importance of family</b> early in the narrative. Over time, Victor and Elizabeth develop a close <b>friendship</b> .	<b>Chapter 1. Walton:</b> 'my family is one of the most distinguished of that republic' <b>Chapter 1. Frankenstein:</b> 'My parents seemed to draw inexhaustible stores of affection from a mine of love to bestow.' <b>Chapter 1. Frankenstein:</b> 'Elizabeth was mine –to protect, love and cherish.'
	<b>Chapter 2.</b> Victor introduces his childhood best friend Henry Clerval, to whom he shared a happy and close connection with. As a teenager, Victor develops his love for not only the <b>natural world</b> , but also <b>science</b> and natural philosophy. One evening, Victor witnesses lightning strike a tree and is in awe of the <b>power of nature</b> ; this event sparks a passion for electricity and later, Galvanism.	<b>Chapter 2. Frankenstein:</b> 'I studied the wild fancies of these writers with delight.' <b>Chapter 2. Frankenstein:</b> 'It was the secrets of heaven and earth that I desired to learn.' <b>Chapter 2. Frankenstein:</b> 'I had never beheld anything so utterly destroyed.' <b>Chapter 2. Frankenstein:</b> 'Destiny was too potent and her immutable laws had decreed my utter and terrible destruction.'
	<b>Chapter 3.</b> Victor recounts at aged 17, he leaves Geneva for Ingolstadt to study. However, just before he leaves, his mother dies, and Victor is consumed with grief. Her dying wish was that Victor and Elizabeth one day marry. At university, Victor attends lectures and meets with professors. He dislikes Krempe, but admires Professor Waldman, who shares his <b>passion</b> , inspiring him to pursue his <b>scientific studies</b> .	<b>Chapter 3. Frankenstein:</b> 'Chance - or rather the evil influence, the Angel of Destruction, which asserted omnipotent sway over me from the moment I turned my reluctant steps towards my father's door.' <b>Chapter 3. Frankenstein:</b> 'I will pioneer a new way, explore unknown powers and unfold to the world the deepest mysteries of creation.'
	<b>Chapter 4.</b> Victor spends two years <b>isolating</b> himself and ignoring his family to research the secret of life – the first sign of <b>abandonment</b> . His <b>pursuit of knowledge</b> results him in studying throughout the night and spends time in graveyards and charnel houses. Alone, he devotes his studies to how the human body is built and how it decays resulting in <b>obsession</b> and the beginning of a loss of reality.	<b>Chapter 4. Frankenstein:</b> 'My application became so eager that the stars often disappeared in the light of the morning.' <b>Chapter 4. Frankenstein:</b> 'No one can conceive the variety of feelings which bore me onwards, like a hurricane, in the first enthusiasm of success.' <b>Chapter 4. Frankenstein:</b> 'A new species would bless me as its creator and source; many happy and excellent natures would owe their being to me.' <b>Chapter 4. Frankenstein:</b> 'My cheek had grown pale with study.' <b>Chapter 4. Frankenstein:</b> 'A resistless and almost frantic impulse urged me forward; I seemed to have lost all soul or sensation but for this one pursuit.'

# Frankenstein by Mary Shelley (1818)

When?	Summary and Themes/Ideas	Quotations
Chapters 5-10	<p><b>Chapter 5.</b> One stormy night, Victor completes his experiment and the creature he has generated awakens. However, the appearance of the creature horrifies him, and out of <b>prejudice</b>, <b>abandons</b> the creature. Victor realises that he has driven himself to the brink of destruction chasing an impossible dream. He becomes very ill and is nursed back to health by Henry Clerval; his recovery takes many months, exposing the severe impact '<b>playing God</b>' has had on Victor.</p>	<p><b>Chapter 5. Frankenstein:</b> <i>'How can I describe my emotions at this catastrophe, or how delineate the wretch whom with such infinite pains and care I had endeavoured to form?'</i></p> <p><b>Chapter 5. Frankenstein:</b> <i>'Now that I had finished the beauty of the dream vanished and breathless horror and disgust filled my heart.'</i></p> <p><b>Chapter 5. Creature:</b> <i>'A grin wrinkled his cheeks.'</i></p>
	<p><b>Chapter 6.</b> In a letter Elizabeth had written to Victor, she informs him of a woman (Justine Moritz) who once lived with the Frankenstein's has returned. Victor spends time in <b>nature</b> with his childhood friend Henry.</p>	<p><b>Chapter 6. Frankenstein:</b> <i>'Study had before secluded me from the intercourse of my fellow-creatures, and rendered me unsocial; but Clerval taught me again to love the aspect of nature, and the cheerful faces of children.'</i></p> <p><b>Chapter 6. Frankenstein:</b> <i>'I was undisturbed by thoughts which during the preceding year had pressed upon me, notwithstanding my endeavours to throw them off, with an invincible burden.'</i></p>
	<p><b>Chapter 7.</b> Victor receives a letter telling him that his younger brother William has been murdered. Near his home in Geneva, he sees the creature, the product of Victor's <b>misplaced ambition</b>, and is convinced that he is responsible for William's death. The next day, Justine Moritz is accused of murdering William on the evidence that a locket belonging to William was found on Justine. Choked with fear that he may be classified as insane, Victor cannot tell the court the truth and remains silent.</p>	<p><b>Chapter 7. Frankenstein:</b> <i>'I discovered my lovely boy stretched on the grass livid and motionless.'</i></p> <p><b>Chapter 7. Frankenstein:</b> <i>'Vivid flashes illuminating the lake making it appear like a vast sheet of fire.'</i></p> <p><b>Chapter 7. Frankenstein:</b> <i>'The deformity of its aspect more hideous than belongs to humanity, instantly informed me that it was the wretch, the filthy daemon, to whom I had given life.'</i></p> <p><b>Chapter 7. Frankenstein:</b> <i>'I had turned loose into the world a depraved wretch, whose delight was in carnage and misery.'</i></p>
	<p><b>Chapter 8.</b> Justine foolishly confesses to the crime believing she will be granted salvation but is sentenced to death for William's murder. After her execution, Victor is wracked with <b>guilt</b> knowing that the creature is the murderer, and he is ultimately responsible for the deaths of William and Justine.</p>	<p><b>Chapter 8. Justine (to Elizabeth):</b> <i>'I confessed, that I might obtain absolution; but now that falsehood lies heavier at my heart than all my other sins.'</i></p> <p><b>Chapter 8. Frankenstein:</b> <i>'Torn by remorse, horror and despair, I beheld those I loved spend vain sorrow upon the first hapless victims to my unhallowed arts.'</i></p>
	<p><b>Chapter 9.</b> Blaming himself, and dejected by the deaths of William and Justine, Victor contemplates suicide but restrains himself by thinking of his father and Elizabeth. Instead, Victor seeks solitary solace on the mountains and reflects on his actions. Whilst one with <b>nature</b>, and feeling enlightened, he sees the creature approach him.</p>	<p><b>Chapter 9. Frankenstein:</b> <i>'When I reflected on his crimes and malice, my hatred and revenge burst all bounds of moderation.'</i></p> <p><b>Chapter 9. Frankenstein:</b> <i>'I wished to see him again that I might avenge the deaths of William and Justine.'</i></p> <p><b>Chapter 9. Frankenstein:</b> <i>'I listened with the extremist agony. I was the true murderer.'</i></p>
	<p><b>Chapter 10.</b> Victor and the creature confront each other in the Alps. Victor challenges the creature to a duel and is shocked at how eloquently the creature communicates with him, stating he is stronger and mightier than Victor and demands that he listens to him. The creature begins to take over the narrative and describes how he has been a victim of <b>prejudice</b> by society.</p>	<p><b>Chapter 10. Creature (to Frankenstein):</b> <i>'All men hate the wretched.'</i></p> <p><b>Chapter 10. Creature (to Frankenstein):</b> <i>'How dare you sport thus with life?'</i></p> <p><b>Chapter 10. Creature (to Frankenstein):</b> <i>'I ought to be thy Adam, but I am rather the fallen angel.'</i></p> <p><b>Chapter 10. Creature (to Frankenstein):</b> <i>'I was benevolent and good; misery made me a fiend.'</i></p> <p><b>Chapter 10. Frankenstein (to Creature):</b> <i>'Abhorred monster! ... Wretched devil!'</i></p> <p><b>Chapter 10. Frankenstein (to Creature):</b> <i>'For the first time I felt the duties of a creator towards his creature.'</i></p>

# Frankenstein by Mary Shelley (1818)

When?	Summary and Themes/Ideas	Quotations
Chapters 11-16	<p><b>Chapter 11.</b> The creature describes how at first, he was completely unaware of his surroundings. <b>Isolated</b> from his creator, he learned to feed himself and finds a fire made by villagers. Whilst in search of food, he experiences <b>rejection</b> and <b>prejudice</b> from villagers; the <b>creature learns of the cruelty and superficiality of humans</b>. Realising that mankind was always going to treat him as an outsider, the creature finds a novel next to a family dwelling. He observes the <b>family</b> and this becomes the epicentre of his studying of human nature.</p>	<p><b>Chapter 11. Creature:</b> 'I was a poor, helpless, miserable wretch.'  <b>Chapter 11. Creature:</b> 'I sat down and wept.'  <b>Chapter 11. Creature:</b> 'Here then I retreated and lay down happy to have found a shelter, however miserable, from the barbarity of man.'</p>
	<p><b>Chapter 12.</b> The creature continues to learn from the DeLacey family; he begins to understand English and the <b>importance of family</b>. As he is beginning to gain a sense of <b>morality</b>, the creature helps the family by leaving firewood by their house. At one point, the creature realises how grotesque he appears when he spots his reflection in a pool of water and contemplates how he might be <b>rejected</b> further by humanity due to his appearance.</p>	<p><b>Chapter 12. Creature:</b> 'The gentle manners and beauty of the cottagers greatly endeared them to me: when they were unhappy, I felt depressed; when they rejoiced, I sympathized in their joys.'  <b>Chapter 12. Creature:</b> 'I imagined they would be disgusted until by my gentle demeanour, I should win their love.'</p>
	<p><b>Chapter 13.</b> The creature continues to observe the DeLacey's and begins to understand the concept of <b>companionship</b>. They teach each other history and language, and the creature benefits from this as he can now understand human communication. In the next chapter, the history of the DeLacey's is revealed.</p>	<p><b>Chapter 13. Creature:</b> 'I admired virtue and good feelings and loved the gentle manners and amiable qualities of my cottagers.'  <b>Chapter 13. Creature:</b> 'But where were my friends and relations? No father had watched my infant days, no mother had blessed me with smiles and caresses.'</p>
	<p><b>Chapter 15.</b> While foraging in the forest, the creature encounters a satchel with books including John Milton's Paradise Lost. The creature carefully learns to read and reflects on the nature of his own <b>isolation</b>. As he rummages through his own clothing, he finds some papers from Frankenstein's journal and becomes enraged at the detail of his creation and <b>abandonment</b> by his creator. In a futile attempt to be <b>accepted</b> by society, the creature introduces himself to the blind DeLacey. When the other cottagers arrive, they react with violence and drive the creature away.</p>	<p><b>Chapter 15. Creature:</b> 'My person was hideous and my stature gigantic. What did this mean? Who was I? What was I? Whence did I come?.'  <b>Chapter 15. Creature:</b> "Life, although it may only be an accumulation of anguish, is dear to me, and I will defend it"  <b>Chapter 15. Creature:</b> 'Satan had his companions, fellow devils, to admire and encourage him but I am solitary and abhorred.'  <b>Chapter 15. Creature:</b> 'I could have torn him limb from limb as the lion rends the antelope.'</p>
	<p><b>Chapter 16.</b> The creature, spurned by all humanity, goes to Geneva to seek <b>revenge</b> on Victor Frankenstein. On the way, he encounters a drowning girl, saves her but is shot by a villager. He later meets a young boy: William (Victor's brother). Enraged and consumed with <b>revenge</b>, the creature strangles William and frames Justine Moritz. His narrative is over.</p>	<p><b>Chapter 16. Creature:</b> 'Cursed, cursed creator. Why did I live?'  <b>Chapter 16. Creature:</b> 'I, like the arch-fiend, bore a hell within me, and finding myself unsympathised with, wished to tear up the trees, spread havoc and destruction around me.'  <b>Chapter 16. Creature:</b> 'I gazed on my victim and my heart swelled with exultation and hellish triumph.'</p>
Chapter 17	<p><b>Chapter 17.</b> Shelley moves the action back to the present tense with Victor and the creature speaking in the mountains. The creature begs Victor to create him a female <b>companion</b>, so he doesn't perpetually live in <b>isolation</b> and <b>rejection</b>. Initially, Victor refuses because he is worried about the consequences but feels sympathy for the creature and fear over what might happen if he refuses. He agrees.</p>	<p><b>Chapter 17. Creature (to Frankenstein):</b> "You must create a female for me with whom I can live in the interchange of those sympathies necessary for my being."  <b>Chapter 17. Creature (to Frankenstein):</b> "If I cannot inspire love I will cause fear."  <b>Chapter 17. Frankenstein:</b> 'I sometimes wished to console him; but when I saw that filthy mass that moved and talked, my heart sickened.'</p>

# Frankenstein by Mary Shelley (1818)

Chapters 18 – 24

When?	Summary and Themes/Ideas	Quotations
	<p><b>Chapter 18.</b> Fearful of the consequences of making a <b>companion</b> for the creature, Victor withholds creating the female. Victor asks Henry Clerval to accompany him to England and is determined that they will not fall to the creature's <b>revenge</b>.</p>	<p><b>Chapter 18. Frankenstein:</b> 'I was aware also that I should often lose all self-command, all capacity of hiding the harrowing sensations that would possess me during the progress of my unearthly occupation.'</p> <p><b>Chapter 18. Frankenstein:</b> 'The danger of his machinations.'</p>
	<p><b>Chapter 19.</b> Victor begins to work on creating a female <b>companion</b>. Again, he <b>isolates</b> himself from his family and friends to construct the second creation.</p>	<p><b>Chapter 19. Frankenstein:</b> 'I saw an insurmountable barrier placed between me and my fellow men; this barrier was sealed with the blood of William and Justine.'</p> <p><b>Chapter 19. Frankenstein:</b> 'During my first experiment, a kind of enthusiastic frenzy had blinded me to the horror of my employment. But now I went to it in cold blood, and my heart often sickened at the work of my hands.'</p>
	<p><b>Chapter 20.</b> One night, Victor <b>destroys</b> the <b>companion</b> in front of the creature. He is determined to not perpetuate the problem he had created in the first place by the possibility of the creatures being able to reproduce. The creature swears <b>revenge</b> on Victor and informs him that he shall be with him on his wedding night. Victor discards evidence of the companion by throwing the body parts into a lake at night.</p>	<p><b>Chapter 20. Frankenstein:</b> 'The wretch saw me destroy the creature on whose future existence he depended for happiness.'</p> <p><b>Chapter 20. Frankenstein (to Creature):</b> "Begone! I do break my promise; never will I create another like yourself, equal in deformity and wickedness."</p> <p><b>Chapter 20. Creature (to Frankenstein):</b> "Beware, for I am fearless and therefore powerful... I shall be with you on your wedding night."</p>
	<p><b>Chapter 21.</b> To his horror, Victor learns Henry Clerval has been murdered; Victor is accused of murder as his boat was seen by witnesses near the discarded body parts of the female <b>companion</b>. After two months of illness, Victor's father visits him and Victor is later released from prison. Both him and his father depart for Geneva, and they begin planning his wedding to Elizabeth.</p>	<p><b>Chapter 21. Frankenstein:</b> 'The human frame could no longer support the agonies that I endured, and I was carried out of the room in strong convulsions.'</p> <p><b>Chapter 21. Frankenstein:</b> 'Why did I not die? More miserable than man ever was before, why did I not sink into forgetfulness and rest?'</p>
	<p><b>Chapter 23.</b> On the evening of their wedding night, Victor hears a scream and finds Elizabeth murdered and sees the creature from the window. Consumed with grief yet again, Victor vows <b>revenge</b>. He informs his father of the sad news, and he is so overcome with grief that he tragically dies.</p>	<p><b>Chapter 23. Frankenstein:</b> "A thousand fears crossed my mind"</p> <p><b>Chapter 23. Frankenstein:</b> 'A grin was on the face of the monster.'</p> <p><b>Chapter 23. Frankenstein:</b> 'Great God! Why did I not then expire! Why am I here to relate the destruction of the best hope and the purest creature on earth?'</p> <p><b>Chapter 23. Elizabeth:</b> 'She was there, lifeless and inanimate, thrown across the bed, her head hanging down and her pale and distorted features half covered by her hair.'</p> <p><b>Chapter 23. Frankenstein:</b> 'My rage is unspeakable.'</p>
	<p><b>Chapter 24.</b> With his entire family killed, Victor spends the rest of his life chasing the creature. He completes his story to an amazed Walton and then dies. Walton then regains control of the narrative, continuing the story in the form of further letters to his sister. Walton then finds the remorseful creature crying over Victor's death. The creature tells Walton that he will now kill himself. Walton realises the <b>danger of unchecked ambition</b> and turns his crew home.</p>	<p><b>Chapter 24. Frankenstein:</b> "revenge moulded my feelings"</p> <p><b>Chapter 24. Frankenstein:</b> 'I was cursed by some devil and carried about an eternal hell.'</p> <p><b>Chapter 24. Frankenstein:</b> 'I must pursue and destroy the being to whom I gave existence'</p> <p><b>Chapter 24. Creature (to Walton):</b> "I, the miserable and the abandoned"</p> <p><b>Chapter 24. Creature (to Walton):</b> "You hate me; but your abhorrence cannot equal that with which I regard myself."</p> <p><b>Chapter 24. Creature (to Walton):</b> "I shall die. I shall no longer feel the agonies which now consume me."</p>

# Romeo and Juliet by William Shakespeare (1594-96)

When?	Summary and Themes/Ideas	Quotations
<b>Prologue</b>	The chorus tells us of the lovers' fate and the family feud between the Montagues and Capulets. Shakespeare introduces the idea of fate and destiny that the couple had to meet for the conflict to end.	<p><b>Prologue. Chorus:</b> "From ancient grudge break to new mutiny."  <b>Prologue. Chorus:</b> "A pair of star-crossed lovers take their life."  <b>Prologue. Chorus:</b> "Whose misadventured, piteous overthrows."  <b>Prologue. Chorus:</b> "Doth with their death bury their parents' strife."  <b>Prologue. Chorus:</b> "The fearful passage of their death-marked love."</p>
<b>Act 1</b>	The family feud between the two families is established and family loyalties made clear and family honour transcends onto the family servants. Hypermasculinity is introduced in the form of bawdy remarks and physical violence to protect male pride and family honour. Benvolio is presented as a peacemaker, whilst Tybalt a machismo, foreshadowing their roles in the play.	<p><b>Scene 1. Sampson (to Gregory):</b> "Women being the weaker vessels are ever thrust to the wall."  <b>Scene 1. Sampson (to Abram):</b> "I do not bite my thumb at you, sir, but I bite my thumb, sir."  <b>Scene 1. Benvolio (to all):</b> "Part, fools! Put up your swords, you know not what you do."  <b>Scene 1. Tybalt (to Benvolio):</b> "What, drawn and talk of peace! I hate the word as I hate hell, all Montagues, and thee."  <b>Scene 1. Prince Escalus (to all):</b> "Rebellious subjects, enemies to peace."  <b>Scene 1. Prince Escalus (to all):</b> "If ever you disturb our streets again, your lives shall pay the forfeit of the peace."</p>
	Romeo explains his conflicting feelings about life and love. Hypermasculinity and subordinate masculinity are reinforced through the juxtaposition of the fight in Scene 1, and Montague's recount of Romeo's melancholy as well as Romeo's lamentation to Benvolio. Furthermore, it is revealed that Romeo is a Petrarchan lover and Benvolio advises Romeo to move on from desiring Rosaline.	<p><b>Scene 1. Montague (to Benvolio):</b> "Shuts up his windows, locks fair daylight out, and makes himself an artificial night"  <b>Scene 1. Romeo (to Benvolio):</b> "Out of her favour where I am in love."  <b>Scene 1. Romeo:</b> "O brawling love, O loving hate... feather of lead, bright smoke, cold fire, sick health..."  <b>Scene 1. Romeo (to Benvolio):</b> "she'll not be hit with Cupid's arrow, she hath Dian's wit and in strong proof of chastity well arm'd"  <b>Scene 1. Romeo (to Benvolio):</b> "She hath forsworn to love, and in that vow, Do I live dead that live to tell it now."  <b>Scene 1. Benvolio (to Romeo):</b> "Examine other beauties."</p>
	Lord Capulet and the bachelor Paris discuss arranging Paris to meet Juliet at a ball and begin their courtship. Capulet reveals he wishes Juliet to wait two more years until she marries Paris and advises him to romance her over time. Meanwhile, the motif of fate recurs when the illiterate servant asks Romeo to read invitation list and sees Rosaline's name on the list. Benvolio and Romeo decide to gate-crash the ball.	<p><b>Scene 1. Capulet (to Paris):</b> "Too soon marred are those so early made."  <b>Scene 1. Capulet (to Paris):</b> "Let two more summers wither in their pride, ere we may think her ripe to be a bride."  <b>Scene 2. Capulet (to Paris):</b> "But woo her, gentle Paris, get her heart, my will to her consent is but a part..."  <b>Scene 2. Benvolio (to Romeo):</b> Compare [Rosaline's] face with some that I shall show, and I will make thee think thy swan a crow."  <b>Scene 2. Romeo (to Benvolio):</b> "I'll go along no such sight to be shown, but to rejoice in splendour of mine own."</p>
	Shakespeare establishes Lady Capulet's and Juliet's attitudes towards marriage. Shakespeare also highlights Juliet's close relationship to the Nurse who raised her as a baby and juxtaposes this to a distant mother daughter relationship with Lady Capulet.	<p><b>Scene 3. Lady Capulet (to Nurse):</b> "Nurse, where's my daughter? Call her forth to me."  <b>Scene 3. Lady Capulet (to Nurse):</b> "Nurse, give leave a while, we must talk in secret. Nurse, come back again..."  <b>Scene 3. Nurse (about Juliet):</b> "Thou wast the prettiest babe that e'er I nurs'd."  <b>Scene 3. Lady Capulet (to Juliet):</b> "How stands your dispositions to be married?"  <b>Scene 3. Juliet (to Lady Capulet):</b> "It is an honour I dream not of."  <b>Scene 3. Lady Capulet (to Juliet):</b> "...younger than you, here in Verona, ladies of esteem, are made already mothers."  <b>Scene 3. Lady Capulet (to Juliet):</b> "This night you shall behold [Paris] at our feast."  <b>Scene 3. Nurse (to Juliet):</b> "Go, girl, seek happy nights to happy days."</p>

# Romeo and Juliet by William Shakespeare (1594-96)

When?	Summary and Themes/Ideas	Quotations
Act 1	Romeo has a terrible feeling that if he attends the ball, something will happen that will result in his death. However, he is overpowered by his friends Mercutio and Benvolio, and they all gate-crash the Capulet Ball.	<p><b>Scene 4. Romeo (to Benvolio + Mercutio):</b> "Some consequence yet hanging in the stars shall bitterly begin his fearful date with this night's revels."</p> <p><b>Scene 4. Romeo (to Benvolio + Mercutio):</b> "By some vile forfeit of untimely death."</p> <p><b>Scene 4. Romeo (to Benvolio + Mercutio):</b> "He that hath the steerage of my course, Direct my sail! On, lusty gentlemen."</p>
	Tybalt spots Romeo at the ball and is outraged by Romeo's shameless dishonour by attending. Tybalt vows to seek revenge for this after Lord Capulet demands that he treats Romeo as a guest. Romeo sees Juliet for the first time and they fall madly in love with each other at the Capulet ball. Their first conversation takes form as a sonnet which solidifies their reciprocated attraction towards one another. By the end of the scene, they realise that their love is forbidden and doomed.	<p><b>Scene 5. Romeo:</b> "O, she doth teach the torches to burn bright."</p> <p><b>Scene 5. Romeo:</b> "Did my heart love till now? Forswear it, sight! For I ne'er saw true beauty till this night."</p> <p><b>Scene 5. Tybalt (to Capulet):</b> "Uncle, this is a Montague, our foe... I will not endure him."</p> <p><b>Scene 5. Capulet (to Tybalt):</b> "He shall be endur'd... Am I the master here, or you?... You'll make a mutiny among my guests!"</p> <p><b>Scene 5. Tybalt:</b> "Patience perforce with wilful choler meeting, makes my flesh tremble in their different greeting."</p> <p><b>Scene 5. Tybalt:</b> " I will withdraw, but this intrusion shall, now seeming sweet, convert to bitterest gall."</p> <p><b>Scene 5. Romeo (to Juliet):</b> "My lips, two blushing pilgrims, ready stand to smooth that rough touch with a tender kiss."</p> <p><b>Scene 5. Juliet (to Romeo):</b> "For saints have hands that pilgrims' hands do touch, and palm to palm is holy palmers' kiss."</p> <p><b>Scene 5. Romeo (to Juliet):</b> "Give me my sin again." (Kissing her again)</p> <p><b>Scene 5. Juliet:</b> "If he be married, my grave is like to be my wedding bed."</p> <p><b>Scene 5. Juliet:</b> "My only love sprung from my only hate."</p>
Act 2	Romeo hides from his friends after the ball and runs back to the Capulet house to see Juliet. In her soliloquy, Juliet questions the meaning of family loyalty, and expresses her love for Romeo, unaware that he is listening to her thoughts. When he reveals himself, Romeo pursues Juliet, but she realises that the love she feels for Romeo is too sudden. He proposes and they arrange for the Nurse to act as their go-between. The lovers are enthusiastic to wed – despite knowing that their love is forbidden.	<p><b>Scene 2. Juliet:</b> "O Romeo, Romeo, wherefore art thou Romeo?"</p> <p><b>Scene 2. Juliet:</b> "That which we call a rose by any other word would smell as sweet."</p> <p><b>Scene 2. Juliet:</b> "Deny thy father and refuse thy name."</p> <p><b>Scene 2. Romeo:</b> "It is the east, and Juliet is the sun."</p> <p><b>Scene 2. Romeo (to Juliet):</b> "With love's light wings did I o'erperch these walls, for stony limits cannot hold love out."</p> <p><b>Scene 2. Romeo (to Juliet):</b> "But love from love, toward school with heavy looks."</p> <p><b>Scene 2. Juliet (to Romeo):</b> "It is too rash, too unadvis'd, too sudden."</p> <p><b>Scene 2. Romeo (to Juliet):</b> "Th'exchange of thy love's faithful vow for mine."</p> <p><b>Scene 2. Juliet (to Romeo):</b> "My bounty is as boundless as the sea, love as deep; the more I give to thee the more I have, for both are infinite."</p>



# Romeo and Juliet by William Shakespeare (1594-96)

When?	Summary and Themes/Ideas	Quotations
Act 2	<p>Shakespeare introduces Friar Lawrence, who acts like a father and mentor for Romeo. The Friar is sceptical of Romeo's new infatuation but agrees to help the lovers marry as he believes their union will end the family feud. After, the Nurse speaks to Romeo of his intentions towards Juliet and he reveals his desire to marry her. The Nurse is elated to give Juliet this good news and she prepares herself for confession. To end this Act, Friar Lawrence marries Romeo to Juliet with just the Nurse as witness– although he warns them of rushing into love too soon.</p>	<p><b>Scene 5. Friar Lawrence:</b> <i>"The earth that's nature's mother is her tomb."</i></p> <p><b>Scene 5. Friar Lawrence (to Romeo):</b> <i>"Young men's love then lies not truly in their hearts, but in their eyes."</i></p> <p><b>Scene 5. Friar Lawrence (to Romeo):</b> <i>"These woes were all for Rosaline. And art thou chang'd?"</i></p> <p><b>Scene 5. Friar Lawrence (to Romeo):</b> <i>"For doting, not for loving, pupil mine."</i></p> <p><b>Scene 5. Friar Lawrence (to Romeo):</b> <i>"I'll thy assistant be: for this alliance may so happy prove to turn your households' rancour to pure love."</i></p> <p><b>Scene 5. Nurse (to Juliet):</b> <i>"Have you got leave to go to shrift today?... Then hie you hence to Friar Lawrence' cell, there stays a husband to make you a wife."</i></p> <p><b>Scene 6. Friar Lawrence (to Romeo + Juliet):</b> <i>"These violent delights have violent ends."</i></p> <p><b>Scene 6. Friar Lawrence (to Romeo + Juliet):</b> <i>"The sweetest honey is loathsome in his own deliciousness and... confounds the appetite."</i></p> <p><b>Scene 6. Friar Lawrence (to Romeo + Juliet):</b> <i>"Love moderately."</i></p>
Act 3	<p>The conflict between the Montagues and Capulets intensifies as Benvolio warns the Montagues that something bad will happen. When the Capulets arrive, tensions rise even more and Benvolio reminds both households of the Prince's ultimatum. Tybalt disregards this and challenges Romeo to a duel, and Romeo refuses to fight. Mercutio, outraged from this refusal, draws his own sword and in the fighting, both he and Tybalt are killed. Consequently, Romeo is banished by the Prince.</p> <p>Unaware of the events, Juliet eagerly awaits her husband but the Nurse brings her news that Romeo has killed Tybalt in a fight. At first, she is shocked and distraught, but realises she must stand by Romeo. Juliet asks the Nurse to find Romeo and bring him to her before he leaves Verona.</p>	<p><b>Scene 1. Benvolio (to Mercutio):</b> <i>"The day is hot... if we meet we shall not scape a brawl... these hot days, is the mad blood stirring."</i></p> <p><b>Scene 1. Tybalt (to Romeo):</b> <i>"Romeo...thou art a villain... turn and draw."</i></p> <p><b>Scene 1. Romeo (to Tybalt):</b> <i>"I do protest I never injured thee, but love thee better than thou canst devise."</i></p> <p><b>Scene 1. Mercutio (to Tybalt):</b> <i>"O calm, dishonourable, vile submission!"</i></p> <p><b>Scene 1. Mercutio (to Romeo):</b> <i>"Ask for me tomorrow, and you will find me a grave man."</i></p> <p><b>Scene 1. Mercutio (to Romeo):</b> <i>"A plague o' both your houses."</i></p> <p><b>Scene 1. Romeo:</b> <i>"My reputation stain'd with Tybalt's slander."</i></p> <p><b>Scene 1. Romeo:</b> <i>"O sweet Juliet, thy beauty hath made me effeminate."</i></p> <p><b>Scene 1. Romeo:</b> <i>"fire-ey'd fury be my conduct now!"</i></p> <p><b>Scene 1. Romeo:</b> <i>"O I am fortune's fool."</i></p> <p><b>Scene 1. Prince (to all):</b> <i>"Immediately we do exile him."</i></p> <p><b>Scene 2. Juliet:</b> <i>"Give me my Romeo, and when he shall die, take him and cut him out in little stars."</i></p> <p><b>Scene 2. Nurse (to Juliet):</b> <i>"Tybalt is gone and Romeo banished, Romeo that kill'd him..."</i></p> <p><b>Scene 2. Juliet (to Nurse):</b> <i>"O Serpent heart, hid with a flowering face."</i></p> <p><b>Scene 2. Juliet (to Nurse):</b> <i>"Beautiful tyrant, fiend angelical."</i></p> <p><b>Scene 2. Juliet (to Nurse):</b> <i>"Shall I speak ill of him that is my husband?"</i></p> <p><b>Scene 2. Juliet (to Nurse):</b> <i>"Give this ring to my true knight, and bid him to come to take his last farewell."</i></p>

# Romeo and Juliet by William Shakespeare (1594-96)

When?	Summary and Themes/Ideas	Quotations
Act 3	Romeo is completely distraught, and Friar Lawrence tries to console Romeo and find a solution for the terrible problems that have arisen. He suggests that Romeo should leave Verona in the early morning and reside in Mantua for the time being.	<p><b>Scene 3. Friar Lawrence (to Romeo):</b> "Hold thy desperate hand! Art thou a man?"</p> <p><b>Scene 3. Friar Lawrence (to Romeo):</b> "Thy tears are womanish"</p> <p><b>Scene 3. Friar Lawrence (to Romeo):</b> "there art thou happy. A pack of blessings light upon thy back"</p> <p><b>Scene 3. Friar Lawrence (to Romeo):</b> "but like a mishaved and sullen wench, thou pouts upon thy fortune and thy love"</p> <p><b>Scene 3. Friar Lawrence (to Romeo):</b> "Ascend her chamber, hence and comfort her."</p>
	Romeo and Juliet risk spending one night together before Romeo is banished from Verona. After Romeo leaves, Lady Capulet brings Juliet news of Paris's proposal and arranged marriage. Juliet, who has been crying over losing Romeo, is mistaken to be crying for the loss of Tybalt and is encouraged to be strong by her mother. Juliet bravely rejects the arranged marriage and reveals she will only marry Romeo! Enraged by possible public humiliation, Capulet aggressively presents patriarchal power over Juliet and threatens her to marry Paris or be disowned. The Nurse advises Juliet to marry Paris and Juliet goes to see Friar Lawrence for help.	<p><b>Scene 5. Juliet (to Romeo):</b> "O God, I have an ill-divining soul!"</p> <p><b>Scene 5. Juliet (to Romeo):</b> "Methinks I see thee, now thou art below, as one dead in the bottom of a tomb."</p> <p><b>Scene 5. Romeo (to Juliet):</b> "And trust me, love, in my eye so do you: dry sorrow drinks our blood."</p> <p><b>Scene 5. Juliet (to Romeo):</b> "Yet let me weep for such a feeling loss."</p> <p><b>Scene 5. Lady Capulet (to Juliet):</b> "Marry, my child, early next Thursday morn... The County Paris... shall happily make thee there a joyful bride."</p> <p><b>Scene 5. Juliet (to Lady Capulet):</b> "I will not marry yet, and when I do, I swear it shall be Romeo."</p> <p><b>Scene 5. Capulet (to Juliet):</b> "Go with Paris to St Peter's Church, or I will drag thee on a hurdle thither."</p> <p><b>Scene 5. Capulet (to Juliet):</b> "Out, you green-sickness carrion! Out, you baggage!"</p> <p><b>Scene 5. Capulet (to Juliet):</b> "Hang thee, young baggage, disobedient wretch!"</p> <p><b>Scene 5. Capulet (to Juliet):</b> "Get thee to church... or never after look me in the face."</p> <p><b>Scene 5. Nurse (to Juliet):</b> "I think it best you married with the County."</p> <p><b>Scene 5. Juliet:</b> "I'll go to the Friar to know his remedy; if all else fail, myself have power to die."</p>
Act 4	Friar Lawrence plans to help the lovers and to stop the marriage of Paris and Juliet. Juliet makes it clear that she would rather die than marry Paris, and the Friar comes up with a quick solution to not only prevent the marriage, but reunify Romeo and Juliet. Towards the end of his monologue, the Friar states that he will write to Romeo and he will meet with Juliet after she has been buried to escape to Mantua.	<p><b>Scene 1. Juliet (to Friar Lawrence):</b> "I long to die, if what thou speak'st speak not of remedy."</p> <p><b>Scene 1. Juliet (to Friar Lawrence):</b> "bid me go into a new made grave."</p> <p><b>Scene 1. Friar Lawrence (to Juliet):</b> "Take thou this vial, being in bed..."</p> <p><b>Scene 1. Friar Lawrence (to Juliet):</b> "No warmth, no breath shall testify thou livest."</p> <p><b>Scene 1. Friar Lawrence (to Juliet):</b> "The roses in thy lips and cheeks shall fade."</p> <p><b>Scene 1. Friar Lawrence (to Juliet):</b> "In this borrow'd likeness of shrunk death... [after 42 hours] thou awake as from a pleasant sleep."</p>
	Juliet is at first sceptical of the Friar's plan and suspects the sleeping potion he has given her will kill her to cover his implication in unifying Romeo and Juliet. However, in desperation, she takes the potion. The Nurse discovers Juliet's body in the morning and the Capulets arrange her funeral.	<p><b>Scene 3. Juliet:</b> "What if it be a poison... to have me dead..."</p> <p><b>Scene 3. Juliet:</b> "Methinks I see my cousin's ghost seeking out Romeo."</p> <p><b>Scene 3. Juliet:</b> "Here's drink - I drink to thee."</p> <p><b>Scene 5. Nurse:</b> "Help, help! My lady's dead!"</p> <p><b>Scene 5. Nurse (to Lady Capulet):</b> "O lamentable day!"</p>

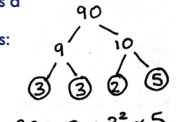



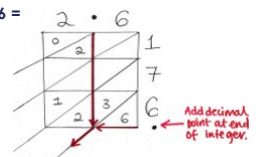
# Romeo and Juliet by William Shakespeare (1594-96)

When?	Summary and Themes/Ideas	Quotations
Act 5	Friar Lawrence arrives at the Capulet household to proceed with the wedding, but Capulet informs him of Juliet's death. The Friar encourages the Capulet family to come to terms with Juliet's 'death'.	<p><b>Scene 5. Capulet (to Friar Lawrence):</b> "Death lies on her like an untimely frost."  <b>Scene 5. Capulet (to Friar Lawrence):</b> "Despised, distressed, hated, martyr'd, killed!"  <b>Scene 5. Friar Lawrence (to Capulet):</b> "She's not well married that lives married long, but she's best married that dies married young."  <b>Scene 5. Friar Lawrence (to Capulet):</b> "Bear her to church, for though fond nature bids us all lament."</p>
Act 5	The friar's plan goes wrong as Romeo is told that Juliet is dead from a witness at Juliet's funeral. Romeo is consumed with grief and purchases poison and plans to visit Juliet's tomb.	<p><b>Scene 1. Romeo (to Balthasar):</b> "I defy you, stars!"  <b>Scene 1. Romeo (to Balthasar):</b> "The trunk may be discharged of breath, as violently as hasty powder fired."  <b>Scene 1. Romeo:</b> "Well, Juliet, I will lie with thee tonight."  <b>Scene 1. Romeo:</b> "Let me have a dream of poison."  <b>Scene 1. Romeo:</b> "Come, cordial and not poison, go with me to Juliet's grave, for there must I use thee."</p>
	Friar Lawrence, learning that Romeo has not received his letter containing information that Juliet has faked her death, hurries to the Capulets' vault.	<p><b>Scene 2. Friar Lawrence (to Friar John):</b> "Unhappy fortune!"  <b>Scene 2. Friar Lawrence (to Friar John):</b> "Poor living corpse, closed in a dead man's tomb!"</p>
	Paris, praying at Juliet's tomb, encounters Romeo. Romeo fights with Paris in the Capulet tomb and slays Paris. When Romeo finds Juliet's body, he drinks the poison. After Juliet awakes and sees Romeo's dead body, she kills herself.	<p><b>Scene 3. Paris (to Romeo):</b> "Can vengeance be pursued further than death?"  <b>Scene 2. Friar Lawrence (to Juliet):</b> "I dare no longer stay"  <b>Scene 3. Romeo (to Juliet):</b> "Death, that hath suck'd the honey of thy breath, hath had no power yet upon thy beauty."  <b>Scene 3. Romeo (to Juliet):</b> "Death's pale flag is not advanced there."  <b>Scene 3. Romeo (to Juliet):</b> "The doors of breath, seal with a righteous kiss a dateless bargain to engrossing death!"  <b>Scene 3. Romeo (to Juliet):</b> "Here's to my love!"  <b>Scene 3. Romeo (to Juliet):</b> "Thy drugs are quick. Thus with a kiss I die."</p>
	The doomed lovers die in the Capulet tomb. The page who saw Paris and Romeo fight left the tomb to seek help and arrives with the Prince and with Montague and Capulet. Friar Lawrence explains what has happened and the heads of households bury their strife.	<p><b>Scene 3. Juliet (to Romeo):</b> "O happy dagger!"  <b>Scene 2. Friar Lawrence:</b> "here I stand both to impeach and purge myself condemned and myself excused"  <b>Scene 3. Prince (to all):</b> "Capulet, Montague? See what a scrouge is laid upon your hate."  <b>Scene 3. Prince (to all):</b> "All are punished."  <b>Scene 3. Capulet (to Montague):</b> "O brother Montague, give me thy hand."  <b>Scene 3. Prince (to all):</b> "Never was a story of more woe than this of Juliet and her Romeo."</p>

Fractions are my friends!		
Always make your life simple	Simplify first	$\frac{10}{21} \times \frac{14}{25} = \frac{4}{15}$
Cancel anything on the top	With anything from the bottom	
Multiplying fractions	Top $\times$ top bottom $\times$ bottom	
Dividing fractions	Times by the reciprocal	$\frac{3}{8} \div \frac{7}{11} = \frac{3}{8} \times \frac{11}{7} = \frac{33}{56}$
Adding or subtracting fractions	Find the LCM	$\frac{7}{12} + \frac{2}{9}$ <p><i>x3</i> <math>\frac{21}{36}</math> <i>x4</i> <math>\frac{8}{36}</math> <math>\frac{12}{36} + \frac{8}{36} = \frac{20}{36} = \frac{5}{9}</math></p>
Comparing fractions	Find the LCM	<p>which is bigger <math>\frac{4}{5}</math> or <math>\frac{5}{6}</math>?</p> <p><i>LCM</i> <math>\frac{24}{30}</math> <math>\frac{25}{30}</math> <b>Bigger</b></p>

Notation		
Expression	No equals sign	$2x - 12 + 3x$
Equation	Has an equals sign	$2x - 12 + 3x = 20$
Identity	True with any value for x	$5(x-3) \equiv 5x - 15$
Formula	Equals with more than one unknown	Area of a Trapezium = $\frac{(a+b)h}{2}$

Factors, Multiples and Primes		
Prime factor form	Tree thing tree thing	Express 90 as a product of prime factors:  $90 = 2 \times 3^2 \times 5$
Product of its primes	Product means times, 2, 3, 5, 7 don't forget your primes	
HCF or LCM of large numbers	Use a venn diagram	 $80 = 2^4 \times 5$ $24 = 2^3 \times 3$ HCF = overlap = $2 \times 2 = 4$ LCM = all = $2^4 \times 3 \times 5 = 240$
HCF	Multiply the overlap (Common bases, lowest powers)	
LCM	Multiply them all (All bases, highest powers)	$280 = 2^3 \times 5 \times 7$ HCF = $2^2 \times 5 = 20$ $900 = 2^2 \times 3^2 \times 5^2$ LCM = $2^3 \times 3^2 \times 5^2 \times 7 = 12600$

Decimal Manipulation		
Multiplying decimals	Gelasia	$2.6 \times 176 =$ 
Dividing numbers	Bus stop	Work out $3 \div 8$ $= 8 \overline{) 3.0000}$ $= 0.375$
The first number	Goes in the bus stop	
Dividing by a decimal	Equivalent fractions, Turn the denominator into an integer	Calculate $0.0642 \div 0.03$ $\frac{0.0642}{0.03} = \frac{6.42}{3} = 2.14$ <i>dividing by a decimal <math>\rightarrow</math> new use bus stop</i>

### Estimation & Limits of accuracy

<b>Rounding</b>	Find the decider	Round 58,624 to the nearest 100
<b>5 or above</b>	Give it a shove	
<b>4 or below</b>	Let it go	
<b>Error interval</b>	Range of possible values	$x = 3.68$ (3sf). Find the error interval for $x$ . 
<b>How do we find them?</b>	Use a number line	Ans: $3.675 \leq x < 3.685$

### Simplifying

<b>Simplifying algebraic fractions</b>	It's always wise to factorise	Simplify $\frac{18m^3 + 12m^2}{3m^2 + 2m} = \frac{6m^2(3m+2)}{m(3m+2)} = 6m$ $\frac{6b^5}{27+3b} \times \frac{9+b}{b^6} = \frac{6}{3} = 2$
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### Expressions and Substitution

<b>Substitution</b>	Replace with brackets	$a = 5$ and $b = -2$ . Calculate $6a - 3b$ $= 6(5) - 3(-2)$ $= 30 + 6$ $= 36$
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### Expanding and Factorising

<b>What do we look for?</b>	Common Factors	Factorise $6xy^2 - 9x^2y - 12xy$ $3xy(2y - 3x - 4)$
$Ax^2 + bx + c$		

### Fractions, Decimals and Percentages

<b>% means</b>	Out of 100	Write 48% as a fraction in simplest form $4.8\% = \frac{48}{100} = \frac{12}{25}$ (Always look to simplify)
<b>Fractions to decimals</b>	The line means divide	Convert $\frac{5}{8}$ to a percentage $5 \div 8 = \frac{0.625}{1} = 62.5\%$
<b>What do we use?</b>	Bus stop	
<b>Fractions to %</b>	Equivalent fractions Make the denominator 100	Write $\frac{3}{20}$ as a percentage $\frac{3}{20} = \frac{15}{100} = 15\%$
<b>And if that fails?</b>	The line means divide	

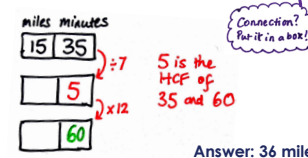

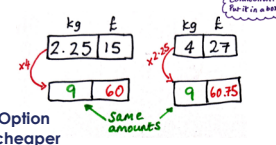


### Indices

<b>Bases are the same</b>	Multiplying add the powers, dividing subtract	$W^3 \times W^4 = W^{3+4} = W^7$ $W^3 \div W^4 = W^{3-4} = W^{-1} = \frac{1}{W}$
<b>Base to the power, all to the power</b>	Multiply the indices	$(W^3)^2 = W^6$
<b>Base to the power of zero</b>	Equals 1	$W^0 = 1$
<b>Reciprocal</b>	What you times by to get 1 - Flip it!	Reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$ because $\frac{2}{3} \times \frac{3}{2} = 1$
<b>How do you find it?'</b>	Flip it	
<b>Complicated indices</b>	Reciprocal Root Power	$125^{-\frac{2}{3}} = \left(\frac{1}{125}\right)^{\frac{2}{3}}$ (Reciprocal) $= \left(\frac{1}{\sqrt[3]{125}}\right)^2$ (Root) $= \left(\frac{1}{5}\right)^2 = \frac{1}{25}$ (Power)

Percentages

Percentages questions	Original x Multiplier = Final $O \times M = F$	Finding final: Increase <u>70</u> by <u>200%</u> $\downarrow O$ $\downarrow M$ $F?$
		Finding original: A TV is <u>reduced by 15%</u> $\rightarrow M$ It now costs <u>£255</u> $\rightarrow F$ What was the <u>price originally?</u> $\rightarrow O?$
		Finding percentage change: Jo's wage increases from <u>£6.15</u> to <u>£7.38</u> $\downarrow O$ $\downarrow F$ What is the <u>% increase?</u> $\downarrow M?$
For the multiplier	Start with 100 Go up or down Turn into a decimal	The multiplier for a <u>decrease of 40%</u> $100\% - 40\% = 60\%$ $60\% = \frac{60}{100} = 0.6$

Ratio and Proportion

Connection between two things	Box method	Jay travels 15 miles in 35 minutes. How much will he travel in 1 hour?  Connection? Put it in a box!
What do we look for?	Up down, side to side	
And if that fails?	Middle man, think HCF	
Converting units	Box method	Convert 0.03m into cm  Connection? Put it in a box!
Currency questions	Box method	
Recipe questions	Box method	
Value for money	Box method with same amounts	Which is better value, 2.25 kg of rye for £15 or 4kg for £27?  Connection? Put it in a box! SAME amounts
Ratio questions	Box method with a total	To make juice I mix 1 part squash with 4 parts water. How much squash do I need for 2L of juice?  Connection? Put it in a box!
		Write the ratio 5:4 in the form 1 : n  Answer: 1: $\frac{4}{5}$

Probability



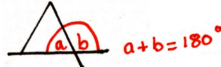






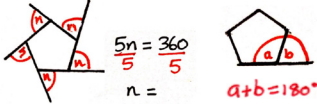
Probability	Always adds up to 1	Find x. <table border="1"> <tr> <td>Number rolled</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> </tr> <tr> <td>probability</td> <td>0.14</td> <td>0.15</td> <td>0.21</td> <td>0.14</td> <td>x</td> <td>0.31</td> </tr> </table>	Number rolled	1	2	3	4	5	6	probability	0.14	0.15	0.21	0.14	x	0.31
Number rolled	1	2	3	4	5	6										
probability	0.14	0.15	0.21	0.14	x	0.31										
Sample space diagram	Two fair events, set up a table	You toss two fair coins. What is the probability of both showing tails? <table border="1"> <tr> <td></td> <td>H</td> <td>T</td> </tr> <tr> <td>H</td> <td>HH</td> <td>HT</td> </tr> <tr> <td>T</td> <td>TH</td> <td>TT</td> </tr> </table> $p(TT) = \frac{1}{4}$		H	T	H	HH	HT	T	TH	TT					
	H	T														
H	HH	HT														
T	TH	TT														
Probability Tree Diagrams	Across times, down add	Calculate the probability of getting one of each colour. 														
If you see 'and'?	Times	Evaluate the probability of rolling a 5 on a fair six-sided dice and getting heads from a fair coin toss. $p(5) = \frac{1}{6}$ $p(H) = \frac{1}{2} \rightarrow p(5 \text{ AND } H) = \frac{1}{6} \times \frac{1}{2}$														
If you see 'or'?	Add	Evaluate the probability of getting an even number or a 3 on a fair six-sided dice. $p(\text{even}) = \frac{1}{2}$ $p(3) = \frac{1}{6} \rightarrow p(\text{even OR } 3) = \frac{1}{2} + \frac{1}{6}$														
Venn Diagrams	Start in the middle and work your way out.	25 people like football, 18 like cricket. a) How many in total if 15 like both? 														
And if we can't	Call it x	b) How many like both if 37 like either? $\text{Total} = 25 - x + x + 18 - x = 43 - x$ $37 = 43 - x$ $x = 6$ 														

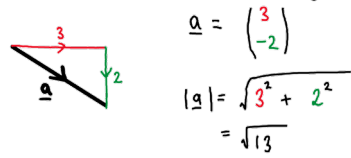
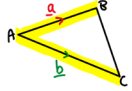
Linear Equations

Successful elimination	With an inverse operation	Solve $\frac{x}{3} + 5 = 8$ $\frac{x}{3} = 8 - 5$ $\frac{x}{3} = 3$ $x = 9$
If you do it to one side	Do it to the other	
x on both sides	Eliminate the smallest x	Solve $11 - 3x = 2x + 1$ $+ 3x$ $+ 3x$

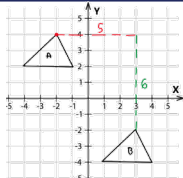
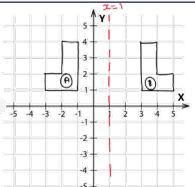
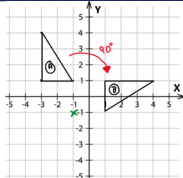
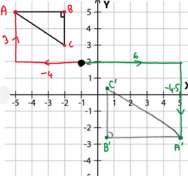
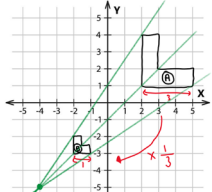
Linear Inequalities

Inequalities with negative x	Move the x and make it positive	Solve $-2x > 10$ $+2x$ $+2x$ $0 > 10 + 2x$ $-10 > -10 + 2x$ $-10 > 2x$ $-5 > x$
Inequalities with two sides	Solve both sides separately, then combine	Solve & represent on a number line $3 < x - 9 \leq 5$ $3 < x - 9$ $x - 9 \leq 5$ $x \leq 14$
Strict inequality <>	Open dot	$12 < x$ $\hookrightarrow 12 < x \leq 14 \leftarrow$ 
Weak inequality ≤ ≥	Solid dot	





Angles		
Angles in a triangle	Add up to $180^\circ$	
Angles in a quadrilateral	Add up to $360^\circ$	
Angles on a straight line	Add up to $180^\circ$	
Opposite angles in a parallelogram	Are equal	
Vertically opposite	Angles are equal	
Parallel lines	Fs and Zs	
Fs	Corresponding angles are equal	
Zs	Alternate angles are equal	
Co-interior angles	Add up to $180^\circ$	
Exterior angles	Add up to $360^\circ$	
Interior plus exterior	Add up to $180^\circ$	$\frac{5n}{5} = \frac{360}{5}$ $n =$ $a+b=180^\circ$

Vectors		
Vectors	Magnitude and direction	Write $\mathbf{a}$ as a column vector and work out its magnitude 
Parallel vectors	It's always wise to factorise	Which of the following vectors are parallel? $\mathbf{a} = \begin{pmatrix} 8 \\ 12 \end{pmatrix}$ , $\mathbf{b} = \begin{pmatrix} 9 \\ 15 \end{pmatrix}$ , $\mathbf{c} = \begin{pmatrix} 12 \\ 18 \end{pmatrix}$ $\mathbf{a} = 4 \begin{pmatrix} 2 \\ 3 \end{pmatrix}$ , $\mathbf{b} = 3 \begin{pmatrix} 3 \\ 5 \end{pmatrix}$ , $\mathbf{c} = 6 \begin{pmatrix} 2 \\ 3 \end{pmatrix}$ $\mathbf{a}$ and $\mathbf{c}$ are multiples of $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$ so they are parallel.
Solving vector problems	Plan your route first	$\overrightarrow{AB} = \mathbf{a}$ , $\overrightarrow{AC} = \mathbf{b}$ Write $\overrightarrow{BC}$ in terms of $\mathbf{a}$ and $\mathbf{b}$ Route: $\overrightarrow{BC} = \overrightarrow{BA} + \overrightarrow{AC}$ $= -\mathbf{a} + \mathbf{b}$ 

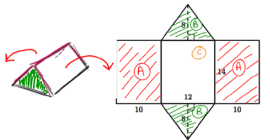
Transformations

<p>Translations</p>	<p>Movements with vectors</p>	 <p>Describe the transformation that maps A onto B</p> <p>Translation by vector <math>\begin{pmatrix} 5 \\ -6 \end{pmatrix}</math></p>
<p>Reflections</p>	<p>Mirror line of symmetry</p>	 <p>Describe the transformation that maps A onto B</p> <p>Reflection in the line <math>x=1</math></p>
<p>Rotations</p>	<p>Angle, Direction, Centre</p>	 <p>Describe the transformation that maps A onto B</p> <p>Rotation <math>90^\circ</math> (clockwise) about <math>(-1, -1)</math></p>
<p>Drawing enlargements</p>	<p>Vector FROM the centre TO each point</p>	 <p>Enlarge this triangle by scale factor of <math>-1.5</math>, through the centre <math>(-1, 2)</math></p> <p>Centre to A': <math>-1.5 \times \begin{pmatrix} -4 \\ -3 \end{pmatrix} = \begin{pmatrix} 6 \\ -4.5 \end{pmatrix}</math></p> <p>Centre to B': <math>-1.5 \times \begin{pmatrix} -1 \\ 3 \end{pmatrix} = \begin{pmatrix} 1.5 \\ -4.5 \end{pmatrix}</math></p> <p>Centre to C': <math>-1.5 \times \begin{pmatrix} 1 \\ 1 \end{pmatrix} = \begin{pmatrix} -1.5 \\ -1.5 \end{pmatrix}</math></p>
<p>Describing enlargements</p>	<p>Enlargement, Scale factor, Centre</p>	 <p>Describe the transformation that maps A onto B</p> <p>Enlargement scale factor <math>\frac{1}{3}</math> centre <math>(-4, -5)</math></p>

Circles

<p>Circumference of a circle</p>	<p><math>\pi \times d</math></p>	 <p><math>C = \pi d</math></p>
<p>Area of a circle</p>	<p><math>\pi r^2</math></p>	 <p><math>A = \pi r^2</math></p>
<p>Arc length is</p>	<p>Fraction of the circle times <math>\pi \times d</math></p>	 <p>Arc length = <math>\frac{200}{360} \times \pi d</math></p>
<p>Area of a sector is</p>	<p>Fraction of the circle times <math>\pi r^2</math></p>	 <p>Area of Sector = <math>\frac{200}{360} \times \pi r^2</math></p>

Surface Area

<p>Surface area</p>	<p>Area of each face Add them up</p>	 <p>Area A Area A Area B Area B Area C Area C Total Surface Area</p>
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## Unit B1: Cell Biology – Cells, Tissues and Organs

1	What are cells?	The basic unit of living things
2	What are the 5 organelles that are present in both animal and plant cells	Nucleus, cell membrane, cytoplasm, mitochondria and ribosomes
3	What are the 3 organelles that may be present only in plant cells?	Cell wall, permanent vacuole and chloroplasts
4	What is the function of the nucleus?	Controls the activities of the cell
5	What is the function of the cell membrane?	Controls what enters and leaves the cell
6	What is the function of the cytoplasm?	Where the chemical reactions take place
7	What is the function of the mitochondria?	Where respiration takes place
8	What is respiration?	How energy is released from glucose
9	What is the function of the ribosomes?	Where protein synthesis takes place
10	What is the function of the cell wall?	It strengthens and supports the cell
11	What is the function of the permanent vacuole?	It contains cell sap (to keep the cell rigid)
12	What is the function of the chloroplasts?	Where photosynthesis takes place
13	What is photosynthesis?	How plants use light to make glucose
14	What are eukaryotic cells?	Cells with a nucleus
15	What are prokaryotic cells?	Cells without a nucleus
16	Give an example of a eukaryotic cell	Animal or plant cells
17	Give an example of a prokaryotic cell	Bacteria
18	Which are larger: eukaryotic or prokaryotic cells?	Eukaryotic cells
19	What form does the genetic material in a prokaryotic cell take?	A single DNA loop
20	Give two differences between prokaryotic and eukaryotic cells	Eukaryotic cells have a nucleus and are much bigger
21	What are the two types of microscope?	Light and electron
22	What is magnification?	Making something small look bigger
23	What is an image?	What you see through a microscope
24	What is resolution?	The smallest detail you can see in a microscope
25	Give two advantages of light microscopes	Cheap, can look at live specimens
26	Give two advantages of electron microscopes	Large magnification and resolution
27	What is focus?	How clear an image is
28	How do you focus a light microscope?	Turning the coarse focus wheel then the fine focus wheel
29	What is the equation for calculating the image size?	Actual size x magnification = image size



## Unit B1: Cell Biology – Cells, Tissues and Organs

30	What is a unicellular organism?	A living thing made of only one cell
31	What is a multicellular organism?	A living thing made of lots of cells
32	What is a specialised cell?	A cell with a specific function
33	Name three specialised animal cells	Sperm cell, muscle cell, nerve cell
34	What is the function of a sperm cell?	To swim to the egg and fertilise it
35	Give two adaptations of sperm cells	Tail, lots of mitochondria
36	Why do sperm cells have tails?	To help them swim to the egg
37	Why do sperm cells have lots of mitochondria?	Release energy for swimming
38	What is the function of a nerve cell?	To carry electrical messages around the body
39	Give two adaptations of nerve cells	Dendrites, lots of mitochondria
40	Why do nerve cells have dendrites?	To connect to other cells
41	Why do nerve cells have lots of mitochondria?	To release the energy needed to send messages
42	What is the function of a muscle cell?	To contract and relax
43	Give three adaptations of muscle cells	Fibres, store glycogen, lots of mitochondria
44	Why do muscle cells have fibres?	To help them move
45	Why do muscle cells store glycogen?	To turn it into glucose
46	Why do muscle cells have lots of mitochondria?	To release the energy needed to move
47	Name four specialised plant cells	Palisade cell, root hair cell, xylem cell, phloem cell
48	What is the function of a root hair cell?	To take in water and minerals
49	Give two adaptations of a root hair cell	Large surface area, no chloroplasts
50	Why do root hair cells have a large surface area?	To improve absorption from the soil
51	Why don't root hair cells have chloroplasts?	There is no light underground, so the cells can't photosynthesise
52	What is the function of a palisade cell?	To capture/trap/absorb light energy for photosynthesis
53	Give an adaptation of a palisade leaf cell	Lots of chloroplasts
54	Why do palisade cells have lots of chloroplasts?	To do lots of photosynthesis
55	Where are palisade cells usually found?	On the upper layers of leaves
56	What is the function of a xylem cell?	Transport water
57	What is the structure of a xylem cell?	A dead hollow tube made of lignin
58	What is the function of the lignin within xylem tissue?	Strengthens the xylem and stops it bursting
59	What is the function of a phloem cell?	Transport of simple sugars and amino acids around the cell
60	What is the structure of a phloem cell?	Live cells which form hollow tubes

## Unit B1: Cell Biology – Transport of Materials

1	In order to enter a cell, which part of the cell must particles cross?	The cell membrane
2	When talking about particles, what does 'concentration' mean?	How many particles there are in a place
3	What does high concentration mean?	There are lots of particles in a place or volume
4	What does low concentration mean?	There are very few particles in a place or volume
5	What is diffusion?	The movement of particles from an area of high concentration to an area of low concentration
6	What is the definition of osmosis (in terms of water concentration)?	The movement of water molecules across a partially permeable membrane, from a high water concentration to a low water concentration
7	What is the definition of osmosis (in terms of the concentration of dissolved solute)?	The movement of water molecules across a partially permeable membrane, from a low dissolved solute concentration to a high dissolved solute concentration
8	What is a partially permeable membrane?	A membrane that allows some molecules to pass through but not other molecules
9	What does 'down a concentration gradient' mean?	From high concentration to low concentration
10	What does 'up a concentration gradient' mean?	From low concentration to high concentration
11	What is active transport?	The movement of particles from an area of low concentration to high concentration, which needs energy
12	Name two substances that move by diffusion within animal cells	1. Oxygen 2. Carbon Dioxide
13	Name three factors which affect the rate of diffusion into cells	1. The difference in concentrations (concentration gradient); 2. Temperature; 3. Surface area of the membrane.
14	Name the factors that let exchange surfaces be more efficient	Large surface area, thin membranes, good blood supply, ventilation for gas exchange
15	What happens to an animal cell if it loses a lot of water?	It will shrivel up and stop working

16	What happens to an animal cell if it gains a lot of water?	It will burst and die
17	If a plant cell loses a lot of water, what happens?	The cell becomes lighter and the cell membrane moves away from the cell wall
18	If a plant cell gains a lot of water, what happens?	The cell becomes heavier and the cell membrane is pushed up against the cell wall
19	What do we call a solution that is more concentrated than in a cell?	Hypertonic
20	What do we call a solution that is less concentrated than in a cell?	Hypotonic
21	What do we call a solution that is the same concentration as in a cell?	Isotonic
22	Which methods of material transfer do not need energy?	Diffusion and osmosis
23	Which method of material transfer needs energy from cellular respiration?	Active transport
24	What is the volume of a cell or organism?	The total amount of space it takes up, measured in cubic millimetres or cubic metres
25	What is the surface area of a cell or organism?	The total external area of its surface. Measured in square millimetres or square metres
26	What is the surface area to volume ratio?	How much surface area an organism has compared to its volume
27	What happens to the surface area to volume ratio as an organism gets larger?	It gets smaller
28	How do root hair cells increase the rate of diffusion of materials into the roots?	They increase the surface area of the roots
29	How do alveoli increase the rate of diffusion of gases in the lungs?	They increase the internal surface area of the lungs
30	How do villi increase the rate of absorption of food molecules in the intestines?	They increase the internal surface area of the intestines
31	Give an example of a plant cell that uses active transport	Root hair cell (to absorb minerals from the soil)
32	Give an example of an animal cell that uses active transport	Cells in the small intestine (to absorb glucose into the blood)

1	What is an atom?	The smallest part of an element that can still be identified as that element
2	What is the particle model?	A description of the arrangement of particles in solids, liquids and gases
3	What is a molecule?	A substance in which there are two or more atoms chemically bonded together
4	What is an element?	A substance made of only one type of atom
5	What is a compound?	A substance made of two or more different types of atoms chemically bonded together
6	What is a mixture?	A substance made of more than one thing not chemically bonded together
7	How does chromatography separate mixtures?	Some substances are more soluble in the solvent than others; these move further
8	How does distillation separate mixtures?	This separates substances according to their boiling points
9	How does filtration separate mixtures?	This separates substances according to their solubility in the solvent
10	In chromatography, what is the mobile phase?	The solvent: the liquid that the substances dissolve in
11	In chromatography, what is the stationary phase?	The paper that the solvent and dissolved substances move through
12	Which element has the symbol 'H'?	Hydrogen
13	Which element has the symbol 'O'?	Oxygen
14	Which element has the symbol 'Fe'?	Iron
15	Which element has the symbol 'C'?	Carbon
16	What does the 2 in O <sub>2</sub> mean?	There are 2 atoms of oxygen (in an oxygen molecule)
17	What does the 2 in CO <sub>2</sub> mean?	There are 2 atoms of oxygen (in a molecule of carbon dioxide)
18	What does the 2 in 2NaOH mean?	There are two molecules of NaOH (sodium hydroxide)
19	How many carbon atoms in 2CH <sub>4</sub> ?	2. Two molecules, each containing 1 carbon atom (2x1=2)
20	How many hydrogen atoms in 2CH <sub>4</sub> ?	8. Two molecules, each containing 4 hydrogen atoms (2x4=8)
21	Balance this equation: CH <sub>4</sub> + O <sub>2</sub> -> CO <sub>2</sub> + H <sub>2</sub> O	CH <sub>4</sub> + 2O <sub>2</sub> -> CO <sub>2</sub> + 2H <sub>2</sub> O
22	Balance this equation: C + O <sub>2</sub> -> CO <sub>2</sub>	It's already balanced!
23	Balance this equation: H <sub>2</sub> + O <sub>2</sub> -> H <sub>2</sub> O	2H <sub>2</sub> + O <sub>2</sub> -> 2H <sub>2</sub> O
24	Which state of matter has the highest density?	Solid - the particles are packed close together
25	In which state of matter do the particles have highest energy?	Gas - they are moving quickest and so have the highest kinetic (movement) energy

26	What is charge?	A property of particles that can be positive or negative. Other particles have no charge (neutral)
27	What happens when the same charges come into contact?	They repel
28	What happens when opposite charges come into contact?	They attract
29	Name the four models of the atom	Dalton, plum pudding, nuclear, electron shell (Bohr)
30	What was the Dalton model of the atom?	Atoms are hard, indivisible spheres
31	What was the plum pudding model of the atom?	Atoms are a sphere of spread out positive charge with negative electrons embedded into it
32	What did the gold foil experiment prove?	That atoms have nuclei with a positive charge
33	What was the nuclear model of the atom?	Atoms have a positive nucleus which electrons orbit
34	What is the electron shell (Bohr) model of the atom?	Atom has a positive nucleus which electrons orbit in fixed shells
35	What did James Chadwick discover?	The neutron
36	Which particles are found in the nucleus?	Protons and neutrons
37	Name the three particles that make up atoms (subatomic particles)	Protons, neutrons, electrons
38	State the masses of the subatomic particles	Protons: 1, neutrons: 1, electrons: 0
39	State the relative charges of the subatomic particles	Protons: +1, neutrons: 0, electrons: -1
40	What is the atomic number of an atom?	The number of protons in an atom
41	What is the mass number of an atom?	The number of protons + the number of neutrons in an atom
42	Why is the number of electrons in an atom equal to the number of protons?	As their charges cancel out
43	How do you calculate the number of neutrons in an atom?	Mass number - atomic number
44	What are isotopes?	Atoms of the same element with a different number of neutrons
45	How are the electrons arranged in atoms?	Orbiting the nucleus in shells
46	How many electrons can go in the first shell?	2
47	How many electrons can go in the second and third shells?	8
48	What is an element?	A substance made of only one type of atom
49	What is a compound?	A substance made of two or more different types of atoms chemically bonded together
50	What is a mixture?	A substance made of more than one thing not chemically bonded together

51	What are groups in the periodic table?	The columns, numbered 1, 2, 3, 4, 5, 6, 7, 0
52	What can the group tell you about the electrons in an atom?	How many electrons in the outer shell. E.g. carbon is in group 4 so has 4 electrons in the outer shell
53	What are periods in the periodic table?	The rows in the periodic table
54	What can the period tell you about the electrons in an atom?	How many shells an atom has. E.g. carbon is in the second period so has two shells
55	Why did Mendeleev put some elements in groups?	Because they had similar properties (e.g. they reacted violently with water)
56	Why did Mendeleev leave gaps in his periodic table?	For elements that had not been discovered yet
57	What charge do electrons have?	-1
58	What charge will an ion of lithium take?	1+ (group one electron in the outer shell, needs to lose it)
59	What charge will an ion of beryllium take?	2+ (group two electrons in the outer shell, needs to lose them both)
60	What charge will an ion of barium take?	2+ (group 2 so two electrons in the outer shell, needs to lose them both)
61	What charge will an ion of fluorine take?	1- (group 7 electrons in the outer shell, needs to gain one)
62	If something has gained electrons, what charge will it have?	Negative
63	If something has lost electrons, what charge will it have?	Positive (because they have lost a negative charge!)
64	What charge will an ion of oxygen take?	2- (group 6 electrons in outer shell so needs to gain two)
65	What charge will an ion of selenium take?	2- (group 6, so has 6 electrons in the outer shell and needs to gain two)
66	Explain in terms of electrons what occurs when lithium bonds with chlorine	One electron transfer from lithium to chlorine
67	Why do atoms transfer electrons in ionic bonding?	So that they can have full outer shells
68	Explain in terms of electrons what occurs when lithium bonds with fluorine	One electron transfer from lithium to fluorine
69	Explain in terms of electrons what occurs when magnesium bonds with oxygen	Two electrons transfer from magnesium to oxygen
70	Explain in terms of electrons what occurs when beryllium bonds with oxygen	Two electrons transferred from beryllium to oxygen
71	Explain in terms of electrons what occurs when magnesium bonds with chlorine	Two electrons transfer from magnesium to two different chlorine atoms (one each)
72	Explain in terms of electrons what occurs when sodium bonds with oxygen	Two electrons transfer to an oxygen atom from two different sodium atoms
73	Why do sodium ions and chlorine ions form an ionic bond?	There is an electrostatic force of attraction between oppositely charged ions
74	Why don't sulfur ions and oxygen ions form ionic bonds with each other?	Both have negative charges so would repel

1	Name the eight energy stores	Thermal, kinetic, gravitational potential, chemical potential, elastic potential, magnetic, nuclear, electrostatic
2	Which energy store changes when temperature increases, and how does it change?	Thermal store increases
3	Which energy store changes when temperature decreases, and how does it change?	Thermal store decreases
4	Which energy store changes when speed increases, and how does it change?	Kinetic store increases
5	Which energy store changes when speed decreases, and how does it change?	Kinetic store decreases
6	Which energy store changes when an object is raised in height, and how does it change?	Gravitational potential store increases
7	Which energy store changes when an object is lowered in height, and how does it change?	Gravitational potential store decreases
8	Which energy store changes when batteries, fuel or food are used and how does it change?	Chemical potential store decreases
9	Which energy store changes when batteries are charged?	Chemical potential store increases
10	Which energy store changes when objects are stretched or squeezed, and how does it change?	Elastic potential store increases
11	Which energy store changes when stretched or compressed objects relax, and how does it change?	Elastic potential store decreases
12	Name the four energy transfers	Mechanical Work, Waves, Heating, Electrical Work
13	How is energy transferred when people or machines push or pull objects?	Mechanical Work

14	Name two types of wave energy transfer	Light and Sound
15	How is energy transferred through wires?	Electrical Work
16	How is energy transferred from hot objects to cold objects?	Heating
17	What is the unit and unit symbol for energy?	joule, J
18	What is power?	Rate of energy transfer
19	What is the unit and unit symbol for power?	watt, W
20	What is 1 W equivalent to in terms of joules and seconds?	One joule is transferred every second
21	What is the equation that relates power, energy and time (in symbols)?	$P \times t = E$
22	What is the equation that relates power, energy and time (in words)?	Power x time = energy
23	What is the equation that links work done, power and time (in symbols)?	$P \times t = W$
24	What is the equation that links work done, power and time (in words)?	Power x time = work done
25	State the law of conservation of energy	Energy cannot be created or destroyed
26	What is the equation for calculating efficiency as a decimal?	efficiency = useful energy output/total energy input
27	What is the equation for calculating efficiency as a percentage?	efficiency = 100 x (useful energy output/total energy input)
28	What is the equation for calculating efficiency in terms of power?	efficiency = useful power output/total power input
29	What is "wasted" energy?	Energy that is not transferred in useful ways
30	Why is efficiency never 100%?	Energy is always dissipated to the surroundings
31	What does dissipated mean?	Lost to the surroundings as thermal energy

32	If a machine has moving parts, how can we reduce unwanted energy transfers?	Lubrication
33	How can we reduce the amount of energy hot objects lose by heating the surroundings?	Increasing thermal insulation
34	What is the relationship between thermal conductivity and the rate of energy transfer across the material?	The higher the thermal conductivity, the higher the rate of energy transfer across the material
35	What is the relationship between the thickness of a building's walls and the building's rate of cooling?	The thicker the walls, the slower the rate of cooling
36	What is the relationship between the thermal conductivity of a building's walls and the building's rate of cooling?	The greater the thermal conductivity of the walls, the greater the rate of cooling
37	What is the equation for calculating kinetic energy (in symbols)?	$E_k = 0.5 m v^2$
38	What is the equation for calculating kinetic energy (in words)?	kinetic energy = 0.5 x mass x velocity <sup>2</sup>
39	What is the symbol for kinetic energy?	$E_k$
40	What is the symbol for mass?	m
41	What is the symbol for velocity?	v
42	What are the units for velocity?	metres per second, m/s
43	What are the units for mass?	kilograms, kg
44	What is the unit for the spring constant?	newtons per metre, N/m
45	What is the equation for calculating gravitational potential energy (in symbols)?	$E_p = m g h$
46	What is the equation for calculating gravitational potential energy (in words)?	gravitational potential energy = mass x gravitational field strength x height

47	What is the symbol for gravitational potential energy?	$E_p$
48	What is the symbol for gravitational field strength?	g
49	What is the symbol for height?	h
50	What are the units for height?	metres, m
51	What is the unit for gravitational field strength?	newtons per kilogram, N/kg
52	What are the units for specific heat capacity?	J/kg °C
53	What does specific heat capacity mean?	The energy required to increase the temperature of one kg of a substance by one °C
54	When calculating change in thermal energy, what is meant by $\Delta\theta$ ?	Temperature change
55	When calculating change in thermal energy, what are the units for temperature change?	degrees celcius, °C
56	What is the symbol for specific heat capacity?	c
57	What are energy resources used for?	Transport, electricity and heating
58	What is a renewable energy resource?	A resource which is being replenished as it is used
59	What is a non-renewable energy resource?	A resource which is not being replenished as it is used
60	Name two non-renewable energy resources	Fossil fuels, nuclear
61	Name the three fossil fuels	Coal, crude oil, natural gas
62	Give two advantages of using fossil fuels for energy	Readily available, reliable, high energy content per kg
63	Give two disadvantages of using fossil fuels for energy	Non-renewable, release carbon dioxide when burnt
64	Give two advantages of using nuclear fuels for energy	Very high energy output, no carbon dioxide released

## Unit P1: Energy

65	Give two disadvantages of using nuclear fuels for energy	Risk of nuclear accident, and radioactive, toxic waste needs to be buried for a long time
66	Name seven renewable energy resources	Wind, solar, geothermal, hydroelectric, tidal, waves, biofuel
67	Give two advantages of using wind power for energy	Renewable, does not release carbon dioxide
68	Give two disadvantages of using wind power for energy	Unreliable, can be noisy, often low power output
69	Give two advantages of using solar power for energy	Renewable, does not release carbon dioxide
70	Give two disadvantages of using solar power for energy	Unreliable, often low power output
71	Give two advantages of using geothermal power for energy	Renewable, does not release carbon dioxide
72	Give one disadvantage of using geothermal power for energy	Cannot be built anywhere
73	Give two advantages of using hydroelectric power for energy	Renewable, does not release carbon dioxide
74	Give two disadvantages of using hydroelectric power for energy	Habitat loss, can cause flooding
75	Give two advantages of using tidal power for energy	Renewable, does not release carbon dioxide
76	Give two disadvantages of using tidal power for energy	Damages aquatic habitats, difficult to build
77	Give two advantages of using wave power for energy	Renewable, does not release carbon dioxide
78	Give a disadvantage of using wave power for energy	Very low power output
79	Give two examples of biofuels	Biodiesel, wood
80	Give two advantages of using biofuels for energy	Renewable, carbon neutral
81	Give a disadvantage of using biofuels for energy	Lots of land required



1	What is digestion of food?	Breaking down large, complex food molecules into smaller ones
2	Why is digestion important?	Digestion produces small molecules that can be absorbed into our blood
3	How do our teeth help us digest food?	They break the food into smaller pieces, to increase the total surface area
4	What are two functions of saliva in digestion?	1. To moisten food to allow easier swallowing 2. To start chemical digestion by enzymes
5	What are the 7 main food groups?	In any order: fats, proteins, carbohydrates, fibre, minerals, vitamins and water
6	Which of the 7 main food groups are large polymer molecules?	Fats, carbohydrates and proteins
7	Which of the food group molecules begins to be digested in the mouth?	Carbohydrates (don't write carbs!)
8	Which of the food group molecules begins to be digested in the stomach?	Proteins
9	What is the name of the enzyme that digests carbohydrates?	Amylase (a type of carbohydrase)
10	What is the name of the enzyme that digests proteins?	Protease
11	What is the name of the enzyme that digests fats and lipids?	Lipase
12	What is the function of the mouth in digestion?	To mechanically break up food into smaller pieces to increase surface area
13	What is a polymer?	A large molecule made up of repeating units of similar or identical small molecules
14	How does stomach acid help digestion?	1. It breaks up large particles of proteins 2. It provides an optimum pH for protease enzymes
15	What is an enzyme?	A protein which can speed up a reaction without being used up itself
16	What is the order in which food passes through the digestive system?	Mouth -> oesophagus -> stomach -> small intestine -> large intestine -> rectum -> anus
17	What is the function of the small intestine?	To absorb sugars, lipids, amino acids, vitamins and minerals from digested food.
18	Give an adaptation of the small intestine which improves absorption of digested molecules	Structures called villi increase the surface area for increased diffusion into the blood
19	What is the function of the large intestine?	To absorb water from digested food
20	What is bile?	A substance that emulsifies fat and neutralises stomach acid
21	What is the function of the liver in digestion?	To produce bile
22	What is the function of the gall bladder?	To store bile until it can be released into the small intestine
23	What is the function of the rectum?	To store undigested material before excretion
24	Name where carbohydrase is made in the body	Salivary glands, pancreas and small intestine
25	What do carbohydrases break down and what is produced?	Carbohydrates to simple sugars (e.g. amylase breaks down starch to glucose)

## Unit B2: Organisation in Animals

26	Name where protease is made in the body	Stomach, pancreas and small intestine
27	What do proteases break down and what is produced?	Proteins to amino acids
28	Name where lipase is made in the body	Pancreas and small intestine
29	What do lipases break down and what is produced?	Lipids (fats) to fatty acids and glycerol
30	What are the products of digestion used for?	To build new carbohydrates, lipids and proteins in cells
31	What is the test for protein in food?	Add Biuret reagent to a sample or solution of the food. Reagent turns from blue to purple or violet
32	What is the test for glucose (sugar) in food?	Add Benedict's reagent to a sample or solution of the food, heat to 75 degrees Celsius. Reagent turns from blue to orange/red
33	What is the test for starch in food?	Add iodine solution to a sample or solution of the food. Reagent turns from orange to blue/black
34	What is the test for fats or lipids in food?	Add ethanol or Sudan III to a sample of the food, then shake. The upper layer will be cloudy white (red if using Sudan III)
35	What is the active site of an enzyme?	Part of the surface which joins to a substrate and where the reaction happens
36	What is a substrate?	The molecule that an enzyme will join with and change (for example, break it down)
37	Why is the active site of an enzyme called 'complementary'?	It fits the shape of the substrate perfectly
38	Name two factors that can affect the shape of an enzyme's active site	pH and high temperature
39	What happens when an enzyme is denatured?	Its active site changes shape so it can't join to the substrate
40	In Biology, what do we mean by 'tissue'?	A group of identical (or very similar) cells working together to do a particular job
41	In Biology, what do we mean by 'organ'?	A collection of different types of tissue that all work together to perform a specific function
42	In Biology, what is an organ system?	A group of organs that work together to perform a particular function
43	Name one organ system in humans	For example: digestive system, nervous system, circulatory system, skeletal system, reproductive system, endocrine system
44	Which system transports substances around the body?	The circulatory system
45	Why is our heart an example of an organ?	It is a group of different tissues that work together to pump blood round the body
46	What are the walls of the heart made from?	Muscle cells and tissue
47	Name the two types of chambers in the heart	Atrium and ventricle
48	Which are the upper chambers of the heart?	Atria (singular: atrium)
49	Which are the lower chambers of the heart?	Ventricles
50	When the muscles in the atria contract, where does the blood go to?	To the ventricles

51	When the muscles in the ventricles contract, where does the blood go to?	Out of the heart, either into the pulmonary artery or into the aorta
52	What is the job of the heart valves?	To prevent backflow of blood in the heart
53	To where does blood flow after leaving the right hand side of the heart?	The lungs
54	To where does blood flow after leaving the left hand side of the heart?	The rest of the body, except the lungs
55	Through which blood vessel does blood flow away from the heart?	Arteries
56	Through which blood vessel does blood flow back into the heart?	Veins
57	Name the blood vessel by which blood leaves to the rest of the body from the heart	Aorta
58	Name the blood vessel by which blood arrives back to the heart from the rest of the body	Vena cava
59	Name the blood vessel by which blood leaves the heart to the lungs	Pulmonary artery
60	Name the blood vessel by which blood leaves the lungs to go back to the heart	Pulmonary vein
61	Which blood vessels have thick walls containing muscle tissue and elastic fibres?	Arteries
62	Which blood vessels have thinner walls and contain valves?	Veins
63	Name two key adaptations of capillaries	Very thin wall (only one cell thick) to reduce distance diffusion has to occur across; very narrow to reduce the distance that diffusion has to occur across
64	Where is the "natural" pacemaker of the heart located?	The right atrium
65	Where are the lungs located?	The upper part of the body (thorax)
66	What protects the lungs?	The rib cage
67	What separates the lungs from the abdomen (lower part of body)?	The diaphragm
68	What gas diffuses into the bloodstream from the lungs?	Oxygen
69	What gas diffuses out of the bloodstream into the lungs?	Carbon dioxide
70	Name the structure which carries air from the nose and mouth to the lungs	Trachea
71	Name the two structures which branch off from the Trachea	Bronchi (singular: bronchus)
72	Name the structure which branch off from the bronchi	Bronchiole(s)
73	What are the small gas exchange structures in the lungs called?	Alveoli (singular: alveolus)
74	Describe some adaptations that alveoli have to make them an efficient gas exchange surface	Any from: Thin walls (one cell thick); rich capillary network; efficient movement of blood through capillaries; folded inner surface; alveoli contain mucus
75	How does having thin walls improve diffusion in the alveoli?	It decreases the distance that gases have to travel

## Unit B2: Organisation in Animals

76	How does a rich capillary network around the alveoli improve diffusion of gases?	It increases the size of the gas exchange surface
77	How does the movement of blood in the capillaries surrounding the alveoli improve diffusion of gases?	It maintains the concentration gradient between the alveoli and the blood
78	How does the folded inner surface of the alveoli increase the diffusion of gases?	It increases the surface area
79	How does the mucus in the alveoli improve diffusion?	It dissolves gases from the air for more efficient gas exchange
80	Is blood a cell tissue or organ?	A tissue
81	What is the component of blood called that carries all of the blood cells in it?	Plasma
82	What are the three main cell types found in blood?	Red blood cells, white blood cells, platelets
83	Which gas dissolves in blood plasma for transport from the organs to the lungs?	Carbon dioxide
84	What does blood transport from the small intestine to other organs?	Soluble products of digestion
85	What major gas do red blood cells transport?	Oxygen
86	What major organelle do red blood cells lack?	A nucleus
87	What do red blood cells contain that allows them to carry oxygen?	Haemoglobin
88	What do white blood cells do?	Defend the body against microorganisms
89	What do platelets do?	Help clot the blood at wound sites
90	What are the coronary arteries?	Blood vessels that supply the heart muscle tissue with blood
91	What occurs in coronary heart disease (CHD)?	The coronary arteries become blocked with fatty deposits, narrowing them
92	How can coronary heart disease cause heart attacks?	Lack of blood to heart muscle cells means they can't release energy and contract
93	How do stents treat coronary heart disease?	Re-opens the blocked coronary artery, restoring blood flow
94	How do statins treat coronary heart disease?	Decreases the blood concentration of cholesterol, which reduces build-up of fatty deposits in the coronary arteries.
95	Why are faulty heart valves life-threatening?	They allow back-flow of blood in the heart
96	Name two sources of replacement heart valves	1. Mechanical 2. Biological (e.g. pigs or sheep).
97	Describe a treatment used in the case of total heart failure	Heart transplant
98	Name a risk of surgical intervention in heart disease	Infection
99	When would an artificial heart be used?	1. To allow the heart to rest and recover 2. To keep the patient alive whilst they wait for a transplant

## Unit B2: Organisation in Plants

1	<b>Name three plant tissues</b>	Any from: epidermal, palisade mesophyll, spongy mesophyll, xylem, phloem, meristem
2	<b>Name three plant organs</b>	Leaves, stems and roots
3	<b>What is the role of the epidermal tissue in plants?</b>	To cover and protect
4	<b>What is the role of the palisade mesophyll tissue in plants?</b>	This is where photosynthesis happens
5	<b>What is the role of the spongy mesophyll tissue in plants?</b>	This is where gas exchange occurs
6	<b>What is the role of the xylem tissue in plants?</b>	Transport of water (and dissolved ions) from the roots
7	<b>What is the role of the phloem tissue in plants?</b>	Transport of dissolved sugars (from the leaves)
8	<b>What is the role of the meristem tissue in plants?</b>	To divide into cells at the growing tips of shoots and roots
9	<b>What is transpiration?</b>	The movement of water from the roots to the leaves, eventually leaving the leaves via evaporation
10	<b>Name some factors which affect the rate of transpiration in plants</b>	1. Temperature 2. Humidity 3. Air movement 4. Light intensity
11	<b>What is translocation?</b>	The movement of sugars from the leaves to the rest of the plant through phloem vessels
12	<b>Describe the adaptations of xylem tissue</b>	Hollow tubes strengthened by lignin
13	<b>Describe the adaptations of phloem tissue</b>	Elongated cells with pores in the end cell walls to aid the movement of dissolved sugars
14	<b>What is the role of stomata?</b>	Provides a hole through which water, oxygen and carbon dioxide can move in and out of the leaf
15	<b>What is the role of guard cells?</b>	To control the opening and closing of stomata to control water loss and gas exchange in the plant

## Unit C2: Structure and Bonding

1	What charge do electrons have?	-1
2	What charge will an ion of lithium take?	1+ (group one electron in the outer shell, needs to lose it)
3	What charge will an ion of beryllium take?	2+ (group two electrons in the outer shell, needs to lose them both)
4	What charge will an ion of barium take?	2+ (group 2 so two electrons in the outer shell, needs to lose them both)
5	What charge will an ion of fluorine take?	1- (group 7 electrons in the outer shell, needs to gain one)
6	If something has gained electrons, what charge will it have?	Negative
7	If something has lost electrons, what charge will it have?	Positive (because they have lost a negative!)
8	What charge will an ion of oxygen take?	2- (group 6 electrons in outer shell so needs to gain two)
9	What charge will an ion of selenium take?	2- (group 6, so has 6 electrons in the outer shell and needs to gain two)
10	Explain in terms of electrons what occurs when lithium bonds with chlorine	One electron transferred from lithium to chlorine
11	Why do atoms transfer electrons in ionic bonding?	So that they can have full outer shells
12	Explain in terms of electrons what occurs when lithium bonds with fluorine	One electron transferred from lithium to fluorine
13	Explain in terms of electrons what occurs when magnesium bonds with oxygen	Two electrons transferred from magnesium to oxygen
14	Explain in terms of electrons what occurs when beryllium bonds with oxygen	Two electrons transferred from beryllium to oxygen
15	Explain in terms of electrons what occurs when magnesium bonds with chlorine	One electron transferred from magnesium to two different chlorine atoms
16	Explain in terms of electrons what occurs when sodium bonds with oxygen	Two electrons transferred to an oxygen atom from two different sodium atoms
17	Why do sodium ions and chlorine ions form an ionic bond?	There is an electrostatic force of attraction between oppositely charged ions
18	Why don't sulphur ions and oxygen ions form ionic bonds with each other?	Both have negative charges so would repel
19	Describe the structure of a giant ionic lattice	A 3D network of alternating positive and negative ions, held together by the electrostatic force of attraction
20	State the melting points of ionic substances	High
21	Explain why ionic substances have high melting points	Strong bonds between oppositely charged ions are hard to break
22	Will NaCl(s) conduct electricity?	No

23	Will NaCl (aq) conduct electricity?	Yes (aq stands for aqueous which means it is dissolved in water)
24	Will NaCl (l) conduct electricity?	Yes
25	What does molten mean?	Melted
26	Explain why ionic compounds do not conduct electricity when solid	Because the ions are not free to move
27	Explain why ionic compounds conduct electricity in solution	Because the ions are free to move
28	Explain why ionic compounds conduct electricity when molten	Because the ions are free to move
29	What does soluble mean?	Dissolves in water
30	What does insoluble mean?	Does not dissolve in water
31	Magnesium carbonate is insoluble. What do you need to do before it will conduct electricity?	Melt it
32	Sodium fluoride is soluble. Explain what the easiest way for it to conduct electricity is	Dissolve it in water because this does not require high temperatures
33	Explain why chlorine and fluorine form covalent bonds	They are both non-metals
34	Complete the sentence: In covalent bonds, electrons are _____	Shared
35	In ionic bonds, electrons are _____	Transferred
36	What is the name given to the structure of diamond, graphite and silicon dioxide?	Giant covalent
37	How many bonds does each carbon have in diamond?	4
38	Explain why diamond has a high melting point	Giant structure with strong covalent bonds between the atoms, requires a lot of energy to break
39	Explain why most giant covalent substances do not conduct electricity (3 marks)	There are no electrons/ions/charged particles that are free to move
40	Explain why graphite conducts electricity	Has delocalised electrons between the layers that can move through the graphite
41	Making full reference to structure and bonding in graphite, explain how it conducts electricity	Each carbon has 3 bonds, 1 electron is delocalised, free to carry charge through the graphite
42	Explain why graphite can act as a lubricant	Weak forces between layers which are free to slide over each other
43	What is graphene?	One layer of graphite

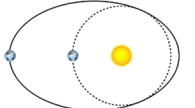
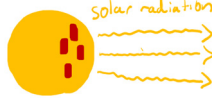

## Unit C2: Structure and Bonding

44	What is a fullerene?	Substance made of carbon atoms arranged in a cage
45	What type of substance are methane and water?	Simple molecular (or simple molecules)
46	What is a molecule?	A group of atoms chemically bonded together
47	Describe the structure of simple covalent molecules	Strong covalent bonds between atoms, weak forces holding the molecules together
48	What are intermolecular forces?	Weak forces between molecules which hold them together
49	Explain why methane has a low melting point	It is a simple molecular substance with weak forces between the molecules (which are easy to break)
50	What is a polymer?	Millions of small molecules joined together in a chain to form a large molecule
51	Describe the main features of metals in terms of their structure	Positive metal ions arranged in layers with delocalised electrons
52	Explain why metals can conduct electricity	Delocalised electrons are free to carry charge
53	Explain why pure metals are soft	Layers of metal ions are free to slide over each other
54	What is an alloy?	A mixture of two or more elements, at least one of which is a metal
55	Give a reason for alloying a metal	To make it harder, to make it less reactive
56	Explain why alloys can be harder than pure metals	Different size of atoms disturb the layers to stop them sliding over each other
57	In terms of electrons, what do group 1 elements have in common?	1 electron in the outer shell
58	In terms of electrons, what do group 7 elements have in common?	7 electrons in the outer shell
59	In terms of electrons, what do group 0 elements have in common?	Full outer shell
60	What is more reactive, lithium or sodium?	Sodium
61	What is more reactive, chlorine or bromine?	Chlorine
62	Define inert	Unreactive
63	Explain why the noble gases are inert	They have full outer shells, so do not need to gain or lose electrons
64	What is a trend?	A pattern in properties

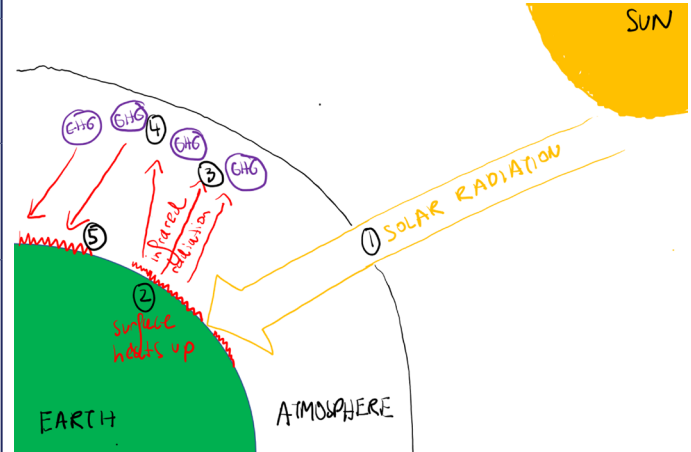


65	State the trend in the melting points of the alkali metals	Gets lower down the group
66	What state is fluorine at room temperature?	Gas
67	What state is chlorine at room temperature?	Gas
68	What state is bromine at room temperature?	Liquid
69	What state is iodine at room temperature?	Solid
70	Balance the equation: $2\text{Li} + \text{H}_2\text{O} \rightarrow \text{LiOH} + \text{H}_2$	$2\text{Li} + 2\text{H}_2\text{O} \rightarrow 2\text{LiOH} + \text{H}_2$
71	Balance the equation: $2\text{K} + \text{H}_2\text{O} \rightarrow \text{KOH} + \text{H}_2$	$2\text{K} + \text{H}_2\text{O} \rightarrow \text{KOH} + \text{H}_2$
72	Name LiOH	Lithium hydroxide
73	Name KOH	Potassium hydroxide
74	Explain why the group 1 elements are called alkali metals	They are metals that form alkalis when they react with water
75	What is a displacement reaction?	A reaction in which a more reactive element takes the place of a less reactive element in a compound
76	Explain why the following reaction does not proceed: $\text{KBr} + \text{I}_2$	Iodine is less reactive than bromine so cannot displace it
77	Balance the below equation and explain why it is a displacement reaction: $\text{KBr} + \text{Cl}_2 \rightarrow \text{KCl} + \text{Br}_2$	$2\text{KBr} + \text{Cl}_2 \rightarrow 2\text{KCl} + \text{Br}_2$ ; chlorine has displaced bromine as it is more reactive
78	Explain why fluorine is more reactive than chlorine	Fewer shells/electrons, less shielding (or stronger attraction from nucleus), easier to gain electrons
79	Explain why potassium is more reactive than lithium	More shells/electrons, less shielding (or weaker attraction from nucleus), easier to lose electrons
80	Explain why bromine is less reactive than chlorine	More shells/electrons, more shielding (or weaker attraction from nucleus), harder to gain electrons
81	Explain why sodium is less reactive than caesium	Fewer shells/electrons, less shielding (or stronger attraction from nucleus), harder to lose electrons

<b>Weather</b>	Short term state of the atmosphere in a particular location.
<b>Climate</b>	Long term state of the atmosphere (usually 30 years or more)
<b>Climate change</b>	Long-term shift in the state of the atmosphere.
<b>Greenhouse gasses</b>	Gasses which absorb and re-emit infrared radiation.
<b>Mitigation strategies</b>	Actions that prevent or reduce the causes of climate change.
<b>Adaptation strategies</b>	Actions that help people cope with the effects of climate change.

Natural Factor	Time-Frame	Diagram
Orbital Change	100,000 years	
Sunspots	11 years	
Volcanic Eruptions	Unpredictable	

## The Greenhouse Effect

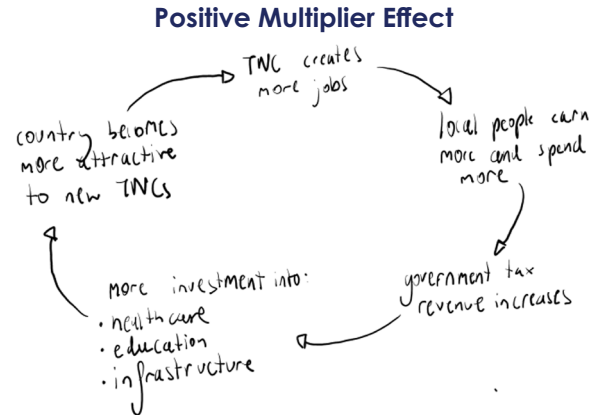


## Responses To Climate Change

Mitigation	Adaptation
Electric Vehicles, Tesla.	"Sponge Cities" such as London which have increased vegetation to increase interception, decrease surface run off and reduce flood risk.
Carbon Capture and Storage such as the Zero Carbon Humber Project.	Salt Resistant Rice Crops such as in Bangladesh
International Agreements such as Glasgow 2021 declaration to ban and reverse deforestation.	Beach Nourishment such as in Tuvalu

<b>Newly emerging economy</b>	A country experiencing high levels of industrialisation, improvements to quality of life and economic development.
<b>Mechanisation</b>	When jobs previously done by humans are replaced by machinery.
<b>Subsidy</b>	Money given by a government to a company to help them make more profit.
<b>Tax break</b>	A reduction in tax over a fixed period of time.
<b>Informal sector</b>	Jobs with no formal contract.
<b>Favela</b>	Brazilian term for a squatter settlement or informal housing.
<b>Transnational corporation</b>	A company that operates across more than one country.

Sector	Definition	Country
Primary	Extraction of raw materials	LIC
Secondary	Manufacturing of products	NEE
Tertiary	Provision of services	HIC



## Impacts Of Shell On Nigeria

Advantages	Disadvantages
Shell creates 65,000 direct and 250,000 indirect jobs.	Environmental damage e.g. Bodo Oil Spills.
Shell invested \$1.5m into improving medical equipment in the Central Hospital, Abuja.	Leakage effect – Shell is an Anglo-Dutch company.
Shell launched a development programme, called Shell LiveWire, which supports young entrepreneurs.	Corruption – Shell paid \$1.3bn to a corrupt former government minister for an oil field.

# Topic 1: The First World War

## Timeline

1. The Triple Alliance was formed	3. Archduke Franz Ferdinand was assassinated	5. Battle of Mons	7. The Battle of the Somme	9. The Battle of Arras	11. Bolsheviks pull Russia out of the war	13. Treaty of Versailles was signed
<b>1882</b>	<b>June 1914</b>	<b>August 1914</b>	<b>July-Nov 1916</b>	<b>April-May 1917</b>	<b>March 1918</b>	<b>1919</b>
<b>1907</b>	<b>August 1914</b>	<b>Oct -Nov 1914</b>	<b>April 1917</b>	<b>July-November 1917</b>	<b>November 1918</b>	
2. The Triple Entente was formed	4. First World War began	6. First Battle of Ypres	8. USA entered the war	10. Battle of Passchendaele	12. End of the First World War	

## Key People

<b>14. Archduke Franz Ferdinand</b>	Heir to the throne of Austria-Hungary, whose assassination sparked the First World War.
<b>15. Algerian Troops</b>	Soldiers who fought in WW1 due to Algeria being a part of France's Empire.
<b>16. Chinese Labour Corps</b>	Workers who came from China to do work linked to the war e.g. digging trenches, repairing machinery.
<b>17. Ganga Singh</b>	A sergeant in the 57th rifles of the Indian corps who fought on the Western Front.
<b>18. Mike Mountain Horse</b>	A member of a First Nation tribe in Canada who fought for Britain at Vimy Ridge and the Battle of Cambrai in 1917.
<b>19. Private John Parr</b>	A soldier from Finchley, who many believe was the first British soldier to be killed during WW1.

## Key Words

<b>20. Alliance</b>	A union formed between two or more countries, often promising each other military support.	<b>26. Imperialism</b>	Conquering and ruling other countries.
<b>21. Arms race</b>	A race between countries to build the biggest armies and make the most weapons.	<b>27. Militarism</b>	The belief that your country should have a strong army.
<b>22. Assassination</b>	To murder someone for money or for political reasons.	<b>28. Nationalism</b>	Intense loyalty to your nation and a desire for it to be successful or independent. This often means excluding others and feeling your nation is better than all others.
<b>23. Balkans</b>	South-east Europe – including Serbia, Bulgaria, and Greece.	<b>29. Triple Entente</b>	The alliance between Britain, France and Russia (formed in 1907).
<b>24. Front</b>	The line where two opposing armies meet.	<b>30. Triple Alliance</b>	The alliance between Germany, Austria-Hungary and Italy (formed in 1882).
<b>25. Great Powers</b>	Countries with international influence and military strength (Germany, Britain, France, Russia, Austria-Hungary).	<b>31. Western Front</b>	Area of battle during the First World War in Belgium and France, consisting of Allied and German trench systems facing each other.

## Topic 2: Votes For Women

Timeline				
1. Parliament first discussed the idea of giving women the vote  <b>1867</b>	3. The WSPU ( <b>Suffragettes</b> ) was formed.  <b>1903</b>	5. Cat and Mouse Act  <b>1913</b>	7. Herbert Asquith was replaced by David Lloyd George as Prime Minister  <b>1916</b>	9. The Equal Franchise Act was passed, which gave all British women equal voting rights with men  <b>1928</b>
<b>1897</b> 2. The NUWSS (Suffragists) was formed.	<b>1913</b> 4. Suffragette Emily Davison died after being hit by a horse at the Epsom Derby	<b>1914</b> 6. The First World War began	<b>February 1918</b> 8. The Representation of the People Act was passed. Women over the age of 30 who were married to someone who owned property or who owned property themselves and working-class men gained the right to vote.	

Key People	
<b>10. Annie Kenney</b>	Suffragette who was sent to prison 13 times for her Suffragette activism.
<b>11. David Lloyd George</b>	Liberal Prime Minister of Britain from 1916-1922. He was supportive of female suffrage.
<b>12. Emily Davison</b>	Suffragette who died at the Epsom Derby after she tried to attach a Suffragette banner to the King's horse.
<b>13. Emmeline Pankhurst</b>	Main founder of the WSPU.
<b>14. Flora Murray</b>	Doctor and Suffragette who made use of her medical knowledge by providing care to Suffragettes recovering from hunger strike in prison.
<b>15. Millicent Fawcett</b>	Main leader of the Suffragists and founder of the NUWSS.

Key Words			
<b>16. Cat and Mouse Act</b>	A law that allowed the police to rearrest women, as suffragettes went on hunger strike in prison. So they were released and were arrested again after they had eaten.	<b>22. Peaceful methods</b>	Non-militant methods (Suffragists) e.g. handing out leaflets, putting up posters and collecting signatures on petitions.
<b>17. Enfranchisement</b>	To be given the right to vote.	<b>23. Suffrage</b>	The right to vote.
<b>18. Hunger strike</b>	A form of protest where prisoners refuse to eat.	<b>24. Suffragettes</b>	Women's suffrage campaigners who believed in using direct action and civil disobedience.
<b>19. Lobbying</b>	Trying to persuade someone in authority, usually government, to support a bill (a proposed law).	<b>25. Suffragists</b>	Women's suffrage campaigners who believed in debate and negotiation.
<b>20. Militant</b>	An aggressive style of campaigning (Suffragettes) e.g. smashing windows and arson.	<b>26. WSPU</b>	The Women's Social and Political Union – leading militant organisation campaigning for women's suffrage, also known as the Suffragettes.
<b>21. NUWSS</b>	National Union of Women's Suffrage Societies – an organisation of women's suffrage societies in Britain, also known as the Suffragists.		

## Topic 4: Totalitarian States

Timeline SOVIET UNION (USSR)	
<b>Feb 1917</b>	Tsar Nicholas II is removed.
<b>Oct 1917</b>	October Revolution – Bolsheviks (communists) take power.
<b>1918-21</b>	Russian Civil War. Communists win and increase their power.
<b>Jan 1924</b>	Lenin dies. Stalin gets rid of his rivals and soon takes power.
<b>1928</b>	Stalin begins industrialisation and collectivisation.
<b>1932-33</b>	Famine kills between 5-7 million people, including up to 5m in Ukraine.
<b>1937-38</b>	'Great Terror' – 1 million people are purged from the Party and executed.
<b>1941-5</b>	The USSR enters WW2 after Germany invades. Victory in 1945.
<b>March 1953</b>	Stalin dies. Communists remain in power until 1991.

Timeline GERMANY	
<b>1918</b>	Germany lost WW1. Start of the Weimar Republic.
<b>1923</b>	Hyperinflation – money loses value.
<b>1929-33</b>	Great Depression – high unemployment; extremists gain popularity.
<b>Jan 1933</b>	Hitler becomes chancellor after the Nazis get most votes.
<b>Mar 1933</b>	Dachau (first concentration camp) opened.
<b>Aug 1934</b>	Hitler became 'Führer' (dictator).
<b>1935</b>	Nuremberg Laws extend racial discrimination.
<b>1936</b>	Berlin Olympics. Height of Nazi propaganda.
<b>1939</b>	Hitler Youth made compulsory.
<b>1941</b>	Germany invades USSR. Start of genocide against Jews, Poles, Slavs.
<b>1945</b>	Hitler commits suicide as Germany loses WW2. End of Nazi regime.

Key People	
<b>1. Adolf Hitler</b>	Leader of the Nazi Party (NSDAP) and leader of Germany 1933-1945.
<b>2. Joseph Goebbels</b>	Propaganda Minister of Nazi Germany.
<b>3. Heinrich Himmler</b>	Head of the SS, which ran the Nazi system of police and concentration camps.
<b>4. Joseph Stalin</b>	Leader of the Soviet Union from Lenin's death until he died in 1953.
<b>5. Alexandra Kollontai</b>	A leading Bolshevik whose work helped improve the position of women in the USSR in the early 1920s.
<b>6. Sophie Scholl</b>	German student who was part of the White Rose group.

## Topic 4: Totalitarian States

Key Words			
<b>1. Totalitarian</b>	A government which controls every aspect of people's lives.	<b>12. Propaganda</b>	Information or ideas, which are often false or selective, used to make people believe something.
<b>2. Dictator</b>	A leader who has complete power to do whatever they want, and often uses violence and force to keep control.	<b>13. Indoctrinate</b>	Train people to believe something.
<b>3. Communism</b>	A system where property and businesses are publicly owned (or owned by the government) and everyone is completely equal (in theory).	<b>14. Cult of Personality</b>	Using propaganda to present a leader as perfect, heroic and someone that should be worshipped.
<b>4. Capitalism</b>	A system where property/businesses can be privately owned, and some people can make more money than others.	<b>15. Censorship</b>	Stopping people from saying or publishing certain things.
<b>5. Fascism</b>	Extreme right-wing beliefs, which include a dictator, one-party state, militarism, nationalism, and racism.	<b>16. Terror</b>	Violent action/threats designed to cause fear in a population.
<b>6. Ideology</b>	A set of beliefs, often about politics or society (e.g. communism/capitalism/fascism/liberalism).	<b>17. Denounce</b>	Accuse someone of something/turn them in for committing a crime.
<b>7. Bolsheviks</b>	Russian Communist Party, led by Lenin and then Stalin.	<b>18. Conform</b>	Act like others, even if you don't really agree with what you're doing.
<b>8. Revolution</b>	A dramatic change in a country's political system and society, often involving violence.	<b>19. Concentration Camp</b>	A place where many people can be kept prisoner – especially political enemies/minority groups.
<b>9. Collectivisation</b>	Removing small, individual farms and creating large-scale farms owned by the government.	<b>20. Gulag/Labour camp</b>	A camp where people are kept under armed guard and are forced to work.
<b>10. Industrialisation</b>	When an economy moves away from agriculture, and starts making more in factories (e.g. steel/coal).	<b>21. Gestapo</b>	The Nazi Secret Police.
<b>11. Volksgemeinschaft</b>	'People's Community' – Nazi idea that Germans should form an ideal, traditional society working for the good of the nation.	<b>22. NKVD</b>	Soviet secret police.

## Topic 5: The Second World War and The Holocaust

Timeline	
<b>Jan 1933</b>	1. Hitler comes to power in Germany.
<b>15 Sep 1935</b>	2. Nuremberg Laws.
<b>Nov 1938</b>	3. Kristallnacht – pogrom in Germany.
<b>18 Aug 1939</b>	4. T4 euthanasia programme starts killing disabled people.
<b>1 Sep 1939</b>	5. Germany invades Poland – Jews forced into cities and later ghettos.
<b>June 1940</b>	6. Germany defeats France, Belgium & Netherlands.
<b>22 June 1941</b>	7. Germany invades the USSR. Einsatzgruppen begin mass shootings, e.g. Babi Yar.
<b>Dec 1941</b>	8. Gassing of Jews begins in the first death camp, Chelmno.
<b>20 Jan 1942</b>	9. Wannsee Conference formalises the Final Solution.
<b>Mar-July 1942</b>	10. Death camps open at Belzec, Sobibor and Treblinka.
<b>May 1942</b>	11. Start of mass murder at Auschwitz of Jews from across Europe.
<b>Feb 1943</b>	12. Sinti & Roma arrive in Auschwitz.
<b>Mar 1943</b>	13. New gas chambers purpose-built at Auschwitz-Birkenau.
<b>Apr 1943</b>	14. Warsaw Ghetto Uprising.
<b>Aug-Oct 1943</b>	15. Uprisings at Treblinka and Sobibor.
<b>May 1944</b>	16. Deportations of Hungarian Jews to Auschwitz.
<b>Jan-May 1945</b>	17. Germany defeated. Camps liberated by Allied armies. Many survivors are put in 'Displaced Persons Camps'.
<b>Jan 1945</b>	18. Death march from Stutthof & Auschwitz.

Key People	
<b>1. Adolf Hitler</b>	Führer (leader) of Germany; bears most responsibility for WW2 & the Holocaust.
<b>2. Joseph Goebbels</b>	Propaganda Minister – persuaded many Germans to support antisemitic acts.
<b>3. Heinrich Himmler</b>	Head of the SS – coordinated all the camps and mass shootings.
<b>4. Reinhard Heydrich</b>	A leading Nazi who played a central role in developing the Final Solution.
<b>5. Adolf Eichmann</b>	Head of deportations; organised the murder of Hungarian Jews in 1944.
<b>6. Josef Mengele</b>	Doctor who performed horrific medical experiments in Auschwitz, esp. on twins.
<b>7. Arthur Greiser</b>	Set up the first death camp, Chelmno, to deal with overcrowding in the Lodz Ghetto.
<b>8. Adam Czerniakow</b>	Head of the Jewish Council in the Warsaw ghetto; committed suicide rather than deport children.
<b>9. Chaim Rumkowski</b>	Head of the Jewish Council in the Lodz Ghetto; deported children and elderly so others might survive.
<b>10. Mordechai Anielewicz</b>	One of the leaders of the Warsaw Ghetto Uprising in 1943.
<b>11. Anne Frank</b>	Jewish girl who kept a diary while hiding in Amsterdam; they were found and sent to camps. Anne died in Bergen-Belsen.



## Topic 5: The Second World War and The Holocaust

Key Words			
1. <b>Holocaust</b>	The murder of 6 million Jews by the Nazis and their collaborators.	11. <b>Deportation</b>	Removing people by force and transporting them somewhere else (often to a ghetto or camp)
2. <b>Final Solution</b>	The official Nazi plan to murder all the Jews of Europe.	12. <b>Einsatzgruppen</b>	SS 'Death squads' that followed the German army into the USSR – killed 1.5 million in mass shootings
3. <b>Antisemitism</b>	Hatred of Jewish people.	13. <b>Concentration Camp</b>	A prison camp set up to keep political and racial enemies in horrific conditions.
4. <b>Persecution</b>	Abusive treatment of a group of people over a long period, aiming to subjugate or expel them.	14. <b>Labour camp</b>	A place where many people are kept prisoner and forced to work, usually doing hard manual labour.
5. <b>Genocide</b>	Deliberate destruction of a national/ ethnic/ cultural group, including mass murder.	15. <b>Death Camp (extermination camp)</b>	A camp designed for mass murder in a systematic, efficient and industrialised way, usually by gassing.
6. <b>Pogrom</b>	Large-scale acts of violence and destruction against a minority (usually Jewish) community.	16. <b>Gas Chamber</b>	Sealed rooms filled with poisonous gas to murder prisoners.
7. <b>Kristallnacht</b>	'Night of Broken Glass' – a pogrom against the German Jewish community, on 9-10 Nov 1938.	17. <b>SS (Schutzstaffel)</b>	The organisation which controlled police & camps, which carried out the mass murder.
8. <b>Star of David</b> 	Symbol of the Jewish people. Jews had to wear a yellow star on their clothing.	18. <b>Collaborator</b>	Someone from occupied countries who worked with the Nazis to kill Jews.
9. <b>Aryan</b>	The 'master race' in Nazi belief – 'pure' Germans, especially with blond hair and blue eyes.	19. <b>Resistance</b>	Fighting back against a regime or refusing to follow their rules.
10. <b>Ghetto</b>	A section of a city where Jews were forced to live and unable to leave.		
<b>FUNCTIONALISM:</b> The historical view that the Holocaust developed gradually due to the circumstances of WW2 and the initiative of leading Nazis.		<b>INTENTIONALISM:</b> The historical view that Hitler planned the details of the Holocaust	

## Topic 6: British Civil Rights Movement and Post-War Britain

Timeline	
May 1945	1. End of Second World War.
1948	2. British Nationality Act passed.
June 1948	3. HMS Windrush arrives in Britain.
July 1948	4. Formation of NHS.
1958	5. Notting Hill race protests.
1962 and 1968	6. Commonwealth Immigrants Acts.
1963	7. Bristol Bus Boycott.
1964	8. Battle of Brighton.
1965	9. First Race Relations Act passed, banning racial discrimination in public places and making promoting racial hatred a crime.
1965	10. Abolition of the death penalty.
1966	11. First Notting Hill Carnival.
1967	12. Homosexuality decriminalised.
1967	13. Abortion Act.
1968	14. Second Race Relations Act passed, focused on eradicating discrimination in housing and employment.
1968	15. Rivers of Blood speech.
1968	16. Dagenham Womens' Strike.
1970	17. Equal Pay Act passed.
1970	18. Mangrove 9 tried for 'inciting a riot'.
1971	19. Attempt to legislate against trade union action.
1978-79	20. Winter of Discontent.
1981	21. Black People's Day of Action.
1984-85	22. Miners' Strike.
1988	23. Thatcher's government passed Section 28.
1989	24. Stonewall founded.

Key People	
22. Aneurin (Nye) Bevan	Labour Minister of Health 1945-51.
23. Clement Attlee	Labour Prime Minister 1945-51.
24. William Beveridge	Social policy expert whose 1942 report recommended that government should fight the five Giants of 'Want, Disease, Ignorance, Squalor and Idleness'.
25. Winston Churchill	Conservative Prime Minister 1940-45 and 1951-55.
26. Claudia Jones	Trinidadian journalist who founded the West Indian Gazette in 1958 and was a key figure in founding the Notting Hill Carnival.
27. Altheia Jones-LeCointe	Trinidadian doctor, also the leader of the British Black Panther movement.
28. Paul Stephenson	Social worker and community activist, he led the Bristol Bus Boycott.
29. Harold Wilson	Labour Prime Minister 1964-70 and 74-76.
30. Barbara Castle	Labour MP who held important positions in Harold Wilson's government, including passing the Equal Pay Act.
31. Enoch Powell	Conservative MP that made a speech that fuelled racism and divisions in society, known as the Rivers of Blood speech.
32. Edward Heath	Conservative Prime Minister 1970-74.
33. James Callaghan	Labour Prime Minister 1974-79.
34. Margaret Thatcher	Conservative Prime Minister 1979-1990.
35. Harold Moody	Doctor and civil rights campaigner, founded the League of Coloured Peoples in Britain.
36. Bernard Coard	Grenadian scholar who published research in 1971 about the institutionalised racism that existed in British schools.
37. Jocelyn Barrow	Leader of the campaign against the colour bar in retail work and General Secretary of the Campaign Against Racial Discrimination (CARD) from 1964-1967, which lobbied the government for change in employment and housing discrimination.
38. Olive Morris	Civil rights campaigner, and member of the British Black Panthers, who founded the Brixton Black Women's Group and campaigned for fairer housing and against police brutality.

## Topic 6: British Civil Rights Movement and Post-War Britain

### Key Words

<b>35. Abortion</b>	The deliberate termination of a pregnancy.	<b>52. Lobbying</b>	Attempt to try and influence government decisions by talking to the MPs who vote on laws.
<b>36. Boycott</b>	When people refused to buy or use something as a protest.	<b>53. Mangrove 9</b>	A group of British black activists tried for inciting a riot at a 1970 protest against the police targeting of The Mangrove, a Caribbean restaurant in Notting Hill.
<b>37. Blitz</b>	A fast violent attack, usually with bombs, dropped by an aircraft.	<b>54. Mods and Rockers</b>	Two conflicting British youth subcultures of the early/ mid 1960s to early 1970s.
<b>38. British Empire</b>	The group of countries that in the past were ruled or controlled by the UK.	<b>55. NHS</b>	National Health Service - the free British health service set up in 1948.
<b>39. Capital punishment</b>	The legally authorised killing of someone as a punishment.	<b>56. Picket</b>	Protesting outside the place you are protesting against.
<b>40. Civil disobedience</b>	Refusing to obey laws or pay taxes, as a peaceful form of protest.	<b>57. Pro-life campaigns</b>	People who oppose abortion and believe a fertilised egg is the start of a life.
<b>41. Commonwealth</b>	A group of countries that used to be part of the British Empire.	<b>58. Public health</b>	Preventing disease, prolonging life, and promoting health through the organised efforts of society.
<b>42. Decriminalisation</b>	To stop treating something as illegal.	<b>59. Rationing</b>	Giving every person a fixed amount of food, fuel or clothing when there are shortages.
<b>43. Decolonisation</b>	The process of state(s) leaving an empire to become independent nation(s).	<b>60. Rioting</b>	When a large number of people behave in a noisy, violent, and uncontrolled way.
<b>44. Exploitation</b>	Taking advantage of someone in order to profit from their work.	<b>61. Section 28</b>	A law which made it illegal to teach about gay and lesbian relationships.
<b>45. Feminism</b>	The belief and process of gaining greater social, economic, and political equality for women.	<b>62. Stonewall</b>	A campaign group and social movement set up to campaign for the equality of lesbian, gay, bi and trans people across Britain.
<b>46. Grassroots activism</b>	A community-led, local movement that tried to create progress for their causes, e.g. in health, education and housing.	<b>63. Strikes</b>	To refuse to continue doing something.
<b>47. HMS Windrush</b>	The ship that arrived at Tilbury docks in 1948 carrying passengers from the West Indies who were emigrating to Britain.	<b>64. Trade Union</b>	An organisation that represents workers and protects their rights and pay.
<b>48. Industrial action</b>	An act by an employee or employer to prevent work from happening, e.g. strikes, go-slows, overtime bans.	<b>65. Welfare state</b>	A system where government looks after people, especially the old, children, sick and unemployed.
<b>49. Institutional racism</b>	When an organisation's systems treat a specific race unfairly.	<b>66. Winter of Discontent</b>	Name given to the winter of 1978-79 when there were lots of strikes.
<b>50. Legislation</b>	The process of making or enacting laws.	<b>67. Women's Liberation Movement</b>	A political alignment of feminism that emerged in the late 1960s and continued into the 1980s promoting political, intellectual, and cultural change.
<b>51. Liberalisation</b>	The easing of restrictions on something, usually political, such as legalising abortion.		

# Pop Art, Opposites & Natural Forms

Pop Art is an art movement based on modern popular culture and the mass media, especially as a critical or ironic comment on traditional fine art values.

## Pop Art

1. Where and when did the Pop Art movement begin?
2. What are the three main components of Pop Art?
3. What are the main influences behind Pop Art?

### The Famous Four: Peter Blake, Andy Warhol, Roy Lichtenstein, and Claes Oldenburg



What are the key features of Pop Art?

How would you describe this style of work?

## Opposites: Notan: Light & Dark Harmony



Notan is the combination of lights and darks especially as used in Japanese art: the design or pattern of a work of art as seen in flat areas of dark and light values only — compare chiaroscuro.



Notan is a sophisticated way of creating symmetrical images from one sheet of paper. The skill is ensuring that the image is placed in the correct position, otherwise the harmony fails – because there is a discord in the image.

Notan is a Japanese term which literally means 'light dark harmony'



Can you see how the image reflects the exact image that it cut from?



## Natural Forms

Exploring the work of 21<sup>st</sup> Century Artists: Angie Lewin, Cheryl Cochran, & Mariann Johansen-Ellis and 17<sup>th</sup> Century: Robert Hook



Angie Lewin creates prints from lino cuts. What do you notice about her work? What do you like about her images



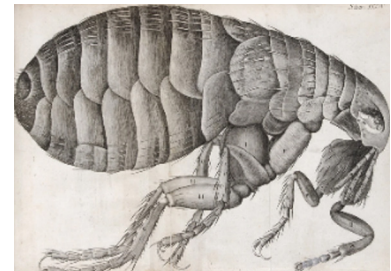
Artists are inspired by Natural Forms. Cheryl Cochran creates pigeons with personalities.

Observational drawing is the starting point to all final pieces. How is the 3D illusion created?



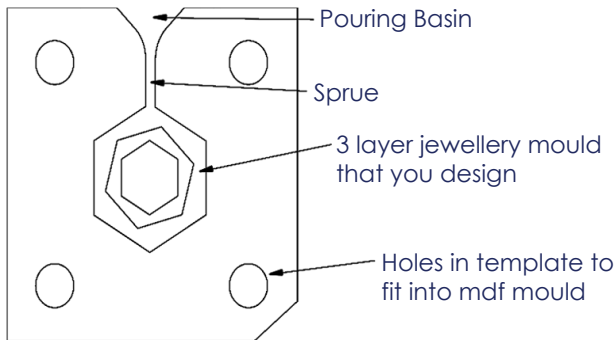
Mariann Johansen Ellis is a Danish print maker that creates stylised fish images and other marine life.

In 1665, Robert Hook a scientist and artist, drew the first observational drawing of a flea.



## Key Terms

<b>1. Customer</b>	A person who will buy OR use your product.
<b>2. Client</b>	A person or company asking you to work for them.
<b>3. Design Brief</b>	A guide for a project given to you by the client.
<b>4. Ore</b>	The solid material which metal is taken from.
<b>5. Ferrous Metal</b>	A metal which contains Iron.
<b>6. Non-Ferrous Metal</b>	A metal which does not contain iron.
<b>7. Alloy</b>	A metal made from 2 or more metals to improve its properties.
<b>8. Pewter</b>	Alloy metal which will melt at low temperatures. Contains many metals including Tin & Copper.
<b>9. Mould</b>	A hollow container designed for casting.
<b>10. Casting</b>	The process of using the mould to pour molten metal inside and create a shape when the metal has cooled.
<b>11. Sprue Hole</b>	The gap where the metal enters the mould.
<b>12. Sprue</b>	The metal which is left over from moulding which takes the shape of the sprue hole.
<b>13. Hearth</b>	The base of the furnace in the workshop used for heating metal.



Raymond Templier was a French Jewellery designer who worked in the Art Deco style that was successful in the 1930s and 50s. He had a long career and died in 1968.

	<b>Jewellers round nosed pliers</b>	For opening jump rings.
	<b>File</b>	A tool used to remove material and shape metal or plastic.
	<b>Metal Working Vice</b>	Used to grip pieces of metal to allow you to work on it with tools.
	<b>Wet and Dry paper</b>	Abrasive paper used to create a finish on metal. Use rough paper first, moving to finer.
	<b>Brasso – Polishing solution</b>	Liquid containing small particles to polish the surface of metal.
	<b>Pillar Drill</b>	Used to cut holes in materials. Creates an accurate hole.

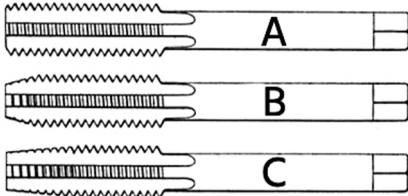
# Desk Lamp Rotation






Dies are used to cut an EXTERNAL THREAD onto a ROD. They come in a multitude of diameters and are made out of hard steel. The dies are used in conjunction with a die holder as shown below.




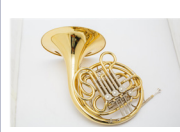

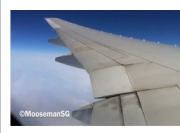
Taps are used to cut an INTERNAL thread. They are made of hardened steel and come in a variety of diameters. There are 3 categories of tap, A, B and C. They are used in conjunction with a tap holder.

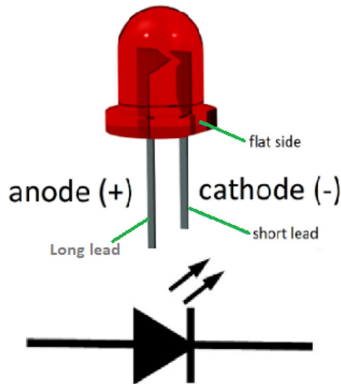


## Ferrous Metals

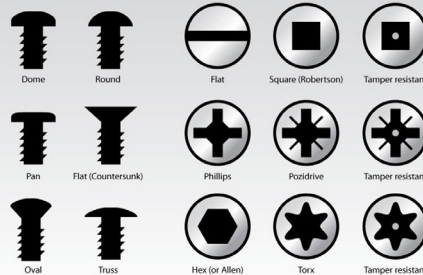
	<b>Mild Steel</b>	Cheap, easy to work, plentiful used for car bodies, malleable
	<b>Stainless Steel</b>	Expensive, hard and difficult to work, corrosion resistant food safe
	<b>Tool Steel</b>	Hardened with extra carbon, brittle, used for drill bits

## Non-ferrous Metals

	<b>Tin Plate</b>	Low melting point, used as corrosion resistant coating for steel
	<b>Brass</b>	An alloy of copper and zinc hard, corrosion resistant used for locks
	<b>Copper</b>	Used as a pure metal, pipes and electrical cables good ductility
	<b>Aluminium</b>	Lightweight used as an alloy plentiful supplies used for aeroplane bodies



## Common Screws Heads:








## Key Terms

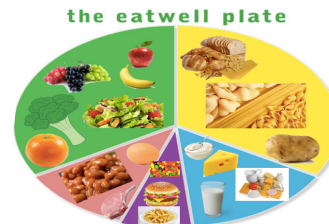
1	<b>Health and Safety</b>	Rules you should follow in the kitchen to keep you safe while cooking and preparing food.
2	<b>Cross-contamination</b>	When <b>bacteria from raw meat is spread onto vegetables</b> . Puts people at risk of food poisoning. Avoided by using different equipment to prepare and cook raw meat and vegetables.
3	<b>The Eatwell Guide</b>	The main source of <b>nutritional information</b> in the diet – five food groups: Fruit and vegetables, carbohydrates, protein, dairy and alternatives, oils and spreads. Gives food portion information to people.
4	<b>Nutritional Values</b>	The amount of nutrients – <b>both macro (big) and micro (small)</b> – that a given dish provides you with.
5	<b>Micronutrients</b>	<b>Nutrients</b> such as vitamins and minerals, including calcium, vitamin A, B, C, D, E and K.
6	<b>Sensory Analysis</b>	<b>Using the senses</b> – sound, texture, aesthetics, hearing, smell and umami – to decide how successful a dish is.
7	<b>Heat Transfer</b>	When <b>heat is transferred</b> from the source of heat to the food. <b>Conduction, convection and radiation</b> – frying = conduction, boiling = convection, grilling = radiation.
8	<b>Fermentation</b>	Micro-organisms – such as yeast – breaking down the carbohydrates in food into alcohol substances. We use different amounts of fermentation for different foods.
9	<b>Method</b>	The steps that are written down about how to make the dish.
10	<b>Ingredients</b>	The different food products that are needed to make a dish.
11	<b>Food Evaluation</b>	The process of analysing food products to determine their sensory, nutritional, and safety properties.
12	<b>Balanced Diet</b>	Eating a variety of foods to get all the nutrients in the right proportions and quantities to be healthy.
13	<b>Composite Meal</b>	A food/dish made from different food groups, e.g. pizza, spaghetti bolognese.

## Equipment for Cooking

	<b>14. Piping Bag</b>	Used to apply various liquid-based food to other foods – batter or icing. Part of shaping and moulding
	<b>15. Palette Knife</b>	Used to smooth or lift different types of foods or decorative foods, such as smoothing butter cream icing
	<b>16. Baking Tray</b>	Used to cook or bake food items. Different types of trays are available

## 17. The Eatwell Guide

Fruit and Veg  
Dairy and Alternatives  
Carbohydrates  
Oils and Spreads  
Protein



## 18. Heat Transfer



**Conduction** – direct heat - frying

**Convection** – heat rising through liquid or air - boiling

**Radiation** – heat from light ray transfer – bbq/grilling

Food Group	Nutrients
Fruit and vegetables.	Vitamins, minerals, water and fibre.
Potatoes, bread, rice, pasta and other starchy carbohydrates.	Carbohydrates, fibre, calcium and B group vitamins.
Oils and spreads.	Fat.
Dairy and alternatives.	Calcium, fat, protein, Vitamin D and water.
Beans, pulses, fish, eggs, meat and other proteins.	Protein, fat, vitamin D and iron.

## The Eight Tips for Healthy Eating

1. Base your meals on starchy foods.
2. Eat lots of fruit and vegetables.
3. Eat more fish – including a portion of oily fish each week.
4. Cut down on saturated fat and sugar.
5. Eat less salt – no more than 6g a day for adults.
6. Get active and try to be a healthy weight.
7. Don't get thirsty.
8. Don't skip breakfast.



# eatwell

## 8 TIPS for HEALTHY EATING

- 1** Base your meals on starchy foods
 
- 2** Eat lots of fruit and veg
 
- 3** Eat more fish – including a portion of oily fish each week
 
- 4** Cut down on saturated fat and sugar
 
- 5** Eat less salt – no more than 6g a day for adults
 
- 6** Get active and try to be a healthy weight
 
- 7** Drink plenty of water
 
- 8** Don't skip breakfast
 

<p><b>Question areas</b></p>	<ol style="list-style-type: none"> <li><b>Evaluate</b> – Good and bad. Say whether the production element you are writing about was successful in communicating the intended effect/impact or not</li> <li><b>Analyse</b> – Identify the techniques that were used and explain their intended impact on the audience (using drama key terms)</li> <li><b>Describe</b> – Clearly and concisely describe the moment as it happened on stage so the examiner can visualise it in their mind</li> </ol>	
<p><b>Key terms - Production elements</b></p>	<p>4.</p> <ol style="list-style-type: none"> <li><b>Semiotics</b> – The acting and/or design can communicate abstract concepts, themes and symbols. As an example, a design could include a large, dead tree to suggest the themes of death in a play</li> <li><b>Design elements</b> – Set/props, lighting, costume, sound (music and sound effects, live and/or recorded)</li> <li><b>Character traits/aspects</b> – Characterisation, physical skills/movement, vocal skills/voice, use of space/proxemics</li> <li><b>Staging</b> – Selecting a performance space, adapting/modifying the performance space designing ideas for a play. Includes ideas for all design elements</li> <li><b>Performance space</b> – Thrust, in the round, traverse, proscenium arch, end on, apron, black box, promenade, site specific</li> <li><b>Acting</b> – Vocal skills, physical skills, characterisation, use of stage space/proxemics, interaction with other characters, handling of props. Using all the key terms write notes on three key moments</li> <li><b>Costume</b> – Type, period, fabric, colour, fit and condition, accessories, hair, make-up, masks</li> <li><b>Set</b> – Type, period, size and scale, colours, entrances and exits, levels, ramps, revolves, drapes, curtains, flats, backdrops, projections/multimedia</li> <li><b>Lighting</b> – Types, colours, angles and positions, special effects, transitions, blackouts, fades</li> <li><b>Sound</b> – Types, music, volume/amplification/intensity, direction, live or recorded, positioning, sound effects</li> </ol>	

## Research the Play

<p><b>15. Plot</b></p>	<p>The storyline of a play</p>	<p><b>18. Context</b></p>	<p>When and where the play is set</p>
<p><b>16. Character</b></p>	<p>A person in the narrative/plot</p>	<p><b>19. Possible intentions of the playwright</b></p>	<p>Why the playwright wrote the play, what message did they want to convey to an audience?</p>
<p><b>17. Theme</b></p>	<p>An idea or message that the writer highlights during the play</p>	<p><b>20. Original performance conditions</b></p>	<p>When and where was the play first performed?</p>

## Making Notes About the Performance

<p><b>21. Director</b></p>	<p>Responsibility for the practical and creative interpretation of a dramatic script</p>	<p><b>23. Key scenes</b></p>	<p>As well as the beginning and end choose three key scenes to make notes on. You should consider the climax of the play, tension, something is revealed or changed, dramatic moments</p>
<p><b>22. Artistic vision/intention</b></p>	<p>What the director wants the audience to think, feel or learn by watching the play</p>	<p><b>24. Tension/Climax</b></p>	<p>When the audience are waiting for something to happen and the scene builds to a moment of climax. (Silence, stillness, sudden, slow, staring or pausing used by the actor.) Design elements and acting are used to create tension in the play</p>

## Using Key Terms: Acting

Characterisation	
<b>25. Motivation</b>	What a character wants or needs in a scene
<b>26. Style</b>	The way in which something is performed e.g. naturalistically
<b>27. Subtext</b>	The unspoken meaning, feelings and thoughts beneath the lines

Physical Skills and Vocal Skills			
<b>28. Movement</b>	Changing positions or moving across the space	<b>41. Pitch</b>	The vocal register - high or low
<b>29. Posture</b>	The way they stand and hold themselves	<b>42. Pace</b>	How quickly or slowly something is done
<b>30. Gesture</b>	Movements of hands, head, legs usually convey a message/ meaning	<b>43. Pause</b>	A hesitation or silence
<b>31. Facial expressions</b>	The feelings (or lack of them) shown on the face	<b>44. Emphasis</b>	Stressing or highlighting something
<b>32. Use of stage space</b>	How an actor moves around the space, using levels, direction	<b>45. Inflection</b>	Saying a word in a particular way to stress its meaning
<b>33. Interaction/ Proxemics</b>	How a character reacts to other characters. Proxemics mean moving towards or away from another character and the distance between the characters	<b>46. Accent</b>	A way of pronouncing words associated with a country, region or social class
<b>34. Handling of props</b>	How a prop is handled during a performance		
<b>35. Choreography/ stage fights</b>	Setting movements to create meaning/blocking movements to create the impression of violence	<b>47. Volume</b>	Degree of loudness
<b>36. Body language</b>	The movements and actions we make to communicate how we feel	<b>48. Delivery</b>	How dialogue is said to convey meaning
<b>37. Pace and pause of movement</b>	The speed of the movement and use of stillness to convey a meaning, feeling or atmosphere	<b>49. Emotional range/ tone</b>	Feelings are expressed by the way the line is said
<b>38. Eye contact/Eye line</b>	How and where we move our eyes e.g. looking to the floor		
<b>39. Levels</b>	How high or low we stand or sit on stage, this can communicate the status of a character	<b>50. Phrasing</b>	Use of hesitation, metre and/or grouping
<b>40. Gait</b>	The way you walk		

## Using Key Terms: Design

Lighting and Sound	51. Backlight	Light projected from upstage	66. Fogger	Creates smoke
	52. Barndoors	Metal flaps used to shape the light	67. Gobos	Creates patterns of light
	53. Flood/wash	Unfocussed wash of light / light covers the whole stage	68. Pyrotechnics	Creates fire effect
	54. Floor lighting	Light on a low stand (creates shadows)	69. Smoke and haze machine	Creates mist or fog
	55. Followspot	Powerful lantern that follows the actor around the stage	70. Strobe	Short bursts of bright light
	56. Footlights	Low lights downstage	71. Abstract	Not realistic
	57. Fresnel	A lantern with a soft beam	72. Motivational sound/sound effects	Effect required by the script (gunshots)
	58. General cover	Light on the acting areas	73. Musical theme or motif	Recurring section of music
	59. Pinspot	Tightly focused on a small area	74. Naturalistic	Realistic sounds
	60. Profile	Creates clear outlines	75. Recorded or live sound	Prerecord or happens during the performance
	61. Blackout	No lighting	76. Acoustics	Quality of sound
	62. Crossfade	Change from one state to another	77. Fade/snap	Gradual/sudden off or on
	63. Fade/snap	Light slowly on and off / quickly on and off	78. Soundscape	Build-up of sounds to create an atmosphere or environment
	64. Colour filter	Plastic used to alter the colour	79. Reverb	Echoing
	65. Focus	How sharp or defined the light is	85. Furnishings/stage furniture	Chairs, tables (set dressings - cushion, paintings etc.)
Set	80. Box set	A setting of a complete room often naturalistic	86. Fly	Raise and lower scenery from above the stage
	81. Backcloth/drop	Hangs at the rear of the scene	87. Gauze or scrims	Curtains that go transparent when lit a certain way
	82. Cyclorama	Curved screen filling the rear of the stage	88. Symbolic	Representing something usually non-naturalistic
	83. Trap/trapdoor	Door in the floor of the stage	89. Multimedia and projections	Film or images used in the performance
	84. Flat and truck	Scenery on a flat frame/platform on wheels	95. Fabric	Silk, cotton, wool, chiffon, rubber, fur
Costume	90. Headwear	Hat, cap, scarf, headband, ribbon, clasp etc.	96. Decorations/trim	Sequins, rhinestones, lace/buttons, braid, embroidery, fur
	91. Wigs/facial hair	Colour, length, style/moustache, sideburns, beards	97. Padding/silhouette/fit	Character padding, pregnancy/tight, loose, high waisted
	92. Make-up/mask	Natural, character, stylised or fantasy	98. Colour	Palette = range of colour and/or coding = might be significant to the character
	93. Accessories	Jewellery, ties	99. Condition	Distressed, worn out, old, clean, pressed, soiled, ripped, mended, faded
	94. Style	Victorian, minimalistic, monochromatic, boho, gothic, hipster, modern		

## Brecht & Sing Yer Heart Out For The Lads

1. **Plot:** Set in a south-west London pub, during the 2000 England vs. Germany match. As England lose again, their supporters in The King George lose it too – at full time, patriotism has become unapologetic racism.
2. **Genre: Epic Theatre** – encourages the audience to fully acknowledge that the production is merely a production and not reality.
3. **Genre: Political Theatre** – comments on political or social issues.
4. **Style: Non-naturalistic/non-realistic** – where no-one is pretending that what is happening on stage is real/realistic.

<b>Key question areas</b>	Social/cultural/historical context; aspects of a character; actors' movement and voice; staging; set design.
<b>Key words</b>	<ol style="list-style-type: none"> <li>5. <b>Social/cultural/historical + context:</b> Date-Place-Issue.</li> <li>6. <b>Character traits/Aspects of character</b> – persona; what the character is like and their background. Their status in life. Remember: A character might change during the plot.</li> <li>7. <b>Set design</b> – style; colour; positioning; stage furniture; stage flats; wings; cyclorama; backdrop; legs; ground row; tabs; borders; levels; symbolism; location- the set should always represent the context of the play.</li> <li>8. <b>Lighting</b> – flood light; follow spot; gel; strobe; ultraviolet; spot light; side lights; up light; down light; warm wash; cold wash; flood light; fade-up; fade-down; cross fade (speed of fades can be slow, middle pace or fast) gobo; blackout.</li> <li>9. <b>Costume</b> – period costumes; cultural costumes; colour; fabric; style; condition; symbolism; element; item (e.g. shirt; hat; shawl; cane; umbrella).</li> <li>10. <b>Staging</b> – the process of selecting, designing, adapting to, or modifying the performance space for a play. This includes stagecraft elements as well as the structure of the stage and its components.</li> <li>11. <b>Performance space</b> – thrust; in the round; traverse; end on.</li> <li>12. <b>Sound design</b> – sound effects; live or recorded; underscoring; direction; transitions; volume.</li> </ol>
<b>Social/cultural/historical context</b>	<ol style="list-style-type: none"> <li>13. Roy Williams (the playwright) wanted to write something that was about racism and cultural identity but also close to home.</li> <li>14. Set during the 2000's England-Germany match, Roy Williams was inspired after a visit to the pub which left him shocked at some fans racist, sexist and xenophobic behaviour.</li> </ol>

## Brecht & Sing Yer Heart Out For The Lads

### Key characters – Key lines and stage directions that impact on the character

<b>15. Glen</b>	Young 15 year-old white male, tries to fit in but intimidated by Bad T and Duane as they pick on him at school.
<b>16. Bad T</b>	Young 15 year-old black male, a leader out of his friends, manipulative and intimidating, he bullies Glen.
<b>17. Duane</b>	Young 15 year-old black male, follower of Bad T, doesn't think for himself.
<b>18. Mark</b>	Early thirties, black male, looks out for Glen and tries to help him. Mark ends up being stabbed by Glen.
<b>19. Gina</b>	Early thirties, white female, Glen's mother and the landlady at the pub.

<b>20. Characterisation</b>	The act of changing voice, body language, movement, gesture etc. when in role. The actor must use their skills to portray a character consistently throughout their performance.
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### Brechtian techniques

<p><b>DIRECT ADDRESS</b> An actor speaks directly to the audience.</p>	<p><b>MULTI ROLING</b> Actors perform more than one character in a play and will change costumes in front of the audience to show this is taking place.</p>	<p><b>NARRATION</b> Where parts of the play are narrated rather than acting them by different members of the cast (but not a separate Narrator role).</p>
<p><b>ENSEMBLE</b> Actors are on stage all the time and watch the action when not performing.</p>	<p><b>MUSIC / SONG</b> Characters often sing in the middle of the scene, or add music and movement sequences instead of using words and dialogue.</p>	<p><b>GESTUS</b> The combination of gesture, facial expressions and body language to create a movement that symbolises a character for the audience.</p>
<p><b>PLACARDS</b> Signs, placards or projections are used to tell the audience what is going to happen in each scene.</p>	<p><b>SPEAKING STAGE DIRECTIONS</b> The actors speak the stage directions to the audience directly.</p>	<p><b>BREAKING THE 4TH WALL</b> Ask the audience a question. Ask the audience to hold something. Ask the audience to be in the scene.</p>



## Brecht & Sing Yer Heart Out For The Lads

### Staging the Performance

<b>32. Performance Space</b>	<p><b>End on</b> – Audience on one side. This performance space is similar to a proscenium arch stage. The stage is at one end and the audience face it directly. In this type of stage there is no arch around the edge of the stage to 'frame' it.</p> <p><b>In the round</b> – Audience are all around the performance space.</p> <p><b>Traverse</b> – Audience on two sides. The action takes place between the audience. The stage is like a catwalk in a fashion show.</p> <p><b>Thrust</b> – The audience sit on three sides and the stage thrusts forward lightly into the audience.</p>
<b>33. Blocking</b>	<p>Planning how to use the space and the actor's movement.</p>
<b>34. Design Elements</b>	<p>Lighting design; sound design; costume design; set design.</p>

### Design Key Words

<b>35. Themes/symbols</b>	<p>The design can also communicate abstract concepts, such as <b>themes</b> and <b>symbols</b>. As an example, a design could include dramatic red backlight lighting barbed wire with a body hanging from it to suggest the context and themes of death in a play.</p>
<b>36. Style</b>	<p>Designs can be <b>naturalistic</b> this would aim to create the impression of reality through realistic-looking lighting, sound and set items. A play performed in a <b>minimalistic</b> style would use just a few, simple design elements to represent a setting and create an atmosphere for the audience.</p>
<b>37. Colour</b>	<p>Colour can be used within set design to symbolise various ideas on stage. For example, for a play we could include dull greys and a monochromatic palette (single colour) this could enhance the sad atmosphere and dark themes in the play.</p>
<b>38. Condition</b>	<p>The condition of a design can reveal important information about the setting or a character's circumstances. For example, shabby, dented and blood-covered WW1 helmet might suggest the character has been in a battle and seen death first-hand.</p>
<b>39. Position</b>	<p>Where you put the items of set on the stage.</p>
<b>40. Stage furniture</b>	<p>Items of set that can be moved on stage but are not props.</p>
<b>41. Location</b>	<p>The set can tell the audience where and when the scene takes place.</p>
<b>42. Symbolism</b>	<p>Represents a message on stage.</p>

### Conventions of Epic Theatre

<b>43. Verfremdungseffekt</b> (alienation effect)	<ul style="list-style-type: none"> <li>• Actors play many characters.</li> <li>• Rearrange set in full view of audience.</li> <li>• Break the 4<sup>th</sup> wall (speak to the audience).</li> <li>• Flood the whole space with light, not just the stage.</li> <li>• Live musicians and singing on stage.</li> </ul>
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## Junk by Melvin Burgess 1999

<b>Plot Summary</b>	Set on the streets of Bristol, England, it features two runaway teenagers who join a group of squatters, where they fall into heroin addiction and embrace anarchism.
<b>Context</b>	Burgess set the book in Bristol, where he lived for a period, in the early to mid '80s. In his author's note, he writes: "All the major events have happened, are happening and will no doubt continue to happen. I saw many of them myself [...] The book isn't fact; it isn't even fiction. But it's all true, every word.
<b>Structure</b>	Junk is a story told from 10 different perspectives, by 10 characters – some of whom are based on real people Burgess knew in the Bristol days, and still knows.

### Key Characters

<b>David 'Tar' Lawson</b>	Fourteen years old at the start of the play. Abused by his father, he is never proud of taking drugs but becomes a heroin addict after discovering that the drug helps him forget the abuse he has endured.
<b>Gemma Brogan</b>	Tar's girlfriend, a rebellious fourteen-year old, who runs away with him. She later becomes a sex worker and a heroin addict.
<b>Richard</b>	An anarchist and left-wing activist who helps Gemma and Tar find somewhere to live. He is in his twenties.
<b>Vonny</b>	Eighteen-year old anarchist who lives with Richard and Jerry, who ultimately helps Gemma along the path to rehabilitation.
<b>Jerry</b>	Boyfriend of Vonny, lives with Richard and Vonny in the squat.
<b>Lily</b>	A fifteen-year old heroin addict who takes a liking to Gemma. She grew up in the care system and it is hinted that she, too, suffered abuse.
<b>Rob</b>	Sixteen-year-old addict boyfriend of Lily. He has had a transient upbringing.

### Themes

<b>Addiction</b>	Most of the characters use drugs to cope with their emotions and become addicted because of this.
<b>Drugs</b>	The play focuses around how Gemma and Tar are influenced by the people they meet and become dependent on drugs.
<b>Abuse</b>	Tar and some of the other characters have endured abuse from their carers as children.
<b>Homelessness</b>	The characters become squatters when they get to Bristol.

## Junk by Melvin Burgess 1999

**Characterisation – The act of changing voice, body language, movement, gesture etc. when in role. The actor must use their skills to portray a character consistently throughout their performance.**

<b>Movement</b>	<ol style="list-style-type: none"> <li>1. <b>Pace</b> – Fast or slow</li> <li>2. <b>Gesture</b> – A movement of part of the body, especially a hand or the head, to express an idea or meaning</li> <li>3. <b>Gait</b> – Walk</li> <li>4. <b>Posture</b> – The position in which someone holds their body</li> <li>5. <b>Facial expression</b> – Usually links to an emotion. Tells the audience the character's feelings and what they are thinking</li> <li>6. <b>Body Language</b> – The way we move and hold ourselves to show how we feel</li> <li>7. <b>Levels</b> – Helps to tell the status of the character</li> <li>8. <b>Eye line/eye contact</b> – Where we look</li> </ol>
<b>Voice</b>	<ol style="list-style-type: none"> <li>9. <b>Pace</b> – Fast or slow</li> <li>10. <b>Pause</b> – An actor stops talking for a moment/beat during a line.</li> <li>11. <b>Pitch</b> – High or low</li> <li>12. <b>Tone</b> – Reveals an emotion i.e. angry, scared</li> <li>13. <b>Volume</b> – Loud or quiet</li> <li>14. <b>Accent</b> – Shows where someone is from or gives clues as to their upbringing</li> <li>15. <b>Emphasis</b> – Putting stress on a particular word or phrase in a sentence</li> </ol>

### Staging The Performance

<b>End-on Performance Space</b>	One audience side. This performance space is similar to a proscenium arch stage. The stage is at one end and the audience face it directly. In this type of stage there is no arch around the edge of the stage to 'frame' it.
<b>Thrust</b>	Audience sat on three sides. Often, the front of the stage thrusts forward into the audience, like at a concert.
<b>Blocking</b>	Planning the space and the actor's movement.
<b>Set Design</b>	What the stage looks like and the furniture. As a set designer you will need to consider the practical aspects of set design. The play has lots of fast-paced scenes in various locations, the set design will need to be kept minimal to help with the quick changes.



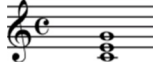
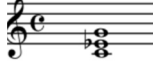


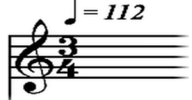

## Key Terms and Definitions

<b>1. Leitmotif</b>	A short <b>melody</b> that is associated with a character or idea in a film.
<b>2. Theme</b>	A main tune within a film soundtrack, representing a particular character, ideas or object. They are longer than <b>leitmotifs</b> .
<b>3. Soundtrack</b>	The music and sound recorded on a motion-picture film.
<b>4. Borrowed Music</b>	Some music used in film soundtracks was composed for other (non-film) purposes, but is adopted for use in a film because it fits the film-maker's intentions.
<b>5. Diegetic</b>	Music that is <b>part of the action</b> ; the characters in the film can hear it.
<b>6. Non-Diegetic</b>	Music that is <b>not part of the action</b> : the characters in the film cannot hear it. It is just for the audience.
<b>7. Cuesheet</b>	A detailed listing of musical cues matching the visual action of a film so that composers can time their music accurately to match the visual images.
<b>8. Storyboard</b>	A planning tool (similar to a cuesheet) used by film <b>soundtrack</b> composers to plan the music to different scenes within a film.

## Instruments and Their Use

<b>WOODWIND (e.g. Flutes, clarinets, oboes)</b>	Natural sounds such as bird song, animals, rivers.	
<b>BRASS (e.g. Trumpets, trombones, tubas)</b>	Soldiers, war, royalty, ceremonial occasions.	
<b>GLOCKENSPIEL</b>	Magic, music boxes, fairy tales.	
<b>TIMPANI AND DRUMS</b>	War, fighting, thunder.	
<b>STRINGS (e.g. violins, violas, cellos, double basses)</b>	Often used to portray emotions: passion, grief. Also used to convey fear or tension.	

## Music Theory

<b>Pitch</b>	The highness or lowness of a sound, indicated by clefs. Treble clef (high)  Bass clef (low) 	Horror movie composers often use extremes of high and low pitch when creating musical soundtracks to create a feeling of 'tension' and 'suspense'.
<b>Major</b>	Music or chords built on a 	Used to convey happiness, success, optimism
<b>Minor</b>	Music or chords built on a 	Sadness, seriousness (e.g. a character learns of a loved one's death)
<b>Dynamics</b>	The volume of the music or sounds – loud or quiet <i>p mp mf f</i>	Loud music conveys surprise, power, large things. Quiet music is for gentleness, weakness, intimacy, small things
<b>Crescendo</b>	Getting gradually louder 	Objects or events getting closer
<b>Diminuendo</b>	Getting gradually quieter 	Objects getting further away
<b>Tempo</b>	How fast or slow the music 	Fast music conveys excitement, action or fast-moving things. Slow music is used for contemplation, rest or slow-moving things
<b>Repeat</b>	Tells the performer to repeat a section of the music. 	Used when repeating patterns, for example a leitmotif or an ostinato.

# Hip Hop & Rap

## Hip Hop Timeline

1970s	1980s	1990s	2000s	2010s
Hip Hop invented in the Bronx at street parties with Jamaican sound systems. MCs 'toasted' while the DJ operates the turntables.	Hip Hop develops. Songs might have a sample, with simple rhyming couplets over the top.	DJs use more samples than before, and the lyrics become more complex. Rappers often sing about themselves and their personal life.	Hip Hop becomes more popular and international, and rappers start to use it as a means to spread social and political messages.	Hip Hop develops into multiple other genres, and there are also countless collaborations with other styles.

### Keywords

1. <b>Rapping</b>	Reciting lyrics in time to the beat
2. <b>DJ (disc jockey)</b>	Person who operates the turntables
3. <b>Lyrics</b>	The words to a song
4. <b>Rhyme</b>	When two words sound the same
5. <b>Rhyming couplet</b>	Two lines of a verse which rhyme at the end
6. <b>Internal rhyme</b>	When words sound the same within a line
7. <b>Flow</b>	The way the lyrics of a rap are delivered
8. <b>Sample</b>	A section of music taken from another song
9. <b>The get-down/ Instrumental</b>	The part of the song when the singer drops out and it's only the instruments
10. <b>Sound system</b>	A set of speakers which amplifies sound
11. <b>Verse</b>	The section of the song which tells the story
12. <b>Chorus</b>	The section of the song which repeats and carries its main message
13. <b>Backing</b>	The accompaniment to a song
14. <b>Tempo</b>	The speed of the music
15. <b>Beat</b>	Pulse of the music
16. <b>Bassline</b>	Low-pitched part played by the lowest instrument
17. <b>Mixing</b>	When records are mixed together
18. <b>Scratching</b>	Moving a vinyl back and forth which cuts the sound in and out

2.



3.

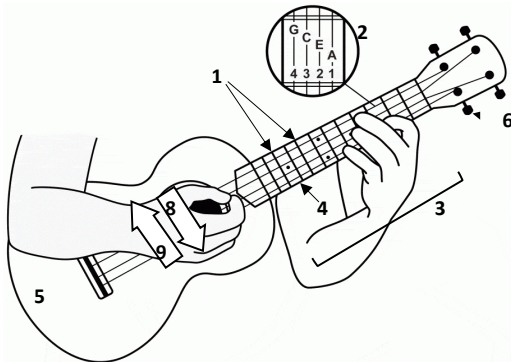


### Examples to listen to

1970s	Rapper's Delight by The Sugarhill Gang	
1980s	Hard Times by Run DMC	
1990s	The Fresh Prince of Bel Air by DJ Jazzy Jeff & The Fresh Prince	
2000s	Lose Yourself by Eminem	
2010s	Blinded by Your Grace Part 2 by Stormzy	
2020s	Location by Dave	

# Band Breakout

Ukulele/ Guitar/Bass Guitar Keywords	
1. Fret	The thin strips of metal set into the neck of a ukulele to allow you to change notes
2. String	The four strings of the instrument (G – C – E – A)
3. Fingerboard	The area of the neck over which the strings run and into which the frets are mounted
4. Neck	The piece of wood that holds the fingerboard and runs between the body and the headstock
5. Body	The rounded wooden main section of the instrument
6. Peg	The tuning peg that is turned to tighten or loosen the string
7. Strumming	A style of playing which involves running the fingers over the strings in rhythm
8. Down stroke	Strumming action moving from top to bottom (from G to A)
9. Up stroke	Strumming action moving from bottom to top (from A to G)
10. Plucking	To play a single note/string



Keyboard Keywords	
11. Key (on the keyboard)	The white or black buttons on the keyboard
12. Fingering	How the hands are used to play the keys
13. Melody	The main tune, played by the left hand
14. Bass Line	The lowest part in the texture, played by the left hand on the keyboard
15. Sharp	# The black note to the right of the key
16. Flat	b The black note to the left of the key
17. Notes on the keyboard	

Drum Kit Keywords	
18	
19. Count-in	When the drummer counts the group in to start
20. Pulse	The constant beat
21. Tempo	The speed of the music

# Fusions

## Afrobeat Keywords

<b>Afrobeat</b>	Style created by Fela Kuti, fusing highlife with African rhythms and jazz.
<b>Highlife</b>	A style from Ghana featuring horns and guitars
<b>Social and political commentary</b>	Fela Kuti used his music's lyrics to encourage people to have resilience against unfair governments and take pride in their identity

## Neo-tango Keywords

<b>Neo-tango</b>	Style of music that combines traditional Argentinian tango with electronic musical elements
<b>Tango</b>	An Argentinian style which blended South American, African and European dance genres.
<b>Syncopation</b>	When the rhythms stress the off-beats
<b>Electronic instruments</b>	Instruments that are not acoustic i.e. they need electricity to make sound
<b>Synthesizer</b>	Electronic keyboard where the pitches can be set to different sounds
<b>Drum machine</b>	Device that imitates the sounds of drums and can be programmed to repeat beats



## Afrobeat Keywords

<b>Bhangra</b>	A style of music that developed in the UK in the 1970s. It combines North Indian and western dance styles.
<b>Dhol</b>	Indian drum which plays the chaal rhythm 
<b>Tumbi</b>	Indian string instrument which often plays the repeating riff 
<b>Tabla</b>	Set of two Indian drums 
<b>Chaal rhythm</b>	Repeating rhythm found in most bhangra music: Da-na-na-na-da-da-na
<b>Punjabi</b>	Language used in much Bhangra music

## Afrobeat Keywords

<b>The American War of Independence</b>	1775-1783 – the war in which the American colonies fought for independence from British rule
<b>Fusion</b>	When a song uses musical characteristics of more than one genre
<b>Musical theatre</b>	Plays where much of the dialogue is sung instead of spoken
<b>Hip Hop</b>	Genre which gave birth to rap and DJing
<b>Rap</b>	Reciting lyrics in time to the beat
<b>Chord sequence</b>	A series of chords that repeats in a particular order
<b>Hook</b>	A short memorable melodic phrase that repeats throughout a piece
<b>Bassline</b>	The lowest-pitch part in the music

## Key Words

**Bit** - The smallest unit of data storage consists of a single 1 or 0. This can be represented by a single transistor.

**Nibble** - a group of four bits (half a byte).

**Byte** - a group of 8 bits.

**Binary** - A base 2 number system that computers understand. Uses digits 0 and 1. Place Value headings: 128, 64, 32, 16, 8, 4, 2 and 1 (2 times bigger each time).

**Use of Binary** - Matches the computers on/off values used to store and send data. Allows us to program computers with machine code.

**Denary** - A base 10 number system (10 times bigger each time) Place Value headings: 1000 100 10 1 Uses digits 0 1 2 3 4 5 6 7 8 9 Use of Denary - used by humans for maths. Also, called the decimal system.

**Hexadecimal (Hex)** - A base 16 system used by humans to help remember and read binary code. Place Value headings: 256, 16, 1 etc. (16 times bigger each time). Uses digits 0 1 2 3 4 5 6 7 8 9 & A B C D E F 10 = A 11 = B 12 = C 13 = D 14 = E 15 = F -

**Use of Hex** - shorthand version of binary. Easier for humans to understand and faster to enter than binary. 4 binary digit converts to 1 hex digit.

**Place Value (PV)** - the numerical value that a digit has by virtue of its position in a number. In Binary PV doubles as you go from right to left. In Decimal (normal maths) it goes up by powers of 10

## Denary to Hex conversion - CHANTING

Teacher: The most important thing about Hex

Students: 10 is A

If you know 10 is A we can work out 11 is B and so on

## Number Conversions

### Number Conversions (Denary > Binary > Hex)

#### Binary to denary (01001101)

- Place the binary numbers under the binary place value (pv) numbers starting from right to left
- Add together the pv headings where there is a 1 underneath

128	64	32	16	8	4	2	1
0	1	0	0	1	1	0	1

E.g.  $64+8+4+1 = 77$

#### Denary to binary (56)

- Work from the left and attempt to subtract the PV numbers from your number
- If you can do it without a negative number then put a 1 under the PV number and use the answer in the next column
- If you can't put a 0 under the PV number then move to the next column

128	64	32	16	8	4	2	1
0	0	1	1	1	0	0	0

#### Binary to Hexadecimal (01001101)

- Split the **byte** in half, this time use the top place values to convert each half (**nibble**) into **denary**
- If the number is more than 9 use the letters A to F instead.
- E.g. the left nibble would be 4 and the right nibble would be  $8 + 4 + 1 = 13$
- 13 = D - **Final answer = 4D**

8	4	2	1	8	4	2	1
128	64	32	16	8	4	2	1
0	1	0	0	1	1	0	1

#### Hexadecimal to Binary (F5)

- Use the top **place value headings** to convert each digit of **hexadecimal** number to **binary**.
- Make sure you keep them on the correct side (left to left and right to right)
- F = 15
- Once both sides have been converted to binary

8	4	2	1	8	4	2	1
128	64	32	16	8	4	2	1
1	1	1	1	0	1	0	1

- Add together the pv headings where there is a 1 underneath

$128 + 64 + 32 + 16 + 4 + 1 = 245$

## Binary Addition

Binary addition involves adding two or more binary numbers together. When adding two numbers, you will have the following possible outcomes:

0 + 0 = 0	0 + 1 = 1	1 + 1 = 10	1 + 1 + 1 = 11
-----------	-----------	------------	----------------

When adding binary numbers, so right to left.

Example: add 0100 and 0101

1st Num	0	1	0	0	+
2nd Num	0	1	0	1	
Carried Over	1				
Answer	1	0	0	1	=

$0 + 1 = 1$   $0 + 0 = 0$   $1 + 1 = 10$ , so 1 is carried over

$0 + 0 + 1 = 1$  Therefore, the answer is 1001

### Alternative Methods of Converting Hex number 5C into Denary

16 1 1. Write base 16 place values

5 C 2. Write hex underneath

$5 \times 16 = 80$   $12 \times 1 = 12$  3. Multiply each digit by it's place value

**Ans =  $80 + 12 = 92$**  4. Add the results together

### Alternative Methods Converting the Denary number 167 to Hex

16 1 1. Write place values

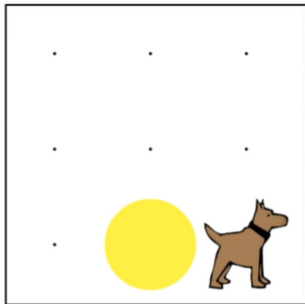
A 7 2. How many whole 16's fit into 167?

$16 \times 10 = 160$

3. How many are left over?  $167 - 160 = 7$

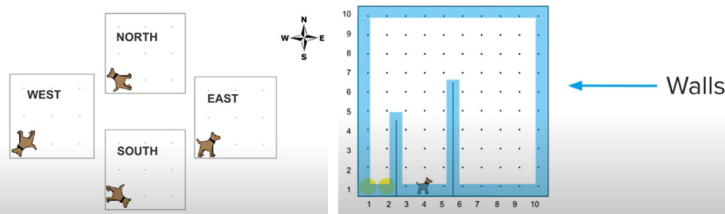
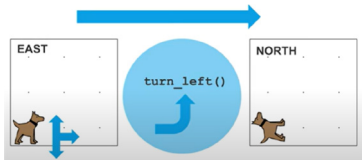
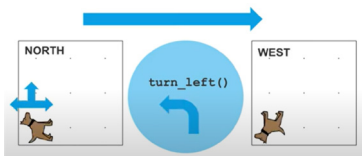
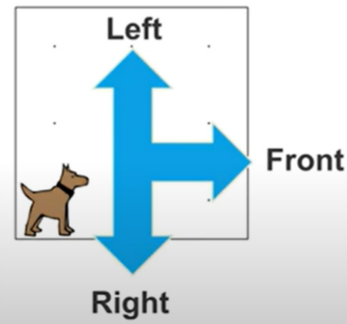
Denary number 167 is A7 in Hex

# Introduction to Python with Karel



Karel is a dog who listens to your commands.

We can move around the *world* and put down tennis balls!



## Functions

Karel cannot turn right. We have to use a function to tell Karel to turn left three times to get her to turn right

Other names for functions

Procedure

Subroutine

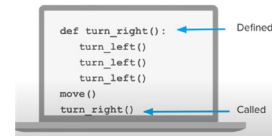
Task

Process

Module

~~turn\_right()~~

turn\_left()  
turn\_left()  
turn\_left()



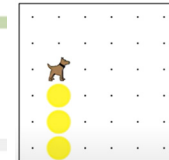
We use def command to start a function. We then write the commands underneath. They must be indented.



Start world

```

1- def turn_right():
2   turn_left()
3   turn_left()
4   turn_left()
5
6 move()
7 turn_left()
8 put_ball()
9 move()
10 put_ball()
11 move()
12 put_ball()
13 move()
14 turn_right()
15
    
```



End world

We then call the function from the main code, which isn't indented and must be after the function

## Karel Basic Commands

**All python commands must have no spaces, need to match the exact capitalization, end with brackets ()**

move() - moves one pip forward

turn\_left() - turns Karel 90 degrees left

put\_ball() - places a tennis ball at Karel's current location

take\_ball() - Picks up a ball if there is one at Karel's current location

turn\_around()- Karel turns 180 degrees



## While Loops

**While Loops** = Repeat as Long as Condition is True

```
while condition:
    # code to execute while
    # condition is true
```

```
while front_is_clear():
    move()
```

While loops repeat while a condition is true. The condition comes straight after the while and must be followed by a :. The code to repeat is indented underneath

## Instruments

### For Loops

For loops

**For Loop** = Repeat Fixed Number of Times

```
# This places ten balls down
for i in range(10):
    put_ball()
```

Code indented after the for loop is repeated the number of times specified by the range command in the brackets

### If Then

If then

**if condition:**  
# code

If followed by a condition and : Code to run if the condition is true is indented after the IF. If the conditions false the indented code is skipped

```
if front_is_clear():
    move()
```

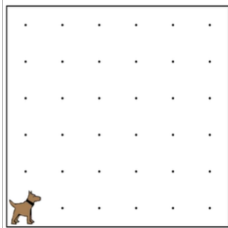
### If Then Else

If then else

```
if condition:
    # code if condition is true
else:
    # code to run otherwise
```

Same as if then but if the condition is false the code indented after the else is run.

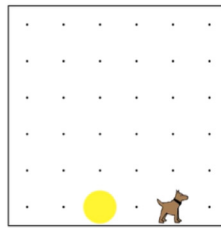
```
if front_is_clear():
    move()
else:
    turn_left()
```



Start world

```
1.2.7: Our First Karel Program
1 move()
2 move()
3 put_ball()
4 move()
5 move()
```

Python code instructions to tell Karel what to do



End world

## Key Words

**Integrated Development Environment** – The program we write, debug and run our code in

**Decomposition** – Breaking down our program into small parts to make it more readable and easier to maintain and to avoid repeating code

**Top-down design** – helps to solve large complicated problems and allows us to collaborate with others by splitting up subproblems that can be solved by themselves

**Abstraction** – removing unnecessary information that is not important to making a good enough solution to make it easier to make and run the code

**Application programming Interface (API)** – a set of built in pre-programmed tools for building code and making it easier to write

## Commenting your code



## Karel Conditionals

```
front_is_clear()    front_is_blocked()
left_is_clear()     left_is_blocked()
right_is_clear()    right_is_blocked()

balls_present()    no_balls_present()

facing_north()     facing_south()
facing_east()      facing_west()
```

## The purpose of the CPU

<b>The purpose of the CPU</b>	To manage basic operations of the computer. To be the 'brains' of the computer
<b>The main components of the CPU</b>	Control Unit. Arithmetic Logic Unit. Registers. Cache
<b>Von Neumann Architecture</b>	The architecture that allows for the storage of instructions and data in the same location
<b>The FDE Cycle</b>	The cycle the CPU continuously carries out to process instructions
<b>Binary</b>	The number system used to store instructions and data in the computer
<b>The role of a register in the CPU</b>	It is a place to temporarily hold data and instructions as they are being processed by the CPU.
<b>The PC</b>	The Program Counter keeps the address of the next instruction to be processed
<b>The MAR</b>	The Memory Address Register is used to tell the CPU where to locate data in Main Memory
<b>The MDR</b>	The Memory Data Register is used to store data that is fetched from Main Memory
<b>The ACC</b>	The Accumulator stores results of logic operations and calculations used during processing

## Performance of the CPU

<b>Cores</b>	CPUs with multiple cores have more power to run multiple programs at the same time.
<b>Clock Speed</b>	The clock speed describes how fast the CPU can run. This is measured in megahertz (MHz) or gigahertz (GHz) and shows how many fetch-execute cycles the CPU can deal with in a second.
<b>Cache Size</b>	The more data that can be held in the cache, the shorter the trips the electric pulses need to make so this speeds up the processing time of each of those billions of electrical signals, making the computer noticeable faster overall.

## Secondary Storage

<b>Difference from primary storage</b>	CPUs with multiple cores have more power to run multiple programs at the same time.
<b>Cache memory</b>	A small section of extremely fast memory used to store commonly used instructions and data. It is useful as the CPU can access the (fast) cache directly. L1 cache is closest to the CPU, L3 cache furthest
<b>ROM as secondary storage</b>	Not really. ROM is read only. Secondary storage generally needs to be written to as well as read from

## Common CPU Components and their Function

<b>The Control Unit has two functions</b>	(1) Sending signals to control the flow of data and instructions, and (2) decoding instructions
<b>Cache Memory</b>	A small section of extremely fast memory used to store commonly used instructions and data. It is useful as the CPU can access the (fast) cache directly. L1 cache is closest to the CPU, L3 cache furthest
<b>The ALU has the following functions</b>	It carries out mathematical operations / logical operations / shifting operations on data; for example multiplication, division, logical comparisons
<b>An Address</b>	This is a location in the Main Memory (RAM) that stores data or instructions in the Von Neumann Architecture
<b>Buses</b>	Transfer information between the CPU and Main Memory (and other places). For example the Address bus carries memory addresses between the CPU and the RAM

## The F-D-E (Fetch Decode Execute) Cycle

<b>The F-D-E Cycle repeatedly cycles</b>	<pre> graph TD     1[1. Fetch] --&gt; 2[2. Decode]     2 --&gt; 3[3. Execute]     3 --&gt; 1             </pre>
<b>The Fetch Stage</b>	The address is generated by the Program Counter (PC) and is carried to the Memory Address Register (MAR) using the Address Bus. The PC then updates and stores the next memory address, ready for the next round of the cycle. The data or instruction that is in that memory location is placed on the data bus and carried to the processor and is stored in the Memory Data Register (MDR)
<b>The Decode Stage</b>	The data or instruction is then the Memory Data Register (MDR). decoded to find out if it is a piece of data or if it is an instruction to do something such as ADD, STORE, SWITCH, REPEAT etc.
<b>The Execute Stage</b>	The CPU performs the actions required by the instruction. If it is an instruction to control input or output devices the Control Unit will execute the instruction. If it is a calculation then the Arithmetic and Logic Unit (ALU) will execute the instruction. The results of any calculations are recorded in the Accumulator

## The purpose of RAM and ROM in a Computer System

<b>The purpose of RAM</b>	RAM is the main memory (also called primary storage) for storing data and programs while they are in use
<b>The purpose of ROM</b>	ROM stores the boot sequence, which is a set of instructions that the computer executes every time it is switched on. ROM is essential since if loads the operating system
<b>We use RAM rather than Secondary Storage</b>	The RAM can be accessed at a much higher speed than the secondary storage. If the CPU was having to communicate directly with secondary storage for the F-D-E cycle the computer would be incredibly slow
<b>Volatility</b>	ROM is non-volatile (it keeps its contents when the power is turned off). RAM is volatile (it loses its contents when the power is turned off)
<b>Primary Storage Devices</b>	Primary storage devices are internal to the system and are the fastest of the memory/storage device category. Typically, primary storage devices have an instance of all the data and applications currently in use or being processed. The computer fetches and keeps the data and files if in the primary storage device until the process is completed or data is no longer required. RAM, ROM, Graphics Card RAM, cache and registers are common examples of primary storage devices
<b>Increasing RAM</b>	This can speed the computer up since there is less need for virtual memory

## Considerations for the Most Suitable Storage Device

<b>Capacity</b>	How much data needs to be stored
<b>Speed</b>	How quickly can the data be stored. How quickly does it need to be read
<b>Portability</b>	Does the device need to be transported? Are weight and size important
<b>Reliability</b>	Is it mission critical? Will it be used over and over again?
<b>Cost</b>	How expensive is the media per byte of storage

## Typical Uses

<b>Optical</b>	Read only distribution on a large scale (CD/DVD). Relatively small capacity
<b>Magnetic</b>	High data capacity. Reasonably fast. Low cost. Cloud storage on server farms
<b>Solid State</b>	Low power. Small. Rugged. Silent. Very fast. Medium data capacity

## Data Units

<b>Bit (b)</b>	The smallest unit of data. 0 or 1
<b>Nibble (N)</b>	4 bits
<b>Byte (B)</b>	8 bits (note the difference between b and B)
<b>Kilobyte (KB)</b>	1000 bytes. Note KB is different from Kb
<b>Megabyte (MB)</b>	1000 KB
<b>Gigabyte (GB)</b>	1000 MB
<b>Terabyte (TB)</b>	1000 GB
<b>Petabyte (PB)</b>	1000 TB

# Les Relations En Famille - Family Relationships

Family Members	(beau-) père – (step) father
	(belle-) mère – (step) mother
	(demi-) frère – (step) brother
	(demi-) soeur – (step) sister
	(arrière-) grand-père – (great) grandfather
	(arrière-) grand-mère – (great) grandmother
	tante – aunt
	oncle – uncle
	neveu – nephew
	nièce – niece
	cousin(e) – cousin
	(petit-) fils – (grand)son
(petite-) fille – (grand)daughter	
mari – husband	
femme – wife	
petit(e) ami(e) – boy/girlfriend	
ma famille – my family	
mes parents – my parents	

Family Relationships	<p>e m'entends bien avec... – I get on well with</p> <p>Je m'amuse avec... – I have fun with</p>	<p>Il/elle me soutient – he/she supports me</p> <p>Il/elle m'accepte comme je suis – he/she accepts me as I am</p> <p>Il/elle me fait rire – he/she makes me laugh</p> <p>Il/elle me connaît bien – he/she knows me well</p> <p>Il ne me critique jamais – he/she never criticises me</p> <p>Il/elle garde tous mes secrets – he/she keeps all my secrets</p> <p>Nous avons beaucoup en commun – we have a lot in common</p> <p>Il/elle me donne des conseils – he/she gives me advice</p> <p>Il/elle me dit la vérité – he/she tells me the truth</p>
	<p>Je ne m'entends pas avec... – I don't get on well with</p> <p>Je me dispute avec... – I argue with</p>	<p>Il/elle me juge – he/she judges me</p> <p>Il/elle me traite comme un enfant – he/she treats me like a child</p> <p>Il/elle ne me laisse pas sortir – he/she doesn't let me go out</p> <p>Il/elle ne me donne pas de liberté – he/she doesn't give me freedom</p> <p>Il/elle me critique – he/she criticises me</p>

Family Descriptions	<p>Je suis – I am</p> <p>Il/elle est – he/she is</p> <p>Ils/elles sont – they are</p>	<p>chauve – bald</p> <p>grand – tall</p> <p>petit – short</p> <p>gros – fat</p> <p>mince – slim</p>
	<p>J'ai – I have</p> <p>Il/elle a – he/she has</p> <p>Ils/elles ont – they have</p>	<p>les yeux – eyes</p> <p>bleus – blue</p> <p>marron – brown</p> <p>verts – green</p>
		<p>les cheveux – hair</p> <p>bruns – dark brown</p> <p>roux – red</p> <p>courts – short</p> <p>blonds – blond</p> <p>bouclés – curly</p> <p>longs – long</p> <p>raides – straight</p> <p>fins – fine</p> <p>ondulés – wavy</p>
		<p>la peau claire/noire – fair/dark skin</p> <p>les taches de rousseur – freckles</p> <p>les dents proéminentes – big teeth</p> <p>un tatouage – a tattoo</p>
<p>Je porte / j'ai – I wear</p> <p>Il/elle porte / il / elle a – he/she wears/has</p> <p>Nous portons / nous avons – we wear/have</p>	<p>des lunettes – glasses</p> <p>une barbe – a beard</p> <p>une moustache – a moustache</p>	

## Les Relations En Famille - Family Relationships

<p><b>Mon frère est...</b> – my brother is... <b>Il est</b> – he is...</p> <p><b>Ma soeur est</b> – my sister is... <b>Elle est</b> – she is... <b>Mes parents s...</b> – my parents are... <b>Ils / elle sont</b> – they are</p>	<p><b>sympa(s) / agréable(s)</b> - nice <b>adorable(s) / mignon(ne)(s)</b> - adorable / cute <b>amusant(e)(s) / drôle(s)</b> - funny <b>intelligent(e)(s)</b> - intelligent <b>compréhensif(s) / -ive(s)</b> - understanding <b>créatif (-ive)(s)</b> - creative <b>travailleur(s) / euse(s)</b> - hard-working <b>timide(s)</b> - shy <b>gentil(le)(s)</b> - shyind</p>	<p><b>généreux / -euse(s)</b> - generous <b>egoïst(e)(s)</b> - selfish <b>casse-pieds / agaçant(e)(s)</b> - annoying <b>jaloux / jalouse(s)</b> - jealous <b>méchant(e)(s)</b> - mean <b>strict(e)(s) / sévère(s)</b> - strict <b> paresseux / paresseuse (s)</b> - lazy <b>désagréable (s)</b> - unpleasant</p>
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### Est-ce que tu t'entendais avec ta famille dans le passé? - Did you get on with your family in the past?

<p><b>Maintenant</b> Now</p> <p><b>Normalement</b> Normally</p> <p><b>En général</b></p>	<p><b>Je m'entends bien</b> I get on well</p> <p><b>Je m'entends mal</b> I get on badly</p> <p><b>Je me dispute</b> I fight/argue</p> <p><b>Je m'amuse</b> I have fun</p>	<p><b>avec</b> With + family member</p>	<p><b>parce qu'il/elle est</b> because he/she is</p>	<p><b>amusant</b> - fun <b>drôle</b> - funny <b>gentil</b> - friendly <b>heureux</b> - happy <b>attentionné</b> - caring <b>bavard</b> - chatty</p>	<p><b>timide</b> - shy <b>agaçant</b> - annoying <b>égoïste</b> - selfish <b>triste</b> - sad <b>compréhensif</b> - understanding <b>paresseux</b> - lazy</p>
<p><b>Dans le passé</b> In the past</p> <p><b>Il y a X années</b> X years ago</p> <p><b>L'année dernière</b> Last year</p>	<p><b>Je m'entendais bien</b> I used to get on well</p> <p><b>Je m'entendais mal</b> I used to get on badly</p> <p><b>Je me disputais</b> I used to argue/fight</p>		<p><b>parce qu'il/elle était</b> because he/she was</p>	<p><b>fort</b> - strong <b>loyal</b> - loyal <b>travailleur</b> - hard working <b>courageux</b> - brave</p>	<p><b>impoli</b> - rude <b>jaloux</b> - jealous <b>désagréable</b> - unpleasant <b>généreux</b> - generous</p>

# Les amis = friends

## Pourquoi aimes-tu ton/ta meilleur(e) ami(e)?

<p><b>J'aime</b> I like</p> <p><b>Je m'entends bien avec</b> I get along well with</p>	<p><b>mon/ma meilleur(e) ami(e)</b> my best friend</p> <p><b>Mon/ma partner idéal(e)</b></p>	<p><b>Il/elle m'aide</b> helps me</p> <p><b>il/elle me soutient</b> supports me</p> <p><b>il/elle me critique</b> criticises me</p> <p><b>il/elle me faire rire</b> makes me laugh</p> <p><b>il/elle me donne des conseils</b> gives me advice</p>	<p><b>toujours</b> always</p> <p><b>souvent</b> often</p> <p><b>parfois</b> never</p>	<p><b>quand</b> when</p> <p><b>si</b> if</p>	<p><b>je me sens triste</b> I feel sad</p> <p><b>je me dispute avec mes parents</b> I argue with my parents</p> <p><b>je suis vraiment stressé(e)</b> I'm really stressed</p> <p><b>J'ai besoin d'aide</b> I need help</p>
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<p><b>My ideal friend</b></p>	<p><b>Mon ami idéal</b> – my ideal friend(m) <b>Mon amie idéale</b> – my ideal friend(m) Il – he Elle - she</p>	<p><b>serait</b> – would be</p>	<p><b>généreux/généreuse</b> <b>sportif/sportive</b> <b>compréhensif/ve</b> <b>sympa</b></p>
		<p><b>ne serait pas</b> – would not be</p>	<p><b>Méchant/méchante</b> <b>égoïste</b> <b>Impatient/impatiente</b> <b>Paresseux/paresseuse</b></p>
		<p><b>aurait</b> – would have</p>	<p><b>un sens de l'humour</b> <b>les mêmes centres d'intérêt que moi</b></p>
		<p><b>écouterait mes secrets</b> – would listen to my secrets <b>accepterait mes imperfections</b> – would accept my imperfections <b>respecterait mes opinions</b> – would respect my opinions</p>	

### 3. Les Fêtes - Festivals and Special Occasions

<b>Activites</b>	<p><b>J'adore</b> – I love  <b>J'aime</b> – I like  <b>Ce que j'adore, c'est...</b>          What I love is ...  <b>Je préfère</b> – I prefer  <b>Ma passion c'est</b>          my passion is</p>	<p><b>écouter de la musique</b> – listening to music  <b>faire du sport</b> – doing sport  <b>aller au cinéma</b> – going to the cinema  <b>lire des livres/magazines/journaux</b> – reading books/magazines/papers  <b>sortir avec mes amis</b> – going out with friends  <b>rencontrer mes amis</b> – meeting with friends  <b>faire du shopping</b> – going shopping  <b>faire du vélo/skate</b> – riding my bike/skateboard  <b>utiliser l'ordinateur</b> – using the computer  <b>regarder la télé</b> – watching TV  <b>jouer à des jeux vidéo</b> – playing video games  <b>cuisiner</b> – cooking</p>	<p><b>parce que</b> – because   <b>car</b> – because   <b>mais</b> – but</p>	<p><b>c'est</b> – it is</p>	<p><b>amusant</b> – fun  <b>divertissant</b> – entertaining  <b>relaxant</b> – relaxing  <b>sain</b> – healthy  <b>ennuyeux</b> – boring  <b>malsain</b> – unhealthy  <b>addictif</b> – addictive</p>
	<p><b>Je ne supporte pas</b>          I can't stand  <b>Je déteste</b> – I hate</p>			<p><b>je suis accro...</b> – I'm addicted  <b>ça m'aide à me détendre</b> – it helps me to relax  <b>ça me fait rire</b> – it makes me laugh  <b>je peux oublier mes problèmes</b> – I can forget my problems  <b>J'ai besoin de communiquer avec d'autres personnes</b> – I need to have contact with other people  <b>ça ne m'intéresse pas</b> – it doesn't interest me</p>	

<b>Activites</b>	<p><b>Je suis</b> – I am  <b>J'étais</b> – I was</p>	<p><b>un fan de</b> – a fan of  <b>membre d'un club de...</b> - a member of a ____ club</p>	<b>Random</b>	<p><b>courir</b> – to run  <b>s'entraîner</b> – to train  <b>marquer un but</b> – to score a goal  <b>participer</b> – to participate  <b>un match</b> – a match  <b>la saison</b> – the season</p>		
	<p><b>Je joue</b> - I play</p>	<p><b>au badminton/au foot(ball)/au rugby/au tennis/au hockey/au basket/au volley</b>  <b>à la pétanque (outdoor bowling)</b>  <b>aux boules (outdoor bowling) / aux cartes (cards)</b></p>		<p><b>du judo</b> – judo  <b>du karaté</b> – karate  <b>de l'athlétisme</b> – athletics  <b>de la danse</b> – dance  <b>de la boxe</b> – boxing</p>	<p><b>du vélo</b> – cycling  <b>de l'équitation</b> – horseriding  <b>de l'escalade</b> – climbing  <b>de la gymnastique</b> – gymnastics  <b>de la natation</b> – swimming</p>	<p><b>du patin à glace</b> – ice skating  <b>du tir à l'arc</b> – archery  <b>du canoë</b> – canoeing</p>
	<p><b>Je fais</b> – I do</p>					

## Vocab & Sentence Builders - Imperfect Tense

<b>Activités</b>	<p><b>Quand j'avais sept ans</b> – When I was seven years old</p> <p><b>Quand j'étais petit/petite</b> – When I was little</p> <p><b>Avant...</b> Before</p>	<p><b>J'écoutais de la musique pop</b> – I used to listen to pop</p> <p><b>Je faisais de la natation</b> – I used to do swimming</p> <p><b>Je lisais des bandes dessinées</b> – I used to read comics</p> <p><b>Je regardais des dessins animés</b> – I used to watch cartoons</p> <p><b>Je jouais au tennis</b> – I used to play tennis</p> <p><b>J'étais membre d'un club de basket</b> – I was a member of a basket ball club</p> <p><b>J'étais un fan de The Tellytubbies</b> – I was a fan of the Tellytubbies</p> <p><b>J'avais les cheveux courts</b> – I had short hair</p> <p><b>J'adorais les animaux</b> – I used to love animals</p>	<p><b>Aujourd'hui</b> – today</p> <p><b>Mais maintenant</b> – but now</p>	<p><b>Je fais du judo</b> – I do judo</p> <p><b>Je fais du karaté</b> – I do karate</p> <p><b>Je fais de l'athlétisme</b> – I do athletics</p> <p><b>Je fais de la danse</b> – I do dance</p> <p><b>Je joue au foot</b> – I play football</p> <p><b>Je regarde les documentaires</b> – I watch documentaries</p> <p><b>Je regarde la télé réalité</b> – I watch reality TV shows</p> <p><b>J'adore les jeux vidéos</b> – I love video games</p>
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Sentence starter	Activity in the perfect tense		Opinion		
<p><b>Quand j'étais petit/petite</b> When I was young</p>	J'avais.. (I used to have)	<b>beaucoup de jouets</b>	<p><b>et c'était</b> (and it was)</p>	<p><b>vraiment</b> (really)</p> <p><b>très</b> (very)</p> <p><b>assez</b> (quite)</p> <p><b>un peu</b> (a bit)</p>	<p><b>amusant</b> (fun)</p> <p><b>génial</b> (great)</p> <p><b>relaxant</b> (relaxing)</p> <p><b>intéressant</b> (interesting)</p> <p><b>ennuyeux</b> (boring)</p> <p><b>nul</b> (rubbish)</p>
	J'aimais.. (I used to like)	<b>Les mangas Les jeux vidéo Les glaces L'histoire Les dessins animés</b>			
	J'adorais (I used to love)	<b>au foot au volley</b>			
	Je jouais.. (I used to play)	<b>mes devoirs de la natation de la danse</b>			
	Je faisais.. (I used to do)	<b>du rock du rap</b>			
	J'écoutais.. (I used to listen)				



<b>Mealtimes</b>	<p><b>Pendant la semaine</b> – during the week</p> <p><b>Le weekend</b> – at the weekend</p>	<p><b>je prends</b> – I have</p> <p><b>pour mon petit déjeuner je prends</b> – for breakfast I have</p> <p><b>pour le déjeuner je prends</b> – for lunch I have</p> <p><b>pour le dîner je prends</b> – for tea/dinner I have</p> <p><b>pour la collation / le goûter je prends</b> – as a snack I have</p>	<p><b>un œuf</b> – an egg</p> <p><b>un sandwich</b> – a sandwich</p> <p><b>des fruits de mer</b> – seafood</p> <p><b>de la viande</b> – meat</p> <p><b>des fruits</b> – fruit</p> <p><b>un yaourt</b> – a yoghurt</p> <p><b>du gâteau</b> – some cake</p> <p><b>un hamburger</b> – a burger</p>	<p><b>de la salade</b> – salad</p> <p><b>des légumes</b> – veg</p> <p><b>du lait</b> – milk</p> <p><b>de la soupe</b> – soup</p> <p><b>des frites</b> – chips</p> <p><b>des biscuits</b> – biscuits</p> <p><b>une omelette</b> – omelette</p> <p><b>des boissons gazeuses</b> – fizzy drinks</p> <p><b>des haricots verts</b> – green beans</p> <p><b>des produits laitiers</b> – dairy products</p> <p><b>des raisins</b> – grapes</p>	<p><b>une pêche</b> – a peach</p> <p><b>des oignons</b> – onions</p> <p><b>du biftek / du steak</b> – steak</p> <p><b>du filet de porc</b> – pork steak</p> <p><b>du jambon</b> – ham</p> <p><b>des crevettes</b> – prawns</p> <p><b>des nouilles</b> – noodles</p> <p><b>du fromage</b> – cheese</p> <p><b>des pâtes</b> – pasta</p> <p><b>des pâtisseries</b> – pastries</p> <p><b>un croissant</b> – a croissant</p> <p><b>un pain au chocolat</b> – chocolate pastry</p>
	<p><b>Pour l'entrée</b> – for starters</p> <p><b>Pour le plat principal</b> – for main course</p> <p><b>Pour le dessert</b> – for dessert</p> <p><b>Pour boire</b> – to drink</p>	<p><b>je prends...</b> – I'll take</p> <p><b>je voudrais</b> – I would like</p> <p><b>je mange</b> – I eat</p> <p><b>je bois</b> – I drink</p>	<p><b>du café</b> – coffee</p> <p><b>du chocolat chaud</b> – hot chocolate</p> <p><b>du poisson</b> – fish</p> <p><b>du poulet</b> – chicken</p>		

<b>normalement</b>	normally
<b>d'habitude</b>	usually
<b>tous les jours</b>	every day
<b>chaque jour</b>	each day
<b>à sept heures (07:00)</b>	at 7 am
<b>à la récré</b>	at breaktime
<b>à midi (12:00)</b>	at midday
<b>le matin</b>	the morning
<b>l'après-midi</b>	the afternoon
<b>le soir</b>	in the evenings
<b>à vingt heures (20:00)</b>	at 8pm
<b>le weekend</b>	at the weekend
<b>pendant la semaine</b>	during the week
<b>pendant la journée</b>	during the day
<b>pendant la soirée</b>	during the evening

<b>At the restaurant</b>	<b>Vous désirez?</b> – What do you want?
	<b>Qu'est-ce que vous recommandez?</b> – What do you recommend?
	<b>Je voudrais une table sur la terrasse/à côté de la fenêtre</b> – I would like a table on the terrace/by the window
	<b>Je recommande</b> – I recommend...
	<b>L'addition, s'il vous plaît?</b> – Can you bring me the bill please.
	<b>Bon appétit!</b> – Enjoy your meal
<b>Je n'ai pas de couteau/fourchette/cuillère</b> – I don't have a knife/fork/spoon	
<b>Le plat/la verre est sale</b> – the plate/glass is dirty	

## Es-tu en forme? Are you fit?

Sentence starter	Verb phrase	Expressions of frequency	Connective	Justification
<p><b>Pour être en forme.....</b></p> <p>To be fit...</p>	<p><b>Je mange sainement</b> I eat healthily</p> <p><b>Je mange beaucoup de fruits et des légumes</b> I eat lots of fruit and vegetables</p> <p><b>Je bois beaucoup d'eau</b> I drink lots of water</p> <p><b>Je dors huit heures par nuit</b> I sleep eight hours per night</p> <p><b>Je fais de l'exercice</b> I do exercise</p> <p><b>Je ne mange pas de sucreries</b> I don't eat sugary foods</p> <p><b>Je ne mange pas de fast-food</b> I don't eat fast-food</p> <p><b>Je ne bois pas des boissons gazeuses</b> I don't drink fizzy drinks</p>	<p><b>tous les jours</b> every day</p> <p><b>régulièrement</b> regularly</p> <p><b>deux/trois fois par jour</b> two/three times a day</p> <p><b>rarement</b> rarely</p>	<p><b>parce que</b></p> <p>car</p>	<p><b>c'est bon pour la santé=</b> it is good for your health</p> <p><b>c'est sain=</b> it is healthy</p> <p><b>c'est mauvais pour la santé=</b> it is bad for your health</p>

### Vocab & Sentence Builders - Les fêtes et les festivals

<b>Christmas and New Year</b>	<p><b>Pour fêter... – to celebrate...</b></p> <p><b>Mon anniversaire – my birthday</b></p> <p><b>L'anniversaire de ma mère/mon ami/mon amie... – my mum's birthday/my friend's birthday</b></p> <p><b>Noël/ (le) jour de Noël – Christmas/(on) Christmas day</b></p> <p><b>Le réveillon – Christmas Eve</b></p> <p><b>La Saint-Sylvestre – New year's Eve</b></p> <p><b>Pâques/ Le dimanche de Pâques – Easter/ Easter Sunday</b></p> <p><b>Le Ramadan – Ramadan</b></p>	<p><b>j'ouvre des cadeaux / nous échangeons des cadeaux – I open presents/we exchange gifts</b></p> <p><b>il y a une chasse aux oeufs dans le jardin – there is an egg hunt in the garden</b></p> <p><b>je chante / nous chantons des chants de Noël – I/we sing Christmas carols</b></p> <p><b>je mange / nous mangeons de la dinde / un grand repas / du foie gras / des huîtres / une bûche de Noël – I / we eat turkey / a big meal / foie gras / oysters / a chocolate log</b></p> <p><b>je me couche / nous nous couchons très tard – I/we/they stay up very late</b></p> <p><b>je me lève / nous nous levons très tôt – I/we get up very early</b></p> <p><b>je prie / nous prions – I/we pray</b></p> <p><b>je vais/nous allons à l'église/à la mosquée – I/we go to church/mosque</b></p> <p><b>je visite à ma famille – I visit my family</b></p>
	<p><b>En France – In France</b></p> <p><b>En Angleterre – In England</b></p>	<p><b>Le père Noël n'est pas aussi populaire qu'en Angleterre – Santa isn't as popular as in England</b></p>

# Vocab & Sentence Builders - Les fêtes et les festivals

WAGOLL (What a good one looks like)	
J'adore mon anniversaire car on me gâte beaucoup	I love my birthday because I get spoiled a lot
Pour fêter mon anniversaire, je vais au restaurant avec ma famille où j'aime célébrer avec un grand repas	To celebrate my birthday, I go to a restaurant with my family where I like to celebrate with a big meal
Mais ce que je préfère, c'est Noël.	But what I prefer is Christmas
En Angleterre, on ouvre nos cadeaux le 25 décembre au matin	In England, we open our presents on the 25th December in the morning
Mais on France, on les ouvre le soir du réveillon	But in France, they open them in the evening of Christmas Eve
Je ne voudrais pas fêter le Noël en France parce qu'on mange des huîtres et du foie gras	I wouldn't like to celebrate Christmas in France because they eat oysters and foie gras
et je les trouve dégoûtants!	and I find them disgusting



**La Saint-Valentin**  
Valentine's Day



**Pâques**  
Easter



**Le Carnaval**  
Mardi-gras



**La Fête Nationale**  
Bastille Day  
(quatorze juillet)



**La fête des voisins**  
Neighbours' Day



**Le premier d'avril**  
April Fools' Day



**La Chandeleur**  
Candlemas  
(Christian Festival)



**Noël**  
Christmas

**Le Réveillon**  
Christmas  
Eve



**Halloween**



**La Tour de France**

<b>Festivals</b>	La fête de... - the festival of...	est célébrée... - is celebrated in...	<b>en France</b> – in France <b>au Canada</b> – in Canada <b>en Angleterre</b> – in England <b>dans les pays francophones</b> – in French speaking countries	où – where	<b>on regarde les feux d'artifices</b> – we watch / one watches fireworks <b>on passe du temps en famille</b> – we spend / one spends time with family <b>on échange des cadeaux</b> – we exchange / one exchanges gifts <b>on regarde le défilé</b> – we watch / one watches the parade
	Cette ancienne tradition – this old tradition				<b>il y a beaucoup d'enfants / de jeunes / de familles dans les rues</b> – there are a lot of children/ young people / families on the streets
					<b>les gens</b> – the people <b>mangent des pommes au caramel</b> – eat toffee apples <b>décorent les maisons/les tombes</b> – decorate houses/ graves <b>avec des fleurs/des bougies</b> – with flowers/candles <b>voient des défilés</b> – watch processions <b>portent des costumes</b> – wear costumes <b>passent du temps en famille</b> – spend time with their family <b>mangent un grand repas</b> – eat a big meal <b>échantent des cadeaux</b> – exchange gifts

## Qu'est-ce qu'il y a dans ta ville / ton village?

1. Sentence starter	2. Verb phrase	3. Object	4. Opinion	5. Connective	6. Reason
<p><b>Dans ma ville</b> In my town</p> <p><b>Dans mon village</b> In my village</p> <p><b>Dans ma région</b> In my region</p>	<p><b>Il y a</b> There is / are</p> <p><b>Je voudrais avoir</b> I would like to have</p> <p><b>il n'y a pas de un/une</b> there is no</p>	<p><b>un café</b> – a coffee shop / cafe  <b>un cinéma</b> – a cinema  <b>un château</b> – a castle  <b>un stade</b> – a stadium  <b>un centre sportif</b> – a sports centre  <b>un centre de loisirs</b> – a leisure centre  <b>un centre commercial</b> – a shopping mall  <b>un marché</b> – a market  <b>un musée</b> – a museum  <b>un hôtel de ville</b> – a town hall  <b>un supermarché</b> – a supermarket  <b>un commissariat</b> – a police station  <b>un parc d'attractions</b> – a theme park</p> <p><b>une piscine</b> – a swimming pool  <b>une église</b> – a church  <b>une mosquée</b> – a mosque  <b>une patinoire</b> – an ice-skating rink  <b>une gare</b> – a train station  <b>une boulangerie</b> – a bakery  <b>une boucherie</b> – a butchers</p> <p><b>des châteaux</b> – some castles  <b>des restaurants</b> – some restaurants  <b>des magasins</b> – some shops  <b>des sites historiques</b> – historical sites</p>	<p><b>J'aime habiter ici</b> I like to live here</p> <p><b>Je n'aime pas habiter ici</b> I don't like living here</p>	<p><b>parce qu'il y a</b></p> <p><b>car c'est</b> because it is</p> <p><b>parce qu'</b></p>	<p><b>beaucoup à faire</b> there is a lot to do</p> <p><b>rien à faire</b> there is nothing to do</p> <p><b>tranquille</b> calm</p> <p><b>bruyant</b> noisy</p> <p><b>moderne</b></p> <p><b>on s'amuse</b> we enjoy ourselves</p> <p><b>on s'ennuie</b> we get bored</p>

## Sentence Structures

### Qu'est-ce qu'on peut faire dans ta ville?

#### Dans ma ville ...

<b>il y a beaucoup à faire</b> - there is a lot to do	<b>en été</b> - in summer	<b>on peut</b> - you can	<b>aller au parc d'attractions</b> - go to the theme park <b>aller à la plage</b> - go to the beach <b>jouer dans le parc</b> - play in the park <b>Se promener dans le parc</b> - walk in the park <b>manger au McDo</b> - eat in McDonalds <b>visiter un château</b> - visit a castle <b>voir un spectacle</b> - watch a show <b>faire un tour de bateau</b> - do a boat ride
<b>il n'y a rien à faire</b> - there isn't anything to do	<b>en hiver</b> - in winter	<b>on ne peut pas</b> - you can't	

### Qu'est-ce qu'on peut faire dans ta ville?

Time Expression	Verb	Quantifier	Complement	Connective	Verb 2	Adjective
<b>Avant</b> Before <b>Dans le passé</b> In the past <b>Quand j'étais plus jeune</b> When I was younger	<b>il y avait</b> there used to be  <b>Il n'avait pas</b> there wasn't	<b>beaucoup de</b> a lot  <b>trop de</b> too much	<b>bruit</b> noise <b>circulation</b> traffic <b>déchets</b> rubbish/ trash <b>pollution</b> <b>(de l'air, de l'eau, de rivières, de la mer)</b> (air, water, river, sea) <b>espaces verts</b> green spaces <b>usines</b> factories <b>réseaux de transports en commun</b> public transport networks <b>sacs en plastiques</b> plastic bags	<b>donc</b> therefore  <b>alors</b> so	<b>c'est</b> it is  <b>c'était</b> it was	<b>sale</b> dirty <b>propre</b> clean <b>sérieux</b> serious <b>beau</b> pretty <b>laid</b> ugly <b>touristique</b> <b>moderne</b> <b>historique</b> <b>tranquil</b> calm <b>Bruyant</b> noisy
<b>Maintenant</b> Now  <b>Aujourd'hui</b> Nowadays	<b>il y a</b> there is/ are  <b>il n'y a pas</b> there isn't/ aren't	<b>assez de</b> enough  <b>plus de</b> more  <b>moins de</b> less				

## Qu'est-ce qu'il y a dans ta ville / ton village?

Location	Verb	Infinitive	Because	Reason	Therefore	Verb	Noun
<b>En</b> <b>Angleterre</b> <b>France</b> <b>Espagne</b> <b>Belgique</b>	<b>les enfants ne peuvent pas</b> children can't	<b>s'exprimer</b> give their opinion		<b>Ils doivent travailler</b> They have to work			<b>de jouer</b> to play
<b>Au</b> <b>Canada</b> <b>Sénégal</b> <b>Maroc</b>	<b>les enfants Ont le droit de</b> Children have the right to	<b>dormir</b> Sleep	<b>parce que</b>	<b>Il y a de la violence</b> There is a lot of violence	<b>donc</b>	<b>Ils n'ont pas le droit</b> They don't have the right	<b>à l'éducation</b> to education
<b>Dans d'autres pays</b> In other countries	<b>les enfants N'ont pas le droit de</b> Children don't have the right to	<b>aller à l'école</b> Go to school	<b>car</b>	<b>C'est très dangereux</b> It's very dangerous	<b>alors</b>		<b>à un environnement sain</b> to a healthy environment
		<b>sortir</b> Go out	<b>puisque</b>	<b>L'air est pollué</b> The air is polluted	<b>ainsi</b>		<b>à la liberté d'expression</b> to freedom of expression
		<b>jouer</b> play					

### Quel est le plus grave problème environnemental?

Opinion phrase		Because of this..	reason
<b>À mon avis</b> - In my opinion <b>En ce qui me concerne</b> - What concerns me <b>Je pense que</b> - I think that  <b>c'est ....</b> - It's  <b>le plus grand problème (environnemental), c'est....</b>  <b>Un autre problème, c'est</b> Another problem is..	<b>la crise énergétique</b> - The energy crisis <b>la surpopulation</b> - Overpopulation <b>la disparition des espèces</b> - The disappearance of species <b>le changement climatique</b> - Climate change <b>les déchets litter / rubbish</b> - La pollution pollution <b>le plastique à usage unique</b> - single use plastic <b>la sécheresse</b> - Drought <b>Les inondations</b> - Floods <b>Les usines</b> - Factories <b>Le gaz d'échappement</b> - exhaust fumes	<b>À cause de cela..</b> Because of that	<b>Il y a ...</b> There is <b>trop de pollution.</b> too much pollution <b>trop de circulation.</b> too much traffic <b>C'est très inquiétant</b> It's very worrying

## Qu'est-ce qu'il y a dans ta ville / ton village?

### Quel est le plus grave problème environnemental?

Opinion phrase	It is necessary to	Action (e.g. respect rules)	Because	reason
<p><b>À mon avis</b> In my opinion</p> <p><b>En ce qui me concerne</b> What concerns me</p> <p><b>Je pense que</b> I think that</p> <p><b>Je dirais que</b> I should say</p>	<p><b>on doit</b></p> <p><b>on devrait</b></p> <p><b>il faut</b></p>	<p><b>Aller à l'école en vélo</b> cycling to go to school</p> <p><b>éteindre la lumière</b> turning off the lights</p> <p><b>économiser l'eau</b> saving water</p> <p><b>faire du compost</b> making compost</p> <p><b>débrancher les prises</b> disconnecting plugs</p> <p><b>prendre une douche rapide</b> taking a quick shower</p> <p><b>éviter le plastique à usage unique</b> avoiding single use plastic products</p> <p><b>trier les déchets pour le recyclage</b> e- sorting waste for recycling</p> <p><b>acheter sans emballage</b> purchasing without packaging</p>	<p><b>parce que / qu'</b></p> <p><b>pour</b></p>	<p><b>C'est...très important</b> essential juste normal nécessaire crucial</p> <p><b>économiser l'énergie</b></p> <p><b>réduire les émissions</b></p> <p><b>protéger la planète</b></p> <p><b>agir maintenant</b></p>

# Foundation Writing Survival Kit (Photo Card/40 Word/90 Word)

## Q1 Photo Card Writing

**Il y a un/une ...** – There is a ...  
**Il y a des personnes** – There are people  
**Il y a des adultes** – There are adults  
**Il y a des enfants** – There are children

**Il y a des arbres** – There are trees  
**Il fait beau** – It is nice weather  
**Il fait mauvais** – It is bad weather

## Q2 40-Word Essay

**Je suis** – I am  
**Ils sont** – They are; **sont** - are  
**Il/elle est** – He/She is; **est** - is  
**J'ai** – I have  
**Je mange** – I eat/I am eating  
**Je bois** – I drink /I am drinking  
**Je vais** – I go/I am going

**Je joue** – I play/I am playing  
**Je regarde** – I watch/I am watching  
**Je reste** – I stay/I am staying  
**Je visite** – I visit/I am visiting  
**Je fais** – I do / I am doing  
**Je peux** – I can  
**On peut** – You can

## Q3 90-word Essay

	Past	Future / Conditional
to eat	j'ai mangé	je vais/je voudrais manger
to drink	j'ai bu	je vais/je voudrais boire
to go	je suis allé(e)	je vais/je voudrais aller
to play	j'ai joué	je vais/je voudrais jouer
to watch	j'ai regardé	je vais/je voudrais regarder
to stay	je suis resté(e)	je vais/je voudrais rester
to visit	j'ai visité	je vais/je voudrais visiter
to see	j'ai vu	je vais/je voudrais voir
to do	j'ai fait	je vais/je voudrais faire
it was/it is	c'était	ça sera / ça serait
there is/will be	il y avait	il y aura / il y aurait

## Opinions & Reasons

**à mon avis** – in my opinion  
**à mes yeux** – in my eyes  
**je pense que c'est** – I find that it's  
**je trouve ça** – I find that  
**j'aime** – I like  
**je n'aime pas** – I don't like

**je déteste** – I hate  
**j'adore** – I love  
**car** - because  
**parce que** - because  
**puisque** - because  
**étant donné que** - because

## Time Markers/Time Phrases

**normalement** – normally  
**d'habitude** – usually  
**le matin** – in the morning  
**le soir** – in the evening  
**le week-end** – at the weekend  
**toujours** – always  
**tous les jours** – every day

**la semaine dernière** – last week  
**la semaine prochaine** – next week  
**le week-end dernier** – last weekend  
**le week-end prochain** – next weekend  
**l'année dernière** – last year  
**l'année prochaine** – next year

## Adjectives

**c'est** – it is  
**c'était** – it was  
**pratique** – practical  
**amusant** – funny  
**sensass** – sensational  
**relaxant** – relaxing  
**motivant** – motivating

**intéressant** – interesting  
**utile** – useful  
**difficile** – difficult  
**facile** – easy  
**monotone** – boring  
**affreux** – awful  
**c'est dommage** – it's a shame

## Answering A Bullet Point

**concernant** – concerning  
**CHANGE ton/ta/tes** – to mon/ma/mes  
**CHANGE votre/vos** – to mon/ma/mes



## Essential Tenses

Infinitive	Present	Past	Near future	Future	Conditional
<b>Jouer</b> to play	je joue	j'ai joué	je vais jouer	je jouerai	je jouerais
<b>Regarder</b> to watch	je regarde	j'ai regardé	je vais regarder	je regarderai	je regarderais
<b>Manger</b> to eat	je mange	j'ai mangé	je vais manger	je mangerai	je mangerais
<b>Faire</b> to do	je fais	j'ai fait	je vais faire	je ferai	je ferais
<b>Boire</b> to drink	je bois	j'ai bu	je vais boire	je boirai	je boirais
<b>Aller</b> to go	je vais	je suis allé / allée	je vais aller	j'irai	j'irais
<b>Être</b> to be	je suis	j'ai été	je vais être	je serai	je serais
<b>Avoir</b> to have	j'ai	j'ai eu	je vais avoir	j'aurai	j'aurais

<b>c'est</b> (it is)
<b>c'était</b> (it was)
<b>ce sera</b> (it will be)

<b>il y a</b> (there is/are)
<b>il y avait</b> (there was/were)
<b>il y aura</b> (there will be)

NEGATIVES		
je ne	VERB (e.g. joue)	<b>pas</b> (I don't)
		<b>jamais</b> (I never)
		<b>plus</b> (I no longer)

## Opinions

<b>J'aime / je n'aime pas</b>	I like / I don't like
<b>J'adore / je déteste</b>	I love / I hate
<b>Je préfère</b>	I prefer
<b>À mon avis</b>	In my opinion
<b>À mes yeux</b>	In my eyes
<b>Je crois que</b>	I believe that
<b>Je trouve ça</b>	I find that
<b>Selon moi</b>	According to me

## Star Phrases

<b>Après avoir fait ça</b>	After having done that
<b>J'aime ça</b>	I like it
<b>Bien qu'il y ait</b>	Although there is
<b>Autant que je sache</b>	As far as I know
<b>Ce que je préfère c'est</b>	What I prefer, is...
<b>Je dois dire que...</b>	I must say that...
<b>Si c'était possible je voudrais</b>	If it were possible I would like to
<b>Soit... soit...</b>	Either... or...
<b>Il faut que je sois honnête</b>	I must say that
<b>Même si j'aurais préféré aller</b>	Even if I would have preferred to go...

## Time Phrases

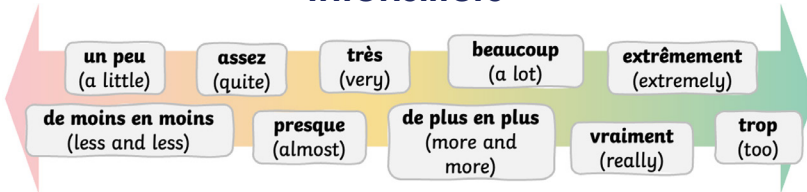
<b>hier</b> (yesterday)	<b>aujourd'hui</b> (today)	<b>demain</b> (tomorrow)
<b>hier soir</b> (yesterday evening)	<b>souvent</b> (often)	<b>le weekend prochain</b> (next weekend)
<b>le week-end dernier</b> (last weekend)	<b>d'habitude</b> (normally)	<b>la semaine prochaine</b> (next week)
<b>la semaine dernière</b> (last week)	<b>une fois par jour</b> (once a day)	<b>l'année prochaine</b> (next year)
<b>l'année dernière</b> (last year)	<b>quelquefois</b> (sometimes)	<b>à l'avenir</b> (in the future)
<b>il y a deux jours</b> (two days ago)	<b>de temps en temps</b> (from time to time)	
<b>récemment</b> (recently)		

# Sentence Structures

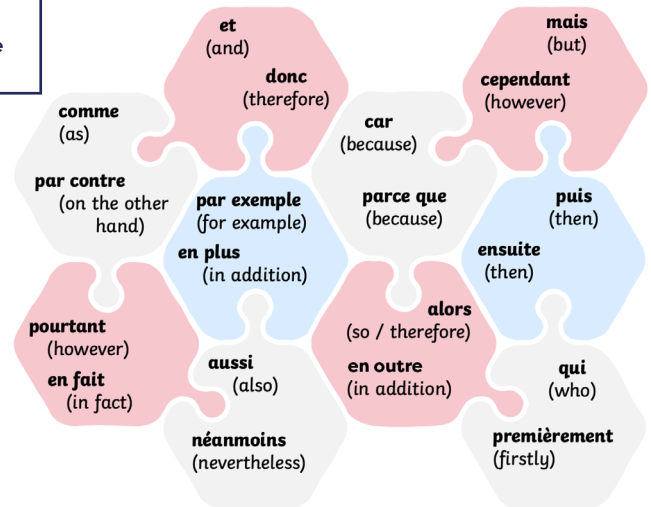
Adjectifs Positifs		
English	Masc. (sing.)	Fem. (sing.)
fabulous	fabuleux	fabuleuse
cute	mignon	mignonne
adorable	adorable	adorable
beautiful	beau	bel
unbelievable	incroyable	incroyable
fascinating	fascinant	fascinante
amazing	extraordinaire	extraordinaire
fun	marrant	marrant
marvellous	merveilleux	merveilleuse
exciting	passionnant	passionnante
pleasant	plaisant	plaisante
funny	rigolo	rigolote
delightful	jubilatoire	jubilatoire
stylish	chic	chic
surprising	étonnant	étonnante
thrilling	palpitant	palpitante
tasty	savoureux	savoureuse
delicious	délicieux	délicieuse

Adjectifs Négatifs		
English	Masc. (sing.)	Fem. (sing.)
bad	mauvais	mauvaise
pointless	vain	vaine
useless	inutile	inutile
irritating	énervant	énervante
frustrating	frustrant	frustrante
annoying	embêtant	embêtante
disgusting	dégoûtant	dégoûtante
boring	ennuyeux	ennuyeuse
terrible	épouvantable	épouvantable
gruesome	funeste	funeste
offensive	grossier	grossière
pathetic	minable	minable
tiring	fatigant	fatigante
weird	bizarre	bizarre
strange	étrange	étrange
stupid	bête	bête
depressing	déprimant	déprimante
scary	effrayant	effrayante

## Intensifiers



## Connectives



## 1. ¿Cómo es tu familia? – What is your family like?

<b>En mi familia hay</b> <i>In my family, there is/are</i>	<b>mi</b> <i>my</i>	<b>padre</b> father <b>madre</b> mother <b>hermano/a</b> brother/sister <b>abuelo/a</b> grandfather/grandmother <b>tío/a</b> uncle/aunt <b>primo/a</b> m/f cousin	<b>Physical descriptions</b>	<b>Soy</b> - I am <b>Es</b> - he/she is <b>Son</b> - they are	<b>calvo</b> - bald <b>alto</b> - tall <b>bajo</b> - short <b>gordo</b> - fat <b>delgado</b> - slim
		<b>Tengo</b> <i>I have</i>		<b>mis</b> <i>My (for plural nouns)</i>	<b>padres</b> parents <b>abuelos</b> grandparents <b>hermanos</b> siblings <b>primos</b> cousins
				<b>Llevo</b> - I wear/ have <b>Lleva</b> - he/she wears/has <b>Llevamos</b> - we wear/have	<b>gafas</b> - glasses <b>barba</b> - a beard <b>bigote</b> - a moustache

## ¿Te llevas bien con tu familia?

<b>Ahora</b> <i>Now</i>	<b>me llevo bien</b> <i>I get on well</i>	<b>con</b> <b>with</b> <i>+ family member</i>	<b>porque es</b> <i>because s/he is</i>	<b>divertido</b> fun <b>gracioso</b> funny <b>amable</b> friendly <b>feliz</b> happy <b>amable</b> friendly <b>carinoso</b> caring <b>hablador</b> chatty <b>fuerte</b> strong <b>fiel</b> loyal <b>trabajador</b> hard working <b>valiente</b> brave <b>animado</b> lively <b>tranquilo</b> calm <b>egoísta</b> selfish <b>triste</b> sad <b>travieso</b> naughty <b>infiel</b> disloyal <b>perezoso</b> lazy <b>maleducado</b> rude <b>pesado</b> annoying <b>triste</b> sad	<b>Physical descriptions</b>	<b>Me llevo bien con...</b> - I get on well with <b>Me divertí con...</b> - I have fun with <b>Echo de menos a...</b> - I miss	<b>Me apoya(n)</b> - he/she supports me <b>Me acepta(n) como soy</b> - he/she accepts me as I am <b>Me hace(n) reír</b> - he/she makes me laugh <b>Me conoce(n) bien</b> - he/she knows me well <b>Nunca me critica(n)</b> - he/she never criticises me <b>Guarda(n) todos mis secretos</b> - he/she keeps all my secrets <b>Tenemos mucho en común</b> - we have a lot in common <b>Me da(n) consejos</b> - he/she gives me advice <b>Me dice(n) la verdad</b> - he/she tells me the truth
<b>Normalmente</b> <i>Normally</i>	<b>me llevo mal</b> <i>I get on badly</i>			<b>porque era</b> <i>because s/he was</i>		<b>No me llevo bien con...</b> - I don't get on well with <b>Me peleo con...</b> - I argue with <b>Estoy harto de...</b> - I am fed up of	<b>Me juzga(n)</b> - he/she judges me <b>Me trata(n) como un niño/una niña</b> - he/she treats me like a child <b>No me deja(n) salir</b> - he/she doesn't let me go out <b>No me da(n) libertad</b> - he/she doesn't give me freedom <b>Me critica(n)</b> - he/she criticises me
<b>Por lo general</b> <i>In general</i>	<b>me peleo</b> <i>I fight/argue</i>						
<b>me divierto</b> <i>I have fun</i>							
<b>En el pasado</b> <i>In the past</i>	<b>me llevaba bien/mal</b> <i>I used to get on well</i>						
<b>Hace X años</b> <i>X years ago</i>	<b>me llevaba mal</b> <i>I used to get on badly</i>						
<b>El año pasado</b> <i>Last year</i>	<b>me peleaba</b> <i>I used to argue/fight</i>						

## ¿Qué te gusta hacer en tu tiempo libre?

Sentence starter	Expressions of frequency	Verb phrase	Connective	Justification
<b>Me encanta</b> I love <b>Me gusta (mucho)</b> I (really) like <b>Me gusta</b> I like <b>Me apasiona</b> I love (am passionate about) <b>Me chifla</b> I love <b>Me mola</b> I love <b>Me interesa</b> I'm interested in / it interests me <b>Me emociona</b> I'm excited about / it excites me <b>Prefiero</b> I prefer  <b>No me gusta (nada)</b> I (really) don't like <b>Detesto / odio</b> I hate <b>Me aburre</b> It bores me <b>Me molesta</b> It annoys me <b>Me fastidia</b> It annoys me	<b>Jugar al fútbol</b> - To play football <b>Hacer atletismo</b> - To do athletics <b>Navegar por internet</b> - To surf the internet <b>Ir al cine</b> - To go to the cinema <b>Salir con mis amigos</b> - To go out with my friends <b>Ver la televisión</b> - To watch TV <b>Escuchar música</b> - To listen to music <b>Ir de compras</b> - To go shopping <b>Hacer natación</b> - To do swimming	<b>porque</b> Because <b>ya que</b> Because <b>puesto que</b> Because <b>dado que</b> Because	<b>es</b> it is          <b>Era</b> It was	<b>Caro</b> expensive <b>barato</b> cheap <b>sano</b> healthy <b>aburrido</b> boring <b>interesante</b> interesting <b>genial</b> great <b>relajante</b> relaxing <b>fácil</b> easy <b>emocionante</b> exciting <b>guay</b> cool <b>una pérdida de tiempo</b> a waste of time <b>una buena manera de descansar</b> a good way to relax

## ¿Qué haces / hacías en tu tiempo libre?

Sentence starter	Expressions of frequency	Verb phrase	Connective	Justification	
<b>Normalmente</b> - Normally <b>A veces</b> - Sometimes <b>De vez en cuando</b> - From time to time <b>Siempre</b> - Always <b>Nunca</b> - Never <b>A menudo</b> - Often	<b>Juego al fútbol</b> <b>Hago atletismo</b> <b>Navego por internet</b> <b>Voy al cine</b> <b>Salgo con mis amigos</b>	<b>Veo la televisión</b> <b>Escucho música</b> <b>Voy de compras</b> <b>Hago natación</b>	<b>porque</b> Because <b>ya que</b> Because <b>puesto que</b> Because <b>dado que</b> Because	<b>es</b> it is          <b>Era</b> It was	<b>Caro</b> expensive <b>barato</b> cheap <b>sano</b> healthy <b>aburrido</b> boring <b>interesante</b> interesting <b>genial</b> great <b>relajante</b> relaxing <b>fácil</b> easy <b>emocionante</b> exciting <b>guay</b> cool <b>una pérdida de tiempo</b> a waste of time <b>una buena manera de descansar</b> a good way to relax
<b>Cuando era pequeño/a</b> - When I was little <b>En el pasado</b> - In the past	<b>Jugaba al fútbol</b> <b>Hacía atletismo</b> <b>Navegaba por internet</b> <b>Iba al cine</b> <b>Salía con mis amigos</b>	<b>Veía la televisión</b> <b>Escuchaba música</b> <b>Iba de compras</b> <b>Hacía natación</b>			

Llevas una dieta sana?						
Sentence starter	Expressions of frequency	Verb phrase		Connective	Verb	Opinion
Para llevar una dieta sana - to have a healthy diet	<p><b>nunca</b> - never</p> <p><b>de vez en cuando</b> - From time to time</p> <p><b>siempre</b> - always</p> <p><b>a veces</b> - sometimes</p> <p><b>todos los días / cada día</b> - every day</p> <p><b>una vez al mes</b> - once a month</p> <p><b>casi nunca</b> - almost never</p> <p><b>dos veces a la semana</b> - twice a week</p> <p><b>A menudo</b> - often</p>	<p><b>Como</b> - I eat</p> <p><b>Desayuno</b> - I have for breakfast</p> <p><b>Almuerzo</b> - I have for lunch</p> <p><b>Ceno</b> - I have for dinner</p> <p><b>Meriendo</b> - I have for a snack</p> <p><b>Bebo</b> - I drink</p>	<p>fruta</p> <p>chocolate</p> <p>yogur</p> <p>pescado</p> <p>pizza</p> <p>pasteles</p> <p>cereales</p> <p>caramelos</p> <p>patatas fritas</p> <p>pan</p> <p>verduras</p> <p>perritos calientes</p> <p>comida frita</p> <p>hamburguesas</p> <p>galletas</p> <p>zumo de naranja</p> <p>agua mineral</p> <p>bebidas gaseosas</p>	<p><b>Porque</b> Because</p> <p><b>ya que</b> Since</p> <p><b>Dado que</b> Given that</p> <p><b>Puesto que</b> Because</p>	<p><b>Es</b></p> <p><b>Son</b></p>	<p><b>asqueroso/a</b> - disgusting</p> <p><b>delicioso/a rico/a</b> - delicious</p> <p><b>dulce</b> - sweet</p> <p><b>grasiento/a grasoso/a</b> - fatty</p> <p><b>sano/a</b> - healthy</p> <p><b>malsano/a</b> - unhealthy</p> <p><b>Picante</b> - spicy</p> <p><b>Refrescante</b> - refreshing</p> <p><b>alto/a en proteínas</b> - high in protein</p> <p><b>sabroso/a</b> - tasty</p> <p><b>nutritivo</b> - nutritious</p> <p><b>salado/a</b> - salty / savoury</p>

Qué haces para estar en forma?					
Sentence starter	Expressions of frequency	Verb phrase		Connective	Justification
Para estar en forma..... To be fit/in shape...	<p><b>Todos los días</b> every day</p> <p><b>normalmente</b> normally</p> <p><b>Dos/tres veces al días</b> two/three times a day</p> <p><b>De vez en cuando</b> From time to time</p>	<p><b>Como sano</b> I eat healthily</p> <p><b>Como muchas fruta y verduras</b> I eat lots of fruit and vegetables</p> <p><b>Bebo mucho agua</b> I drink lots of water</p> <p><b>Duermo ocho horas por noche</b> I sleep eight hours per night</p>	<p><b>Hago ejercicio/deporte</b> I do exercise/sport</p> <p><b>No como caramelos</b> I don't eat sugary foods</p> <p><b>No como comida rápida</b> I don't eat fast-food</p> <p><b>No bebo bebidas gaseosas</b> I don't drink fizzy drinks</p>	<p><b>porque</b> Because</p> <p><b>ya que</b> Since</p>	<p><b>es sano</b> it is healthy</p> <p><b>es bueno para la salud</b> it is good for your health</p> <p><b>es malo para la salud</b> it is bad for your health</p>

## Qué vas a hacer para llevar una vida sana?

Sentence starter	Expressions of frequency	Verb phrase		Connective	Justification
<b>Para llevar una vida sana</b> to have a healthy lifestyle	<b>voy a</b> I am going to  <b>tengo que</b> I have to	<b>comer más sano /equilibrado</b> eat more healthily /balanced  <b>comer muchas fruta y verduras</b> eat lots of fruit and vegetables	<b>hacer ejercicio/deporte</b> do exercise/sport  <b>comer menos caramelos</b> eat less sweets	<b>porque</b> Because  <b>ya que</b> Since	<b>es sano</b> it is healthy  <b>es bueno para la salud</b> it is good for your health  <b>es malo para la salud</b> it is bad for your health
<b>Para mantenerse en forma</b> to keep in shape	<b>quiero</b> I want to  <b>debemos</b> we must/should  <b>hay que</b> we have to (impersonal)	<b>beber más agua</b> drink more water  <b>dormir ocho horas por noche</b> sleep eight hours per night	<b>comer menos comida rápida</b> eat less fast-food  <b>beber menos bebidas gaseosas</b> drink less fizzy drinks		

me gusta	el pan 	100%
me encanta	el arroz  y lo como	tres veces al día
<del>no me gusta</del>	el pescado 	- cada día - todos los días
no me gusta	la pasta  y la como	dos veces a la semana
me gustan	la carne 	de vez en cuando
me encantan	los huevos 	una vez al mes
no me gustan	los caramelos  y los como	casi nunca
	los pasteles 	
	las galletas  y las como	
	las verduras 	

¿Te gustan las fiestas?				
Opinion	Nouns/verbs	Connective	Is /are	Adjective..
me gusta(n)	los festivales	ya que	es	muy tedioso/a/os/as
me mola(n)	la música	puesto que	son	Emocionante(s)
me chifla(n)	los conciertos	porque		Inolvidable(s)
No me gusta(n)	los disfraces			Increíble(s)
No me mola(n)	celebrar			fantástico/a/os/as
No me importa(n)	bailar			Horrible(s)
Detesto	disfrazarme			
	Ver			

## ¿Qué fiesta te gustaría visitar?

Time phrase	I am going to visit	Festival	Activity in future	It is going to be	Adjective
<b>El año que viene</b> Next year	<b>Me gustaría visitar</b> I would like to visit	<b>Día de los Muertos</b>	<b>voy a bailar</b>	<b>va a ser</b>	<b>increíble</b> <b>genial</b> <b>fantástico</b> <b>inolvidable</b> <b>increíble</b> <b>un poco tedioso</b> <b>horrible</b>
<b>En el futuro</b> In the future	<b>Voy a visitar</b> I am going to visit	<b>Las Fallas</b>	<b>voy a ver los fuegos artificiales</b> <b>cuando queman los ninots</b>		
<b>La semana próxima</b> Next week	<b>Voy a asistir</b> I am going to attend	<b>La corrida de toros en Pamplona</b>	<b>voy a escuchar música</b> <b>voy a visitar</b> <b>voy a decorar las tumbas</b> <b>voy a probar la comida típica</b> <b>el pan de muerto</b> <b>las calaveras de azúcar</b>  <b>voy a disfrazarme</b> <b>voy a llevar ropa especial</b> <b>maquillaje</b> <b>máscaras</b>		

## ¿Qué hay en tu pueblo o ciudad? - What is there in your village or town?

<b>En mi ciudad</b> - In my town/city	<b>hay</b> - there is / there are	<b>un</b> - a	<b>centro comercial</b> - shopping centre <b>ayuntamiento</b> - town hall <b>castillo</b> - castle <b>estadio</b> - stadium <b>mercado</b> - market <b>polideportivo</b> - sports centre	<b>Y (no) me gusta porque es...</b> - And I (don't) like it because it is...  <b>Y siempre voy allí porque es...</b> - And I always go there because it is...  <b>Y (no) me gustan porque son...</b> - And i (don't) like them because they are..	<b>Histórico/a/os/as</b> - Historic <b>Moderno/a/os/as</b> - Modern  <b>Tranquilo/a/os/as</b> - Calm  <b>Ruidoso/a/os/as</b> - Noisy  <b>Feo/a/os/as</b> - Ugly  <b>Bonito/a/os/as</b> - Pretty  <b>Limpio/a/os/as</b> - Clean  <b>sucio/a/os/as</b> - Dirty  <b>Turístico/a/os/as</b> - Touristy
<b>En mi pueblo</b> - In my village		<b>una</b> - a	<b>piscina</b> - swimming pool <b>dista de hielo</b> - ice rink <b>plaza de toros</b> - bullring <b>biblioteca</b> - library <b>En mi barrio</b> - In my neighbourhood <b>iglesia</b> - church <b>mezquita</b> - mosque <b>universidad</b> - university		
<b>En mi barrio</b> - In my neighbourhood		<b>unos</b> - some <b>muchos</b> - many	<b>museos</b> - museums <b>parques</b> - parks <b>restaurantes</b> - restaurants		
		<b>unas</b> - some <b>muchas</b> - many	<b>plazas</b> - squares. <b>tiendas</b> - shops		

## Year 9 - Sentence Builder

¿Qué se puede hacer en la ciudad?	
Se puede...	One can...
descansar	relax
disfrutar del paisaje	enjoy the landscape
hacer deportes	do sports
hacer turismo	go sightseeing
ir de compras	go shopping
nadar	swim
quedar con amigos	meet up with friends
sacar fotos	take photos
tomar el sol	sunbathe
tomar una copa	get something to drink
tomarse algo de comer	get something to eat
ver un espectáculo/una película	see a show/a film

Qué país te gustaría visitar?					
Opinion Phrase	Infinitive	Adjective	In order to..	Infinitive	Place / Activity
<b>Me gustaría</b> I would like	<b>visitar</b> to visit	<b>Cuba</b>	<b>Para</b> In order to...	<b>Visitar</b> Visit	<b>La jungla / selva</b> - The jungle
<b>Me encantaría</b> I would love	<b>ira</b> to go to	<b>México</b>		<b>Descubrir</b> discover	<b>Las montañas</b> - The mountains
	<b>viajar a</b> to travel to	<b>Perú</b>		<b>Ver</b> see	<b>Las playas tropicales</b> - The tropical beaches
		<b>España</b>		<b>Probar</b> try	<b>El desierto</b> - The jungle
		<b>Argentina</b>		<b>Hacer</b> do	<b>Una excursión</b> - A trip / excursion
		<b>Costa Rica</b>			<b>Un tour</b> - A tour
		<b>Colombia</b>			<b>La comida típica</b> - Local food
		<b>La República Dominicana</b>			<b>Las ciudades antiguas</b> - The old cities
					<b>Los sitios históricos</b> - Historical sites
					<b>Las ciudades antiguas</b> - The old cities
					<b>Los festivales</b> - The festivals

¿Qué derechos tienen los niños? - What rights do children have?							
Location	Verb	Infinitive	Because...	Reason	Therefore...	Verb	Noun
<b>En Inglaterra...</b>	<b>los niños no pueden...</b>	<b>Dar su opinion</b>	<b>porque ya que dado que</b>	<b>tienen que trabajar</b>	<b>Así que Por eso</b>	<b>No tienen el derecho</b>	<b>al juego</b>
<b>Francia...</b>	<b>children can't...</b>	<b>Give their opinion</b>		<b>They have to work</b>		<b>They don't have the right</b>	<b>to play</b>
<b>España...</b>		<b>Dormir</b>		<b>tienen que ganar dinero</b>			<b>a la educación</b>
<b>Colombia...</b>		<b>Sleep</b>		<b>They have to earn money</b>			<b>to education</b>
<b>Venezuela...</b>		<b>Ir al insti</b>		<b>hay mucha Violencia</b>			<b>al amor y a la familia</b>
<b>Argentina...</b>		<b>Go to school</b>		<b>There is a lot of violence</b>			<b>to love and family</b>
<b>Brasil...</b>		<b>Salir</b>		<b>es muy peligroso</b>			<b>a un medio ambiente sano</b>
<b>otros paises</b>		<b>Go out</b>		<b>It is very dangerous</b>			<b>to a healthy environment</b>
<b>other countries</b>		<b>Jugar con SUS hermanos</b>		<b>el aire está contaminado</b>			<b>a la libertad de expresión</b>
<b>otras ciudades</b>		<b>Play with their siblings</b>		<b>The air is polluted</b>			<b>to freedom of expression</b>
		<b>Respirar bien</b>					<b>a vivir en armonía</b>
		<b>Breathe well</b>					<b>to live in harmony</b>



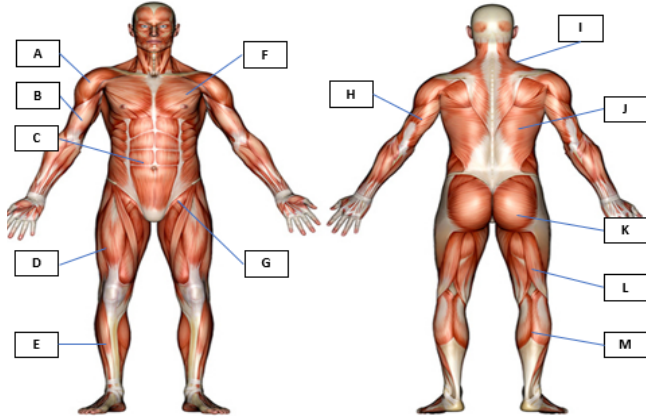
## ¿Cómo es / era tu ciudad?

Time expression	Key Structure 1	Quantifier	Complement	Connective	Key Structure 2	Adjective
<b>Antes</b> - Before <b>Cuando era</b> <b>pequeño/ a</b> - When / was young  <b>Ahora</b> - Now <b>Hoy en día</b> - Nowadays	<b>había</b> - there used to be  <b>no había</b> - there didn't used to be  <b>tenía</b> - it used to have  <b>no tenía</b> - it didn't used to have  <b>hay</b> - there is <b>no hay</b> - there isn't <b>tiene</b> - it has <b>no tiene</b> - it hasn't	<b>mucho/a/os/as</b> - a lot of  <b>tanto/a/os/as</b> - so much / so many  <b>demasiado/a/os/as</b> - too much  <b>suficiente(s)</b> - enough  <b>más</b> - more <b>menos</b> - less	<b>ruido</b> - noise <b>tráfico</b> - traffic <b>basura</b> - rubbish <b>polución/contaminación (del aire/del agua/ de los ríos/ mares)</b> - (air/water/river/sea pollution) <b>espacios verdes</b> - green spaces <b>fábricas</b> - factories <b>medios de transporte público</b> - modes of public transport <b>redes de transporte público</b> - public transport networks <b>bolsas de plástico</b> - plastic bags	<b>por lo tanto</b> - therefore  <b>por eso</b> - therefore  <b>entonces</b> - so	<b>era</b> - it used to be <b>no era</b> - it didn't used to be <b>estaba</b> - it used to be <b>no estaba</b> - it didn't used to be <b>es</b> - it is <b>no es</b> - it isn't <b>está</b> - it is <b>no está</b> - it isn't	<b>sostenible</b> - sustainable <b>sucio</b> - dirty <b>limpio</b> - clean <b>serio</b> - serious <b>bonito</b> - pretty <b>feo</b> - ugly <b>turístico</b> - touristy <b>moderno</b> - modern <b>histórico</b> - historic <b>industrial</b> - industrial <b>tranquilo</b> - calm <b>ruidoso</b> - noisy

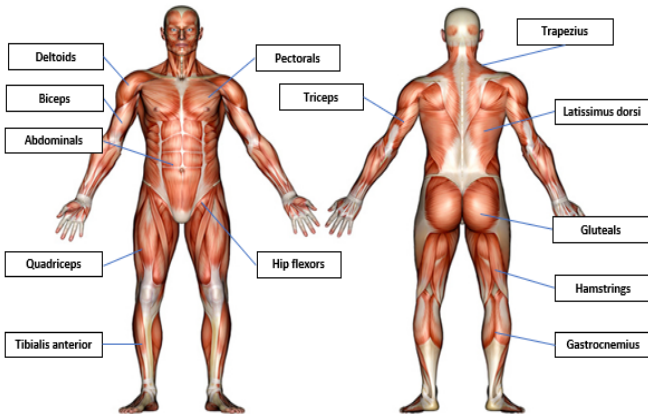
## ¿Qué se debería hacer para proteger el medio ambiente?

In my opinion	It is necessary to	Action (e.g. respect rules)	Because, given that.	Reason
<b>Pienso que</b> <b>A mi modo de ver</b> <b>Desde mi punto de vista / Diría que</b>	<b>(No) se debe</b> <b>(No) se debería</b> <b>(No) hay que</b>	<b>Apagar la luz</b> <b>Ducharse en vez de bañarse</b> <b>Separar la basura</b> <b>Reciclar el plástico y el vidrio</b> <b>Cerrar el grifo</b> <b>Desenchufar los aparatos eléctricos</b> <b>Malgastar el agua</b> <b>Usar bolsas de plástico</b>	<b>porque</b> <b>puesto que</b> <b>a que</b>	<b>Es... muy importante</b> <b>esencial</b> <b>justo</b> <b>normal</b> <b>necesario</b> <b>crucial</b>  <b>ahorra energía</b> <b>reduce las emisiones</b> <b>causa contaminación</b> <b>daña el medio ambiente</b> <b>protege el medio ambiente</b>

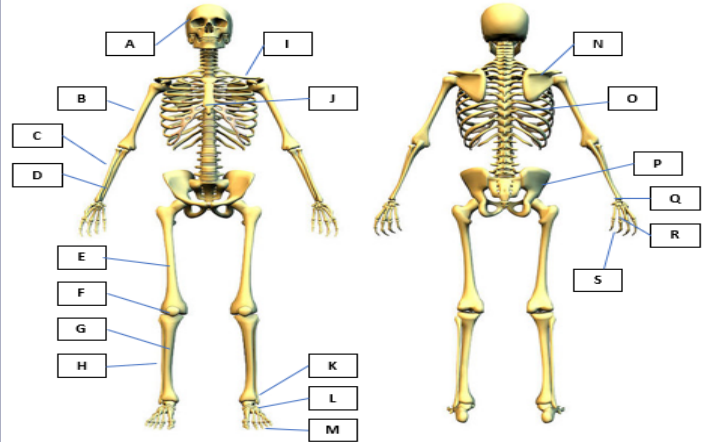
Identify parts A-M on the diagram of the muscular system below.



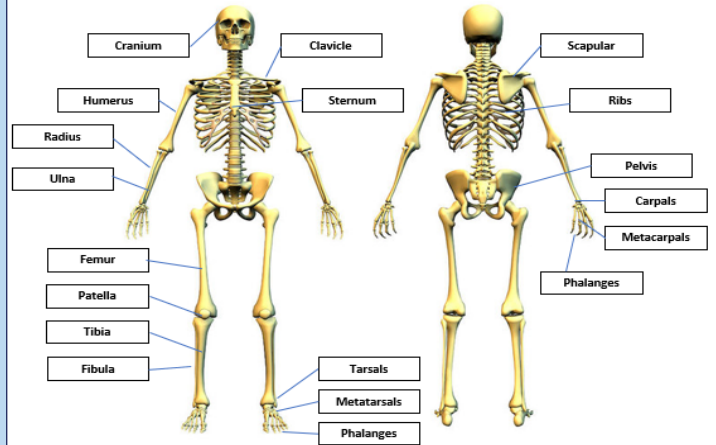
1A



Identify parts A-S on the diagram of the skeletal system below.



2A



3A	<b>Identify three immediate effects of exercise.</b>
	<ul style="list-style-type: none"> <li>• Sweating</li> <li>• Red face</li> <li>• Increased body temperature</li> <li>• Increased heart rate</li> <li>• Increased breathing rate</li> </ul>
3B	<b>Identify three short-term effects of exercise.</b>
	<ul style="list-style-type: none"> <li>• Fatigue</li> <li>• Muscle soreness (DOMS)</li> <li>• Dizziness</li> <li>• Nausea</li> </ul>
3C	<b>Identify three long-term effects of exercise.</b>
	<ul style="list-style-type: none"> <li>• Lower resting heart rate</li> <li>• Weight loss</li> <li>• Increased muscle mass</li> <li>• Increased strength and cardiovascular endurance</li> </ul>
3D	<b>Define <i>health</i>.</b>
	<ul style="list-style-type: none"> <li>• A state of complete physical, mental, and social well-being</li> </ul>
3E	<b>Define <i>fitness</i>.</b>
	<ul style="list-style-type: none"> <li>• The ability to meet the demands of your environment</li> </ul>
3F	<b>Identify three positive influences on health.</b>
	<ul style="list-style-type: none"> <li>• Regular exercise</li> <li>• Healthy diet</li> <li>• Regular sleep</li> <li>• Positive friendship groups</li> <li>• High quality education</li> </ul>

3G	<b>Identify three negative influences on health.</b>
	<ul style="list-style-type: none"> <li>• Lack of exercise</li> <li>• Unhealthy diet/too much fatty food</li> <li>• Lack of regular sleep</li> <li>• Lack of positive friendship groups</li> <li>• Lack of education</li> </ul>
3H	<b>Identify three types of substance abuse.</b>
	<ul style="list-style-type: none"> <li>• Alcohol</li> <li>• Drugs</li> <li>• Smoking cigarettes</li> </ul>
3I	<b>Identify the negative effects alcohol can have on a person's health.</b>
	<ul style="list-style-type: none"> <li>• Dehydration</li> <li>• Nausea</li> <li>• Memory loss</li> <li>• Liver damage</li> </ul>
3J	<b>Identify the negative effects drugs can have on a person's health.</b>
	<ul style="list-style-type: none"> <li>• Feeling paranoid</li> <li>• Poor judgment</li> <li>• Heart problems</li> </ul>
3K	<b>Identify the negative effects smoking cigarettes can have on a person's health.</b>
	<ul style="list-style-type: none"> <li>• Lung cancer</li> <li>• Increased blood pressure</li> <li>• Poor circulation</li> </ul>

**Define the following fitness components:**

- a. Agility
- b. Balance
- c. Cardiovascular endurance
- d. Coordination
- e. Flexibility
- f. Muscular endurance
- g. Power
- h. Reaction time
- i. Maximal strength
- j. Static strength
- k. Speed

4A

- a. The ability to move and change direction quickly with control.
- b. Maintaining the centre of mass over the base of support.
- c. The ability of the heart and lungs to supply oxygen to the working muscles.
- d. The ability to use two or more parts of the body together with control.
- e. The range of movement possible at a joint.
- f. The ability of a muscle or muscles to repeat contractions without fatigue.
- g. Maximum strength x maximum speed.
- h. The time taken to respond to a stimulus.
- i. The largest force possible in single contraction.
- j. The amount of strength applied to an immovable object.
- k. The maximum rate at which you can perform a movement or cover a distance.

**Identify a sporting example for the following fitness components:**

- a. Agility
- b. Balance
- c. Cardiovascular endurance
- d. Coordination
- e. Flexibility
- f. Muscular endurance
- g. Power
- h. Reaction time
- i. Maximal strength
- j. Static strength
- k. Speed

4B

- a. When marking an opponent in netball.
- b. When performing a handstand in gymnastics.
- c. When running at the end of a marathon.
- d. When moving the arms and legs to serve a ball in tennis.
- e. When stretching out wide to catch a ball in cricket.
- f. When repeatedly punching an opponent in boxing.
- g. When jumping for a rebound in basketball.
- h. When returning a smash in badminton.
- i. When throwing a shot putt in athletics.
- j. When holding a handstand in gymnastics.
- k. When moving the legs quickly in the 100m.

5A	<p><b>Define aerobic.</b></p> <ul style="list-style-type: none"> <li>• With oxygen</li> </ul>
5B	<p><b>Define anaerobic.</b></p> <ul style="list-style-type: none"> <li>• Without oxygen</li> </ul>
5C	<p><b>Identify the equation for aerobic respiration.</b></p> <ul style="list-style-type: none"> <li>• Glucose + Oxygen = Energy + CO<sub>2</sub> + Water</li> </ul>
5D	<p><b>Identify the equation for anaerobic respiration.</b></p> <ul style="list-style-type: none"> <li>• Glucose = Energy + Lactic Acid</li> </ul>
5E	<p><b>Describe aerobic exercise.</b></p> <ul style="list-style-type: none"> <li>• Long duration and low intensity exercise</li> </ul>
5F	<p><b>Describe anaerobic exercise.</b></p> <ul style="list-style-type: none"> <li>• Short duration and high intensity exercise</li> </ul>
5G	<p><b>Identify examples of an aerobic sporting activity.</b></p> <ul style="list-style-type: none"> <li>• A marathon</li> <li>• Long-distance cycling</li> </ul>
5H	<p><b>Identify examples of an anaerobic sporting activity.</b></p> <ul style="list-style-type: none"> <li>• 100m sprint</li> <li>• High jump</li> </ul>

5I	<p><b>Identify the fitness components developed through aerobic exercise.</b></p> <ul style="list-style-type: none"> <li>• Cardiovascular endurance</li> </ul>
5J	<p><b>Identify the fitness components developed through anaerobic exercise.</b></p> <ul style="list-style-type: none"> <li>• Power and speed</li> </ul>
5K	<p><b>Identify how an athlete would calculate their maximum heart rate (MHR)?</b></p> <ul style="list-style-type: none"> <li>• MHR = 220 – age</li> </ul>
5L	<p><b>Define heart rate.</b></p> <ul style="list-style-type: none"> <li>• The number of times the heart beats per minute</li> </ul>
5M	<p><b>Define stroke volume.</b></p> <ul style="list-style-type: none"> <li>• The volume of blood pumped from the left side of the heart per beat</li> </ul>
5N	<p><b>Define cardiac output.</b></p> <ul style="list-style-type: none"> <li>• Heart rate x stroke volume</li> </ul>
5O	<p><b>Define anticipatory rise.</b></p> <ul style="list-style-type: none"> <li>• The slight increase in heart rate ahead of starting exercise</li> </ul>
5P	<p><b>Identify the aerobic and anaerobic training zones.</b></p> <ul style="list-style-type: none"> <li>• Aerobic = 60 – 80% of MHR</li> <li>• Anaerobic = 80 – 90% of MHR</li> </ul>

6A	<b>Identify the seven nutrients which make up a healthy balanced diet.</b>
	<ul style="list-style-type: none"> <li>• Carbohydrates</li> <li>• Fats</li> <li>• Protein</li> <li>• Fibre</li> <li>• Vitamins</li> <li>• Minerals</li> <li>• Water</li> </ul>
6B	<b>Identify the main benefit of each nutrient listed in Q8.40.</b>
	<ul style="list-style-type: none"> <li>• Carbohydrates = body's main energy source</li> <li>• Fats = body's secondary energy source</li> <li>• Protein = muscle growth and repair</li> <li>• Fibre = supports digestive system</li> <li>• Vitamins = supports immune system</li> <li>• Minerals = helps maintain strong bones</li> <li>• Water = helps maintain hydration</li> </ul>
6C	<b>Identify examples of each nutrient listed in Q8.40.</b>
	<ul style="list-style-type: none"> <li>• Carbohydrates = pasta, rice, potatoes</li> <li>• Fats = red meat, cheese, nuts</li> <li>• Protein = chicken, fish, eggs</li> <li>• Fibre = brown bread, cereal, porridge</li> <li>• Vitamins = fruit and vegetables</li> <li>• Minerals = milk (calcium)</li> <li>• Water = water</li> </ul>
6D	<b>Define sedentary lifestyle.</b>
	<ul style="list-style-type: none"> <li>• A person's choice to engage in little physical activity</li> </ul>

6E	<b>Identify consequences of a sedentary lifestyle.</b>
	<ul style="list-style-type: none"> <li>• Weight gain/obesity</li> <li>• Heart problems (e.g., hypertension)</li> <li>• Diabetes</li> <li>• Low self-esteem</li> </ul>
6F	<b>Define obesity.</b>
	<ul style="list-style-type: none"> <li>• A person with a large fat content (BMI &gt;30)</li> </ul>
6G	<b>Identify causes of obesity.</b>
	<ul style="list-style-type: none"> <li>• High calorie consumption combined with minimal physical activity</li> </ul>
6H	<b>Identify physical, mental and social effects of obesity.</b>
	<ul style="list-style-type: none"> <li>• Physical effects: cancer, heart disease, diabetes</li> <li>• Mental effects: depression, loss of confidence</li> <li>• Social effects: inability to socialise</li> </ul>
6I	<b>Define dehydration.</b>
	<ul style="list-style-type: none"> <li>• The harmful reduction of water in the body</li> </ul>
6J	<b>Identify causes of dehydration.</b>
	<ul style="list-style-type: none"> <li>• Not drinking enough fluids</li> <li>• Over-exercising</li> </ul>
6K	<b>Identify three effects of dehydration.</b>
	<ul style="list-style-type: none"> <li>• Blood thickens</li> <li>• Increased heart rate</li> <li>• Fatigue</li> </ul>

# Notes



A series of horizontal lines for taking notes, consisting of 20 thin grey lines.

**uyr**

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