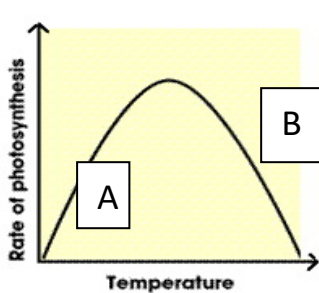
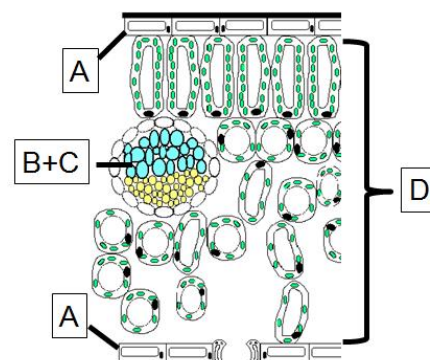


B1.4 Photosynthesis and Plants Fact Sheet

Photosynthesis	
1. Write the word equation for photosynthesis.	Carbon dioxide + water → Glucose + Oxygen
2. Where in plant cells does photosynthesis take place?	In the chloroplasts
3. Describe the function of chlorophyll	Absorbs the light energy for photosynthesis
4. Three ways plants use the glucose produced during photosynthesis? (3)	<ul style="list-style-type: none"> • Stores it as insoluble starch • Produces fats or oil for storage • Produces cellulose which strengthens the cell wall • Produces proteins • Carries out respiration to release energy
5. What additional chemical does the plant need in order to produce amino acids for proteins and where does it get it from?	Nitrate ions from the soil
6. What process do plants and animals use glucose for?	Aerobic respiration to release energy
7. Which process/ processes do plants do during the day and why? (2)	<p>Photosynthesis because light energy is available. They do this to store the energy in glucose.</p> <p>Aerobic respiration because they need to release the energy from the glucose to carry out various processes.</p>
8. Which gas do plants produce more of during the day and why? (2)	Oxygen due to photosynthesis. They will release carbon dioxide from respiration but will then use this for photosynthesis to release oxygen.
9. Which gas/ gases do plants produce during the night and why? (2)	Carbon dioxide because they are respiring. No oxygen is released as they don't photosynthesise at night.
10. What is limiting the rate of photosynthesis at points A and B?	<p>A = Low carbon dioxide concentration B = Low temperature or light intensity</p> <p><i>HT: At point A CO₂ conc. must be the limiting factor as the rate of photosynthesis increases when the CO₂ conc. is increased. However at point B the rate of photosynthesis is no longer affected when CO₂ conc. is increased. Due to the interacting nature of the three factors this means that at point B either the temperature or light intensity are the limiting factor.</i></p>
11. What is limiting the rate of photosynthesis at points A and B?	<p>A = Low light intensity B = Low carbon dioxide concentration or temperature</p>

<p>12. What is limiting the rate of photosynthesis at points A and B?</p> 	<p>A = Low temperature B = The enzymes have denatured</p>
<p>13. HT: How can farmers manipulate the conditions to increase the rate of photosynthesis and increase growth? (3)</p>	<p>a. Increase light intensity (using lights in the greenhouse) b. Increase carbon dioxide concentration (burn paraffin in greenhouse) c. Increase temperature (up to a point) – using greenhouse heaters</p>
<p>Plant tissues and organs</p>	
<p>14. List three plant organs</p>	<p>Leaf, stem, root</p>
<p>15. What cells absorb water and nutrients from the soil?</p>	<p>Root hair cells</p>
<p>16. How are water and nutrients absorbed from the soil? (2)</p>	<p>Water by osmosis Nutrients by active transport</p>
<p>17. Name the tissues in the cross section of the leaf (4)</p> 	<p>A = Epidermis B and C = Phloem and Xylem D = Mesophyll</p>
<p>18. Give the function of the mesophyll tissue</p>	<p>Carries out photosynthesis</p>
<p>19. Name the two types of mesophyll tissue. (2)</p>	<p>Palisade mesophyll Spongy mesophyll</p>
<p>20. Give the function of the epidermis tissue</p>	<p>Covers the plant</p>
<p>21. What is the xylem tissue (2)</p>	<p>Tissue in plants that transports water and mineral ions (1) from the roots to the stem and leaves (1)</p>
<p>22. Lignin is found inside xylem tubes. What is the purpose of lignin?</p>	<p>Strengthens the xylem</p>
<p>23. What is the phloem tissue</p>	<p>Tissue in plants that transports sugars (1) from the leaves to the rest of the plant (1)</p>
<p>24. Translocation is...</p>	<p>The movement of food molecules through phloem tissue</p>
<p>25. Give the function of the stomata</p>	<p>Allows gases in and out of the leaf</p>
<p>26. Where is meristem tissue found in plants?</p>	<p>Tips of roots and shoots</p>
<p>27. Name three factors that increase the rate of transpiration.</p>	<p>High temperature, high air movement and increased light intensity</p>
<p>28. Factors that decrease the rate of transpiration</p>	<p>High humidity</p>
<p>29. Equipment used to measure the rate of transpiration</p>	<p>Potometer</p>
<p>30. Role of the stomata</p>	<p>Control gas exchange and water loss</p>

