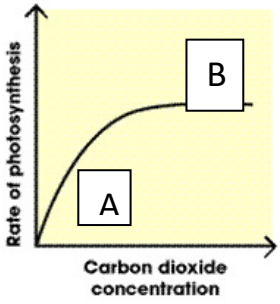
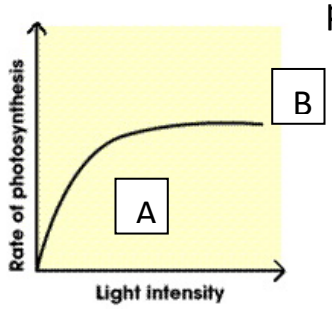
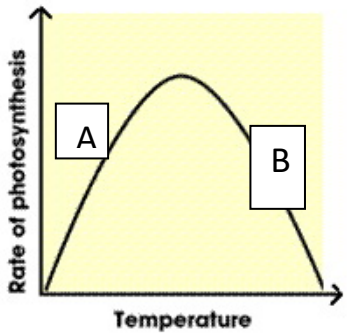
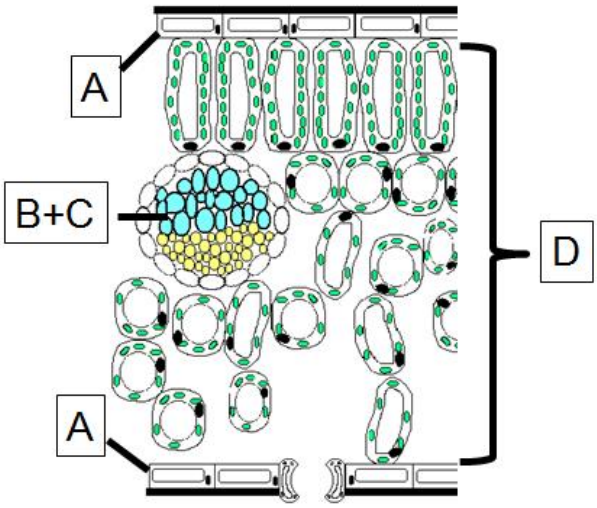
B4 Plants Fact Sheet

Photosynthesis	
1. Write the word equation for photosynthesis.	**Carbon dioxide + water → Glucose + Oxygen**
2. Write the balanced symbol equation for photosynthesis	$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
3. Name the organ in plants which does photosynthesis	**Leaf**
4. Where does the energy for photosynthesis come from?	**Light**
5. Is photosynthesis endothermic or exothermic? Why?	Endothermic, needs light energy in to work
6. Which part of the plant cell does photosynthesis?	**Chloroplast**
7. Name the green pigment which absorbs light	**Chlorophyll**
8. How does the plant get energy from glucose?	**Respiration**
9. Name 2 molecules the plant turns glucose into to store it	Starch, fat/ oil
10. What is glucose turned into to make cell walls	Cellulose
11. What do plants need to make amino acids?	Glucose and nitrates
12. When do plants do photosynthesis?	**When it's light**
13. When do plants do respiration?	All the time
Limiting factors	
14. List 3 factors that can limit the rate of photosynthesis	• **Light intensity** • **Carbon dioxide concentration** • **Temperature**
15. What is limiting the rate of photosynthesis at points A and B? 	A = Low carbon dioxide concentration B = Temperature or light intensity

16. What is limiting the rate of photosynthesis at points A and B?  	A = Low light intensity B = Low carbon dioxide concentration or temperature
17. What is limiting the rate of photosynthesis at A and B?  	A = Low temperature because enzymes do not have enough energy B = High temperature, the enzymes have denatured
Plant tissues	
18. Name the tissues in the cross section of the leaf (4)  	**A = Epidermis** **B and C = Xylem (top) and Phloem (bottom)** **D = Mesophyll**
19. What does the epidermis do?	**Covers organs**
20. What does the mesophyll do?	**Photosynthesis**
21. What does the xylem do?	**Transport water**
22. What does the phloem do?	**Transport sugar**
23. Name the holes on the bottom of the leaf	**Stomata**

24. Which cells control the size of the stomata?	**Guard cells**
25. Which gases enter and leave the leaf in the light? Why?	Enter the leaf: carbon dioxide Leave the leaf: oxygen *Because rate of photosynthesis is greater than rate of respiration*
26. Which gases enter and leave the leaf in the dark? Why?	Enter the leaf: oxygen Leave the leaf: carbon dioxide *Because rate of respiration is greater than rate of photosynthesis, because there is no light so no energy for photosynthesis*
27. What do we call movement of water up the xylem?	Transpiration stream
28. What do we call movement of sugar solution in the phloem	Translocation
Plant cells	
29. Describe xylem cells	• Dead cells • Long thin cells • Lignin in their walls
30. Describe phloem cells	• Living cells • Long thin cells • Sieve plates between cells
31. What do root hair cells do?	**Absorb water and minerals from the soil**
32. Explain how root hair cells are adapted to their function	• Long thin projection (looks like a hair) to give a large surface area for absorbing water and minerals • Lots of mitochondria to release energy for active transport

33. Explain how phloem cells are adapted to their function	• Long and thin to transport sugar • Gaps between cells so easier for sugar to flow • Lots of mitochondria for energy for moving sugar
34. Explain how xylem cells are adapted to their function	• Long and thin to transport water and minerals • Dead so easier for water to move • Waterproof walls so water doesn't leak out
35. When do <u>most</u> types of plant cells differentiate?	Any time during the plant's life
36. Name the cells in plants that can differentiate into any type of plant cell	Meristem
37. State 2 reasons for cloning plants	• Stop a species becoming extinct • To get lots of good crop plants
Transpiration	
38. What do we call evaporation of water from the above ground parts of a plant?	**Transpiration**
39. List 4 conditions which make transpiration faster?	• **Higher temperature** • **Higher light intensity** • **More air movement (more windy)** • **Lower humidity**