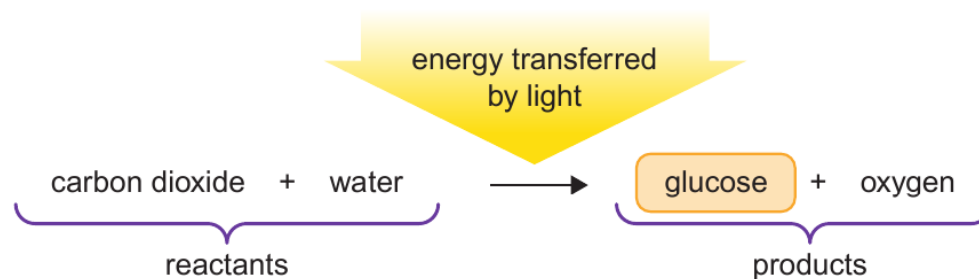
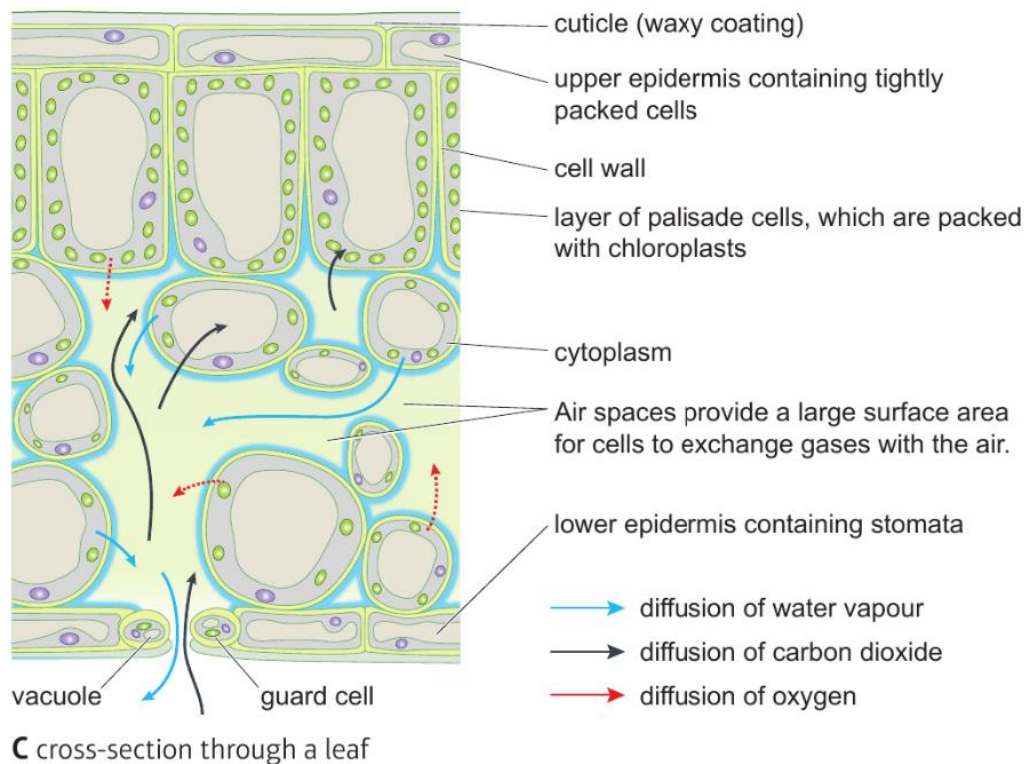
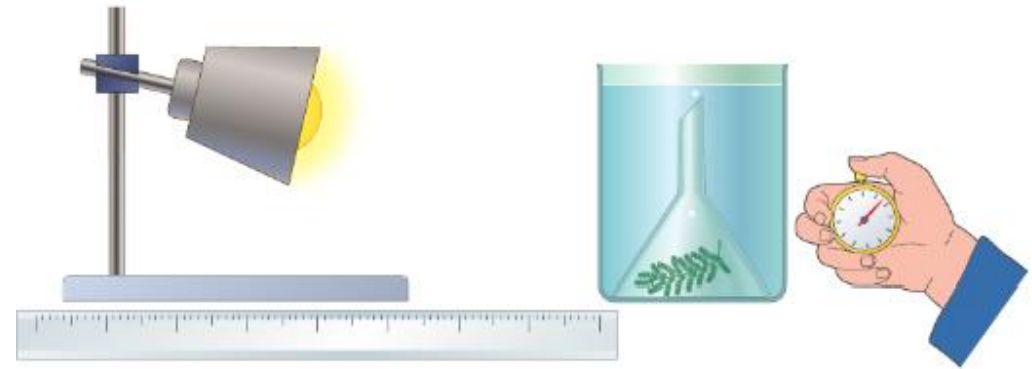
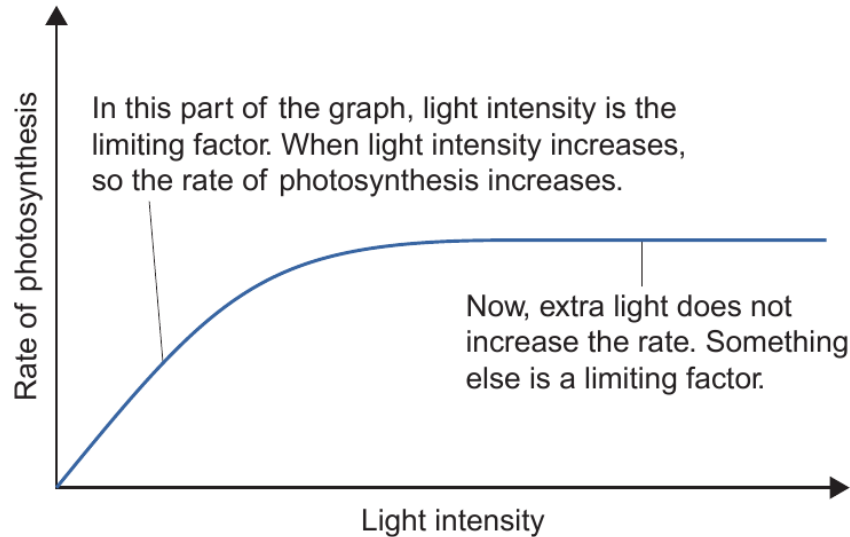




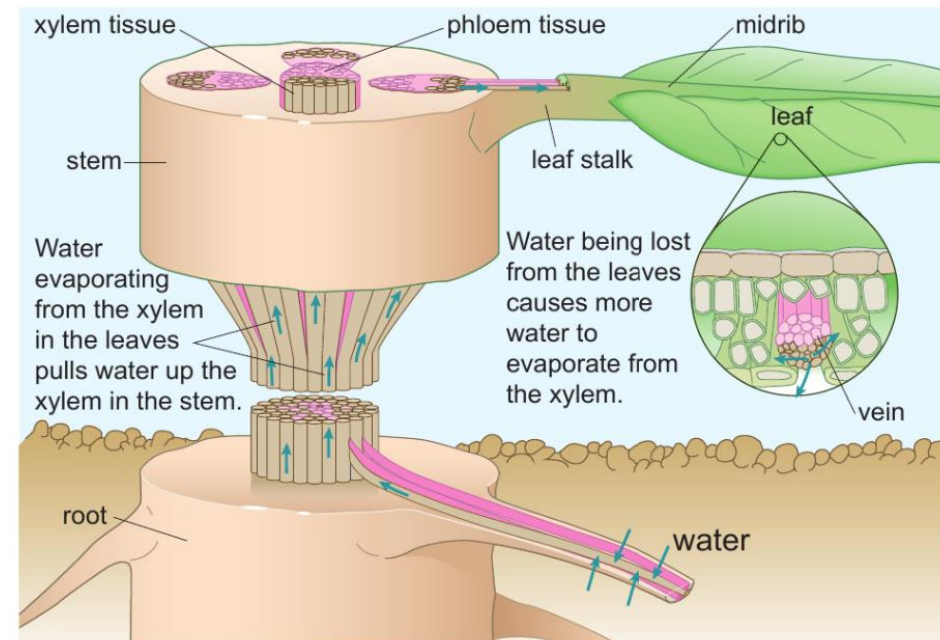
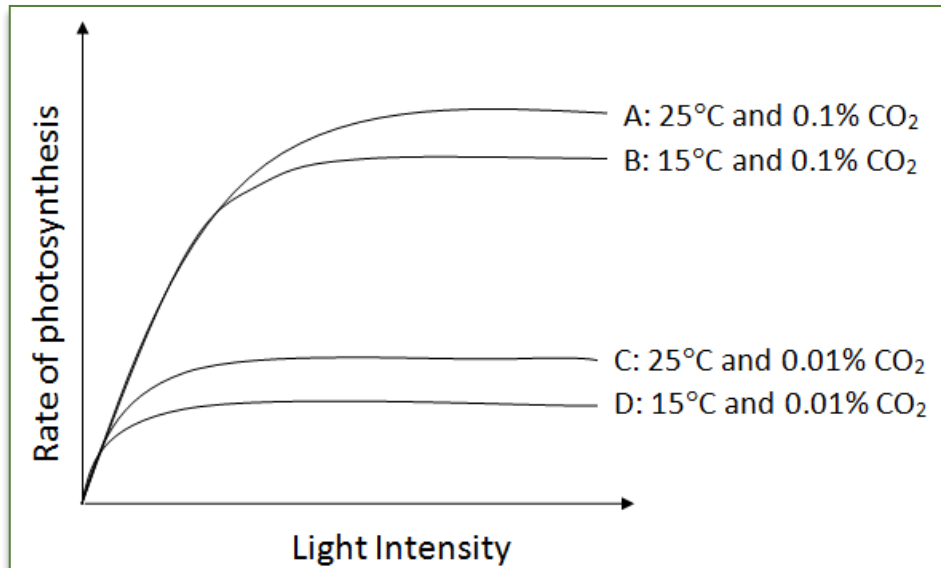
- |   |  |
|---|--|
| 1 | Plants manufacture <b>glucose</b> from carbon dioxide and water using energy transferred from the environment ( <b>endothermic</b> ) to the chloroplasts by light  |
| 2 | Plants <b>use glucose</b> for respiration. It can be stored as insoluble starch, used for making <b>cellulose</b> for cell walls or combined with nitrates from the soil to form amino acids and <b>proteins</b> .             |
| 3 | The rate of <b>photosynthesis</b> is affected by <b>temperature</b> , <b>light intensity</b> and <b>carbon dioxide</b> concentration.  |
| 4 | The rate of <b>photosynthesis</b> is <b>proportional to light intensity</b> . It obeys the <b>inverse square law</b> which means if you double the distance between the plant and light source you quarter the light intensity |
| 5 | As the <b>temperature of the environment</b> the plant is in increases, the <b>rate of photosynthesis increases</b> (up to a point) as there is more energy for the chemical reaction  |
| 6 | As <b>light intensity increases</b> the rate of photosynthesis increases (up to a point) as more energy is available for the chemical reaction   |
| 7 | As <b>carbon dioxide concentration</b> increases, the rate of photosynthesis increases (up to a point) as carbon dioxide is needed for plants to make glucose.   |
| 8 | <b>Transpiration</b> is the rate at which water is lost from the leaves of a plant. The transpiration stream is the column of water moving through the roots, stem and leaves  |
| 9 | <b>Temperature, humidity</b> , air movement and light intensity affect the rate of transpiration   |





**C** measuring the rate of photosynthesis in pondweed

**C** An increase in light intensity increases the rate of photosynthesis until a limiting factor stops further increases.





10 **Light intensity** obeys the inverse square law.  
This means if you double the distance between the plant and the light source you quarter the light intensity.

11 **Variegated leaves** are white and green.  
The white areas do not have any chlorophyll.

12 **Phototropism** – plant growth response to light

13 **Gravitropism** – plant growth response to gravity

14 **Auxin** - plant hormone that causes unequal growth rates in plant roots and shoots

15 Plant hormones have many commercial uses e.g. selective **weedkiller**, growing cuttings, controlling fruit and flower formation (**gibberelins**) controlling the ripening of fruit (**ethene**)

16 **Transpiration** is the rate at which water is lost from the leaves of a plant. The transpiration stream is the column of water moving through the roots, stem and leaves

17 **Temperature**, humidity, air movement and light intensity affect the rate of transpiration

