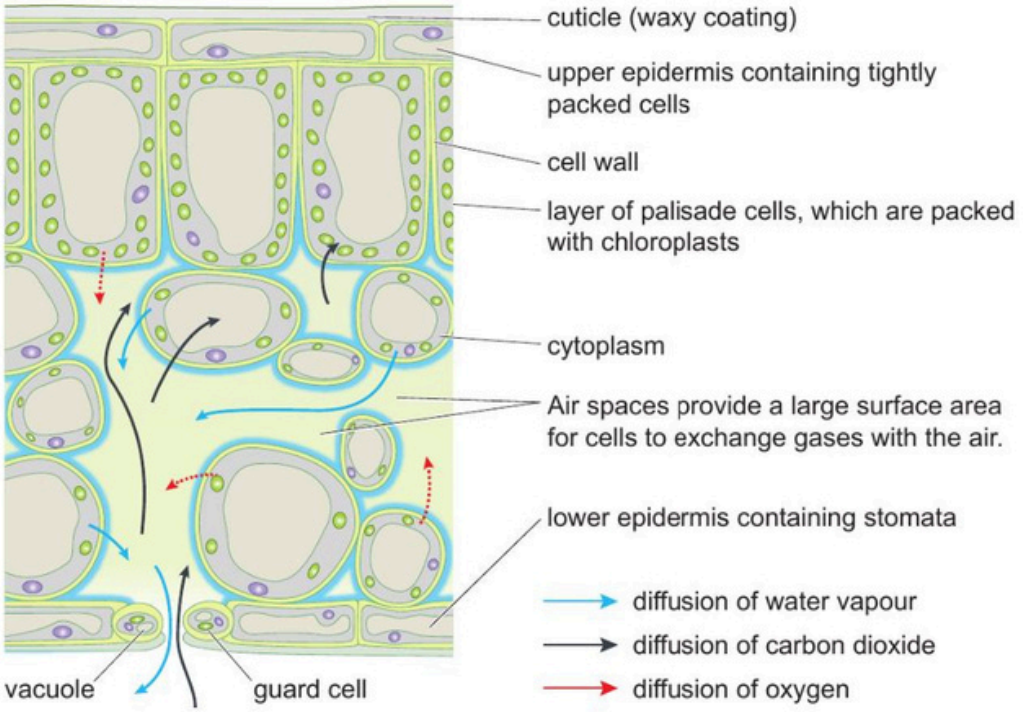
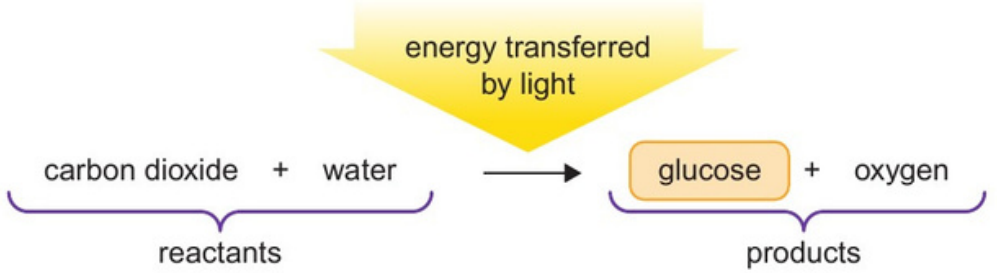
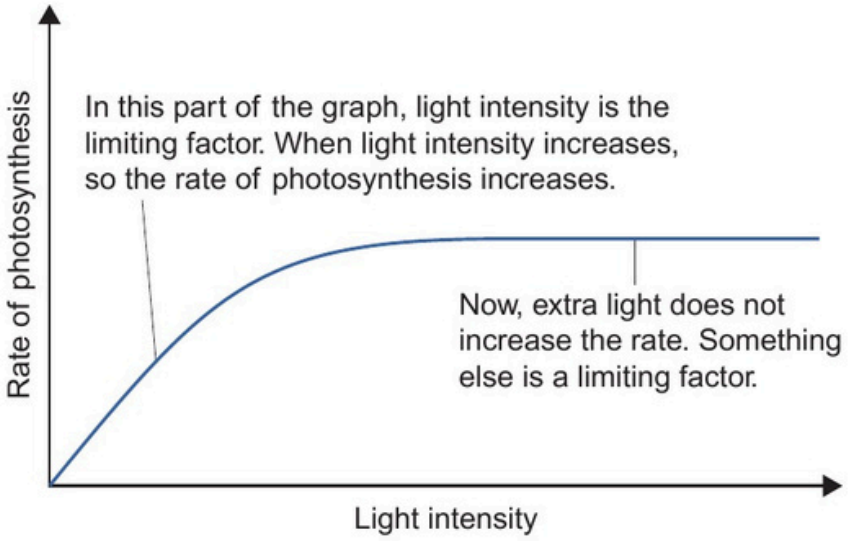
Knowledge Organiser: Biology, SB6

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

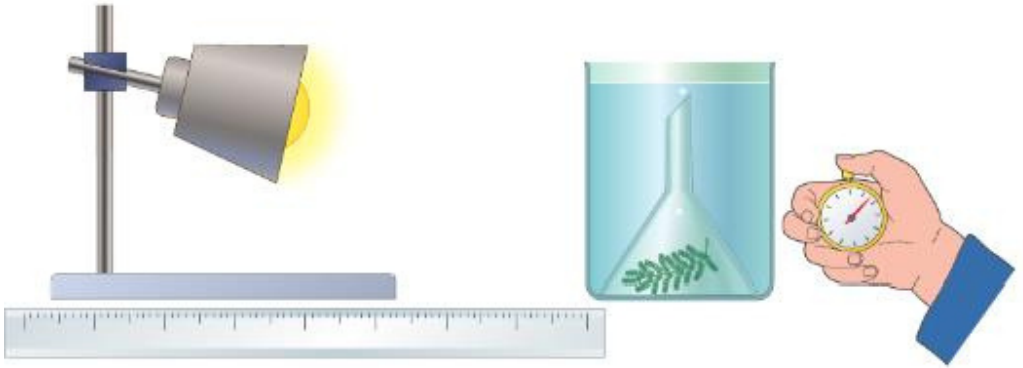


C cross-section through a leaf

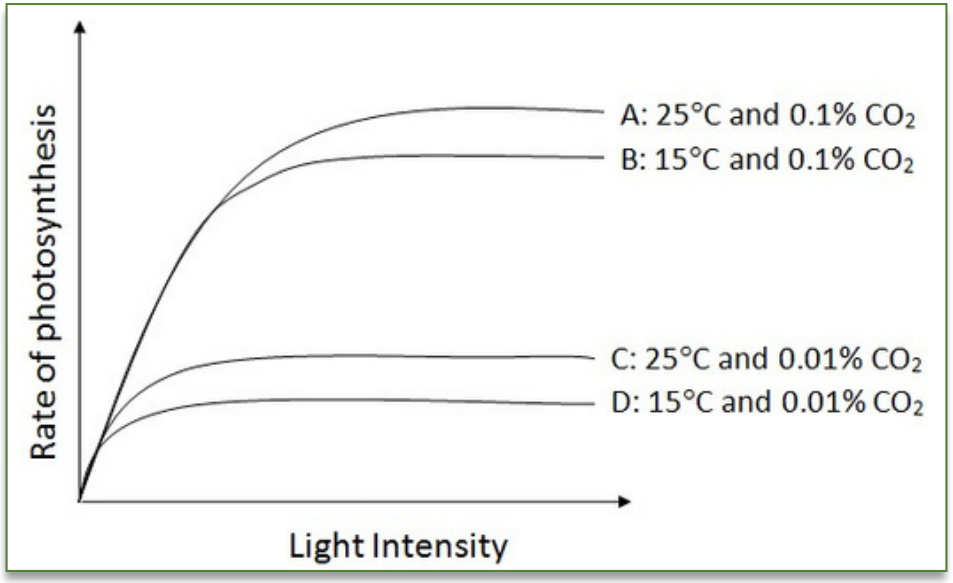


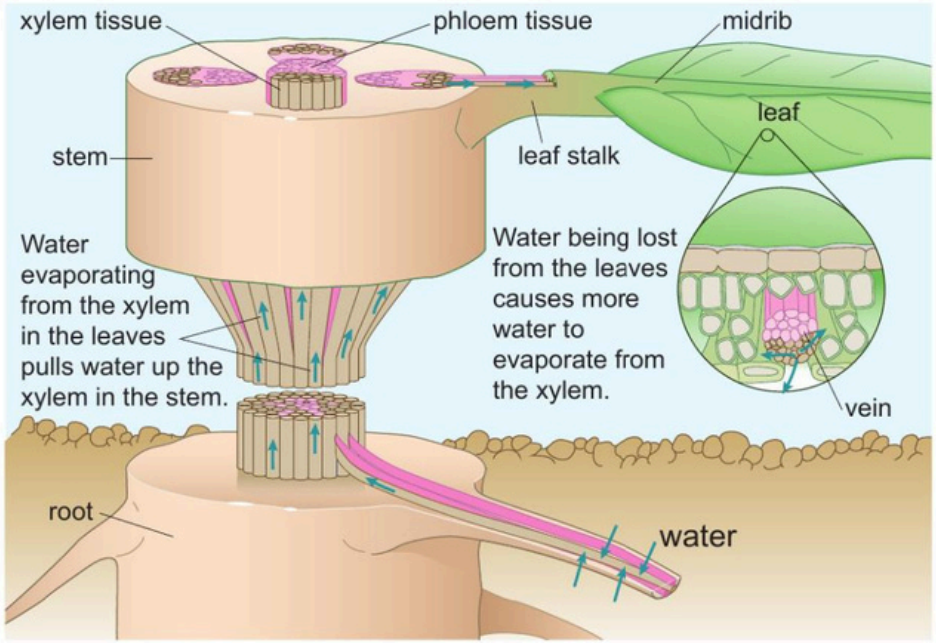


C An increase in light intensity increases the rate of photosynthesis until a limiting factor stops further increases.



C measuring the rate of photosynthesis in pondweed





Knowledge Organiser: Biology, SB6

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	T**emperature**, humidity, air movement and light intensity affect the rate of transpiration