2.39 *Understand gas exchange (of carbon dioxide and oxygen) in relation to respiration and photosynthesis*

* Photosynthesis can only occur when there is light (during the day)
* The release of the energy of glucose is called respiration, this occurs during the day and night
* Carbon dioxide must past from the atmosphere through the palisade cells for process of photosynthesis, which occurs during day.
* In the day stomata pores are open so carbon dioxide enters
* Oxygen can escape from the leaf down to the mesophyll cells to the stoma pores when its opened,
* During the day carbon dioxide goes in and oxygen comes out. However it depends on the balance of the rate for reaction of photosynthesis and respiration.

2.40 *Understand that respiration continues during the day and night, but that the net exchange of carbon dioxide and oxygen depends on the intensity of light*

* Increase light intensity during the day, the rate of photosynthesis increases – the rate that we use carbon dioxide increases, and so would the rate of oxygen. The **net effect** would be oxygen production.
* When it is night: Respiration continues, glucose is broken down. Photosynthesis is not occurring (there is no light) **Net production** of carbon dioxide – stomata pores are closed, so there is not a great deal of carbon dioxide given of by plants

2.41 *Explain how the structure of the leaf is adapted for gas exchange*

* Major adaptations are the thickness of the leaf. The leaf is so thin that the diffusion distance for either oxygen or carbon dioxide is very small. This gets fast diffusion times – high rate of diffusion.
* Stomata pore, formed by two guard cells, which opens and closes the pore. Which give the plant some control over gas exchange.

2.42 *Describe the role of stomata in gas exchange*

* In the lower epidermis of a leaf, are pores known as stomata.
* Each pore is formed by two guard cells.
* During the day, when there is light. The guard cells become turgid and pore is open for gas exchange.
* At night, in the dark. The guard cells are flaccid (lost water) and pore close and stops gas exchange.
* \* This situation is sometimes altered in plants, which live in water stressed environments (desserts) mechanism for pores opening and closing is different. \*