Where does photosynthesis occur?

How do gases enter or/and leave the leaf?

Gases such as CO_2 and O_2, but also H_2O, enter or/and leave the leaf through microscopic pores called stomata.

It starts to become hot in the UAE, and alley cats all hide from the sun during the hottest hours of the day.

1. **How does our body respond to the heat in these conditions? Use your knowledge recently aquired in chemistry to address the question.**
   Set up an experiment to show where this could happen.

Hints: Don't hesitate to discuss this with your chemistry teacher.
Reading the full activity before starting is always an excellent idea.

However, plants cannot move, and therefore cannot remain protected from the Sun.

2. **Use your answer to the previous question to propose a hypothesis about the strategy used by plants, then set up an experiment to verify your hypothesis.**

If plants loose too much water due to evapotranspiration, it might complicate the O_2 an CO_2 exchanges.

3. **Propose a hypothesis about the distribution of stomatae on a leaf, then set up an experiment to verify your hypothesis.**

METHOD FOR THE PREPARATION OF AN EPIDERMIS INPRINT

a. Apply a drop of colourless varnish (or liquid dressing) to a strip approx. 0.5 cm wide on the surface you want to test.

Note: Avoid excessively thin coats that don't peel off, and thick, slow-drying drops/

b. Let the varnish dry during a few minutes.
c. When the varnish is dry, lift the edge of a varnish layer with the lanceolate needle
d. Place the resulting impression on a slide in a drop of water, face down and flat, without crumpling.
e. Cover with a slide and mark the origin of the sample with a felt-tip pen
f. Use the microscope to observe your preparation.

Chloroplasts, location of photosynthesis

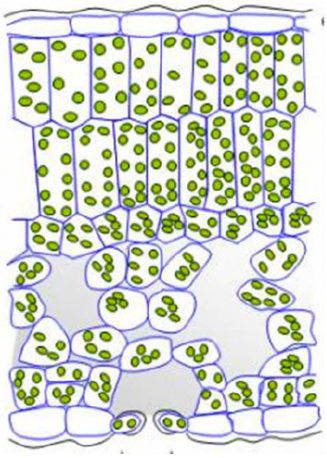
Part of the molecules produced during photosynthesis are stored in the chloroplast as starch.

a. Using a scalpel, cut a thin slice of leaf.
b. Leave the slice of leaf in a drop of iodine solution for a few minutes.

Note: Iodine colors starch where it can be found.

c. Place the slice of leaf on a slide, in a drop of water, flat and without crumpling.
d. Cover with a slide.
e. Use the microscope to observe your preparation and take a picture.

1. **Label the picture with the chloroplasts.**
2. **Label the diagram with the following words:**
   - Upper skin
   - Lower skin
   - palisading parenchyma (tissue located beneath the epidermis and formed of vertically elongated cells)
   - lacunar parenchyma (tissue located under the palisading parenchyma and made up of non-joining cells)
   - stomata



Ultrastructure of a chloroplast

Doing some research on internet, label the following diagram showing a chloroplast viewed via Transmission Electron Microscopy. Describe the role of each element you label.