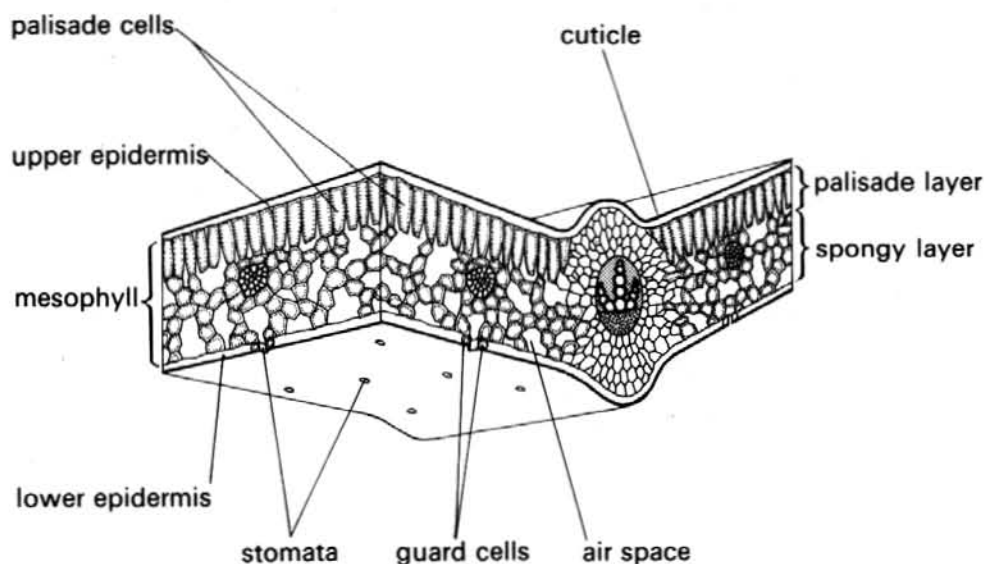


Section 3 Reading

6. Look and read:



The cell structure of the leaf

The surface of a leaf consists of a single layer of cells fitting closely together with no air spaces between them. This outer layer is called the *epidermis*. Sometimes the upper epidermis is covered with a waxy layer called the *cuticle*. The *stomata* are located in the lower epidermis. The cells of the epidermis do not usually contain chloroplasts and they are transparent. The *guard cells*, however, do contain chloroplasts. They are situated on either side of the stomata.

The middle part of the leaf, between the upper epidermis and the lower epidermis, is made up of two layers: the *palisade layer* and the *spongy layer*. These two layers make up the *mesophyll*.

Immediately below the upper epidermis there is a row of tall cylindrical cells. These comprise the palisade layer. There are many chloroplasts in the cytoplasm lining the walls of the palisade cells.

Chloroplasts are particles which are often disc-shaped. They are composed of protein and contain chlorophyll.

In the spongy layer the cells do not all fit closely together and there are large *air spaces* between them. They contain fewer chloroplasts than the cells in the palisade layer.

Now write complete answers to these questions:

- What three parts does the cell structure of a leaf consist of?
- What is the mesophyll made up of?
- Where are the stomata situated?
- What are the cells on either side of the stomata called?
- Which cells contain no chloroplasts?
- What is the upper epidermis sometimes covered with?

- g) What shape are the cells of the palisade layer?
- h) What shape are the chloroplasts?
- i) What are chloroplasts made of?
- j) Where are the large air spaces found?
- k) Which cells are not all joined together?

7. Make correct sentences from this table by putting the middle parts in the right order:

a) The cytoplasm	lining the walls of the cells surrounding the nucleus	contains chloroplasts.
b) The cells	containing large air spaces	are called guard cells.
c) The waxy layer		covers the surface of the epidermis.
d) The protoplasm	containing chlorophyll	is called cytoplasm.
e) The layer	composed of the spongy layer and the palisade layer	is known as the spongy layer.
f) The cells	called the cuticle	do not contain chloroplasts.
g) The part of the leaf	situated in the epidermis	is known as the mesophyll.
h) The walls	on each side of the stomata	make up the middle lamella.
i) The part of the leaf	immediately below the epidermis	is called the palisade layer.
j) The particles	of similar cells joined together	are called chloroplasts.

Section 4 Listening

8. Listen to the text and number these words in the order in which you hear them:

consists of	surrounded	filaments	flagella
the centre	contractile vacuoles	the pyrenoid	attached
protein	chloroplast	cell wall	eye-spot

Label the diagram with these words:

contractile vacuoles
cell wall
nucleus
pyrenoid
eye-spot
chloroplast
flagella



Chlamydomonas (chloroplast and cell wall in section)

Listen to the sentences and say whether they are true or false. Write them down, correcting the false statements.