

6.2 Leaf structure

Name: _____ Class: _____ Date: _____

Total: 8 marks

Objective

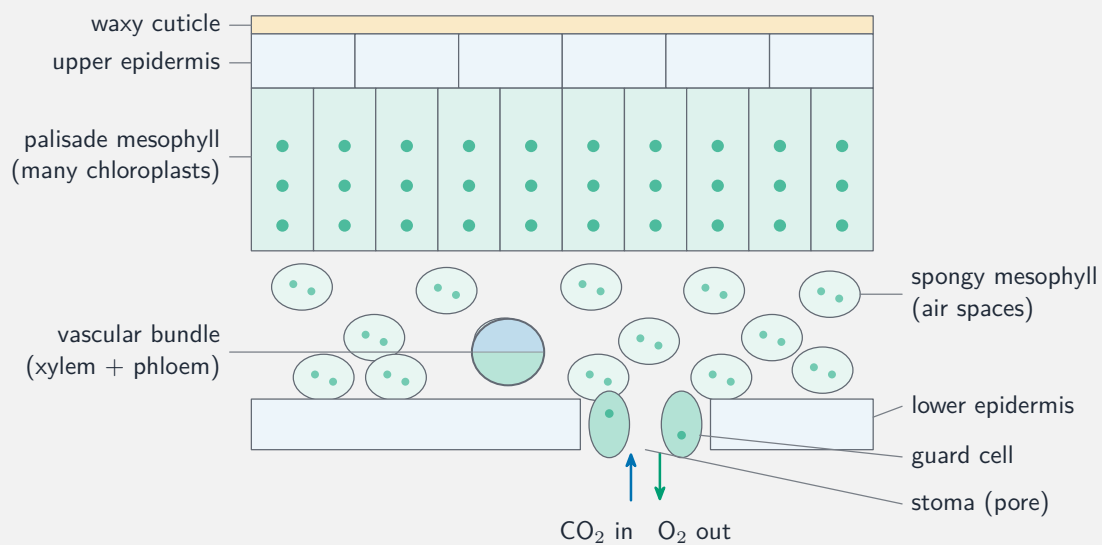
Build the skills to answer exam questions on **leaf structure** 叶的结构—the tissues of a leaf and how each is **adapted** 适应 for photosynthesis and gas exchange.

You must be able to:

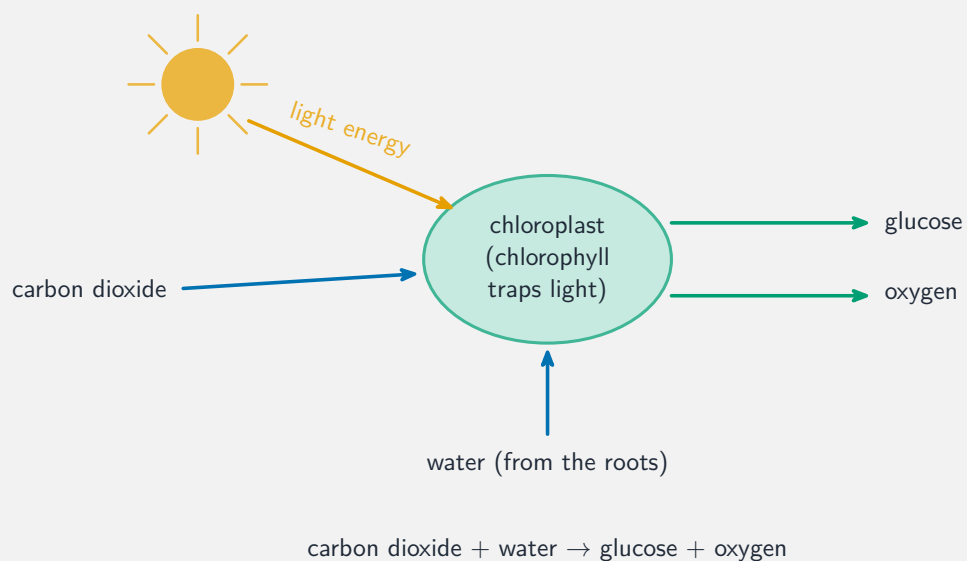
- name the leaf tissues and give the job of each
- explain how leaf features suit photosynthesis
- describe the role of stomata and guard cells

1 Worked examples

■ The leaf in cross-section



Each tissue is adapted for photosynthesis and gas exchange



The leaf is the organ of photosynthesis

- **palisade mesophyll:** packed with chloroplasts, near the top → most photosynthesis.
- **spongy mesophyll:** air spaces → gases move easily.
- **stomata** (lower surface) with **guard cells** → let CO₂ in, O₂ out.

2 Practice

2.1 Name the leaf tissue where most photosynthesis happens. [1]

2.2 State the function of the stomata. [1]

3 Exam-style questions

3.1 Palisade mesophyll cells are well suited to photosynthesis because they: [1]

- **A** have no chloroplasts
- **B** are packed with chloroplasts near the top of the leaf
- **C** are deep in the leaf
- **D** have a thick cuticle

3.2 A leaf is broad and thin.

(a) Explain how being broad helps the leaf. [1]

(b) Explain how the air spaces in the spongy mesophyll help. [2]

3.3 State the role of the guard cells. [2]

4 Go further

You are now ready for the real exam questions on this subtopic. Open the **6.2 Leaf structure** past-paper sheet in the Library, or try these in **Practice mode**:

- 0610/21 N25 —Q9 (leaf structure)
- 0610/21 J25 —Q8 (leaf adaptations)

Solutions

2.1 the palisade mesophyll.

2.2 they let carbon dioxide in and oxygen out (gas exchange).

3.1 B. Palisade cells are packed with chloroplasts near the top.

3.2 (a) a large surface area catches more light.

(b) the air spaces let gases (CO_2 and O_2) move easily to and from the cells.

3.3 the guard cells open and close the stomata to control gas exchange (and water loss).