

Q1 (1 mark)

- Carbon dioxide and water

Q2 (1 mark)

- Glucose

Q3 (1 mark)

- Oxygen

Q4 (1 mark)

- Leaves

Q5 (2 marks)

Any two:

- Carbon dioxide
- Water
- Light energy

Q6 (2 marks)

Any two:

- Glucose
- Oxygen

Q7 (2 marks)

Any two:

- Plants
- Algae

Q8 (3 marks)

- Carbon dioxide + water → glucose + oxygen (1 mark each for reactants and products)

Q9 (3 marks)

- Produces oxygen for respiration (1)
- Produces food/energy for food chains (1)

- Supports animal life (1)

Q10 (3 marks)

- Uses carbon dioxide (1)
- Produces oxygen (1)
- Maintains atmospheric gas balance (1)

Q11 (3 marks)

- Produces glucose (1)
- Base of food chains (1)
- Produces oxygen (1)

Q12 (4 marks)

- Algae carry out photosynthesis (1)
- Produce oxygen (1)
- Form part of aquatic food chains (1)
- Provide energy/food for other organisms (1)

Q13 (4 marks)

Any two points with explanation

- Large surface area increases light absorption (1)
- Thin structure allows fast gas exchange (1)
- Chloroplasts absorb light energy (1)
- Stomata allow gas exchange (1)

Q14 (6 marks)

Level 1 (1-2 marks)

- Basic leaf features stated

Level 2 (3-4 marks)

- Some adaptations explained

Level 3 (5–6 marks)

- Clear, detailed linked explanation

Expected content:

- Large surface area for light absorption (1)
- Thin leaves for short diffusion pathway (1)
- Chloroplasts contain chlorophyll (1)
- Stomata for gas exchange (1)
- Veins (xylem and phloem) transport water and glucose (1)
- Transparent upper surface allows light through (1)

Example full-mark answer:

“Leaves are adapted for photosynthesis by having a large surface area to absorb more light. They are thin so carbon dioxide can diffuse quickly into the cells. They contain many chloroplasts with chlorophyll which absorbs light energy. Stomata allow carbon dioxide to enter and oxygen to leave the leaf. The xylem transports water to the leaf and the phloem transports glucose away. The upper surface is often transparent so light can reach the photosynthetic cells.”

Q15 (6 marks)

Level 1 (1–2 marks)

- Basic idea of plants making food or oxygen

Level 2 (3–4 marks)

- Some links to food chains or oxygen

Level 3 (5–6 marks)

- Full explanation of dependence of life on photosynthesis

Expected content:

- Produces glucose for energy (1)
- Base of all food chains (1)
- Produces oxygen for respiration (1)
- Removes carbon dioxide (1)
- Maintains atmospheric balance (1)
- Supports all ecosystems (1)

Example full-mark answer:

“Almost all life on Earth depends on photosynthetic organisms because they produce glucose, which stores energy and forms the base of all food chains. Animals rely directly or indirectly on plants and algae for food. Photosynthesis also produces oxygen needed for respiration and removes carbon dioxide from the atmosphere. This maintains a balance of gases and supports life on Earth.”