KS3 SCIENCE · BIOLOGY

Photosynthesis: exam questions

Name _____
Total: 21 marks

1 Write the word equation for photosynthesis. **[2 marks]**

2 State where the energy for photosynthesis comes from, and name the substance in a leaf that absorbs it. **[2 marks]**

3 Give two ways in which a plant uses the glucose it makes. **[2 marks]**

4 A plant has variegated leaves: each leaf is green in the middle and white round the edge. The plant is kept in the dark for two days, to use up the starch in its leaves. Next it is left in bright light for a day. Then one leaf is tested for starch with iodine solution. Describe the result and explain it. **[3 marks]**

5 In a dark room, a student moves a lamp further away from some pondweed and counts the bubbles it gives off each minute. Nothing else changes. Describe what happens to the number of bubbles, and explain why. **[2 marks]**

6 Most leaves are broad and thin. Explain how each of these two features helps a leaf to photosynthesise. **[2 marks]**

7 Describe the job of the stomata and the job of the guard cells. **[2 marks]**

8 Explain how a root hair cell is adapted to take in water. **[2 marks]**

9 Name the mineral that a plant needs to make chlorophyll, and describe how a plant looks when it does not get enough of it. **[2 marks]**

10 Give two reasons why animals depend on photosynthesis. **[2 marks]**

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Photosynthesis: mark scheme

Total: 21 marks

1 [2 marks]

- Carbon dioxide + water, before the arrow (in either order) **(1)**
- Glucose + oxygen, after the arrow (in either order) **(1)**

Light and chlorophyll belong above the arrow. They are not reactants.

2 [2 marks]

- Light (accept: sunlight, the Sun) **(1)**
- Chlorophyll **(1)**

3 [2 marks]

- As a source of energy (accept: for respiration) **(1)**
- To build new tissue (accept: to grow) **(1)**
- To store for later (accept: it is stored as starch) **(1)**

Any two.

4 [3 marks]

- The green part goes blue-black **(1)**
- The white part stays orange-brown (accept: brown, yellow-brown) **(1)**
- Only the green part has chlorophyll, so only the green part photosynthesised and made starch **(1)**

5 [2 marks]

- The number of bubbles goes down **(1)**
- Less light reaches the pondweed, so it photosynthesises more slowly (accept: it makes less oxygen) **(1)**

6 [2 marks]

- Broad: a large surface area absorbs more light **(1)**
- Thin: carbon dioxide has only a short distance to go to reach the cells (accept: gases can get in and out quickly) **(1)**

7 [2 marks]

- Stomata let carbon dioxide into the leaf and oxygen out (accept: let gases in and out) **(1)**
- Guard cells open and close the stomata **(1)**

8 [2 marks]

- It has a long, thin part (accept: a hair) that gives it a large surface area **(1)**
- So it can take in more water (accept: take in water more quickly) **(1)**

9 [2 marks]

- Magnesium **(1)**
- Its leaves are yellow (accept: pale) **(1)**

10 [2 marks]

- Plants and algae are producers: they make the food at the start of food chains (accept: animals eat plants, or eat animals that ate plants) **(1)**
- Photosynthesis gives out the oxygen that animals need for respiration (accept: to breathe) **(1)**