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CHAPTER 1

Photosynthesis and Respiration

50 multiple-choice questions



In this chapter

50 questions, 100 marks. For each question, four options are given. One of them is the correct answer. Write the number of the correct option in the brackets. The answers are on page 153.

- Set A: Check Your Facts: 15 questions
- Set B: Apply the Ideas: 20 questions
- Set C: Experiments and Data: 15 questions

Name: _____ Class: _____ Date: _____

PRIMARY 6 · SCIENCE · PHOTOSYNTHESIS AND RESPIRATION

Photosynthesis and Respiration

INSTRUCTIONS

- 50 questions, 100 marks in total.
- For each question, four options are given. One of them is the correct answer.
- Write the number of the correct option (1, 2, 3 or 4) in the brackets.

Set A: Check Your Facts

1 Why do all living things carry out respiration? ( ) [2]

(1) to release energy from food
(2) to make food using light energy
(3) to take in carbon dioxide from the air
(4) to get rid of the water in their bodies

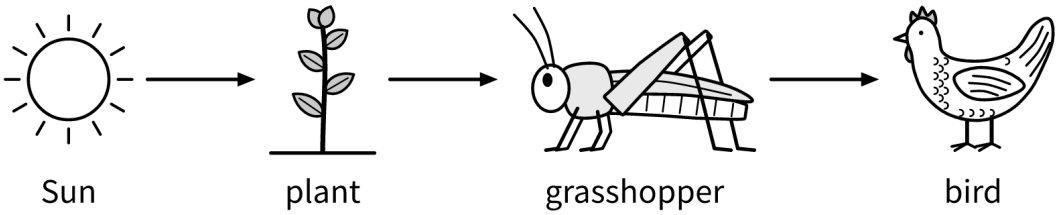
2 Which of the following living things carry out respiration?
A: a mango tree
B: a mushroom growing on a dead log
C: a cat
D: a bean seed that is germinating ( ) [2]

(1) C only (2) A and C only (3) B, C and D only (4) A, B, C and D

3 A hibiscus plant is growing in a garden. When does it respire? ( ) [2]

(1) only at night, when it cannot make food
(2) only during the day, when it is making food
(3) during the day and at night, all the time
(4) only when it is not taking in water

4 The diagram shows how energy passes from the Sun to a bird. The plant is eaten by the grasshopper and the grasshopper is eaten by the bird. Where did the energy that the bird uses to fly first come from? ( ) [2]



(1) the Sun
(2) the plant
(3) the grasshopper
(4) the soil that the plant grew in

5 Which of the following does a plant need to make food by photosynthesis?
A: light energy
B: water
C: oxygen
D: carbon dioxide ( ) [2]

(1) A and B only (2) A, B and C only (3) A, B and D only (4) A, B, C and D

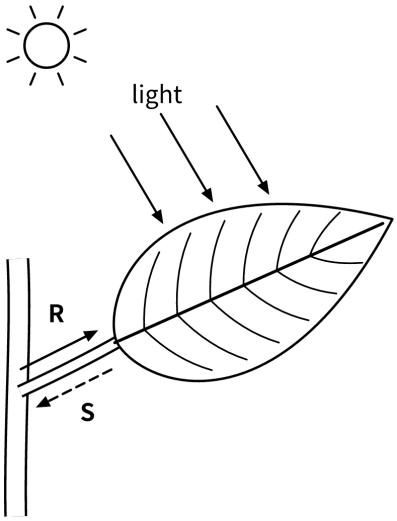
6 Which of the following are produced during photosynthesis? ( ) [2]

(1) sugar and carbon dioxide
(2) sugar and oxygen
(3) water and oxygen
(4) carbon dioxide and water

7 What does the chlorophyll in the green parts of a plant do? ( ) [2]

(1) It takes in carbon dioxide from the air.
(2) It carries water from the roots to the leaves.
(3) It releases energy from food.
(4) It traps light energy for making food.

8 The diagram shows a leaf making food in sunlight. Substance R is carried into the leaf through the leaf stalk, and substance S is carried out of the leaf through the leaf stalk. What are R and S? ( ) [2]

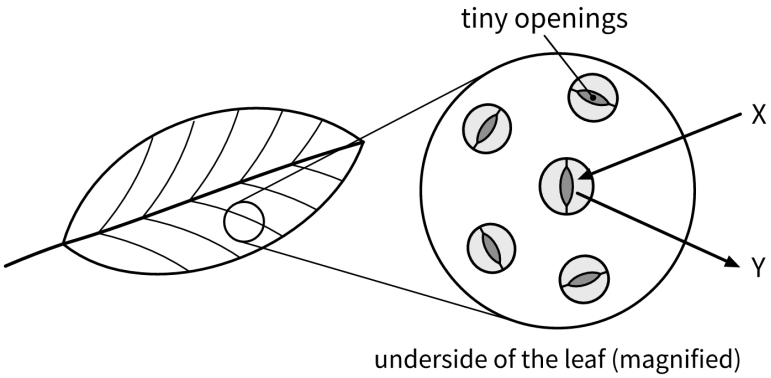


(1) R: water, S: sugar
(2) R: sugar, S: water
(3) R: water, S: oxygen
(4) R: carbon dioxide, S: sugar

9 Where does a plant get the water that it needs for photosynthesis? ( ) [2]

(1) from the air, through the tiny openings on its leaves
(2) from rain falling on its leaves
(3) from the soil, through its roots
(4) from the sugar made in its leaves

10 The diagram shows a magnified part of the underside of a leaf on a bright, sunny afternoon. Gas X enters and gas Y leaves through the tiny openings. What are gases X and Y? ( ) [2]



(1) X: carbon dioxide, Y: oxygen
(2) X: oxygen, Y: carbon dioxide
(3) X: water, Y: oxygen
(4) X: sugar, Y: carbon dioxide

11 Which is the main part of a plant where food is made, and why? ( ) [2]

1. the roots, because they take in the water needed to make food
2. the stem, because it carries water to all parts of the plant
3. the leaves, because they are green and have a large surface to trap light
4. the flowers, because they are brightly coloured to trap light

12 Which of the following correctly describes how plants and animals obtain energy? ( ) [2]

1. Plants take in ready-made food from the soil; animals eat plants or other animals.
2. Plants make their own food using light energy; animals eat plants or other animals.
3. Plants make their own food using light energy; animals make their own food using heat from the Sun.
4. Plants eat tiny animals in the soil; animals make their own food in their bodies.

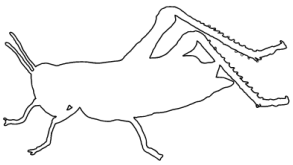
13 Which of these living things can make its own food? ( ) [2]



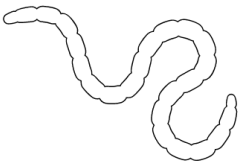
A: mushroom



B: grass



C: grasshopper



D: earthworm

1. A
2. B
3. C
4. D

14 In which of the following is energy released by respiration NOT being used? ( ) [2]

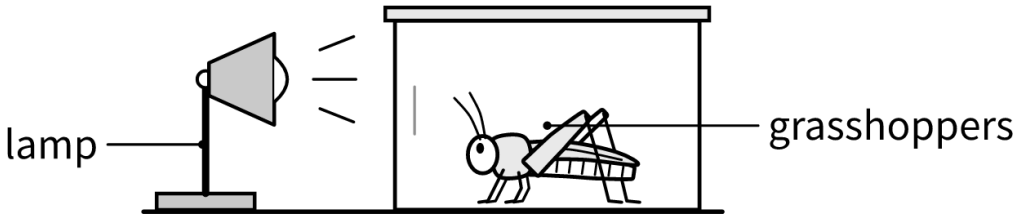
1. a sparrow keeping its body warm on a cold night
2. a seedling growing taller
3. a grasshopper jumping onto a leaf
4. a stone warming up in the sunlight

15 During respiration, a living thing takes in gas P and gives out gas Q. What are gases P and Q? ( ) [2]

1. P: carbon dioxide, Q: oxygen
2. P: oxygen, Q: carbon dioxide
3. P: nitrogen, Q: carbon dioxide
4. P: oxygen, Q: nitrogen

Set B: Apply the Ideas

16 Daniel placed some grasshoppers in a sealed clear box with no plants. The box was left under a lamp for 2 hours. How did the amounts of oxygen and carbon dioxide in the box change? ( ) [2]



1. oxygen: decreased, carbon dioxide: increased
2. oxygen: increased, carbon dioxide: decreased
3. oxygen: decreased, carbon dioxide: decreased
4. oxygen: no change, carbon dioxide: increased

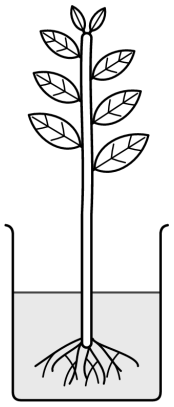
17 Read the statements about the Sun.
A: The Sun gives out both light and heat.
B: Plants use the Sun's light energy to make food.
C: The energy in the food a person eats came from the Sun.
D: Chlorophyll traps the Sun's heat energy to make food.
Which statements are correct? ( ) [2]

1. A and B only
2. A, B and C only
3. B, C and D only
4. A, B, C and D

18 Read the statements.
A: All living things get their energy directly from the Sun.
B: Animals get energy from the Sun indirectly, through the food they eat.
C: Oxygen and sugar are needed for photosynthesis.
D: All living things respire.
Which statements are correct? ( ) [2]

1. A and C only
2. B and D only
3. A, B and D only
4. B, C and D only

19 Hui Min grows a vegetable plant with its roots in water that has some nutrients added, without any soil. The plant grows well under bright lights. Where does the plant get its food from? ( ) [2]



plant with its roots in water with nutrients added

1. It takes in ready-made food from the nutrients in the water.
2. It takes in ready-made food from the air through its leaves.
3. It gets its food from the lights, which heat up its leaves.
4. It makes its own food in its leaves using light energy, water and carbon dioxide.

20 A farmer grows tomato plants in a closed glass greenhouse. On sunny days, she adds extra carbon dioxide to the air inside. The plants then grow bigger tomatoes. Which of the following best explains this? ( ) [2]

1. The plants had more carbon dioxide to release more energy by respiration.
2. The plants had more carbon dioxide to make more food by photosynthesis.
3. The extra carbon dioxide gave the plants more oxygen for making food.
4. The extra carbon dioxide blocked some sunlight, so the plants lost less water.

21 Arjun noticed that the birds in a bird park ate more food during a spell of cold weather than during warm weather. Which of the following best explains this? ( ) [2]

1. More food was needed to release more energy by respiration to keep their bodies warm.
2. More food was needed so that the birds could take in more carbon dioxide.
3. More food was needed because the birds could not get energy from sunlight in cold weather.
4. More food was needed because the birds stopped respiring in cold weather.

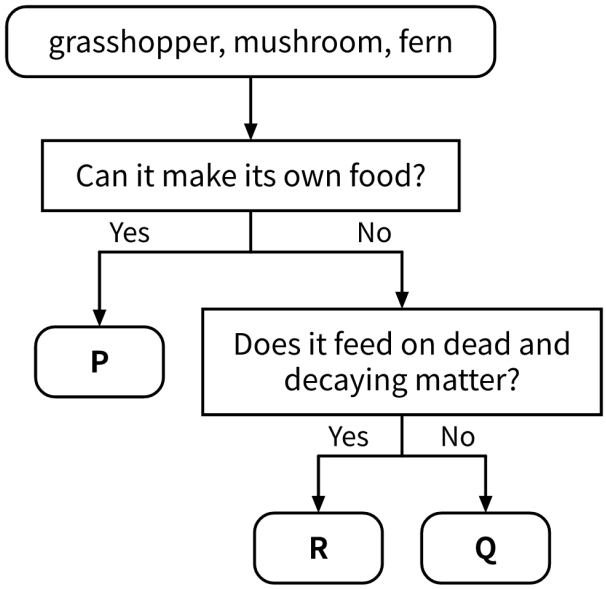
22 A bean seed is buried in moist soil. It grows a root and a shoot before any leaves appear above the soil. Where does the young plant get the energy to grow during this time? ( ) [2]

1. from light energy that its root traps in the soil
2. from food stored in the seed, released by respiration
3. from food it makes in the soil by photosynthesis
4. from the water it takes in from the soil

23 A pond has clear water at one end and muddy, cloudy water at the other end. Far fewer underwater plants grow in the cloudy end. Which is the most likely reason? ( ) [2]

1. Less water reaches the roots of the plants in the cloudy water, so they make less food.
2. The plants in the cloudy water cannot respire, so they have no energy.
3. Less light reaches the plants in the cloudy water, so they make less food.
4. The cloudy water has too much oxygen for the plants to make food.

24 Mei Ling used the flowchart to classify a grasshopper, a mushroom and a fern. The grasshopper feeds on leaves and the mushroom feeds on a dead log. Which of the following is correct? ( ) [2]

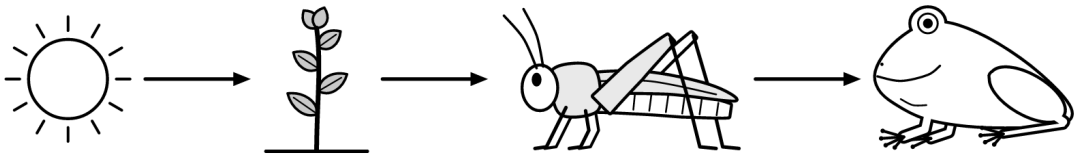


1. P: fern, Q: grasshopper, R: mushroom
2. P: mushroom, Q: grasshopper, R: fern
3. P: fern, Q: mushroom, R: grasshopper
4. P: grasshopper, Q: fern, R: mushroom

25 On a very hot, dry afternoon, the tiny openings on the leaves of a plant become smaller. This reduces the amount of water the plant loses. How does this also affect the plant's food-making? ( ) [2]

1. Less light can enter the leaves, so less food is made.
2. Less carbon dioxide can enter the leaves, so less food is made.
3. More oxygen can enter the leaves, so more food is made.
4. Less water can reach the roots, so less food is made.

26 In a field, grasshoppers feed only on the plants, and frogs feed only on the grasshoppers, as shown. Suppose thick smoke blocked out most of the sunlight over the field for many weeks. Which living things would be affected? ( ) [2]



1. the plants only
2. the plants and the grasshoppers only
3. the grasshoppers and the frogs only
4. the plants, the grasshoppers and the frogs