

Unit 7 Living things and air

A Multiple-choice questions

1. D
2. B
3. A
4. B
5. C
6. D
7. D
8. D
9. B
10. C
11. C
12. B
13. D
14. A
15. D
16. B
17. A
18. C
19. C
20. C

B True or false questions

1. F
2. T
3. F
4. T
5. F
6. F
7. T
8. F
9. F
10. F

C Fill-in-the-blanks

1. carbon dioxide, water
2. fuel, oxygen, temperature
3. energy, calorimeter.
4. blue black, yellow
5. diaphragm
6. ribs
7. respiratory centre
8. intercostal muscles
9. bronchus
10. Greenhouse gases

D Short questions

1. Carbon dioxide from the atmosphere diffuses into the leaves through stomata.
It is
also produced by the leaf cells during respiration.
2. A: The leaf will be stained brown. No starch is present because the leaf cannot receive any light for photosynthesis.
B: The leaf will turn blue black. Starch is present because the leaf can receive enough light for photosynthesis.
3. A: Photosynthesis
B: Respiration
X: Carbon dioxide
Y: Oxygen
4. Microscopic algae → krill → blue whale
Microscopic algae → krill → fish → seal → killer whale
Microscopic algae → krill → fish → penguin → killer whale
5. Producers: microscopic algae
Primary consumers: krill
Secondary consumers: fish, blue whale
6. a) To cut off the supply of oxygen to the fire.
b) To lower the temperature of the burning materials
7. Grass → grasshopper → spider → bird → snake
8. Step 2: The Bunsen burner should be turned off since alcohol may catch fire easily.
Step 4: Iodine solution should be used to test for starch in the leaf.

9. The balloons would remain the same because the air pressure inside the bell-jar

does not change as the rubber sheet is punctured.

10. Disagree: It is harmful to the health of non-smokers in the restaurants.

Agree: People have freedom to smoke / smoking help them relax.

(Or any other reasonable answers.)

E Long questions

1.

a The average temperature of the world increases with the carbon dioxide concentration of the world.

b $(367 - 325) / 325 \times 100\% = 12.9\%$

c $(14.38 - 14) / 14 \times 100\% = 2.7\%$

d Global warming

e Burn less fossil fuels / grow more plants

(Or any other reasonable methods.)

2.

a B: Rib

C: Trachea

D: Air sac

E: Bronchus

F: Diaphragm

b B / rib

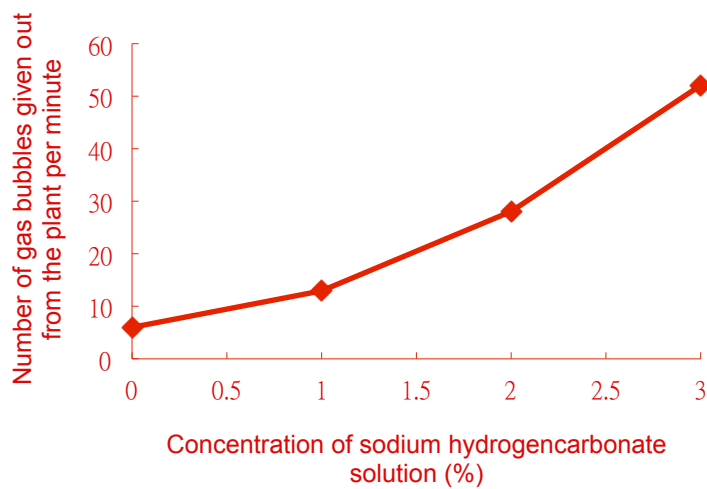
c F / diaphragm

d Mucus inside the nose can trap particles of dust, dirt and germs from air.

The tiny hair inside the nose can also block their entry.

e The large number of structure D can increase the surface area for oxygen to pass into the blood and carbon dioxide to pass out from the blood.

- 3.
- a Temperature and light intensity.
 - b Oxygen
 - c Collect the gas in a test-tube and put a glowing splint into the test-tube. If the glowing splint relights, the gas is oxygen.
 - d Oxygen is a side product of photosynthesis. Hence, measuring the rate of formation of oxygen can represent the rate of photosynthesis.
 - e Effect of carbon dioxide concentration on the rate of photosynthesis



- f The rate of photosynthesis increases with carbon dioxide concentration.

4.

a Food chain is a way to describe the feeding relationship among living things.

b Bushes → grasshopper → lizard → snake → eagle

(Or bushes → grasshopper → rodent → snake → eagle)

c Producers: bushes and grasses

Primary consumers: rodent and grasshopper

Secondary consumers: lizard and snake

d Snakes feed on rodents. If all rodents suddenly died from a certain disease, there will be less food for snakes, the number of snakes will decrease.

Rodents feed on grasshoppers. If all rodents suddenly died from a certain disease, there will be less rodents to catch grasshoppers, less grasshoppers will die.

Besides, there will be no rodents to compete with grasshoppers for bushes, grasshoppers will obtain more food. Hence, the number of grasshoppers will increase.

5.

a A: Purple

B: Purple

D: Yellow

b The muslin cloth has reduced the light intensity. The rate of photosynthesis was the same as that of respiration. Therefore, there was no change in the concentration of carbon dioxide in test-tube C.

c B

d i The soda lime absorbed the carbon dioxide in the test-tube. The low concentration of carbon dioxide turned the hydrogencarbonate indicator purple.

ii The soda lime absorbed the carbon dioxide in the test-tube. The leaf could not obtain carbon dioxide to carry out photosynthesis and starch could not be formed.