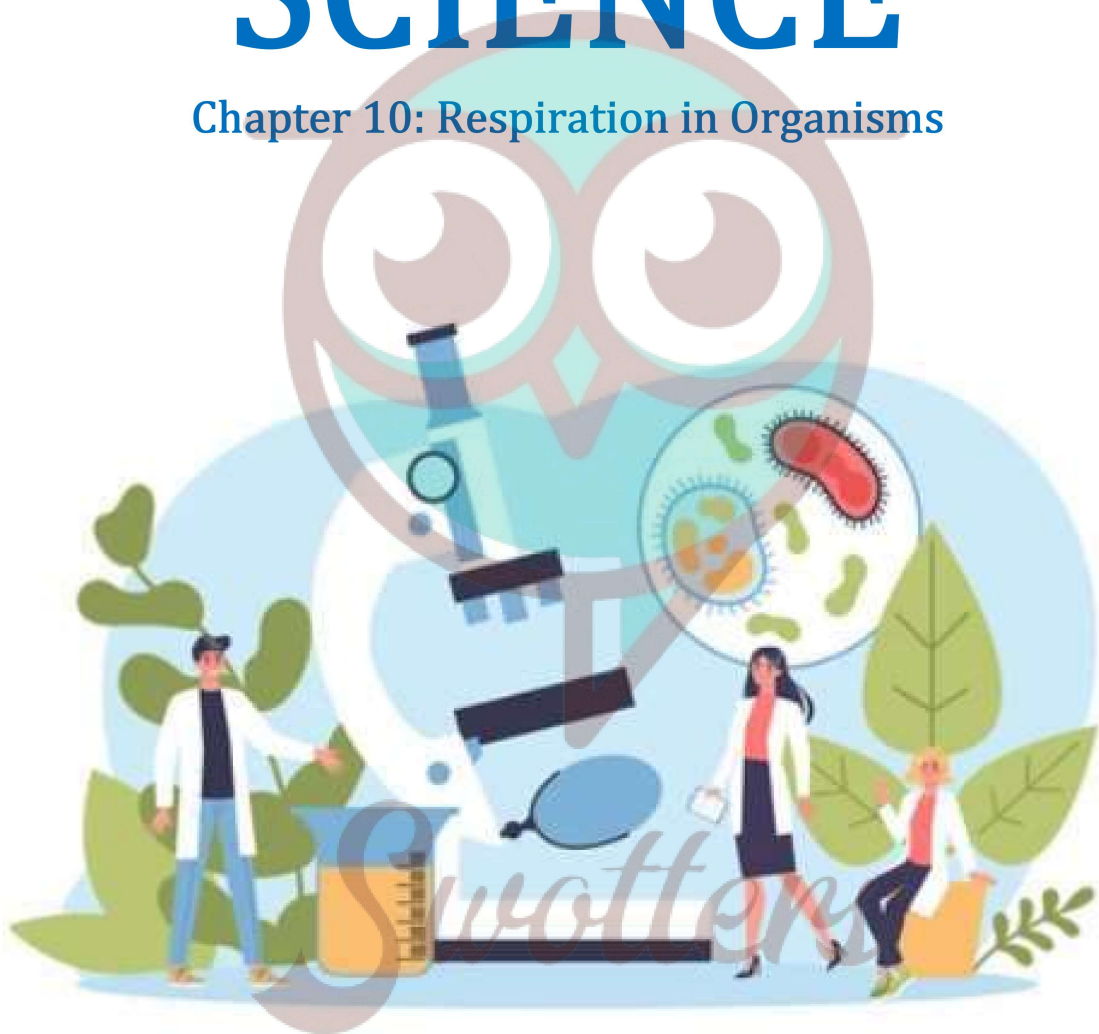


# SCIENCE

## Chapter 10: Respiration in Organisms



➤ **Multiple Choice Questions:**

Question 1. All organisms are made of small microscopic units which cannot be seen with the naked eyes, called

- (a) animals
- (b) cells
- (c) tissues
- (d) organs

Question 2. Organisms get energy through

- (a) food
- (b) eating
- (c) sleeping
- (d) none of these

Question 3. Cellular respiration is carried out in the

- (a) cells
- (b) organs
- (c) tissues
- (d) muscles

Question 4. The process of breakdown of food in the cell is known as

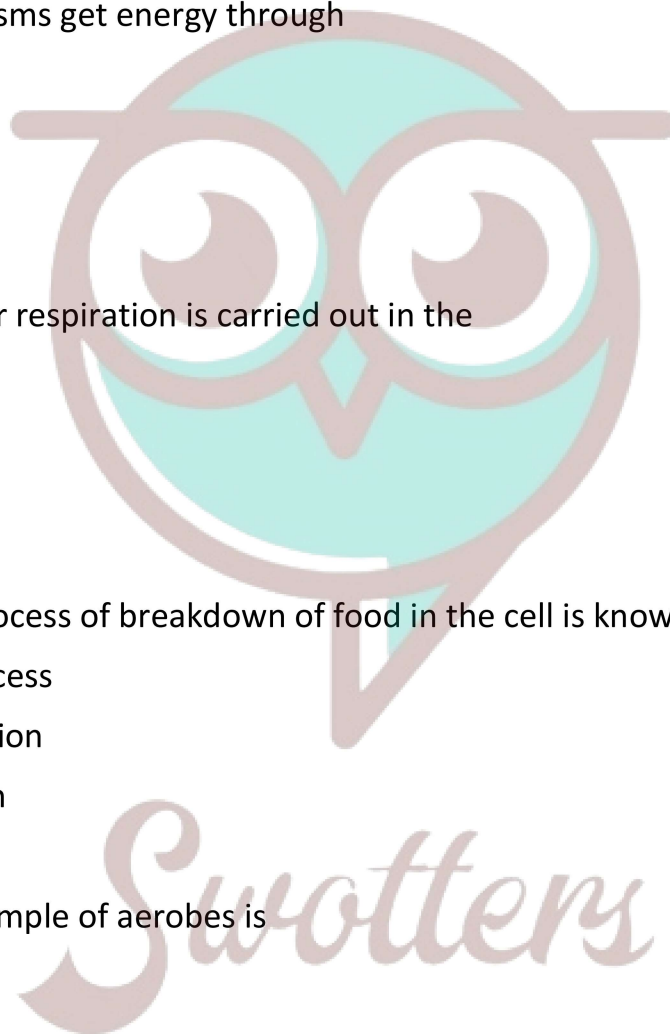
- (a) breakdown process
- (b) cellular respiration
- (c) food breakdown
- (d) none of these

Question 5. An example of aerobes is

- (a) cat
- (b) dog
- (c) human being
- (d) all of these

Question 6. When breakdown of glucose occurs with the use of oxygen, it is called

- (a) anaerobic respiration
- (b) aerobic respiration
- (c) regular respiration
- (d) all of these



Question 7. Name the type of respiration which causes muscle cramps.

- (a) Aerobic respiration
- (b) Anaerobic respiration
- (c) Both (a) and (b)
- (d) None of these

Question 8. Name the term which means 'taking in of air rich in oxygen into the body'.

- (a) Exhalation
- (b) Inhalation
- (c) Breathing
- (d) Respiration

Question 9. Which gas is given out during exhalation?

- (a) Oxygen
- (b) Nitrogen
- (c) Carbon dioxide
- (d) All of these

Question 10. The gills help the fish to

- (a) take in oxygen from air
- (b) take in oxygen dissolved in water
- (c) absorb nutrients present in water
- (d) release waste substance in water

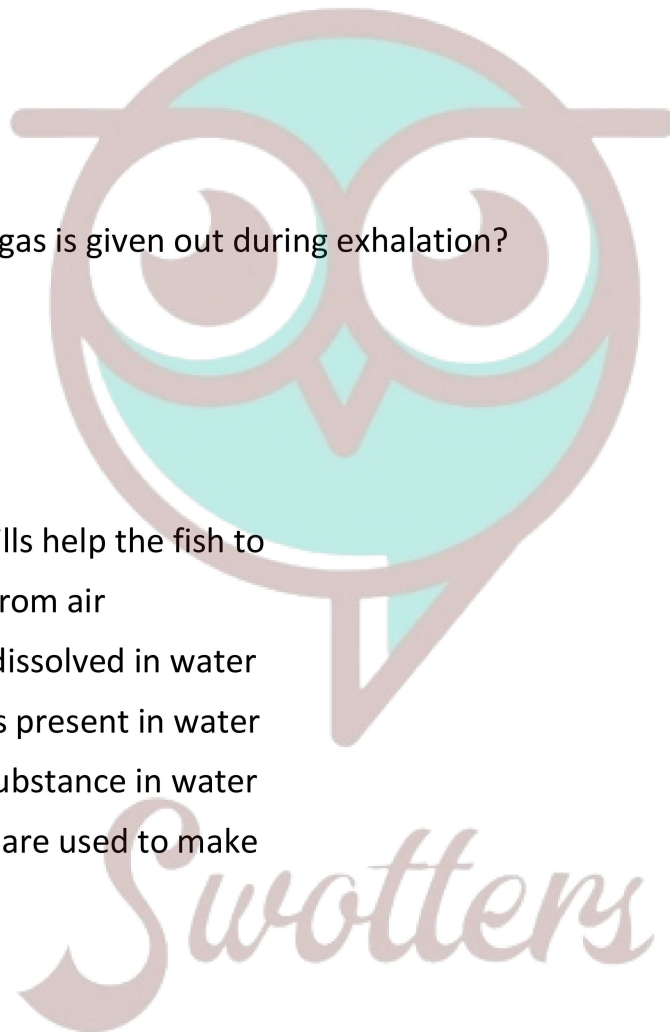
Question 11. Yeast are used to make

- (a) curd
- (b) wine and beer
- (c) bakery items
- (d) both (b) and (c)

Question 12. Earthworms breathe through

- (a) skin
- (b) legs
- (c) trachea
- (d) nose

Question 13. The organ through which fishes breathe is



- (a) nose
- (b) gills
- (c) skin
- (d) spiracles

Question 14. In the cells, oxygen is used to break down glucose into

- (a) carbon dioxide, water and energy
- (b) fats
- (c) alcohol, carbon dioxide and energy
- (d) lactic acid, water and energy

Question 15. Cockroaches breathe by using an organ called

- (a) nose
- (b) tracheae
- (c) both (a) and (b)
- (d) none of these

➤ **Fill In the Blanks:**

1. A person breathes ..... while running.
2. Windpipe is also known as .....
3. At the end of the bronchioles, small rounded structures called air sac or ..... are present.
4. The process of breakdown of food in the cell with the release of energy is called .....
5. Organisms which can survive in the absence of air are known as .....
6. .... is a single-celled organism used to make beer and wine.

➤ **True or False:**

1. Intense physical exercise slows down the breathing rate.
2. Breathing is a part of respiration.
3. Oxygen breaks down glucose outside the cell of organisms.
4. Exhaled air contains more percentage of carbon dioxide than inhaled air.
5. From lungs, oxygen is transferred to different parts of the body through blood in human beings.
6. During exercise, muscle cells respire aerobically to form lactic acid.

➤ **Very Short Question:**

1. Name the respiratory organ of frogs.
2. Name the respiratory organ of earthworm.
3. How does exchange of gases take place in unicellular and smaller multicellular animals?
4. How does exchange of gases take place in insects?
5. Name the respiratory organ of birds.
6. Name the tiny pores present in the leaves of the plants for exchange of gases.
7. What is the end product of anaerobic respiration?
8. Name the chemical used to test the presence of CO<sub>2</sub> in exhaled air.
9. State the name of wind pipe.
10. What is the site of cellular respiration?

➤ **Short Questions:**

1. Explain soil and factors affecting soil.
2. Define the following:
  - a) Soil profile
  - b) Horizon
3. Why is top soil known as the habitat of many living organisms?
4. Why Upper most layers in a soil profile are considered as most productive?
5. What is the similarity between physical and chemical weathering.
6. State the factors on which nature of soil depends?
7. Classify soil on the basis of the proportion of particles of various sizes.
8. Plants help the development of the soil. How?

➤ **Long Questions:**

1. Humans use yeast every day. What is yeast?
2. Why does an athlete breathe faster and deeper than usual after finishing the race?
3. Why do we often sneeze when we inhale a lot of dust-laden air?
4. Why we get muscle cramps after heavy exercise?

✓ **Answer Key-**

➤ **Multiple Choice Answers:**

1. (b) cells
2. (a) food

3. (a) cells
4. (b) cellular respiration
5. (d) all of these
6. (b) aerobic respiration
7. (b) Anaerobic respiration
8. (b) Inhalation
9. (c) Carbon dioxide
10. (b) take in oxygen dissolved in water
11. (d) both (b) and (c)
12. (a) skin
13. (b) gills
14. (a) carbon dioxide, water and energy
15. (d) none of these

➤ **Fill In the Blanks:**

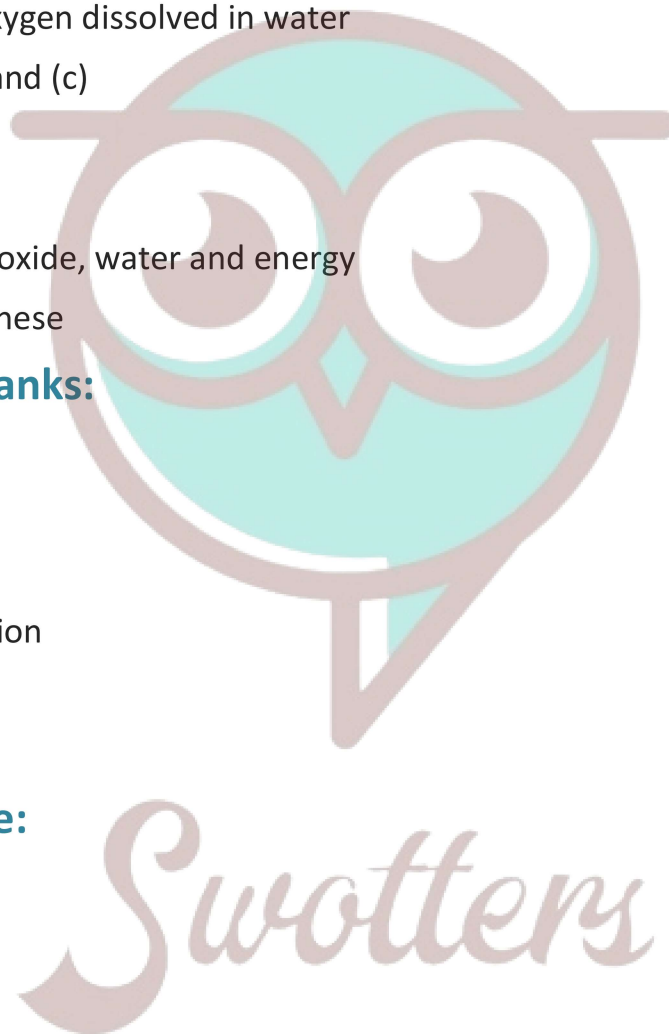
1. faster
2. trachea
3. alveoli
4. cellular respiration
5. anaerobes
6. Yeast

➤ **True or False:**

1. False
2. True
3. False
4. True
5. True
6. False

➤ **Very Short Answers:**

1. Answer: Skin and lungs
2. Answer: Moist skin
3. Answer: By diffusion



4. Answer: Exchange of gases takes place in insect through spiracles into trachea.
5. Answer: Lungs.
6. Answer: Stomata.
7. Answer: CO<sub>2</sub>, alcohol and energy.
8. Answer: Lime water
9. Answer: Trachea
10. Answer: Mitochondria

➤ **Short Answer:**

1. Answer: We respire to use the oxygen, to oxidise our food and release energy. This is similar like burning but a slower process. it also needs respiratory enzymes. Respiration is a slower process than burning and energy released can be stored for later use.
2. Answer: The food has stored energy which is released during respiration, thus we should eat regularly.
3. Answer: The air we breathe is transported to every parts of body and ultimately it is transported to each cell, in the cells, oxygen in the air helps in the breakdown of food, this process of breakdown of food in the cell with the release of energy is called cellular respiration.
4. Answer: The air we breathe is transported to every parts of body and ultimately it is transported to each cell, in the cells, oxygen in the air helps in the breakdown of food, this process of breakdown of food in the cell with the release of energy is called cellular respiration. Cellular respiration occurs in the cells of all organisms.
5. Answer:
  - Both aerobic and anaerobic respiration are necessary for the survival of living organism.
  - In both type of respiration, the food is broken and energy is released for the functioning of an organism.
  - In both type of respiration, Carbon Dioxide, Water and Energy is produced finally
6. Answer: Human breathing mechanism is called tidal breathing because air comes in and out using the same path.
7. Answer: Yeast is single celled organism that respire anaerobically and during this process yield alcohol. Yeast get energy through anaerobic respiration, in the absence of oxygen, glucose breaks down into oxygen and carbon dioxide.
8. Answer: Mountaineers carry oxygen with them because the amount of air available to a person is less than that available on the ground.

➤ **Long Answer:**

1. Answer: If we want to make our own bread, we can buy yeast in the grocery store. This yeast consists of little brown grains. The little brown grains of yeast may not seem to be alive, but if we put them in water with sugar, the yeast will carry out cellular respiration and grow. We can grow yeast in a test tube filled with water and sealed with a balloon. Under anaerobic conditions, yeast carries out alcoholic fermentation, so it produces lactic acid and energy.
2. Answer: The food has stored energy, which is released during respiration. Therefore, all living organisms respire to get energy from food by breathing the air. During heavy exercise, fast running, cycling, walking for many hours or heavy weight lifting, the demand for energy is high. Therefore, to meet the extra demand of energy, an athlete breathes faster and deeper than usual after finishing the race.
3. Answer: When we inhale a lot of dust-laden air, the dust particles get trapped in the hair present in our nasal cavity. However, sometimes these particles may get past the hair in the nasal cavity. Then they irritate the lining of the cavity, as a result of which we sneeze. Sneezing expels these foreign particles from the inhaled air and a dust free, clean air enters our body.
4. Answer: During heavy exercise the demand for energy is high. But the supply of oxygen to produce energy is limited. Then anaerobic respiration takes place in the muscle cells to fulfil the demand of energy.

Glucose in absence of oxygen → Lactic Acid + Energy  
The cramps occur only when the muscle cells respire anaerobically. The partial breakdown of glucose produces lactic acid. The accumulation of lactic acid causes muscle cramps.

Swotters