



CREST Science Olympiad (CSO) Worksheet *for* Class 7



Topic

Respiration in Organisms



@crestolympiads



info@crestolympiads.com



+91-98182-94134

Worksheet on Respiration in Organisms

1. In the following question, you will find an assertion and a reason. Select the appropriate option that applies.

Assertion: Aerobic respiration is more efficient than anaerobic respiration.

Reasoning: Aerobic respiration utilises oxygen, which allows for the complete breakdown of glucose, resulting in the production of a larger amount of ATP (energy) compared to anaerobic respiration.

- a. Both the assertion and reasoning are correct, and the reasoning explains the assertion.
- b. Both the assertion and reasoning are correct, but the reasoning does not explain the assertion.
- c. The assertion is correct, but the reasoning is incorrect.
- d. The assertion is incorrect, but the reasoning is correct.

2. Consider the following statements and choose the correct option:

Statement 1: Respiration is the process of taking in oxygen and releasing carbon dioxide.

Statement 2: Respiration only occurs in animals and not in plants.

- a. Statement 1 is correct, and statement 2 is incorrect.
- b. Statement 1 is incorrect, and statement 2 is correct.
- c. Both statements are correct.
- d. Both statements are incorrect.

3. A student conducted an experiment to investigate the effect of exercise on respiration. The student measured their breathing rate before and after jogging for 10 minutes. What is the most likely outcome of the experiment?

- a. The breathing rate will decrease after exercise.
- b. The breathing rate will increase after exercise.
- c. The breathing rate will remain the same before and after exercise.
- d. The breathing rate will only increase during exercise.

4. Match the following respiratory adaptations with the organisms they belong to.

	Column I		Column II
1.	Gills	a.	Insects
2.	Lungs	b.	Fish
3.	Spiracles	c.	Plants
4.	Stomata	d.	Mammals

- a. 1:D, 2:B, 3:C, 4:A
- b. 1:A, 2:B, 3:C, 4:D
- c. 1:C, 2:A, 3:B, 4:D
- d. 1:B, 2:D, 3:A, 4:C

5. Which of the following is an example of anaerobic respiration in humans?

- a. Breathing in oxygen and exhaling carbon dioxide.
- b. Running a marathon and taking deep breaths.
- c. Feeling short of breath after climbing stairs.
- d. Experiencing muscle soreness after intense exercise.

Answer Key

1. a - Both the assertion and reasoning are correct, and the reasoning explains the assertion. Aerobic respiration indeed utilises oxygen and efficiently breaks down glucose to produce more energy compared to anaerobic respiration. This is because oxygen enables the complete oxidation of glucose, releasing more energy.

2. a - Statement 1 is correct because respiration involves the process of taking in oxygen and releasing carbon dioxide.

However, statement 2 is incorrect because respiration occurs not only in animals but also in plants. Plants undergo respiration to obtain energy from organic molecules, just like animals do.

3. b - When we exercise, our body requires more oxygen to meet the increased energy demands. To supply this extra oxygen, our breathing rate typically increases to allow for a greater intake of oxygen and to remove the increased carbon dioxide produced during exercise.

4. d -
Gills: Fish
Lungs: Mammals
Spiracles: Insects
Stomata: Plants

5. d -
Experiencing muscle soreness after intense exercise is an example of anaerobic respiration in humans. During intense exercise, when the oxygen supply to our muscles is insufficient to meet the energy demands, the body switches to anaerobic respiration. This type of respiration breaks down glucose without the use of oxygen, leading to the production of lactic acid. The buildup of lactic acid in the muscles can cause muscle soreness and fatigue.

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