

CBSE NCERT Solutions for Class 7 Science Chapter 10

Back of Chapter Questions

1. Why does an athlete breathe faster and deeper than usual after finishing the race?

Solution:

An athlete breathe faster and deeper than usual after finishing the race in order to take more oxygen. As during the race, an athlete need requires more energy. To release energy, muscles need more oxygen.

2. List the similarities and differences between and anaerobic respiration.

Solution:

Similarity between aerobic and anaerobic respiration:

In both aerobic and anaerobic respiration, the food is broken down to release energy.

Differences between aerobic and anaerobic respiration:

Aerobic respiration	Anaerobic respiration
i. It is the process of breakdown of food in the presence of oxygen.	i. It is the process of breakdown of food in the absence of oxygen.
ii. Its end products are CO ₂ and H ₂ O.	ii. End products of anaerobic respiration can be lactic acid (muscles) or CO ₂ and alcohol.
iii. It takes a long time to release energy.	iii. It is a fast process as compared to aerobic respiration.
iv. It produces a large amount of energy.	iv. It produces less amount of energy as compared to aerobic respiration.
Examples: It occurs in most plants and animals.	Examples: Yeast, bacteria, human muscle cells, etc. respire anaerobically.

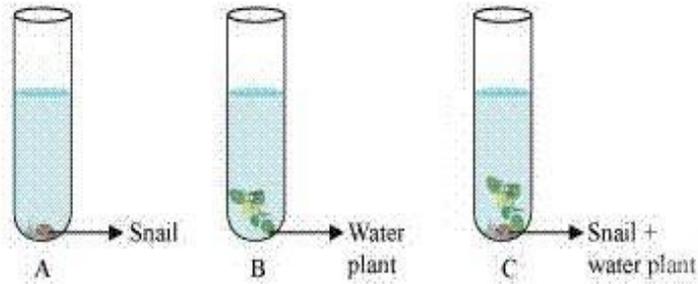
3. Why do we often sneeze when we inhale a lot of dust-laden air?

Solution:

When a lot of dust and dust particles are inhaled irritation is caused in the upper nasal passage. In order to remove it from the body, sneezing happens unconsciously.

4. Take three test-tubes. Fill 3/4th of each with water. Label them A, B and C. Keep a snail in test-tube A, a water plant in test-tube B and in C, keep snail and plant both. Which test-tube would have the highest concentration of CO₂?

Solution:



Test tube A will have the highest concentration of CO_2 . A test tube A contains snail. Snail is an organism that breathes in O_2 and breathes out CO_2 . Hence there is an increased amount of carbon dioxide concentration in test tube A

Test tube B contains a water plant, which takes in CO_2 for food synthesis and gives out O_2 . Hence, more O_2 concentration is found in test tube B.

Test tube C contains both a snail and a plant, The CO_2 produced by the snail is utilized by the plant for its food synthesis and the O_2 released by the plant is utilized by the snail for respiration.

Therefore, test tube A has the highest concentration of CO_2 .

5. Choose the correct answer:

- (a) In cockroaches, air enters the body through
- lungs
 - gills
 - spiracles
 - skin

Solution:

- (iii) spiracles

In cockroaches, the air enters in the body through the tiny opening present at the side of the body which is known as spiracles. The air enters through spiracles and then goes to the trachea for further gaseous exchange.

- (b) During heavy exercise, we get cramps in the legs due to the accumulation of
- carbon dioxide
 - lactic acid
 - alcohol
 - water

Solution:

- (ii) lactic acid

When we do heavy exercise then the muscles do not receive enough oxygen. Due to lack of oxygen, the anaerobic respiration takes place in the muscles. The end product of anaerobic respiration in muscles is lactic acid.

- (c) The normal range of breathing rate per minute in an average adult person at rest is

- (i) 9-12
- (ii) 15-18
- (iii) 21-24
- (iv) 30-33

Solution:

- (ii) 15-18

The normal range of breathing rate per minute in an average adult person at rest is 15-18

- (d) During exhalation, the ribs

- (i) move outwards
- (ii) move downwards
- (iii) move upwards
- (iv) do not move at all

Solution:

- (ii) move downwards

In exhalation, ribs move downwards as the air moves out the body ribs moves downwards in order to reduce the volume of the cavity

6. Match the items in Column I with those in Column II:

	Column I		Column II
(a)	Yeast	(i)	Earthworm
(b)	Diaphragm	(ii)	Gills
(c)	Skin	(iii)	Alcohol
(d)	Leaves	(iv)	Chest cavity
(e)	Fish	(v)	Stomata
(f)		(vi)	Lungs and skin
		(vii)	Tracheae

Solution:

	Column I		Column II
(a)	Yeast	(i)	Earthworm
(b)	Diaphragm	(ii)	Gills
(c)	Skin	(iii)	Alcohol
(d)	Leaves	(iv)	Chest cavity
(e)	Fish	(v)	Stomata
(f)		(vi)	Lungs and skin
		(vii)	Tracheae

7. Mark 'T' if the statement is true and 'F' if it is false:

- During heavy exercise the breathing rate of a person slows down. (T/F)
- Plants carry out photosynthesis only during the day and respiration only at night. (T/F)
- Frogs breathe through their skins as well as their lungs. (T/F)
- The fishes have lungs for respiration. (T/F)
- The size of the chest cavity increases during inhalation. (T/F)

Solution:

- During heavy exercise, the breathing rate of a person increases in order to take more and more oxygen. (F)
- Plants carry out photosynthesis and respiration in both day and night. (F)
- Frogs breathe through their skins as well as their lungs. (T)
- The fishes perform respiration through gills.
- The size of the chest cavity increases during inhalation. (T)

8. Given below is a square of letters in which are hidden words related to respiration organism. These words may be present in any direction – upwards, downwards, or along the diagonals. Find the words for your respiratory system. Clues about those words are given below the square.

S	V	M	P	L	U	N	G	S
C	Z	G	Q	W	X	N	T	L
R	M	A	T	I	D	O	T	C
I	Y	R	X	Y	M	S	R	A
B	R	H	I	A	N	T	A	Y

S	T	P	T	B	Z	R	C	E
M	I	A	M	T	S	I	H	A
S	P	I	R	A	C	L	E	S
N	E	D	K	J	N	S	A	T

- (i) The air tubes of insects
- (ii) Skeletal structures surrounding chest cavity
- (iii) Muscular floor of chest cavity
- (iv) Tiny pores on the surface of leaf
- (v) The respiratory organs of human beings
- (vi) The openings through which we inhale
- (vii) An anaerobic organism
- (viii) An organism with tracheal system

Solution:

S	V	M	P	L	U	N	G	S
C	Z	G	Q	W	X	N	T	L
R	M	A	T	I	D	O	T	C
I	Y	R	X	Y	M	S	R	A
B	R	H	I	A	N	T	A	Y
S	T	P	T	B	Z	R	C	E
M	I	A	M	T	S	I	H	A
S	P	I	R	A	C	L	E	S
N	E	D	K	J	N	S	A	T

- (i) Trachea
- (ii) Ribs
- (iii) Diaphragm
- (iv) Stomata
- (v) Spiracles
- (vi) Lungs
- (vii) Nostrils
- (viii) Yeast

(ix) Cockroach

9. The mountaineers carry oxygen with them because

- (a) At an altitude of more than 5 km, there is no air.
- (b) The amount of air available to a person is less than that available on the ground.
- (c) The temperature of the air is higher than that on the ground.
- (d) The pressure of air is higher than that on the ground.

Solution: (b)

The amount of air available to a person is less than that available on the ground.

The mountaineers carry oxygen with them because the amount of oxygen on the higher altitude is less as compared to the oxygen present in the ground.

