

NCERT QUESTIONS WITH SOLUTIONS

1. Complete the journey of food through the alimentary canal by filling up the boxes with appropriate parts.

Ans. The completed journey of food through the alimentary canal with the appropriate parts filled in –

Food → Mouth → Oesophagus → Stomach
→ Small Intestine → Large Intestine
→ Anus

2. Sahil placed some pieces of chapati in test tube A. Neha placed chewed chapati in test tube B and Santushti took boiled and mashed potato in test tube C. All of them added a few drops of iodine solution to their test tubes A, B and C, respectively. What would be their observations? Give reasons.

Ans. Test Tube A;

(Sahil: Pieces of chapati)

Observation: The chapati pieces will turn blue-black when iodine is added.

Reason: Chapati is rich in starch and iodine reacts with starch to form a blue-black complex. Since the chapati is unchewed, the starch is still present in its original form.

Test Tube B:

(Neha: Chewed chapati)

Observation: The colour change may be less intense or no blue-black colour may appear.

Reason: Saliva contains an enzyme called salivary amylase (ptyalin) that begins breaking down starch into sugar (maltose). Since the starch has been partially digested, there's less starch to react with iodine, resulting in a weaker or no colour change.

Test Tube C:

(Santushti: Boiled and mashed potato)

Observation: The potato will turn blue-black upon adding iodine.

Reason: Potatoes contain a lot of starch and boiling doesn't break it down into sugar. Iodine reacts with this starch to give the blue-black colour.

3. What is the role of the diaphragm in breathing?
- (i) To filter the air
 - (ii) To produce sound
 - (iii) To help in inhalation and exhalation
 - (iv) To absorb oxygen

Ans. The correct answer is (iii)

- (a) To help in inhalation and exhalation
- (b) During inhalation, the diaphragm contracts and moves downward, increasing the space in the chest cavity and allowing the lungs to expand and fill with air.
- (c) During exhalation, the diaphragm relaxes and moves upward, reducing the space in the chest cavity and pushing air out of the lungs.

4. Match the following

Name of the part		Functions	
(i)	Nostrils	(a)	Fresh air from outside enters
(ii)	Nasal passages	(b)	Exchange of gases occurs
(iii)	Windpipe	(c)	Protects lungs
(iv)	Alveoli	(d)	Tiny hair and mucus help to trap dust and dirt from the air we breathe
(v)	Ribcage	(e)	Air reaches our lungs through this part

Ans.

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5. Anil claims to his friend Sanvi that respiration and breathing are the same process. What question(s) can Sanvi ask him to make him understand that he is not correct?

- Ans. I. Does breathing give us energy?
 II Where does the oxygen go after we breathe it in?
 III. Why do we need food to get energy?
 IV. Do our body cells breathe like we do?
 V. Why do we call it 'cellular respiration' and not 'cellular breathing'?

These questions will help anil to understand that breathing is the physical process of inhaling and exhaling. While respiration is the chemical process where oxygen is used to break down glucose to release energy.

6. Which of the following statements is correct and why? Anu: We inhale air. Shanu: We inhale oxygen. Tanu: We inhale air rich in oxygen.

Ans. Tanu: We inhale air rich in oxygen –

We breathe in air, which is a mixture of gases. It contains oxygen about 21%. Since oxygen is the gas our body needs for respiration and it is present in large amounts in the air, we say we inhale air rich in oxygen.

7. We often sneeze when we inhale a lot of dust-laden air. What can be possible explanations for this?

Ans. We often sneeze when we inhale a lot of dust-laden air because the dust particles irritate the lining of our nose. The nose has tiny hair and mucus that help to trap dust and dirt. But when too much dust enters, it tickles or irritates the inside of the nose and the body tries to remove it by making us sneeze.

It helps to clear the nasal passages and prevent harmful particles from reaching the lungs.

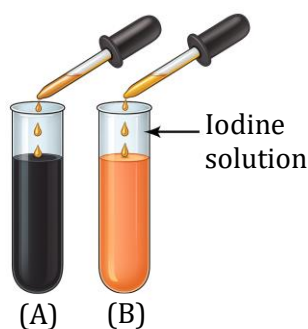
8. Paridhi and Anusha of Grade 7 started running for their morning workout. After they completed their running, they counted their breaths per minute. Anusha was breathing faster than Paridhi. Provide at least two possible explanations for why Anusha was breathing faster than Paridhi.

Ans. Anusha may have run faster or for a longer time than Paridhi. So, her body needed more oxygen and she breathed faster to get more oxygen and remove more carbon dioxide.

Anusha may not be as fit as Paridhi. If Paridhi is more used to running or exercising, her body does not need to breathe as fast. Anusha's body had to work harder, so she breathed faster.

9. Yadu conducted an experiment to test his idea. He took two test tubes, A and B and added a pinch of rice flour to the test tubes, half-filled with water and stirred them properly. To test tube B, he added a few drops of saliva. He left the two test tubes for 35–45 min. After that, he added iodine solution into both the test tubes. Experimental results are as shown in Figure. What do you think he wants to test?

Ans.



Yadu's experiment shows that saliva helps to break down starch into simpler substances (sugar) during digestion. Rice flour has starch in it.

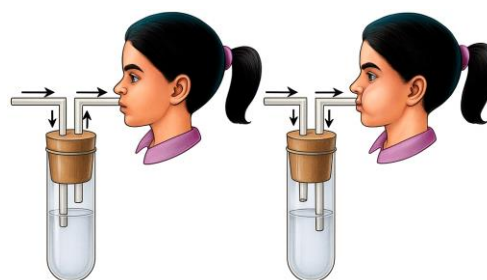
Iodine solution turns blue-black when it comes in contact with starch.

In Test Tube A (without saliva), the iodine turned the solution blue-black, showing that starch is still present.

In Test Tube B (with saliva), the iodine did not turn blue-black, showing that saliva has broken down the starch.

10. Rakshita designed an experiment taking two clean test tubes, A and B and filled them with lime water as shown in the figure. In test tube A, the surrounding air that we inhale was passed on by sucking air from the pipe and in test tube B, the exhaled air was blown through the pipe. What do you think she is trying to investigate? How can she confirm her findings?

Ans.



Inhaled air

Exhaled air

She wants to see which air (inhaled or exhaled) contains more carbon dioxide by using lime water as an indicator.

Lime water turns milky or cloudy when carbon dioxide is passed through it. This is a common test for the presence of CO_2 .

- **In Test Tube A (inhaled air):**

The lime water will stay clear or show a very slight change because inhaled air has very little CO_2 .

- **In Test Tube B (exhaled air):**

The lime water will turn milky because exhaled air has more CO_2 (produced during respiration).