

SCIENCE

ACTIVITY -10

RESPIRATION

Class: VII

Duration-30 minutes

Nature of activity: Individual

Learning Outcome: Students will be able to justify that during exhalation we give out carbon dioxide gas and this gas turns lime water milky white in colour.

What we have to do?

Find out what the exhaled air contains.

What do we require?

Two test tubes, two thin glass tubes/plastic tubes/straws (6-8 inch long), limewater, water.

What do we need to know?

The air which is taken in during inhalation is known as inhaled air and the air which is given out during exhalation is known as exhaled air.

Teacher's Activity: Teacher will arrange the materials for the individual and give instructions regarding the activity.

How will you proceed?

Student's Activity:

1. Take two clean test tubes and label them 'A' and 'B'.
2. Half-fill the test tube 'A' with tap water and take the same quantity of freshly prepared lime water in test tube "B".
3. Place the glass tube/plastic tube/straw in each test tube, taking care that one end dips properly in the solution.
4. Blow air (exhale) into test tube 'A' for 2-3 minutes. Shake the test tube vigorously. Repeat the process 2-3 times and keep it in a test tube stand.
5. Now, blow air into test tube "B" for 2-3 minutes. Shake the test tube vigorously. Repeat the process 2-3 times and keep it by the side of test tube 'A'
6. Observe both the test tubes and compare the colour of solutions in them.

What have you observed?

Test solution	Test tube A	Test tube B
Lime water		

What have you learned?

Exhaled air contains _____ which turns lime water _____.

What more can we do?

- A sensitive indicator called Phenol red can be used in place of lime water. Take a small quantity of water in a test tube (1-2 ml), and add 2 drops of Phenol red and shake well. The solution appears pink. If we exhale into the solution, carbon dioxide present in the exhaled air dissolves in it and the pink solution turns pale yellow.
- Blow air into the mirror. You will find some water droplets on the mirror. This is because exhaled air contains water vapours which condenses on the cool surface of the mirror in the form of water droplets.

Extended learning worksheet

Answer the following questions:

1. Why does lime water turn milky in test tube 'B'?

2. What are the percentages of oxygen and carbon dioxide in exhaled air?

3. How are photosynthesis and respiration linked to each other?

4. Why does exhaled air contain more carbon dioxide than inhaled air?

5. Are there organisms that can respire in the absence of oxygen? Name a few of them.
