

ACTIVITY NO. -10-PRANAYAM

Subject	Science
Class	VII
Chapter/Unit	Respiration in Organisms
Topic	How do we breathe?
Time	30 minutes(2 consecutive days for 8 groups)
Nature of Activity	Group

What will I learn (Learning Outcome)?

- To interpret the mechanism of breathing.

Skills:

- Applying, Interpreting.

What I have to do?

- To make a model of the lungs in order to study how they work.

.What do I require?

- Balloon, bell jar, rubber sheet, glass tube or straw, one holed cork, thread.

What do I need to know?

- Breathing is the process by which air rich in oxygen is taken inside the body of an organism (inhalation) and air rich in carbon dioxide is expelled from the body (exhalation).
- The number of times a person breathes in a minute is termed as breathing rate. A breathe means one inhalation plus one exhalation.

➤ Teacher's Activity

Teacher will

1. explain the process of breathing (a breathe means one inhalation plus one exhalation.)and breathing rate.
2. arrange the materials for the individual..
3. divide the students in to 8 groups with 5 students in each group
4. give instructions regarding the activity.

How will I proceed?

➤ Student's Activity

Each member of the group will perform the experiment following the steps given below:

Student 1: Take a bell jar (a glass jar whose bottom is open) and a glass tube which can branch into two smaller tubes at its lower end fitted in the mouth of the bell jar with the help of a cork.

Student 2: Tie two balloons at the two ends of the tubes.

Student 3: A thin rubber sheet is tied around the open bottom of the bell jar. In this apparatus, the space inside the bell jar represents the chest cavity, the balloon represents the lungs whereas the rubber represents the diaphragm.

Student 4: In order to show the process of “breathing in” air or inhalation, the rubber sheet is pulled downwards.

Student 5: In order to show the process of “breathing out” of air or exhalation, the rubber sheet is released.

What have I observed?

	‘Breathing in’ or Inhalation	‘Breathing out’ or Exhalation
Movement of rubber sheet		
Movement of air		
Shape of the balloons		

What have I learnt?

- When we pull the rubber sheet down, the volume of the cavity in the bell jar _____. This _____ the pressure inside the bell jar. Air rushes _____ through the glass tube to equalize the pressure, causing the balloons to _____.
- When, we let the rubber sheet to go back to its original position the volume of the cavity in the bell jar _____. This _____ the pressure inside the bell jar. Air rushes _____ causing the balloons to _____.

What am I curious to learn?

- Let us carry out an activity to see that exhaled air contains carbon dioxide.

Let me evaluate myself

Q1. What are the percentages of oxygen and carbon dioxide in inhaled and exhaled air?

Ans. _____
.

Q2. In the above experiment to demonstrate the process of breathing:

(i) What does the space in the bell jar represent?

Ans. _____

(ii) What does the balloon in the bell jar represent?

Ans. _____.

(iii) What does the rubber sheet tied over the open end of bell jar represent?

Ans. _____.

Q3. What is the difference between inhalation and exhalation?

Ans. _____.

Q4. Why does exhaled air contain more carbon dioxide than inhaled air?

Ans. _____
.

Q5. Find out the average breathing rate of a human adult at rest.
