

# UNIT 9 - RESPIRATORY SYSTEM

## ACTIVITY - Breathing Is Essential to Life

### Objective:

Students will recognize that breathing is an automatic process. Observe and record data on respiration rate. Demonstrate how air enters and leaves the lungs; Observe how respiratory rate changes with different activities.

These activities may be done as demonstrations.

### ACTIVITY #1: Collect Your Breath

**Materials:** paper towel  
hand mirror

### Strategy:

Use the paper towel to clean and dry the mirror. Hold the mirror near, but not touching, your mouth. Exhale onto the mirror two or three times. Examine the surface of the mirror.

**Discussion:** What happens to the mirror?  
Why does the mirror become fogged?

### ACTIVITY #2: Listen to and Count Breathes per minute

**Material:** stethoscopes  
watch or clock with second hand  
index cards or sticky note paper with student's names

### Strategy:

Divide the students into teams of at least two. Use a stethoscope to listen to one another's breathing. Hold your breath as long as possible. Record your time. Now record how long your partner held their breath. Pair off students: **Breather:** All students sit quietly (lie down if possible) with hands placed over their stomachs or chests. **Observers:** The observers must watch their partners and count the breaths taken in one minute (count ONE breath for every time the stomach or chest rises). Teacher cues the observer when to begin and when to stop after 60 seconds. After the 60 seconds, the observer tells the breathers how many breaths were counted. Then all breathers record their at rest information on the index card or sticky note paper. Students trade places and repeat the activity. Next, students do jumping jacks for sixty seconds and then run in place for 60 seconds before recording breathing rates as previously described.

**Discussion:**

In which case did you breathe more? Why?

Do you think respiration rate would be faster or slower if you ran for 10 minutes before counting breaths?

Would there be a difference in your respiration rate if you checked it when you were sleeping and then again if you were walking?

**ACTIVITY #3: Measuring Lung Capacity With Balloons**

**MATERIALS:**

6" and 9" balloons

tape measure

paper and pen or pencil

**CAUTION:** Do not do this activity if you have asthma!

Give identical balloons to pairs of students. Instruct each to blow up a balloon as much as possible with only one breath. Measure how big around everyone's balloon is with a tape measure and write down the numbers next to the persons names. Let air out of balloons and repeat two more times. Take an average of three tests.

**Discussion:**

Who was able to blow the most air into their balloon?

What is it about the person that enables him or her to do this?

If you ran in place for 2 - 3 minutes, would you be able to blow as much air into the balloon? Try it.