



“Breathe-zy” Program Outline

Kim Bennion MHS, BSRT, RRT, CHC

- I. **Introduce** yourself as a Respiratory Therapist. Discuss what a Respiratory Therapist does, what education is required and why you enjoy the career!
- II. **Review class rules** (dissection tool “time out”, group leader, etc...). Have no more than 5-6 per group with each having a set of lungs. Utilize garbage bags or painter’s drop cloth to place the lungs on for simple disposal after class.

Key: Keep language simple throughout class time!
- III. **Review** basic anatomy (use the example of the lungs looking like an “upside down tree” with the branches being the “airways”)
- IV. **Review** of basic physiology of respiration
 - a. **Ask:** How does air get into the lungs? Explain how the diaphragm works (drops and pulls air in, relaxes and pushes air out)
 - b. “Air” gas content (oxygen is “food” to the organs and is vital to stay alive)
 - c. “Box Car” analogy (oxygen and CO₂ transport). Discuss how Hgb are the “boxcars” in blood and carry supplies just like a train’s boxcar. They take oxygen and other vital “food” to cells and organs and remove their waste (CO₂). Discuss how the lungs bring in the oxygen, the oxygen moves across the “magic door” (alveolar capillary membrane) and take a ride until it is delivered to the cells/organs. Once unloaded, the “boxcars” fill up with waste. The waste takes a ride to the lungs where the CO₂ goes through the magic door” and is exhaled.
 - d. **Activity: Asthma Response**
 - i. **Props:** Batting, rope, T-shirts and class volunteers (bronchoconstriction). Have 2 students put on a green T-shirt and 2 put on a red T-shirt. Have them step into an “airway” (a roll of batting used for quilting). Tie a rope around the batting holding the volunteers tightly. Make the point that in an asthma attack, the airways swell on the inside lining, mucus blocks the airway and the muscles around the airway “clamp down”. This makes it so mucus cannot get out (red volunteers) and oxygen cannot get in (green volunteers). Ask for a raise of hand of those with asthma. Allow a student to explain how as asthma attack feels.
- V. **Introduce Hypothesis:** Does air get pushed or pulled into the lungs?
- VI. **Activity:** create a “pop bottle chest with lungs” a using a 2 liter pop bottle, a latex glove using fingers as lungs and the palm of the glove as a diaphragm. Cut the bottom off the pop bottle leaving the bottom open. Using two fingers of the glove, secure them to the ends of the wye using rubber bands to hold them in place as the lungs. Remove another finger from the glove cutting both ends off. Attach this to the top of the wye using a rubber band.



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- Insert this into the pop bottle top pulling the top portion of the glove attached to the top of the wye through the pop bottle top. Pull this over the edge and secure with a rubber band. Carefully stretch the palm of the glove over the bottom of the pop bottle bottom and tape in place using 2-3 inch wide tape. Assure the seal is tight.
- VII. *Demonstrate*** how the diaphragm drops (pull it down), the lungs fill. When the diaphragm relaxes, air exits the lungs (note they go back to their “resting state”). Reinforce the importance of the lungs in relation to the “boxcar” analogy above.
- VIII. *Dissection*** [(Animal lung(s))]
- a. Review key landmarks (i.e., trachea, main stem bronchi, color of lungs, etc...)
 - b. ***Activity***: Use straws to inflate sections of the lung before beginning dissection. Perform the following step-by-step keeping the students moving through each section together.
- IX. *Review*** controllable “Criminals” to lung health
- a. Active and second-hand smoking
 - b. Air pollution-explanation of pathophysiology of exposure
 - i. Air Quality: red, yellow and green days
 - ii. Coal Dust
 - iii. Asbestos
 - iv. Chlorine Gas
 - v. ***Are e-cigarettes safe?***
 - c. Non-compliance to Asthma Care Plan
- X. *Discussion: YOU are the “Lung Super Heroes”***
- a. ***Activity***: 10 minutes to create team skits regarding “Lung Criminal Crime Fighting” (saying no to smoking, not allowing others to smoke around you, playing inside on poor air quality days, taking asthma medications as prescribed, etc...). Have each group present their skits.
- XI. *Present*** skits as time permits.