DIRECTIONS: Read the Student Background “Think About It” material. Consider what you now know about the respiratory system as you read and respond to each Think About It.

1. **Think About It: Structure and Function**
   
a. How does the design (structure) of the Pulmonary System allow it to do its job (function)?

   b. What is meant by a “passive” system?

   c. What are the advantages and/or disadvantages to a passive system?

2. **Think About It: Structure and Purpose**
   
a. How does structure protect the delicate organs of the Pulmonary and Circulatory Systems?

   b. What other structures protect body organs and how is their shape related to the organs they protect?

3. **Think About It: Levels of Organization**
   
a. Describe the levels of organization in the human body.

   b. Why is an organ level more complex than a tissue level?

   c. What are the advantages and/or disadvantages to the organization level of the human body?
LESSON 1: MAPPING PULMO PARK
Activity 1A: Think About It: Respiratory Structure and Function

4. Think About It: Making Connections
   a. How do the Circulatory and Pulmonary Systems work together?
   b. Why are they considered separate systems?
   c. What would happen if either of these systems did not work with the other?

5. Think About It: Keep It Clean
   a. How does the Pulmonary System function as a cleaning system?
   b. What structures and systems collaborate to keep the system clean?
   c. Why is it necessary to keep the pulmonary system clean? What is it that the pulmonary system needs to be protected from and why?

6. Think About It: Location and Purpose
   a. What is the purpose of the epiglottis?
   b. How does the location of the epiglottis relate to its purpose?
   c. What would happen if it were located higher up or below its current position?
   d. What happens when the epiglottis doesn’t work the way it should?
   e. Have you ever experienced this and if so, described what happened.
7. **Think About It: Trachea Design**
   
   a. How does the design of the trachea contribute to its function?
   
   b. What are the advantages/disadvantages of the trachea’s design?

8. **Think About It: Lung Structure**
   
   a. Efficient structures are often repeated in nature. Compare the function of branches in a tree to branches within the lung.
   
   b. What are the advantages to a branching respiratory system?
   
   c. What are the components of the respiratory tree and what is their function?
   
   d. What impact would there be if the number of branches were cut in half?

9. **Think About It: Air Exchange**
   
   a. What does “air exchange” mean?
   
   b. How does the structure of the alveoli maximize air exchange?
   
   c. What is the relationship between alveoli and the circulatory system?

10. **Think About It: Diaphragm Movement**

    a. How does the diaphragm moving up (relaxing) and down (contracting) cause us to breathe?
    
    b. The diaphragm is a muscle. Muscle movement requires energy, yet the act of breathing is considered a passive function. How is this possible?