

Science

Lesson: The Respiratory System

Length: 45-50 minutes

Age or Grade Level Intended: 4th grade

Academic Standard(s): SCIENCE

4.6.1 Demonstrate that in an object consisting of many parts the parts usually influence or interact with one another

Performance Standard(s):

The student will learn more about the respiratory system and understand the functions of various muscles.

Assessment:

Ask various questions to check for understanding throughout the lesson. Also, the worksheet that follows the lesson is for homework.

Advance Preparation by Teacher:

- Science book-Teacher's Edition
- Student science books
- Smart board
- Picture of the lungs (useless fact- If you were to roll a lung from a human body and out flat it would be the size of a tennis court)
- Worksheet that follows lesson
 - Products for experiment: (for each pair of students)
 - Modeling clay
 - 2 balloons-red and blue
 - 2 rubber bands
 - Plastic bottle
 - Plastic straw
 - Worksheet to write down observations

Procedure:

- Introduction/Motivation:
 - Have the students come up to the floor with their science books.
 - **Yesterday we learned about the muscular system. Today, we are going to talk about the respiratory system.**
- Step-by-Step Plan:
 - Pull up the pictures of the lungs on the Smart board.
 - **Take a look at these pictures.**
 - **What organ is this?** (*Bloom's: Knowledge*)

- **Where is it located?**
- **Now, turn to page 148.**
- Begin taking turns reading the pages about the respiratory system (148-149).
- Talk about the parts of the respiratory system.
- Ask a series of questions throughout the lesson:
 - **How does oxygen get from the lungs to the body cells?** (*Bloom's: Comprehension*)
 - **What path does oxygen follow after it enters the body?**
 - **What would happen if the diaphragm were paralyzed?**
- Have the students go back to their seats and get ready to work on the experiment.

Experiment: **What causes air to enter and leave your lungs?**

- Pass out the materials (*Gardner: Bodily-kinesthetic*)
- Students are going to build a model that demonstrates how the lungs (blue balloon) and the diaphragm (red balloon) work during the breathing process.
- The students will put the red balloon over the bottom of the water bottle which will already be cut off with a rubber band.
- Then, they will put the blue balloon over the straw and tie it with the rubber band.
- Put the balloon through the water bottle at the top and cover the top with model clay.
- Then, hold the bottle in one hand, pull the red balloon down and record what happens to the blue balloon.
- Then, do the opposite-push the red balloon into the bottom of the bottle and record what happens to the blue balloon.
- Talk about their observations.

Closure:

- **So, today we talked about the respiratory system. We learned about the function of the lungs and the diaphragm. Tomorrow, we will talk about the circulatory system.**

Adaptations/Enrichment:

- Student with ADHD:
 - Have this student sit next to someone who will not disturb them while listening to the lesson.
- Student with Giftedness:

- After the lesson, you can go up to this student and ask them their favorite part of the lesson and talk to them more about the respiratory system.

Self-Reflection:

After teaching this lesson, I felt like I had accomplished all of my goals and I felt like I taught the standards in a hands-on way. I used technology to show videos of how the respiratory system works (which went great!) and the experiment that followed was very effective! I had a great time teaching this lesson and I think that the students were engaged and had fun learning about how the lungs and the diaphragm work together to help you breathe. Some things I would change would be to use more of the science vocabulary when talking about the respiratory system. I caught myself not using some of the terms in their book, and I think that would have helped them understand more. The homework that was assigned the next day went great and they remembered how the respiratory system works. I like to teach science and I think that hands-on activities are a great way to engage your students!