

UNIT 9 - RESPIRATORY SYSTEM

ACTIVITY - Construct a Respiratory System Model

Objective:

Students will construct a simple model of the respiratory system.

Materials:

- 2 drinking straws
- 2 small balloons
- rubber cement
- 1 large balloon
- rubber bands - 2 small, 1 large
- tape

Strategy:

The students will construct a model to show the action of the diaphragm in respiration.

Step 1 - Cut a piece of straw about 2 inches in length. Then cut a small triangle in the center of the straw but do not go through to the opposite side. Fit one small balloon over each end of the straw and secure them with a small rubber band. (NOTE: Test to make sure that air will go into each balloon when blown from the top.)

Step 2 - Bend the straw in the middle of the hole.

Step 3 - Take a second piece of straw and cut a V-shape on the end. Fit the V-shaped points of the straw into each semi-circle of the hole of the bent straw.

Step 4 - Using the rubber cement, connect the two pieces of the straw together. Allow to dry or use tape to hold until dry.

Step 5 - Cut a hole in the bottom of the clear plastic cup using the diameter of the straw as a guide to determine the size. Push the open end of the straw into the hole of the plastic cup from the inside. Connect the straw into the hole and cement together.

Step 6 – Next use the large balloon by cutting off the neck of the balloon. Carefully stretch the cut balloon end over the opening of the cup. Do not crack the cup. Secure the edges of the balloon with the large rubber band. Do not cement the sides of the cup. (NOTE: The model will work only if there are no leaks.)

Step 7 - Pull the bottom balloon gently and observe what happens to the small balloons.

Discussion:

1. What do the small balloons represent?
2. What do the two ends of the straw to which the balloons are attached represent?
3. What does the longer piece of straw represent?
4. What do the sides of the cup represent?
5. What does the balloon sheet over the cup's opening represent?
6. What happened to the small balloons when you pulled down on the balloon sheet?