

“Go with the Flow” — Breathing Investigations

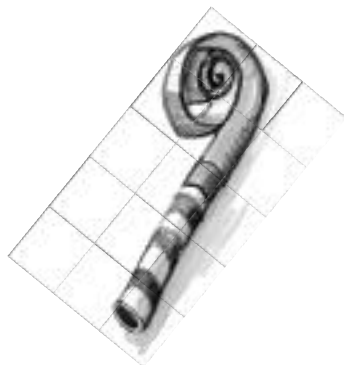
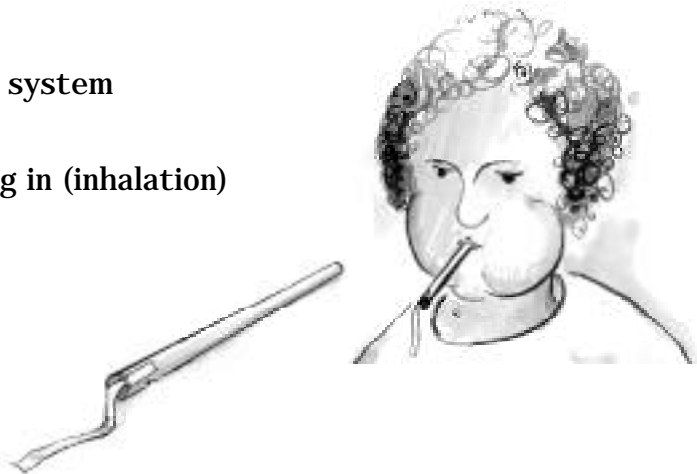
These activities help children “see” and “sense” breathing.

Breathe in and breathe out. See the chest and abdomen rise and fall with each breath. Hear the flow of air come out the nose. Feel the warm, soft air as it flows from the nose with exhalation. What other ways can we experience breathing?

Five million children in the United States have asthma. Understanding how breathing works will help children and their parents better manage the asthma.

Children Learn to

- * Identify parts of the breathing system
- * Control their breathing
- * Increase awareness of breathing in (inhalation) and breathing out (exhalation)



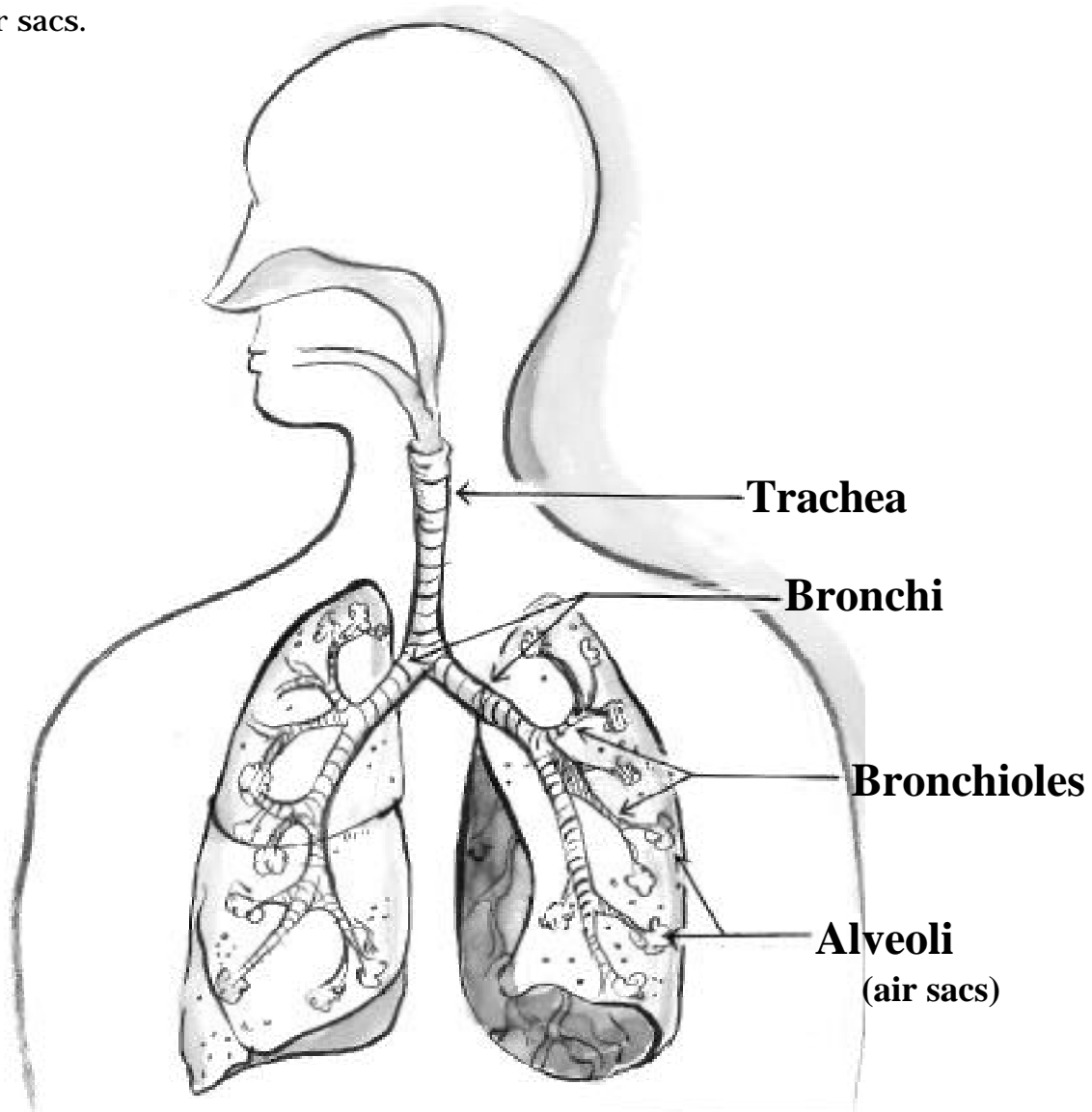
Activity 1: Parts of the Breathing System

You need

- * Bunch of Grapes

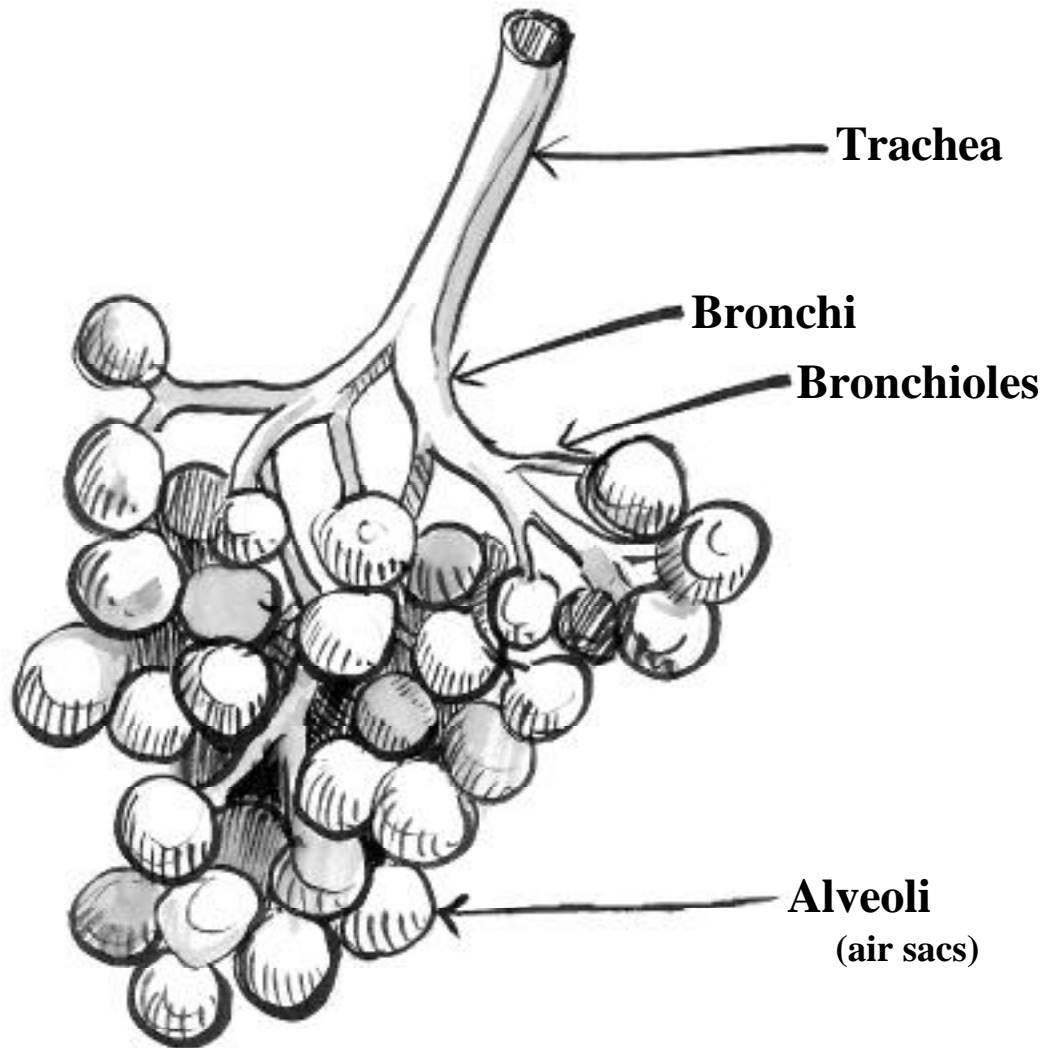


1. Show the diagram of the neck and chest. Name each of the labeled parts of the breathing system: trachea, bronchi, bronchioles (air tubes), alveoli (air sacs), and lungs. Explain that when a person breathes, the air moves in and out the air tubes and air sacs.



2. Hold up the bunch of grapes. Say that the bunch of grapes represents the breathing system. With the children, locate the parts of the breathing system: the main stem as the trachea, the large branching stems as the bronchi, and all the little stems as the bronchioles. The individual grapes are the air sacs, the alveoli.

3. Eat the grapes, exposing more of the stems (bronchioles).
4. Tell the children that air moves from the nose and mouth to the trachea, bronchi, bronchioles, and then into the alveoli. Tell them that the air we breathe carries the gas oxygen. When we breathe, the oxygen goes to the lungs.



5. Ask the children to breathe in and out with you. Have them notice the chest and belly moving and the soft feel of air passing from the nose. Encourage them to listen for the quiet sounds of breathing in and out. Have them imagine the air moving from the nose into the throat (trachea), through the air tubes, and into the air sacs.
6. Trace the pathway of the air with your finger along the side of your face and neck from nose to neck to chest. Refer to the diagram, and check the children's understanding of the parts of the breathing system and the path of air flow.

Activity 2: Breath Control

You need

- * cotton balls
- * masking tape or colored tape
- * flat tabletop

1. Ask the children to blow air quickly out of their mouths. Demonstrate by holding the back of your hand close to your open mouth and forcefully blowing on your hand. Have the children blow slowly and softly with a focused air stream.



Then shape your hand like a tube, with fingers curled toward and touching the thumb. Make your lips into an “O” shape and blow quietly into the “tube” of fingers so your hand does not interfere with the air flow. Have the children do the same. Ask what differences they noticed in the feel of the air on their hands. Did they notice any differences in moisture, temperature, or spread of the air?



2. Invite the children to play a racing game with you. Use the masking or colored tape on the flat tabletop to create two stripes (as lanes). If using a round table, create a 6-8 inch diameter bulls eye in the center of the table.
3. Assign each lane to a child. If you are using a round table, arrange the children around the perimeter of the table. Place a cotton ball in front of each child on the edge of the table (the “starting line”). Tell the children they are to blow as many times as necessary to get the ball across the table or into the center of the bulls eye. Start the game. The first cotton ball to get across the table or into the center of the bulls eye wins.

Controlled breathing, slow deep breaths in, and slow soft breaths out (especially with the lips in an “O” shape), is beneficial when a child is out of breath, anxious, and needs help relaxing. It also helps when a child with asthma is experiencing difficulty breathing.



4. Ask the children to describe how they blew the cotton ball; was it hard or soft, forceful and wild, or directed with good aim? Did the cotton ball move straight across the table, or in many different directions? Encourage them to describe their observations.
5. Next, have the children blow the cotton ball the same way they blew into their hands when they were making the tube with their fingers — softly, with small lips formed into an “O.” Start the game again. The cotton ball that crosses the table or makes it into the center of the bulls eye wins.
6. Ask the children what was different between the first and second race. Which way of blowing the cotton ball made it easier to reach the target or the finish line? When they blew softly was it easier to direct the cotton ball? Talk about breathing. It is breathing out, exhalation, that propels the cotton ball across the table. What did they notice about their breathing in the first race? In the second race?

Activity 3: Breath Flow

Breath flow is the moving, continuous stream of air that comes from the lungs during exhalation.

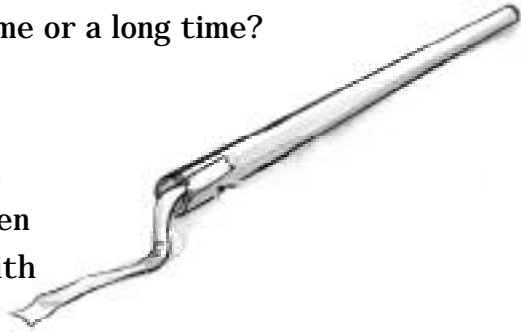
You need

- * straws
- * tape
- * 4 inches of white string or narrow Mylar ribbon

1. Ask the children how they can change their breathing? Can they breathe at different speeds: fast or slow? Can they breathe harder (with more force) or softer? Can they breathe out for a short time or a long time?

2. With the children, tape the string or Mylar ribbon, to the end of straws, one for each child doing the activity. Seal your lips around the open end of the straw and blow through the straw with a continuous breath out for as long as you can.

The ribbon or string on the end of the straw should float away from the straw. Have the children try this with you. Tell them to breathe out with a continuous flow and keep the ribbon or string floating up.



3. Tell the children you are going to blow into your straw again and that they should count how long you can keep the ribbon or string floating up. Tell them to stop counting when the ribbon or string drops. Switch jobs. Have the children blow into their straws while you count. How long can they keep the string or ribbon up? Ask the children how they are breathing. Are they blowing all their air out at once, or are they slowly letting the air out through the straw? Which way worked best? Is either way easier?

Activity 4: More Breath Control

You need

- * party favors that unfurl by blowing into them



Controlled breathing with a long, slow breath is especially helpful for children with asthma, or when teaching children how to breathe to relax or calm down.

1. Ask the children if they can breathe out at different speeds? Can they go fast or slow? Can they breathe hard (with more force) or soft? Can they breathe out for a short time or a long time? Practice breathing in and out very slowly with the children. Have them match your long, slow breaths. Ask how they feel. Do they feel relaxed when they breathe slowly?

When you slow down your breathing, you can take bigger breaths, which brings more oxygen gas to the lungs.

2. Give each child a party favor and take one for yourself. Seal your lips around the plastic end of the party favor and blow into it with a continuous breath out. Blow out as slowly and as long as you can. When you blow through the party favor, the paper roll on the tip unfurls and stays out as long as you keep blowing. Have the children try this with you, breathing out in a continuous steady flow to keep the paper roll unfurled.
3. Blow into your party favor again as slowly as possible, then let the paper coil roll back as slowly as possible. Have the children count how long the paper coil is extended. They should count as long as you are keeping the coil out and allowing it to slowly roll back. Stop the counting when the coil is rolled up. Switch jobs. You count while the children blow into their party favors. Ask the children about the way they were blowing. Was it hard to keep breathing slowly? Do they feel relaxed when they breathe slowly?

Variations on Activity 4

1. Have the children blow into the party favor as slowly as possible, slowly unfurling the paper coil.
2. Have the children let the coil roll back as slowly as possible.
3. Next, have the children run in place for one minute.
4. Repeat steps one and two. Ask the children if it is easier or harder to blow slowly after exercising? Tell them the body needs more oxygen during exercise.

Exercise requires a person to breathe faster because the body is working harder during exercise than when it's resting or sitting.

5. Ask the children if they think a person who smokes cigarettes can keep the party blower out for a longer or shorter time than a person who doesn't smoke? Explain that when the lungs are damaged by disease or smoking, it is harder to blow out. Discuss how lung disease (such as asthma) and smoking can make it harder to breathe.



Research

Deep Breathing Activities Can Help with Stress Reduction

<http://www.applesforhealth.com/HealthyFeatures/bacbluspeb5.html>

Impact of Environmental Tobacco Smoke on Infants and Young Children

Study at Columbus Children's Hospital, May 16, 2000

<http://www.kidsource.com/health/study.infants.smoke.html>

The children of smokers have normal lung size, but their airway tubes are smaller. This affects how fast they can move air in and out of their lungs, makes them more vulnerable to respiratory problems and more likely to end up hospitalized with viral lower respiratory illnesses such as RSV (respiratory syncytial virus), bronchiolitis and pneumonia.

Respiratory Activities

Science Museum of Minnesota: Explore Science Habits of the Heart, and Lessons About Your Lungs

<http://www.smm.org/heart/lungs/top.html>

Indoor Air Quality

Children's Health Environmental Coalition HealthHouse

<http://www.checnet.org/healthhouse/houserules/ventilate.asp>

Allergies and Asthma

Allergy and Asthma Network/Mother's of Asthmatics/
Breatherville: with activities for children

<http://www.aanma.org/>

National Heart, Lung and Blood Institute: Asthma Information for the Public

Facts About Controlling Your Asthma/El asma: cómo controlar esta enfermedad

How Asthma Friendly Is Your School?/Su escuela tiene encuesta a los niños con asma¿

How Asthma Friendly Is Your Child Care Setting?/Su guarderia infantil tiene

encueseta a los niños con asma¿

And More/Y más

<http://www.nhlbi.nih.gov/health/public/lung/index.html>

Tobacco Awareness

Smoking Stinks: Youth Oriented Resources on the Web

<http://www.smokingstinks.org/resources/youth.html>