

In With the GOOD AIR, Out With the BAD

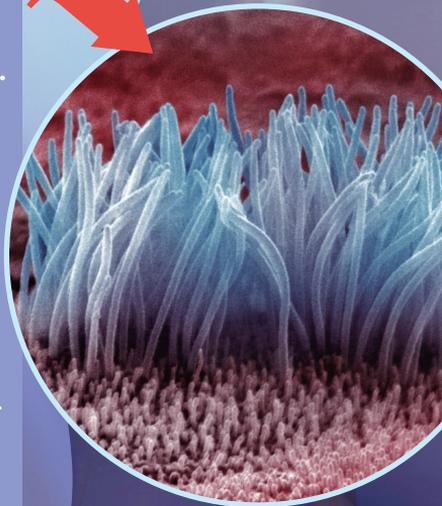
What really happens when you take a deep breath?

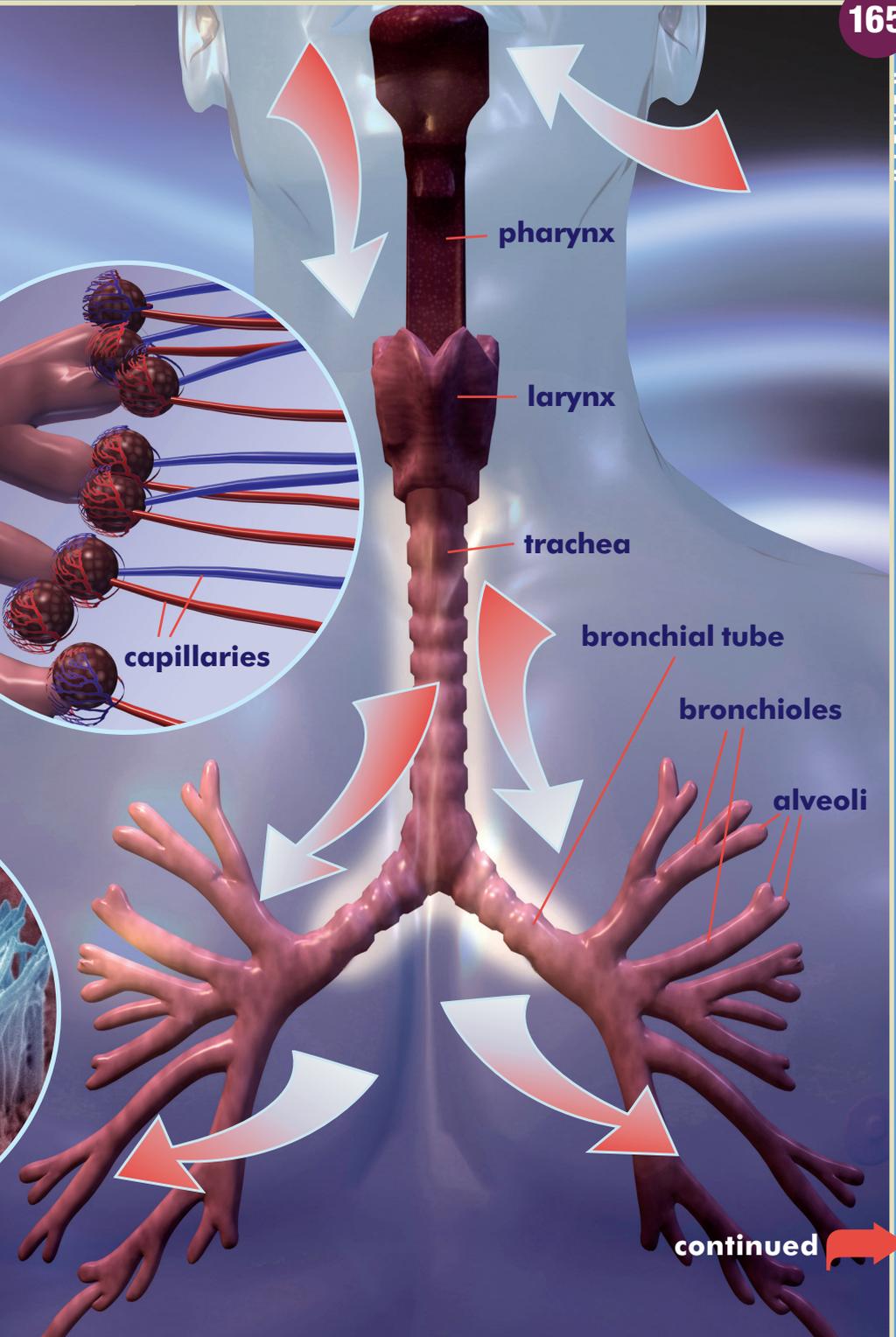
The air you breathe into your nose and mouth when you inhale travels down your throat (called the **pharynx**), past the voice box (called the **larynx**, which contains your vocal cords), and on to the windpipe (called the **trachea**). From there, it branches into your left or right main **bronchial tubes** and then into your two lungs. In your lungs, the bronchial passageways branch more and more and get smaller and smaller until they become tiny **bronchioles**. At the ends of the bronchioles are **alveoli**, which are tiny air sacs shaped like bunches of grapes.

'S not just funny, it's

CILI...A!

Lining the bronchial passageways are tiny hairs called cilia. These hairs are constantly waving, moving mucus—a thick, sticky liquid. Another place you have mucus is in your nose, where it is also called snot or boogers. Glands in your nose produce more than a pint of mucus each day to catch unwanted particles and germs that you breathe in and to keep air passages moist. The cilia in your nose move the mucus back toward the throat, where it is swallowed. If you have a cold or allergies, too much mucus may collect and you'll end up with a runny nose. When this happens, grab a tissue and blow!





continued

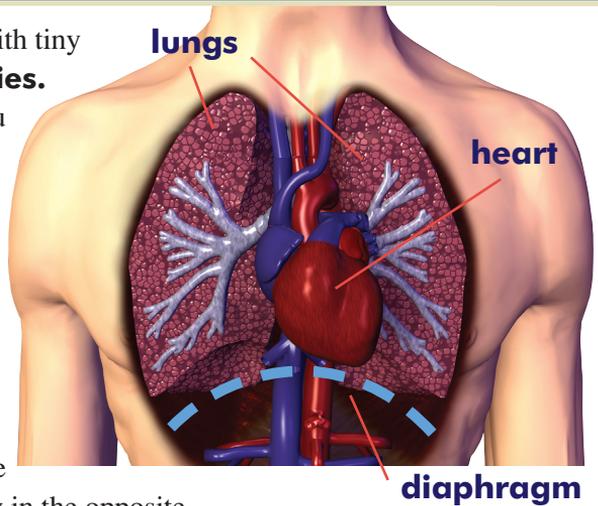


The alveoli are in touch with tiny blood vessels called **capillaries**.

Good air—the oxygen that you **inhale**—passes through the alveoli, through the walls of the capillaries, and into your bloodstream. Your blood carries the **oxygen** to other parts of the body. At the same time, your blood releases bad air—**carbon dioxide**—into the alveoli. The carbon dioxide

is transported out of your body in the opposite way that the oxygen came in. Any oxygen in your air passageways that didn't reach the alveoli when you inhaled, and all other gases in the air that your body can't use, are also **exhaled**.

The big wall of muscle in your chest that makes this all possible is called the **diaphragm**. When you inhale, the diaphragm moves down, creating suction to pull air into your nose and mouth and on through the bronchial passageways, causing your lungs to expand. When you exhale, the diaphragm moves up, squeezing the air out of your lungs and forcing it to move on out through your nose and mouth. The muscles between your ribs also help you to breathe, by lifting your ribs up and out when you inhale and pulling them back when you exhale.



Did you know?

Your left lung is a little smaller than your right. This is so that there is enough room for your heart.

The term **“SMOG,”** meaning a fog full of smoke and pollutants, came from combining the words **“smoke”** and **“fog.”**



Did you know?

Kids breathe in 50 percent more air per pound of body weight than adults do.

What is this stuff called **AIR?**

Earth's air contains about 78 percent nitrogen and 21 percent oxygen. Other gases, such as argon, carbon dioxide, ozone, neon, helium, krypton, and water vapor, are present in tiny amounts. **Air can also contain . . .**



microbes, creatures so small that we can't see them. These include dust mites, bacteria, and viruses.



pollen, tiny grains produced by flowers to help plants form seeds



dirt, dust, and debris kicked up by wind or produced by fires and active volcanoes



pollutants, gases or particles (such as carbon monoxide, lead, nitrogen oxides, and sulfur dioxide) released into the air from industrial processes, vehicles burning fuel, and other sources



Most people, plants, animals, and microorganisms need the oxygen in air or water to turn food into energy. When energy is created, carbon dioxide is formed as a waste product, along with water.

Nearly all plants use carbon dioxide and water to help make food from sunlight in a process called **photosynthesis**. When food (in this case, a type of sugar called glucose) is made, oxygen is formed as a waste product and released into the air. If there weren't any plants, there wouldn't be enough oxygen for life on Earth!