THE BREATHING SYSTEM

This activity was developed by Chris Laine, Pauline Hoyle and Stuart Scott in the early eighties and published as Talking Science by the Inner London Education Authority. It has now been rescued from the archive and is redone in a more user friendly style. You might want to divide the information paragraphs into four pieces and make an information gap. You need to enlarge the board to A3 and then the cards will fit it.

Last updated 19th October 2010

When we breathe, air can enter the body either through the nose or mouth. It is better to breathe through your nose because the structure of the nose allows the air to become warm, moist and filtered before it gets to the lungs. The hairs and mucus in the nose filter the air by trapping bacteria, dirt and dust. There are also lots of blood capillaries inside the nose which help to warm the air as it passes through.

Down the windpipe

At the back of the nose and throat the air enters the windpipe or trachea. At the top of the windpipe there is a bulge called the voicebox or larynx. This has cords in it which vibrate as the air passes over them. These allow us to talk and make other sounds. The rest of the windpipe is 12 cms long. It has C-shaped rings of cartilage. These strengthen it, so that it can stay open all the time to let air pass from the mouth and nose to the lungs. There are also hairs to filter the air.

Into the lungs

The trachea or windpipe divides at the bottom into two short tubes. Each tube is called a bronchus and it takes air into the lungs. Like the windpipe, each bronchus has hairs to filter the air, and cartilage rings for support. Inside each lung the bronchus divides into many smaller tubes called bronchioles. The bronchioles take the air to all parts of the lung. At the end of each bronchiole there are many tiny air sacs. Each air sac is made up of thin membranes called alveoli. The alveoli are surrounded by blood vessels. Each alveolus lets gas exchange take place. This means that the oxygen moves from the air in the alveolus into the blood. At the same time carbon dioxide moves from the blood to the air in the alveolus.

Surrounding the lungs

The lungs are covered by a thin, shiny, slippery membrane or skin. This is called the pleural membrane and it makes a liquid which stops damage to the lungs if they rub against the rib cage. The rib cage is made of many bones called ribs which surround and protect the lungs and heart. Under the lungs is a large sheet of muscle called the diaphragm. This stretches across the body and helps breathing in and out.
GROUP INSTRUCTIONS

THE BREATHING SYSTEM

Work in groups of three or four.

Put the breathing system board where all can see it.

Share out the part and function cards so that everyone has some of each.

Work together to try to label each part.

Then try of match the functions to the parts and put the functions cards in the correct places.

Check your ideas by reading the Breathing System Texts.

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<table>
<thead>
<tr>
<th>PART</th>
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<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>bronchus</td>
<td>trachea (windpipe)</td>
<td>bronchioles</td>
<td>This stays open all the time to allow the air to get from the mouth and nose to the lungs.</td>
</tr>
<tr>
<td>larynx</td>
<td>diaphragm</td>
<td>air sacs (made up from alveoli)</td>
<td>This helps to make sounds bigger when air passes through it.</td>
</tr>
<tr>
<td>ribs</td>
<td>nose</td>
<td>pleural membranes</td>
<td>These produce a liquid to reduce damage by friction as the lungs rub against the ribs during breathing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This cleans and warms the air as it passes through.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This moves to help with breathing in an out.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>These allow gaseous exchange to take place so that oxygen moves from the air into the blood and carbon dioxide moves from the blood to the air in the alveoli.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>These transport air from the trachea to the lungs. Its hairs trap dust and dirt.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>These take air to all parts of the lungs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>These surround and protect the lungs and heart.</td>
</tr>
</tbody>
</table>