



# WHAT IS THE RESPIRATORY SYSTEM?

*Every cell in our body needs oxygen to stay alive. The job of the Respiratory System is to transport air into the lungs so that the oxygen it contains can be absorbed into the blood and be delivered to cells all over the body.*

## Breathing in

When we are ready to take a breath, the muscle that sits under the lungs, called the diaphragm, contracts and moves downwards. This expands the lungs and pulls air into the body.

Muscles between the ribs called the intercostal muscles also move the rib cage outwards, to give the lungs more room to expand.

Air travels through the pharynx, larynx, and the trachea - and then to the bronchial tubes which lead to the lungs.

Breathing is controlled by our brain without us needing to think about it - on average, about 16 times per minute.

However, we can also consciously regulate our breathing if we choose, such as when singing or speaking.

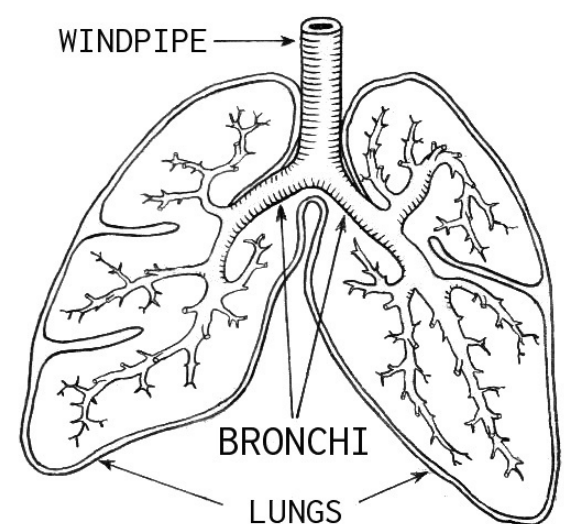
## Inside the lungs

The lungs are made up of sections called 'lobes'. The right lung has three lobes, but the left lung only has two, to allow room for the heart.

Air is transported from the mouth through the windpipe, also called the trachea. The windpipe divides into two bronchial tubes so that air is distributed to each lung.

They divide further into bronchioles, which end in tiny structures covered in a moist film, called alveoli. Alveoli are filled with capillaries, through which oxygen can be moved from the lungs into the blood to be carried around the body.

Carbon dioxide moves from the blood into the lungs, and leaves the body with the next breath.

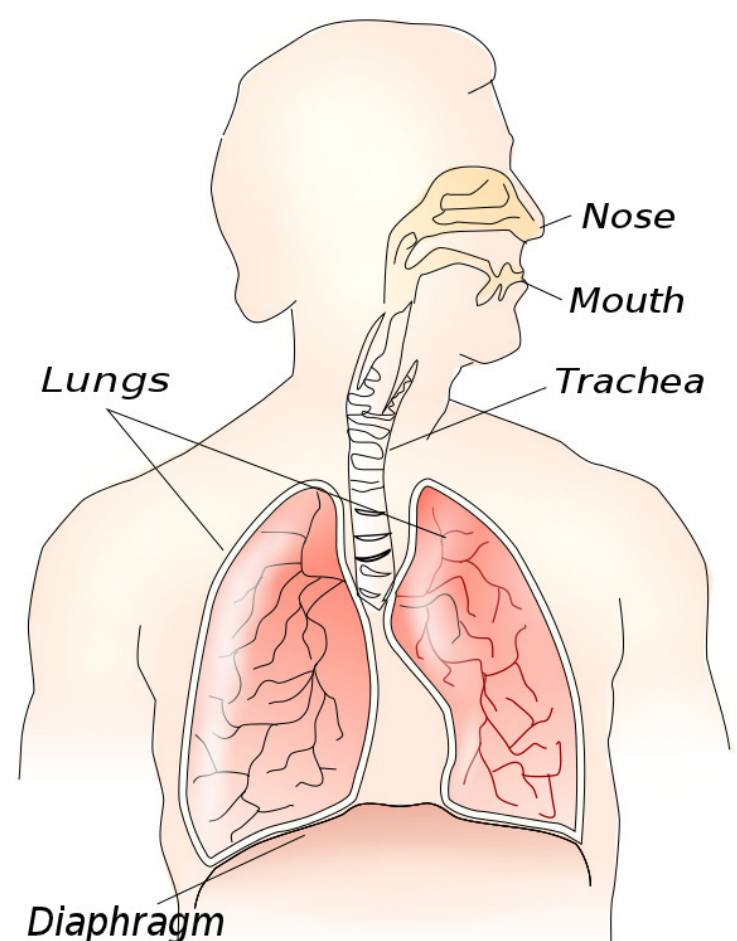


## Breathing out

When oxygen has been absorbed into the body, we need to expel the used air with carbon dioxide in it, so that we can replace it with a fresh supply containing more oxygen. To breathe out, muscles between our ribs contract at the same time as the diaphragm muscle below the lungs relaxes and rises up. This squeezes the lungs, forcing air out - and we are ready to take another breath.

## What are the important parts of the Respiratory System?

- The **pharynx** is the tube that runs from the nose, through the back of the mouth, and into the throat to connect to the larynx. To stop food or drink moving into the trachea and choking us, we have a flap of cartilage called the epiglottis, which closes off access to the trachea when we swallow. All food or drink must continue down the oesophagus instead, and into the stomach. When we are breathing, the epiglottis covers the access to the oesophagus so that the air is directed to our lungs through the trachea, and not into our digestive system.
- The **larynx** is also called the Voice Box, and sits between the pharynx and the trachea. Two ridges called vocal cords lie across the larynx and open and close as air passes through them, so that we are able to make sounds. The volume of the sounds depends on the amount of air passing over the vocal cords: more air means a louder sound!
- The **trachea**, sometimes called the Windpipe, is the tube connecting the larynx to the bronchial tubes, which enter the lungs. The trachea's job is to stay open at all times so that air can pass in and out of our lungs, even when we are asleep. The trachea also produces mucus to trap dirt or dust so that it can't enter the lungs and cause irritation.



## References

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'Your Lungs and Respiratory System', Kidshealth.org, October 2012. Retrieved from [http://kidshealth.org/kid/cancer\\_center/HTBW/lungs.html#cat20816](http://kidshealth.org/kid/cancer_center/HTBW/lungs.html#cat20816) 6 November 2014

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