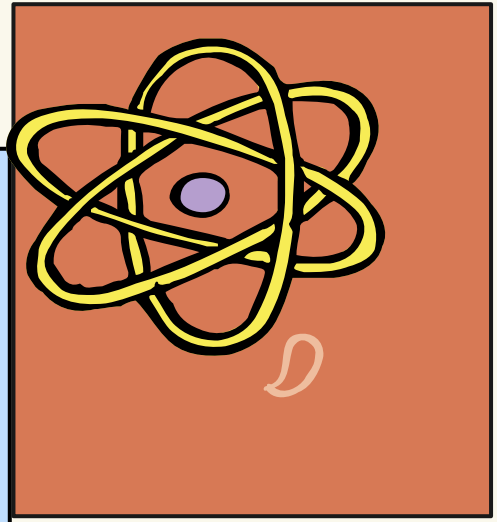
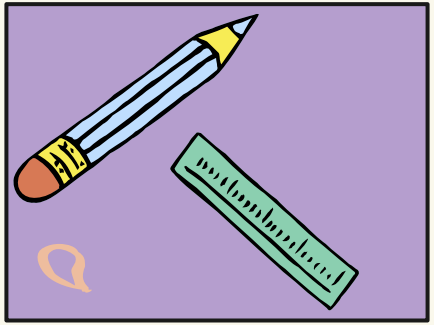
Y7 Science



Hei mahi:

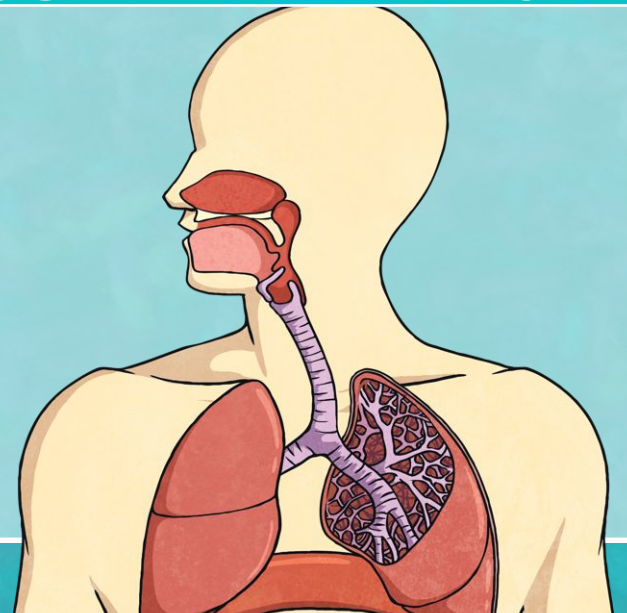
1. LI: To understand why and how we breathe

2. In your books draw a quick drawing of what you think our lungs look like



Respiratory System

The respiratory system is a large group of tissues and organs in your body that work together to allow you to breathe, taking in **oxygen** and removing **carbon dioxide**.



Oxygen

Your body needs a constant supply of **oxygen**. Oxygen is one of the main gases that make up air, and animals and plants need it to survive.

Our bodies get this oxygen by breathing.

We inhale, or breathe in air.

Inhalation

We inhale, or breathe in, air through our nose and mouth.

When we inhale, the _____, which is a muscle below our lungs, moves _____. This causes our lungs to expand (become bigger)

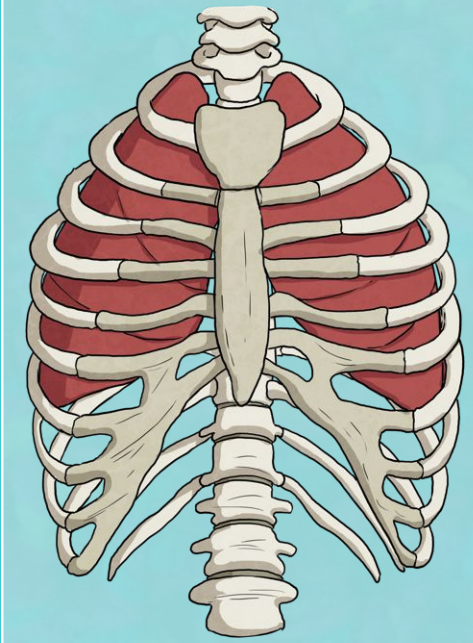
The muscles between the ribs also help to expand the chest when we breathe in.

This causes air to flow into the lungs.

Your Ribcage

Your lungs are protected by the ribcage. Your ribcage is made of [ ] sets of ribs, which connect to the spine at the back and go around your lungs to protect them.

You cannot see your lungs, but you can feel them expanding if you put your hands on your ribcage. Try it!



Place both hands on your ribcage and inhale deeply. Did you feel your ribcage expand? Now exhale and you should feel your ribcage becoming smaller.

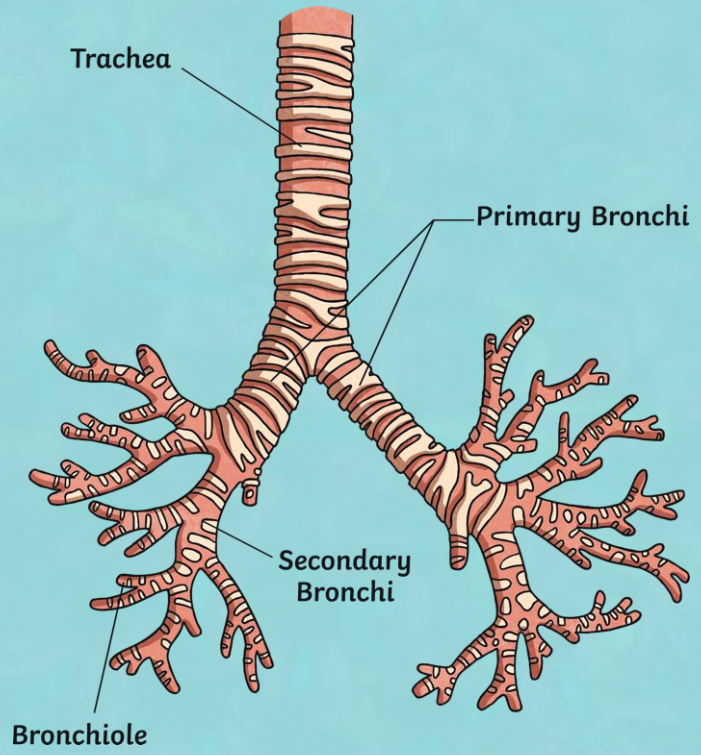
How do we breathe?

When you breathe in, air travels through your nose and mouth.

The air travels down your windpipe, or trachea.

The trachea splits into two wide tubes called bronchi.

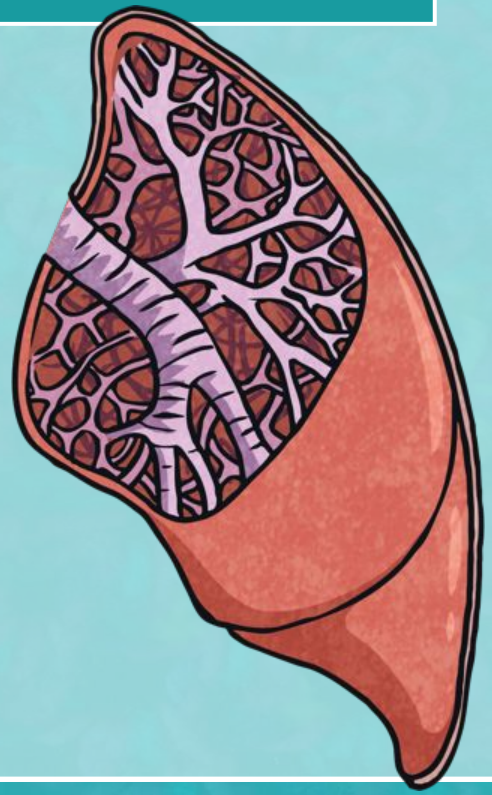
One bronchus goes into the left lung and the other goes into the right lung.



Let's Look Inside the Lungs

The bronchi branch off into smaller tubes inside the lungs, like to the roots of a tree. These are called bronchioles.

At the end of the bronchioles are air sacs, called alveoli. These alveoli are covered in blood vessels. These blood vessels pick up the oxygen from the alveoli. They transport the oxygen in the blood and carry it around the body to be used by all the different cells in the body.

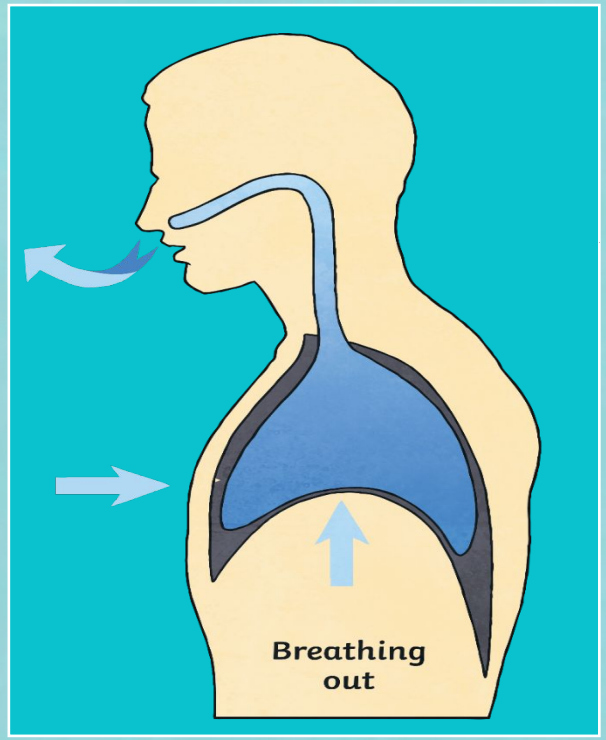


Exhalation

Exhalation, or breathing out, is when air is released from the lungs.

The diaphragm relaxes and moves up which pushes air out of the lungs.

Your rib muscles also relax, which makes the space in your chest smaller, pushing air out of the lungs.

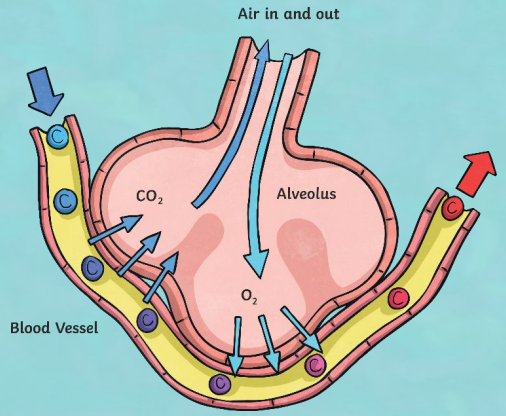


Exhalation

After your body has used up all the oxygen from the blood, the blood is carrying carbon dioxide, which it needs to get rid of.

The carbon dioxide is carried in the blood vessels to the lungs. It moves from the blood vessels to the alveoli, where it can be breathed out.

You breathe out in the reverse order that the air came in.



Task - Brainpop

1. Watch the video and do the video quiz
2. Complete the other activities

Your Lungs Are Very Important

Our lungs allow us to breathe.

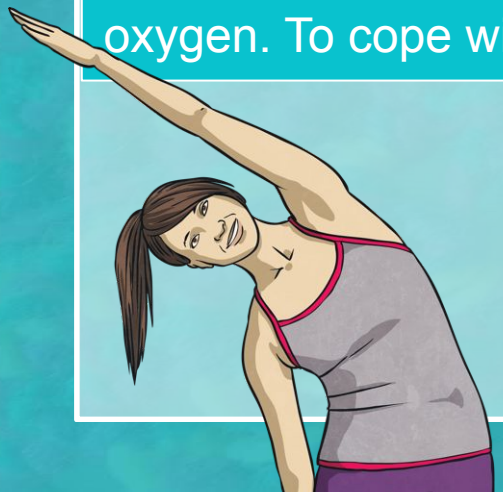
Keeping your lungs healthy is very important. The best way to do this is not to smoke. Smoking damages many parts of the body, but especially the lungs.

How quickly do we breathe?

Adults need to breathe around 15 times a minute at rest.

Children need to breathe more frequently than adults, usually around 20 times per minute.

We breathe more quickly when we are exercising. That is because your muscles work much harder when we exercise and your body uses more oxygen. To cope with this extra demand, your breathing increases.



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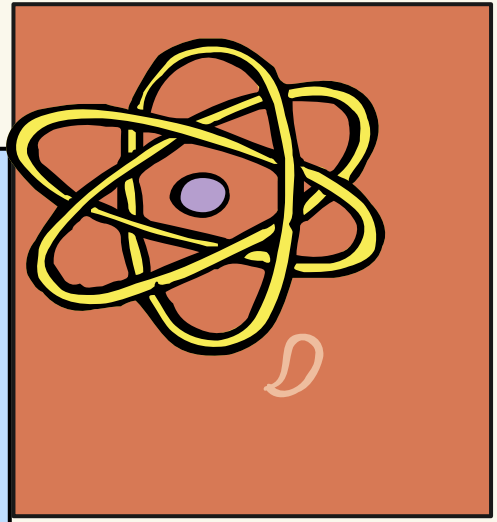
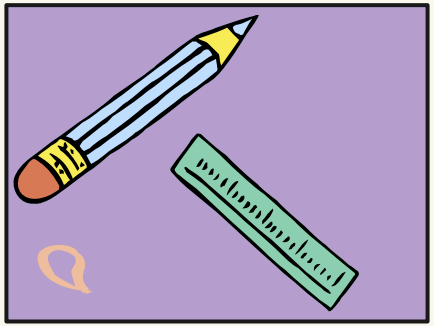


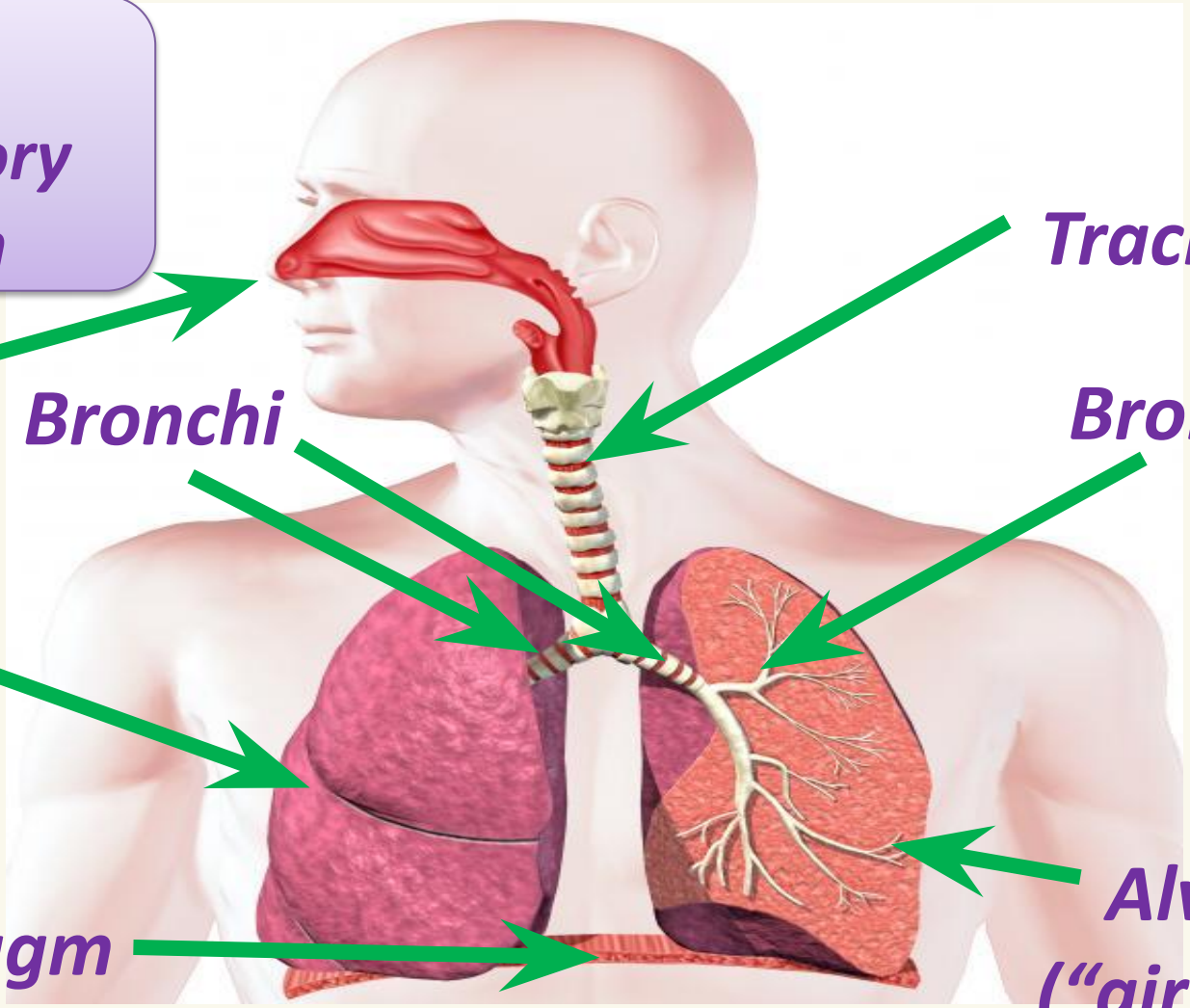
Hei mahi:

Write down today's LI:

To use our knowledge of the lungs to create models



The respiratory system



Nose

Trachea

Bronchi

Bronchioles

Lung

Diaphragm

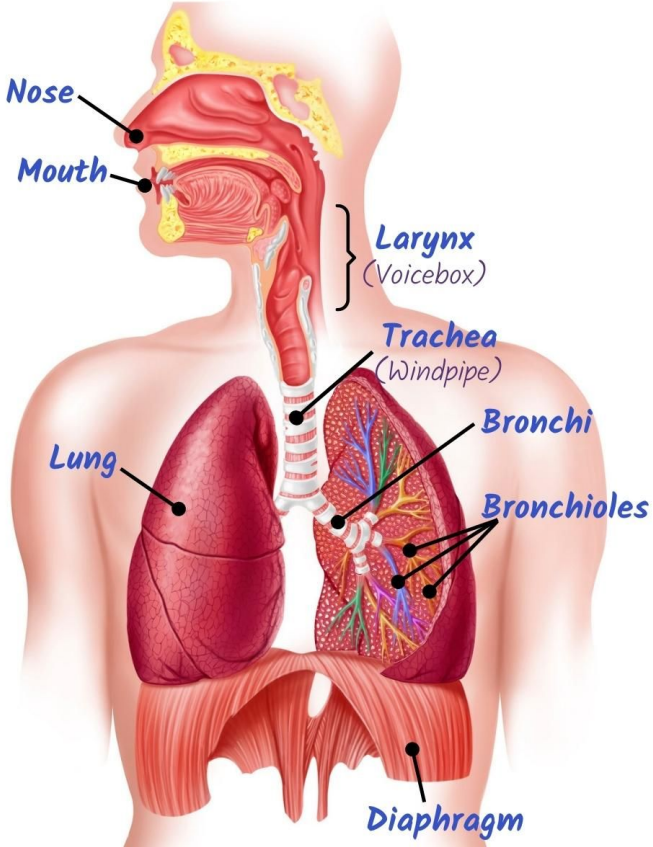
Alveoli ("air sacs")

Model lungs

Equipment:

- Straws
- Tape
- Paper bags
- Mouth and nose cutouts

The Respiratory System



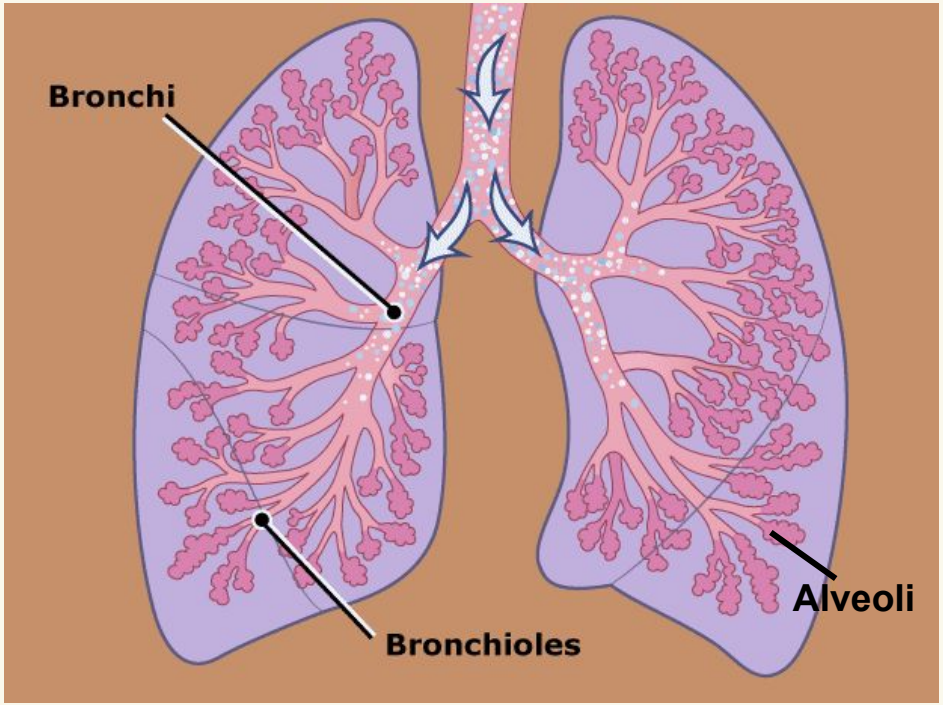
HUMAN BODY
Learning

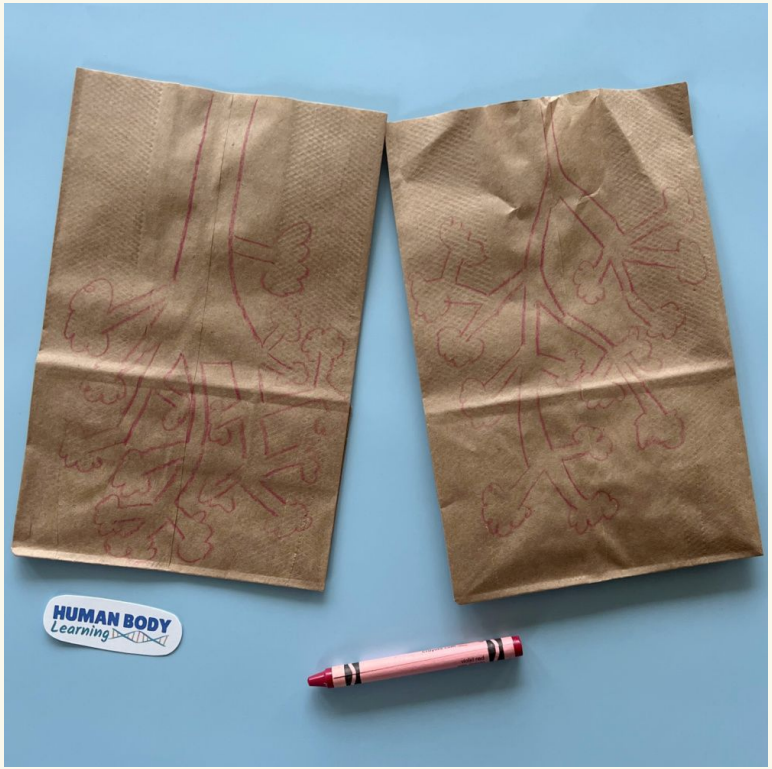
Step 1.
Cut out one nose and one mouth

Step 2.
Put the straws together to make an upside-down “Y” shape.
Tape the long part of the straws together.

Step 3.
Tape the nose and mouth to the straws.
This is where air first enters the human body.
Doctors call this area the “upper airway” or the “upper respiratory tract.”

Step 4. Draw **bronchioles and alveoli** on the brown paper bags “lungs.”
Your lungs have lots of little bronchioles and alveoli. Bronchioles are the smallest airways in the respiratory system. Alveoli are the small sacs of air at the end of each bronchiole.





Step 5.

Tape a brown paper bag around each straw end. The paper bags are the lungs of the DIY lung model.

Make sure there are no gaps for air to leak out!

1. What would happen if you pinched the straw and tried to blow in the straw? What does this represent in real life?

2. What would happen if you put a hole in the paper bags? What could cause this in a real lung?

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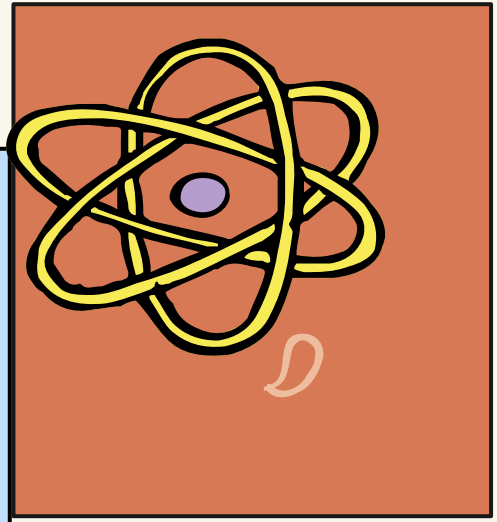
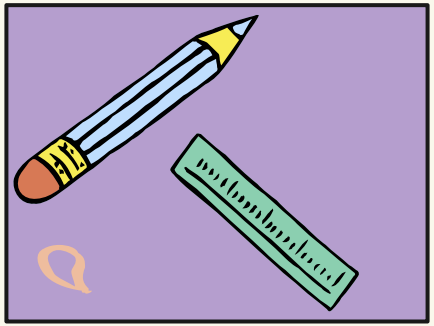


Hei mahi:

Write down today's LI:

To show our understanding of the journey of oxygen through our respiratory system.



Hei mahi: Fill in the blanks

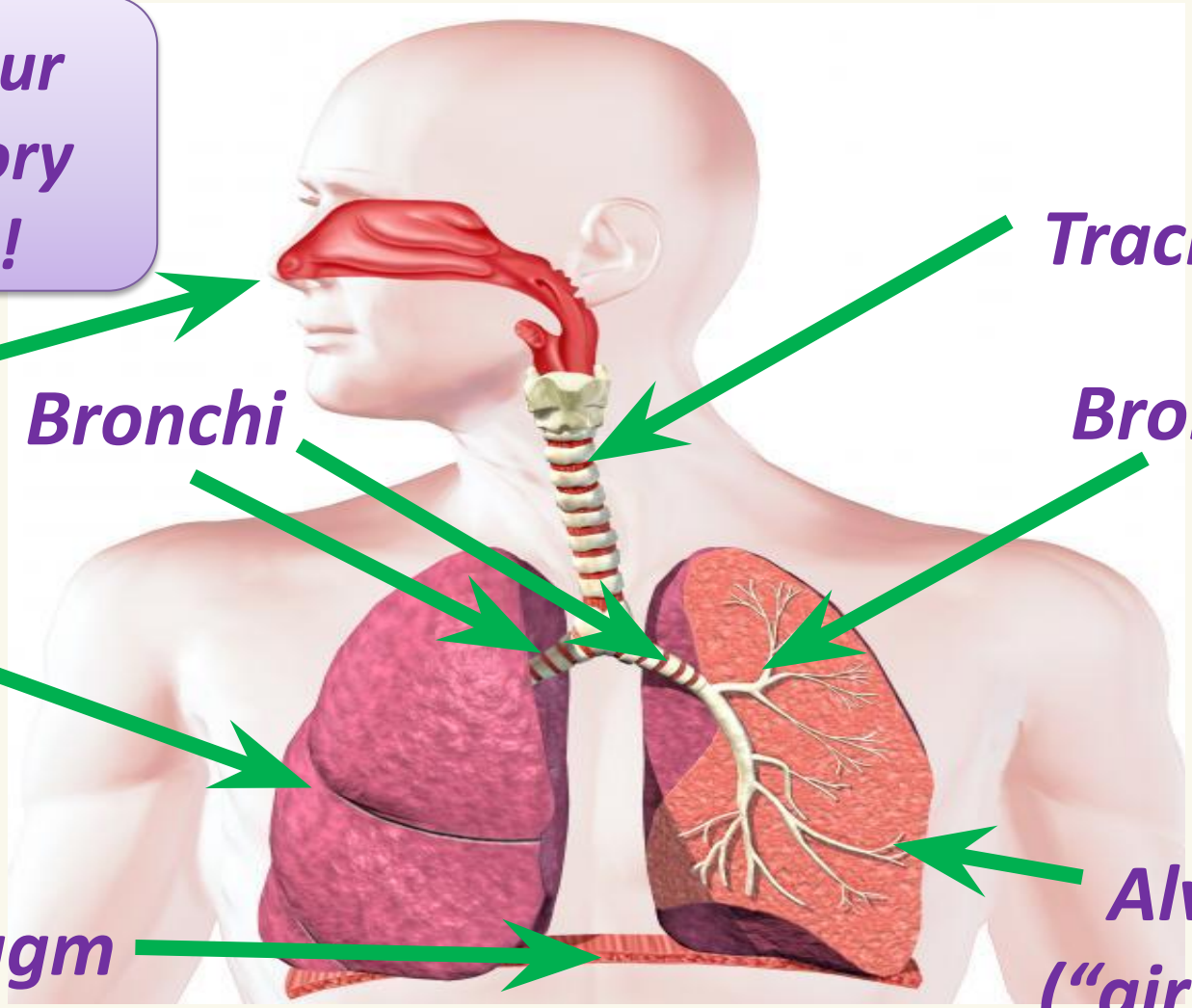
We need ____ to survive. We breathe air in through our ____ or ____. A muscle called the ____ helps us inhale and ____. The air travels down our____, then through the bronchi into our ____, where it branches into ____. At the end are tiny sacs called ____ where oxygen moves into the blood.

Words: alveoli, nose, diaphragm, bronchioles, oxygen, mouth, lungs, exhale, trachea

Lung Anatomy

kids Learning tube

Label your respiratory system!



Nose

Trachea

Bronchi

Bronchioles

Lung

Diaphragm

Alveoli ("air sacs")

Journey of an oxygen molecule

Imagine you are an oxygen molecule floating through the air…

Write a short story describing your journey when someone breaths you in!