

Fit and Healthy: Breathing and lungs

Unit 9B

Year 8

Week commencing 30th April 2012

Title: The lungs and breathing

Learning objectives:

1. Must be able to say what the job of the lungs is and name the main parts
2. Should be able to describe what happens to the diaphragm and muscles when we breathe
3. Should measure our own lung volume and evaluate how this relates to our fitness

Last lesson we learnt:

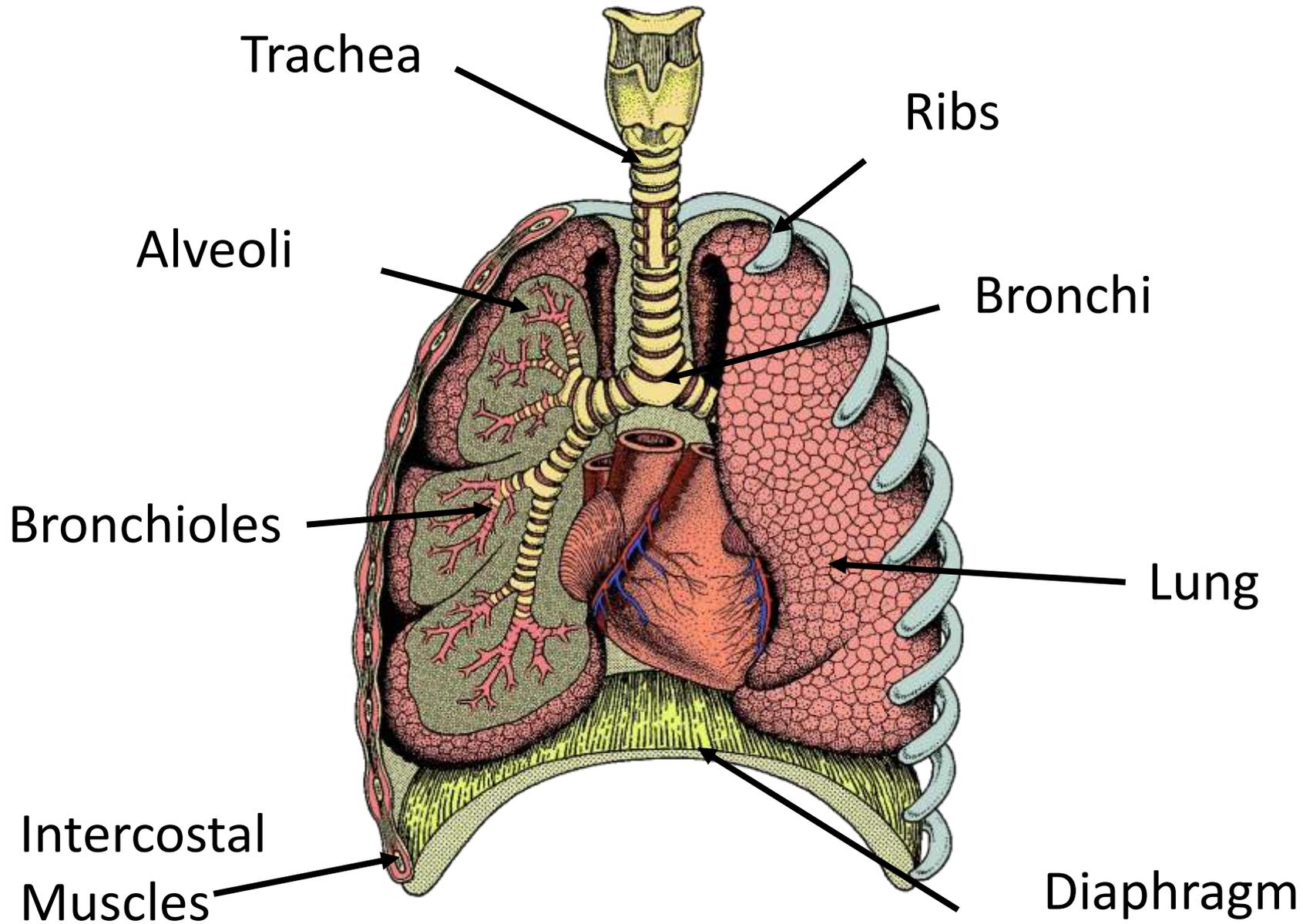
- That there are 2 types of fitness....
- These are and
- When we are fit, certain things in our body change. These are
- TODAY WE WILL LEARN ABOUT THE LUNGS AND BREATHING

Starter

- From your previous study of the lungs, see if you can label your diagram with the following parts
 - Trachea
 - Alveoli
 - Bronchioles
 - Ribs
 - Bronchi
 - Diaphragm
 - Lung
 - Intercostal muscles

Now observe the dissection of a lung

- Can you identify the different parts?
- How is it different from a diagram of a lung?



What is gas exchange?

The process of oxygen and carbon dioxide moving between the lungs and the blood.

What are the lungs?

Lungs are the organs of respiration.

- The right lung is a little bigger than the left lung. This the left lung has to fit around the heart making it slightly smaller.
- The lungs are split into lobes
- The left lung is split into 2 lobes while the right lung is split into 3 lobes.
- Lungs have a very spongy texture and have a large surface area.

Breathing

When your muscles change the size of your lungs.

Ventilation

The movement of air into and out of your lungs

What is breathing?

The process by which you take IN oxygen and give OUT carbon dioxide.

When you breathe in:

Your diaphragm goes down/up

Your ribs expand/move inwards

Lungs get bigger/smaller

When you breathe out:

Your diaphragm goes down/up

Your ribs expand/move inwards

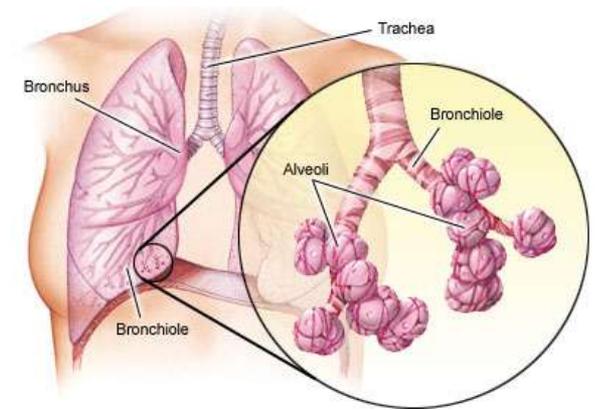
Lungs get bigger/smaller

Where does gas exchange occur?

The **alveoli** are adapted to make gas exchange in lungs happen easily and efficiently.

Features of the alveoli that allow gas exchange

- They have moist, thin walls (just one cell thick)
- They give the lungs a really big surface area
- They have a lot of tiny blood vessels called capillaries.



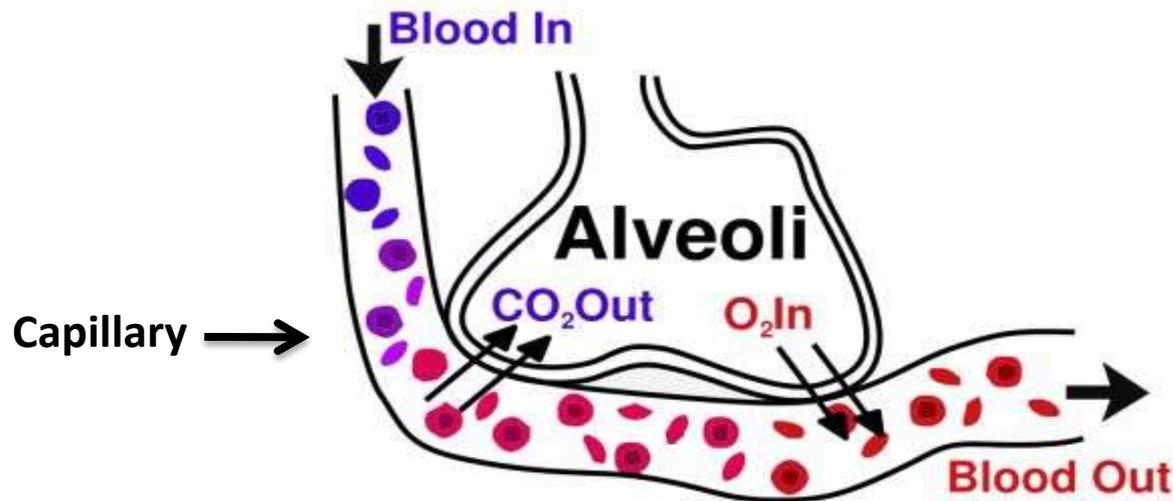
How do the gases move?

The gases move by **diffusion**.

Diffusion is the process by which gases move from a high concentration to a low concentration:

Oxygen diffuses from the air in the alveoli into the blood.

Carbon dioxide diffuses from the blood into the air in the alveoli.



You are now going to measure your lung capacity

- What did we learn yesterday about how lung capacity relates to fitness and why?
- Write down a hypothesis about what you expect to see about your lung capacity and why
- Write a method and record your result
- What did you conclude? Is there a difference in vital capacity between the girls and boys in the group?

Plenary

The passage of air through the body:

The lungs are positioned inside the The form a cage protecting them.

Thelung has cavities is **bigger** than the lung which only has The action of breathing means that the lungs are constantly moving in and out. In order to prevent friction, the lungs are surrounded by the This is a complete lining which is smooth and has a moist, slimy mucus.

two three right left chest cavity pleural membrane