

KNOWLEDGE ORGANISER

BIG IDEA: ORGANISMS

TOPIC: Breathing

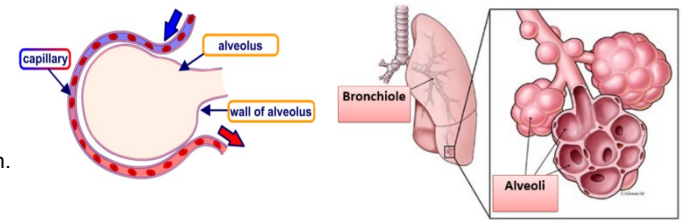
Key Word	Definition
breathing	the movement of air in and out of the lungs
trachea	(windpipe) – carries air from the mouth and throat to the lungs
bronchi	two tubes that carry air to the lungs
bronchioles	small tubes in the lungs
alveoli	small air sacs found at the end of each bronchiole
ribs	bones which surround the lungs to form the ribcage
diaphragm	a sheet of muscle found underneath the lungs
gas exchange	the process of exchanging carbon dioxide and oxygen in the alveoli

Gas exchange.

In gas exchange, oxygen and carbon dioxide move between alveoli and the blood.

Oxygen is transported to cells for aerobic respiration.

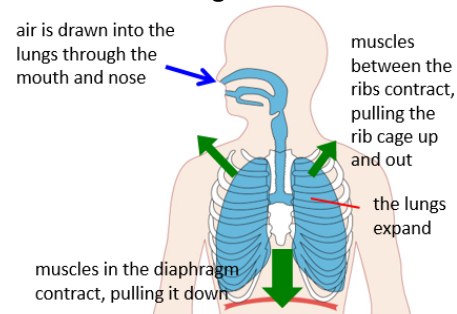
Carbon dioxide, a waste product of respiration, is removed from the body.



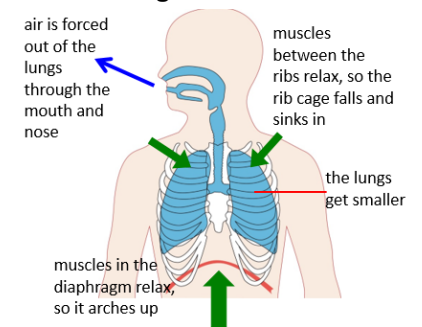
Breathing in and out.

Breathing occurs through the action of muscles in the ribcage and diaphragm. The amount of oxygen needed by body cells determines how fast or slow we breathe.

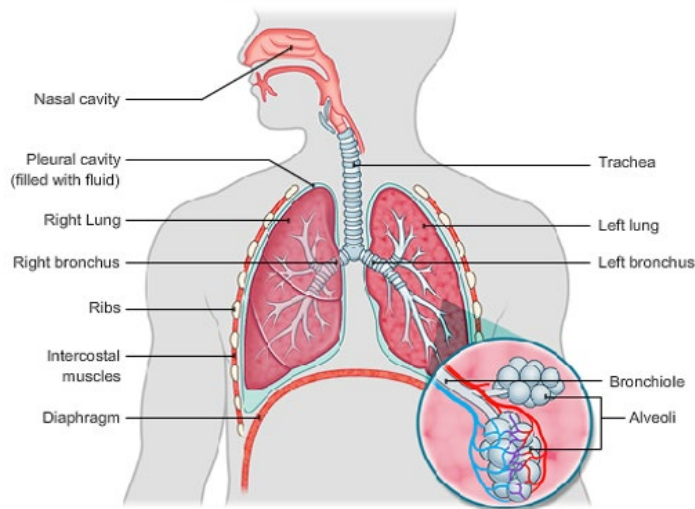
Breathing in = inhalation



Breathing out = exhalation



Breathing system structure.



Exercise, smoking and asthma can affect the gas exchange system

- Exercise can strengthen the breathing system by exercising the rib muscles and diaphragm.
- Smoking can cause breathing problems, stroke, lung cancer and heart attack (see the table)
- Asthma can cause breathing problems as it stops air flow through the bronchioles. This stops oxygen getting to body cells.

The chemical in cigarette smoke	What does the chemical do?
tar	Tar is a sticky black material that collects in the lungs.
nicotine	Nicotine is an addictive drug that speeds up the nervous system.
carbon monoxide	Carbon monoxide is a poisonous gas that stops the blood from carrying as much oxygen as it should.

Drugs and alcohol

Drugs can be medicinal or recreational. Drugs can seriously damage health and can be addictive. Alcohol is a drug that slows the body's reactions. It can cause damage to the stomach, heart, brain and liver.



Y8 topic: Breathing

I have already learned:

In KS2:

- Recognise the impact of diet, exercise, drugs and lifestyle on the way your body functions

In KS3

- Y7 Movement: link to muscles involved in breathing
- Y7 Cells: link to cellular organisation (breathing system as an example of an organ system)

This topic links to:

KS4:

- B2b: Organising animals and plants

It is important to study about breathing because...

you can make better choices about your lifestyle to maintain good health and not suffer from the effects of smoking, alcohol or drugs..

Possible careers involving breathing are...

- Respiratory nurse/doctor
- Sports scientist
- Substance misuse outreach worker
- Occupational therapist