

The role of the blood is to :

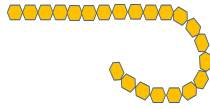
Deliver **oxygen** to the body cells (muscles, brain)

Deliver **waste carbon dioxide** to the lungs

Deliver **glucose** to the body cells

Glucose molecules can be stuck together to form long chain **carbohydrates**.

These can be used to build parts of the body/plant e.g. :  
**cell membranes,**  
**cell walls,**  
**energy stores**



	Diaphragm	Ribs	Volume (in chest)	Pressure (in chest)
Inhale	Contracts, downwards	Contract, up and out	Increases	Lowered – air moves in
Exhale	Relaxes, upwards	Relax, fall downwards	Decreases	Raised – air moves out

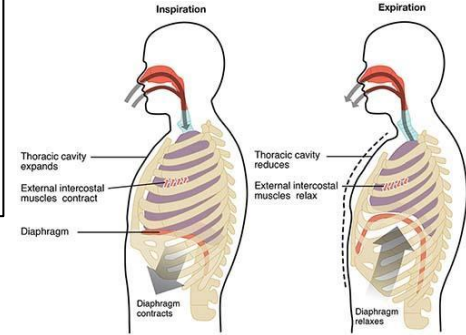
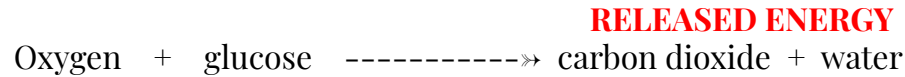
Breathing and Exercise:

Breaths become **deeper and faster** during exercise because:

Muscles need **more oxygen**

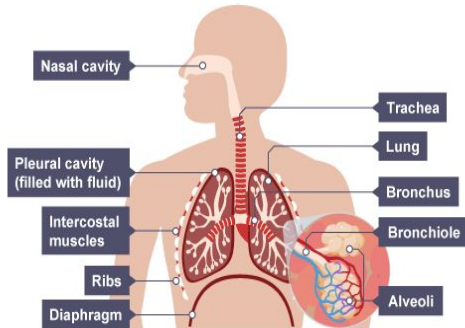
Muscles produce **more carbon dioxide**

The equation for aerobic respiration – happening in every cell of the body



## Respiration

The Breathing System



Heart rate and Exercise:

Heart rate becomes **faster** during exercise to pump more blood because:

Muscles need **more oxygen and glucose**

Muscles produce **more waste carbon dioxide**

**Anaerobic respiration** is release of energy from glucose **without oxygen**

This releases little energy and produces the waste **lactic acid**

In some plants it produces **ethanol (alcohol)** instead of lactic acid

Effects of lactic acid:

When muscles run out of oxygen, for example during sprint exercises, lactic acid builds up.

Lactic acid causes:

- **muscle fatigue (tiredness)**
- **muscle cramp**
- **muscle pain,**

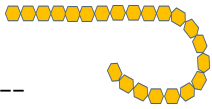
The role of the blood is to :

Deliver \_\_\_\_\_ to the body cells (muscles, brain)

Deliver **waste** \_\_\_\_\_ to the lungs

Deliver \_\_\_\_\_ to the body cells

Glucose molecules can be stuck together to form long chain \_\_\_\_\_.

These can be used to build parts of the body/plant e.g. :    
 cell \_\_\_\_\_,   
 cell \_\_\_\_\_,   
 \_\_\_\_\_

	Diaphragm	Ribs	Volume (in chest)	Pressure (in chest)
Inhale	Contracts, _____	_____, up and out	_____	Lowered – air _____
Exhale	Relaxes, _____	_____, fall downwards	Decreases	Raised – air _____

Breathing and Exercise:

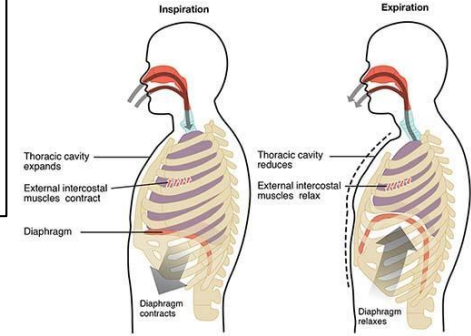
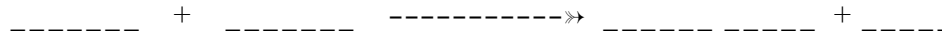
Breaths become \_\_\_\_\_ and \_\_\_\_\_ during exercise because:

Muscles need \_\_\_\_\_ oxygen

Muscles produce \_\_\_\_\_ carbon dioxide

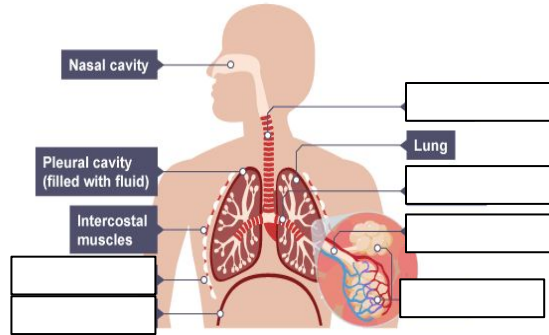
The equation for aerobic respiration – happening in every cell of the body

**RELEASED ENERGY**



## Respiration

Label : The Breathing System



Heart rate and Exercise:

Heart rate becomes \_\_\_\_\_ during exercise to pump more blood because:

Muscles need **more** \_\_\_\_\_ and \_\_\_\_\_

Muscles produce **more waste** \_\_\_\_\_

**Anaerobic respiration** is release of energy from glucose **without** \_\_\_\_\_

This releases little energy and produces the waste \_\_\_\_\_

In some plants it produces \_\_\_\_\_ **(alcohol)** instead of lactic acid

Effects of lactic acid:

When muscles run out of oxygen, for example during sprint exercises, lactic acid builds up.

- Lactic acid causes:
- **muscle** \_\_\_\_\_ (tiredness)
  - **muscle** \_\_\_\_\_
  - **muscle** \_\_\_\_\_,