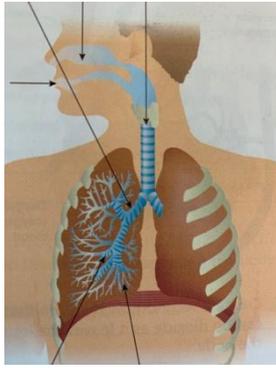


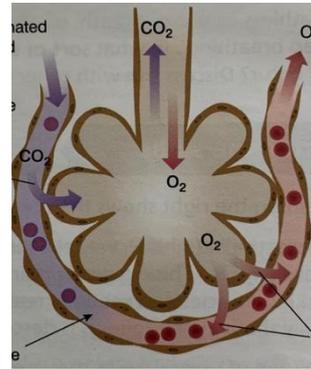
1.



The Respiratory System

BEYOND

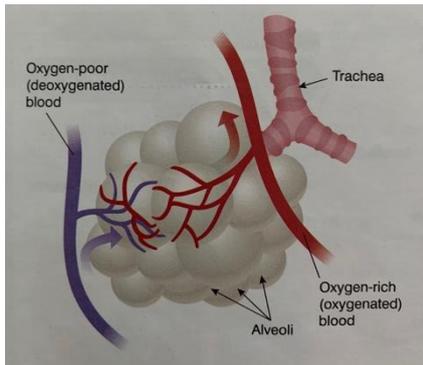
2.



Gaseous Exchange

BEYOND

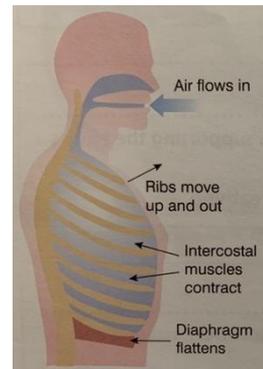
3.



Alveoli

BEYOND

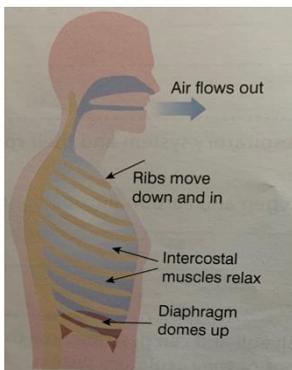
4.



Inhalation

BEYOND

5.



Exhalation

BEYOND

6.



Tidal Volume

BEYOND

7.



Minute Ventilation

BEYOND

8.



Vital Capacity

BEYOND

2.

The process in the lungs whereby oxygen is delivered to the bloodstream and carbon dioxide is removed.

Question – Where does gaseous exchange take place?

BEYOND

1.

The series of organs responsible for delivering oxygen and removing carbon dioxide.

Can you name the parts of the respiratory system in the image?

BEYOND

4.

Also known as breathing in or inspiration. When we breathe in:

- Ribcage moves up and outwards
- Diaphragm contracts and flattens
- Volume of lungs increases
- Pressure in lungs decreases
- The lungs draw in air containing oxygen

BEYOND

3.

Small air sacs found at the end of the bronchioles.

This is where gaseous exchange takes place.

BEYOND

6.

The volume of air you inhale with each breathe during normal breathing.

HINT – Think of the tide of the sea, the waves move in and out constantly. We breathe constantly.

BEYOND

5.

Also known as breathing out or expiration. When we breathe out:

- Ribcage moves in and downwards
- Diaphragm relaxes and domes upwards
- Volume of lungs decreases
- Pressure in the lungs increases
- Air containing carbon dioxide is forced out

BEYOND

8.

The maximum volume of air you can breathe out.

HINT - It is **VITAL** that you breathe out

BEYOND

7.

The volume of air that you breathe per minute. This is measured in litres (l/min).

The key word in the definition and the term is **minute**

Tidal Volume x Number of breaths = Minute ventilation  
(ml) (per minute). (l/min)

BEYOND

9.



Residual Volume

BEYOND

10.



Effects of exercise on the Respiratory System

BEYOND

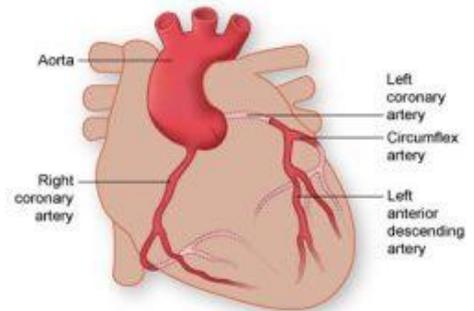
11.



Blood

BEYOND

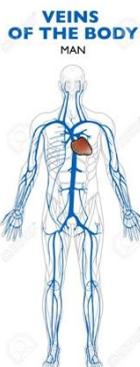
12.



Arteries

BEYOND

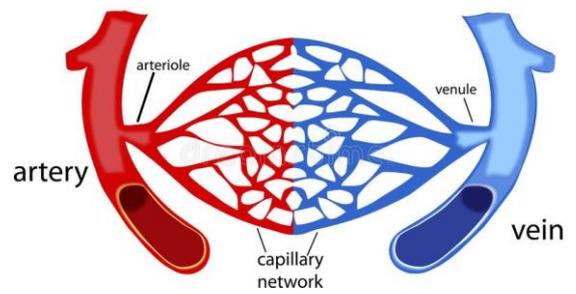
13.



Veins

BEYOND

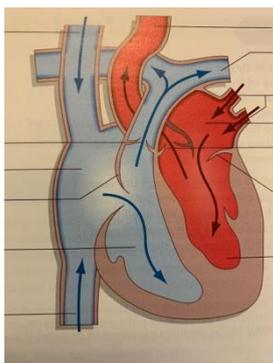
14.



Capillaries

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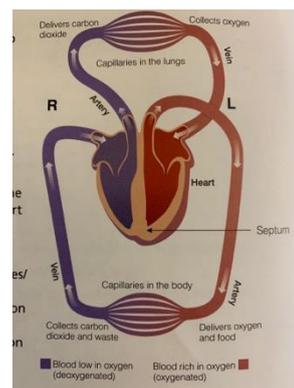
15.



The Heart

BEYOND

16.



Double Circulation

BEYOND

10.

Short term:

Breathing rate increases, it becomes deeper and faster.

Long term:

Vital capacity, tidal volume and minute ventilation all increase.

Diaphragm and intercoastal muscles get stronger.

BEYOND

9.

The volume of air left in your lungs after you breathe out.

HINT – Remember the word RESIDUE (something is left behind).

BEYOND

12.

Carry blood away from the heart to the lungs and the body.

They have thick muscular walls as they pump blood at high pressure.

They carry oxygenated blood.

BEYOND

11.

Made up of 4 components:

**Plasma** – mainly water to transport substances.

**Platelets** – allows blood to clot

**Red blood cells** – contains HAEMOGLOBIN, responsible for transporting oxygen

**White blood cells** – fights infection and disease.

BEYOND

14.

Tiny blood vessels that are about 1 cell thick.

Oxygen diffuses into the blood and carbon dioxide is removed from the blood at the capillaries.

BEYOND

13.

Carry blood back to the heart.

Remember **veINS** – into the heart.

Carry deoxygenated blood at low pressure. They have thinner walls.

They have valves to prevent the backflow of blood.

BEYOND

16.

The pulmonary circuit pumps blood to the lungs and back to the heart.

The systemic circuit pumps blood to the body and back again.

BEYOND

15.

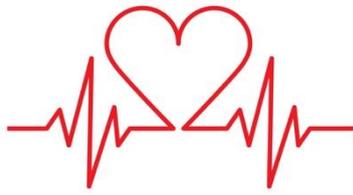
The heart is a muscle. It is called cardiac muscle.

It is made up of 4 chambers.

Can you identify the different parts of the heart in the image?

BEYOND

17.



Maximum BPM

BEYOND

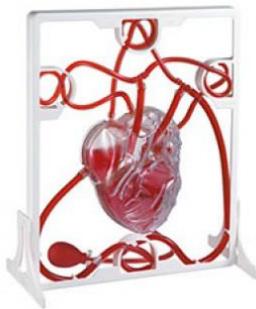
18.



Stroke Volume

BEYOND

19.



Cardiac Output

BEYOND

20.



Recovery

BEYOND

21.



Short Term Effects of Exercise on the Circulatory System

BEYOND

22.



Long Term Effects of Exercise on the Circulatory System

BEYOND

23.



Excess Post-exercise Oxygen Consumption (EPOC)

BEYOND

24.



Oxygen Debt

BEYOND

18.

The volume of blood pumped out of the heart by the left ventricle in one beat.

Measured in ml.

BEYOND

17.

To calculate maximum beats per minute (bpm):

$$220 - \text{your age} = \text{maximum bpm}$$

BEYOND

20.

How long it takes your heart rate to return to its resting state.

Measured from the moment you stop exercising, until your heart rate reaches its resting bpm.

BEYOND

19.

The amount of blood pumped out of the heart in one minute.

Measured in litres/per minute.

BEYOND

22.

Heart rate increases.  
Increased blood flow.  
Increased blood pressure.  
Blood vessels near the surface of the skin enlarge to cool the warm blood. This creates a red colour to the skin.

BEYOND

21.

Heart hypertrophy (gets bigger and stronger).  
Becomes more efficient at pumping blood around the body.  
Increased capillaries  
Increased stroke volume  
Increased cardiac output  
Decreased resting heart rate  
Quicker recovery rate

BEYOND

24.

The volume of oxygen consumed during recovery from exercise, which is needed to remove lactic acid.

This can be seen in athletes when they have finished performing and they are panting or deep breathing.

BEYOND

23.

The process of taking in extra oxygen needed by the cells to remove lactic acid created by anaerobic respiration.

What other name does this process have?

BEYOND