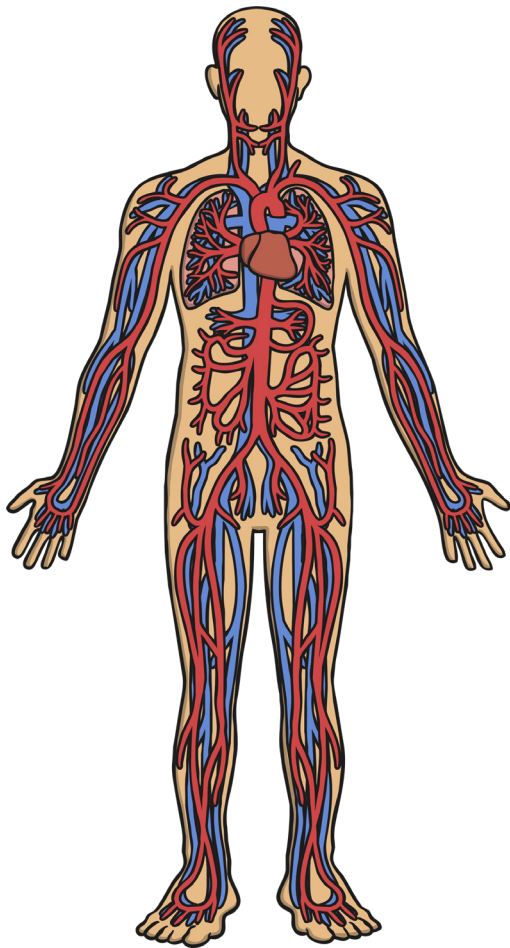


Functions of the Circulatory System



General Functions of the Circulatory System

Heart:

The heart plays an important role because it keeps all the blood flowing in the circulatory system. The process of exercising results in the body requiring more oxygen, this means that the heart has to circulate more oxygenated blood through the circulatory system. That is why your heart beats faster when you exercise.

Lungs:

When we breathe, we inhale air containing oxygen into our lungs. It is in the lungs that blood vessels pick up oxygen and leave carbon dioxide to be released.

Blood Vessels:

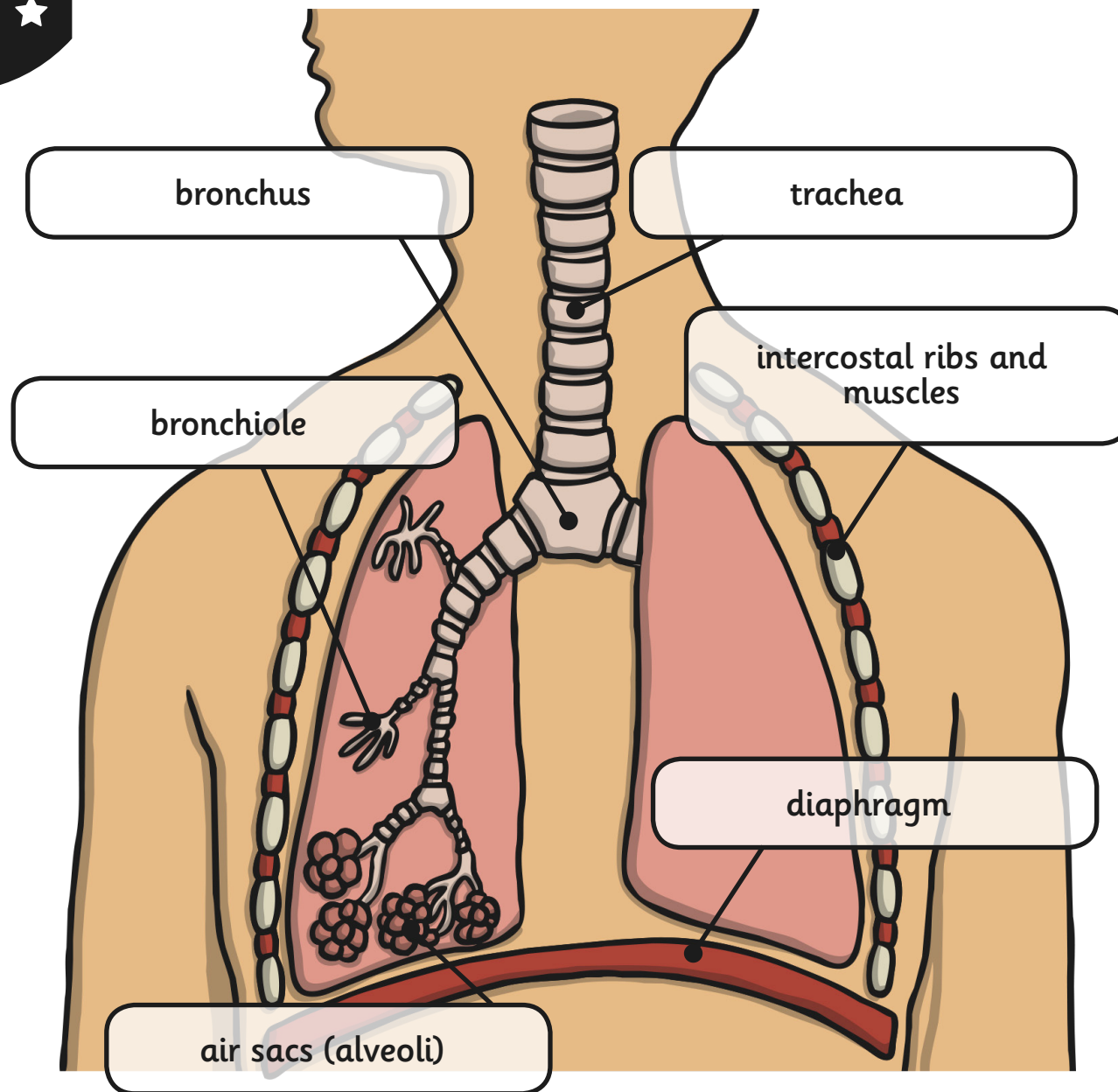
Blood vessels are tubes that carry the blood around the body.

There are three main types of blood vessels:

Arteries – these carry oxygenated blood away from the heart to the rest of the body.

Veins – these carry deoxygenated blood back to the heart to be pumped to the lungs to become oxygenated.

Capillaries – these are blood vessels that connect to both arteries and veins. They are also connected directly to cells. Blood with nutrients and oxygen passes from the artery, through the capillary to a cell. Any waste is passed through capillary to the vein.



Specific Functions of the Lungs in the Circulatory System

The lungs are responsible for transferring oxygen into the blood system.

Intercostal Muscles and Diaphragm: These two parts work together to enable you to breathe in and out. When you breathe in, the **intercostal muscles** contract and expand the ribcage to make room for the air filled lungs. The **diaphragm** also contracts to increase the space for the expanded chest.

When you breathe out, the **diaphragm** and **intercostal muscles** relax decreasing the space for the chest. This pressure forces the air out.

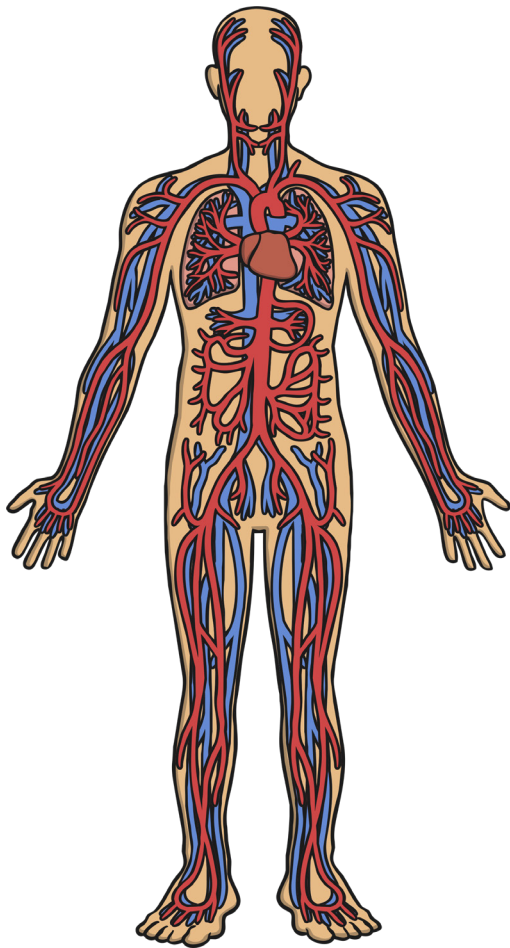
Trachea: This is also known as the windpipe. The trachea filters the air we inhale (breathe in) and branches into the **bronchi**.

Bronchi: Bronchi is the plural of **bronchus** (there are two – one for each lung). Air passes from the **trachea** through the **bronchi** into the **bronchioles**.

Bronchiole: These branch off from the **bronchi** and allow air to pass to the **alveoli** (air sacs).

Air Sacs (Alveoli): This is where the gas exchange takes place in the lungs. Oxygen from the air in the **alveoli** passes into the blood and carbon dioxide passes out of the blood into the air in the **alveoli**, which will then be pushed out of the lungs.

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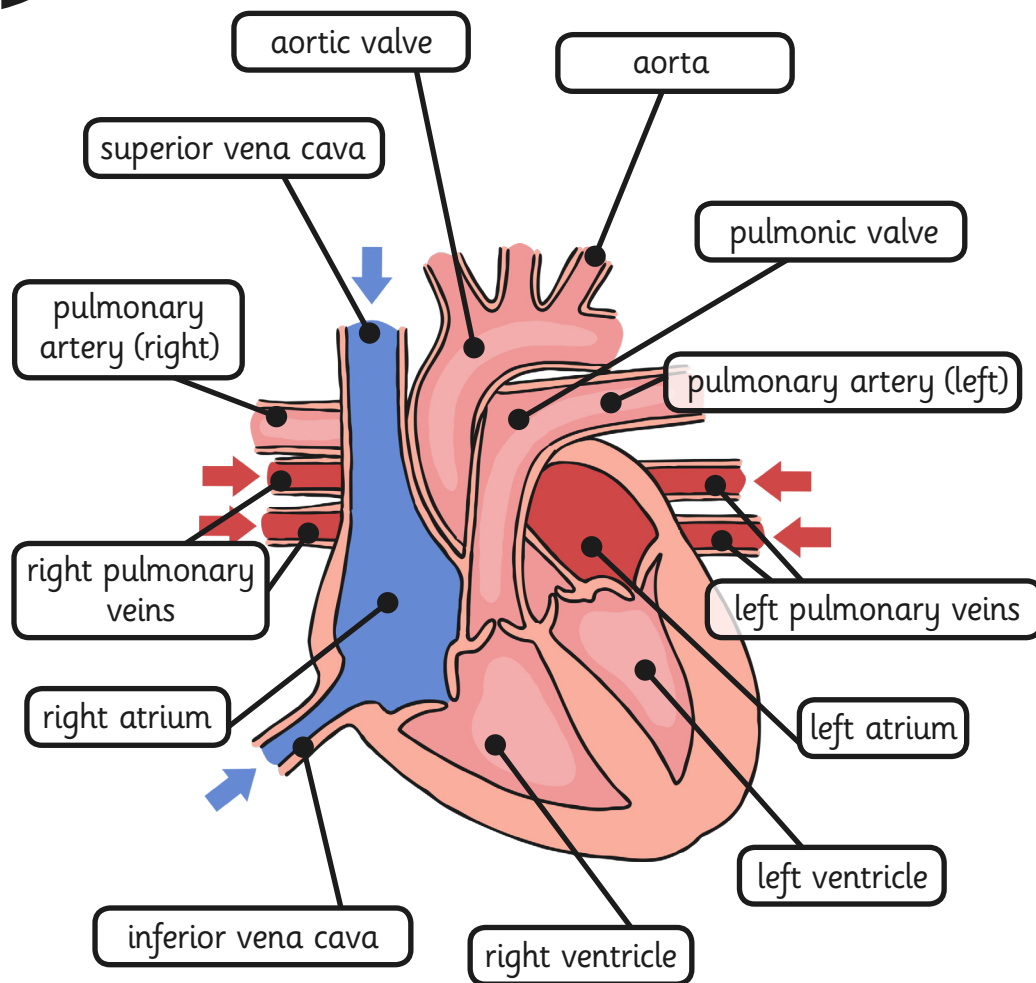
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Specific Functions of the Heart in the Circulatory System

The heart is responsible for pumping blood in the circulatory system.

Without the heart it would not be possible to transport nutrients and oxygen around the body.

Atria: The two chambers that collect blood are called **atria**. The **right atrium** collects deoxygenated blood and the **left atrium** collects oxygenated blood. (**Atrium = single**, **Atria = plural**.)

Ventricles: These two chambers receive blood from the **atria**. When the heart contracts the blood is pushed out from these two chambers. The **right ventricle** pushes deoxygenated blood to the lungs. The **left ventricle** pushes oxygenated blood to be circulated throughout the body. This takes a lot of force which is why the **left ventricle** is larger than the **right ventricle**.

Valves: Valves open and close in blood vessels. The **aortic valve** and **pulmonic valve** both open to let blood pass and close to prevent blood flowing back.

Pulmonary Arteries and Veins: The **pulmonary arteries** are different to other arteries as they carry deoxygenated blood to the lungs. This blood becomes oxygenated and is carried back by the **pulmonary veins**. This makes the **pulmonary veins** different to normal veins (which carry deoxygenated blood). The veins drain into the **left ventricle**. This blood is pushed out to the **aorta**.

Aorta: This is the largest artery in the body. It receives the oxygenated blood from the left ventricle. The **aorta** branches off into the **ascending aorta** (branches off to the coronary arteries which supply the heart), **aortic arch** (arteries branch off from here to the head, neck and arms), the **descending thoracic aorta** (which branches off to supply blood to the ribs and chest) and the **abdominal aorta** (which branches off to supply major organs in the body).

Vena Cavae: The **superior vena cava** and **inferior vena cava** are the two largest veins in the body. The **superior vena cava** brings deoxygenated blood from the head, neck, arms and chest to the heart. The **inferior vena cava** brings deoxygenated blood from the legs, back, abdomen and pelvis to the heart).