

9B1 Knowledge Organiser – Human Health

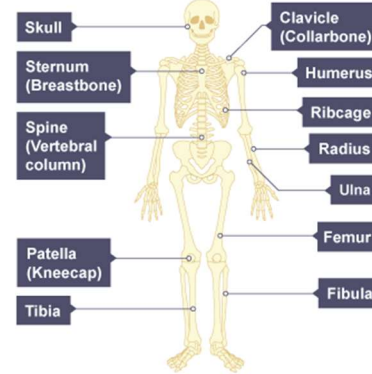
Key words

Term	Definition
Skeleton	Supporting structure of an organism.
Joint	Structure where two bones are linked together.
Tendon	Attach bones to muscles.
Ligament	Connect two bones.
Vein	Blood vessels that carry blood towards the heart.
Artery	Blood vessels that carry blood away from the heart.
Capillary	Tiny blood vessels where gas exchange take place.
Valve	Allow blood to flow in only one direction.
Trachea	Air passes from the mouth into the trachea. Scientific word for the windpipe.
Bronchi	The trachea divides into bronchi which carry the air into the lungs.
Bronchiole	The bronchi divide into smaller tubes in the lungs called bronchioles.

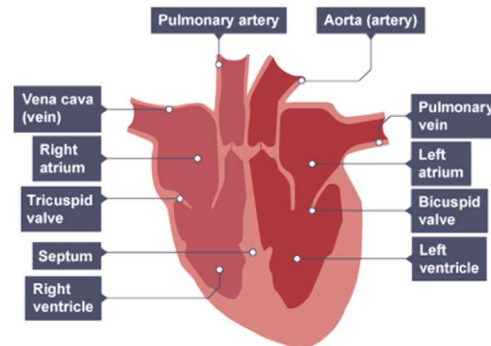
Skeleton

The main functions of the skeleton are:

- Support:** for example, without a backbone we would not be able to stay upright.
- Protection** of organs: for example, the skull protects the brain and the ribcage protects the lungs
- Movement:** the skeleton helps us to move but cannot move alone – muscles are needed. Muscles move bones attached by flexible joints.



Circulatory System



Blood is pumped away from the **heart** at high pressure in **arteries**, and returns to the heart at low pressure in **veins**.

When blood flows into the heart it flows into an **atrium** and then into a **ventricle**. There are **valves** in the heart to stop blood flowing backwards.

Type of blood vessel	Structure
Arteries	Thick muscular walls; small passageways for blood.
Veins	Thin walls; larger passageways for blood; have valves to prevent blood flowing backwards.
Capillaries	Tiny; one cell thick walls so gases can be exchanged

Effects of smoking

Effects on the air passages	Smoking damages cilia which usually sweep mucus out of the lungs. This leads to a build-up of mucus and smokers cough. Smoke irritates the bronchi causing bronchitis.
Effects on the alveoli	Smoke damages the walls of the alveoli and they join together, forming larger air spaces than normal. This reduces the efficiency of gas exchange. People with emphysema carry less oxygen in their blood.
Lung cancer	Tobacco smoke contains many carcinogens (substances that cause cancer). Smoking increases the risk of lung cancer, as well as cancer of the mouth, throat and oesophagus.

Joints and Muscles

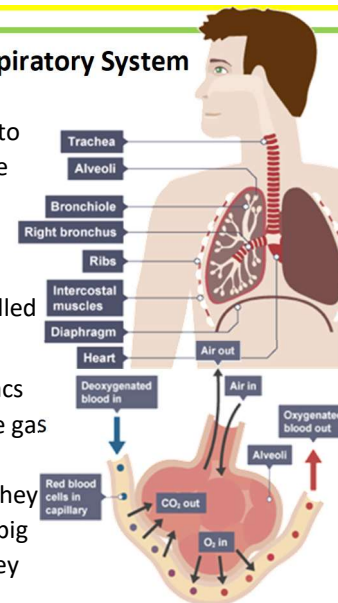
Bones are linked together by **joints**. Most joints allow different parts of the skeleton to move. Different types of joints allow different types of movement.

Type	Examples	Movement
Hinge joint	Knee, elbow	Like opening and closing a door, no rotation
Ball and socket	Hip, shoulder	Back and forth in all directions, and rotation.

Muscles work by getting shorter – we call this contracting. Muscles work in pairs that pull in the opposite direction to each other. These pairs are called **antagonistic** pairs.

Respiratory System

The respiratory system allows us to get the oxygen we need for aerobic respiration and remove carbon dioxide. This is called **gas exchange**.



Alveoli are air sacs adapted to make gas exchange in the lungs efficient. They give the lungs a big surface area. They have moist, thin walls. They have lots of capillaries. The gases move by **diffusion**.