

Year 7 Biology Movement and Sensitivity Knowledge Organiser

The **locomotor (skeletal) system** consists of bones and muscles and lets you move.

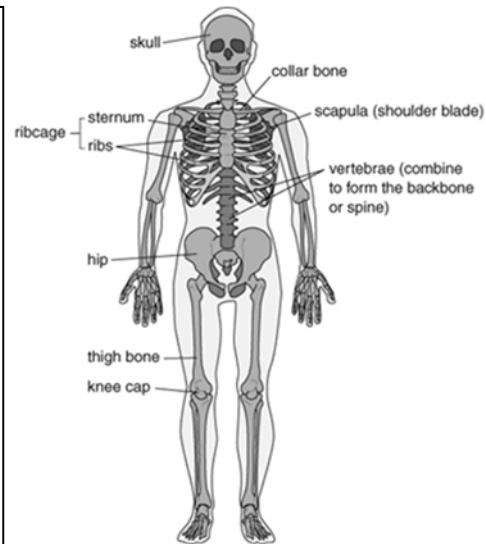
Bones are organs that form the **skeleton**, which:

protects some organs (e.g. the **ribs** and **sternum** protect the lungs; the **skull** protects the brain)

supports your body (e.g. the **vertebrae** in your 'backbone' hold you up straight)

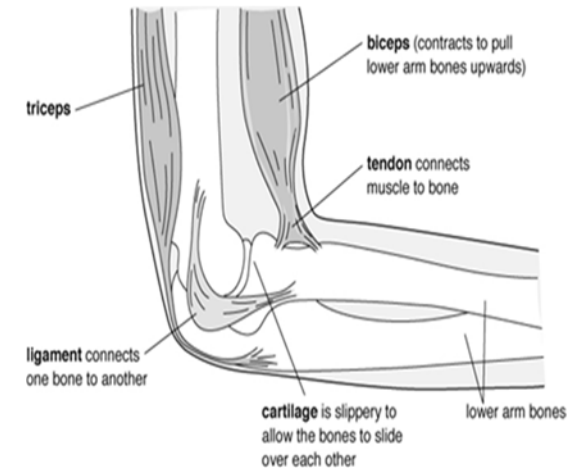
allows you to **move** (using muscles at your **joints**).

Bones are hard (to withstand knocks and pressure) and light (so they are easy to move). Many have a hollow centre containing **bone marrow**, where **blood cells** are made.



Muscles are controlled by the **nervous system**.

Impulses from the brain travel down the **spinal cord** and along **nerves** to muscles. Muscle cells are adapted to their function by containing strands that can shorten to produce a pulling force. This requires energy from **respiration**.



Muscle action

Muscles cannot push and so bones need pairs of muscles (**antagonistic pairs**) to pull them in opposite directions. One muscle **contracts** (gets shorter and fatter) to pull a bone. At the same time, the other muscle in the pair **relaxes**.

Key word	Definition
Central nervous system (CNS)	The brain and spinal cord. Sometimes referred to as the coordinator
Neurones	Nerve cells – they link receptors and effectors to the CNS. Sensory neurones carry impulses from receptors to the CNS, relay neurones carry an impulse within the CNS and motor neurones carry the impulse from the CNS to an effector
Receptor	A cell or group of cells that detect a change and generate a nervous impulse
Effector	A muscle or gland that brings about a response
Synapse	A gap between neurones
Neurotransmitters	Chemicals which diffuse across the synapse and initiate a nervous impulse in the next neurone
Reflex response	An automatic response that you do not think about
Reflex Arc	The pathway of neurones in a reflex arc

