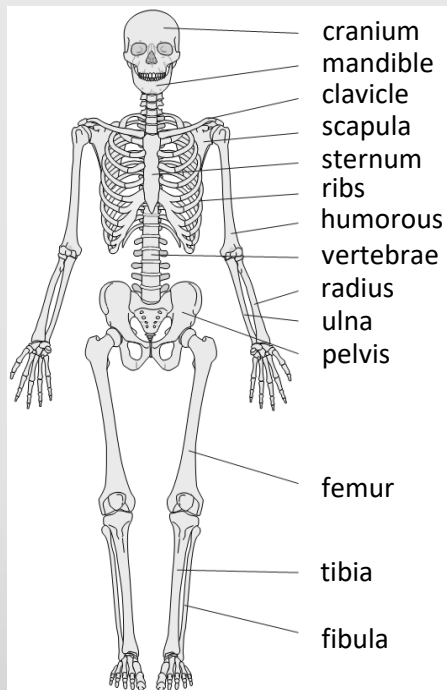


1) The Skeletal System

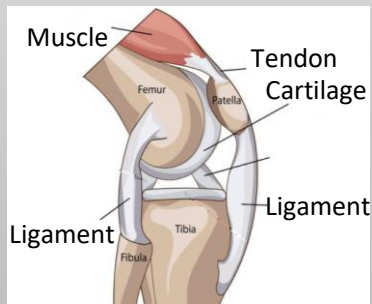
Functions of the skeleton:

- To **support** the body
- To **protect** vital organs
- To help the body **move**
- To make **blood cells**



2) Joints

- Joints are where bones join together
- Ligaments** hold bones together in a joint.
- Tendons** attach muscle to bones.
- Cartilage** covers the end of bones and is smooth to stop bones rubbing together.

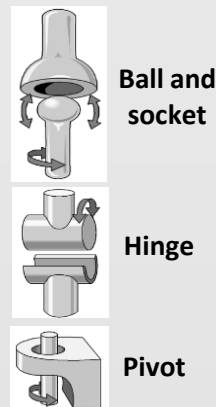


3) Types of Joints

- Some joints are **fixed** and can't move, e.g. bones of the cranium (skull) fuse together.
- Most joints are **synovial** and are freely movable.

Synovial Joints

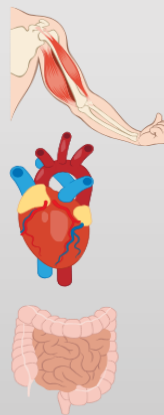
Type of Synovial Joint	Examples in Body	Movement
Ball and Socket	Shoulder, Hip	All directions
Hinge	Elbow, Knee, Ankle	One direction
Pivot	Neck	Rotational



4) Muscles

Three types of muscle:

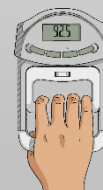
- Skeletal** muscle – attached to bones and contracts voluntary to make the body move
- Cardiac** muscle – found in the heart and contracts involuntary to pump blood
- Smooth** muscle – found inside organs and contracts involuntary to move substances through the organ



5) Strength of Muscles

Different muscles have different strengths. The strength can be measured by how much **force** the muscle exerts. Force is measured in **Newtons (N)**.

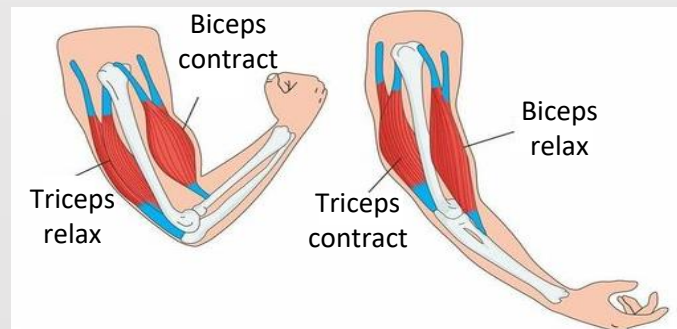
Force can be measured using a **dynamometer** or pushing on a set of scales.



6) Antagonistic Pairs of Muscles

- Muscles can only pull and cannot push so muscles have to work in pairs called antagonistic muscles.
- One muscle in the pair **contracts** whilst the other **relaxes**.

E.g. the bicep and triceps working to bend the elbow.



7) Investigation Keywords

- Independent variable – what you change
- Dependent variable – what you measure
- Control variables – what you keep the same

8) Organisation of Organisms

- Organism** – a group of organ systems working together
- Organ system** – a group of organs working together
- Organ** – a group of different tissues working together
- Tissue** – a group of the same type of cell working together
- Cell** – the basic building block of all organisms

There are lots of organ systems in humans, some examples are:

