Skeleton and Muscles

- Know that humans and some other animals have skeletons and muscles
- Understand that the skeleton and muscles provide the body with movement, protection and support

The Skeleton

Humans, and lots of other animals, have a structure of bones inside them called a **skeleton**.

The skeleton has three main jobs:

1. supporting the rest of the body and keeping things in place
2. protecting important organs
3. helping with movement.

Key Point

Some animals, such as snails, worms, jellyfish and octopuses, do not have a skeleton.

Skull (Cranium)

The main job of the **skull** is to protect the brain.

Ribs

The **ribs** form a ribcage which protects organs such as the heart and lungs.

Spine (Vertebrae)

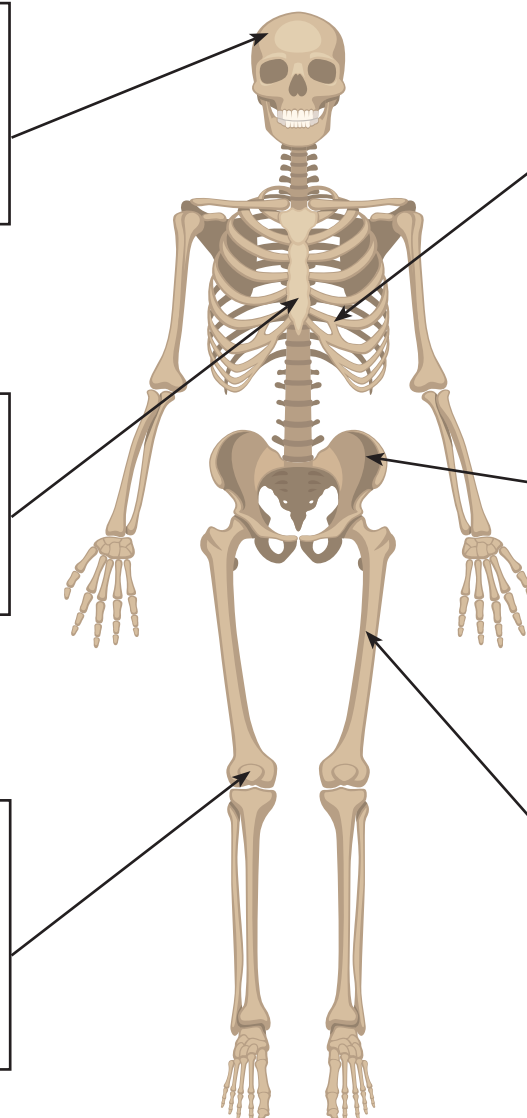The **spine** provides support and protects the spinal cord.

Pelvis

The **pelvis** supports the upper body and protects pelvic organs.

Kneecap (Patella)

The **kneecap** supports the movement of the legs and protects the joint.

Thigh Bone (Femur)

The **thigh bone** supports the weight of the upper body and aids movement.
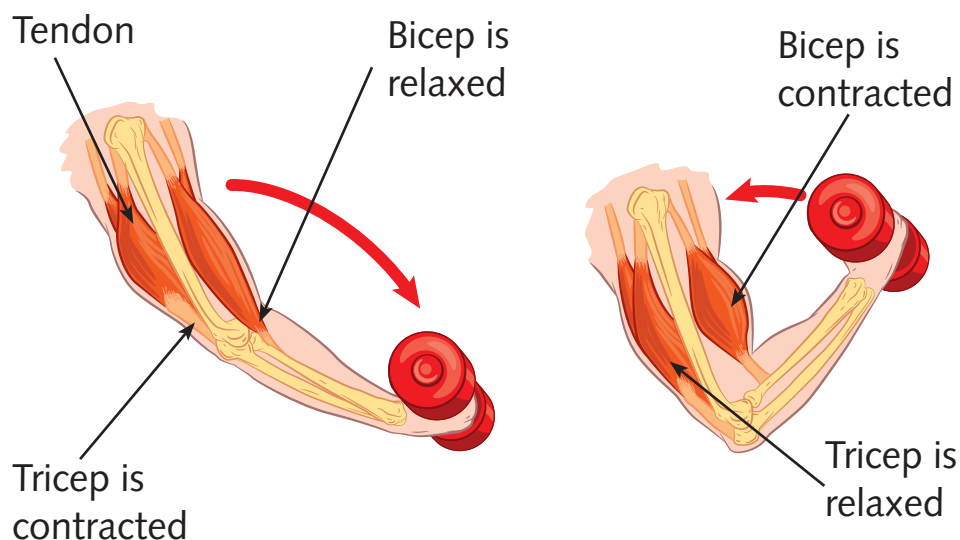
The skeleton is not one solid piece. At the joints, the bones are held together by **ligaments** which, along with the **muscles**, enable the body to bend and move.

Muscles

Muscles help the body to move by providing the forces (pushes and pulls) needed to move the bones at the joints.

Muscles are attached to the bones by **tendons**. They work in pairs by pulling on the bones to make them move. When one muscle in a pair contracts (pulls), it gets shorter, and the other muscle relaxes (gets longer). The main muscles in the arm are the biceps and the triceps.

Tendon

Bicep is relaxed

Bicep is contracted

Tricep is contracted

Tricep is relaxed

Key Point

Muscles work in pairs: when one muscle in a pair contracts the other relaxes to allow movement.

Working Scientifically

Pick up a bottle of water in one hand and hold your muscles with your other hand. Feel the muscles as you lift and lower the bottle. Can you feel them contract and relax?

Key Words

- Skeleton
- Skull
- Ribs
- Spine
- Pelvis
- Kneecap
- Thigh bone
- Ligaments
- Muscles
- Tendons

Quick Test

1. Complete the sentence: The combination of bones inside a human is called a _____.
2. What is the main job of the rib bones?
3. Other than protecting the organs, name one other job of the skeleton.
4. True or false? Muscles work in pairs.
5. Complete the sentence: When one muscle contracts the other _____.