

Name: \_\_\_\_\_ Form: \_\_\_\_\_

## THE SKELETAL SYSTEM

*Why are you not a blob of jelly? Most parts of your body have hard structures inside them. These are your bones. They stop you from being shapeless and allow you to stand up and move. They also have a number of other important roles.*

### WHAT ARE BONES?

**Bones** are living tissue with a blood supply. It is growing and changing all the time. Just like the other parts of your body, it can repair itself when damaged. **Calcium** and other **minerals** make the bone strong but slightly **flexible**. Exercise and a balanced diet are important to keep your bones healthy.

### WHAT IS THE SKELETAL SYSTEM?

The **skeletal system** is all of the bones in the body, including the tissues such as **ligaments, tendons**, that connect them. Your teeth are also considered part of your skeletal system but they are not counted as bones.

Together, all the bones in your body make up your **skeleton**. They are joined together to form a **framework**. The average adult human skeleton consists of 206 bones.

### WHY DO WE HAVE A SKELETON?

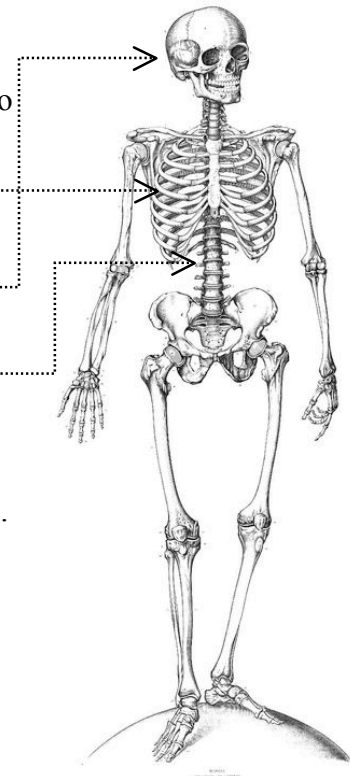
The skeleton has four main functions:

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

The skeleton provides support for your body and holds your internal organs in place. Without bones, the body would be floppy, like a jellyfish. The bones create a framework for your muscles and organs to connect to. Your **spine** or backbone holds the body upright.

Bones are hard and strong so they can protect the vital organs from being damaged. For example:

- your skull protects your brain .....
- your ribcage protects your heart and lungs .....
- your backbone protects your **spinal cord** .....



Muscles are attached to bones. If a muscle pulls on a bone, it will cause the bone to move. The skeleton moves at **joints**, such as your knee. The movement of bones around the joints allows the body move.

Some bones inside your body, such as the long ones in your arms and legs, are not solid. In the middle of these bones is a soft tissue called **bone marrow**. The bone marrow produces red and white blood cells. **Red blood cells** are needed to carry oxygen around the body and **white blood cells** are used to protect against infection.

# THE MUSCULAR SYSTEM

*Can you feel the muscle in front of your arm working as you bend it?  
The muscle is pulling on one of the bones in your forearm,  
causing it to move upwards.*

## MUSCLES IN THE BODY

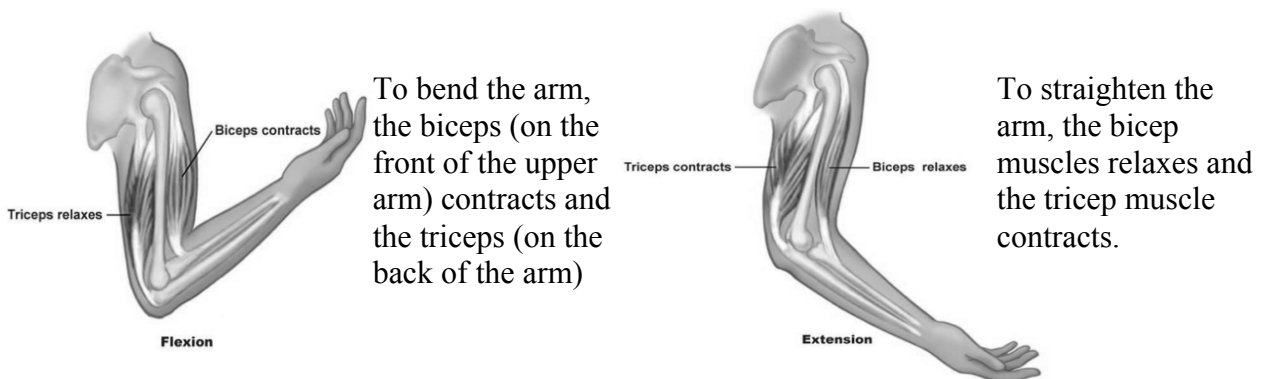
Muscles are found all over the body. They are a type of tissue. Many muscle tissues work together to cause movement.

## HOW DO MUSCLES WORK?

To make you move, muscles work by **contracting** or getting shorter and **relaxing**. Muscles are attached to bones by **tendons**. When a muscle contracts, it pulls on a bone. If the bone is part of a **joint**, the bone will move.

At each joint, a pair of muscles work together to cause movement. These are known as **antagonistic** muscles. When one muscle contracts, the other muscle relaxes.

The **biceps** and **triceps** are an example of a pair of antagonistic muscles. These are used to bend and straighten the arm at the elbow joint.



## THREE TYPES OF MUSCLES?

There are three different types of muscles:

1. **Skeletal** muscles are attached to the bone. These muscles hold the skeleton together, give the body shape, and help it with everyday movements.
2. **Smooth** or **Involuntary** muscles. These muscles are controlled by the **nervous system** automatically. Examples of smooth muscles are the walls of the stomach and intestines, which help break down food and move it through the **digestive system**.
3. The **cardiac** muscle is found in the heart. It is also an involuntary muscle. Its function is to pump blood around the body.



**SUMMARY QUESTIONS:**

1. Complete the sentences below about the skeletal system.

Your skeleton is made up of \_\_\_\_\_. It is living \_\_\_\_\_ with a \_\_\_\_\_ supply. The adult human body has \_\_\_\_\_ bones. The skeleton helps the body \_\_\_\_\_. It also protects vital organs. For example, the \_\_\_\_\_ protects the brain while the ribcage protects the \_\_\_\_\_. Red and white blood cells are made in the \_\_\_\_\_.

2. **List** and **explain** the four functions of the skeleton.

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3. **THINK!!!** Babies have 270 bones. Adults have 206. Why is this so?

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4. Complete the sentences below about the muscular system.

Muscles are attached to the bones by \_\_\_\_\_. When a muscle \_\_\_\_\_, it shortens and \_\_\_\_\_ on a bone. If the bone is part of a \_\_\_\_\_, this will cause the bone to move. \_\_\_\_\_ muscles are pairs of muscles work together to control the movement at a joint.

5. **List** and **explain** the function of the three different types of muscles.

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6. **Explain** how muscle pairs work together to move bones attached to joints.

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