Body Systems and their Effect on Physical Activity

Pre-Year 12 Work

Ashby School

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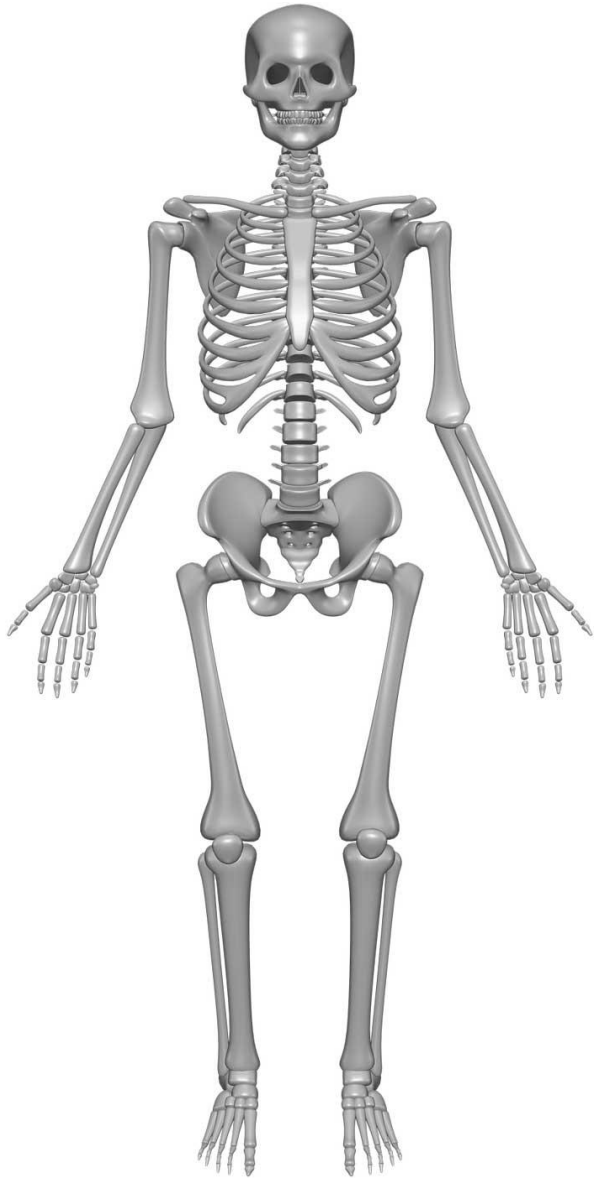

LEARNING OBJECTIVE 1: **THE SKELETAL SYSTEM**

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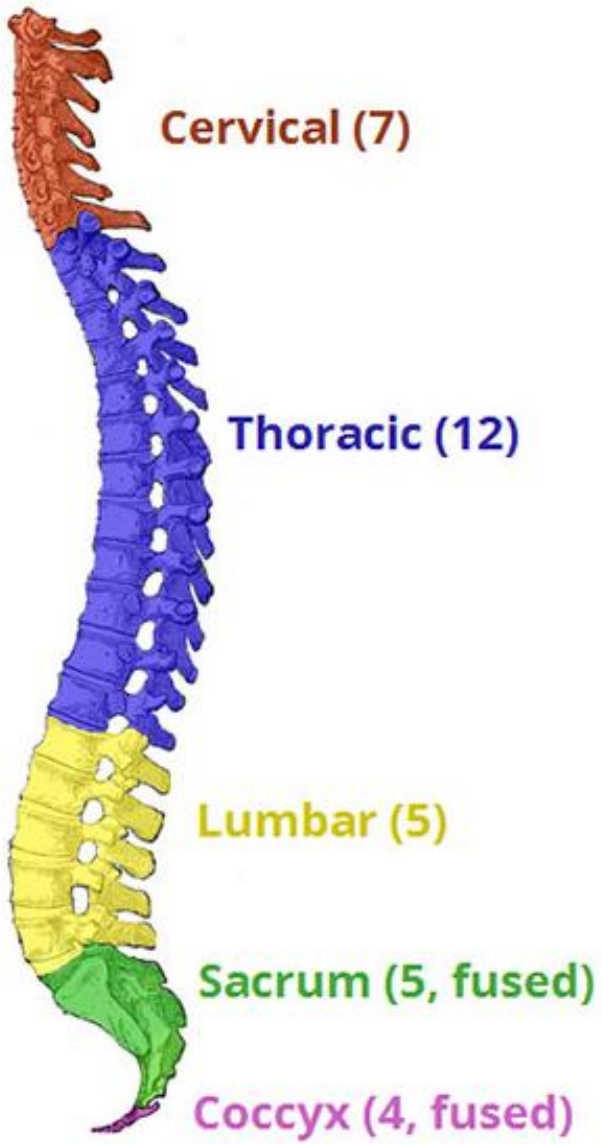

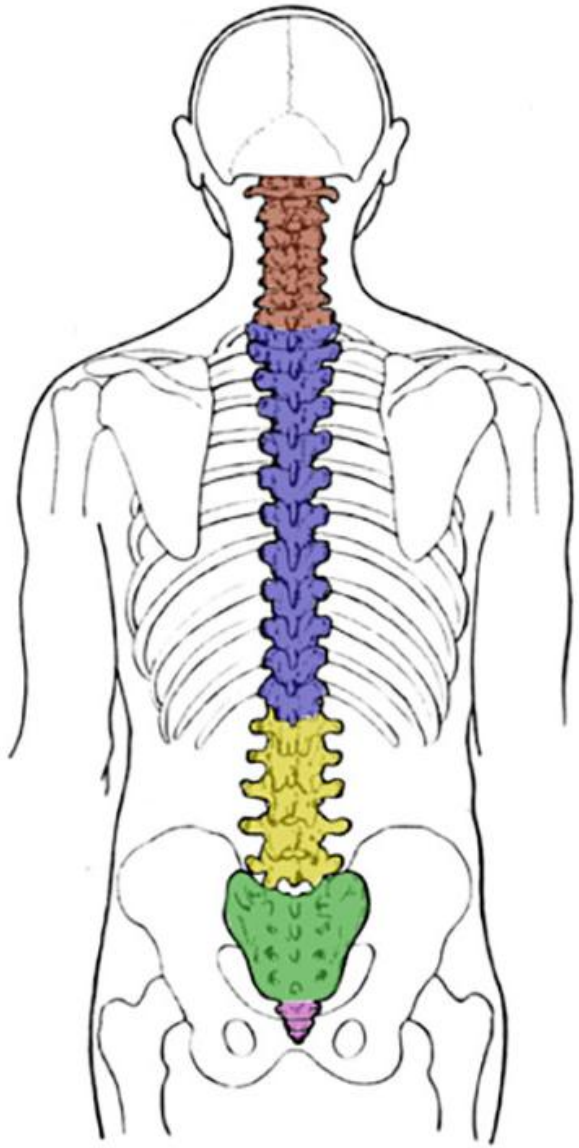

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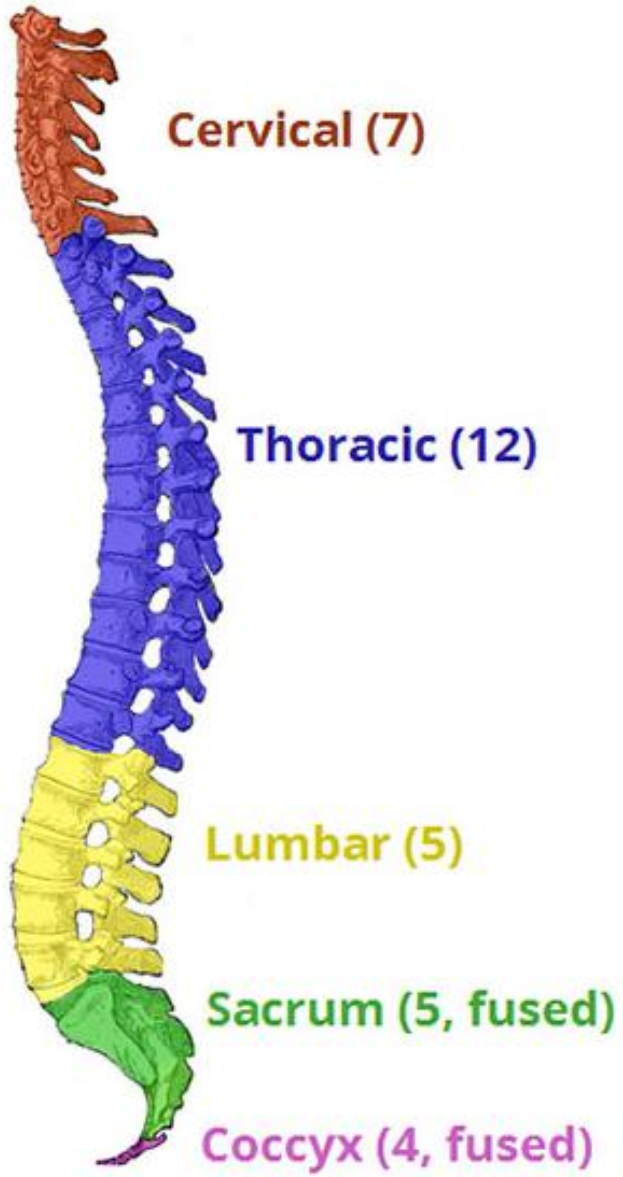
Cervical (7 Vertebrae)

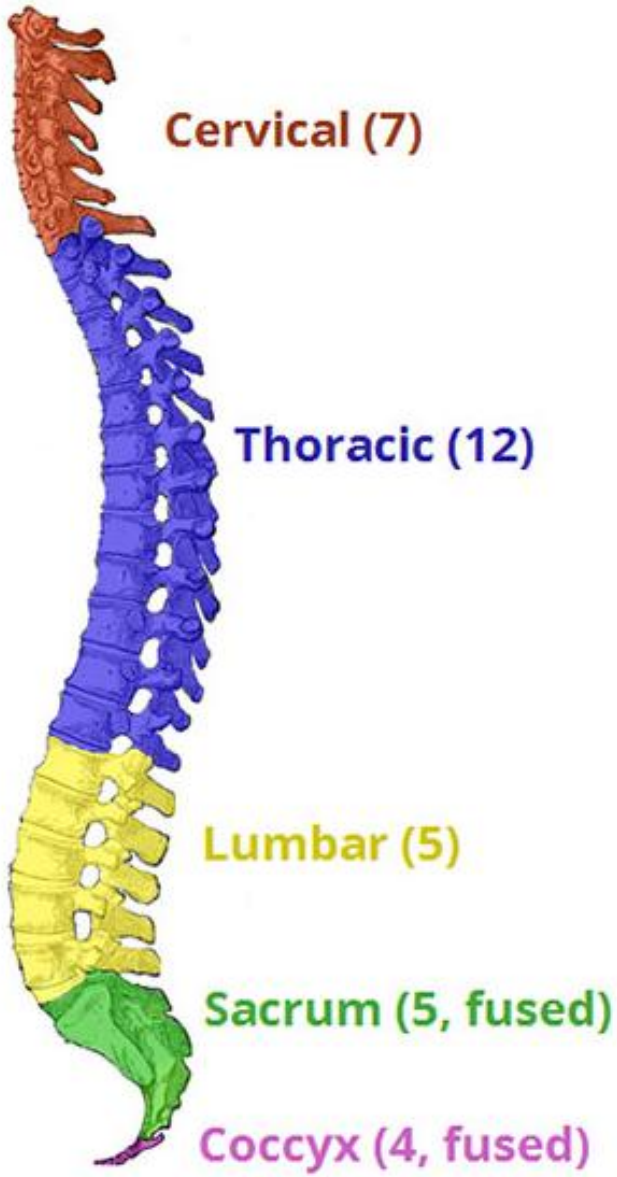
Smallest vertebrae.

Support the head and neck.

Top vertebra (atlas) allows head to nod.

Second vertebra (axis) allows head to rotate.





Thoracic (12 Vertebrae – Middle)

Ribs are attached to the thoracic vertebrae, making a protective cage.

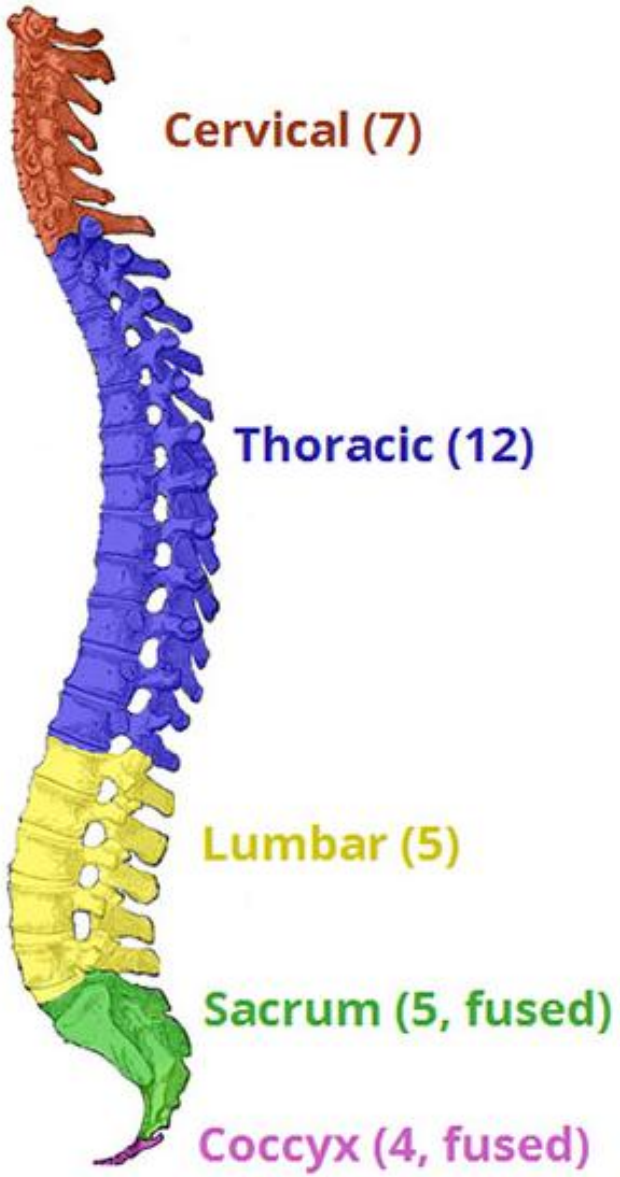
Allow some movement, bending forward, backward and side to side.

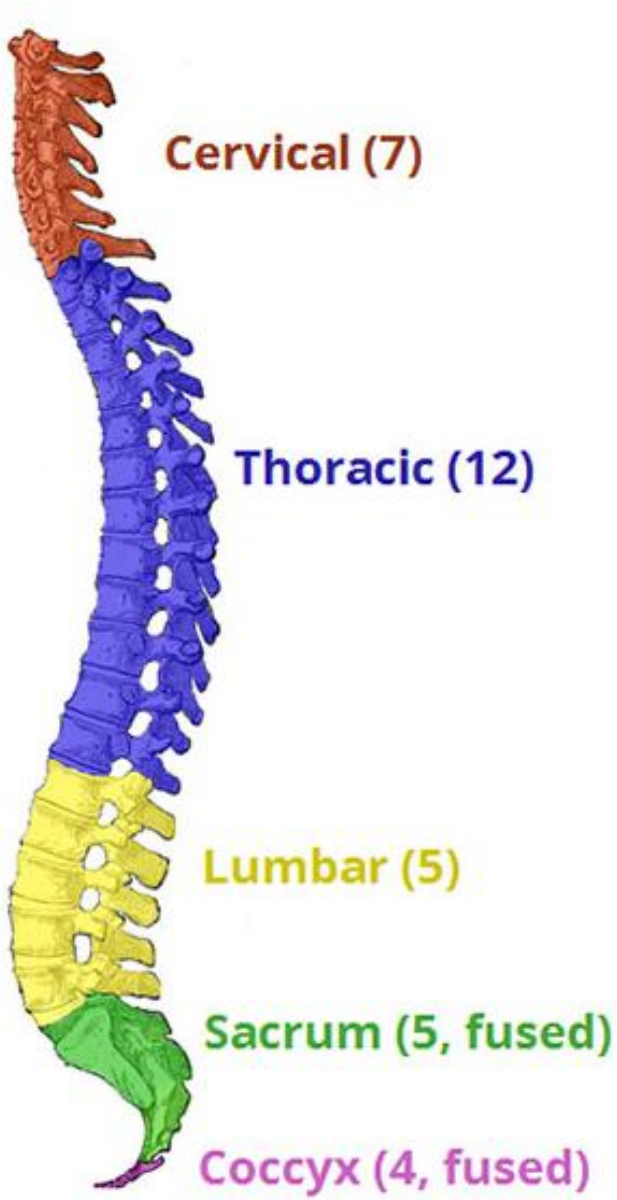
Lumbar (5 Vertebrae)

Largest vertebrae.

Large range of movement allows much flexibility; bending forward, backward and side to side.

Prone to injury.





Sacrum (5 Vertebrae)

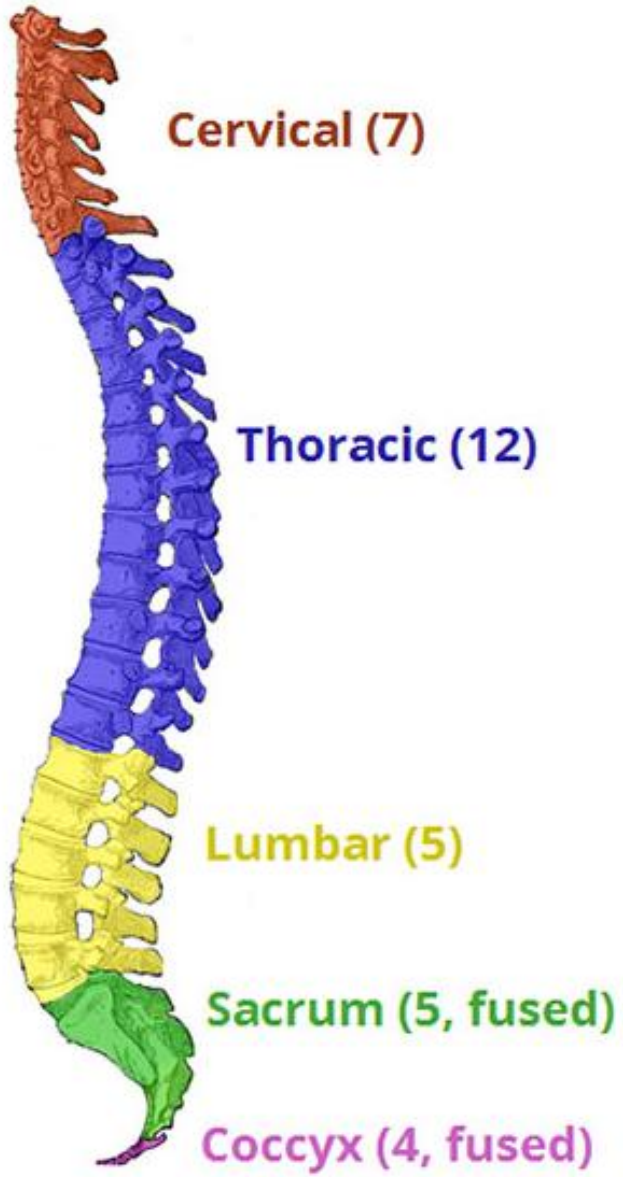
Bones of sacral vertebrae are fused together.

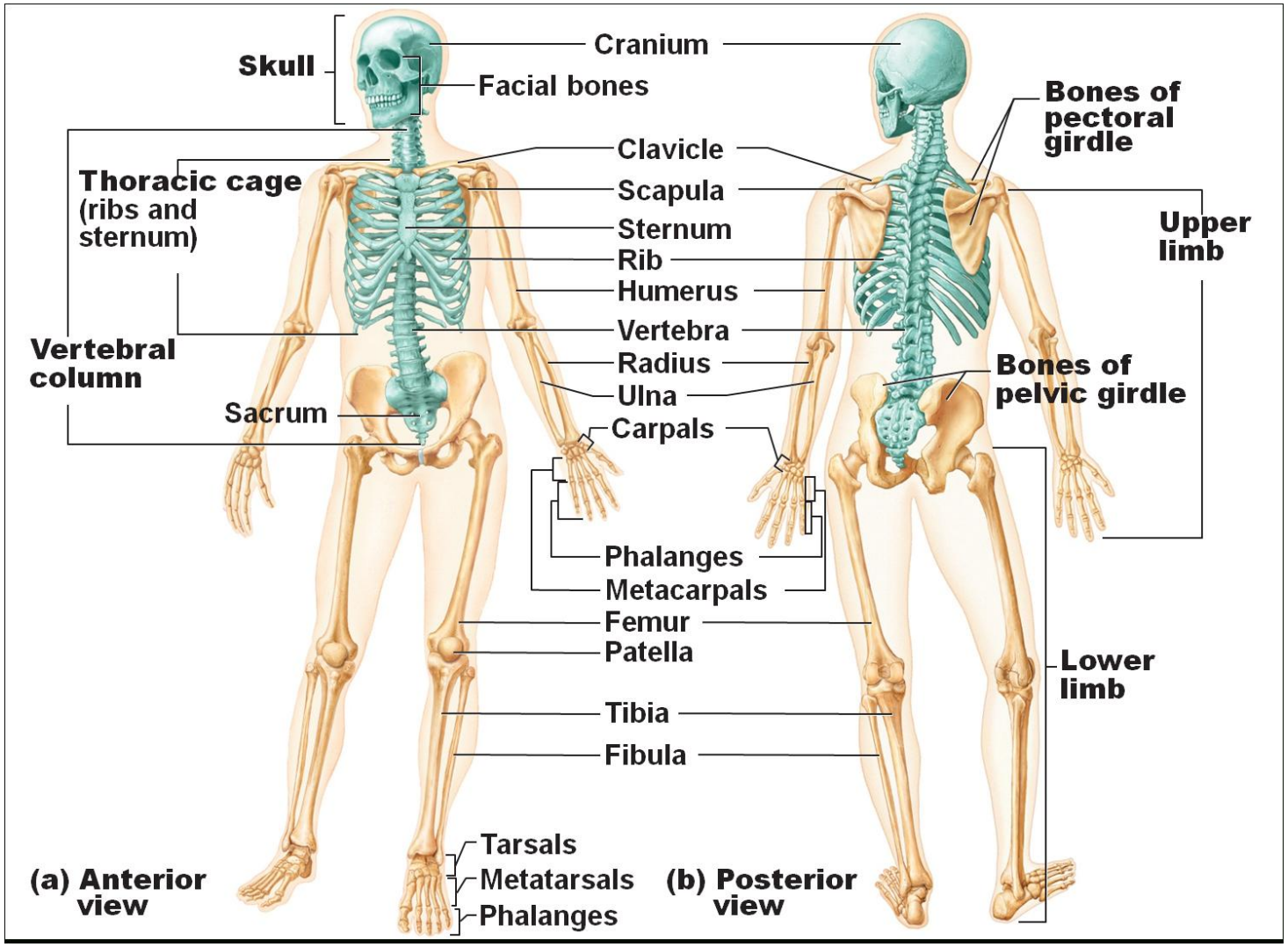
Make a strong base and transmit force from legs to upper body.

Coccyx (4 Vertebrae)

Fused vertebrae, no special use.

In humans, the coccyx bears our body weight when sitting down and provides attachment points for muscles of the pelvic and gluteal regions.




Skull
Cranium
Facial bones
Thoracic cage (ribs and sternum)
Clavicle
Scapula
Sternum
Rib
Humerus
Vertebra
Radius
Ulna
Carpals
Vertebral column
Sacrum
Phalanges
Metacarpals
Femur
Patella
Tibia
Fibula
Tarsals
Metatarsals
Phalanges
(a) Anterior view
(b) Posterior view
Bones of pectoral girdle
Upper limb
Bones of pelvic girdle
Lower limb

FUNCTIONS OF THE SKELETON

MOVEMENT – Muscles, attached to the bones by tendons, can move various bones at different joints.

SUPPORT – The skeleton is a rigid frame for the rest of the body. It supports the soft tissues and without it our bodies would collapse like jelly!

SHAPE – Your bones give you shape, including defining the shape of your face and how tall you are.

PROTECTION – Bones are very tough. They protect delicate organs (like the brain, heart and lungs).

BLOOD PRODCUTION – Red blood cells are produced in the bone marrow of larger bones (e.g. Femur/Sternum).

MINERAL STORAGE - the bones are a reservoir for minerals.
The bones stores 99% of the body's calcium and 85% of the phosphorus.

9. Describe the following functions of the skeleton. Give an example of each.

Protection

The skeleton provides protection for vital organs from damage, for example, the cranium protects the brain from potential injury.

Movement

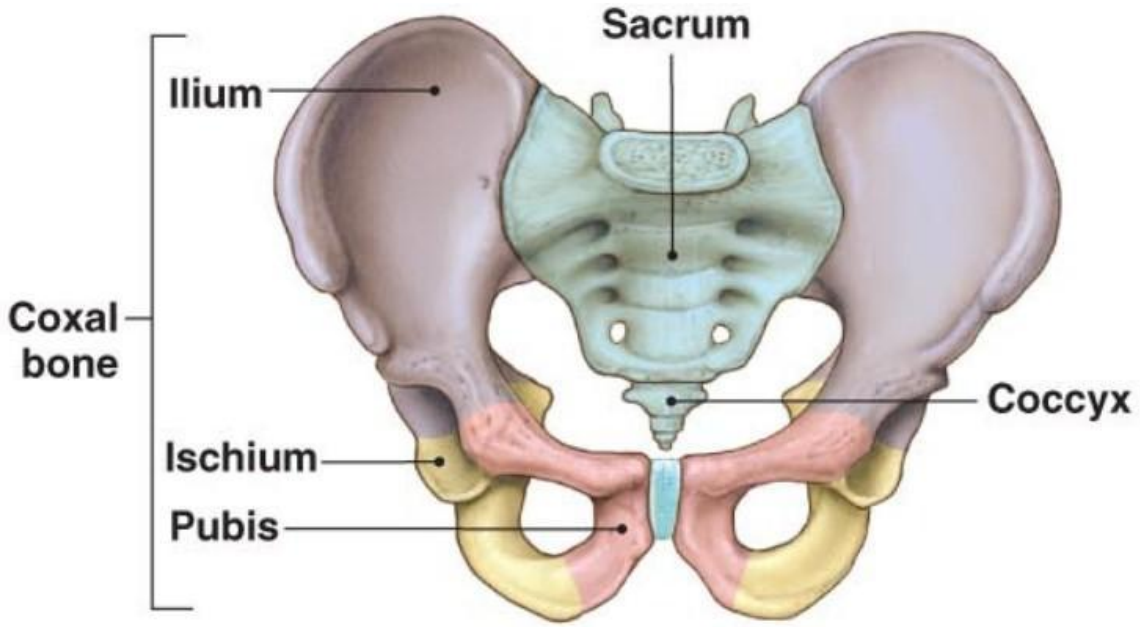
The skeleton provides attachment sites for muscles, which allow movement to occur. For example, the femur provides attachment sites for movement in the leg.

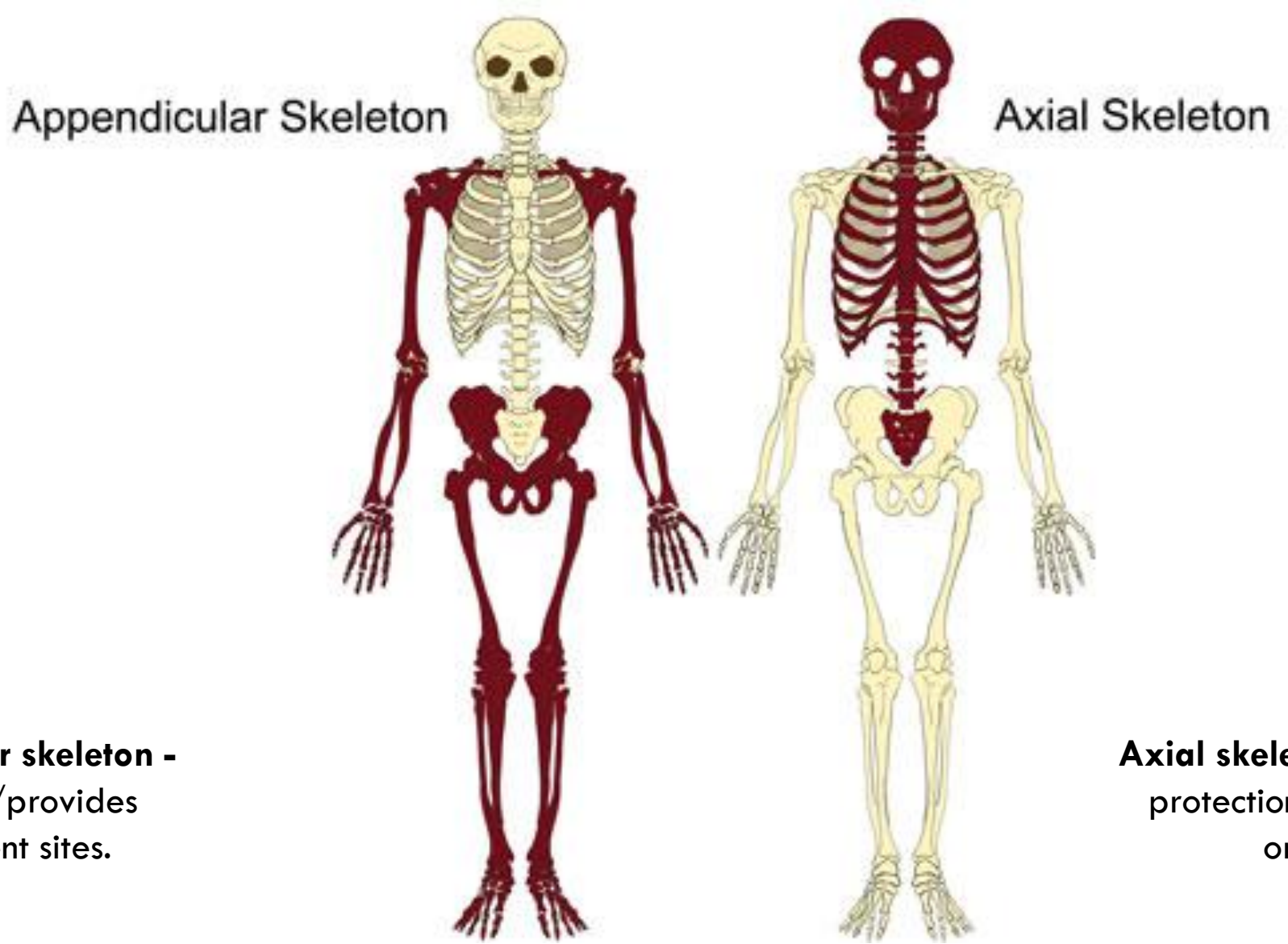
Blood cell production

Red and white blood cell production occurs in the bone marrow. For example, the femur produces white blood cells to fight infection and red blood cells to carry oxygen.

[6]

A CLOSER LOOK AT THE PELVIS…





Appendicular skeleton - movement/provides attachment sites.

Axial skeleton – provides protection for the vital organs.

1. Which one of the following bones is **not** part of the axial skeleton?

(a) Cranium ☐

(b) Sternum ☐

(c) Scapula ☒

(d) Ribs ☐

[1]

8. **Fig. 11** shows a diagram of the skeleton.

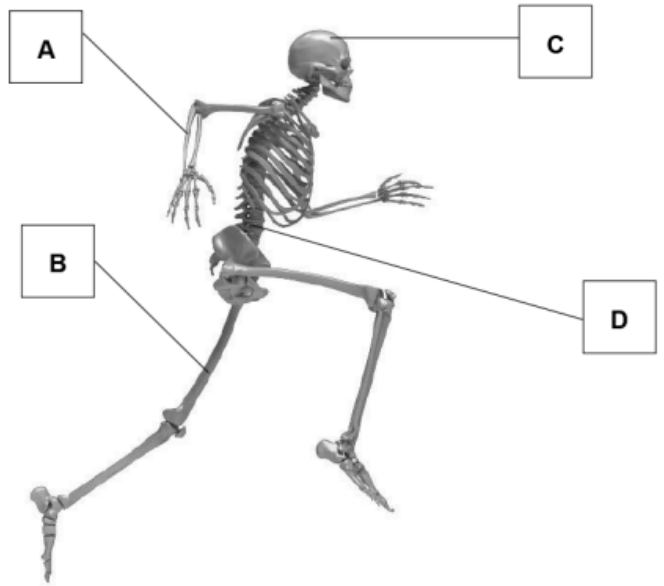


Fig. 11

Identify the bones labelled A, B, C and D.

A Ulna

B Femur

C Cranium

D Lumbar Vertebrae

[4]