

Skeletal System

BERRYHILL & CASHION

HS1

DHO 7.3

Skeletal System Facts:

The skeletal system is made up of organs called bones.

An adult human has 206 bones, but babies are born with 270 bones. Why?

The male and female skeleton have 1 major difference -what is it?

The female pelvis is wider and deeper. Why?

Functions of the skeletal system:

There are 5 functions:

- ▶ 1. _____: bones form a framework to support the body's muscles, fat, and skin
- ▶ 2. _____: bones surround vital organs to protect them. Can you think of an example?

The skull surrounds the brain. The ribs surround the heart and lungs.

Functions of the skeletal system:

- ▶ 3. _____: muscles attach to bones to help provide movement
- ▶ 4. _____: bones help produce _____, a process called _____.
- ▶ 5. _____: bones store most of the _____ supply of the body in addition to _____.

Bones vary in shape & size depending on their locations within the body

BONES OF THE EXTREMITIES ARE CALLED LONG BONES

Parts of a long bone:

1. _____ – long shaft
2. _____ – the 2 ends
3. _____ – cavity in the diaphysis
4. _____ – found in the medullary canal, it is a storage area for _____.
 - ▶ Contains cells that form _____
5. _____ – membrane that lines the medullary canal & keeps the _____.
 - ▶ It produces some bone growth.

Parts of a long bone:

6. _____ – found in certain bones (vertebrae, ribs, sternum, cranium, and in the proximal ends of humerus & femur)
- ▶ Produces _____
 - ▶ Red marrow is used to _____ & can be _____ in people with diseases of the immune system.

Parts of a long bone:

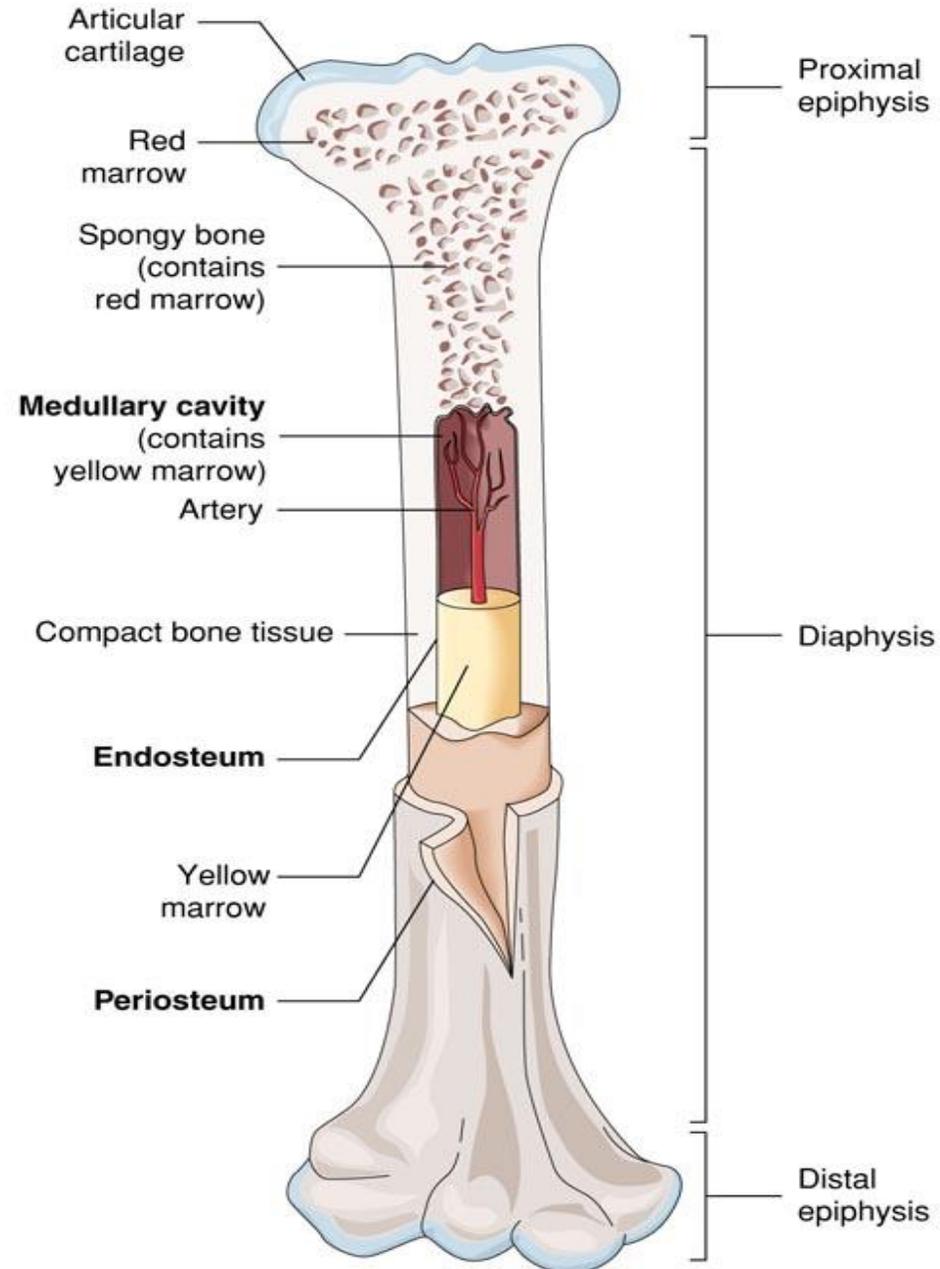
7. _____ – tough membrane that covers the outside of the bone.

▶ It contains blood vessels, lymph vessels, and _____ (special cells that form new bones).

8. _____ – covers the epiphysis and acts as a _____ when 2 bones meet to form a joint.

Long Bone

Diagram of long bone from DHO



Do you know?

▶ The skeletal system is responsible for the production of:

A) Adrenalin.

B) Red blood cells.

C) Vitamins A and D.

D) Calcium.

And the answer is...

Do you know?

- ▶ Of the following bones, which would **MOST LIKELY** contain red marrow?
 - A) Metacarpals
 - B) Sternum
 - C) Patella
 - D) Fibula

And the answer is

Do you know?

- ▶ What is the function of an osteoblast?
 - A) To form new bone tissue
 - B) To fight infection
 - C) To produce erythrocytes and leukocytes
 - D) Protection

And the answer is...

Skeletal system is divided into 2 sections:

Axial skeleton

▶ Forms the _____
of the body and is
composed of the _____,

Appendicular skeleton

▶ Forms the _____
and is composed of the

Axial Skeleton: Skull



- ▶ Made of _____ bones
- ▶ _____ = spherical structure that _____.
- ▶ It is made of 8 bones
- ▶ 1 _____, 2 _____, 2 _____, 1 _____, 1 _____, 1 _____

Axial Skeleton: Skull



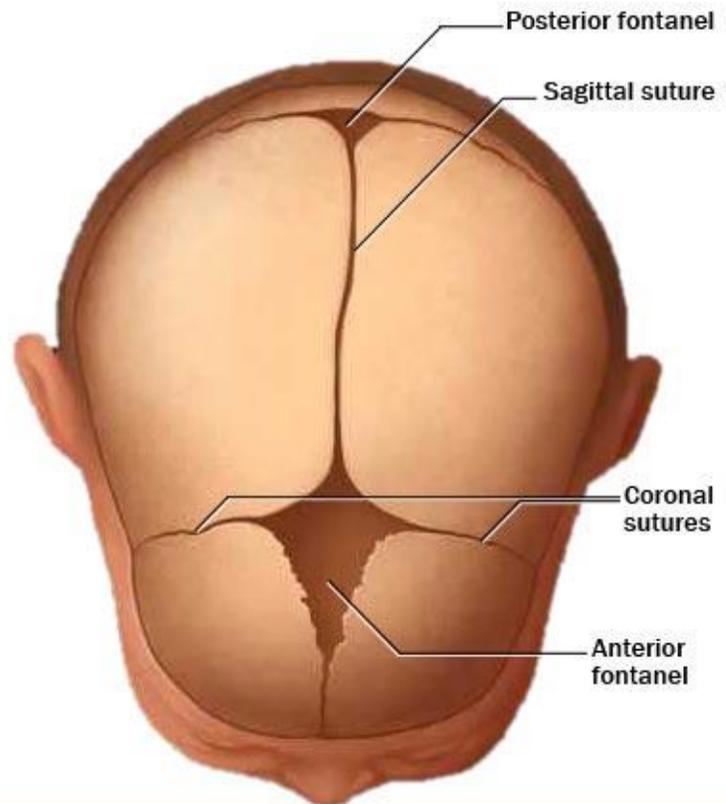
▶ Facial bones – 14 bones

- ▶ 1 _____, 2 _____,
2 _____, 2 _____,
5 _____, 2 _____

Axial Skeleton:

- ▶ At birth the cranium isn't solid bone. There are spaces that allow for the enlargement of the skull as brain growth occurs.
- ▶ What are these spaces called?
- ▶ _____ or soft spots
- ▶ They are made of _____ and turn to _____ by about _____ months of age.

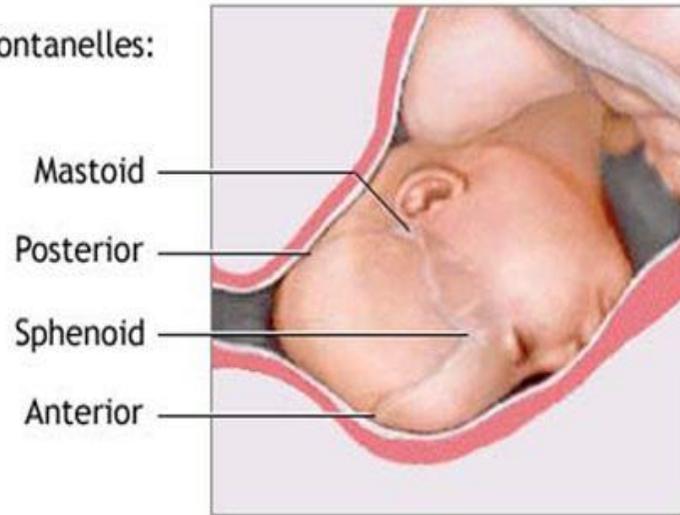
Fontanelles



Fontanelles

- Soft spots with no bones when babies are born. (Connective tissue)

Fontanelles:

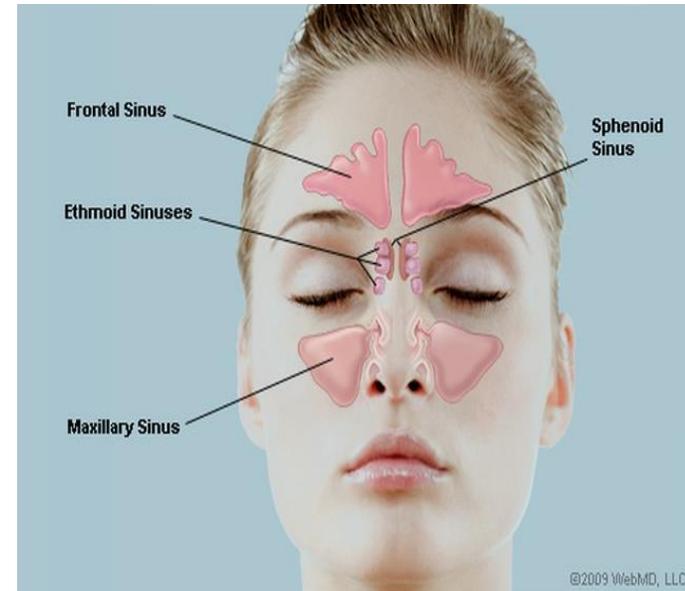


Axial Skeleton:

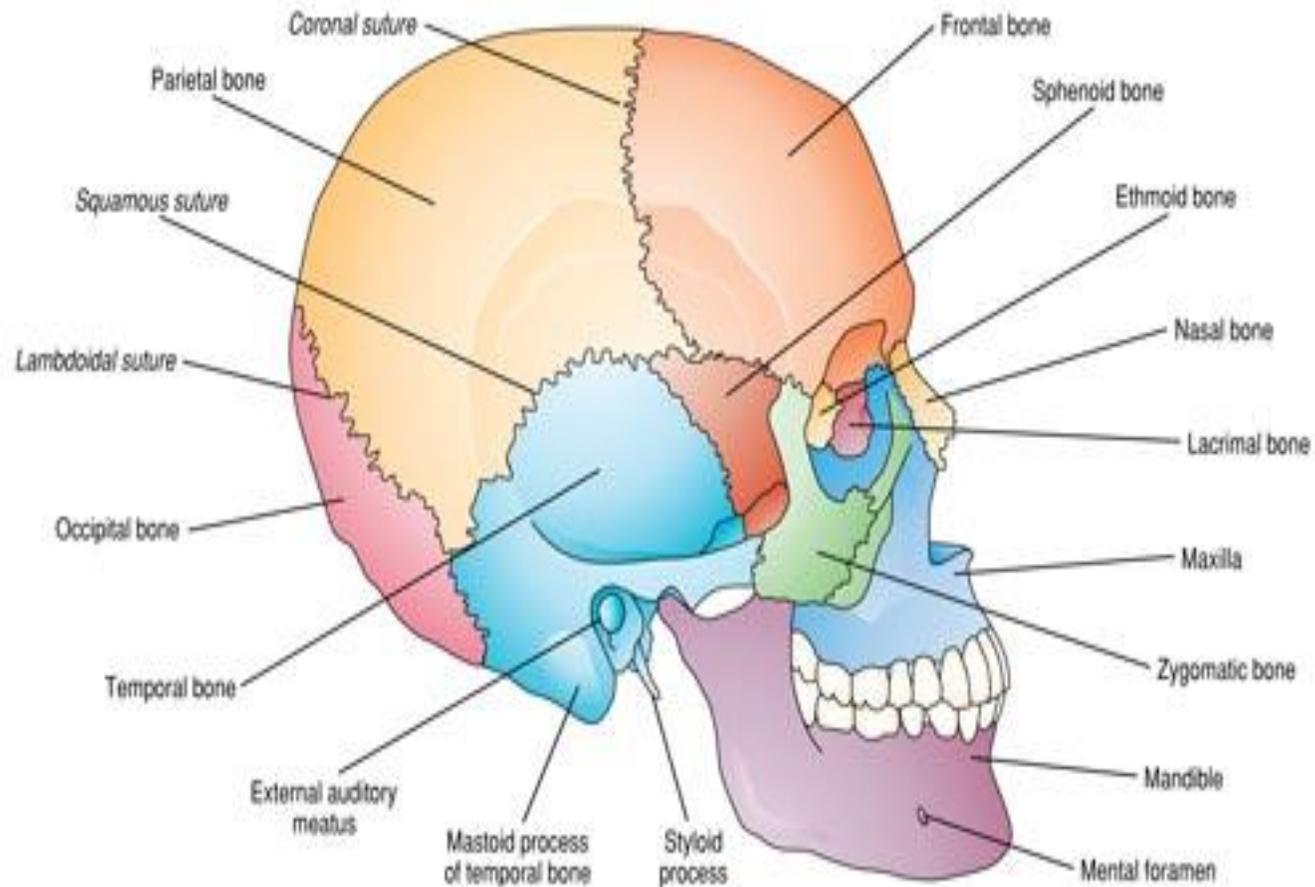
_____ : areas where _____
have joined together

_____ : air spaces in the bones of the skull
that act as _____.
They are lined with _____.

_____ : openings in bones that allow
_____ to
enter or leave the bone

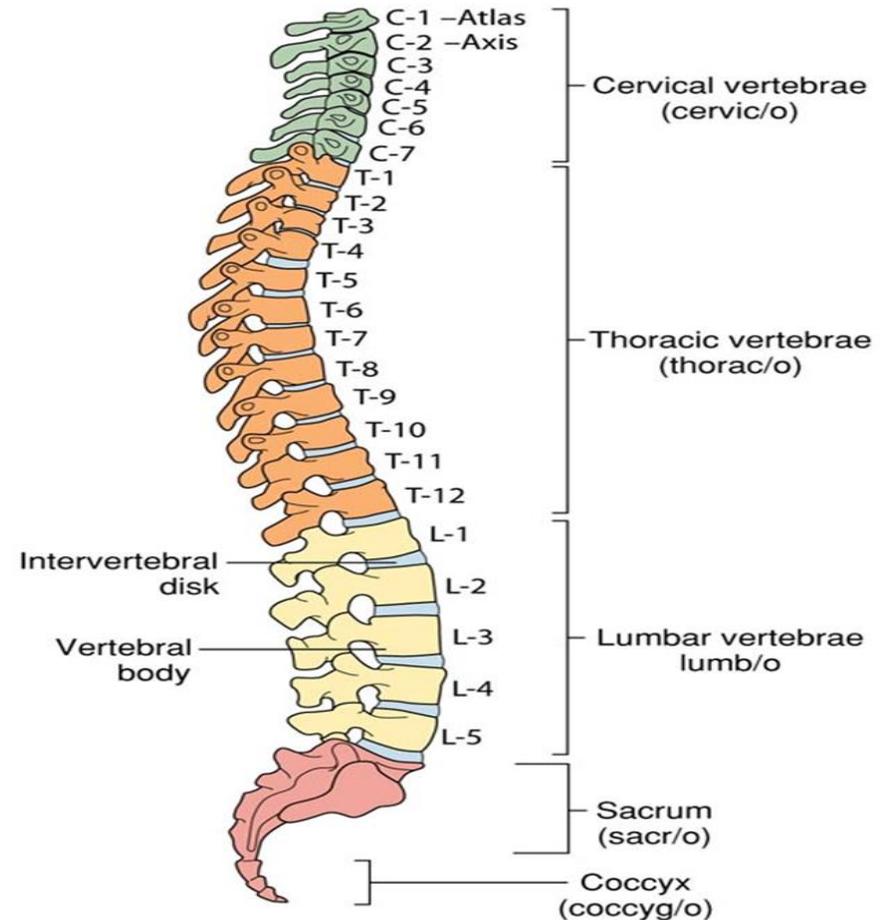


Skull bones and sutures diagram from DHO



Axial Skeleton: Spinal Column

- ▶ **Vertebrae**- 26 bones form spinal column.
Why? To _____ &
 _____.
- ▶ 7 _____ (neck)
- ▶ 12 _____ (chest)
- ▶ 5 _____ (waist)
- ▶ 1 _____
- ▶ 1 _____ (tailbone)
- ▶ _____ - pads of cartilage that separate the vertebrae. Act as _____ & permit _____ motions of the vertebral column



Axial Skeleton: Ribs

- ▶ **Ribs**- 12 pairs. They attach to the thoracic vertebrae on the _____ of the body.
- ▶ _____ - 1st 7 pairs, they attach directly to the _____
- ▶ _____ - Next 5 pairs. The 1st 3 pairs of false ribs attach to the _____ of the rib above.
- ▶ _____ - Last 2 pairs of false ribs, they have _____

Axial Skeleton:

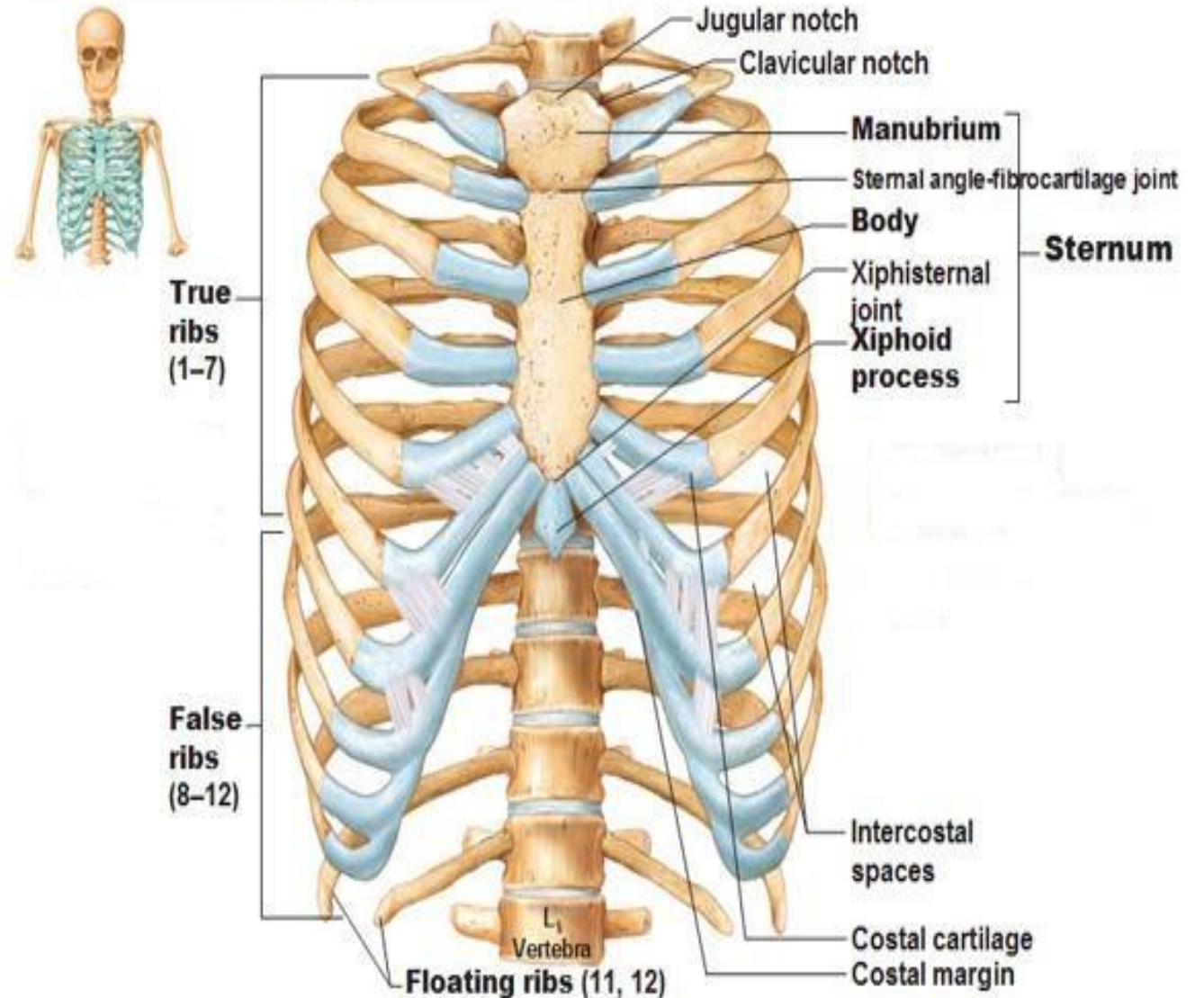
Sternum = _____

_____ – small piece of cartilage at the bottom of the sternum

The ribs are attached to the sternum with _____

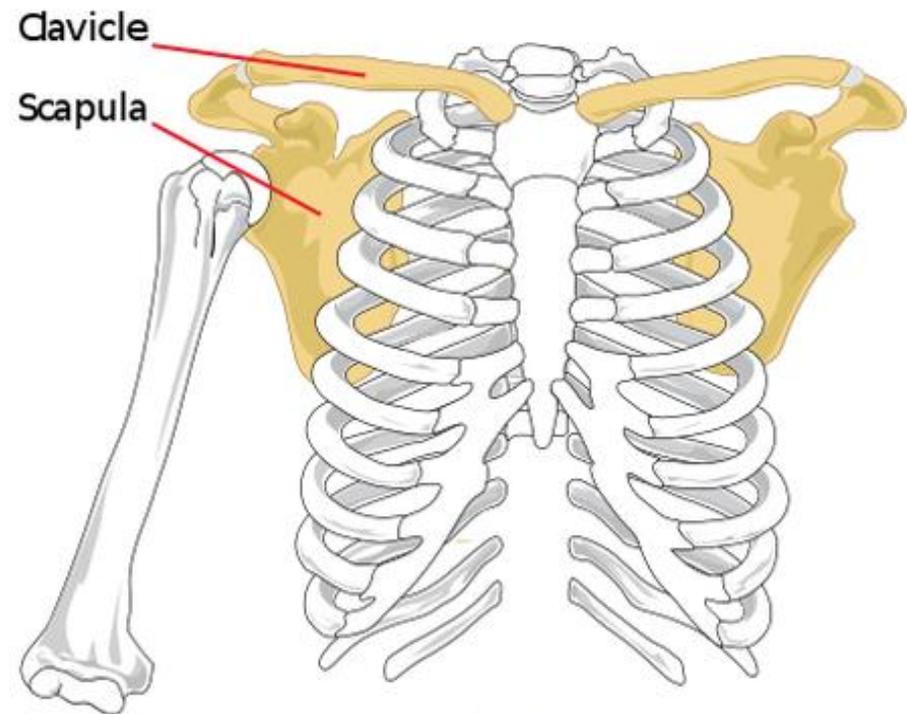
_____ to form a cage that protects the heart and lungs.

The Thoracic Cage: Anterior view



Appendicular Skeleton: Shoulder Girdle

- ▶ Shoulder girdle is made of 2 _____ (collarbones) and 2 _____ (shoulder bones).
- ▶ The scapula provide for the _____ of the upper arm bones.

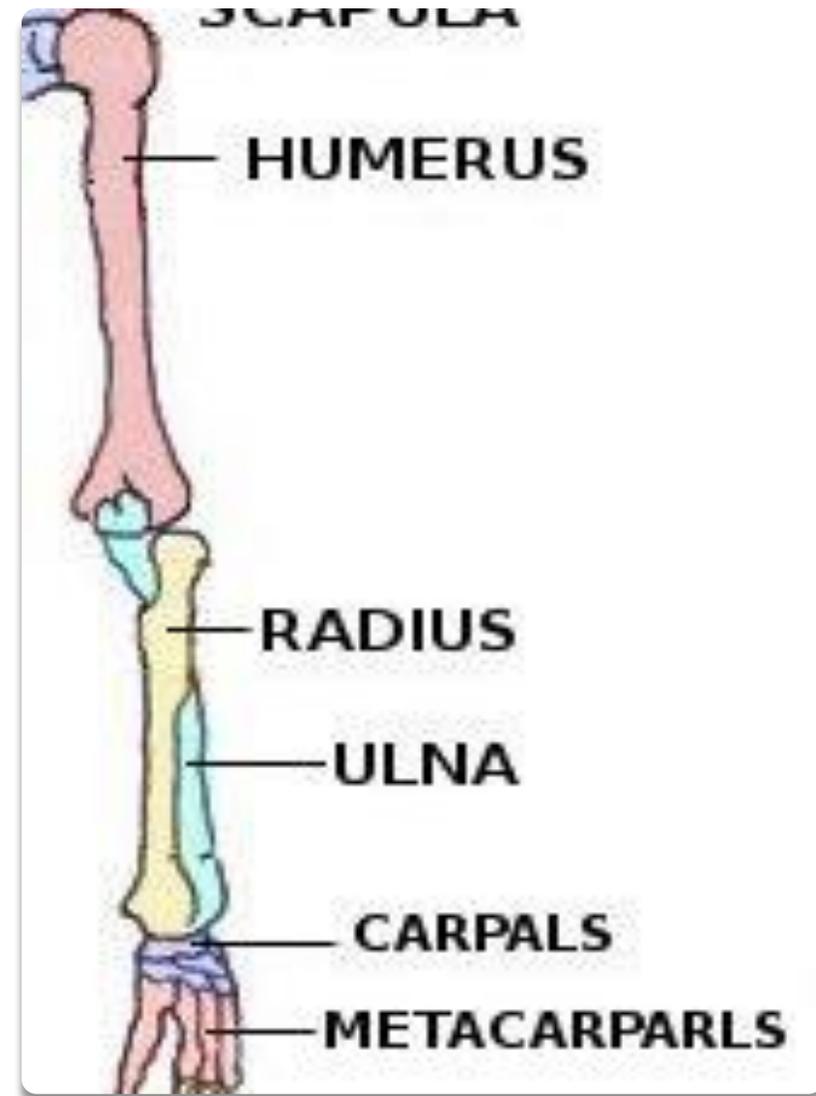


Front view

Appendicular Skeleton: Arm

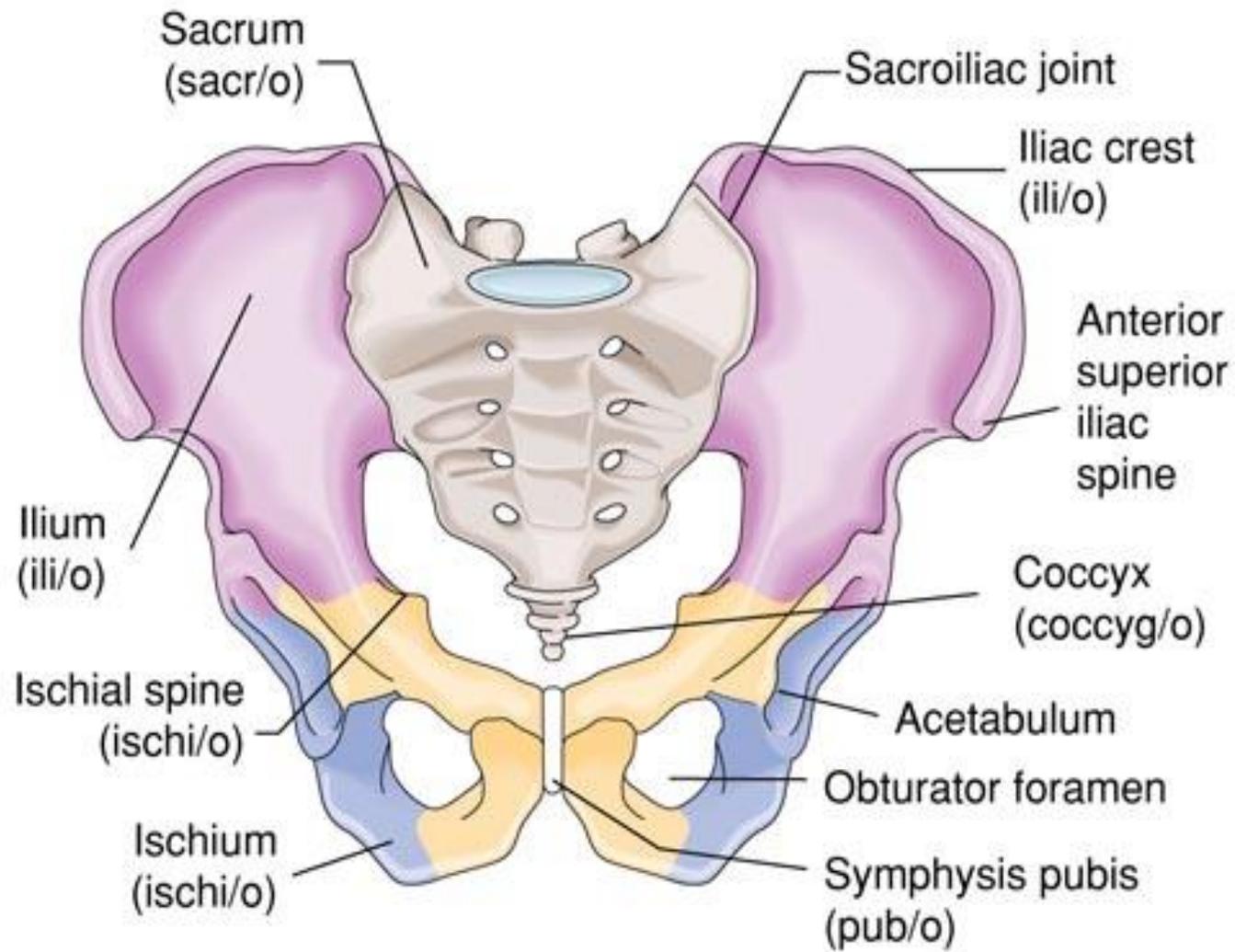
Bones of the arm:

- 1 _____ (upper arm)
- 1 _____ (lower arm, thumb side)
- 1 _____ (larger bone of the lower arm with projection called the _____ at its upper end that forms the elbow)
- 8 _____ (wrist)
- 5 _____ (palm)
- 14 _____ (3 on each finger, 2 on thumb)



Appendicular Skeleton: Pelvic Girdle

- ▶ Pelvic girdle is made of 2 _____ (coxal, or hip bones), which join the _____ on the dorsal part of the body. On the ventral part of the body the os coxae join together at a joint called the _____.
- ▶ Each os coxae is made of 3 fused sections: _____
- ▶ Pelvic girdle contains 2 recessed areas or sockets called _____ which provide for the attachment of the smooth rounded head of the femur.
- ▶ _____ - opening between the ischium and pubis, it allows for the passage of nerves and blood vessels to and from the legs.

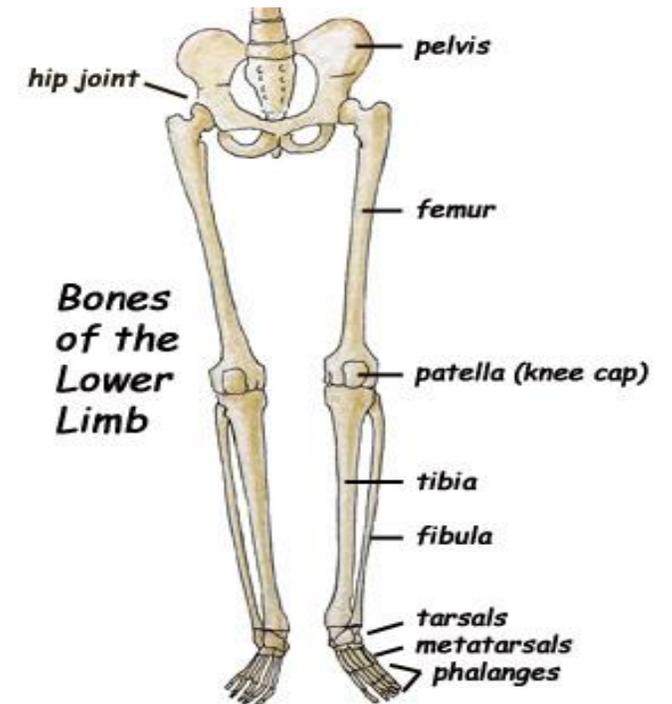


Appendicular Skeleton: Leg

▶ Bones of the leg:

- ▶ 1 _____ (thigh)
- ▶ 1 _____ (kneecap)
- ▶ 1 _____ (shin bone, it is the larger weight bearing bone of the lower leg)
- ▶ 1 _____ (slender, smaller bone of lower leg that attaches to the proximal end of the tibia)
- ▶ 7 _____ (ankle)
- ▶ 5 _____ (instep of foot), and 14 _____ (2 on great toe, 3 on other toes)

- ▶ Heel is formed by the large tarsal bone - **calcaneous**



Do you know?

▶ The vertebrae are part of the:

A) Pelvic girdle.

B) Shoulder girdle.

C) Axial skeleton.

D) Appendicular skeleton.

And the answer is...

Do you know?

- ▶ What two bones articulate with each other?
 - A) Patella and ulna
 - B) Vertebrae and sternum
 - C) Metacarpals and phalanges
 - D) Carpals and humerus

And the answer is...

Joints

- ▶ **Joints**- areas where 2 or more bones join together. Connective tissue bands, called _____, help hold long bones together at joints.
- ▶ There are 3 main types of joints:
 1. _____ – freely movable joint. Can you name an example?
- ▶ Ball-and-socket joints of the shoulder and hip or hinge joints of the elbow and knee

Joints

2. _____ – slightly movable joint. Can you name an example?

- ▶ Attachment of ribs to thoracic vertebrae or the joint between the 2 pelvic bones (symphysis pubis)

3. _____ – immovable joint. Can you name an example?

- ▶ Suture joints of the cranium

LIGAMENTS OF THE ANKLE

