

Key

1) What are the 6 types of bones and what are their functions?

Flat: Protects organs

Long: Movement [Locomotion] & Structure

Irregular: Protection of the CNS

Pneumatic: *unique to birds* Makes the bones lighter (more hollow)

Short: Range of motion for movement & Shock absorption

Sesamoid: Protects tendons & ligaments

(F.L.I.P.S.S.) acronym to help with memory

2) Bone is a type of connective tissue.

3) What are the 4 functions of bone?

Structure - scaffolding (rigid; gives the body structure and shape)

Protection - keeps vital organs safe

Leverage - Locomotion (movement to seek out the necessary survival needs)

Storage - Minerals are stored in the bones (BUT we don't want to use these)

4) What are the two components of bone? What are the functions of each component?

Collagen Fibers & Calcium Salts

↓
Allow the bones to be flexible

↓
Make the bones hard

5) List the two sections of the skeleton and the bones in each section.

Axial

Skull



Vertebral Column



Sternum



Ribs

Appendicular

Thoracic Limb & Pelvic Limb

Scapula

Humerus

Ulna

Radius

Carpals

Metacarpals

Phalanges (Digits)

Pelvis

Femur
(Patella)

Tibia

Fibula

Tarsals

Metatarsals

Phalanges (Digits)

*tarsals → toes

6) Name the sections of vertebrae from the CAUDAL to CRANIAL (posterior to anterior).

Caudal → Sacral → Lumbar → Thoracic → Cervical

- 7) What are the 4 types of bone cells? Where are they found and what do they do? ↗ in bone

Osteocyte: Mature bone cells → derived from osteoblasts

Osteoblast: Comes from osteoprogenitor cells → Builds bone (secretes unmineralized) osteoid → bone

Osteoclast: Comes from monocytes → Breaks down & reabsorbs bone cells

Osteoprogenitor: Comes from Mesenchymal Stem Cell; must be differentiated

- 8) Why is spongy bone important and how is it different than compact bone?

Spongy bone maintains the strength of bone while reducing the total weight of the bone.

Spongy bone is less dense than compact bone.

- 9) Mature bone's weight is 1/3 organic compounds and 2/3 inorganic compounds.

- 10) What is the function of glycosaminoglycans?

They control the activity of osteogenesis and osteoclastic factors

↗
creation of new bone

↗
remodeling bone

- 11) There are 2 types of bone marrow. Red bone marrow forms blood cells. White / Yellow bone marrow is made of fat and can return to red bone marrow if needed.