

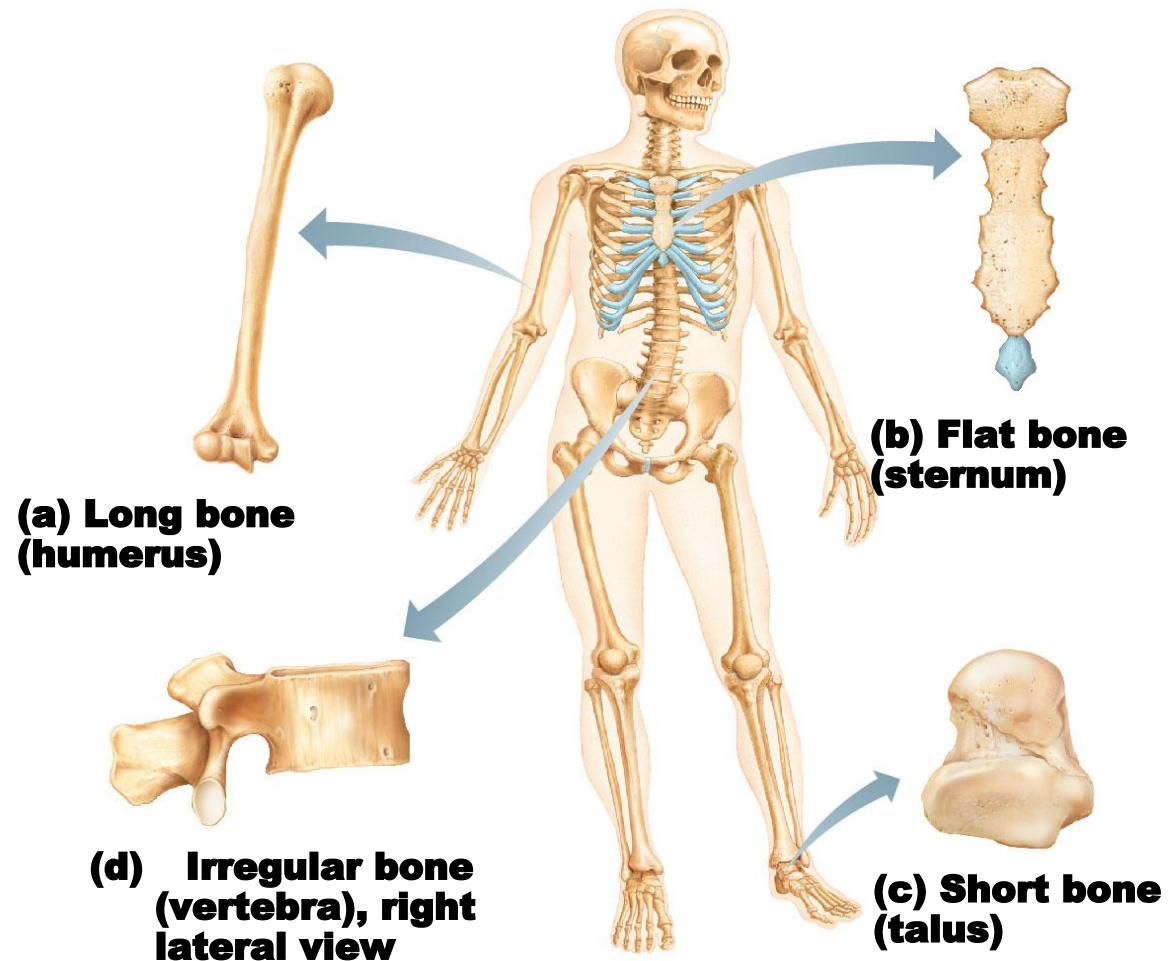
Classification of Bones

- Two basic types of osseous (bone) tissue
 1. **Compact bone**
 - Dense, smooth, and homogeneous
 2. **Spongy bone**
 - Small needlelike pieces of bone
 - Many open spaces



Classification of Bones

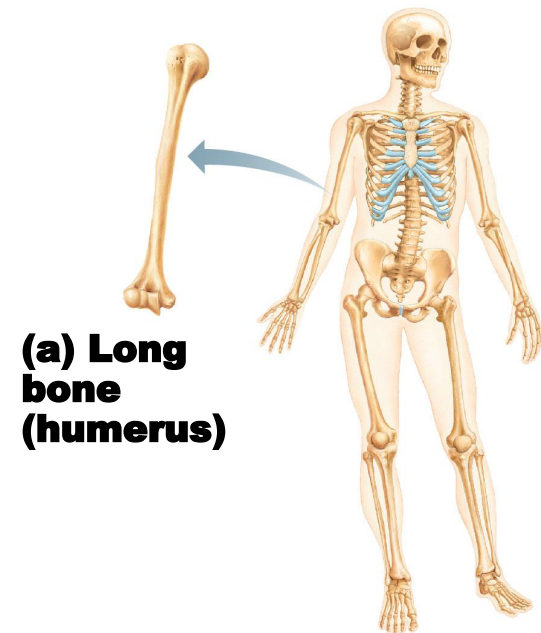
- Bones are classified on the basis of **shape** into four groups
 1. Long
 2. Flat
 3. Short
 4. Irregular



Classification of Bones

■ Long bones

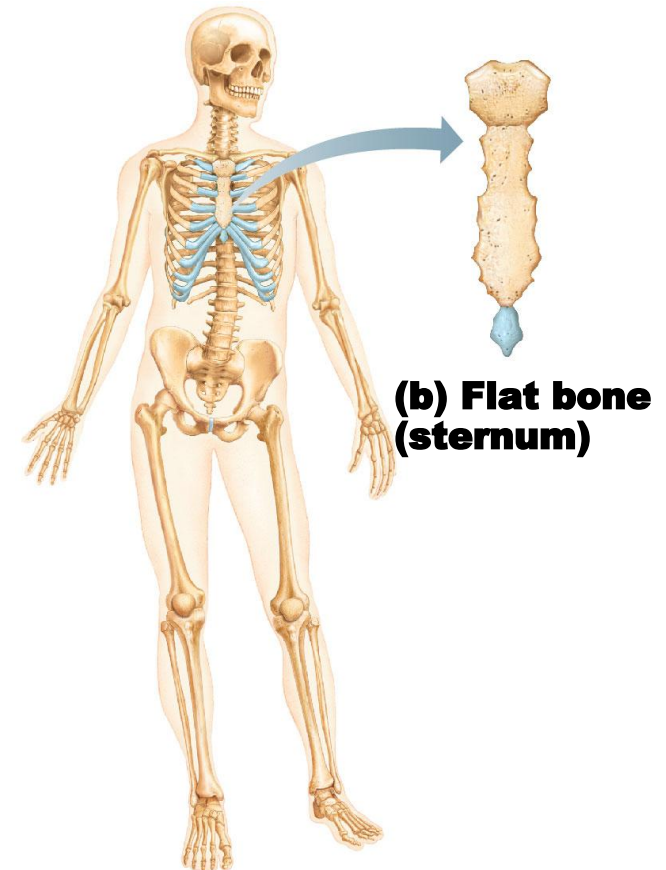
- Typically longer than they are wide
- Shaft with enlarged ends
- Contain mostly compact bone; spongy bone at ends
- All of the bones of the limbs (except wrist, ankle, and kneecap bones) are long bones
- *Examples:*
 - Femur, humerus



Classification of Bones

■ Flat bones

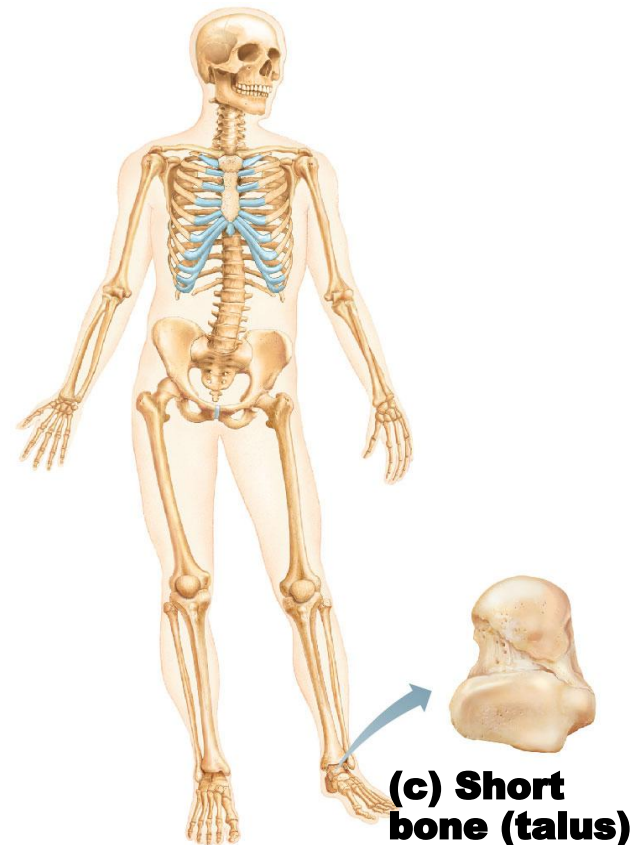
- **Thin, flattened, and usually curved**
- Two thin layers of compact bone sandwich a layer of spongy bone between them
- *Examples:*
 - **Most bones of the skull, ribs, sternum**



Classification of Bones

■ Short bones

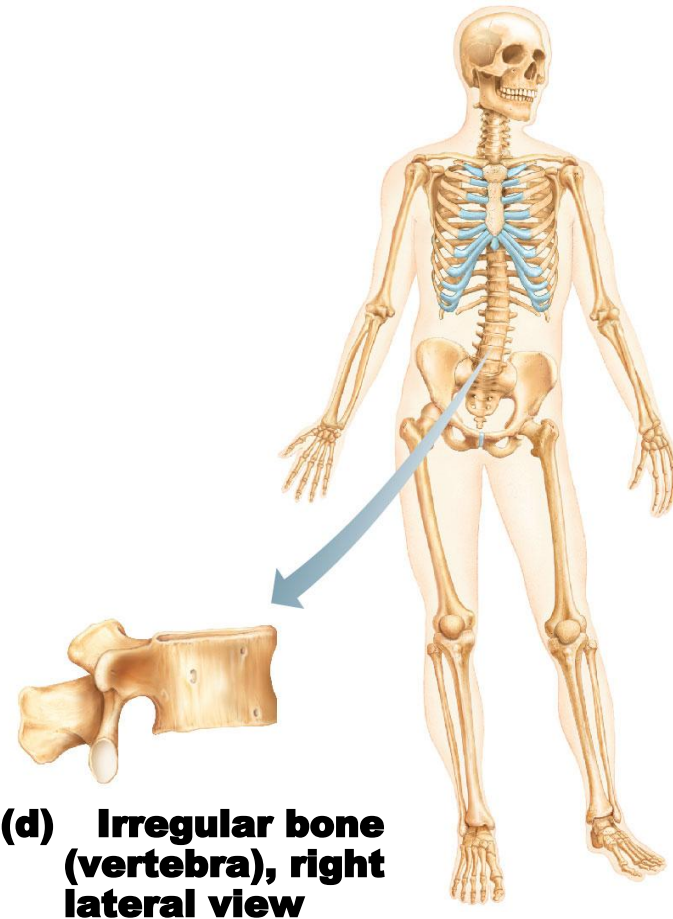
- Generally cube-shaped
- Contain mostly spongy bone with an outer layer of compact bone
- *Examples:*
 - Carpals, tarsals



Classification of Bones

- **Irregular bones**

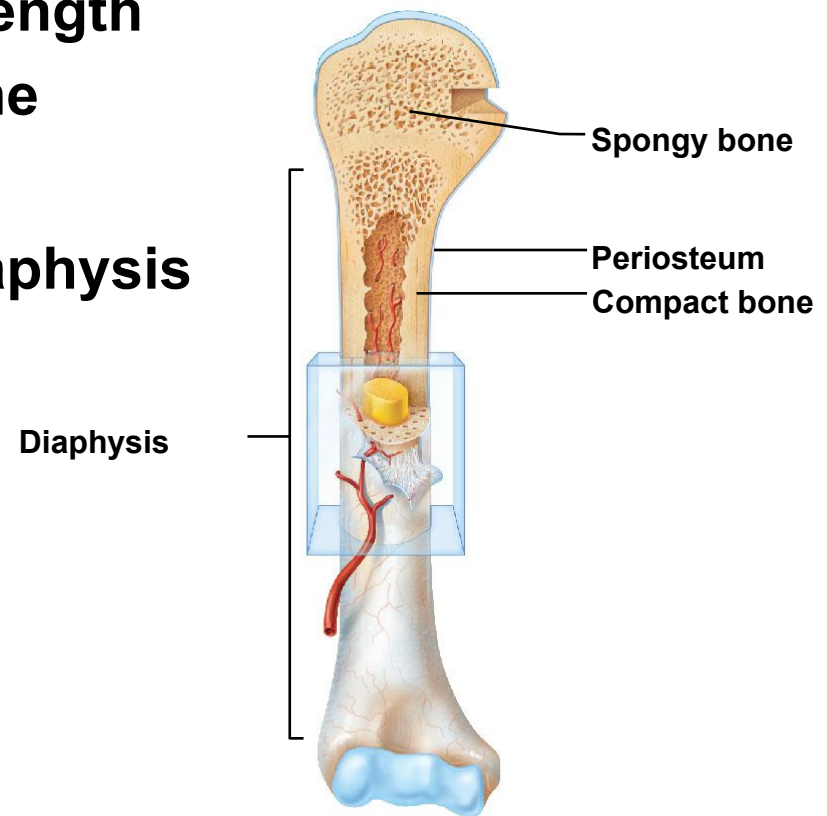
- Irregular shape
- Do not fit into other bone classification categories
- *Examples:*
 - Vertebrae, hip bones



(d) Irregular bone (vertebra), right lateral view

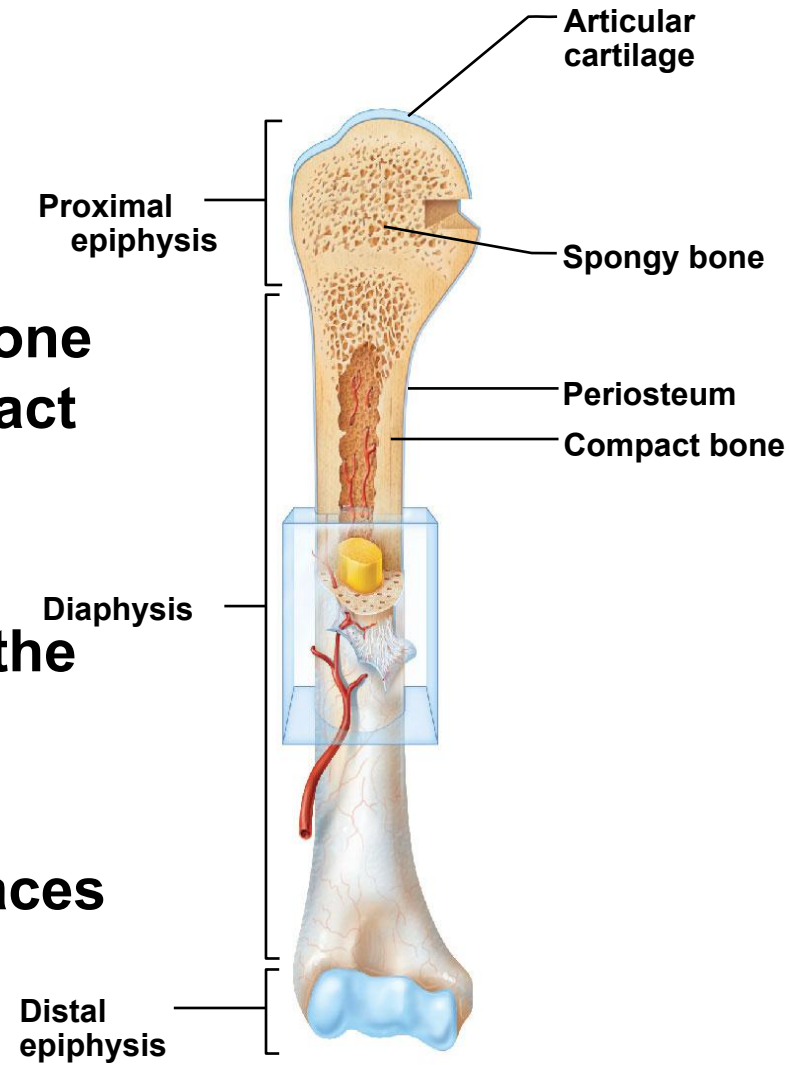
Structure of Bone

- Long bone anatomy
 - **Diaphysis (shaft)**
 - Makes up most of bone's length
 - Composed of compact bone
 - **Periosteum**
 - Outside covering of the diaphysis
 - Fibrous connective tissue membrane



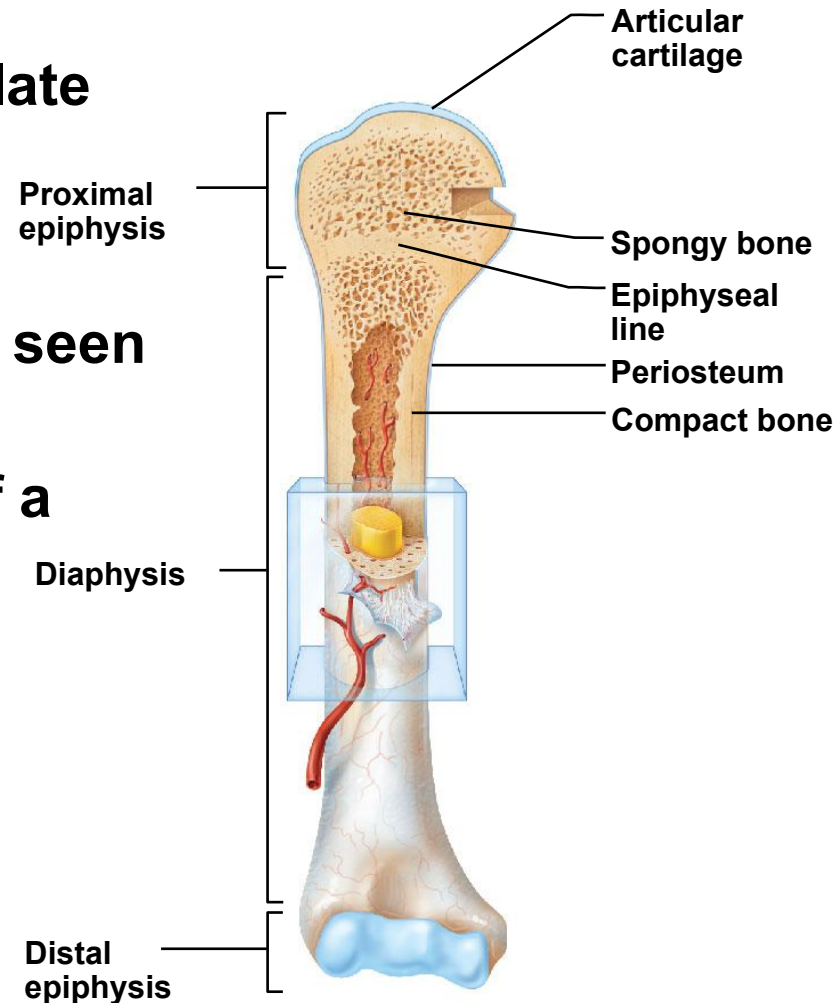
Structure of Bone

- Long bone anatomy
 - Epiphysis
 - Ends of long bone
 - Composed mostly of spongy bone enclosed by thin layer of compact bone
 - Articular cartilage
 - Covers the external surface of the epiphyses
 - Made of hyaline cartilage
 - Decreases friction at joint surfaces



Structure of Bone

- Long bone anatomy
 - **Epiphyseal line**
 - Remnant of the epiphyseal plate
 - Seen in adult bones
 - **Epiphyseal plate**
 - Flat plate of hyaline cartilage seen in young, growing bone
 - Causes lengthwise growth of a long bone



Structure of Bone

- Long bone anatomy
 - **Endosteum**
 - Lines the inner surface of the shaft
 - Made of connective tissue
 - **Medullary cavity**
 - Cavity inside the shaft
 - Contains yellow marrow (mostly fat) in adults
 - Contains red marrow for blood cell formation in infants until age 6 or 7

