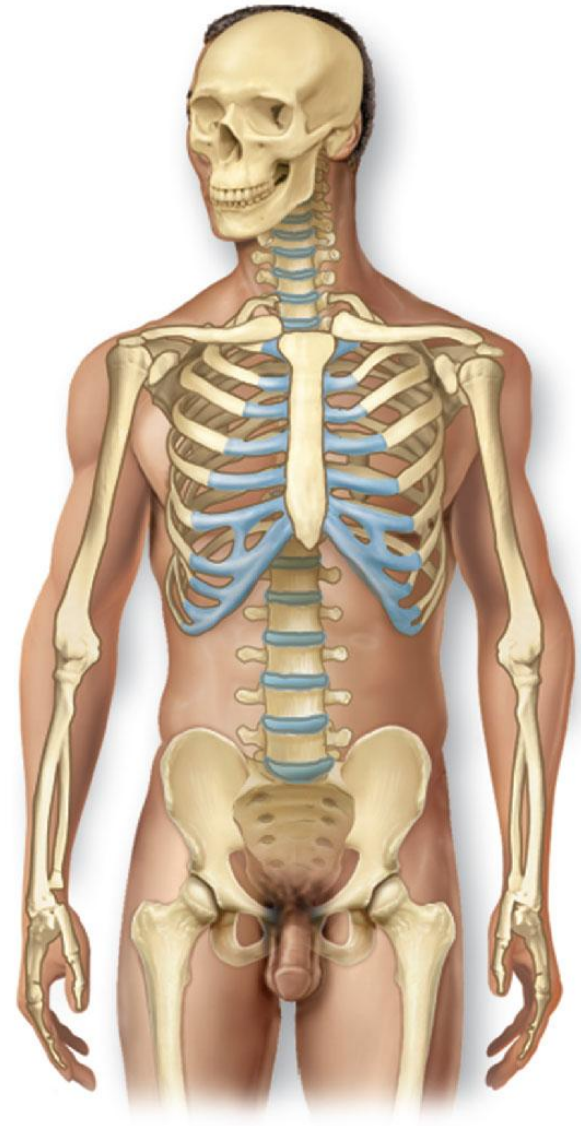


The Skeletal System

- Parts of the skeletal system
 - **Bones (Skeleton)**
 - **Joints**
 - **Cartilages**
 - **Ligaments**



Functions of the Bones

■ **Support**

- Internal framework of the body

■ **Protection**

- Skull and vertebrae protect brain and spinal cord
- Rib cage protects thoracic cavity organs

■ **Movement**

- Muscles attached to bones by tendons produce movement

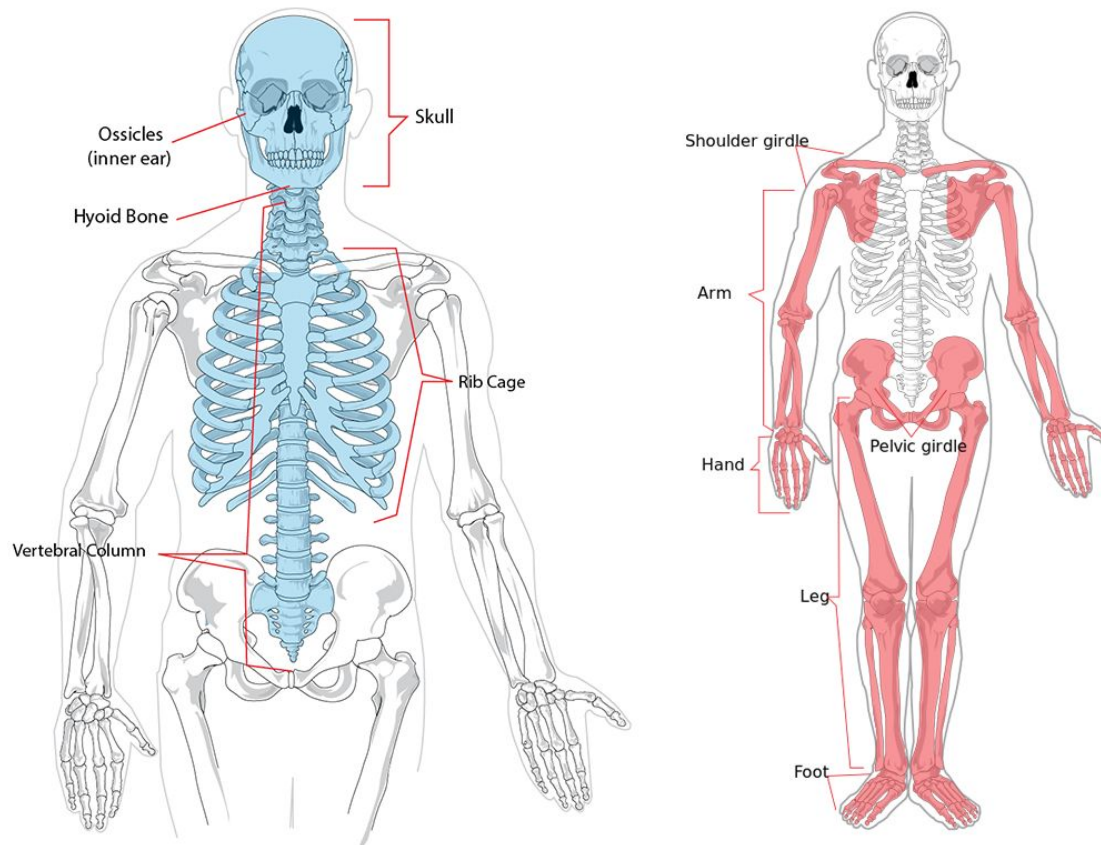
■ **Storage**

- Store minerals, such as calcium and phosphorus
- Store fat in the internal marrow cavity

■ **Blood cell formation (hematopoiesis)**

Subdivisions of the Skeletal System

- The skeletal system is divided into two subdivisions:
 - **Axial Skeleton**
 - **Appendicular Skeleton**



Axial Skeleton

- **Forms the longitudinal axis of the body**

- **Divided into three parts:**

1. Skull

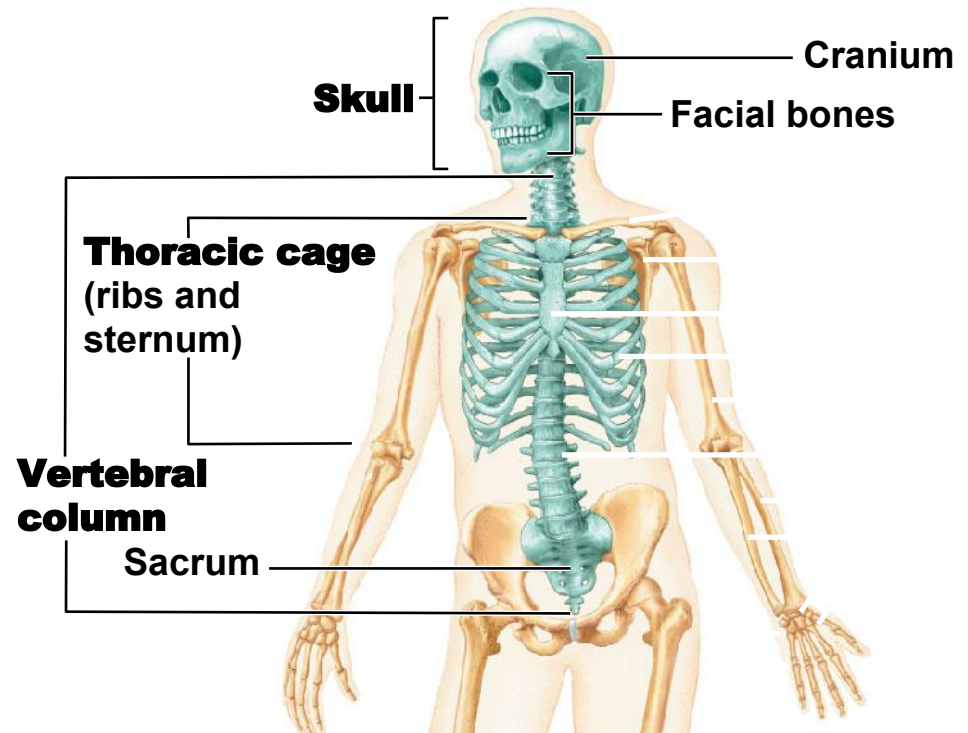
- **Cranium**
- **Facial Bones**
- **Hyoid Bone**

2. Vertebral column

- **Cervical vertebrae**
- **Thoracic vertebrae**
- **Lumbar vertebrae**
- **Sacrum and Coccyx**

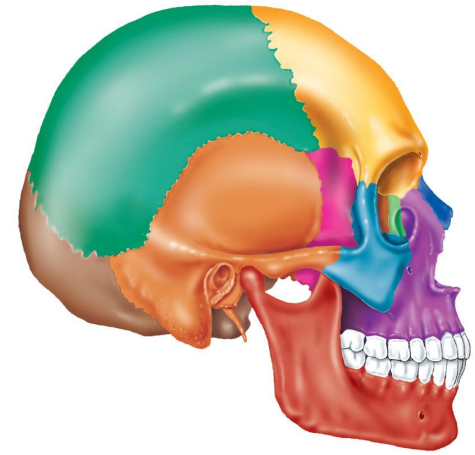
3. Thoracic cage

- **Ribs and Sternum (and thoracic vertebrae)**



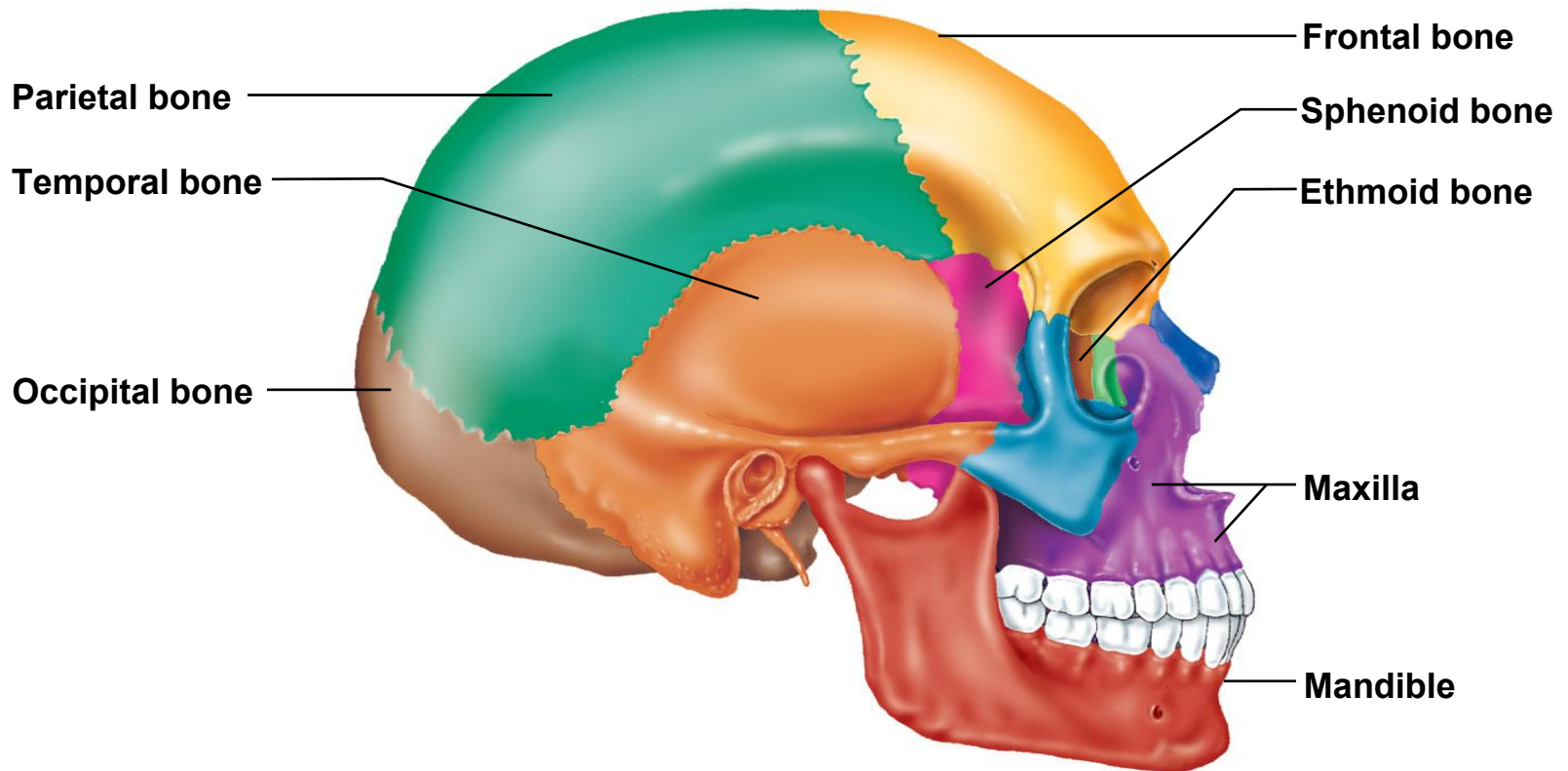
Skull

- Two sets of bones form the skull
 - **Cranium bones**
 - ✓ Enclose and protect the brain
 - **Facial bones**
 - ✓ Hold eyes in anterior position
 - ✓ Allow facial muscles to express feelings
- Bones of the skull are joined by **sutures**
 - Interlocking, immovable joints
- Only the **mandible (jawbone)** is attached by a freely movable joint



Cranial Bones

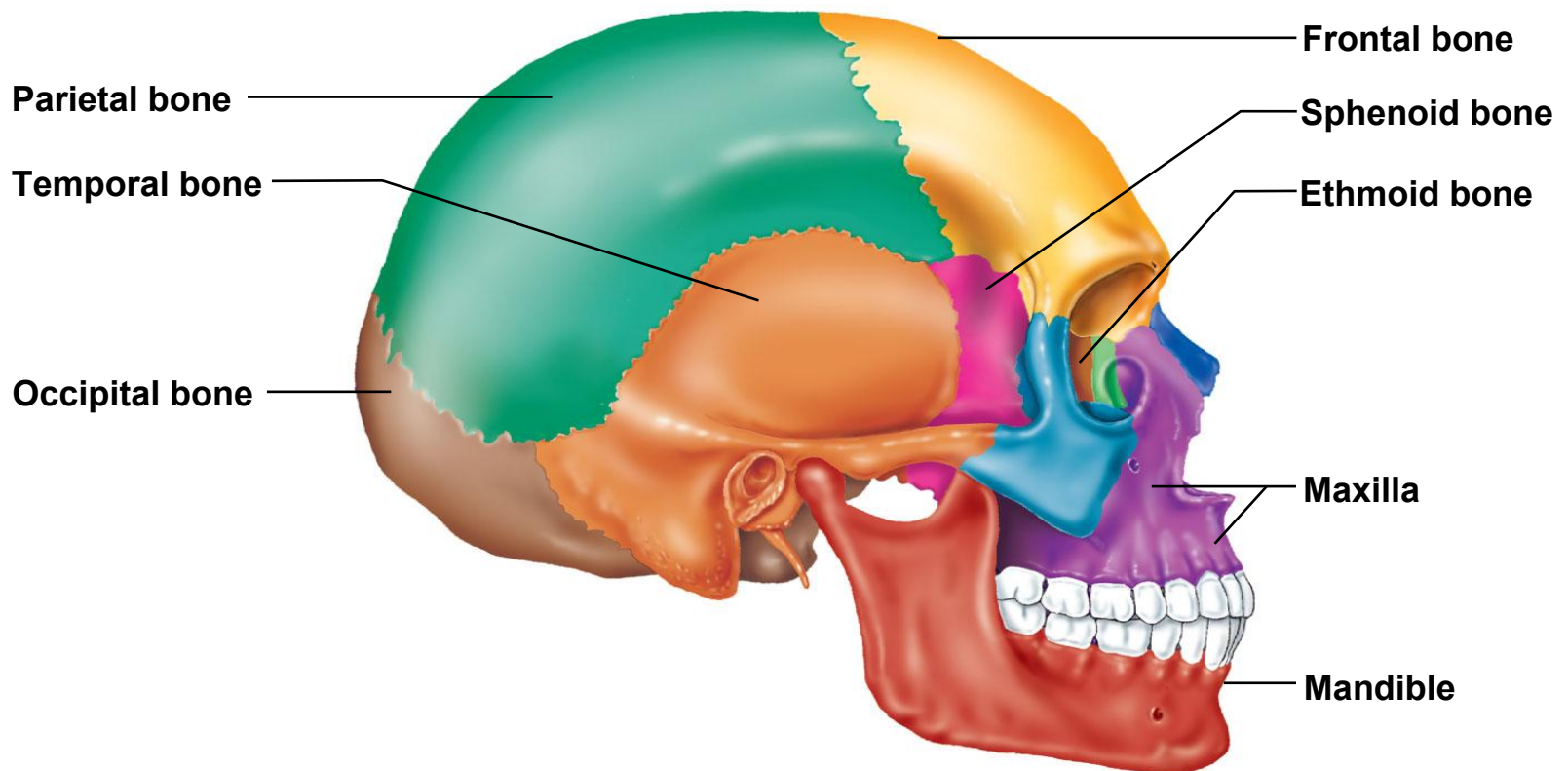
- There are 8 cranial bones in the skull:
 - **Parietal (2)**
 - **Temporal (2)**
 - **Frontal**
 - **Occipital**
 - **Sphenoid**
 - **Ethmoid**



Facial Bones

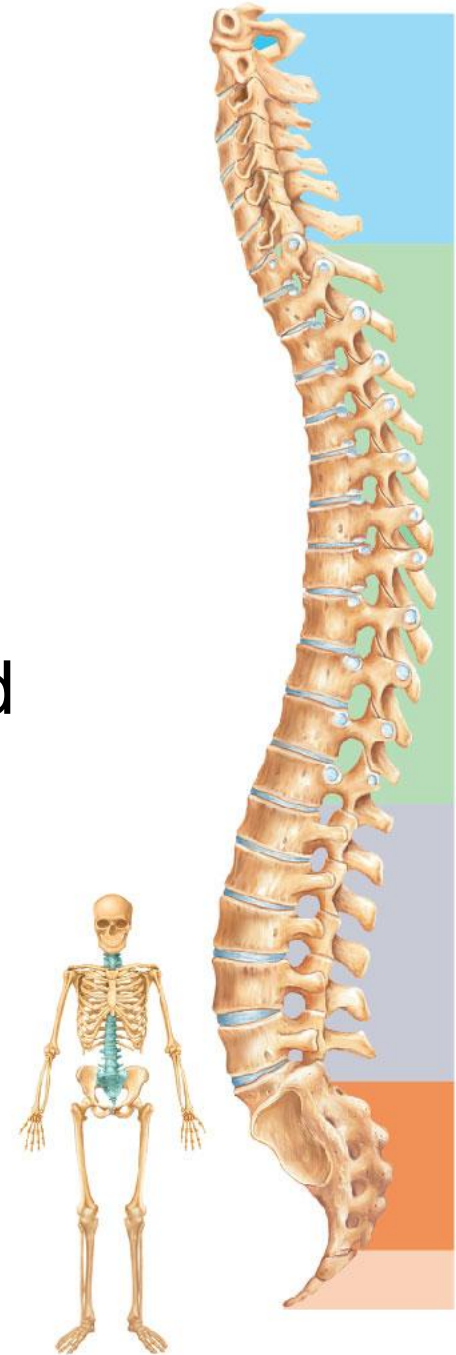
There are 14 facial bones in the skull (you only need to know 2 of them):

- **Maxilla**
- **Mandible**



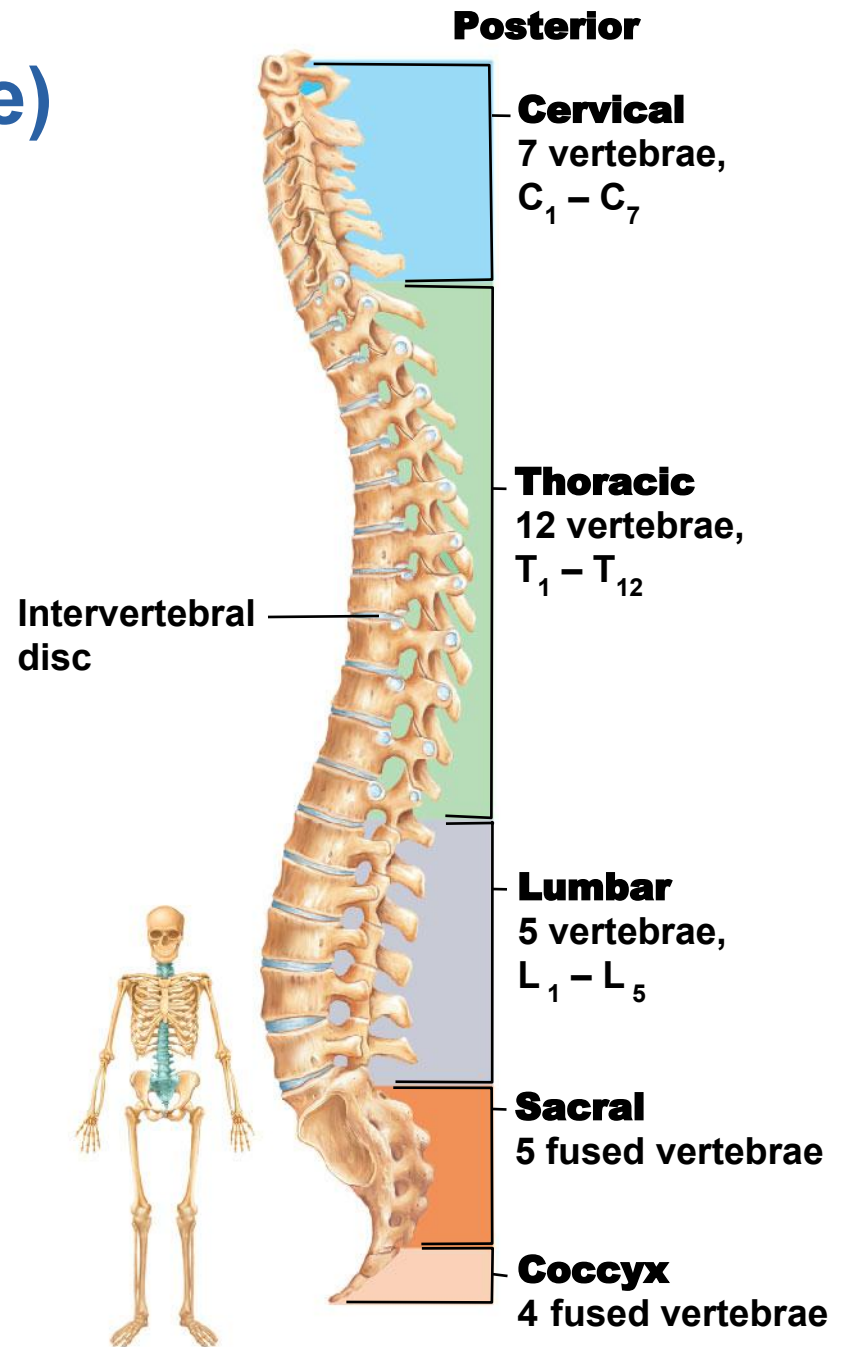
Vertebral Column (Spine)

- Vertebral column **provides axial support**
 - Extends from skull to the pelvis
 - Surrounds and protects the spinal cord
- The individual vertebrae are separated by **intervertebral discs**
 - **Fibrocartilage** that absorbs shock while allowing flexibility



Vertebral Column (Spine)

- **26 Vertebrae:**
 - **7 Cervical vertebrae**
 - ✓ Breakfast at 7 am
 - **12 Thoracic vertebrae**
 - ✓ Lunch at 12 pm
 - **5 Lumbar vertebrae**
 - ✓ Dinner at 5 pm
 - **Sacrum**
 - ✓ fusion of 5 vertebrae
 - **Coccyx**
 - ✓ fusion of 3–5 vertebrae



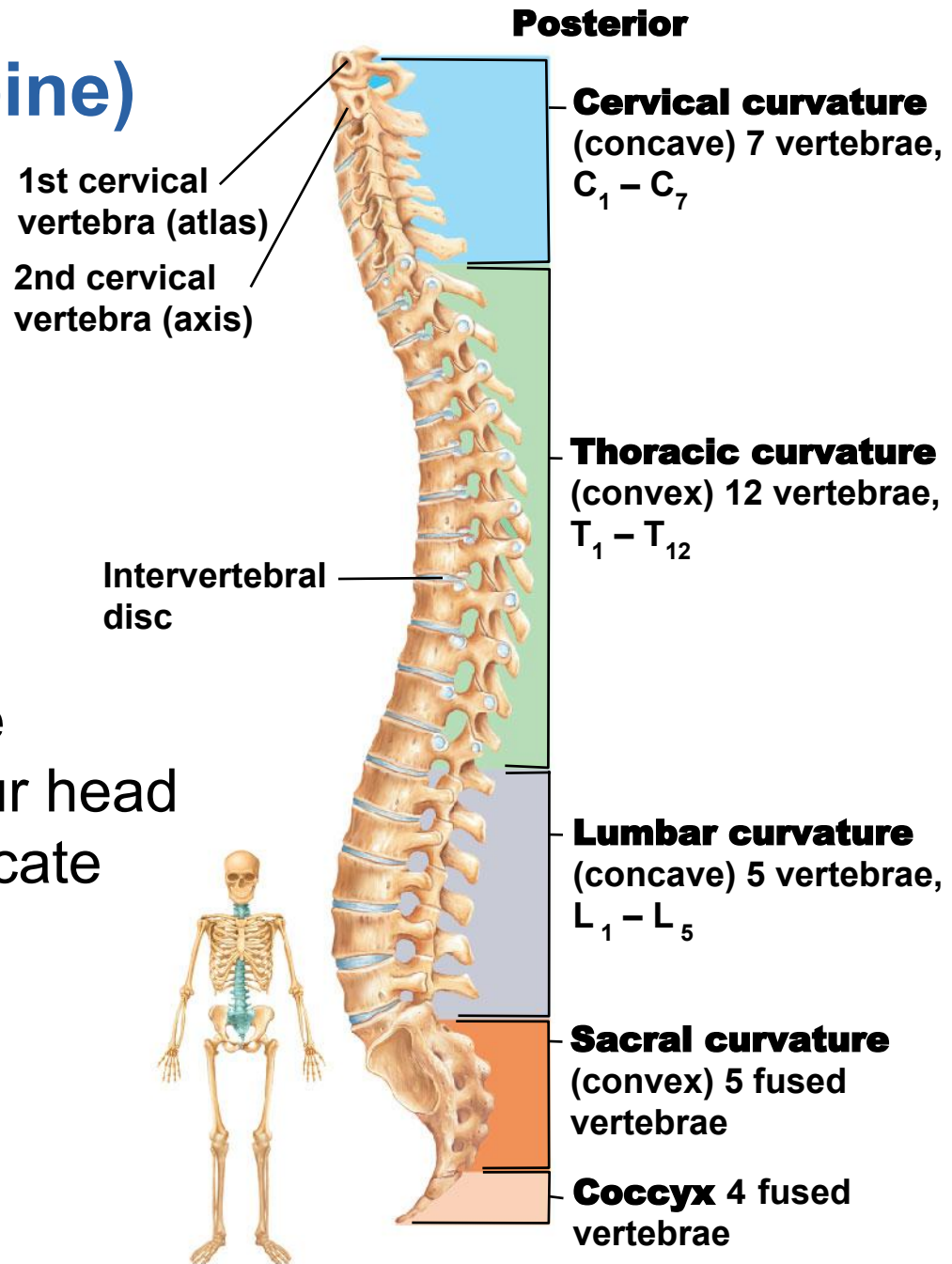
Vertebral Column (Spine)

■ Atlas

- ✓ 1st cervical vertebrae
- ✓ Allows you to nod “yes”

■ Axis

- ✓ 2nd cervical vertebrae
- ✓ Allows you to rotate your head from side to side to indicate “no”



Thoracic Cage

- The thoracic cage **protects organs of the thoracic cavity**
- Consists of three parts
 1. **Sternum**
 2. **Ribs**
 - **True ribs (7 pairs)**
 - ✓ **Attach directly to the sternum by costal cartilage**
 - **False ribs (5 pairs)**
 - ✓ **Attach indirectly to the sternum**
 - **Floating ribs (2 pairs)**
 - ✓ **Lack sternal attachments**
 3. **Thoracic vertebrae**

