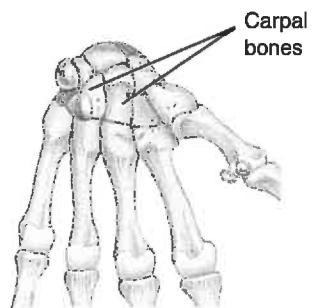


ACTIVITY 1 CLASSIFICATION OF BONES ACCORDING TO SHAPE

- Identify the types of bones in Figure 8.1 according to shape.
- Classify each of the bones your instructor has displayed according to shape.

B. GROSS FEATURES OF LONG BONES

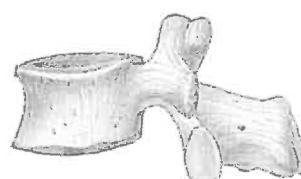
Each enlarged proximal and distal end of a long bone is called an **epiphysis** (*epi-* = above, over; *physis* = growing). The epiphysis contains spongy bone covered by a thin layer of compact bone. The middle shaft area composed of compact bone is called the **diaphysis** (*dia-* = through). The area of the epiphysis where the bone grows in length is called the **epiphyseal plate** in a growing bone and the **epiphyseal line** in a bone that is no longer growing. The cavities within the spongy bone of the epiphyses (plural) contain **red marrow**, a tissue that produces blood cells. **Articular cartilage** (*articul-* = joint), composed of hyaline cartilage, covers both epiphyses, and the rest of the bone exterior is covered with a tough, connective tissue membrane, the **periosteum** (*peri-* = around; *osteo-* = bone). The hollow center of the bony diaphysis is called the **medullary cavity** (*medulla-* = marrow, pith), and a small amount of spongy bone is found in this cavity. The medullary cavity is lined with a connective tissue mem-



(a)



(b)



Vertebra



Humerus

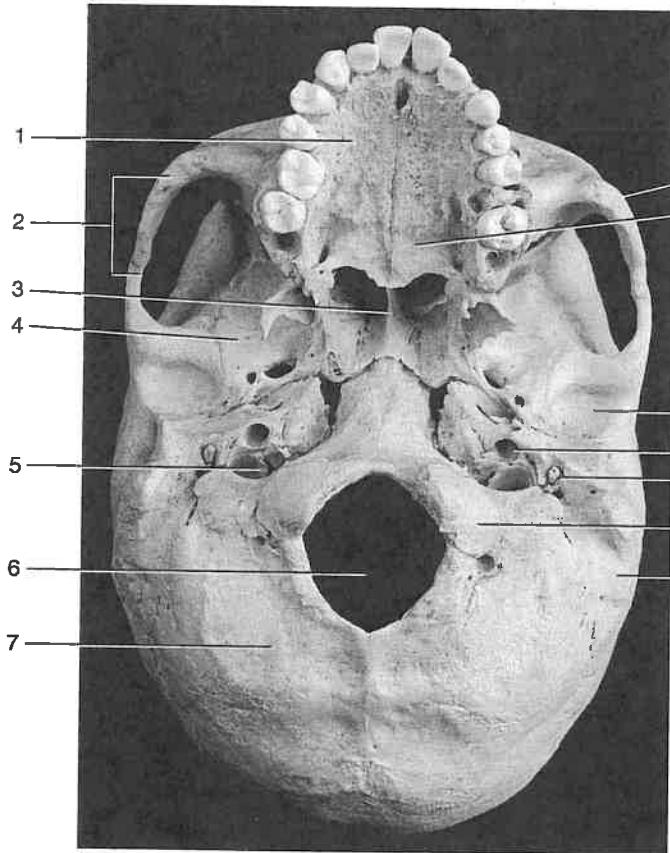
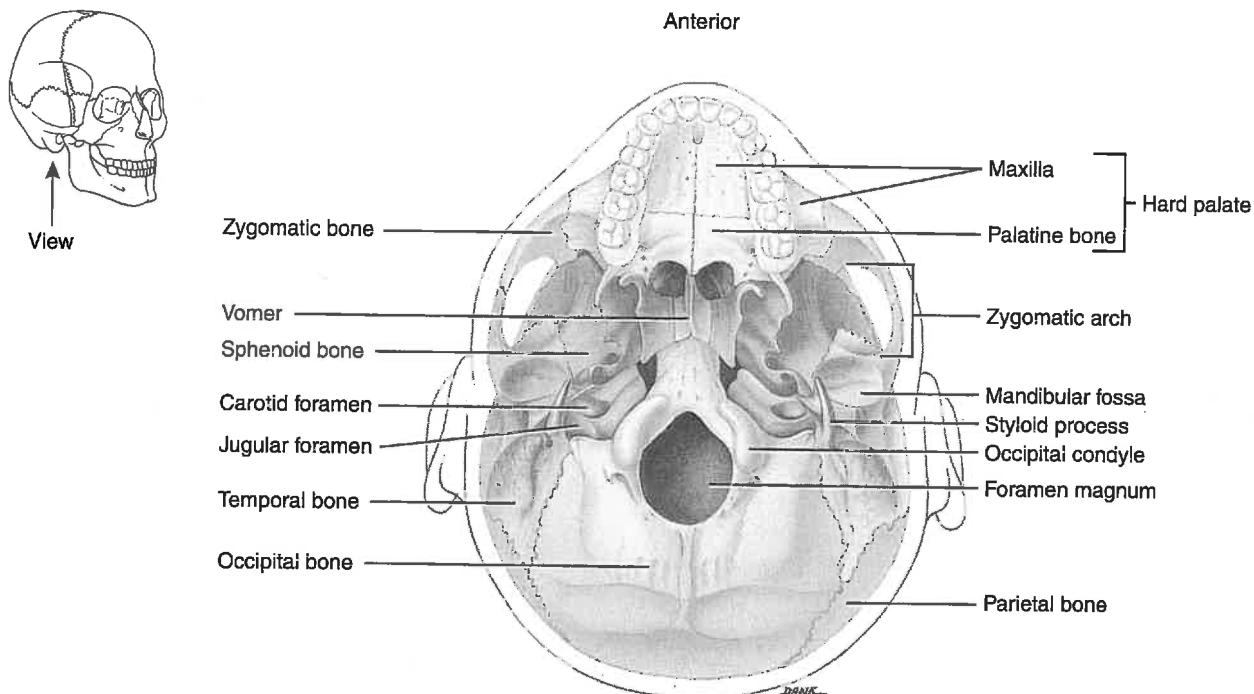
- flat
- irregular
- long
- sesamoid (SES-a-moid)
- short

- (a) _____
- (b) _____
- (c) _____
- (d) _____
- (e) _____



Patella

FIGURE 8.1 Classification of bones.



- carotid foramen
- foramen magnum
- jugular foramen
- mandibular fossa
- maxilla
- occipital bone
- occipital condyle
- palatine bone (PAL-a-tin)
- sphenoid bone
- styloid process
- temporal bone
- vomer (VOH-mer)
- zygomatic arch
- zygomatic bone

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____
- 10 _____
- 11 _____
- 12 _____
- 13 _____
- 14 _____

FIGURE 9.2 Inferior view of skull.

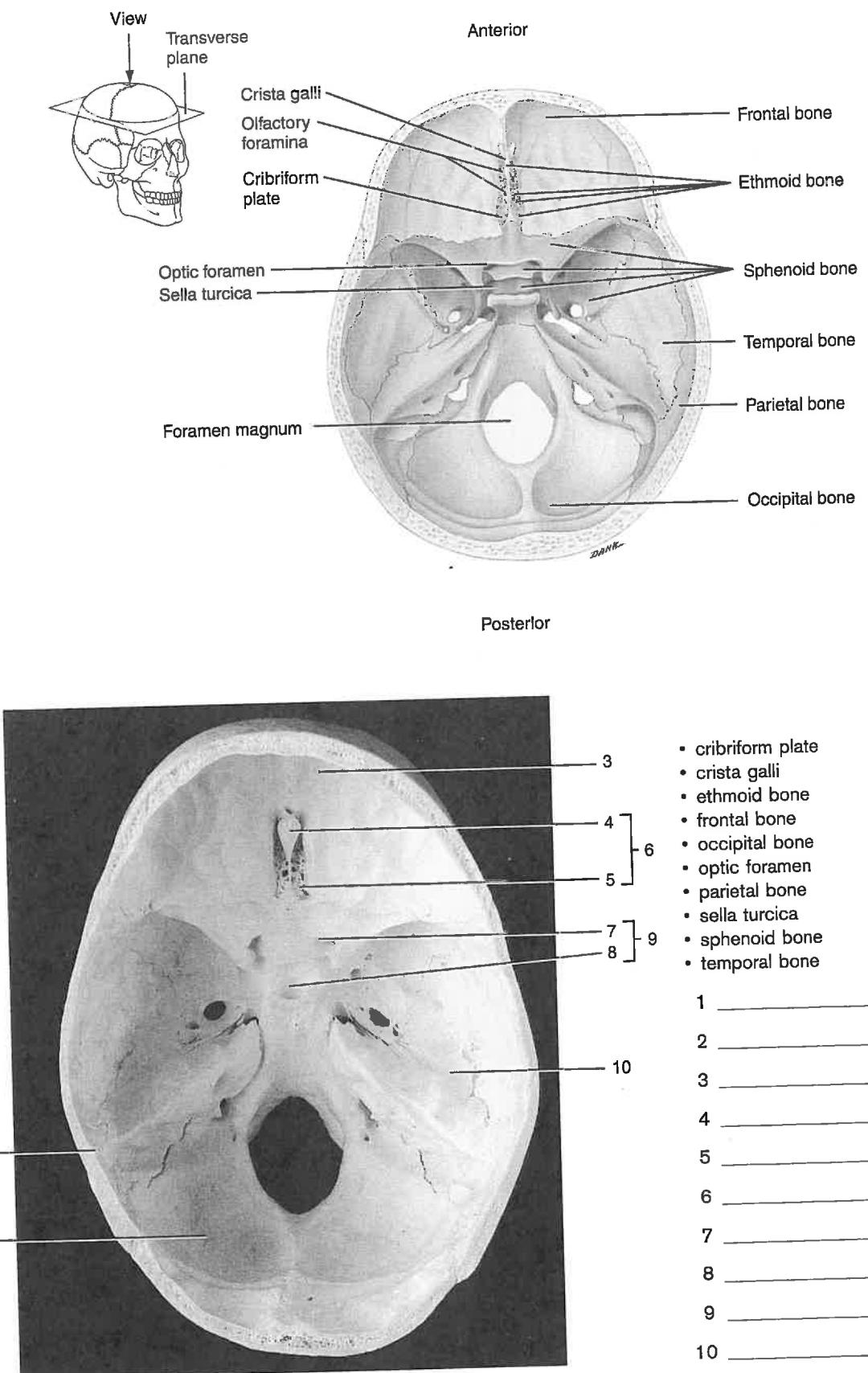
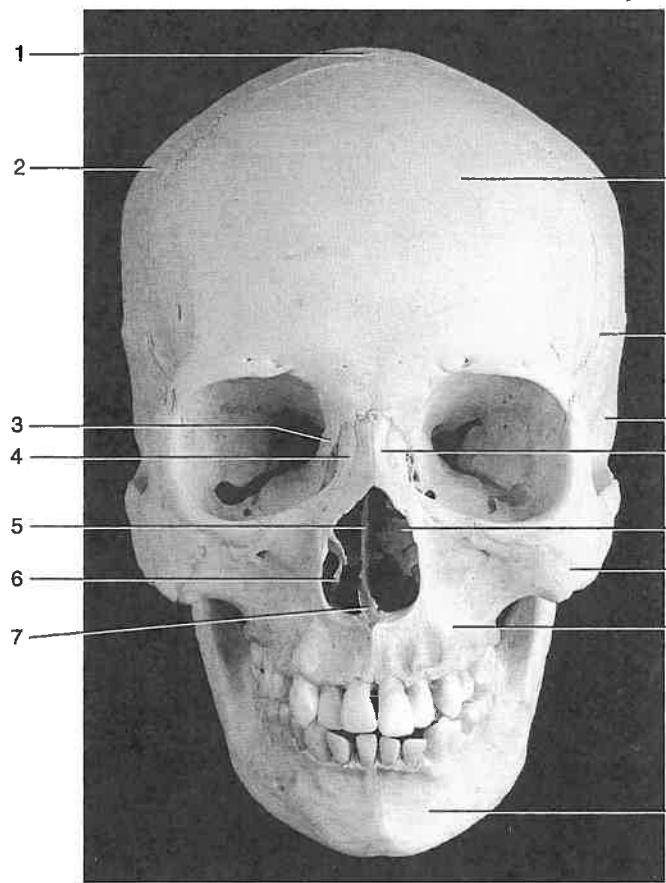
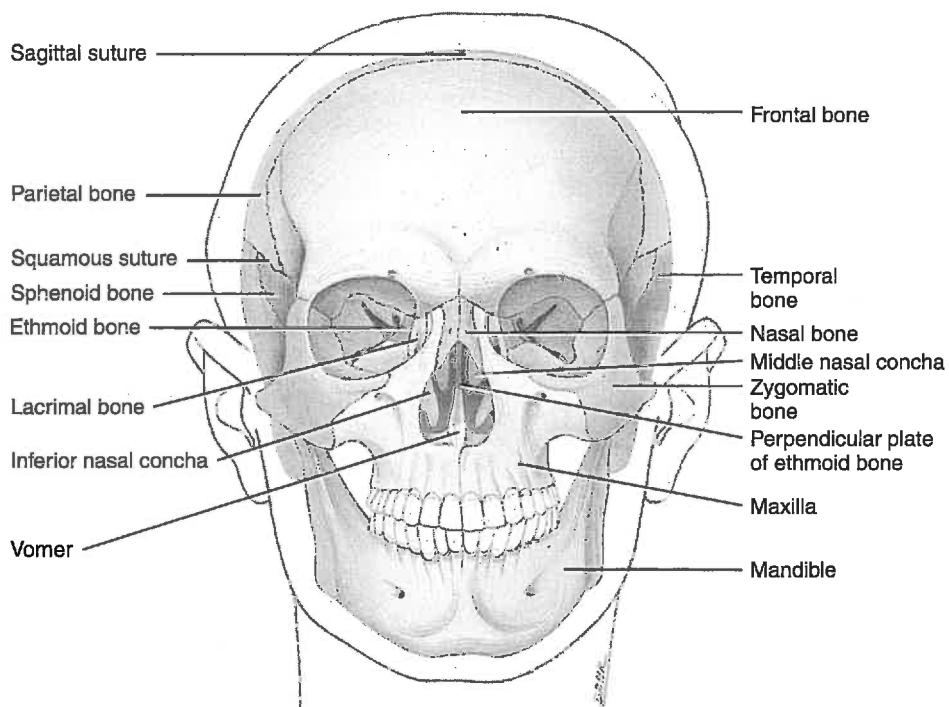


FIGURE 9.3 Superior view of floor of cranium.



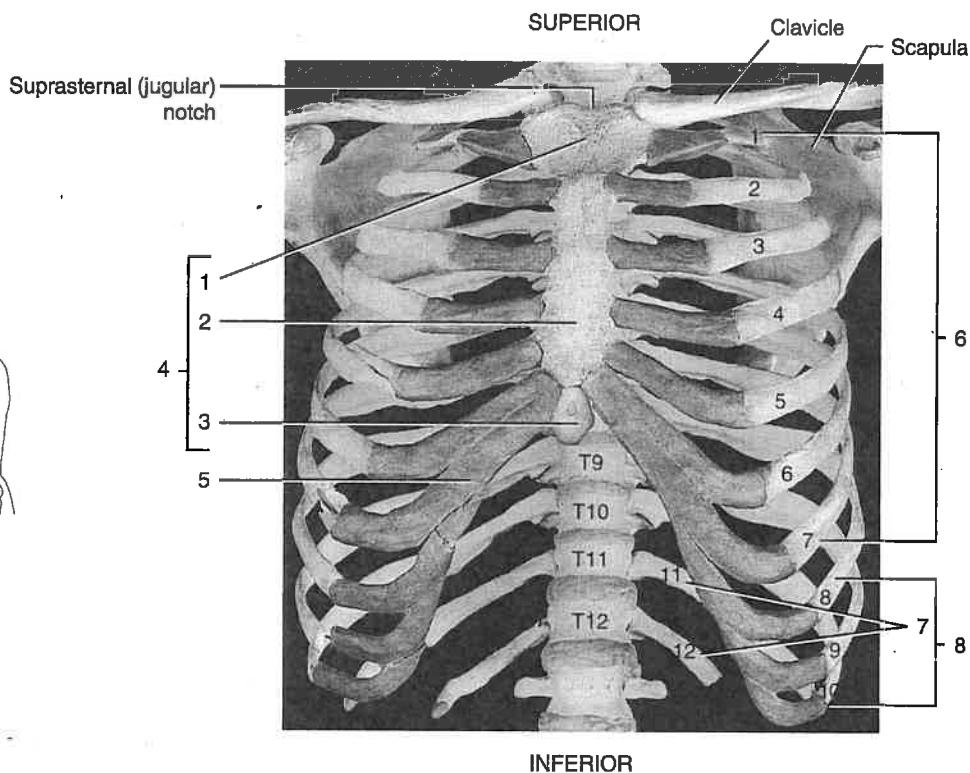
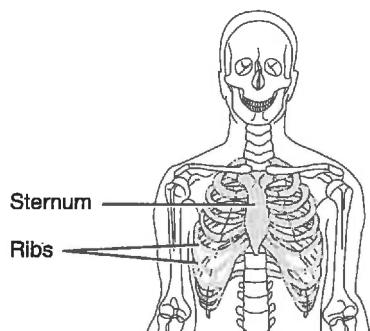
- ethmoid bone
- frontal bone
- inferior nasal concha or turbinate (CON-cha)
- lacrimal bone (LAC-ri-mal)
- mandible (MAN-di-ble)
- maxilla
- middle nasal concha
- nasal bone
- parietal bone
- perpendicular plate of ethmoid bone
- sagittal suture
- squamous suture
- temporal bone
- vomer
- zygomatic bone

- 1 _____
- 2 _____
- 3 _____
- 4 _____
- 5 _____
- 6 _____
- 7 _____
- 8 _____
- 9 _____
- 10 _____
- 11 _____
- 12 _____
- 13 _____
- 14 _____
- 15 _____

FIGURE 9.4 Anterior view of skull.

ACTIVITY 9 THORACIC CAGE AND RIB ARTICULATIONS

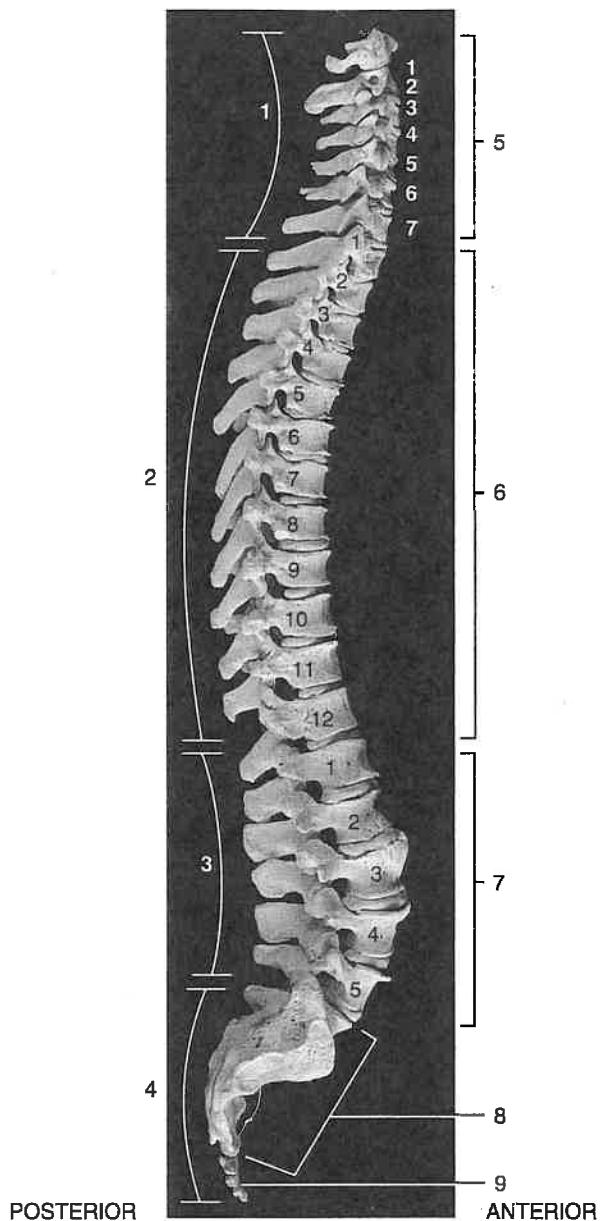
- 1 Locate the parts of the thoracic cage in Figure 9.15.
- 2 Identify these parts on an articulated thoracic cage or skeleton.
- 3 Pronounce the name of each part as you point to it.
- 4 Palpate as many of these parts as you can on your body.



- body of sternum
- costal cartilage
- false ribs
- floating ribs
- manubrium
- sternum
- true ribs
- xiphoid process

- | | | | |
|---|-------|---|-------|
| 1 | _____ | 6 | _____ |
| 2 | _____ | 7 | _____ |
| 3 | _____ | 8 | _____ |
| 4 | _____ | | |
| 5 | _____ | | |

FIGURE 9.15 Thoracic cage.



- | | |
|---|-------|
| 1 | _____ |
| 2 | _____ |
| 3 | _____ |
| 4 | _____ |
| 5 | _____ |
| 6 | _____ |
| 7 | _____ |
| 8 | _____ |
| 9 | _____ |

- cervical curve

- cervical vertebrae (VER-te-bray)

- coccyx (COCK-six)

- lumbar curve

- lumbar vertebrae

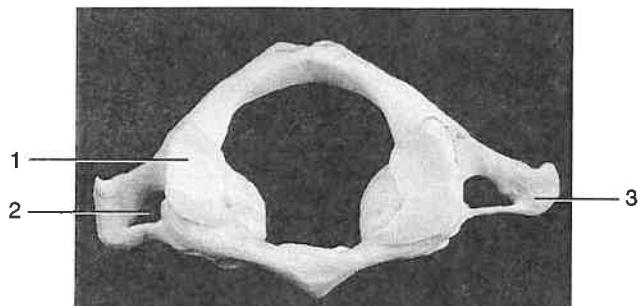
- sacral curve

- sacrum (SAY-crumb)

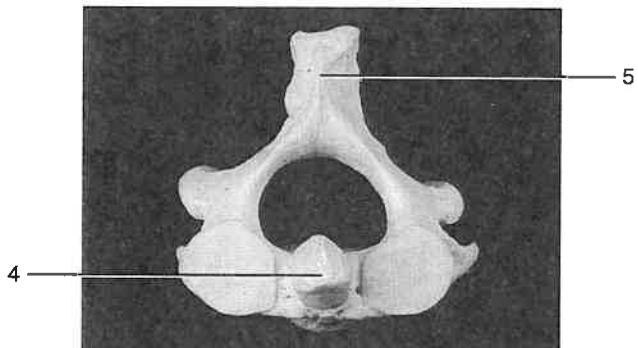
- thoracic curve

- thoracic vertebrae

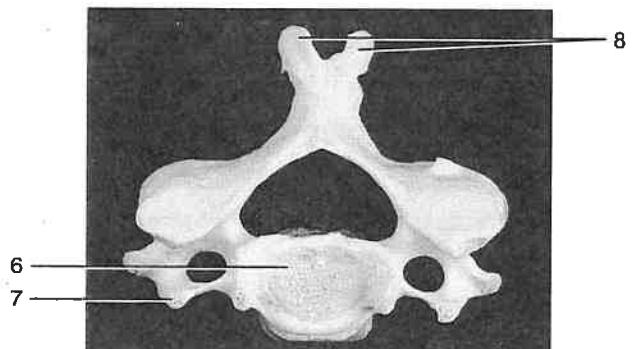
FIGURE 8.7 Normal spinal curvatures of the vertebral column.



(a) Superior view of the atlas (C1)



(b) Superior view of the axis (C2)



(c) Superior view of a typical cervical vertebra (C3)

(a) Atlas

- superior articular facet
- transverse foramen
- transverse process

(b) Axis (Note: The transverse foramen cannot be seen in this photo.)

- dens or odontoid process
- spinous process

1 _____

2 _____

3 _____

4 _____

5 _____

(c) Typical cervical vertebra

- bifurcated spinous process
- body
- transverse process

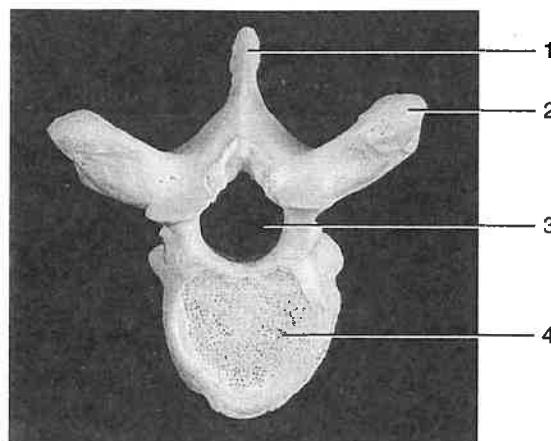
6 _____

7 _____

8 _____

FIGURE 9.9 Cervical vertebrae.

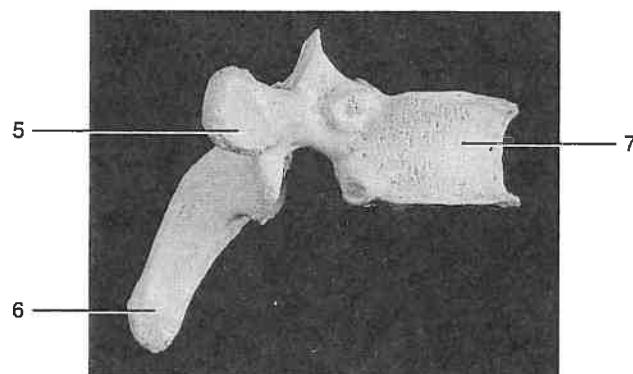
POSTERIOR



ANTERIOR

(a) Superior view

SUPERIOR



POSTERIOR

ANTERIOR

(b) Right lateral view

(a) Superior view

- body
- spinous process
- transverse process
- vertebral foramen

(b) Right lateral view

- body
- facet on transverse process
- slanted spinous process

1 _____

2 _____

3 _____

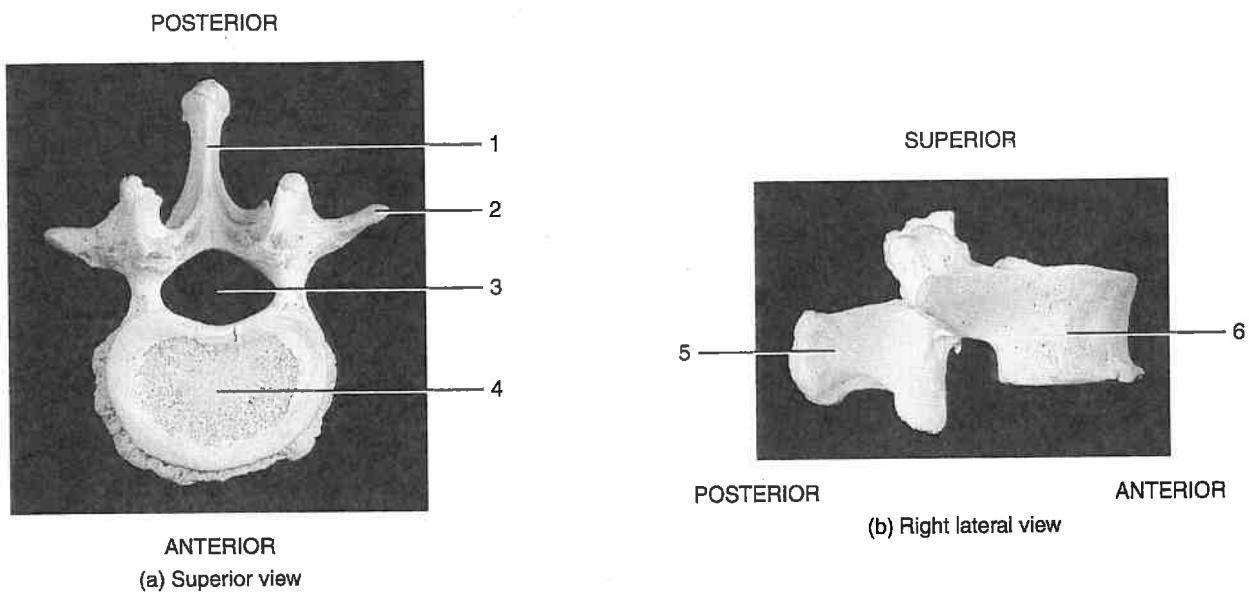
4 _____

5 _____

6 _____

7 _____

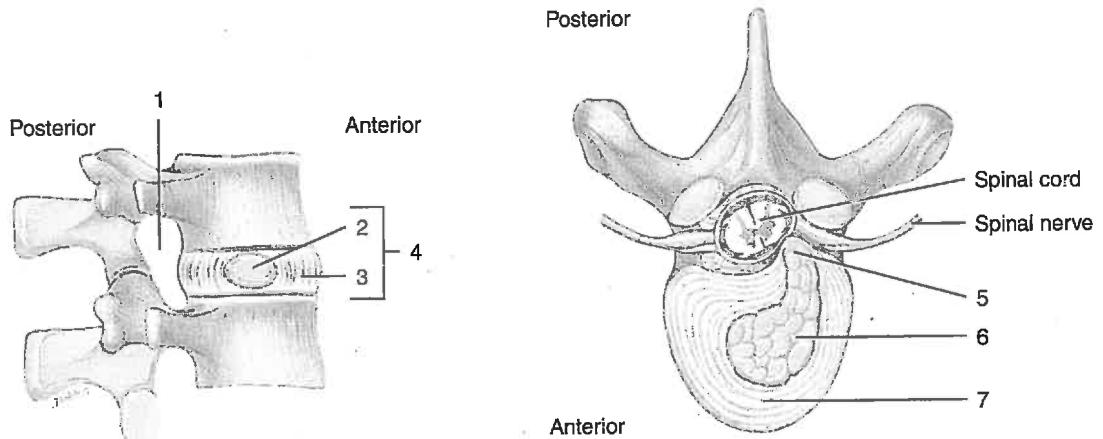
FIGURE 9.1C Thoracic vertebrae.



- (a) Superior view
- 1 _____
 - 2 _____
 - 3 _____
 - 4 _____

- (b) Right lateral view
- body
 - hatchet-shaped spinous process
 - 5 _____
 - 6 _____

FIGURE 9.11 Lumbar vertebrae.



- (a) Articulated vertebrae
- 1 _____
 - 2 _____
 - 3 _____
 - 4 _____

- (b) Herniated disc
- herniation
 - inner pulp-like center
 - outer fibrous part
 - 5 _____
 - 6 _____
 - 7 _____

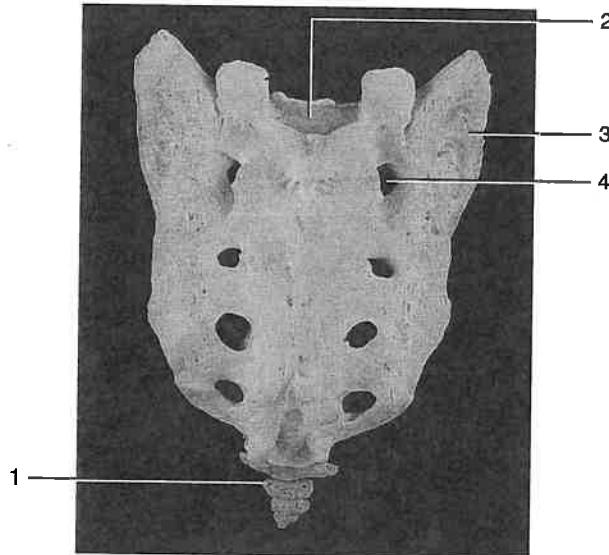
FIGURE 9.12 Intervertebral discs.

4. Sacrum and Coccyx

The sacrum has a slightly curved, triangular shape and has two **superior articular processes** with facets that articulate with the fifth lumbar vertebra. The sacrum has **sacral foramina** that provide exits for spinal nerves. From the posterior view, the opening of the **sacral canal** is located just posterior to the body of the sacrum and is open all the way through the sacrum. (*Note:* On many plastic models, the sacral canal is closed.) The lateral surfaces of the sacrum, the **auricular surfaces**, are roughened to articulate with the iliac portion of the os coxa on each side, forming **sacroiliac joints**. The vertebral column ends with the small **coccyx**, or tailbone. The tiny, fused vertebrae of the coccyx are attached to the sacrum with ligaments.

ACTIVITY 7 SACRUM AND COCCYX

- 1 Locate the parts of the sacrum and coccyx in Figure 9.13.
- 2 Identify these structures on a model of the sacrum and coccyx.
- 3 Pronounce the terms as you point to them on the model.



Posterior view

- auricular surface (for sacroiliac joint)
- coccyx
- sacral canal
- sacral foramen

- 1 _____
- 2 _____
- 3 _____
- 4 _____

FIGURE 9.13 Sacrum and coccyx.