

# The Axial Skeleton

## The Skull

1. The skull is one of the major components of the axial skeleton. Name the other two.

Vertebral column and bones of thorax

What structures do each of these areas protect?

Spinal cord, (heart, esophagus, great blood vessels, lungs)  
Skull → brain

2. Define suture: fibrous joint between skull bones

3. With one exception, the skull bones are joined by sutures. Name the exception. joint between mandible and temporal bone (TMJ)

4. What are the four major sutures of the skull, and what bones do they connect?

Sagittal: parietal bones

Coronal suture: parietal bones and frontal bone

Squamous suture: parietal bone and temporal bone

Lambdoidal suture: parietal bones + occipital bone

5. Name the eight bones composing the cranium.

frontal      occipital      right parietal      left parietal  
sphenoid      ethmoid      right temporal      left temporal

6. Give two possible functions of the sinuses.

(1) lighten the skull      2. resonance chambers for speech

7. What is the orbit? Bone socket for eye

8. Why can the sphenoid bone be called the keystone of the cranial floor?

It articulates with all the other cranial bones

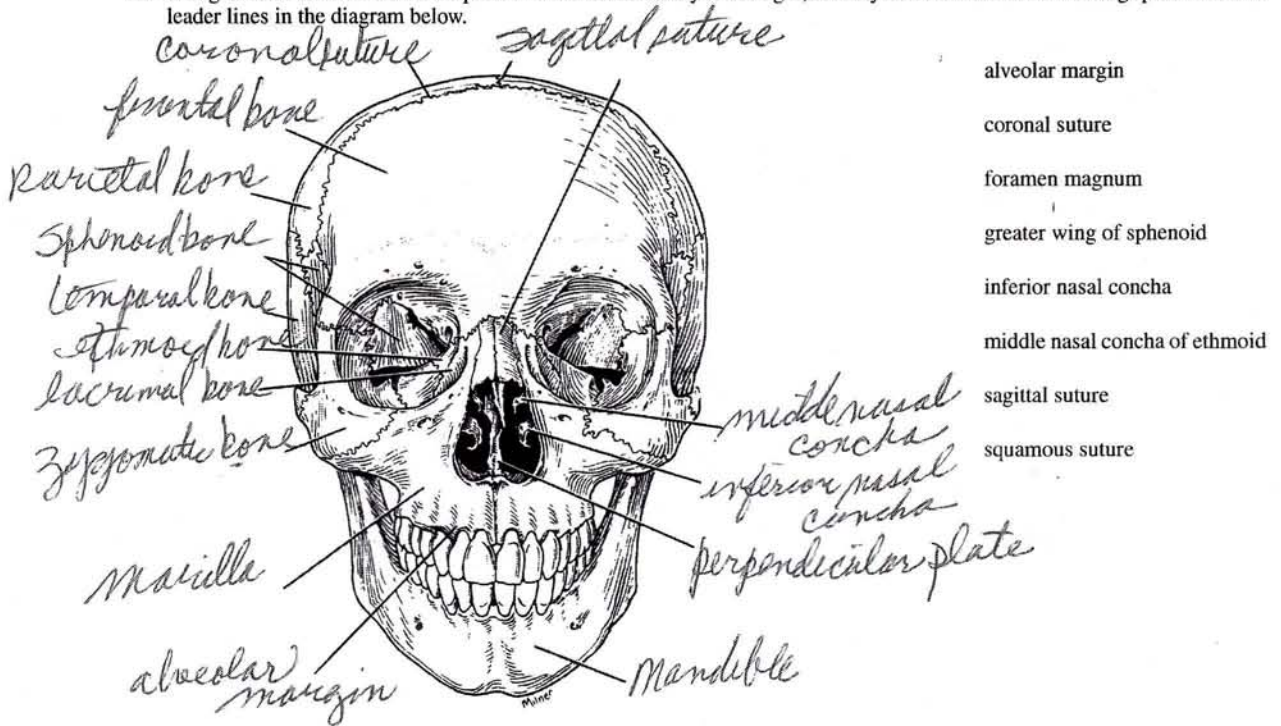
## Review Sheet

9. Match the bone names in column B with the descriptions in column A.

| Column A   | Column B  |
|--|-----------|
| <u>frontal</u> 1. bone forming anterior cranium  | ethmoid   |
| <u>Zygomatic</u> 2. cheekbone  | frontal   |
| <u>maxilla</u> 3. upper jaw  | hyoid     |
| <u>nasal</u> 4. bony skeleton of nose  | lacrima   |
| <u>palatine</u> 5. posterior roof of mouth   | mandible  |
| <u>parietal</u> 6. bone pair united by the sagittal suture   | maxilla   |
| <u>temporal bone</u> 7. site of jugular foramen and carotid canal                                      | nasal     |
| <u>sphenoid</u> 8. contains a "saddle" that houses the pituitary gland                                 | occipital |
| <u>lacrima</u> 9. allows tear ducts to pass  | palatine  |
| <u>maxilla</u> 10. forms most of hard palate   | parietal  |
| <u>ethmoid</u> 11. superior and medial nasal conchae are part of this bone                             | sphenoid  |
| <u>temporal</u> 12. site of external auditory meatus   | temporal  |
| <u>sphenoid</u> 13. has greater and lesser wings   | vomer     |
| <u>ethmoid</u> 14. its "holey" plate allows olfactory fibers to pass                                   | zygomatic |
| <u>maxilla</u> 15. facial bone that contains a sinus   |           |
| <u>ethmoid</u> <u>frontal</u> and <u>sphenoid</u> 16. three cranial bones containing paranasal sinuses |           |
| <u>occipital</u> 17. its oval-shaped protrusions articulate with the atlas                             |           |
| <u>occipital</u> 18. spinal cord passes through a large opening in this bone                           |           |
| <u>hyoid</u> 19. not really a skull bone   |           |
| <u>mandible</u> 20. forms the chin   |           |
| <u>vomer</u> 21. inferior part of nasal septum   |           |
| <u>mandible</u> <u>maxilla</u> 22. contain alveoli bearing teeth                                       |           |



10. Using choices from column B in question 9 and from the key to the right, identify all bones and bone markings provided with leader lines in the diagram below.



**The Fetal Skull**

1. Are the same skull bones seen in the adult also found in the fetal skull? Yes

2. How does the size of the fetal face compare to its cranium? \_\_\_\_\_

The face is alot smaller and less developed

How does this compare to the adult skull? \_\_\_\_\_

The face on the adult skull is much larger and more developed than the face of fetal skull

3. What are the outward conical projections in some of the fetal cranial bones? \_\_\_\_\_

Areas of calcification

4. What is a fontanel? part of skull bones that are not calcified

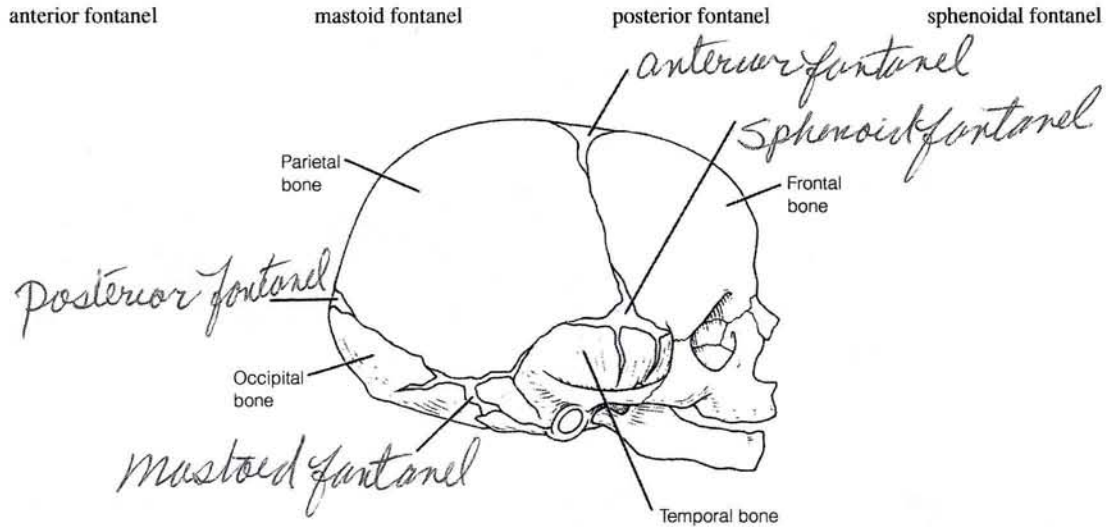
What is its fate? to be calcified and become sutures

What is the function of the fontanels in the fetal skull? \_\_\_\_\_

to allow for bones to move slightly to allow for the birth process

Review Sheet

5. Using the terms listed, identify each of the fontanel shown on the fetal skull below.

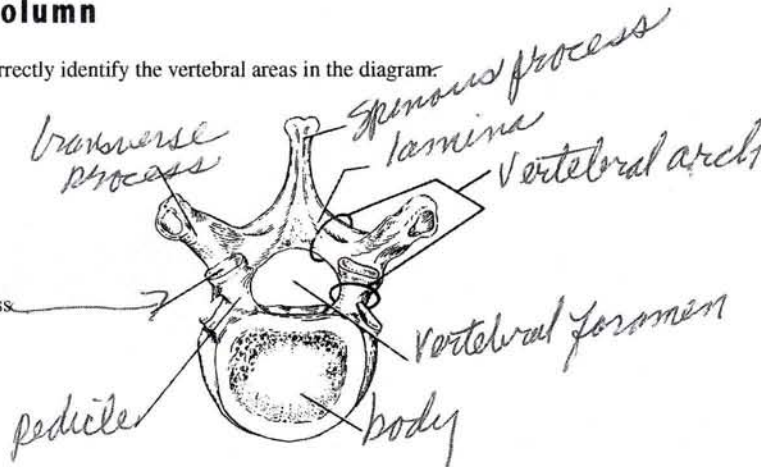


**The Vertebral Column**

1. Using the key terms, correctly identify the vertebral areas in the diagram.

Key:

- body
- lamina
- pedicle
- spinous process
- superior articular process
- transverse process
- vertebral arch
- vertebral foramen



2. The distinguishing characteristics of the vertebrae composing the vertebral column are noted below. Correctly identify each described structure or region by choosing a response from the key.

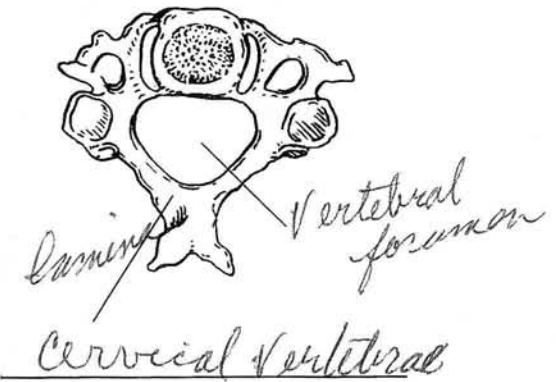
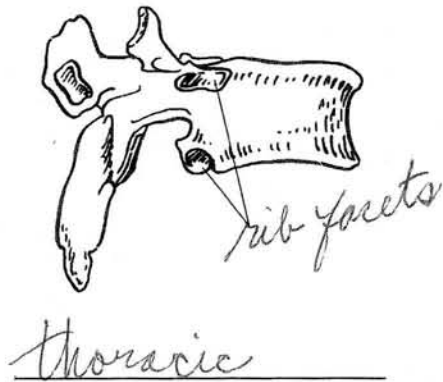
- Key:
- |                           |                 |                   |
|---------------------------|-----------------|-------------------|
| atlas                     | coccyx          | sacrum            |
| axis                      | lumbar vertebra | thoracic vertebra |
| cervical vertebra—typical |                 |                   |

- |                          |  |
|--------------------------|--|
| <u>Cervical vertebra</u> | 1. vertebral type with a forked spinous process                            |
| <u>atlas</u>             | 2. pivots on C <sub>2</sub> ; lacks a body                                 |
| <u>thoracic vertebra</u> | 3. bear facets for articulation with ribs; form part of bony thoracic cage |
| <u>Sacrum</u>            | 4. forms a joint with the hip bone   |

Review Sheet

- lumbar vertebrae 5. vertebra with blocklike body and short stout spinous process
- coccyx 6. "tail bone"
- atlas 7. articulates with the occipital condyles
- lumbar vertebrae 8. five components; unfused
- thoracic vertebrae 9. twelve components; unfused
- sacrum 10. five components; fused

3. Identify as specifically as possible each of the vertebrae types shown in the diagrams below. Also identify and label the following markings on each: transverse processes, spinous process, body, superior articular processes, as well as the areas provided with leaders.



4. What kind of tissue makes up the intervertebral discs? fibrous cartilage
5. What is a herniated disc? (slipped disc) a ruptured disc in which a portion of the disc protrudes
- What problems might it cause? It might compress a nerve leading to pain and possible paralysis.



Review Sheet

6. On this illustration of an articulated vertebral column, identify each structure provided with a leader line by using the key terms.

Key:

atlas

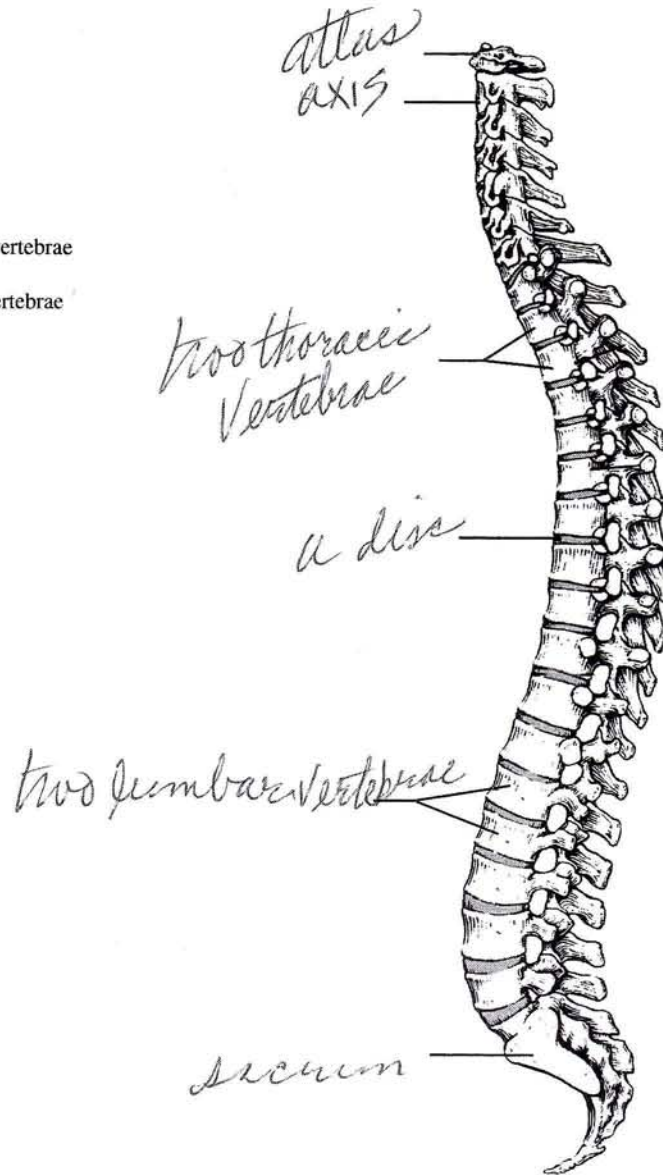
axis

a disc

two thoracic vertebrae

two lumbar vertebrae

sacrum

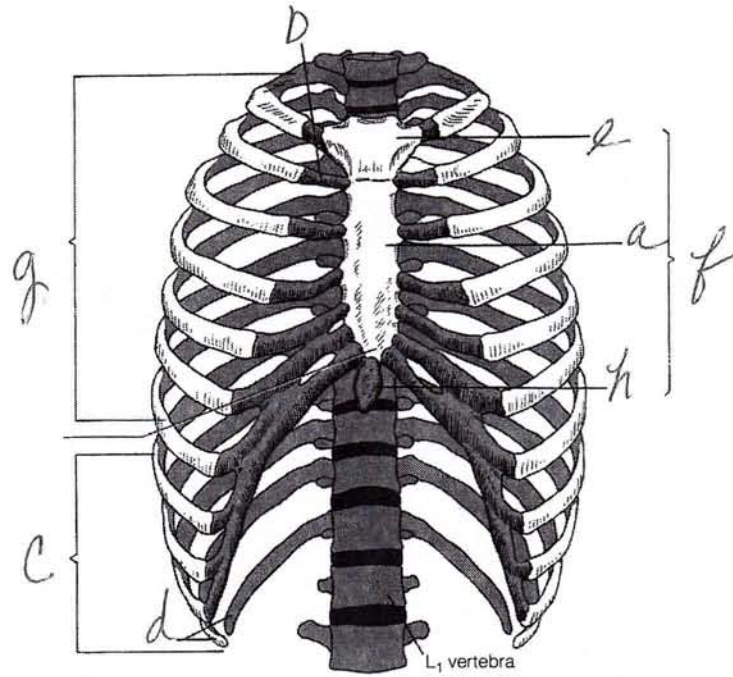


**The Bony Thorax**

- The major components of the thorax (excluding the vertebral column) are the ribs and the sternum.
- What is the general shape of the thoracic cage? Inverted cone shape

## Review Sheet

3. Using the terms at the right, identify the regions and landmarks of the bony thorax.



- a. body
- b. costal cartilage
- c. false ribs
- d. floating ribs
- e. manubrium
- f. sternum
- g. true ribs
- h. xiphoid process