

Laboratory Exercise

14

Skull

Materials Needed

Textbook
Human skull, articulated
Human skull, disarticulated (Beauchene)
Human skull, sagittal section

For Learning Extension:

Colored pencils

For Demonstration:

Fetal skull

A human skull consists of twenty-two bones that, except for the lower jaw, are firmly interlocked along sutures. Eight of these immovable bones make up the braincase, or cranium, and thirteen more immovable bones and mandible form the facial skeleton.

Purpose of the Exercise

To examine the structure of the human skull and to identify the bones and major features of the skull.

Learning Outcomes

After completing this exercise, you should be able to

1. Distinguish between the cranium and the facial skeleton.
2. Locate and label the bones of the skull and their major features.
3. Locate and label the major sutures of the cranium.
4. Locate and label the sinuses of the skull.

Procedure—Skull

1. Review the section entitled "Skull" in chapter 7 of the textbook.
2. As a review activity, label figures 14.1, 14.2, 14.3, 14.4, and 14.5.

3. Examine the cranial bones of the articulated human skull and the sectioned skull. Also observe the corresponding disarticulated bones. Locate the following bones and features in the laboratory specimens and, at the same time, palpate as many of these bones and features in your skull as possible.

frontal bone (1)

supraorbital foramen
frontal sinus

parietal bone (2)

sagittal suture
coronal suture

occipital bone (1)

lambdoid suture
foramen magnum
occipital condyle

temporal bone (2)

squamous suture
external acoustic meatus
mandibular fossa
mastoid process
styloid process
zygomatic process

sphenoid bone (1)

sella turcica
sphenoidal sinus

ethmoid bone (1)

cribriform plate
perpendicular plate
superior nasal concha
middle nasal concha
ethmoidal sinus
crista galli

4. Complete Parts A and B of Laboratory Report 14.

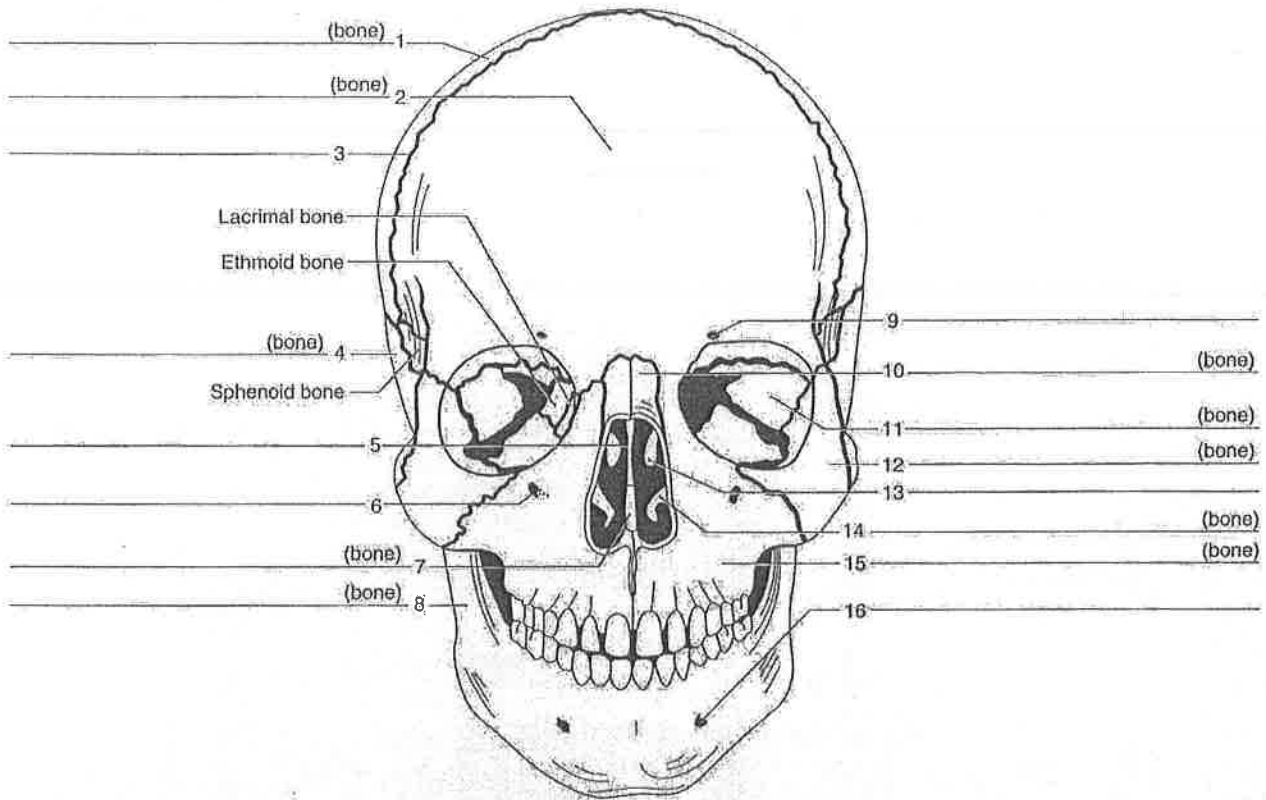


Figure 14.1 Label the anterior bones and features of the skull. (If the line lacks the word *bone*, label the particular feature of that bone.)

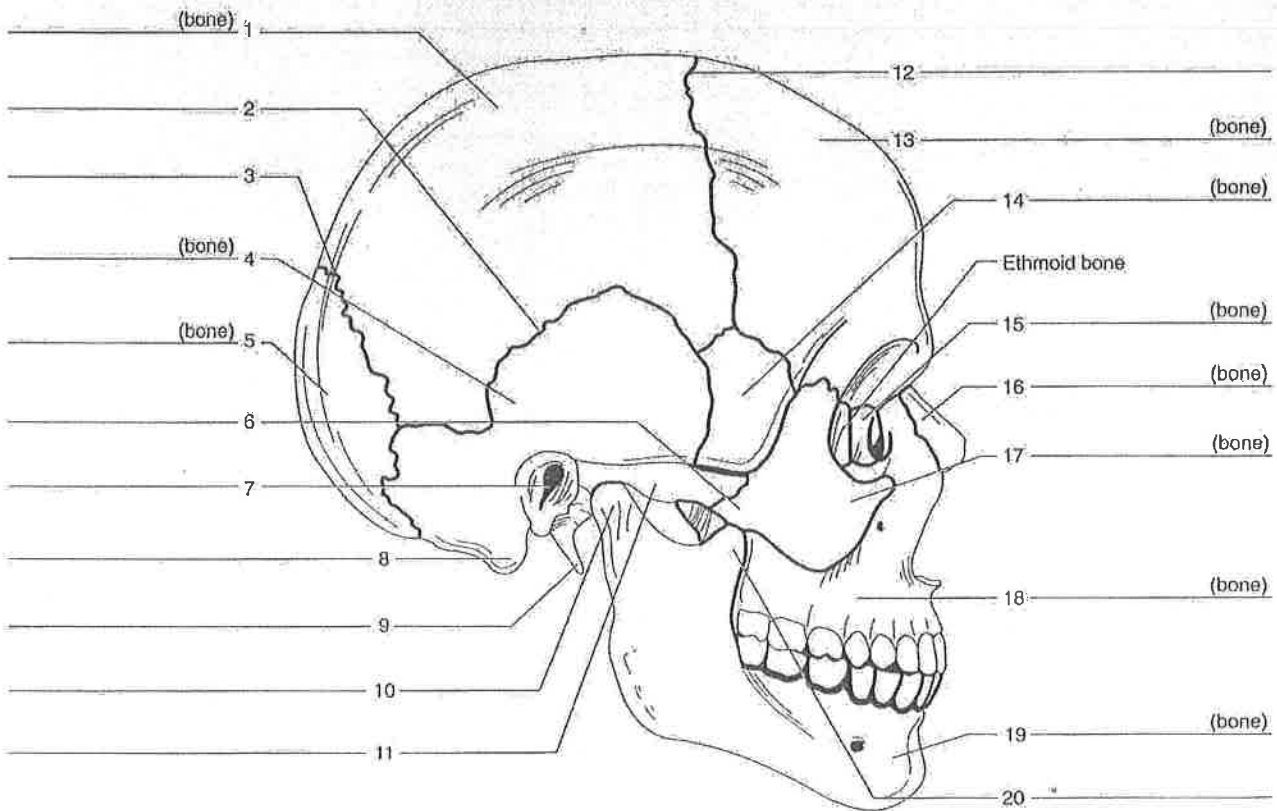


Figure 14.2 Label the lateral bones and features of the skull.

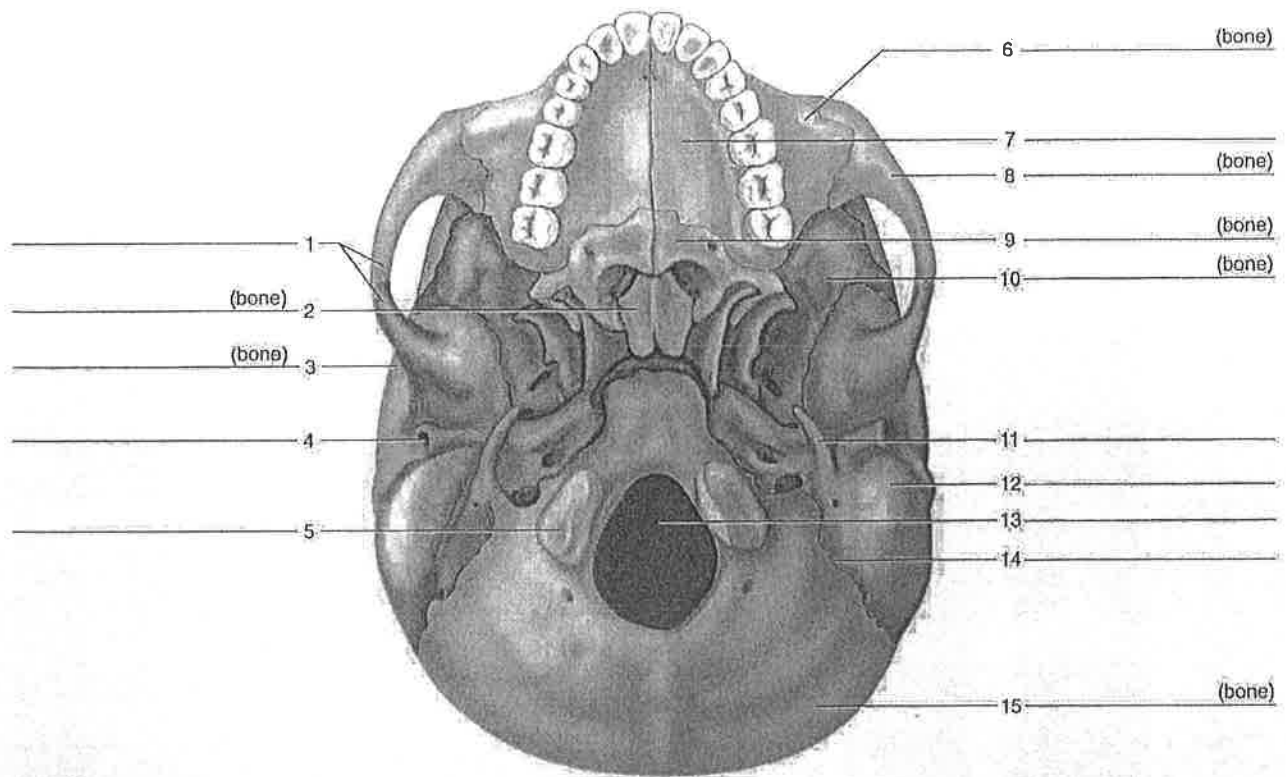


Figure 14.3 Label the inferior bones and features of the skull. ↻

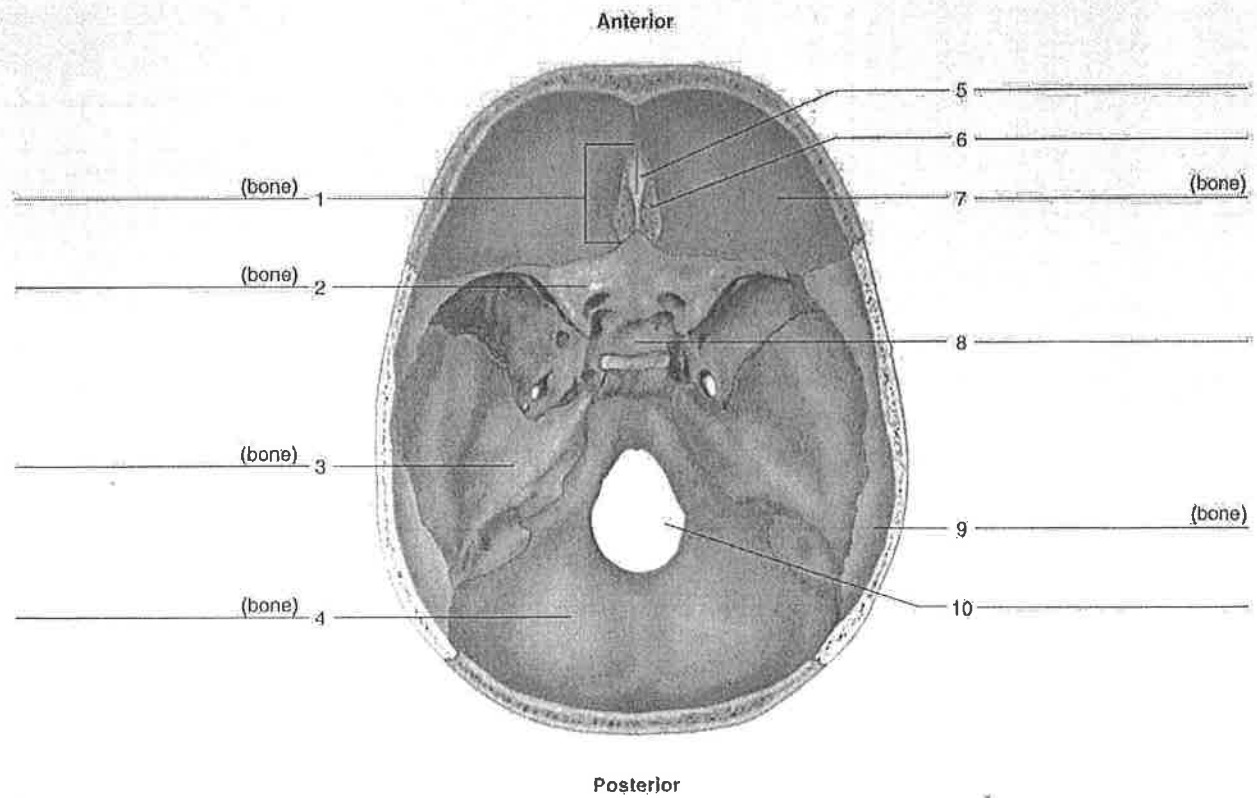


Figure 14.4 Label the bones and features of the floor of the cranial cavity as viewed from above. ↻

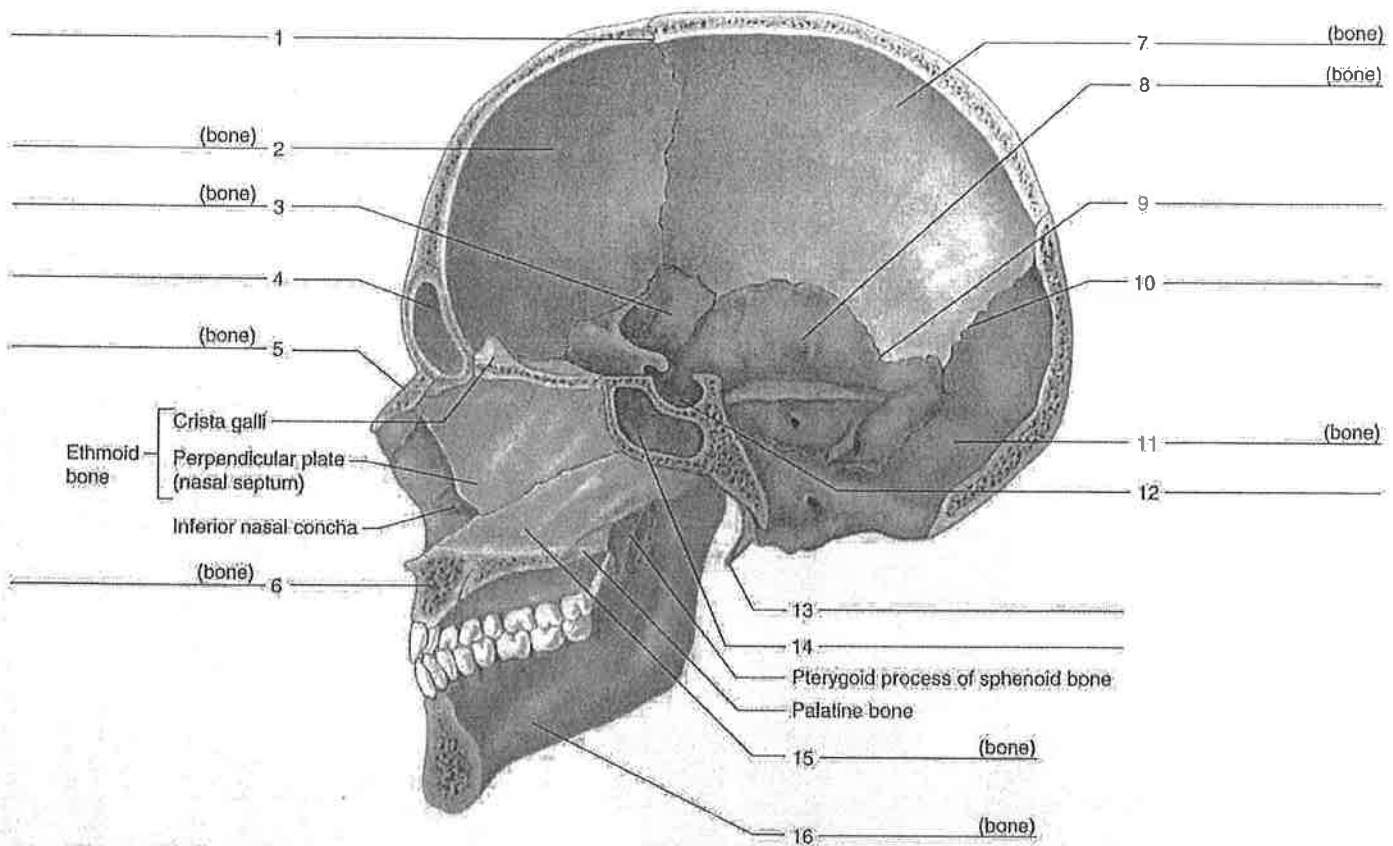


Figure 14.5 Label the bones and features of the sagittal section of the skull. 2 3 4

5. Examine the facial bones of the articulated and sectioned skulls and the corresponding disarticulated bones. Locate the following:

- | | |
|---------------------------|----------------------------------|
| maxilla (2) | lacrimal bone (2) |
| maxillary sinus | nasal bone (2) |
| palatine process | vomer bone (1) |
| alveolar process | inferior nasal concha (2) |
| alveolar arch | mandible (1) |
| palatine bone (2) | mandibular condyle |
| zygomatic bone (2) | coronoid process |
| temporal process | alveolar arch |
| zygomatic arch | |

6. Complete Parts C and D of the laboratory report.


Learning Extension

Use colored pencils to color the bones illustrated in figures 14.1 and 14.2. Select a different color for each bone in the series. This activity should help you locate various bones shown in different views in the figures. You can check your work by referring to the corresponding figures in the textbook, presented in full color.

Name _____

Date _____

Section _____


The  corresponds to the indicated outcome(s) found at the beginning of the laboratory exercise.

14

Laboratory Report

Skull

Part A Assessments

Match the bones in column A with the features in column B. Place the letter of your choice in the space provided. (Some answers are used more than once.) 

Column A







- a. Ethmoid bone
- b. Frontal bone
- c. Occipital bone
- d. Parietal bone
- e. Sphenoid bone
- f. Temporal bone



Column B

- _____ 1. Forms sagittal, coronal, squamous, and lambdoid sutures
- _____ 2. Cribriform plate
- _____ 3. Crista galli
- _____ 4. External acoustic meatus
- _____ 5. Foramen magnum
- _____ 6. Mandibular fossa
- _____ 7. Mastoid process
- _____ 8. Middle nasal concha
- _____ 9. Occipital condyle
- _____ 10. Sella turcica
- _____ 11. Styloid process
- _____ 12. Supraorbital foramen

Part B Assessments

Complete the following statements:

1. The _____ suture joins the frontal bone to the parietal bones. 
2. The parietal bones are fused along the midline by the _____ suture. 
3. The _____ suture joins the parietal bones to the occipital bone. 
4. The temporal bones are joined to the parietal bones along the _____ sutures. 
5. Name the three cranial bones that contain sinuses.   _____

6. Name a facial bone that contains a sinus.   _____

Part C Assessments

Match the bones in column A with the characteristics in column B. Place the letter of your choice in the space provided.

Column A

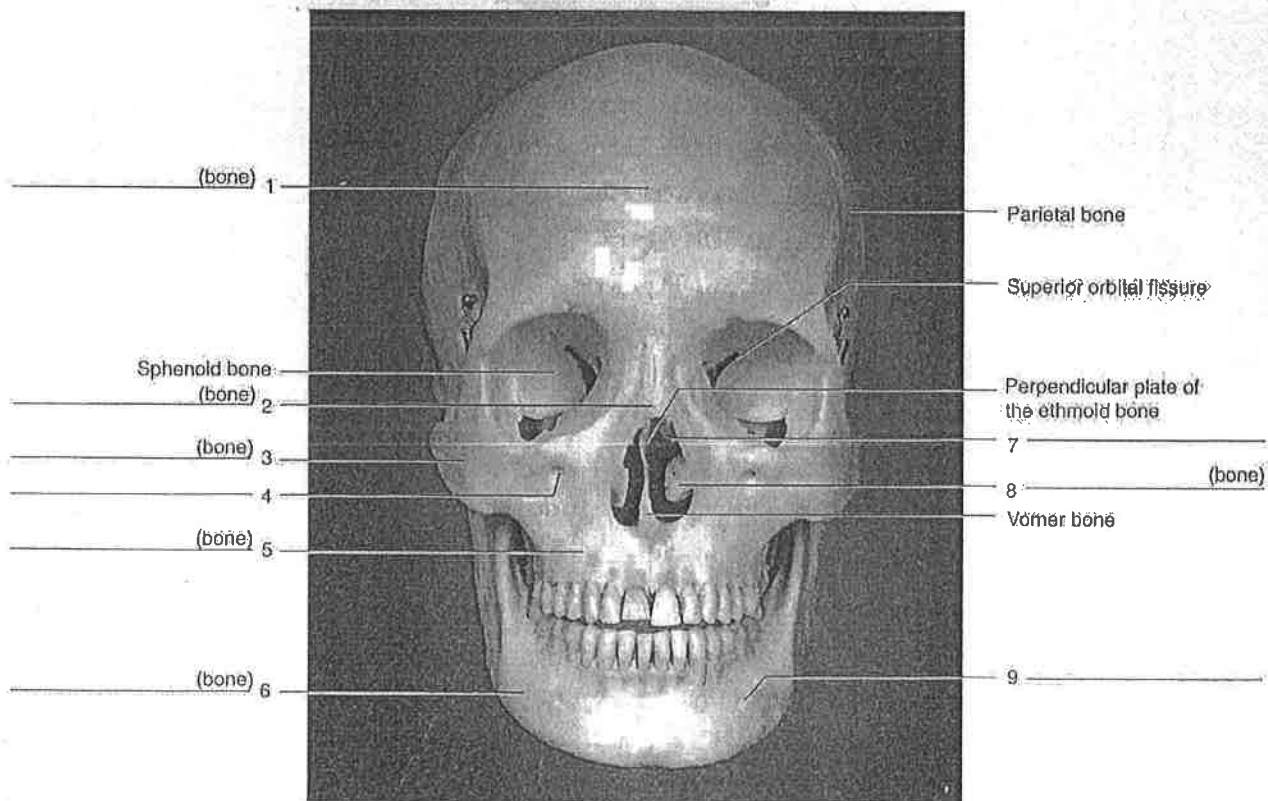
- a. Inferior nasal concha
- b. Lacrimal bone
- c. Mandible
- d. Maxilla
- e. Nasal bone
- f. Palatine bone
- g. Vomer bone
- h. Zygomatic bone

Column B

- _____ 1. Forms bridge of nose
- _____ 2. Only movable bone in facial skeleton
- _____ 3. Contains coronoid process
- _____ 4. Creates prominence of cheek inferior and lateral to the eye
- _____ 5. Contains sockets of upper teeth
- _____ 6. Forms inferior portion of nasal septum in back
- _____ 7. Forms anterior portion of zygomatic arch
- _____ 8. Scroll-shaped bone
- _____ 9. Forms anterior roof of mouth
- _____ 10. Forms posterior roof of mouth
- _____ 11. Scalelike part in medial wall of orbit

Part D Assessments

Identify the numbered bones and features of the skulls in figures 14.7, 14.8, 14.9, 14.10, and 14.11.



Terms:

Frontal bone	Mandible	Middle nasal concha (of ethmoid bone)
Inferior nasal concha	Maxilla	Nasal bone
Infraorbital foramen	Mental foramen	Zygomatic bone

Figure 14.7 Using the terms provided, identify the bones and features indicated on this anterior view of the skull.