Instructors may assign a portion of the Review Sheet questions using Mastering A&P™

EXERCISE 9 REVIEW SHEET
The Axial Skeleton

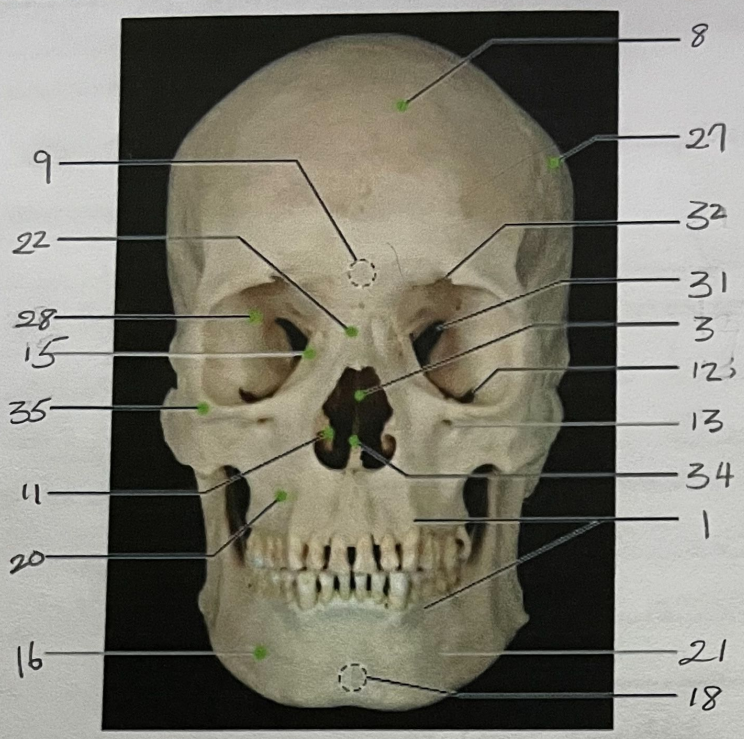
Name Saffira Michael Lab Time/Date _____

The Skull

1. First, match the bone names in column B with the descriptions in column A (the items in column B may be used more than once). Then, circle the bones in column B that are cranial bones.

Column A		Column B
Frontal	1. forms the anterior cranium	a. ethmoid
Zygomatic	2. cheekbone	b. frontal
Nasal	3. bridge of nose	c. hyoid
palatine	4. posterior bones of the hard palate	d. inferior nasal concha
parietal	5. much of the lateral and superior cranium	e. lacrimal
Sphenoid	6. single, irregular, bat-shaped bone forming part of the cranial base	f. mandible
lacrimal	7. tiny bones bearing tear ducts	g. maxilla
maxilla	8. anterior part of hard palate	h. nasal
ethmoid	9. superior and middle nasal conchae form from its projections	i. occipital
Temporal	10. site of mastoid process	j. palatine
Occipital	11. has condyles that articulate with the atlas	k. parietal
hyoid	12. small U-shaped bone in neck, where many tongue muscles attach	l. sphenoid
Temporal	13. organ of hearing found here	m. temporal
Vomer	14. two bones that form the nasal septum	n. vomer
inferior nasal Concha	15. forms the most inferior turbinate	o. zygomatic

2. Using choices from the numbered key to the right, identify all bones and bone markings provided with various leader lines in the two following photographs. A colored dot at the end of a leader line indicates a bone. Leader lines without a colored dot indicate bone markings. Note that vomer, sphenoid bone, and zygomatic bone will each be labeled twice.



Key:
1. alveolar processes
2. carotid canal
3. ethmoid bone (perpendicular plate)
4. external occipital protuberance
5. foramen lacerum
6. foramen magnum
7. foramen ovale
8. frontal bone
9. glabella
10. incisive fossa
11. inferior nasal concha
12. inferior orbital fissure
13. infraorbital foramen
14. jugular foramen
15. lacrimal bone
16. mandible
17. mandibular fossa
18. mandibular symphysis
19. mastoid process
20. maxilla
21. mental foramen
22. nasal bone
23. occipital bone
24. occipital condyle
25. palatine bone
26. palatine process of maxilla
27. parietal bone
28. sphenoid bone
29. styloid process
30. stylomastoid foramen
31. superior orbital fissure
32. supraorbital foramen
33. temporal bone
34. vomer
35. zygomatic bone
36. zygomatic process

3. Define *suture*. This is a type of joint between the bones of the skull.

4. With one exception, the skull bones are joined by sutures. Name the exception.

Temporal bones and mandible

5. What bones are connected by the lambdoid suture?

occipital bone with the parietal bones

What bones are connected by the squamous suture?

parietal bones to the temporal bones

6. Name the eight bones of the cranium. (Remember to include left and right.)

Frontal bone, Left Parietal, Left Temporal, Sphenoid bone, Occipital bone, Right Parietal, Right Temporal, Ethmoid bone

7. List the bones that have sinuses, and give two possible functions of the sinuses.

Frontal, maxillary, ethmoid and sphenoid).
① Produce a mucus that moisturizes the inside of the nose.
② Lightens the skull.

8. What is the bony orbit? The bones that constitute the margins of the orbits.

What bones contribute to the formation of the orbit? Maxilla, Palatine, Sphenoid, Frontal, Zygomatic, Ethmoid, Lacrimal.

9. Why can the sphenoid bone be called the keystone bone of the cranium? Because it is in contact with all of the other cranial bones.

The Vertebral Column

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

Key: a. atlas
b. axis
c. cervical vertebra—typical
d. coccyx
e. lumbar vertebra
f. sacrum
g. thoracic vertebra

C 1. vertebra type containing foramina in the transverse processes, through which the vertebral arteries ascend to reach the brain

B 2. dens here provides a pivot for rotation of the first cervical vertebra (C_1)

G 3. transverse processes faceted for articulation with ribs; spinous process pointing sharply downward

F 4. composite bone; articulates with the hip bone laterally

E 5. massive vertebra; weight-sustaining

D 6. "tail bone" fused vertebrae

A 7. supports the head; allows a rocking motion in conjunction with the occipital condyles

11. Using the key, correctly identify the vertebral parts/areas described below. (More than one choice may apply in some cases.) Also use the key letters to correctly identify the vertebral areas in the diagram.

Key: a. body
b. intervertebral foramina
c. lamina
d. pedicle
e. spinous process
f. superior articular facet
g. transverse process
h. vertebral arch
i. vertebral foramen

I 1. cavity enclosing the spinal cord

BA 2. weight-bearing portion of the vertebra

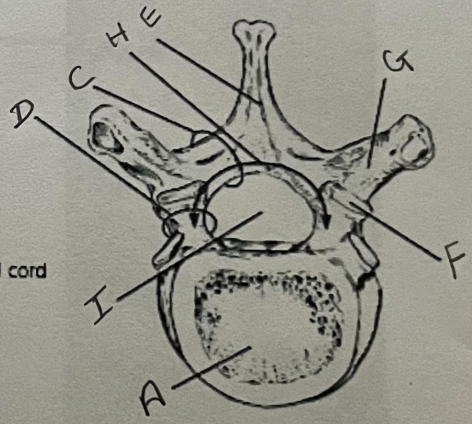
E, G 3. provide levers against which muscles pull

G, F 4. provide an articulation point for the ribs

B 5. openings providing for exit of spinal nerves

H, A 6. structures that form an enclosure for the spinal cord

D, C 7. structures that form the vertebral arch



12. Describe how a spinal nerve exits from the vertebral column. Each spinal nerve exits through an intervertebral foramen.

13. Name two factors/structures that permit flexibility of the vertebral column.

Presence of intervertebral discs and S-shaped construction of the vertebrae.

14. What kind of tissue makes up the intervertebral discs? Fibrocartilage.

15. What is a herniated disc? This is a condition which refers to a problem with a rubbery disc between the spinal bones

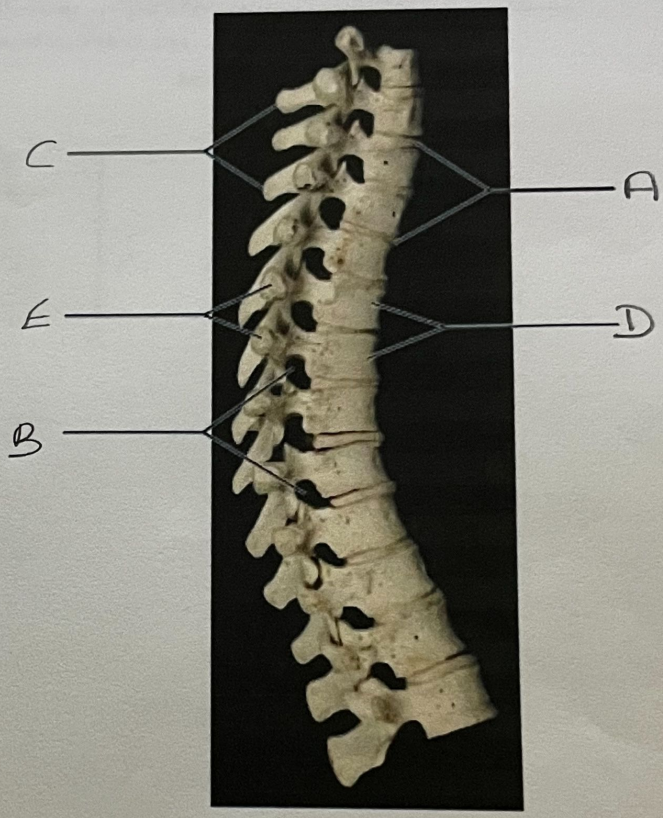
What problems might it cause? It can result in pain, numbness or weakness in an arm or leg.

16. Which two spinal curvatures are obvious at birth? cervical curvature and lumbar curvature

Under what conditions do the secondary curvatures develop? The develop gradually after birth as the child learns to sit upright, stand and walk.

17. Use the key to label the structures on the thoracic region of the vertebral column.

Key:
a. intervertebral discs
b. intervertebral foramina
c. spinous prosesses
d. thoracic vertebrae
e. transverse processes



The Thoracic Cage

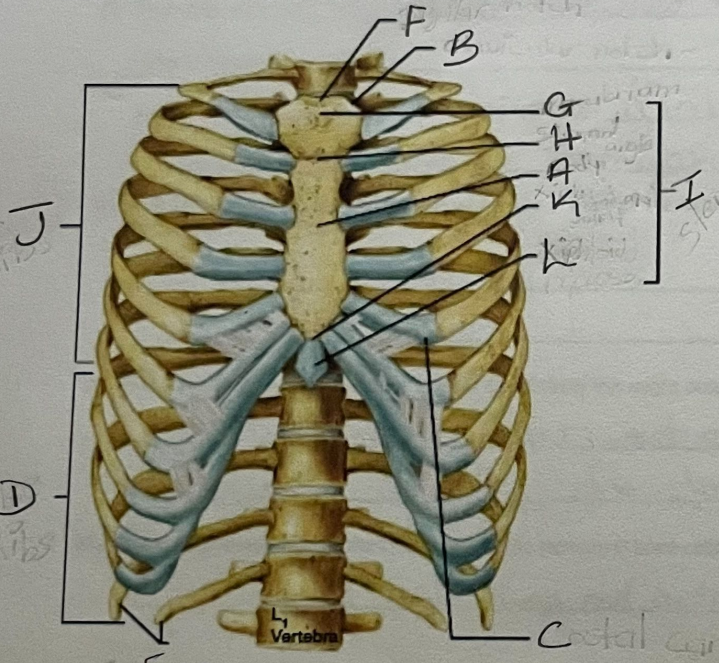
18. The major bony components of the thorax (excluding the vertebral column) are the sternum and the Ribs

19. Differentiate between a true rib and a false rib. True Ribs attach directly to the sternum by their own costal cartilages while false ribs attach indirectly to the sternum or lack a sternal attachment entirely.

Is a floating rib a true or a false rib? False ribs.

20. What is the general shape of the thoracic cage? Cone-shaped

21. Using the terms in the key, identify the regions and landmarks of the thoracic cage.



Key:
- A. body
- B. clavicular notch
- C. costal cartilage
- D. false ribs
- E. floating ribs
- F. jugular notch
- G. manubrium
- H. sternal angle
- I. sternum
- J. true ribs
- K. xiphisternal joint
- L. xiphoid process

The Fetal Skull

22. Are the same skull bones seen in the adult also found in the fetal skull? No

23. How does the size of the fetal face compare to its cranium? Face is foreshortened, and overshadowed by the large cranium.

How does this compare to the adult skull? The adult cranium is proportionately smaller and the facial bones are proportionately larger and more prominent.

24. What are the outward conical projections on some of the fetal cranial bones? Ossification centers.

25. What is a fontanelle? The space between the bones of an infant's skull.

What is its fate?

What is the function of the fontanelles in the fetal skull? Molds the fetal head during passage through the birth canal.

26. + Craniosynostosis is a condition in which one or more of the fontanelles is replaced by bone prematurely. Discuss the ramifications of this early closure.

27. + As we age, we often become shorter. Explain why this might occur. The cartilage between our joints gets worn out and the spinal column becomes shorter due to osteoporosis.

28. + The xiphoid process is often missing from the sternum in bone collections. Hypothesize why it might be missing. Because it is small and does not articulate with any other bones.