LABORATORY NO. 6

SKELETAL SYSTEM

Scope of the Laboratory Activity

This laboratory activity consists of three (3) worksheets:

Worksheet no. 1 Anatomy of Bones
Worksheet no. 2 Types/ Categories of bones
Worksheet no. 3 Articulation and Body Movements

Overview

The skeletal system is a dynamic and complex organ system that serve multiple important function in order for us to sustain life. It grows, repairs and regenerates. In this laboratory activity, the bone function, structure and categories will be tackled to help you understand more about the complex nature of skeletal system.

Objectives

After completing this exercise, students should be able to:

1. Identify the gross and microscopic structures of the bones and its respective functions correctly.
2. Describe the difference between adult and fetal bones
3. Recognize the different bones of the body
4. Classify the different types of bones in the body
5. Recognize the different joints in human body
6. Identify the different kinds of joint movements

Materials None

Worksheet no. 1 **Anatomy of Bones**

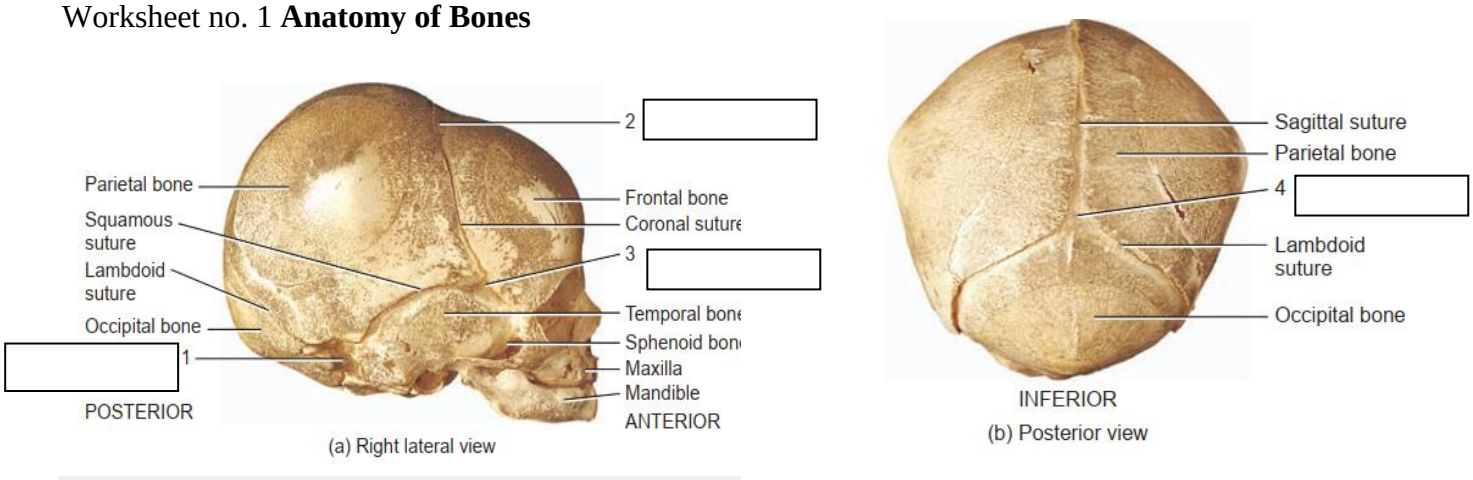


Figure 6.1 Major fontanels of the fetal skull

B. Gross Anatomy

Label the parts of the long and write your answers in the box provided.

Gross Anatomy

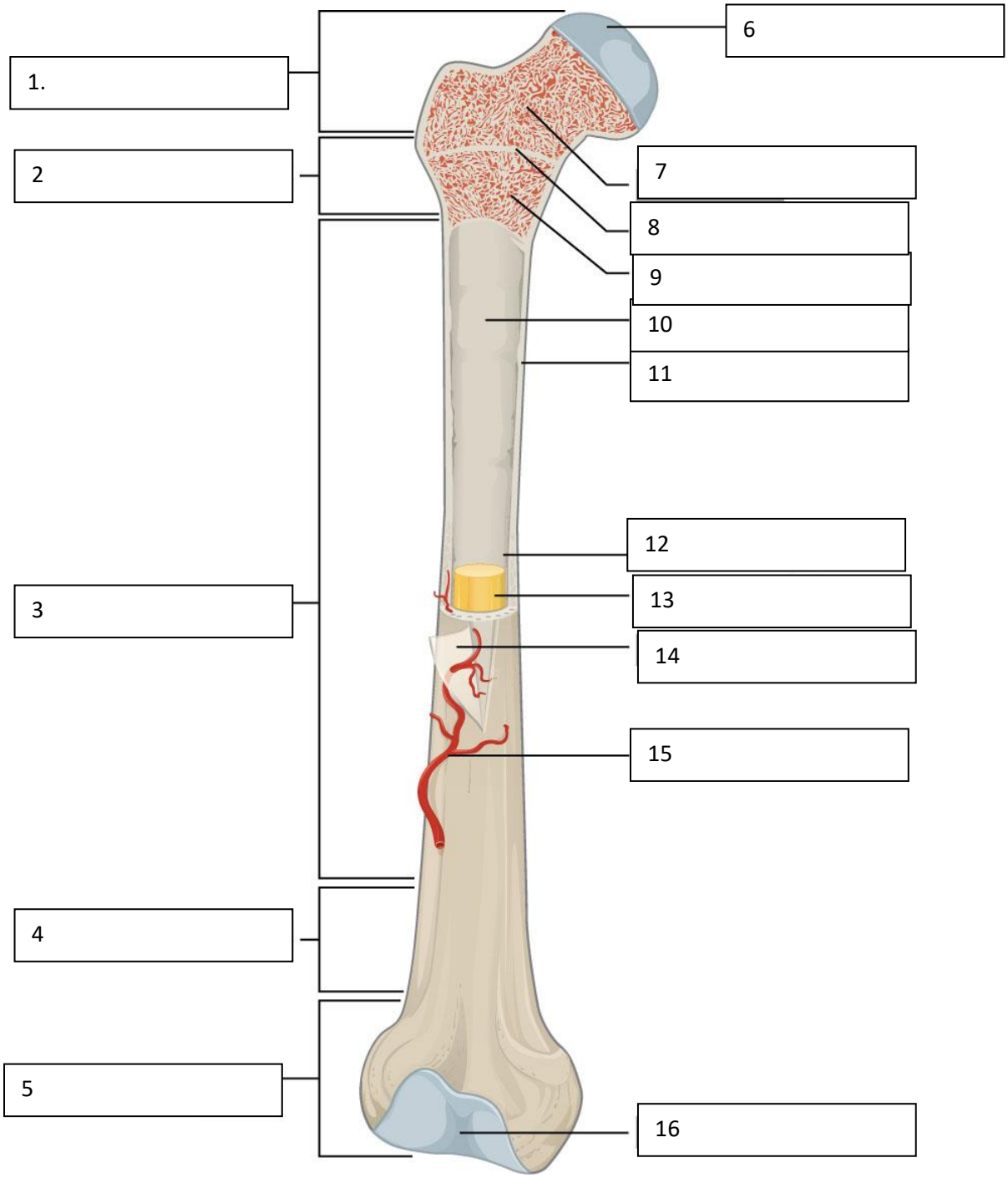


Figure 6.2 Anatomy of Long Bone

C. Microscopic Structure of Compact Bone

1.Label the microscopic structure of compact bone. Write the correct answers in beside each number. Choose your answers from the words inside the box.

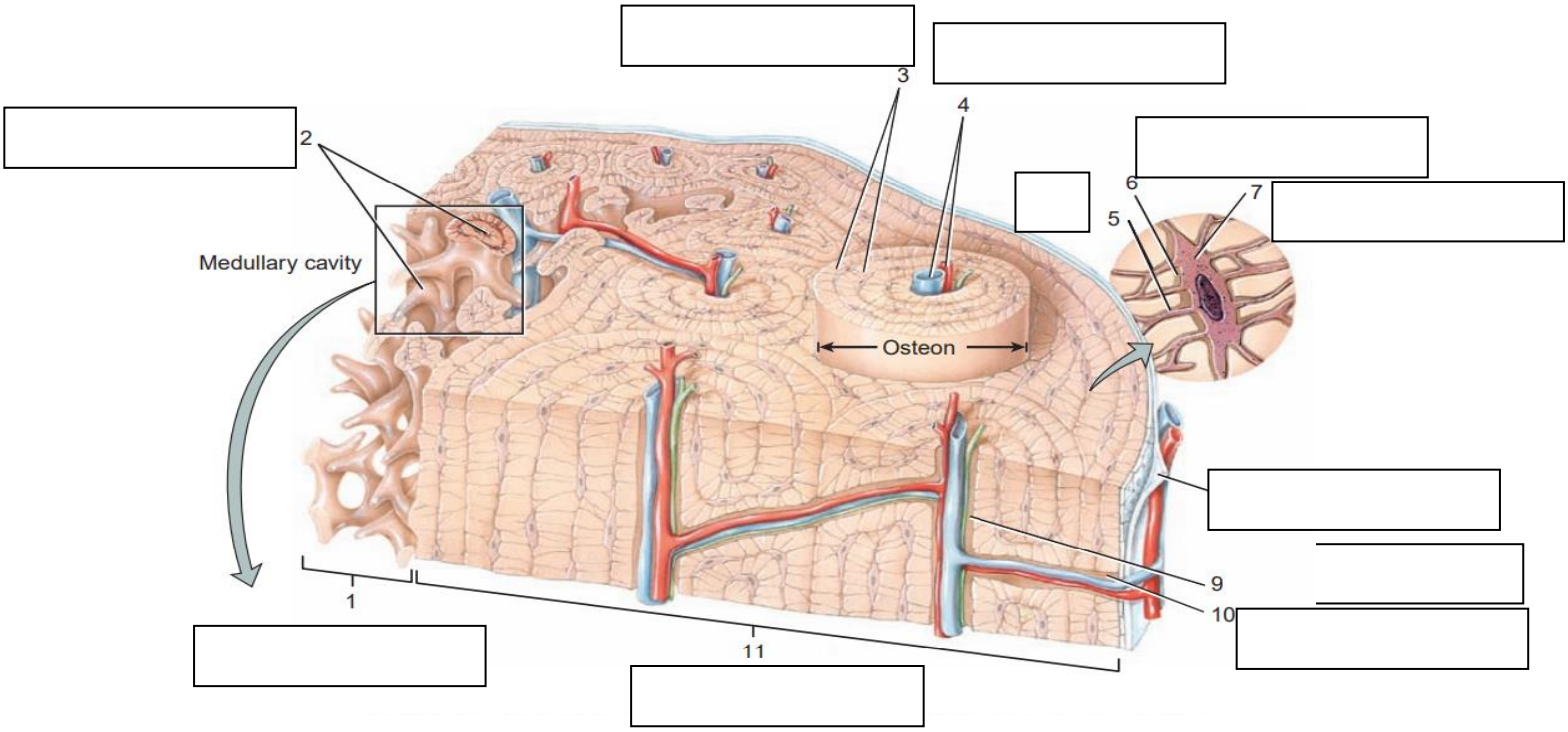


Figure 6.3 Osteons in compact bone & trabeculae in spongy bone

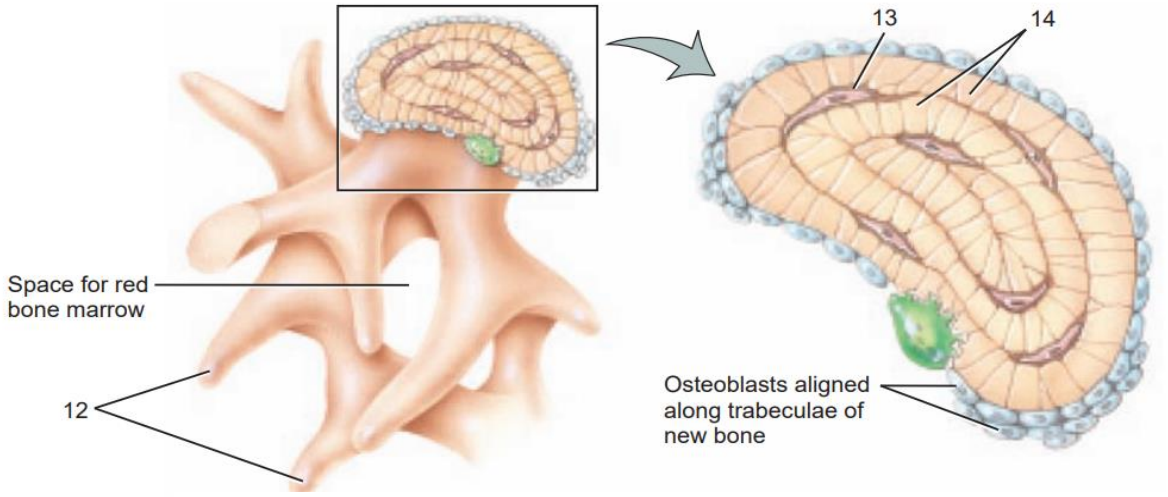
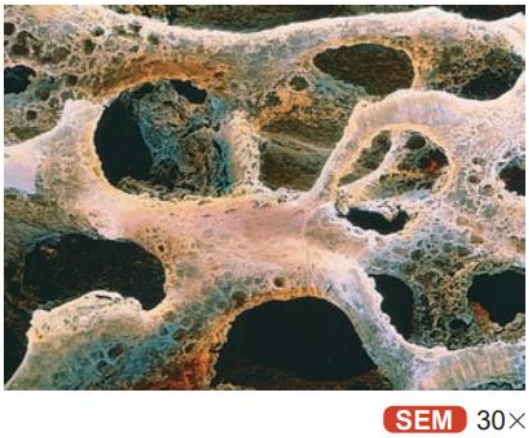


Figure 6.4 Enlarged aspect of spongy bone trabeculae

Blood vessels	Osteocyte	Interstitial lamellae
Canaliculus	Perforating canal Periosteum	Osteocyte in lacuna
Central canal	Spongy bone	Trabeculae covered
Compact bone	Trabeculae pf spongy bone	with endosteum
Concentric lamellae	covered with endosteum	Lacuna

D. Observe images (a) and (b). Identify the normal bone and osteoporotic bone.

(a) _____ (b) _____



(a)

(b)

E. Cells of bone

Identify the bone cells described below

_____1.	Produce matrix (active in childhood and repair)	a. Osteoprogentiter cells
_____2.	Responsible for breakdown	b. osteocytes
_____3	Responsible for maintenance	c. osteoclasts
_____4	Stem cells	d. osteoblasts

Worksheet no. 2 **Types/ Categories of bones**

Label the diagram

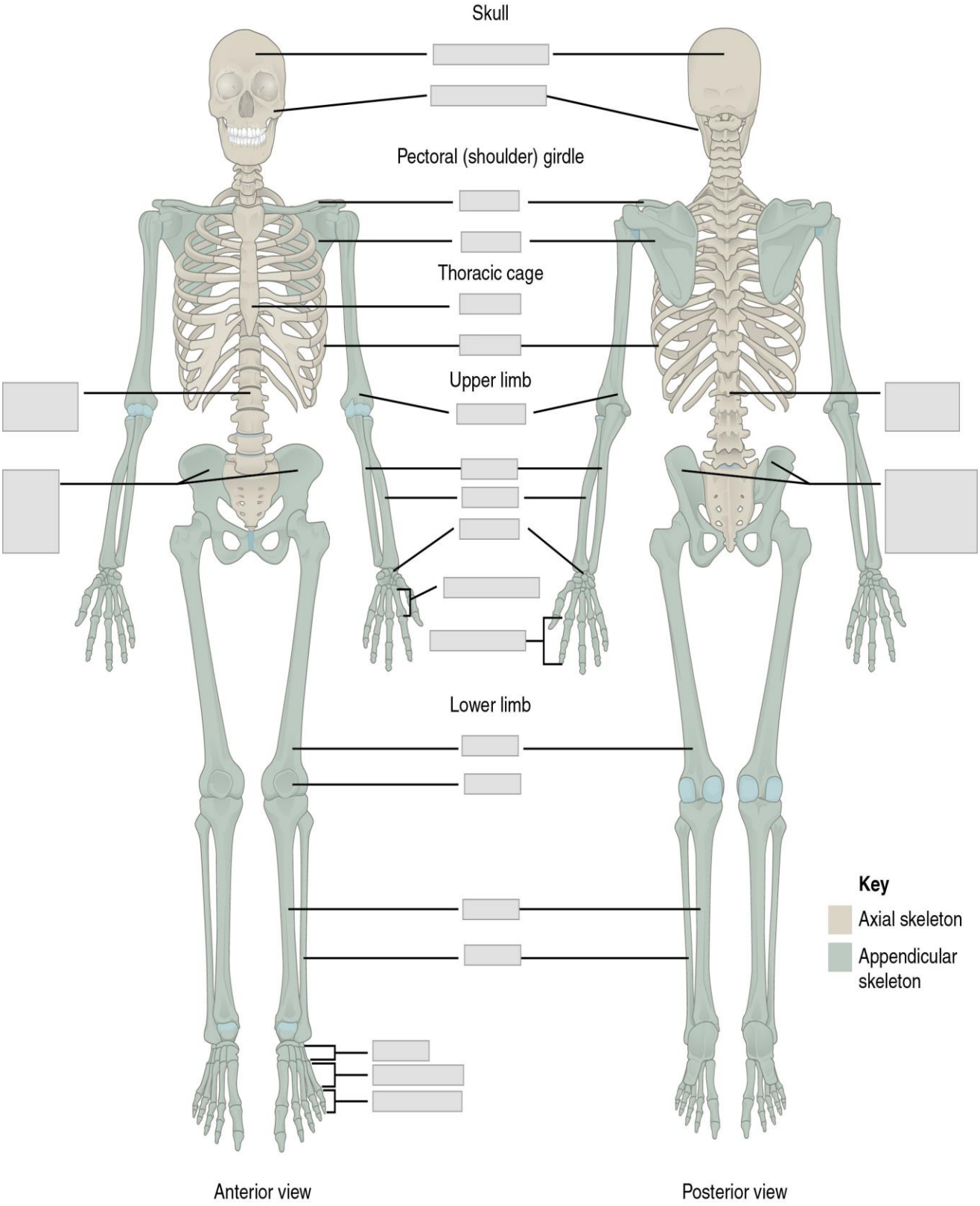


Figure 6.5 Division of Skeletal System

A. Axial

1.

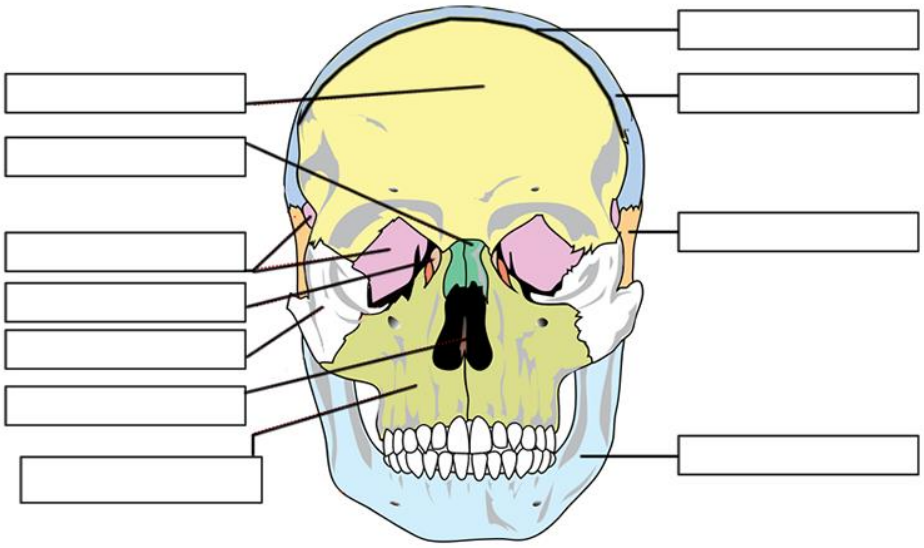


Figure 6. 6 Anterior view of the skull

2

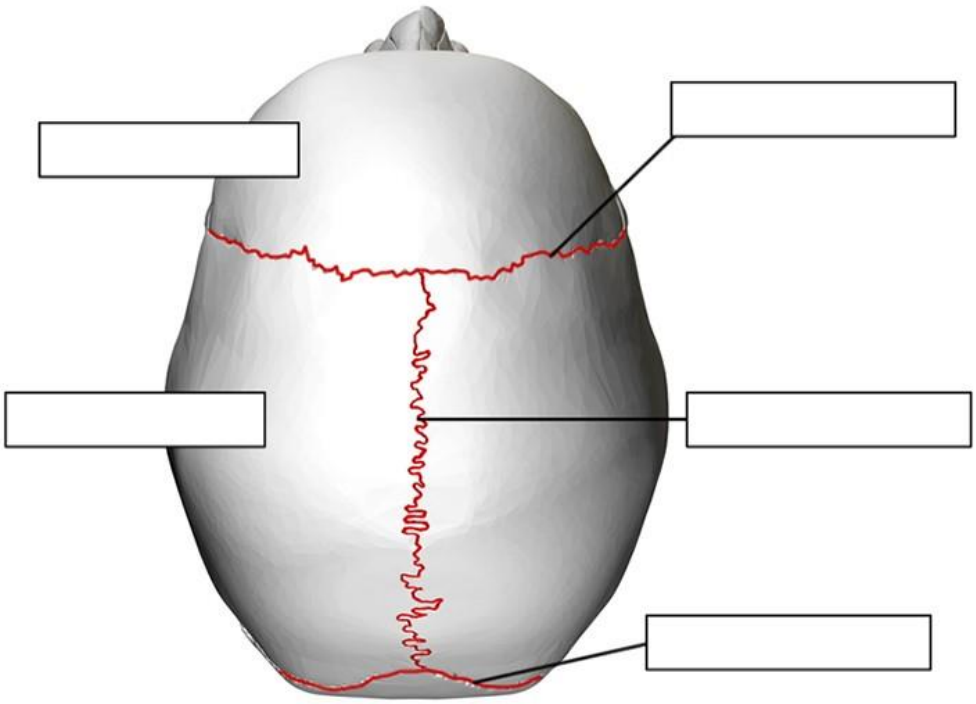


Figure 6. 7 Superior view of skull

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3.

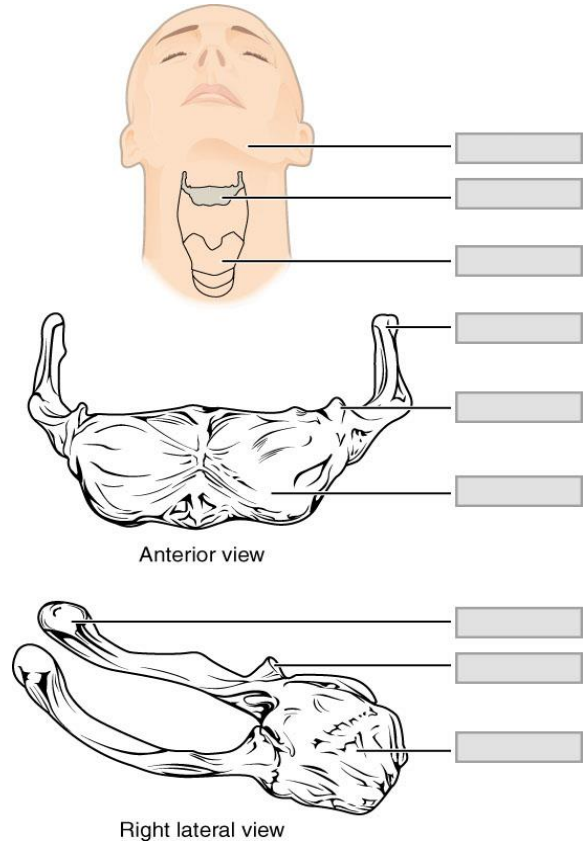


Figure 6. 8 Hyoid Bone

4.

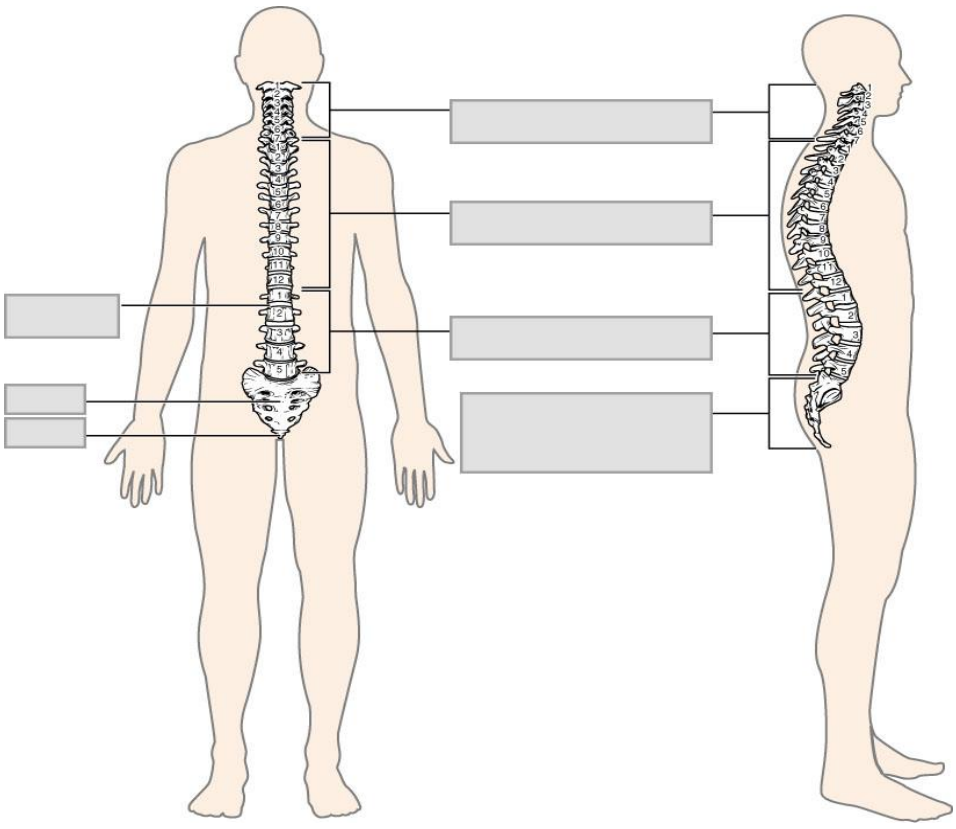


Figure 6. 9 Vertebral Column

5.

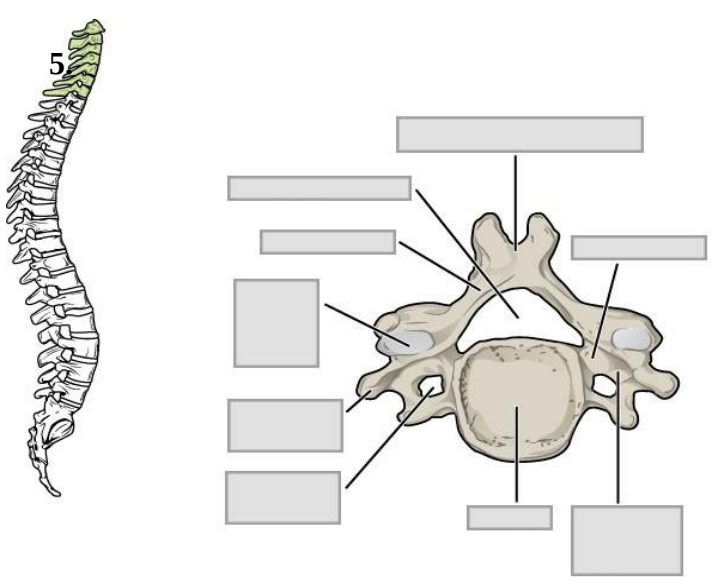


Figure 6. 10 Structure of a typical cervical vertebra

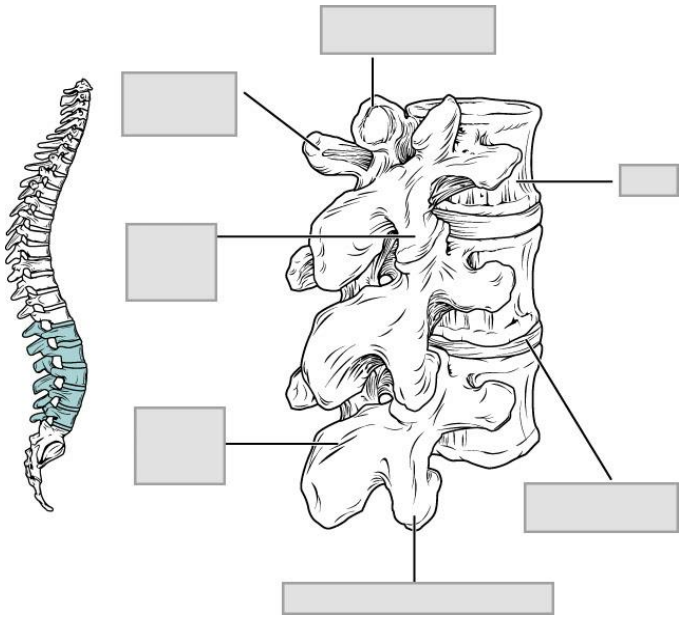


Figure 6.11Lumbar Vertebrae

6.

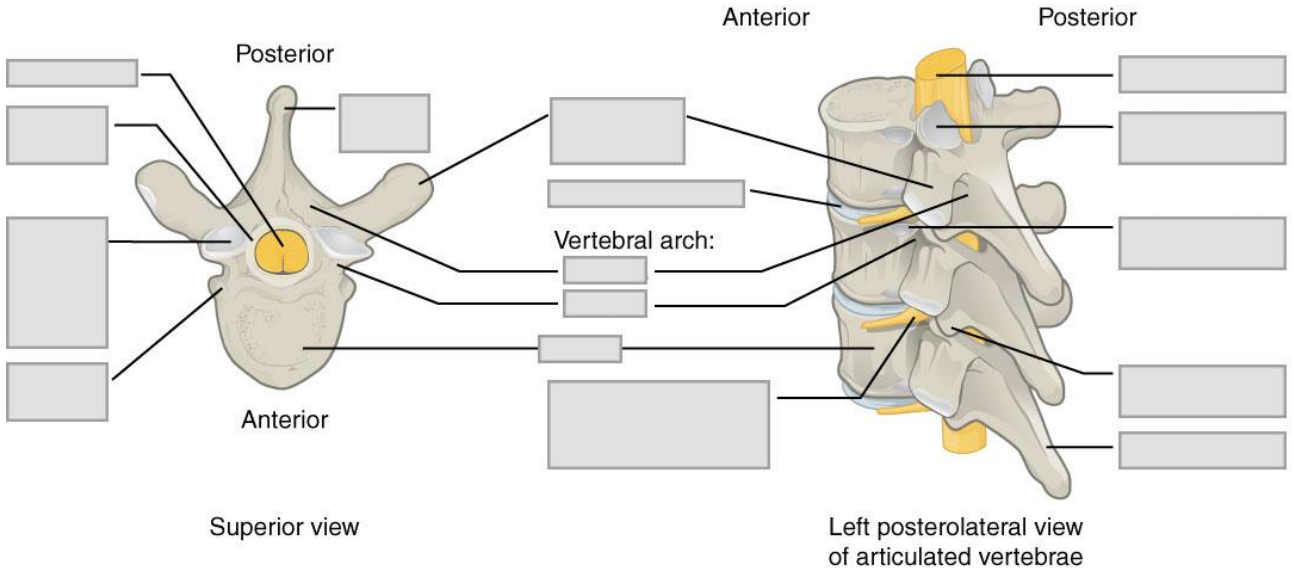


Figure 6.12 Part of a Typical Vertebra

7.

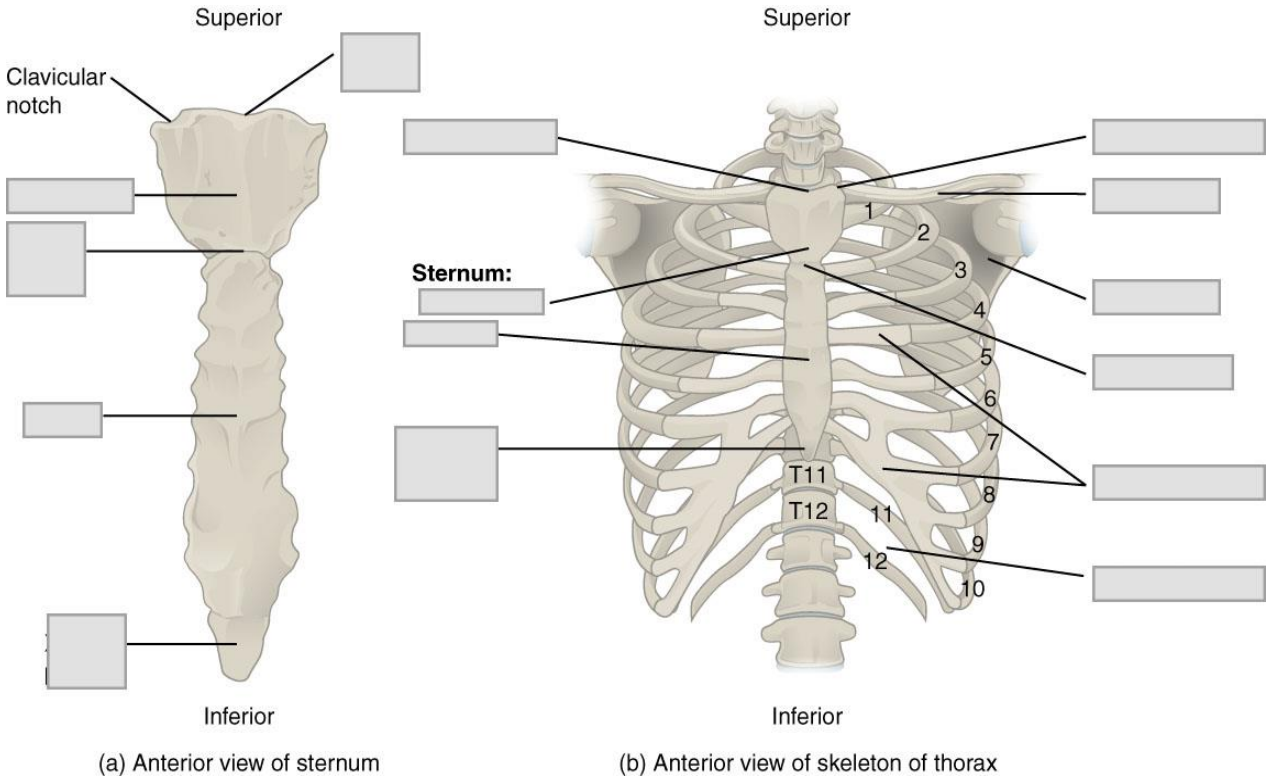


Figure 6.13 Thoracic Cage

8.

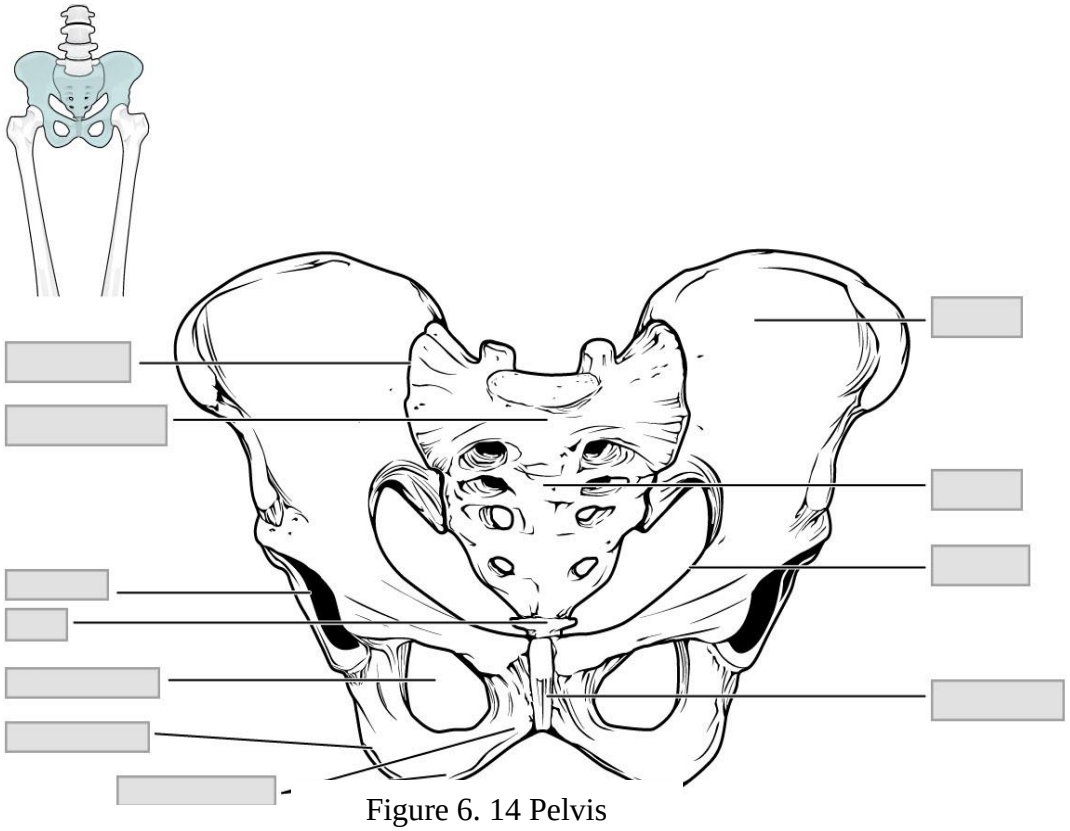
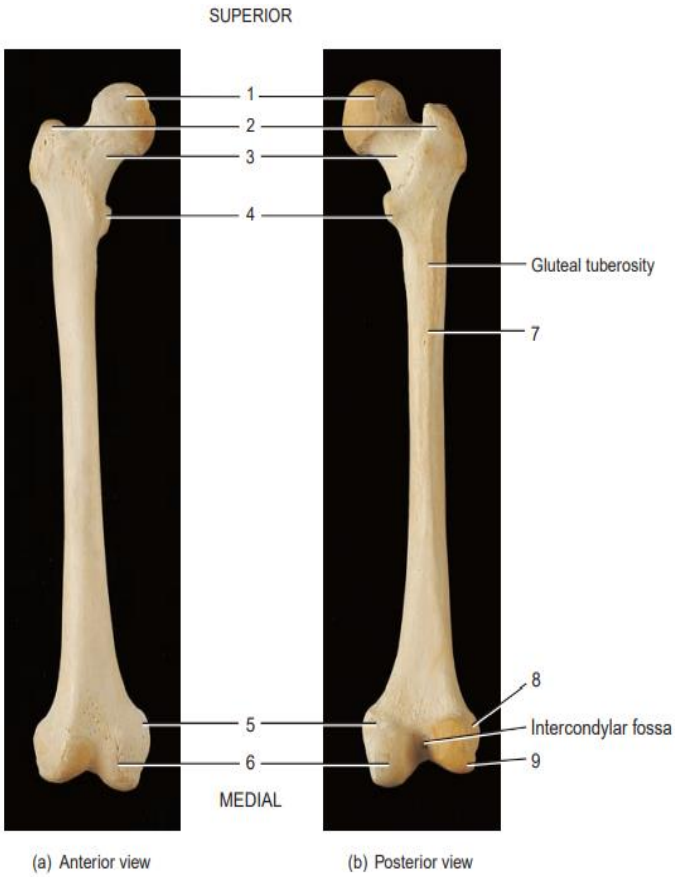


Figure 6. 14 Pelvis

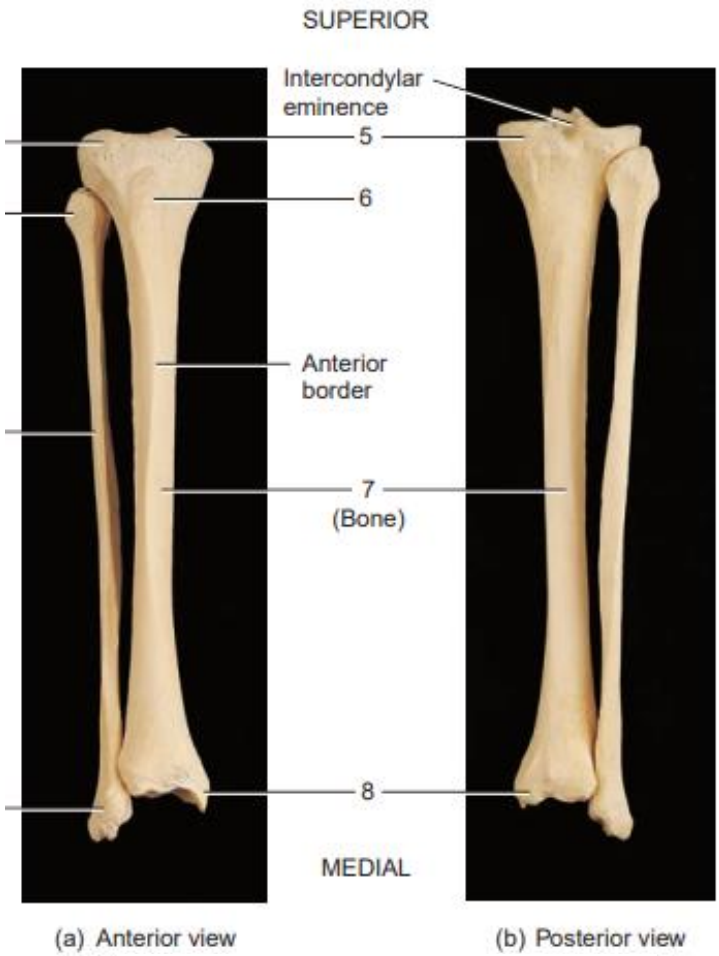
9.



1. _____
2. _____
3. _____
4. _____
5_____
6. _____
7 _____
8. _____
9._____

Figure 6. 15 Right Femur

14.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Figure 6.16 Right tibia, fibula and patella

Worksheet no. 2 **Types/ Categories of bones**

Identify what type of bone is being described. After identifying the type of bone, give example/s for each item on the left corresponding the type of bone. Put the correct answers in the space provided. USE CAPITAL LETTERS.

Long	Short	Sesamoid	Irregular	Flat
Scapulae	Vertebrae	Phalanx	Femur	patella

	Type of bone	Example/s
1. Bones embedded in tendons	_____	_____
2. Thin, parallel surface that provides area for protection	_____	_____
3. Fairly long and slender; longer than their diameter; responsible for the structural support of our skeleton	_____	_____
4. Complex shapes with short, flat, notched or ridged surfaces	_____	_____
5. Short and boxy	_____	_____

Worksheet no. 3 **Articulation and Body Movements**

1. Identify the specific structures of an elbow joint

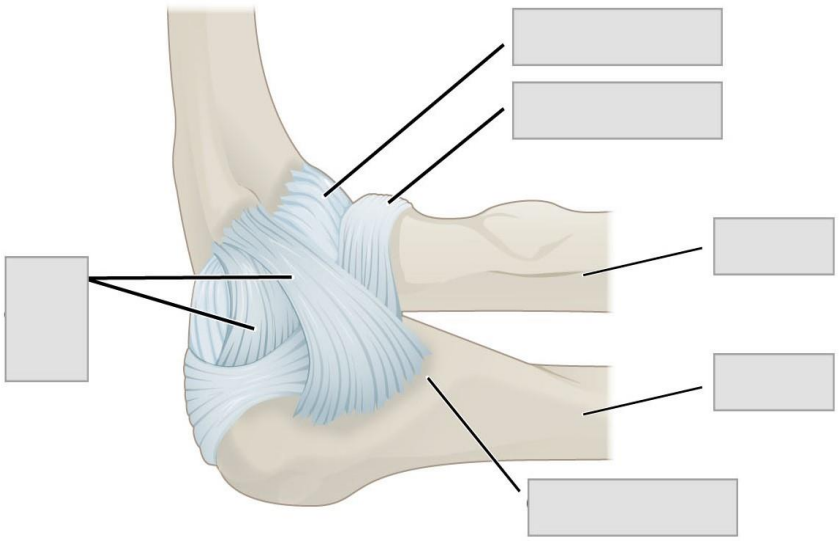
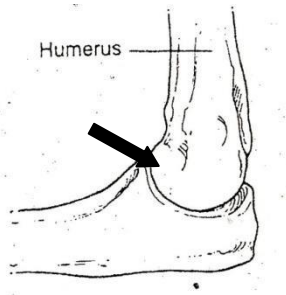
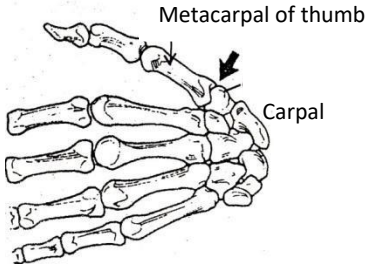
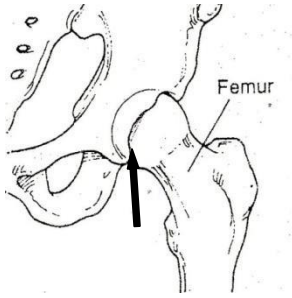


Figure 6.17 Medial view of the right elbow joint

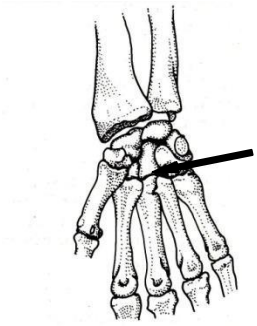
2.Write the names of the synovial joints shown in the picture

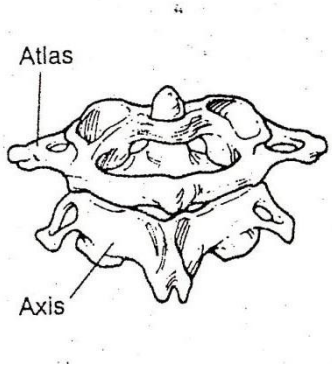


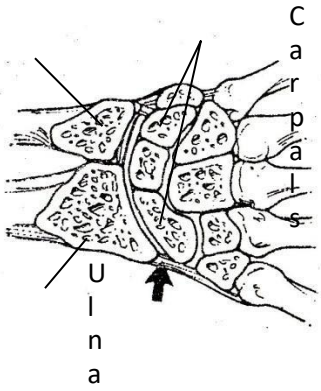




a._____ **b**_____ **c**_____





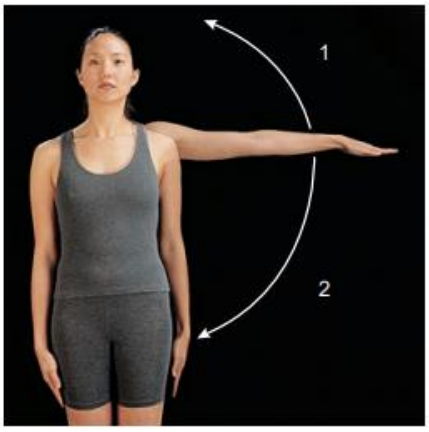


d_____ e_____ f_____

3. Identify what particular joints is used in the following parts of the body . Put a check mark corresponding the correct answer

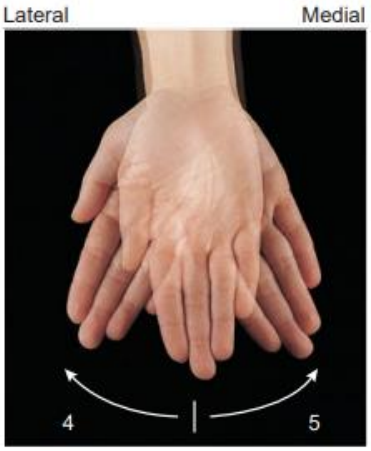
Part of the body	Ball and socket	Hinge	Pivot	Condyloid	Cartilaginous	Gliding
Hip						
Elbow						
Neck						
Wrist						
Shoulder						
Spine						

4. Indicate whether adduction, abduction, circumduction



(a) Shoulder joint

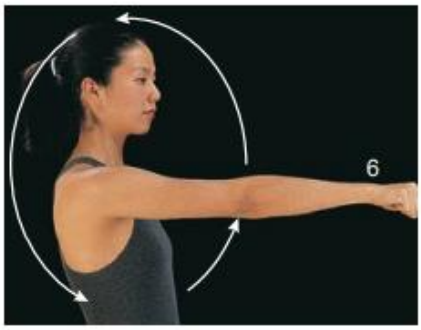
(b) Hip joint



(c) Right wrist joint

1._____ **3.**_____ **4.**_____

2_____ **5.**_____



(d) Shoulder joint

6._____

(a) Temporomandibular joint (b) (c) Temporomandibular joint (d)

1._____ **3**_____

2._____ **4.** _____

References

Allen, C. & Harper, V. (2009). *Laboratory Manual for Anatomy and Physiology*. 3rd ed. Hoboken, NJ: John Wiley & Sons, Inc, c2009

A&P 1 Resources: Anatomy & Physiology Resource Center. (n.d.). Retrieved September 06, 2020, from https://www.aandpresources.com/a-p-1-resources

J. Gordon Betts, Young, K. A., Wise, J. A., Johnson, E., Poe, B., Kruse, D. H., Korol, Oksana , Johnson, J. E., Womble, Mark , & DeSaix, P. (2013, April 25). *Anatomy and Physiology*. Houston, Texas: OpenStax, c2020 CC License 4.0 license