

**PLANES AND AXES**

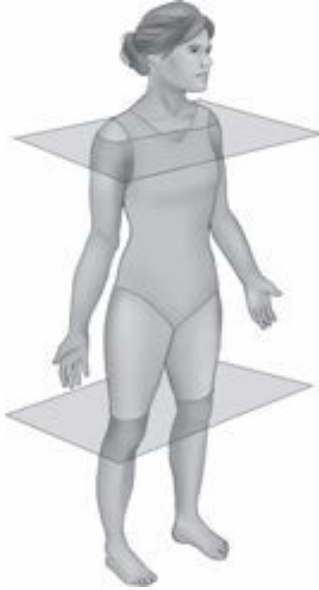
**NAME THE PLANE OR AXIS**

Name the plane in each figure.

1.



\_\_\_\_\_



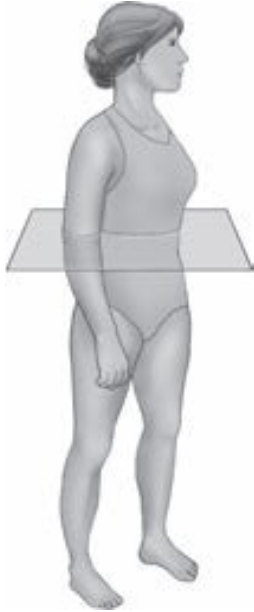
\_\_\_\_\_

Identify the corresponding axis for the plane shown in each figure.

2.



\_\_\_\_\_



\_\_\_\_\_

Score: \_\_\_/2 9

**MATCHING**

Match the movement term pairs with the corresponding plane (Column A) in which the movement occurs from and the corresponding axis (Column B) around which motion occurs from. Choices from each column can be used more than once.

**Column A: Plane**

Sagittal  
Oblique  
Transverse  
Frontal

**Column B: Axis**

Oblique  
Mediolateral  
Anteroposterior  
Superoinferior

Description of Movement	Name of plane	Corresponding axis
Vertical: anterior to posterior	_____	_____
Vertical: side to side	_____	_____
Horizontal	_____	_____
Oblique	_____	_____

Score: \_\_\_/4

**TRUE OR FALSE**

Write T on the line if the statement is true or F if the statement is false.

1. \_\_\_\_\_ All three cardinal planes are vertical.
2. \_\_\_\_\_ The orientation of an axis to its corresponding plane is always perpendicular.
3. \_\_\_\_\_ The axis for the sagittal plane is anteroposterior.
4. \_\_\_\_\_ Axial motion of a body part is circular.
5. \_\_\_\_\_ Motion within the transverse plane is horizontal.

Score: \_\_\_/5

**FILL IN THE BLANK**

Fill in the blank with the answer that best completes each question or statement.

1. The \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are the three cardinal planes.
2. A(n) \_\_\_\_\_ is an imaginary line around which a body part moves.
3. What is the importance of planes? \_\_\_\_\_
4. What are the three cardinal axes? \_\_\_\_\_
5. The term \_\_\_\_\_ describes motion that occurs within a plane and around an axis.

Score: \_\_\_/5

## MULTIPLE CHOICE

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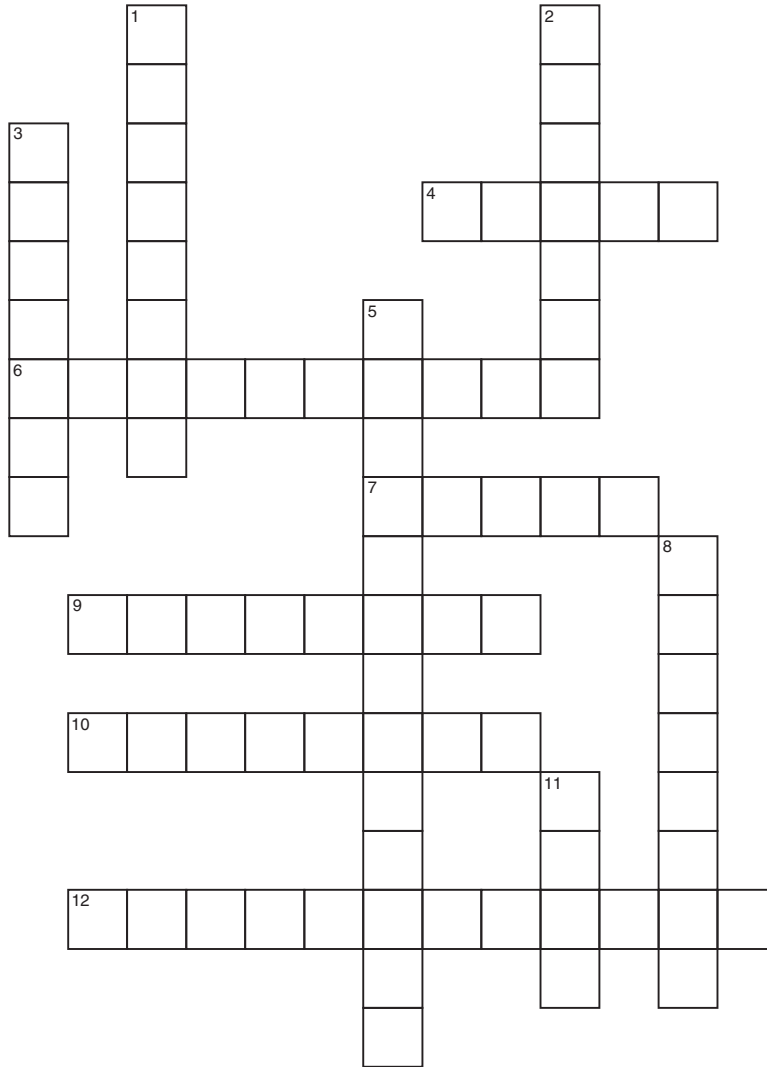
Circle the letter of the best answer to the question.

1. What is the corresponding axis for the frontal plane?
  - a. Vertical
  - b. Superoinferior
  - c. Mediolateral
  - d. Anteroposterior
  
2. What is the corresponding axis for the transverse plane?
  - a. Oblique
  - b. Vertical
  - c. Anteroposterior
  - d. Mediolateral
  
3. What is another name for the vertical axis?
  - a. Superoinferior
  - b. Mediolateral
  - c. Anteroposterior
  - d. None of the above
  
4. Which of the following is true regarding an oblique plane?
  - a. It has components of two or three cardinal planes.
  - b. Its axis is vertical.
  - c. It divides the body into superior and inferior halves.
  - d. All of the above
  
5. What kind of motion occurs within the sagittal plane?
  - a. Vertical
  - b. Horizontal
  - c. Oblique
  - d. None of the above

Score: \_\_\_/5

**CROSSWORD PUZZLE**

Use the clues to complete the crossword puzzle.



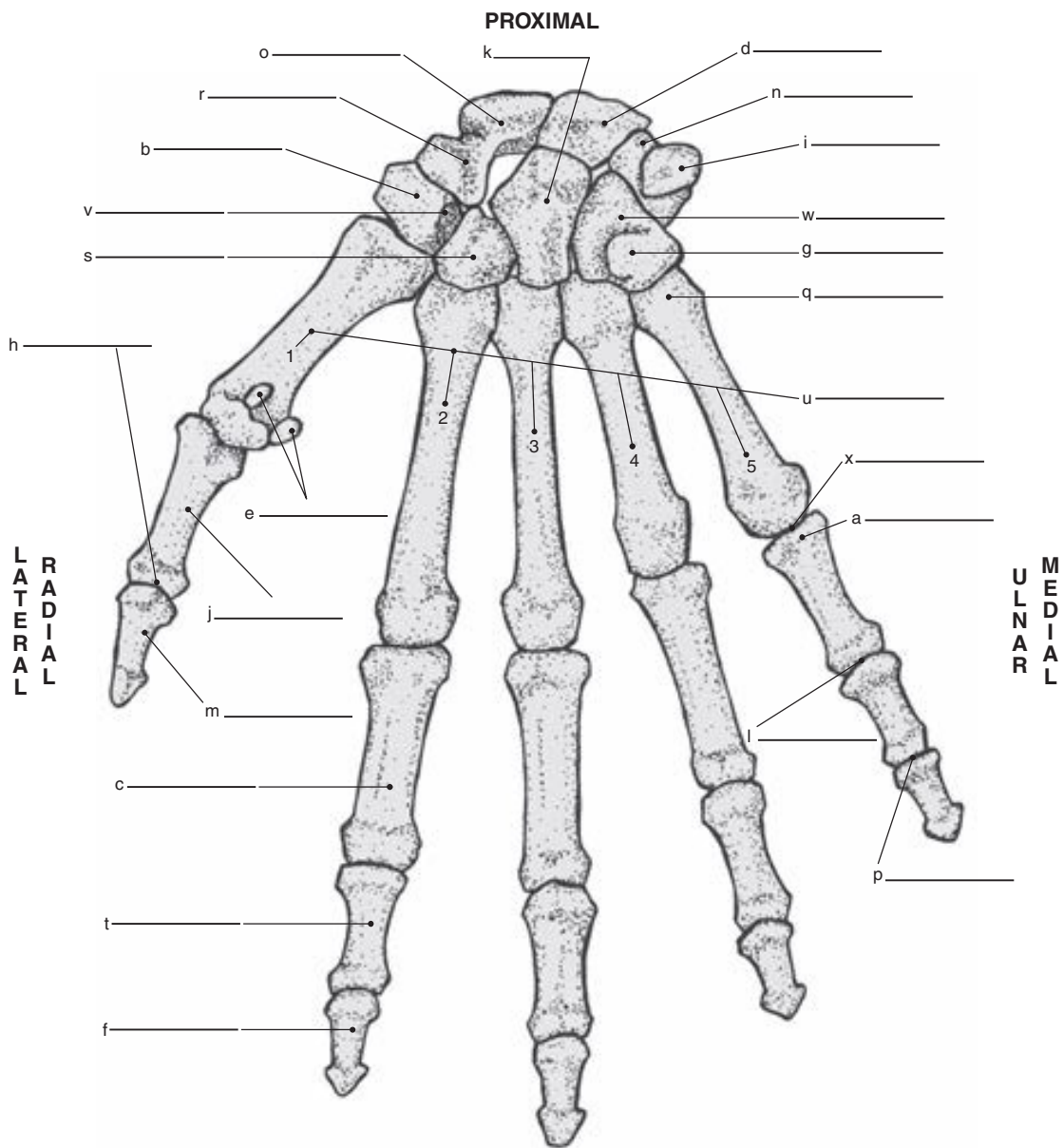
**ACROSS**

- 4 Circular motion
- 6 Divides the body into superior and inferior portions
- 7 Maps 3D space
- 9 Major planes
- 10 Straight line motion
- 12 Sagittal plane axis

**DOWN**

- 1 Transverse plane axis
- 2 Plane that is not perfectly cardinal
- 3 Divides the body into front and back portions
- 5 Orientation of cardinal plane to other cardinal planes
- 8 Divides the body into left and right portions
- 11 Plural of axis

Score: \_\_\_/12



- 1. Base of metacarpal
- 2. Base of phalanx
- 3. Capitate
- 4. Distal interphalangeal joint
- 5. Distal phalanx of finger
- 6. Distal phalanx of thumb

- 7. Hamate
- 8. Hook of hamate
- 9. Interphalangeal joint
- 10. Lunate
- 11. Metacarpals
- 12. Metacarpophalangeal joint

- 13. Middle phalanx of finger
- 14. Pisiform
- 15. Proximal interphalangeal joint
- 16. Proximal phalanx of finger
- 17. Proximal phalanx of thumb
- 18. Scaphoid

- 19. Scaphoid tubercle
- 20. Sesamoid bones
- 21. Trapezium
- 22. Trapezoid
- 23. Triquetrum
- 24. Tubercle of trapezium

Score: \_\_\_/24

### **FILL IN THE BLANK**

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Fill in the blank with the answer that best completes each question or statement.

1. What bone is located in the thigh? \_\_\_\_\_
2. What bone is located in the arm? \_\_\_\_\_
3. What bones are located in the leg? \_\_\_\_\_
4. What bones are located in the forearm? \_\_\_\_\_
5. There are \_\_\_\_\_ cervical vertebrae.
6. The shoulder girdle is composed of the \_\_\_\_\_ and \_\_\_\_\_ bones.
7. There are \_\_\_\_\_ metacarpals in each hand.
8. There are \_\_\_\_\_ phalanges in each hand.
9. The \_\_\_\_\_ bones are located between the forearm and hand.
10. The \_\_\_\_\_ bones are located between the tibia and metatarsals.
11. How many ribs on each side attach into the sternum? \_\_\_\_\_
12. There are \_\_\_\_\_ tarsals in each foot.
13. Approximately how many bones are there in the adult human body? \_\_\_\_\_
14. \_\_\_\_\_ is the plural form of vertebra.
15. The singular form of phalanges is \_\_\_\_\_.

Score: \_\_\_/15

### **KNOW YOUR BONES**

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For each of the following questions, state whether the bone is axial or appendicular. Write your answer in the space provided.

1. Humerus: \_\_\_\_\_
2. Pelvic: \_\_\_\_\_
3. Carpal: \_\_\_\_\_
4. Vertebra: \_\_\_\_\_
5. Sternum: \_\_\_\_\_
6. Phalanx: \_\_\_\_\_
7. Radius: \_\_\_\_\_

8. Rib: \_\_\_\_\_

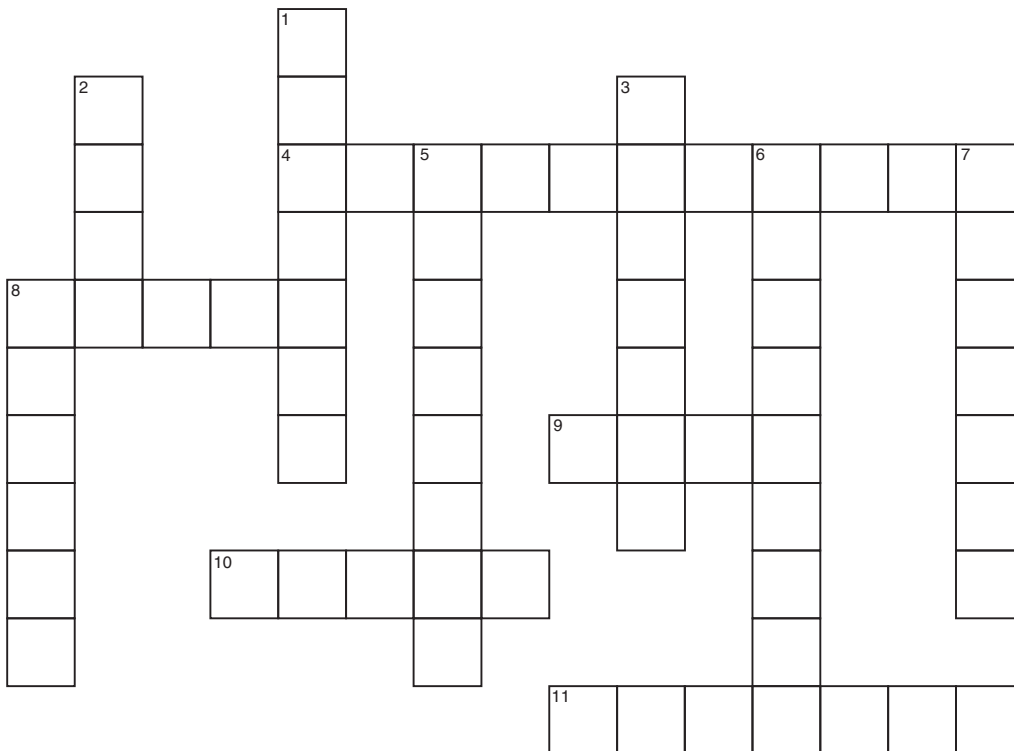
9. Tibia: \_\_\_\_\_

10. Cranial: \_\_\_\_\_

Score: \_\_\_/10

**CROSSWORD PUZZLE**

Use the clues to complete the crossword puzzle.



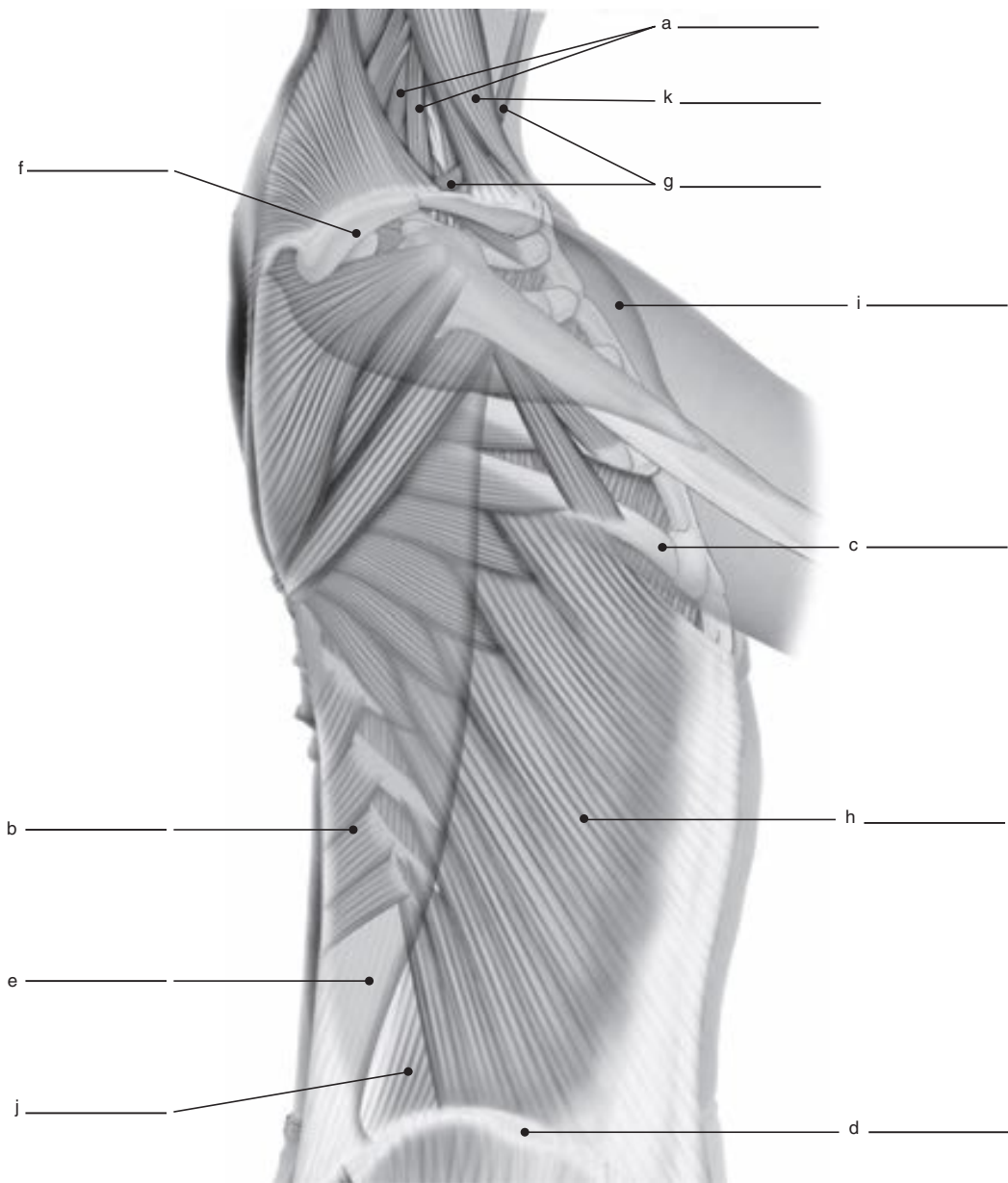
**ACROSS**

- 4 Distal to carpals
- 8 Distal to pelvic bone
- 9 Medial bone of forearm
- 10 Bone of leg
- 11 Ankle bones

**DOWN**

- 1 Proximal to radius
- 2 Number of vertebrae in sacrum
- 3 Wrist bones
- 5 Superior to lumbar vertebrae
- 6 Distal to metatarsals
- 7 Bone of shoulder joint
- 8 Lateral to tibia

Score: \_\_\_/12



1. 5th rib

2. Acromion process of scapula

3. Deltoid

4. External abdominal oblique

5. Iliac crest

6. Internal abdominal oblique

7. Latissimus dorsi

8. Omohyoid

9. Scalenes

10. Serratus posterior inferior

11. Sternocleidomastoid

Score: \_\_\_/11



**SECTION 1: MUSCLES**

Section 1 tests your knowledge of muscles covered in pages 250–259 of the *Know the Body* textbook.

**KNOW YOUR MUSCLES**

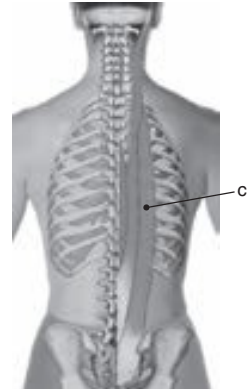
Fill in the blank with the name of the muscles shown.



a \_\_\_\_\_



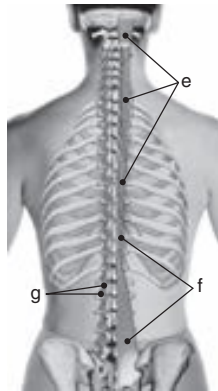
b \_\_\_\_\_



c \_\_\_\_\_



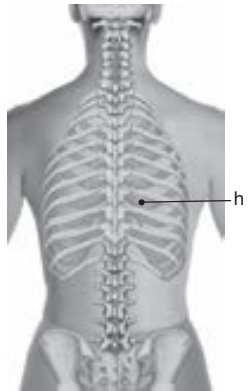
d \_\_\_\_\_



e \_\_\_\_\_

f \_\_\_\_\_

g \_\_\_\_\_



h \_\_\_\_\_



i \_\_\_\_\_

Score: \_\_\_/9

**WHAT'S IN A NAME?**

Match the muscle name from the right column to its meaning in the left column. Write your answer in the space provided. Each choice can be used only once.

**Meaning**

- \_\_\_\_\_ 1. Squared muscle of the lumbar region
- \_\_\_\_\_ 2. Notched muscle of the upper back
- \_\_\_\_\_ 3. Between the transverse processes
- \_\_\_\_\_ 4. Notched muscle of the lower back
- \_\_\_\_\_ 5. To erect the spine
- \_\_\_\_\_ 6. From transverse process to spinous process
- \_\_\_\_\_ 7. Between the spinous processes

**Muscle name**

- a. Transversospinalis
- b. Serratus posterior superior
- c. Serratus posterior inferior
- d. Quadratus Lumborum
- e. Interspinales
- f. Intertransversarii
- g. Erector spinae

Score: \_\_\_/7

**MATCHING ATTACHMENTS**

Match each muscle from the word bank with its attachments. Write the answer in the column labeled *Muscle*. Each choice will be used only once.

- Quadratus lumborum                      Interspinales
- Erector Spinae                              Intertransversarii
- Serratus posterior superior              Serratus posterior inferior
- Transversospinalis

Attachment	Muscle
1. Pelvis <i>to the</i> Spine, rib cage, and mastoid process of the temporal bone	
2. Pelvis and transverse processes of the spine <i>to the</i> Spinous processes of the spine, and the head	
3. Spinous process <i>to the</i> Spinous process directly superior	
4. Transverse process <i>to the</i> Transverse process directly superior	
5. Spinous processes of C7-T3 <i>to</i> Ribs 2 through 5	

## MOVERS & ANTAGONISTS – EXERCISE 2

For each joint action illustrated, the body part is being *slowly* moved in the direction indicated by the arrow. Circle whether the functional muscle group of the pair provided is contracting or relaxed. Then circle *how* the muscle group that is working is contracting (concentrically or eccentrically.)



### Movement:

#### Dorsiflexion of the foot at the ankle joint

Dorsiflexors: contracting/relaxed

Plantarflexors: contracting/relaxed

What type of contraction is occurring?  
concentric/eccentric



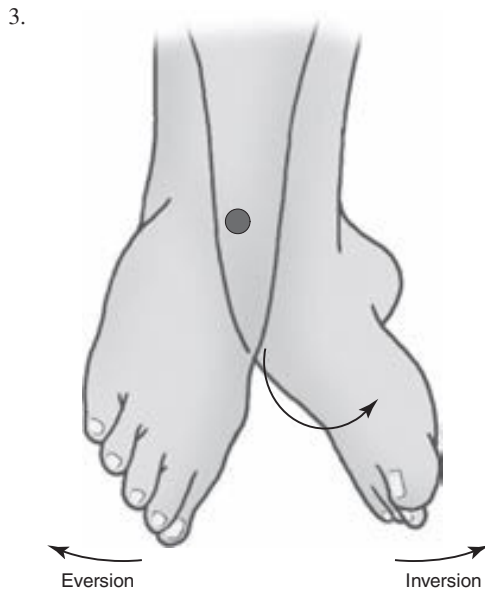
### Movement:

#### Plantarflexion of the foot at the ankle joint

Plantarflexors: contracting/relaxed

Dorsiflexors: contracting/relaxed

What type of contraction is occurring?  
concentric/eccentric



### Movement:

#### Inversion of the foot at the subtalar joint

Inverters: contracting/relaxed

Everters: contracting/relaxed

What type of contraction is occurring?  
concentric/eccentric

Score: \_\_\_/9

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## MUSCLE STABILIZATIONS

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Circle the letter of the best answer to the question.

1. Which of the following muscles can stabilize the ankle and subtalar joints?
  - a. Tibialis anterior
  - b. Extensor hallucis longus
  - c. Fibularis tertius
  - d. All of the above
2. Which of the following muscles can stabilize the metatarsophalangeal joint of the big toe?
  - a. Fibularis tertius
  - b. Extensor hallucis longus
  - c. Tibialis anterior
  - d. Extensor digitorum longus
3. Which of the following muscles can stabilize the metatarsophalangeal and interphalangeal joint of toes 2 through 5?
  - a. Fibularis longus
  - b. Extensor hallucis longus
  - c. Fibularis brevis
  - d. Extensor digitorum longus
4. Which of the following muscles can stabilize the interphalangeal joint of the big toe?
  - a. Fibularis brevis
  - b. Extensor digitorum longus
  - c. Fibularis tertius
  - d. None of the above

Score: \_\_\_/4

## YOU'VE GOT NERVE!

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Write in the name of the corresponding innervation from the list provided.

Deep fibular nerve

Superficial fibular nerve

1. Tibialis anterior \_\_\_\_\_
2. Extensor hallucis longus \_\_\_\_\_
3. Extensor digitorum longus \_\_\_\_\_
4. Fibularis longus \_\_\_\_\_
5. Fibularis brevis \_\_\_\_\_
6. Fibularis tertius \_\_\_\_\_

Score: \_\_\_/6

**ARE YOU FEELING IT? – PALPATION**

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Fill in the blank with the best answer to the palpation question.

1. To palpate the tibialis anterior which two actions do you ask the client to perform?

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2. When engaging and palpating the extensor hallucis longus, resistance should be applied here.

---

3. While palpating the extensor digitorum longus, if the client cannot isolate contraction of toes 2 through 5 and therefore also engages and extends the big toe, is it helpful to resist the motion of the client's big toe? Why?

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4. What action do you ask the client to perform in order to engage and palpate the fibularis longus?

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5. How do you find the fibularis tertius?

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Score: \_\_\_/5

**CLINICALLY SPEAKING**

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Fill in the blank with the best answer for the treatment consideration question.

1. What is the most prominent tendon on the dorsal surface of the ankle joint?

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2. What muscle is involved in anterior shin splints?

---

3. The fibularis tertius is the most distal and lateral part of what muscle?

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4. What muscle's distal tendon enters the foot on the lateral side, and then travels under the foot to attach to the medial side of the foot?

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Score: \_\_\_/5

# 5

## Bony Palpation

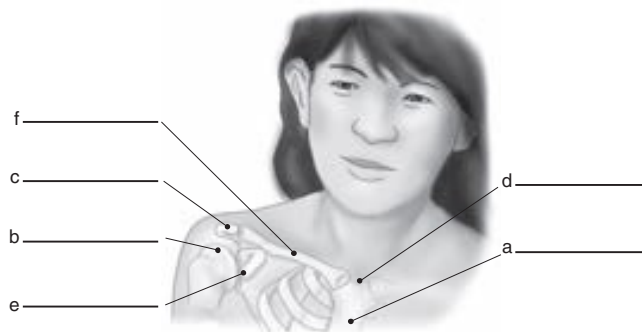
### UPPER EXTREMITY

#### COLORING & LABELING

Use crayons or felt-tipped markers to color the bones and bony landmarks. Use the word banks to fill in the numbers that correspond to the names of the bones and bony landmarks in the blanks provided.

ANTEROMEDIAL VIEW

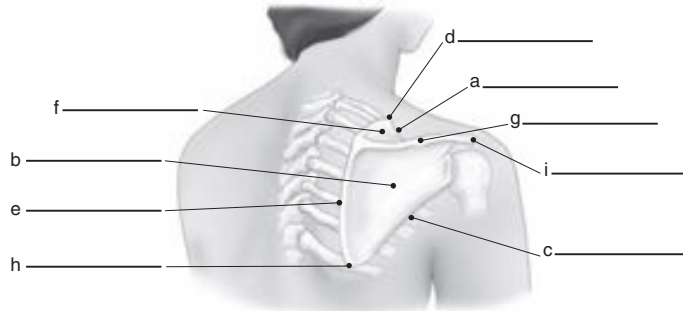
1. Acromion process
2. Clavicle
3. Coracoid process
4. Head of humerus
5. Sternum
6. Suprasternal notch



Score: \_\_/6

POSTEROLATERAL VIEW

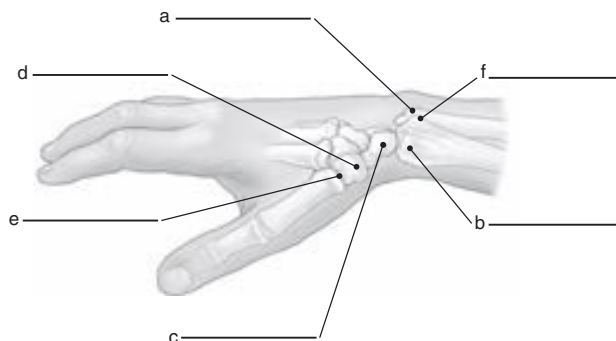
1. Acromion process
2. Inferior angle
3. Infraspinous fossa
4. Lateral border
5. Medial border
6. Spine of scapula
7. Superior angle
8. Superior border
9. Supraspinous fossa



Score: \_\_/9

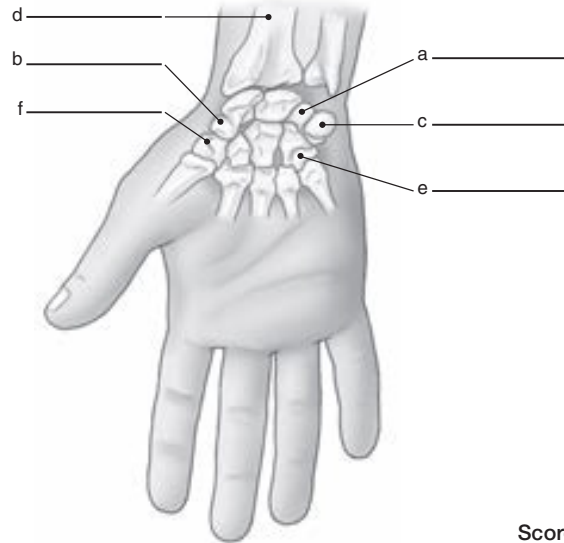
LATERAL VIEW

1. Dorsal tubercle of radius
2. Saddle joint
3. Scaphoid
4. Styloid process of radius
5. Styloid process of ulna
6. Trapezium



Score: \_\_/6

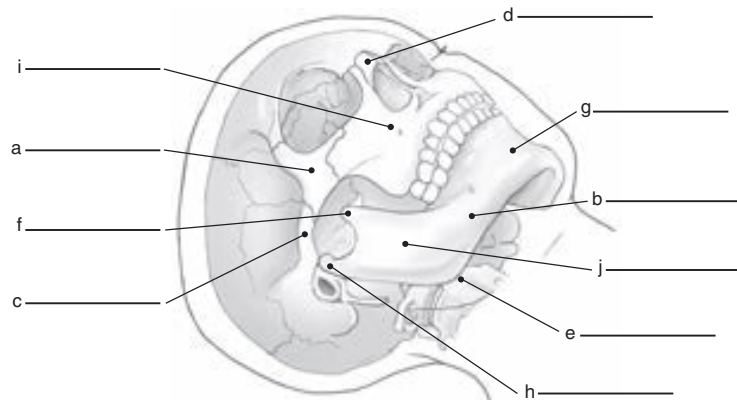
**ANTERIOR (PALMAR) VIEW**



1. Hook of hamate
2. Pisiform
3. Radius
4. Triquetrum
5. Tubercle of scaphoid
6. Tubercle of trapezium

Score: \_\_/6

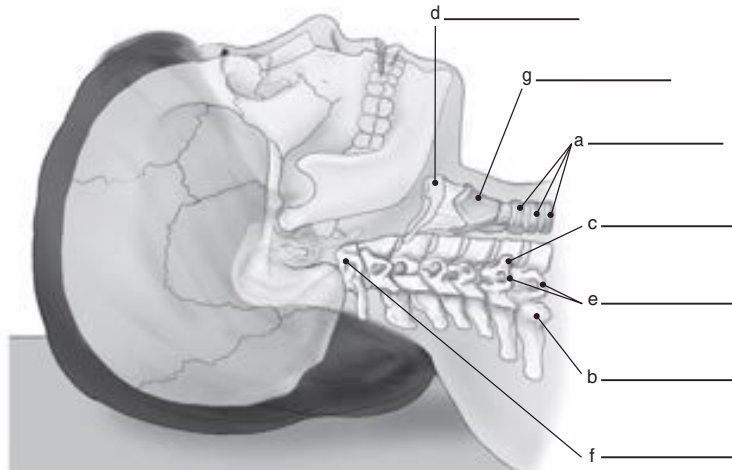
**INFEROLATERAL VIEW**



1. Angle
2. Body of mandible
3. Condyle
4. Coronoid process
5. Mandible
6. Maxilla
7. Nasal bone
8. Ramus
9. Zygomatic arch of the temporal bone
10. Zygomatic bone

Score: \_\_/10

**LATERAL VIEW**

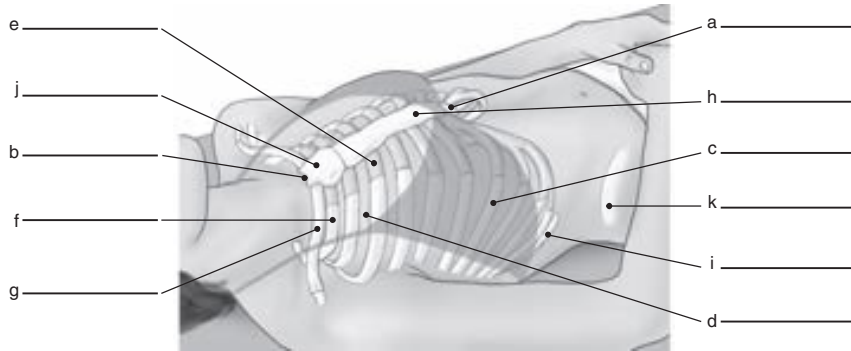


1. C1
2. C7
3. Carotid tubercle
4. Cricoid cartilages
5. Hyoid bone
6. Thyroid cartilage
7. Transverse processes

Score: \_\_/7

1. 11th rib
2. 1st rib
3. 2nd intercostal space
4. 7th rib
5. Body of sternum
6. Clavicle
7. Costal cartilage of 3rd rib
8. Iliac crest
9. Manubrium
10. Suprasternal notch
11. Xiphoid process

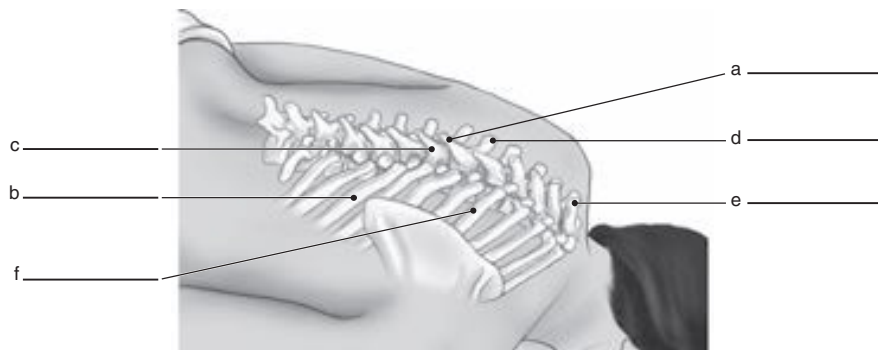
### SUPEROLATERAL VIEW



Score: \_\_/11

1. 5th rib
2. 9th rib
3. Lamina of T7
4. SP of T1
5. SP of T6
6. TP of T6

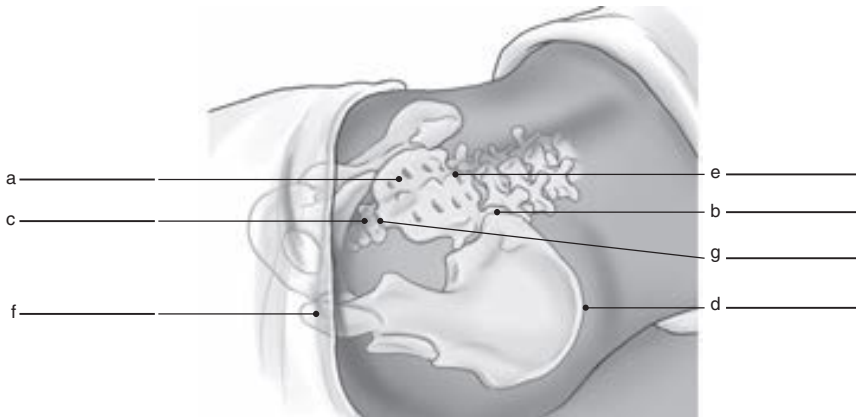
### POSTEROLATERAL VIEW



Score: \_\_/6

1. 2nd sacral tubercle
2. Coccyx
3. Iliac crest
4. Ischial tuberosity
5. Posterior superior iliac spine
6. Sacrococcygeal joint
7. Sacrum

### OBLIQUE VIEW



Score: \_\_/7