

Spring 2012

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[Skeletal System]

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- II. Appendicular Skeleton
- III. Axial Skeleton
- IV. Articulations



Overview of the Skeleton:

I. Orientation to Human Skeleton:

a. Answer the following questions:

1. Identify all the general components of the skeletal system:
2. What bones make up the axial and the appendicular skeletons [generally]:

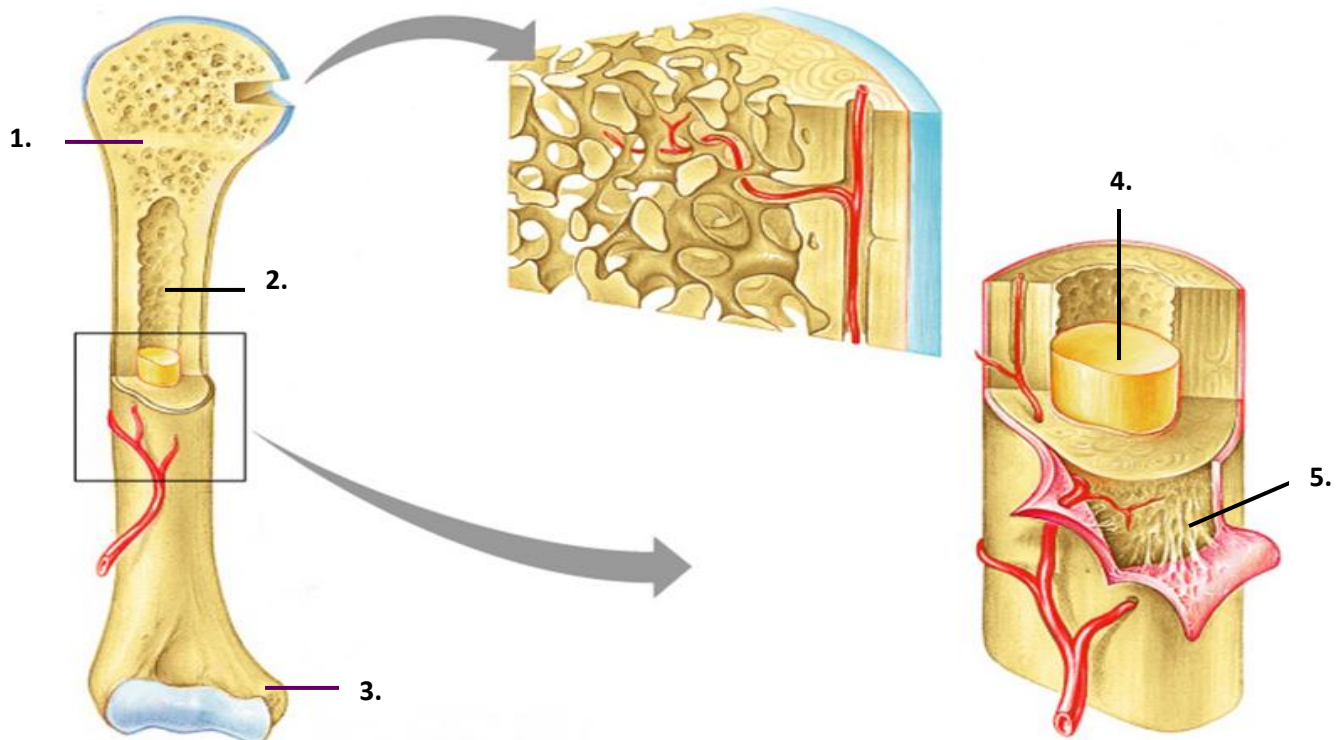
II. Bone Markings:

a. Identify the correct bone marking with each description:

1. Bone marking unique to the femur: _____
2. Shallow basin like depression in a bone: _____
3. Round or oval opening through a bone: _____
4. Large projection, usually roughened that can assist in muscle attachment: _____

III. Gross Anatomy of the Typical Long Bone:

a. Identify the following:



Appendicular Skeleton:

The adult human skeletal system consists of roughly 206 individual bones with some variance. A general outline in which you will need to study showing the more important bones is shown in *Figure 9.1*. Study this figure first following that learn the bone markings listed in *Table 9.1*. After learning the bone markings apply them to the actual bones themselves. To really apply the bone markings and ensure you learn them accurately don't just look at the markings, palpate (feel) them as well.

<u>Bone(s):</u>	<u>Figure(s):</u>	<u>Requirement(s):</u>
Clavicle and Scapula	11.2	identify left vs. right acromial end conoid tubercle sternal end coracoid process acromion glenoid cavity subscapular fossa suprascapular notch acromion spine infraspinous fossa supraspinous fossa
Humerus	11.3	identify left vs. right greater tubercle lesser tubercle intertubercular sulcus deltoid tuberosity radial fossa capitulum trochlea medial epicondyle coronoid fossa neck head olecranon fossa lateral epicondyle
Radius and Ulna	11.4	radial notch head neck radial tuberosity styloid process ulnar notch coronoid process trochlear notch olecranon process

Hand	11.5	<ul style="list-style-type: none"> distal phalanges medial phalanges proximal phalanges metacarpals carpals (don't learn individual carpals)
Os Coxae (Ileum, Ischium, Pubis)	11.6B-C	<ul style="list-style-type: none"> identify left vs. right posterior superior iliac spine posterior inferior iliac spine greater sciatic notch ischial spine lesser sciatic notch ischial tuberosity ischial ramus obturator foramen acetabulum anterior inferior iliac spine anterior superior iliac spine iliac crest symphysis pubis ala iliac fossa
Patella & Femur	11.7	<ul style="list-style-type: none"> patella (no markings, just identify the bone) identify left vs. right (femur only) neck lateral epicondyle patellar surface medial epicondyle adductor tubercle lesser trochanter head greater trochanter intertrochanteric crest gluteal tuberosity linea aspera intercondylar fossa medial condyle lateral condyle
Tibia and Fibula	11.8	<ul style="list-style-type: none"> identify left vs. right (tibia only) intercondylar eminence lateral condyle head lateral malleolus medial malleolus tibial tuberosity

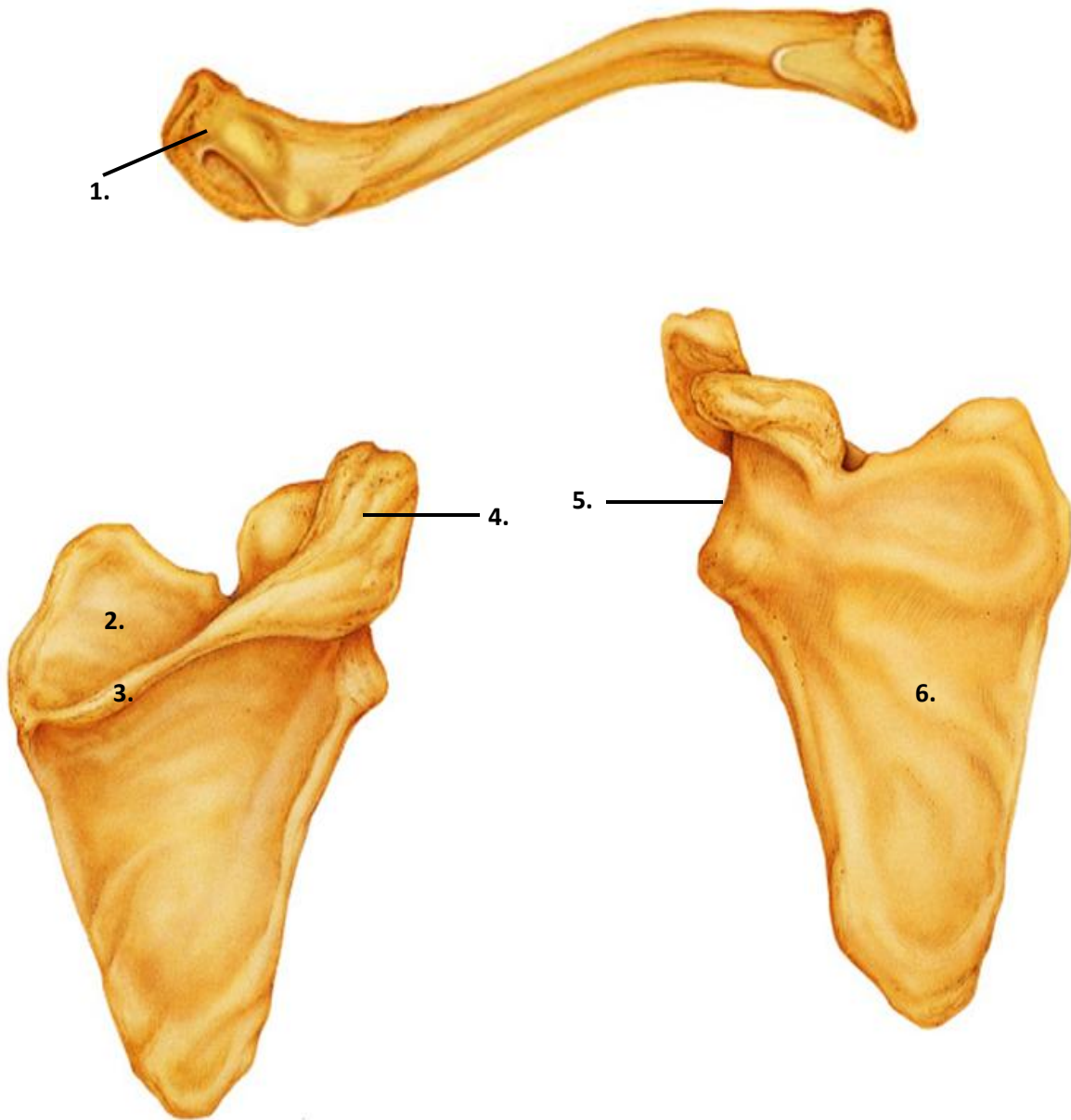
Foot

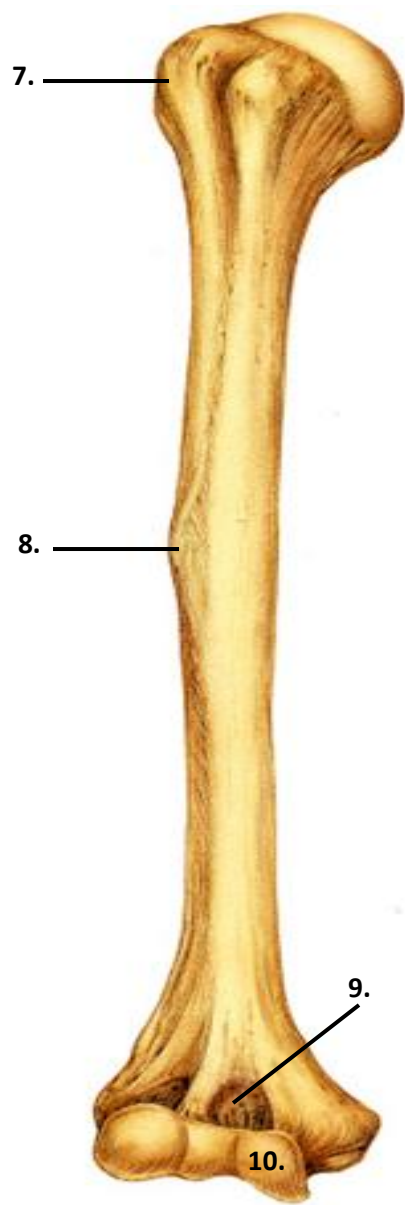
11.9A

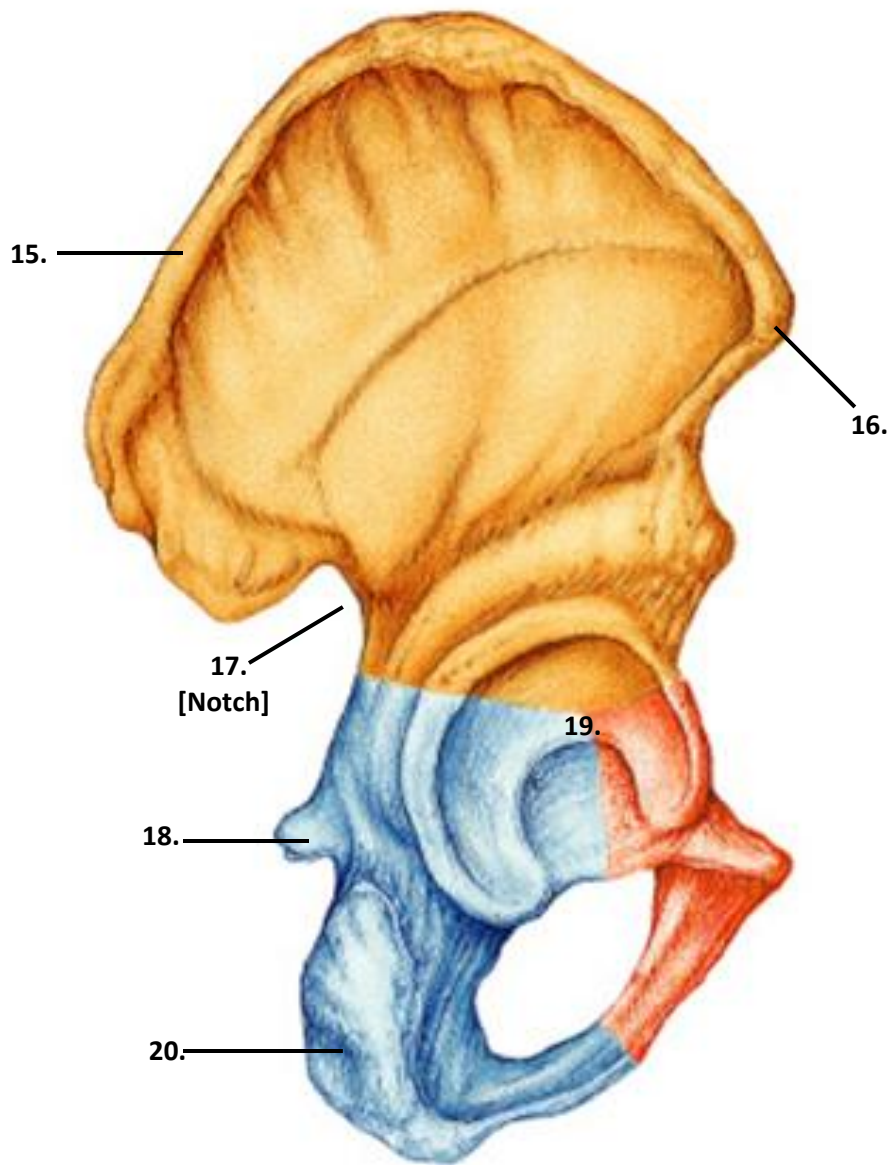
medial condyle
distal phalanges
medial phalanges
proximal phalanges
metatarsals
talus
calcaneus

I. Appendicular Skeleton:

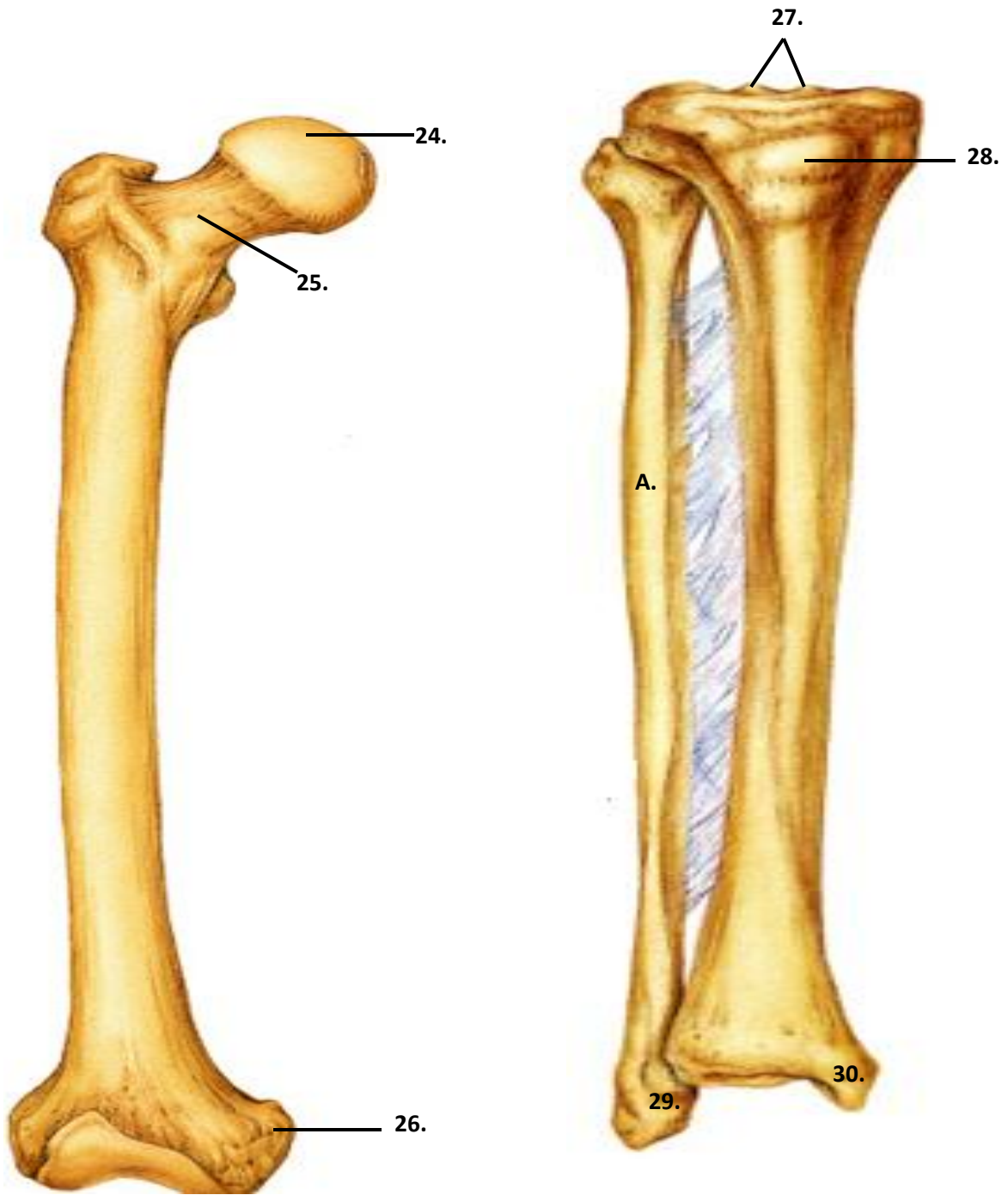
a. Identify the following:



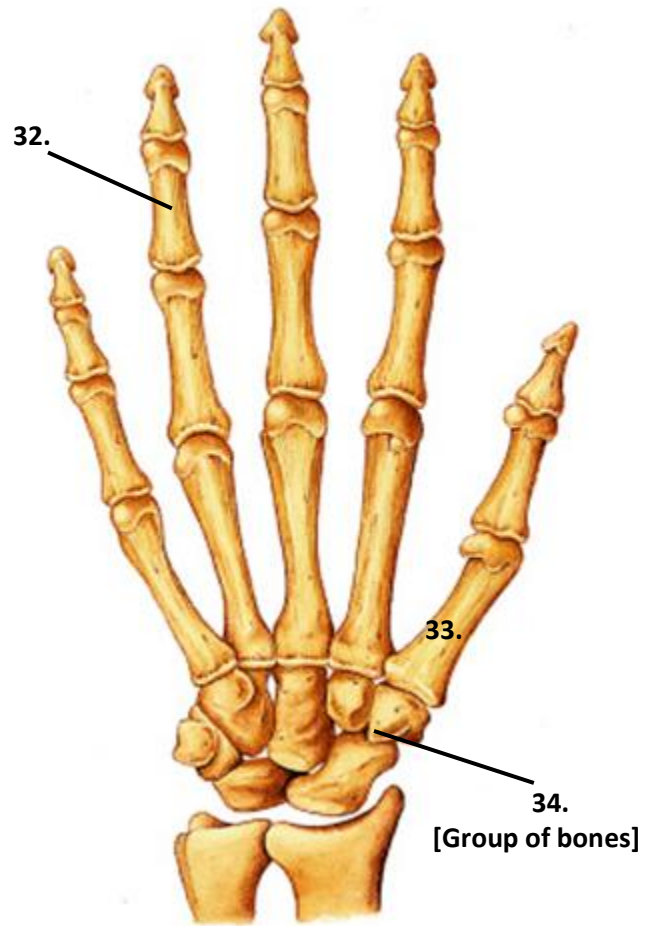




- 21. Male or female: The pelvic outlet is wide:
- 22. Male or female: The pubic arch is broad (larger):
- 23. Male or female: The ileum of the pelvis is thicker:



31. Is bone "A" medial or lateral in anatomical position:



Axial Skeleton:

The adult human skeletal system consists of roughly 206 individual bones with some variance. A general outline in which you will need to study showing the more important bones is shown in *Figure 9.1*. Study this figure first following that learn the bone markings listed in *Table 9.1*. After learning the bone markings apply them to the actual bones themselves. To really apply the bone markings and ensure you learn them accurately don't just look at the markings, palpate (feel) them as well.

<u>Bone(s):</u>	<u>Figure(s):</u>	<u>Requirement(s):</u>
Lateral Skull* (Study this view of the skull <u>first!</u>)	10.1	coronal suture parietal bone temporal bone lambdoid suture squamous suture occipital bone zygomatic bone occipitomastoid suture external acoustic meatus mastoid process styloid process mandibular condyle mandibular notch mandibular ramus mandibular angle coronoid process mental foramen mandible alveolar margins maxilla zygomatic process nasal bone lacrimal fossa lacrimal bone ethmoid bone sphenoid bone frontal bone
Inferior Skull	10.2	hard palate temporal bone external occipital protuberance foramen magnum occipital condyle sphenoid bone

Superior Skull (Internal)	10.3	ethmoid bone cribiform plate crista galli sphenoid sella turcica foramen magnum occipital bone olfactory foramina
Anterior & Posterior Skull	10.6	parietal bone squamous region of frontal bone nasal bone sphenoid bone temporal bone ethmoid bone lacrimial bone zygomatic bone infraorbital foramen maxilla mandible mental foramen vomer inferior nasal concha ethmoid bone optic canal supraorbital foramen glabella frontal bone sagittal suture lamdoid suture occipital bone external occipital protuberance occipitomastoid suture
Mandible	10.7B	mandibular notch mandibular condyle ramus mandibular angle body mental foramen alveolar margins coronoid process
Hyoid	10.10	no markings required, recognize the bone

Typical Vertebrae*
(Study this before the other vertebrae!)

10.13

transverse process
superior articular process
superior articular facet
pedicle
lamina
body
vertebral foramen
spinous process

Atlas & Axis

10.14

posterior tubercle
transverse foramen
articular facet
anterior tubercle
transverse process
dens

Superior & Lateral Vertebrae

10.15

articular process
articular facet
transverse foramen
body
vertebral foramen
spinous process

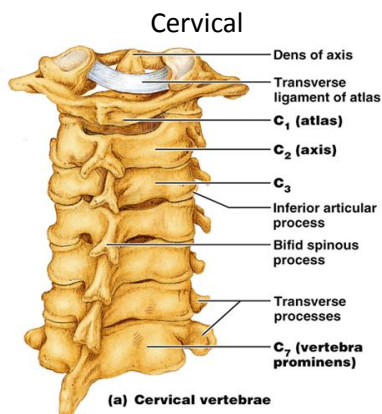
Differentiating Vertebrae:

Atlas

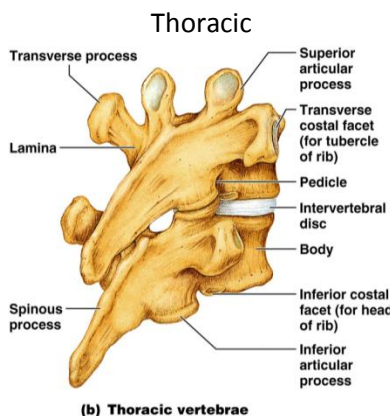
Axis

Think of a map, this bone is fat like a map
Three foramen

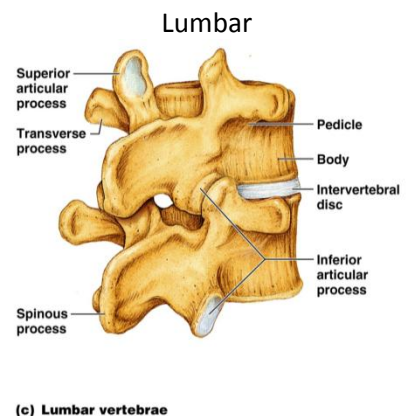
Looks like a bird where the dens is the head of the bird and the lamina are two touching wings



Three foramen (triangular)
Forked spinous process



One foramen (circular)
Dagger spinous process



One foramen (triangular)
Square spinous process
Thick body

Sacrum & Coccyx

10.16

sacrum
sacral promontory
coccyx

Thoracic Cage

10.17

true ribs
false ribs
floating ribs
costal cartilage
intercostal space
xiphoid process
xiphisternal joint
body
sternal angle
manubrium
sternum
clavicular notch
jugular notch

Fetal Skull

12.2

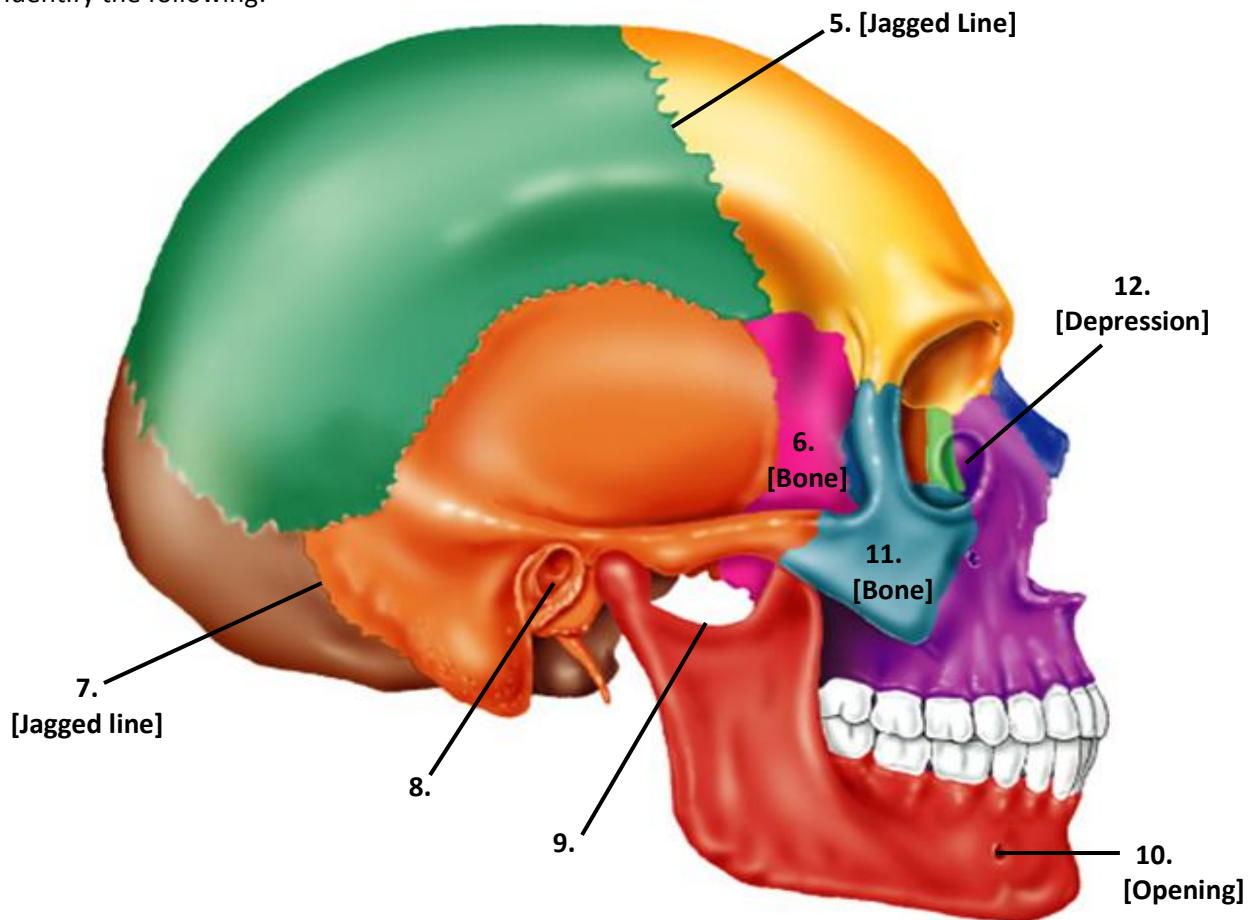
anterior fontanel
mastoid fontanel
sphenoidal fontanel
posterior fontanel

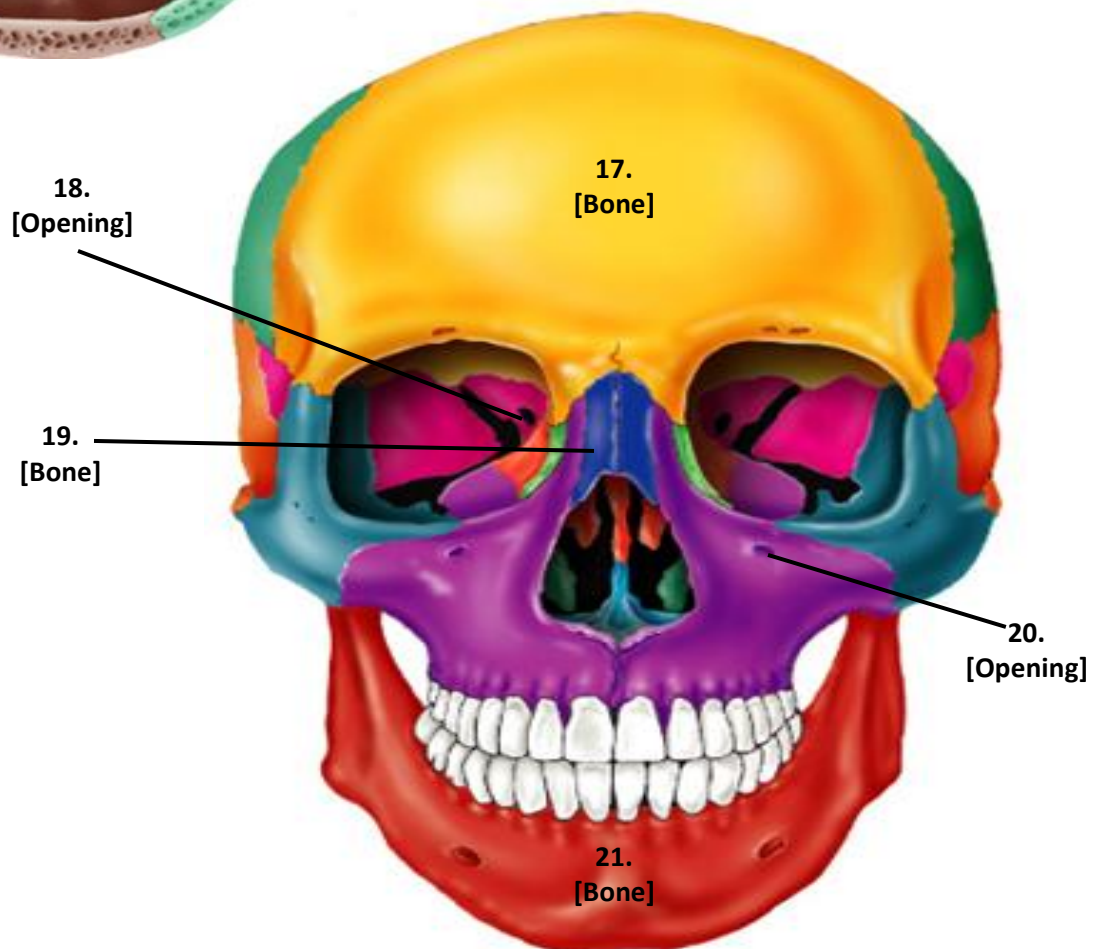
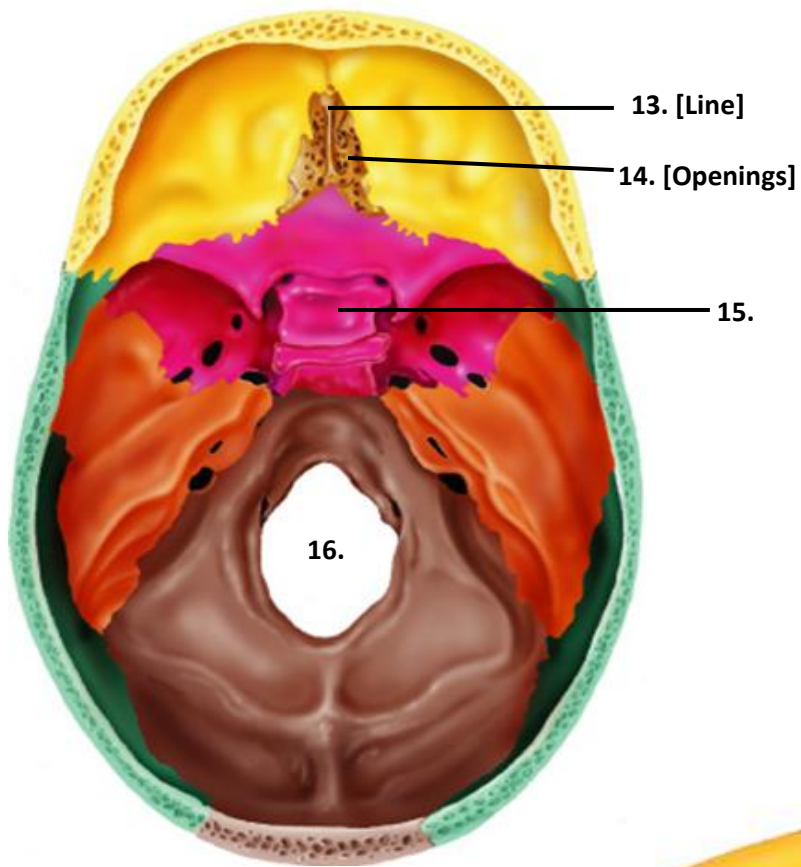
I. Axial Skeleton:

a. Answer the following questions:

1. Differentiate between true and false ribs:
2. Differentiate between primary and secondary vertebrae:
3. Differentiate between the three types of abnormal vertebral/spinal curvatures:
4. Explain why holding a baby carefully is important to the safety of its skeleton:

b. Identify the following:

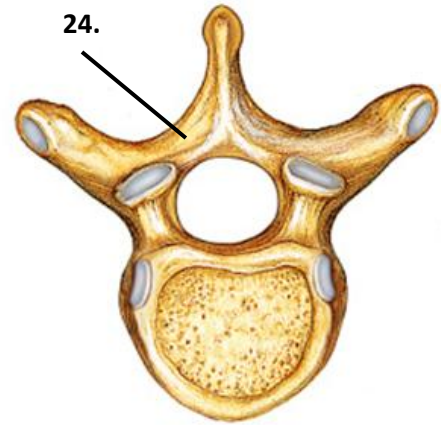




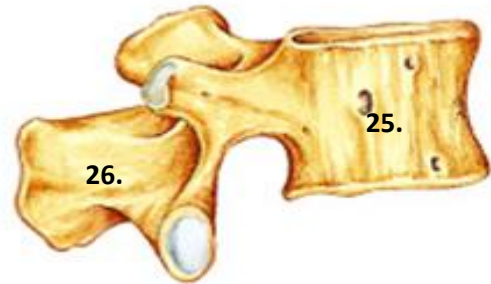


22. Is this part of a primary or secondary curvature?

23. To what group of vertebrae does this belong?

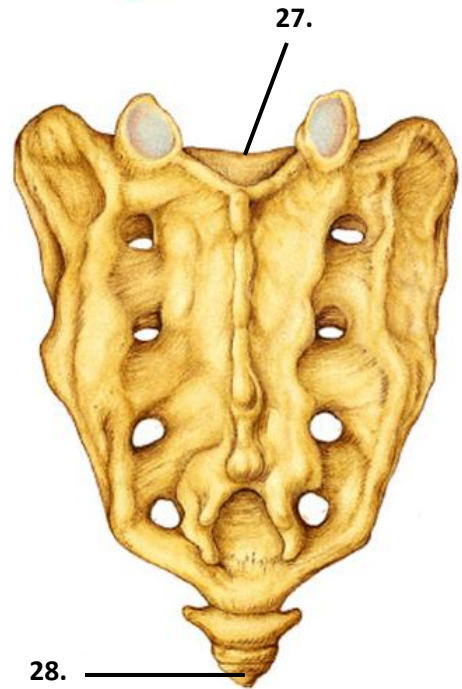


24.



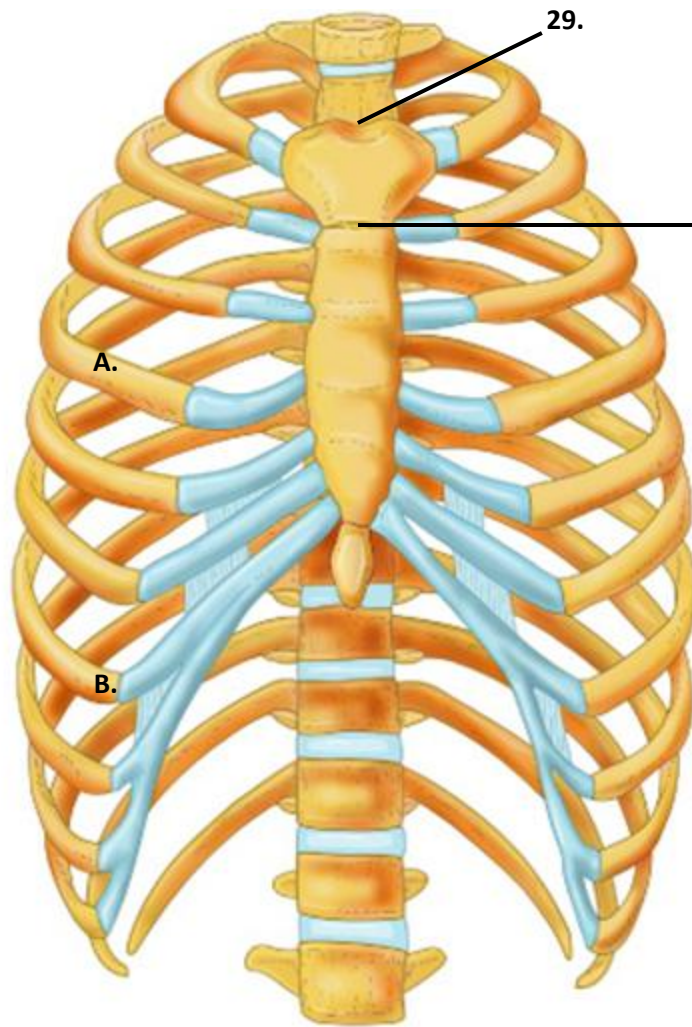
26.

25.



27.

28.
[Bone]



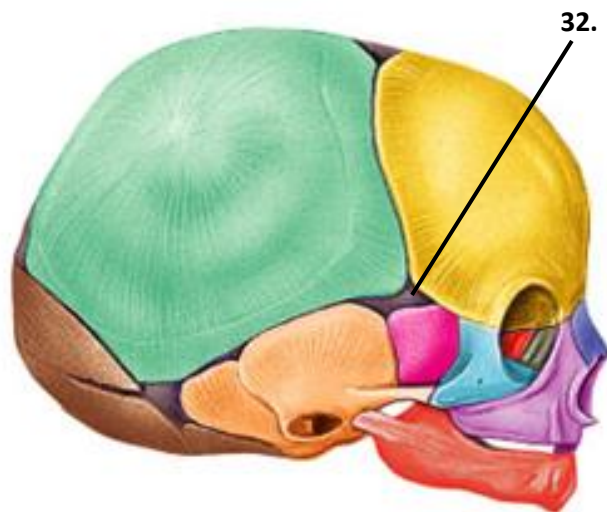
29.

30.

A.

B.

31. Is "A" or "B" a False Rib:



32.

Articulations:

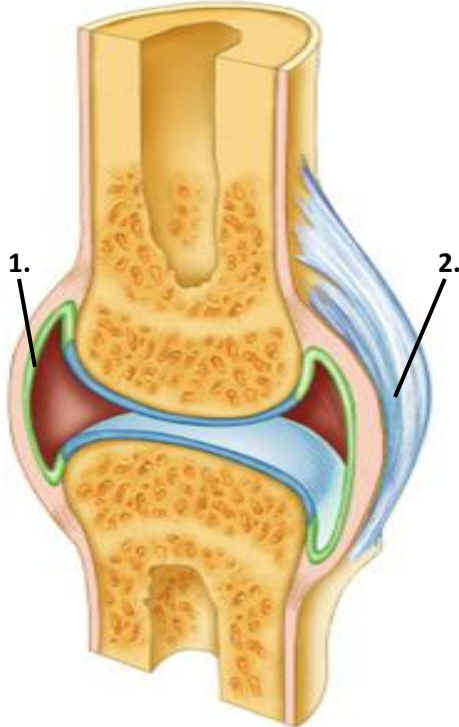
I. Classification of Joints:

a. Answer the following questions:

1. If a joint is structurally fibrous, functionally it is classified as: _____
2. If a joint is functionally diarthrotic, structurally it is classified as: _____
3. Class of joints that functionally only allow a limited degree of movement: _____
4. Structurally sutures belong to what classification: _____
5. Joint found between the tooth and socket of the mandible: _____

II. Synovial Joints:

a. Identify the following, *note*: some structures have not been added to the diagram as done in class:



3. What kind of structural joint does this diagram represent:

4. What is the histology (tissue) that forms #1:

b. Identify each type of synovial joint from the examples below:

5. Joint between atlas and axis: _____
6. Elbow joint: _____