vertebral column

label:
1. cervical curvature (secondary curve)
2. thoracic curvature (primary curve)
3. lumbar curvature (secondary curve)
4. sacral curvature (primary curve)
5. cervicle vertebrae 1-7
6. thoracic vertebrae 1-12
7. lumbar vertebrae 1-5
8. sacrum
9. Auricular (articular) surface of sacrum
10. coccyx

Which spinal curvatures are primary?

Why are they called primary?

Which spinal curvatures are secondary? and...when are they formed?
Above shows the parts of a typical vertebra that you must know on any vertebra from any region. (Superior view)

What is the difference between a articular process vs a articular facet? You MUST See and understand the difference!

**Cervical differences:**
1. Transverse foramen
2. Bifid spinous process

**Thoracic differences:**
1. Facets on body & transverse processes for rib articulation
2. Downward pointing spinous process

**Lumbar Differences:**
1. Short thick spinous process
2. Large body

Regional (cervical, thoracic and lumbar) differences between the vertebrae. Be sure you know the regional differences between these regions AND the distinct Look of C1 (atlas), C2 (axis) and C7 (vertebra prominens).

Vertebra – singular        Vertebrae - plural
Unique Cervical Vertebrae: Atlas & Axis (aka C₁ & C₂)

**Atlas (C1) - superior view**

Atlas - No body, no spinous process. Still has transverse foramen.
Label the superior articular facet of C1 with letter S
Label the inferior articular facet with letter I
Question: Which has the larger surface area?
C1 superior articular facets articulates with __________________________
which allows the head (skull) motion __________________________
C1 inferior articular facet articulates with ___________________________
Which allows the head motion __________________________

**Axis (C2) – superior view**

Label:
1. Dens
2. Superior articular facet
3. Transverse foramen
4. Bifid spinous process

What could happen if the transverse ligament tore?

**Articulated Atlas & Axis**

Label:
A-Atlas (C1)
B-Axis (C2)
1. Atlas superior articular facet
2. Transverse foramen C1 & C2
3. Transverse process C1 & C2
4. Dens (odontoid process)
5. Spinous process of Axis
6. Transverse ligament of Atlas
Unique Cervical vertebra C7

The **vertebra prominens**, or C7, has a distinctive long and prominent spinous process, which is palpable from the skin surface. Feel it on yourself! The spinous process is not bifid. But you know this is a cervical vertebra because of what?

Thoracic Vertebrae

Three Articulated thoracic vertebrae
Label:
1. Transverse facets
2. Facets of body
3. Superior articular facets
4. Superior articular processes (3 of them)
5. Superior articular processes (3 of hem)
6. Spinous processes
7. Vertbral bodies
8. Intervertebral foramen (2 shown here)

How many Thoracic vertebrae are there? How many pairs of ribs are there? Why do the bodies of thoracic vertebrae and transverse processes have facets?

Remember! Facets have articular (hyaline) cartilage because that is where one bone articulates with the facets of another bone.
Lumbar Vertebra (L1-L5)

Shown three articulated lumbar vertebrae

1. Superior articular process (3 visible)
2. Inferior articular process (3 visible)
3. Superior articular facet (one visible)
4. Inferior articular facet (one visible)
5. Body (3)
6. Spinous process (3)
7. Transverse process (3)
8. Intervertebral foramen (2)
9. Where would intervertebral discs be located? (put XXX)

Sacrum:

1. Sacral promontory (outer anterior lip of body)
2. Anterior sacral foramina (pl, foramen singular)
3. Transverse line of fusion (can you see all 4).
   These lines of fusion are fusion of what parts of
   the vertebrae?
4. Superior articular process
5. Median sacral crest
6. Auricular surface
7. Sacral canal
8. Superior articular facet
9. Median sacral crest
   (formed from the fusion of what?)
10. Posterior sacral foramina
**Sternum:**
formed from the fusion of:
1. Manubrium
2. Body
3. Xiphoid process
Landmarks of sternum
4. Jugular notch
5. Clavicular notch (x2)
articulates with?
6. Sternal angle –
fusion of 1 and 2
Costal cartilage of what rib articulates here.
Clinical importance of the sternal angle?

**Thoracic cage (rib cage):**
-Label vertebral body T1
-Label vertebral body T12
-Label ribs 1-12
True ribs=
False ribs=
Floating ribs=
7. Manubrium
8. Body
9. Xiphoid process
10. Costal cartilage 1-7

**Rib**
11. Sternal end
12. Vertebral end
13. Head
14. Neck
15. Tubercle
16. Angle
17. Costal groove
18. Body

**Thoracic vertebra and rib articulation**
YOU MUST BE ABLE TO DEMONSTATE THIS!!

19. Body of thoracic vertebra
20. Transverse process of thoracic vertebra
21. Head of rib
22. Neck of rib
23. Tubercle of rib
24. Sternal end of rib

Put an X over the 2 areas of rib/vertebra articulation.