

Anatomical Terms; Vertebrae and Vertebral Column

Time: 45 – 60 min

Today's goal is to introduce students to working with each other, using their resources (text, notes, atlas) and learn to think and study anatomy in 3-D. We introduce the basic terminology of relationships and movements. We have students examine different parts of the vertebral column and the spinal cord and nerves.

Activities:

1) TERMS AND MOVEMENTS - MATCHING

SETUP:

- Write anatomical opposites for general terms and movement terms on 3x5" index cards (cut in half), one term per card.
- For example, a set could include the following opposites.

Abduction	-	Adduction
Flexion	-	Extension
Ventral	-	Dorsal
- Make enough sets for each student or one set per pair of students.

Instructions: Mix up the set. Students, working in pairs, match the opposite cards.

Worksheets: none

Instructor comments: Students finish the matching opposites fairly easily. Some students would match terms such as rotation and circumduction thinking all the cards had to match up. Good time to mention to think about what they are doing and not just assume everything fits together neatly.

2) ANATOMICAL MOVEMENT CHARADES

SETUP:

- Write terms of movement on 3x5" index cards (cut in half), one movement per card.
- Write enough movements to make a set for movement charades.
- For example, a card could read "flexion" or "depression" etc.

Instructions: Distribute movement charades cards to groups after they complete the terms and movements matching activity. Students take turns, as in the game charades, drawing a

movement card and acting out the movement. Their classmate has to guess what movement they are acting out.

Worksheets: none

Instructor comments: Start basic. Students can act out flexion at any joint, for example. Having them be more specific (flexion of the arm) can come later when they start to learn specific muscles.

3) CONSTRUCTING VERTEBRAE

SETUP:

- Print off vertebrae exercise worksheets, one per student.
- Get enough Play-Doh, pipe cleaners, and disarticulated vertebrae so that each student can complete the vertebral column construction (in the vertebrae exercise worksheet).

Instructions:

- Set out Play-Doh, pipe cleaners, and disarticulated vertebrae for each student at their desk before they start the worksheet.
- Distribute vertebrae exercise worksheets, one per student.
- Students work in pairs and can use any books, notes, computers, etc. that they want

Worksheets: [vertebrae exercise](#)

Instructor comments: Most students could label things correctly, answer the questions from the worksheet, and construct vertebral column with the materials just fine. As long as the big picture differences between vertebral classes were emphasized in initial review and students are told they do not need to take a ton of time to have their vert sketches look perfect (they just need to have the images just make sense to them) they get all activities done in a timely manner with very few stragglers.

VERTEBRAE EXERCISE

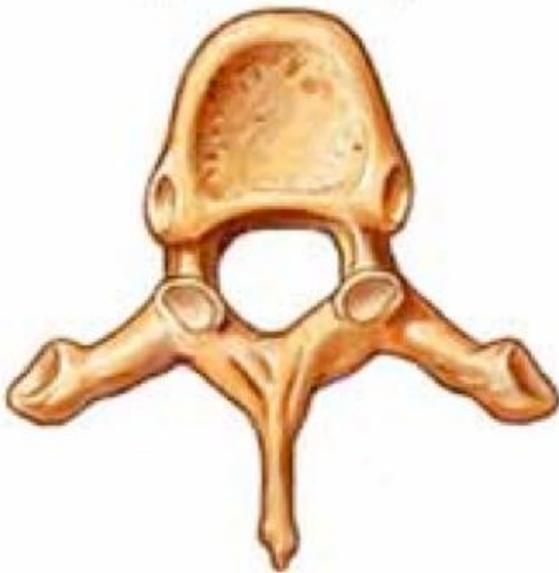
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1a. In the picture below, label the structures listed at bottom of page (all may not be seen to label). Use your text or bones/hanging skeleton for reference.

b. Look at these structures on your string of verts or hanging skeleton. List if you think the structure functions to

- A) protect spinal cord
- B) restrict of movement of vert column
- C) support body weight
- D) allow for passage of nerve.

Note: a structure can have more than one function.



Structures to label:

Body

Transverse process

Spinous process

Superior/Inferior Articular processes

Lamina

Pedicle

Vertebral Arch

Vertebral foramen

Intervertebral foramen

2. Look at the string of vertebrae or a hanging skeleton. Use your text, internet, Connect, or atlas to answer the following:

a) How many different types of vertebrae do you see in a typical vertebral column? What are they? How many of each type?

b) Name at least two structures (or absence of) that differentiate each type of vertebra from another. Quickly make a rough sketch of each type.

c) Articulate (an articulation is a joint where two bones meet) a few vertebrae of the same type together (they don't have to be a perfect match)

Using the two vertebrae, pipe cleaners and Play-Doh at your desk:

1. Use Play-Doh to indicate where the spinal cord would be on the vertebrae
2. Now attach different color pipe cleaners to indicate where spinal nerves would be
3. Use Play-Doh to indicate where the intervertebral disc would be between the vertebrae. Be sure to include the two different parts of the disc.

Questions:

a. Notice the difference between how the vertebrae relate to each other with a disc and without. Is there more mobility allowed with the disc? Does the disc provide more cushioning between the disc than without?

b. 'Rupture' the annulus fibrosus – which way is the nucleus pulposus likely to go? How might this affect your spinal cord or nerve?