Skeleton Branches

Use structural connections to classify bones.

HAP.4.2 "Develop and use models to identify and classify major bones as part of the appendicular or axial skeleton."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Part 1, READ AND MARK: Underline the two sentences that define the skeleton's branches. Then circle the bone names you can sort using those definitions.

A Model Built on Connections

1. Imagine building a model of a skeleton from two connected sets of parts, not from two regions on a map. One branch is the axial skeleton: the skull, vertebral column, and rib cage form the body's head-and-torso support framework. The other is the appendicular skeleton: the arms and legs, plus the shoulder and pelvic girdles that attach them to that framework. Classify a bone by the structure it belongs to, not simply by where it appears. A bone can sit near the body's center and still belong to a girdle, so location alone is a weak clue.

2. Now picture a person lifting a heavy backpack. A sternum forms the front center of the chest, where several ribs connect through cartilage. Vertebrae stack to form the spine, and ribs curve around the chest. At the shoulder, the scapula is a broad bone that helps connect an arm to the rest of the body. The humerus runs between shoulder and elbow, and the radius runs along the thumb side of the forearm. These details tell you which framework or attachment each bone participates in, even when the bones lie close together.

3. For the lower body, a hip bone contributes to the pelvic girdle, a sturdy attachment for a leg. The femur stretches from the hip joint to the knee, and the tibia runs through the lower leg. To test your model, follow structural connections rather than guessing from a bone's distance from the body's midline. Trace whether a bone helps form the head-and-torso framework, or whether it is part of a limb or its girdle. Two bones can touch at a joint yet belong to different branches, so contact alone is not enough to classify them.

2 ANSWER WITH EVIDENCE

Use the passage

1. Part 2, QUESTIONS: Which branch contains the sternum? Use its connection to another structure as evidence.

2. Which branch contains the radius? Explain how the model helps you decide.

3. Which branch contains the scapula? Explain why its position at the shoulder matters.

4. Which branch contains a hip bone? Explain why its location near the body's center is not enough to classify it.

3 YOUR TURN

Your own words

Part 3, YOUR TURN: In the box, make a two-branch model labeled axial and appendicular. Choose four bone names from the passage that were not used in Part 2, place two on each branch, and write one sentence under each branch explaining your choices.

ANSWER KEY

Skeleton Branches

PART 1 · READ AND MARK

Part 1, READ AND MARK: Underline the two sentences that define the skeleton's branches. Then circle the bone names you can sort using those definitions. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Part 2, QUESTIONS: Which branch contains the sternum? Use its connection to another structure as evidence.	**Axial. The sternum is part of the chest framework, and several ribs connect to it through cartilage.**
2	Which branch contains the radius? Explain how the model helps you decide.	**Appendicular. The radius is in the forearm, which is part of an arm.**
3	Which branch contains the scapula? Explain why its position at the shoulder matters.	**Appendicular. The scapula helps attach an arm to the rest of the body.**
4	Which branch contains a hip bone? Explain why its location near the body's center is not enough to classify it.	**Appendicular. A hip bone contributes to the pelvic girdle, which attaches a leg; location alone does not determine the branch.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Axial branch: vertebra, rib.
A vertebra helps form the spine, and a rib helps form the chest framework.
Appendicular branch: humerus, femur.
The humerus is in an arm, and the femur is in a leg.

Accept other passage bones not used in Part 2 if each is placed correctly and both explanations use framework, limb, or girdle connections rather than location alone.