A Runner's Anatomy

Describe body locations and the systems that support movement

HAP.1 "Students will demonstrate an understanding of how anatomical structures and physiological functions are organized and described using anatomical positions..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline four directional terms and circle the three body section names. In the final paragraph, write 1 beside each organ in the thoracic cavity and 2 beside the organ in the abdominal cavity.

Back on the Track

1. At a track meet, Maya points to her left wrist after catching herself during a stumble. To describe the spot clearly, a trainer imagines Maya in anatomical position: standing upright, facing forward, arms at her sides, palms forward. In that position, the wrist is distal to the elbow, meaning farther from the trunk along the limb. The elbow is proximal to the wrist. Maya's thumb is lateral to her little finger, farther from the body's midline. Her palm faces anteriorly, toward the front of the body. These terms stay consistent even when Maya turns or sits.

2. The trainer also asks about Maya's breathing after the stumble. An imagined transverse section through the chest separates an upper portion from a lower portion and could show both lungs beside the heart. A sagittal section divides the body into left and right portions, while a frontal section divides it into front and back portions. In the chest, the heart lies medial to the lungs, closer to the midline. The breastbone is anterior to the heart, and the backbone is posterior to it. Section names describe the direction of a cut, not the direction a person is facing.

3. Maya's lungs and heart occupy the thoracic cavity, above the diaphragm. The lungs are part of the respiratory system; the heart is part of the cardiovascular system. The stomach lies in the abdominal cavity, below the diaphragm, and belongs to the digestive system. As Maya runs again, her lungs bring oxygen into the blood, and her heart pumps that blood to working leg muscles. Her digestive system supplies nutrients that the blood can carry to those muscles. The muscles use oxygen and nutrients to release energy for movement. If breathing cannot supply enough oxygen, running becomes harder.

2 ANSWER WITH EVIDENCE

Use the passage

1. Maya is sitting with her palm down. Using anatomical position, which is farther from her trunk, her left elbow or her left wrist? State the directional term.

2. A clinician wants a section that separates Maya's chest into front and back portions. Which plane should the clinician use, and what lies anterior to her heart?

3. Name the cavity and body system for Maya's heart and stomach. Which organ is superior to the other?

4. How do Maya's respiratory and cardiovascular systems work together to support her leg muscles as she runs?

3 YOUR TURN

Your own words

Write a short field note about a different person climbing stairs. Use two directional terms to compare body parts, name a body plane and what it separates, locate two organs in their cavities and systems, and explain how oxygen and nutrients reach the climbing leg muscles.

A Runner's Anatomy

PART 1 · READ AND MARK

Underline four directional terms and circle the three body section names. In the final paragraph, write 1 beside each organ in the thoracic cavity and 2 beside the organ in the abdominal cavity. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Maya is sitting with her palm down. Using anatomical position, which is farther from her trunk, her left elbow or her left wrist? State the directional term.	**Her left wrist is farther from her trunk. It is distal to her elbow.**
2	A clinician wants a section that separates Maya's chest into front and back portions. Which plane should the clinician use, and what lies anterior to her heart?	**A frontal plane separates front and back portions. The breastbone lies anterior to her heart.**
3	Name the cavity and body system for Maya's heart and stomach. Which organ is superior to the other?	**The heart is in the thoracic cavity and cardiovascular system. The stomach is in the abdominal cavity and digestive system. The heart is superior to the stomach.**
4	How do Maya's respiratory and cardiovascular systems work together to support her leg muscles as she runs?	**Her lungs bring oxygen into the blood, and her heart pumps that blood to her working leg muscles.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

While Leo climbs stairs, his wrist is distal to his elbow, and his heart is medial to his lungs. A frontal plane separates his body into front and back portions. His lungs are in the thoracic cavity and belong to the respiratory system. His stomach is in the abdominal cavity and belongs to the digestive system. The lungs move oxygen into his blood, while digestion supplies nutrients to it. His heart, in the thoracic cavity and part of the cardiovascular system, pumps that blood to his working leg muscles.

Accept other accurate directional comparisons, planes, and organ choices. The field note must correctly connect oxygen and nutrients carried in blood to the working leg muscles.