Climb Team

Model how body systems work together

L.4.1.3 "Construct models of organ systems (e.g., circulatory, digestive, respiratory, muscular, skeletal, nervous) to demonstrate both the unique function of the system and how multiple organs and organ systems work together to accomplish more..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the body parts in the message route and circle the body parts in the oxygen route. If a part belongs in both routes, mark it both ways.

Up the Ladder

1. At recess, Maya climbs a ladder to reach the top of a slide. Her eyes see the next rung. Her brain, part of the nervous system, sends messages through nerves to her arm and leg muscles. The muscles in the muscular system pull on bones, and her hands and feet move up the ladder. Bones in the skeletal system support her body as she climbs.

2. Climbing takes energy, and Maya's muscles need oxygen. When she breathes in, air enters her lungs. The lungs move oxygen from the air into her blood. Her heart pumps that blood through blood vessels to her muscles. The lungs are part of the respiratory system. The heart, blood, and blood vessels belong to the circulatory system. Together, these systems deliver oxygen where it is needed.

3. Think of a model made with labeled boxes and arrows. A box for eyes could point to brain, then to nerves, muscles, and bones. Another route could show lungs, blood, heart, and muscles. Each arrow means that one part helps the next part do its job. The routes meet at the muscles. Without messages to guide movement or oxygen to support it, Maya could not climb the ladder.

2 ANSWER WITH EVIDENCE

Use the passage

1. Make a route from Maya seeing a rung to moving up the ladder. Which parts would you connect with arrows, and what does each system in your route do?

2. Make a route showing how oxygen reaches Maya's muscles. What job does each system in this route do?

3. Why should both the message route and the oxygen route in a model lead to Maya's muscles?

4. If Maya's heart pumped less blood to her muscles, which route would be affected? Why might climbing become harder?

3 YOUR TURN

Your own words

Draw a labeled model of how you step over a puddle, with arrows linking parts in at least three organ systems and at least one organ or body part labeled in each system. Write two sentences, one about a system's special job and one about how the systems work together.

ANSWER KEY

Climb Team

GRADE 4 · L.4.1.3

PART 1 · READ AND MARK

Underline the body parts in the message route and circle the body parts in the oxygen route. If a part belongs in both routes, mark it both ways. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Make a route from Maya seeing a rung to moving up the ladder. Which parts would you connect with arrows, and what does each system in your route do?	**Eyes → brain → nerves → muscles → bones. The nervous system sends messages, the muscular system pulls on bones, and the skeletal system supports Maya's body.**
2	Make a route showing how oxygen reaches Maya's muscles. What job does each system in this route do?	**Lungs → blood → heart → blood vessels → muscles. The respiratory system moves oxygen into the blood, and the circulatory system pumps and carries blood to the muscles.**
3	Why should both the message route and the oxygen route in a model lead to Maya's muscles?	**The muscles need messages to guide their movement and oxygen to support that movement.**
4	If Maya's heart pumped less blood to her muscles, which route would be affected? Why might climbing become harder?	**The oxygen route would be affected. Less blood would deliver less oxygen to her muscles, making climbing harder.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Eyes (nervous) → brain (nervous) → nerves (nervous) → leg muscles (muscular) → bones (skeletal); lungs (respiratory) → blood (circulatory) → heart (circulatory) → leg muscles (muscular). The nervous system sends messages through nerves to guide my legs. My lungs supply oxygen to my blood, my heart pumps it to my muscles, and my muscles pull on my bones to step over the puddle.

Accept other accurate routes that show each system's distinct job and how its parts work with another system. In Part 3, the model must connect parts from at least three labeled systems, and the explanation must contain two sentences.