Two Sides, One Brain

Compare how the brain's hemispheres divide and share tasks

P.2.2 "Compare and contrast between the left and right hemispheres of the brain and identify how vision, motor, language, and other functions are regulated by each hemisphere."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline statements about vision or movement, and circle statements about language or tone. Number two statements that show how the hemispheres work together.

A Goalkeeper's Brain at Work

1. During a soccer match, a goalkeeper watches the ball, calls to a teammate, and reaches to block a shot. Those actions depend on two cerebral hemispheres, the left and right halves of the brain. A thick bundle of nerve fibers called the corpus callosum carries messages between them. Each hemisphere processes information from both eyes, but not in a simple left-eye, right-eye split. Instead, information from the left half of the visual scene goes mainly to the right hemisphere, while information from the right half goes mainly to the left. The two halves work together to build a useful view.

2. Movement follows a similar crossing pattern. The left hemisphere mainly directs voluntary movement on the right side of the body, and the right hemisphere mainly directs movement on the left. If the goalkeeper lifts a left arm, the right hemisphere helps plan and control that action. The left hemisphere is usually more important for producing and understanding spoken language, including the words in a teammate's warning. This pattern is common, not universal: language organization varies among people. Hearing a warning also involves more than decoding words. Both hemispheres contribute to listening, even when one side has a stronger role in a particular task.

3. The right hemisphere often contributes strongly to spatial attention and to understanding the emotional tone of a voice. A player might hear urgency in a teammate's call while judging where the ball is heading. Yet calling the left hemisphere 'logical' and the right hemisphere 'creative' oversimplifies brain function. Reading, speaking, and tracking a moving object recruit networks that may span both sides. Injury to one hemisphere can disrupt functions for which that side is especially important, but the effects depend on the exact location and person. Comparing the hemispheres means noticing both their typical specialties and their constant cooperation.

2 ANSWER WITH EVIDENCE

Use the passage

1. While looking straight ahead, a student spots a flash in the left half of the scene. Which hemisphere receives most information about the flash, and why is the student's left eye not the answer?

2. A dancer deliberately raises the right hand. Which hemisphere mainly directs that movement? How would the answer change if the dancer raised the left hand?

3. A student understands the words 'Come here' but misses the speaker's irritated tone. Which hemisphere's typical specialty may be more affected? Compare it with the other hemisphere's usual language role.

4. A researcher claims that the left hemisphere works alone when someone reads aloud. Use two details from the passage to explain why this claim is too simple.

3 YOUR TURN

Your own words

Invent an everyday situation that includes seeing something on one side of your visual scene, moving one hand, and hearing someone speak. In four or five sentences, compare the hemispheres' roles in those actions, include the speaker's words or tone, and explain one way the hemispheres cooperate.

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PART 1 · READ AND MARK

Underline statements about vision or movement, and circle statements about language or tone. Number two statements that show how the hemispheres work together. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	While looking straight ahead, a student spots a flash in the left half of the scene. Which hemisphere receives most information about the flash, and why is the student's left eye not the answer?	**The right hemisphere receives most information from the left half of the visual scene. Information from both eyes contributes to that half of the scene.**
2	A dancer deliberately raises the right hand. Which hemisphere mainly directs that movement? How would the answer change if the dancer raised the left hand?	**The left hemisphere mainly directs the right hand. The right hemisphere mainly directs the left hand.**
3	A student understands the words 'Come here' but misses the speaker's irritated tone. Which hemisphere's typical specialty may be more affected? Compare it with the other hemisphere's usual language role.	**The right hemisphere often contributes strongly to understanding emotional tone. The left hemisphere is usually more important for understanding spoken words.**
4	A researcher claims that the left hemisphere works alone when someone reads aloud. Use two details from the passage to explain why this claim is too simple.	**Reading and speaking can recruit networks on both sides, and the corpus callosum carries messages between the hemispheres.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

While I look straight ahead at a bus stop, a dog runs into the left half of my view. Information about the dog goes mainly to my right hemisphere, while my left hemisphere mainly directs my right hand as I point. My friend says, 'Watch out!' and my left hemisphere usually plays a stronger role in understanding the words, while my right hemisphere helps me hear the alarm in her voice. Messages between the hemispheres help me respond to what I see and hear.

Accept answers that identify the typical, rather than exclusive, roles of each hemisphere. For vision, check that students describe a half of the visual scene, not one eye.