

Built to Work

Trace how structures help organisms, objects, and systems do their jobs.

6.5.F “analyze and explain the complementary relationship between the structure and function of objects, organisms, and systems; and”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each structure or part named in the passage. Write a small matching number beside each structure and beside the job it helps do.

Structures at Work

- ① On a hot day, a school greenhouse uses a simple system to keep plants from overheating. A thermostat senses when air becomes too warm. It sends a signal to a fan. The fan has wide blades that push air through roof vents. Because warm air rises, the vents are placed high above the plants. Cooler outside air enters lower openings. Each part has a structure that helps it do one job, and together the parts move heat away from the seedlings.
- ② In a desert, a cactus survives using structures that reduce water loss and collect water. Its thick, waxy outer skin slows evaporation from the stem. Instead of broad leaves, many cacti have sharp spines. The spines have much less surface area than leaves, so less water can escape. A wide, shallow root system spreads near the ground surface, where brief rain soaks the soil. The roots quickly absorb this water. These structures work together, allowing the plant to live through long dry periods.
- ③ A bicycle braking system also shows a structure and function relationship. When a rider squeezes a hand lever, the lever pulls a metal cable inside a protective tube. The cable carries the pulling force to brake arms near the wheel. The arms press rubber pads against the metal rim. Rubber creates friction, which slows the spinning wheel. The tube protects the cable from dirt and helps guide it along the frame. If a cable frayed or a pad wore smooth, the system would not stop the bicycle as safely.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How do the high roof vents and lower openings work together to cool the greenhouse?

2 Name two cactus structures that reduce water loss. Explain how each structure helps.

3 Trace the braking system from the rider squeezing the lever to the wheel slowing down.

4 A brake pad wears smooth. How would this change affect the function of the whole braking system? Use evidence from the passage.

3 YOUR TURN _____ Your own words

Choose an everyday object that is not a greenhouse, cactus, or bicycle brake. Fill in all three rows to show how the structures of three parts help the whole object do its job.

OBJECT	PART AND STRUCTURAL FEATURE	HOW IT HELPS THE WHOLE OBJECT FUNCTION

PART 1 • READ AND MARK

Underline each structure or part named in the passage. Write a small matching number beside each structure and beside the job it helps do. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How do the high roof vents and lower openings work together to cool the greenhouse?	Warm air rises and leaves through the high vents. Cooler outside air enters through the lower openings.
2	Name two cactus structures that reduce water loss. Explain how each structure helps.	The thick, waxy outer skin slows evaporation. Sharp spines have less surface area than broad leaves, so less water can escape.
3	Trace the braking system from the rider squeezing the lever to the wheel slowing down.	The lever pulls the cable, the cable pulls the brake arms, and the arms press rubber pads against the rim. Friction between the pads and rim slows the wheel.
4	A brake pad wears smooth. How would this change affect the function of the whole braking system? Use evidence from the passage.	The bicycle would not stop as safely because the rubber pads create the friction that slows the wheel.

PART 3 • YOUR TURN (SAMPLE ANSWER)

OBJECT	PART AND STRUCTURAL FEATURE	HOW IT HELPS THE WHOLE OBJECT FUNCTION
Water bottle	Threaded cap with spiral ridges	The ridges lock the cap onto the neck, helping keep water inside.
Water bottle	Narrow neck with a small opening	The opening controls the water stream, helping a person drink or pour without a large spill.
Water bottle	Flexible plastic walls	The walls bend when squeezed, helping push water toward the neck for drinking or pouring.

Accept accurate objects and parts when the student clearly connects a structural feature, such as shape, material, or location, to its function. Each row should explain how the part helps the whole object work.