Mammals in Motion

Traits, movement, and changing habitats

ZOO.10 "Students will understand the structure and function of phylum Chordata, class Mammalia, and how they demonstrate the characteristics of living things..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline traits that identify or distinguish mammals. Circle human-caused changes to habitats, then number each change and its effect on an animal with matching numbers.

Built for a Changing World

1. Imagine a small mammal moving through a dinosaur-era forest at night. Early true mammals were generally small, furred animals with specialized teeth that helped them eat insects. Like other vertebrates in phylum Chordata, mammals have a backbone. Hair and milk-producing glands help distinguish class Mammalia from other vertebrate classes. Today, monotremes, such as platypuses, lay eggs but feed their young milk. Marsupials, such as opossums, give birth to very undeveloped young. In many marsupials, a short-lived placenta supports the embryo briefly. In eutherians, such as dolphins, a longer-lasting placenta usually supports more development before birth.

2. Primates are eutherian mammals with grasping hands or feet, forward-facing eyes, and nails on most digits. These features support gripping branches and judging distances, although primates use them in different ways. Humans are primates that regularly walk on two legs. During a step, the leg touching the ground supports much of the body's weight while the other leg swings. The center of gravity, the average location of the body's weight, shifts as the body moves. A short, broad pelvis and an S-shaped spine help balance the trunk above the supporting leg. Chimpanzees usually travel on four limbs, despite sometimes walking upright.

3. Body structures matter, but so does the environment around each mammal. A road cut through a forest can separate monkey groups, making food and mates harder to reach. Traffic can also kill animals crossing between patches of habitat. Along a coast, warmer water can change where fish live, forcing dolphins to travel farther to find prey. Roads and warming do not change a monkey's grasping hands or a dolphin's placenta. Instead, human actions change the conditions in which those traits help animals survive and reproduce. A useful response should address the cause of a problem and be tested for results.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which two features described for early true mammals help identify them as mammals? Why is a backbone alone not enough?

2. Compare the placentas described for many marsupials and for eutherians. How does this difference affect development before birth?

3. As a walking human's center of gravity shifts, how do the pelvis and spine help?

4. Compare one effect of a forest road on monkeys with one effect of warmer coastal water on dolphins.

3 YOUR TURN

Your own words

Choose the forest road or warmer coastal water from the passage. Design one intervention to help the affected mammal, explain how you would test whether it helps, and name one limitation of your design.

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PART 1 · READ AND MARK

Underline traits that identify or distinguish mammals. Circle human-caused changes to habitats, then number each change and its effect on an animal with matching numbers. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which two features described for early true mammals help identify them as mammals? Why is a backbone alone not enough?	**Early true mammals had fur and specialized teeth. A backbone alone is not enough because other chordate vertebrates have one.**
2	Compare the placentas described for many marsupials and for eutherians. How does this difference affect development before birth?	**Many marsupials have a short-lived placenta that supports the embryo briefly. A eutherian placenta usually lasts longer and supports more development before birth.**
3	As a walking human's center of gravity shifts, how do the pelvis and spine help?	**The short, broad pelvis and S-shaped spine help balance the trunk above the leg supporting the body.**
4	Compare one effect of a forest road on monkeys with one effect of warmer coastal water on dolphins.	**A road can separate monkey groups from food and mates. Warmer water can move the fish dolphins eat, forcing dolphins to travel farther for prey.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would build a rope bridge between trees on opposite sides of the road so monkeys could cross without entering traffic. I would count monkeys using the bridge and record road deaths before and after it opens. Some monkeys might avoid the bridge, so it might not reconnect every group.

Accept accurate alternatives supported by the passage. For the design task, look for an intervention linked to a stated impact, a measurable test, and a plausible limitation.