Chances of Offspring

Trace how behaviors and structures affect reproduction

MS-LS1-4 "Construct an evidence-based argument to support an explanation for a) how characteristic animal behaviors affect the probability of successful reproduction of animals..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one animal behavior and one plant structure in the passage, then circle what each one does. Write a matching number beside each trait and its effect to show two cause-and-effect links.

Calls, Flowers, and Nests

1. At a pond in spring, a male spring peeper makes a sharp, repeating call. A female can follow the sound to find him among reeds and other frogs. If she chooses him, she lays eggs that he fertilizes outside her body. Calling therefore increases his chance of finding a mate and producing fertilized eggs. The call is not a promise of offspring, though. Some females may choose another male, and predators such as snakes can also hear a calling frog.

2. In a pumpkin patch, bees visit large yellow flowers for nectar. A pumpkin plant has separate male and female flowers. Male flowers make pollen, which can stick to a bee's body as it feeds. When the bee enters a female flower, some pollen may land on its sticky stigma. This transfer can lead to fertilization and the growth of seeds inside a pumpkin. The broad, bright petals help bees notice the flowers, while the stigma catches pollen that bees bring. Neither structure guarantees that a bee will visit.

3. Male three-spined sticklebacks show another way behavior matters. After a female lays eggs in a nest, the male guards them and fans water over them. The moving water brings oxygen to the developing eggs, and guarding helps keep some egg eaters away. More eggs may survive to hatch because of these actions. In both animals and plants, a useful trait changes the chance of reproductive success, not the certainty of it. To support a claim, name the behavior or structure, describe what it does, and explain how that effect can produce offspring.

2 ANSWER WITH EVIDENCE

Use the passage

1. Use two details from the passage to argue that calling can increase a spring peeper's chance of producing fertilized eggs.

2. How can a pumpkin flower's petals and stigma each increase the chance that the plant produces seeds? Explain what each structure does.

3. Explain how both guarding and fanning eggs can increase a male stickleback's chance of having eggs hatch.

4. Why do these traits increase the chance of offspring rather than guarantee offspring? Give one example from the frogs and one from the pumpkin plants.

3 YOUR TURN

Your own words

Choose an animal behavior and a plant flower structure not named in the passage. In four or five sentences, use an observable detail about each to argue how it could increase the chance of offspring, and explain why neither one guarantees success.

ANSWER KEY

Chances of Offspring

GRADES 6-8 · MS-LS1-4

PART 1 · READ AND MARK

Underline one animal behavior and one plant structure in the passage, then circle what each one does. Write a matching number beside each trait and its effect to show two cause-and-effect links. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Use two details from the passage to argue that calling can increase a spring peeper's chance of producing fertilized eggs.	**A female can follow a male's call to find him. If she chooses him, she lays eggs that he fertilizes.**
2	How can a pumpkin flower's petals and stigma each increase the chance that the plant produces seeds? Explain what each structure does.	**The broad, bright petals help bees notice the flowers. A bee can carry pollen from a male flower to a female flower, where the sticky stigma catches it. This transfer can lead to fertilization and seeds.**
3	Explain how both guarding and fanning eggs can increase a male stickleback's chance of having eggs hatch.	**Guarding helps keep egg eaters away. Fanning moves oxygen-rich water over the developing eggs, so more may survive to hatch.**
4	Why do these traits increase the chance of offspring rather than guarantee offspring? Give one example from the frogs and one from the pumpkin plants.	**A female frog may choose another male even if she hears a call. A bee may not visit a pumpkin flower, so pollen may not reach its stigma.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Female fiddler crabs approach males that wave a large claw, so waving can help a male find a mate. A female might still choose another crab. A moth reaching into a honeysuckle's narrow flower tube for nectar can pick up pollen and carry it to another flower's stigma, which may help seeds form. A moth may never visit, so the flower tube does not guarantee seeds.

Accept other accurate cause-and-effect chains supported by passage details. For Your Turn, accept plausible new examples when the observable details support the claim and the response distinguishes increased chance from certainty.