

Seeds, Nests, Evidence

Use observations and reasoning to explain reproduction.

MS-LS1-4 "Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each observation that gives numerical evidence, and circle each claim about reproduction. Then draw a line from one piece of evidence to the claim it supports so you can see how scientists build an argument.

Three Studies of Reproduction

- ① At a school garden, observers compared two groups of bee-pollinated flowers. One group had open petals and nectar, while another group was covered with mesh that blocked bees but allowed air and light. During five sunny mornings, bees visited the open flowers 86 times. Later, those flowers produced seeds in 31 of 40 fruits. Mesh-covered flowers produced seeds in 4 of 40 fruits. Bright petals and nectar are specialized structures that attract bees. When bees move pollen between flowers, fertilization can occur. More seed-producing fruits suggest a higher chance of plant reproduction.
- ② In a nearby marsh, scientists studied red-winged blackbirds during nesting season. They found that males defended territories with calls and displays, and females built cup-shaped nests low among reeds. Of 30 nests with thick reed cover, 24 still held chicks after a cold, rainy week. Of 12 exposed nests, 5 held chicks. Reed cover helped shield eggs and chicks from wind and rain. The observations support the explanation that nest-building behavior can raise the probability that young survive, allowing more offspring to reach reproductive age.
- ③ In an oak woodland, ecologists marked 60 acorns that had fallen from trees. Squirrels carried and buried 36 acorns in shallow soil caches. The other 24 acorns stayed on the surface. By the next spring, 15 buried acorns had sprouted, while only 2 surface acorns had sprouted. An acorn's hard shell can protect its seed while it is carried and buried. Squirrel caching is an animal behavior that places some seeds in soil, where moisture and cover can favor germination. These data support the claim that squirrels can increase an oak's chance of reproduction.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What two results from the flower study support the claim that bee-attracting flower structures can increase plant reproduction?

2 Explain how bright petals and nectar can lead to more seed-producing fruits.

3 Use evidence from the blackbird study to support the claim that nest-building can increase the probability of successful animal reproduction.

4 What evidence and reasoning support the claim that squirrel caching can help oak trees reproduce?

3 YOUR TURN _____ Your own words

Write a three-sentence evidence-based argument about which plant case gives stronger evidence for increased reproduction: bee-attracting flower structures or squirrel caching. State your claim, use one numerical result from each study, and explain why the evidence supports your choice.

PART 1 • READ AND MARK

Underline each observation that gives numerical evidence, and circle each claim about reproduction. Then draw a line from one piece of evidence to the claim it supports so you can see how scientists build an argument. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What two results from the flower study support the claim that bee-attracting flower structures can increase plant reproduction?	Bees visited open flowers 86 times, and open flowers produced seeds in 31 of 40 fruits, compared with 4 of 40 fruits for mesh-covered flowers.
2	Explain how bright petals and nectar can lead to more seed-producing fruits.	Bright petals and nectar attract bees. Bees move pollen between flowers, which can allow fertilization and seed production.
3	Use evidence from the blackbird study to support the claim that nest-building can increase the probability of successful animal reproduction.	After cold, rainy weather, 24 of 30 covered nests still held chicks, while only 5 of 12 exposed nests held chicks. Reed-covered nests protected eggs and chicks, so more young could survive.
4	What evidence and reasoning support the claim that squirrel caching can help oak trees reproduce?	Fifteen of 36 buried acorns sprouted, compared with 2 of 24 acorns left on the surface. Caching places protected seeds in soil, where conditions can favor germination.

PART 3 • YOUR TURN (SAMPLE ANSWER)

The flower study gives stronger evidence that bee-attracting structures can increase plant reproduction. Open flowers produced seeds in 31 of 40 fruits, compared with 4 of 40 mesh-covered flowers, while 15 of 36 buried acorns sprouted compared with 2 of 24 surface acorns. The flower comparison changed bee access while allowing air and light, so its large seed-production difference more directly supports the role of bee-attracting structures.

Accept equivalent claims when students cite accurate numerical evidence from both plant studies and connect the evidence to reproduction. For the open task, accept either choice if the student gives a logical, passage-based explanation in exactly three sentences.