

Tracking Creek Claims

Evaluate evidence, credibility, bias, and scientific uncertainty.

LS.1.f "obtaining, evaluating, and communicating information read scientific texts, including those adapted for classroom use, to obtain scientific and/or technical information gather, read..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each piece of empirical evidence, circle each clue about a source's credibility or possible bias, and number the sentence that states the cautious argument.

What Is Feeding the Algae?

- ① After spring storms, green algae sometimes covered stones in Willow Creek. A watershed team collected water samples at three sites during twelve storms. Sites below neighborhoods had higher nitrate concentrations than the forested upstream site. The team also measured stream flow, because fast water can carry more soil and fertilizer. Their report explains methods, sample dates, and limits, including that the study did not identify which individual lawns supplied nutrients. These details let readers check how the evidence was gathered.
- ② An article in a peer-reviewed ecology journal examined 28 streams in several counties. Its authors reported nitrate measurements and described statistical tests comparing land cover and nitrate levels. The article found an association between more developed land and higher nitrate, but it did not prove that development alone caused the difference. Review by other scientists and a clear methods section make this source useful. Still, readers should notice that its streams may not match Willow Creek exactly.
- ③ A lawn-care company posted a web article saying its fertilizer could not harm streams when used as directed. The page gave no water-sampling data, named no independent reviewers, and linked only to the company's products. Its financial interest creates possible bias, although the claim could be tested with reliable measurements. Taken together, the watershed report and journal article support a cautious argument: nutrient runoff likely contributes to algae after storms, but more sampling is needed before blaming a single source. A careful communicator states both the evidence and the uncertainty.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Which two details in the watershed report help a reader check how the evidence was gathered?

2 Why does the journal article support a connection between development and nitrate but not prove that development caused the difference?

3 Give two reasons the lawn-care company's article is less credible for making a scientific claim about streams.

4 What cautious conclusion is supported when the watershed report and journal article are considered together? Include one uncertainty.

3 YOUR TURN _____ Your own words

A classmate says, "One lawn caused all the algae in Willow Creek." Write a 3-4 sentence evidence-based reply. Use evidence from two sources in the passage, explain why the claim is too strong, and identify one limitation or possible bias.

PART 1 • READ AND MARK

Underline each piece of empirical evidence, circle each clue about a source's credibility or possible bias, and number the sentence that states the cautious argument. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Which two details in the watershed report help a reader check how the evidence was gathered?	It explains the methods and sample dates, and it states a limitation: the study could not identify which individual lawns supplied nutrients.
2	Why does the journal article support a connection between development and nitrate but not prove that development caused the difference?	It found an association between developed land and higher nitrate, but an association does not prove that development alone caused the difference.
3	Give two reasons the lawn-care company's article is less credible for making a scientific claim about streams.	It gives no water-sampling data and names no independent reviewers. It also links only to company products, so the company has a financial interest and possible bias.
4	What cautious conclusion is supported when the watershed report and journal article are considered together? Include one uncertainty.	Nutrient runoff likely contributes to algae after storms. More sampling is needed before blaming one specific source, and the journal's streams may not match Willow Creek exactly.

PART 3 • YOUR TURN (SAMPLE ANSWER)

The claim that one lawn caused all the algae is too strong. The watershed report found higher nitrate below neighborhoods after storms, but it could not identify individual lawns. The peer-reviewed journal article also found an association between developed land and nitrate, not proof of a single cause. The lawn-care company's article is less reliable because it gives no data and has a financial interest.

Accept equivalent evidence-based responses that distinguish association from proof of causation. For the open response, require evidence from two passage sources, a reason the single-lawn claim is unsupported, and a valid limitation or bias concern.