

Weighing Evidence About Pill Bug Habitats

Compare evidence, expertise, and possible bias before you write a science conclusion.

Name: _____ Date: _____

Part 1: Read two science publications

Bounded question: In a choice chamber, do pill bugs tend to gather on a moist surface or a dry surface? The three publications in this activity are **fictional classroom source simulations** created for source-evaluation practice. They are not reports of real studies.

Publication A - “Moisture Choices of Pill Bugs in a Controlled Chamber”

Dr. Lila Chen, animal-behavior researcher, *Journal of Small Animal Studies* (fictional), March 2025

Chen's team placed 20 pill bugs at the center of a dark choice chamber. One side held moist filter paper; the other held dry filter paper. Temperature, chamber size, and observation time were kept the same. Across 40 trials, 28 trials ended with more pill bugs on the moist side. The article describes the procedure, data table, and limits: this chamber was not an outdoor habitat.

Publication B - “Pill Bugs in Classroom Choice Tests”

Marisol Vega, science educator, *Regional Nature Learning Bulletin* (fictional), October 2024

Vega combined results from six classrooms. In each test, 12 pill bugs could move between a moist and a dry section for 10 minutes. A total of 51 of 72 pill bugs were on the moist section at the final count. Some groups were split between sides. The bulletin gives its procedure and advises teachers not to generalize the result to every outdoor condition.

While you read: Underline one piece of evidence in each publication. Circle one detail that helps you judge the author's expertise or the publication's trustworthiness.

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Part 2: Evaluate and synthesize

Publication C - “Keep Pill Bugs Away: Dry Everything!”

HomeShield Yard Products blog (fictional), June 2025

The unsigned post says, “Pill bugs always choose moisture,” and says its drying spray is the answer. It claims that 90% of pill bugs avoid dry places. It gives no study method, number of pill bugs, data table, author qualifications, or links to evidence. HomeShield sells the spray discussed in the post.

1. Complete the source-evaluation matrix. Use short phrases. “Evidence” means data, method, or limits that the publication provides.

Source	Evidence and method	Expertise / credibility	Possible bias or limit
A			
B			
C			

2. Write a 4-6 sentence synthesis. Answer the bounded question using Publications A and B. Name evidence from both. Explain why C is weaker. Then state one uncertainty or limit. Do not say that sources “disagree” unless they make conflicting claims.

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Answer key: source evaluation and synthesis

1. Source-evaluation matrix - acceptable answers

Source	Evidence and method	Expertise / credibility	Possible bias or limit
A	Controlled chamber; 20 pill bugs per trial; 40 trials; 28 trials had more on moist side; procedure and limits stated.	Named animal-behavior researcher; journal format; method and data are available to inspect.	Choice chamber is not an outdoor habitat; result is a tendency, not every pill bug's choice.
B	Six classrooms; 72 pill bugs total; 51 on moist section at final count; procedure stated.	Named science educator; reports collected results and a limitation.	Classroom conditions and final-count method may differ from A; smaller, less controlled evidence.
C	Numerical claim but no method, sample size, data, or source.	Unsigned commercial blog; qualifications are not given.	Sells a drying spray; strong financial bias is possible; uses "always," which overstates the evidence.

2. Sample synthesis: Publications A and B both support the conclusion that pill bugs in these choice tests tended to gather on the moist side. In A, 28 of 40 trials ended with more pill bugs on the moist side. In B, 51 of 72 pill bugs were on the moist section at the final count. C is weaker because it gives no method or evidence and promotes a product. The sources do not disagree: both stronger sources show a tendency toward moisture. An uncertainty is whether pill bugs would act the same way outdoors or under different temperatures, light, or surfaces.

Scoring guide: 4 = evaluates all three with evidence, expertise, and bias/limit; synthesis uses A and B accurately, rejects C for a specific reason, and names a real uncertainty. 3 = mostly accurate with one missing detail. 2 = conclusion is present but source evaluation or uncertainty is weak. 1 = unsupported preference or major misunderstanding.

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Teaching notes and source credits

Materials: Print and supply all student pages, keeping teacher-key pages separate; one pencil per student; optional highlighter. No internet access is needed or expected.

Exact setup: Before students arrive, place the student task in order with Part 1 facing up. Keep this key out of view. Write on the board: “Credibility = evidence + relevant expertise + openness about limits.” Give students 15-20 minutes for independent work or partner reading followed by individual writing.

Teaching script: Say: “Today you are judging publications, not choosing the source that sounds most confident. First, look for evidence and method. Next, ask whether the author or publication has relevant expertise. Then consider possible bias and limits. A limit does not automatically make a source useless. When two sources point in the same direction but leave questions open, that is uncertainty, not disagreement. Read the fictional source simulations carefully and support your conclusion with details.”

Observation method: As students work, scan matrices for a method or data detail in A and B, and for the missing-method concern in C. Listen for students who call A and B contradictory; prompt only with: “What claim conflicts?” Before collecting, check that each synthesis cites both A and B and names one uncertainty. Do not require identical wording.

Source credits: All three student publications are original fictional classroom source simulations written for this worksheet. They do not represent real journals, organizations, researchers, products, studies, or findings. No external source was used as evidence for the simulated pill-bug claims.