

# Evidence Builds Explanations

Use repeated observations to support a scientific explanation.

**SC.7.N.1.6** “Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.”

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## 1 READ AND MARK \_\_\_\_\_ Read it twice

**YOUR JOB** Underline each detail that reports an observation or measurement, then number 1, 2, and 3 beside the three different kinds of records the class combined as empirical evidence.

### Frogs at Pine Marsh

- ① At Pine Marsh, seventh-grade scientists investigated when more chorus frogs were calling. On four spring evenings, they stood at the same pond edge for ten minutes at 7:00 p.m. Each student quietly counted the frogs they could hear calling. They also recorded the air temperature and whether rain had fallen that day. One count from one evening could be unusual, so the class did not use a single count to explain the frogs' calling activity at the pond.
- ② Across the four evenings, the counts were 6, 9, 15, and 17 calling frogs. Temperatures rose from 14°C to 20°C over the same period. The two warmer evenings had the highest counts, but students noticed another possible factor: both followed rainy days. Their records did not prove that temperature alone caused more frogs to call. Instead, the observations showed a pattern worth testing with many more evenings of data later that season in different weather conditions as well.
- ③ Scientists call this growing collection of observations empirical evidence. Empirical evidence comes from observing or measuring a natural phenomenon, not from a guess or an opinion. The frog class combined counts, temperatures, and rain records from several evenings. That cumulative body of observations supported a careful explanation: calling activity was higher on the warmer, rainy evenings they observed. A stronger explanation would need repeated observations under a wider range of conditions and could test which factor matters most.

## 2 ANSWER WITH EVIDENCE Use the passage

1 What natural phenomenon did the class investigate?

---

2 Why did the class avoid using one evening's frog count to explain calling activity?

---

3 What pattern in the observations supported the class's careful explanation?

---

4 What is empirical evidence, and why would more observations make the explanation stronger?

---

---

## 3 YOUR TURN Your own words

Write exactly 4 sentences about a natural phenomenon you could observe. Name what you would measure on three or more occasions, give a pattern the observations might show, explain what the cumulative evidence would support, and name one more observation you would need.

---

---

---

---

---

---

---

---

**PART 1 • READ AND MARK**

Underline each detail that reports an observation or measurement, then number 1, 2, and 3 beside the three different kinds of records the class combined as empirical evidence. Accept any marking that follows this job and points at the right text.

**PART 2 • ANSWERS**

| # | QUESTION                                                                                   | ANSWER                                                                                                                                                                                                                              |
|---|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | What natural phenomenon did the class investigate?                                         | <b>They investigated when more chorus frogs were calling at Pine Marsh.</b>                                                                                                                                                         |
| 2 | Why did the class avoid using one evening's frog count to explain calling activity?        | <b>One count from one evening could be unusual.</b>                                                                                                                                                                                 |
| 3 | What pattern in the observations supported the class's careful explanation?                | <b>The two warmer evenings had the highest counts, 15 and 17 calling frogs, and both followed rainy days.</b>                                                                                                                       |
| 4 | What is empirical evidence, and why would more observations make the explanation stronger? | <b>Empirical evidence is a cumulative body of observations or measurements of a natural phenomenon. More observations from different conditions could show whether the pattern repeats and help test which factor matters most.</b> |

**PART 3 • YOUR TURN (SAMPLE ANSWER)**

I would count ants crossing the same sidewalk crack for ten minutes at 8:00 a.m. on four dry mornings. My counts might be 3, 5, 9, and 11 ants as the sidewalk temperature rises from 16°C to 25°C. Together, these observations would support the explanation that more ants crossed the sidewalk crack on the warmer mornings observed. I would need more counts on mornings with different temperatures and similar wind conditions.

Accept answers that identify observations or measurements as the evidence and distinguish support from proof. For Part 3, accept any observable natural phenomenon if the response includes repeated measurements, a stated pattern, a cautious explanation, and a needed additional observation.