Rust Claim Check

Read evidence, evaluate sources, and build a careful scientific claim.

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

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline evidence about the coating, circle details that affect a source's credibility or possible bias, and number each limit on the evidence. These marks will help you decide which claim is best supported.

Does the Coating Slow Rust?

1. Engineers wanted to know whether a new coating could slow rust on steel bridge bolts. In a controlled test, they placed coated and uncoated bolts in salty water for 30 days. The coated bolts lost an average of 0.2 grams, while uncoated bolts lost 1.1 grams. Because both groups used the same steel, water, and temperature, the test gives evidence that the coating reduced corrosion under these conditions. The researchers measured each bolt's mass before and after the test.

2. A university materials lab published the test methods, measurements, and limits in a report reviewed by other corrosion scientists. Its goal was to share results, and it named the company that donated the coating. A company advertisement used the same test result but stated that the coating "stops rust forever." The advertisement did not describe methods or mention that real bridges face changing weather, scratches, and many kinds of salt. Those missing details make its broad claim less trustworthy.

3. A city maintenance office also recorded fewer replaced coated bolts than uncoated bolts during two winters. These records support the lab result, but they do not prove the coating caused the difference because the bolts were on different bridges. Together, the lab report and city records support a careful claim: the coating can reduce corrosion, especially in salty conditions. More tests on bridges over several years would strengthen this conclusion. The advertisement's permanent-rust claim is not supported.

2 ANSWER WITH EVIDENCE

Use the passage

1. What is the central idea of the passage? State the careful conclusion supported by the sources.

2. Which detail made the bolt test controlled, and why does that detail strengthen the evidence?

3. Why is the university lab report more credible than the company advertisement? Give two details from the passage.

4. How do the city maintenance records affect the conclusion, and what limit prevents them from proving cause and effect?

3 YOUR TURN

Your own words

Write a 3-sentence recommendation to a city about whether it should consider using the coating. Use at least two pieces of empirical evidence, name one detail that affects source credibility, and include one limit on the evidence.

ANSWER KEY

Rust Claim Check

GRADES 7-8 · PS.1.f

PART 1 · READ AND MARK

Underline evidence about the coating, circle details that affect a source's credibility or possible bias, and number each limit on the evidence. These marks will help you decide which claim is best supported. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	What is the central idea of the passage? State the careful conclusion supported by the sources.	**The coating can reduce corrosion, especially in salty conditions, but the evidence does not support a claim that it stops rust forever.**
2	Which detail made the bolt test controlled, and why does that detail strengthen the evidence?	**Both groups used the same steel, water, and temperature. Keeping these conditions the same helps isolate the coating as the important difference.**
3	Why is the university lab report more credible than the company advertisement? Give two details from the passage.	**The lab report included methods, measurements, and limits, and it was reviewed by other corrosion scientists. The advertisement did not describe methods or limits and made a broad permanent-rust claim.**
4	How do the city maintenance records affect the conclusion, and what limit prevents them from proving cause and effect?	**The records support the lab result because fewer coated bolts were replaced. They cannot prove the coating caused the difference because the bolts were on different bridges.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The city should consider using the coating on bridge bolts because coated bolts lost 0.2 grams compared with 1.1 grams for uncoated bolts in the controlled lab test. The university lab report is more credible than the advertisement because it explained its methods and was reviewed by other corrosion scientists, and city records also showed fewer coated bolts were replaced. However, the city should test the coating on similar bridges for several years because the existing city bolts were on different bridges.

Accept equivalent careful claims that use the lab evidence and city records without claiming that the coating prevents all rust. For the open response, accept reasoned recommendations for or against use if students cite two accurate evidence details, address credibility, and state a valid limitation.