

Evidence Before Buying

Compare sources, methods, and costs before making a science decision.

7.4.B “make informed decisions by evaluating evidence from multiple appropriate sources to assess the credibility, accuracy, cost-effectiveness, and methods used; and”

NAME _____ DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each detail that supports or weakens a source's credibility or accuracy. Circle each cost or method detail, then number the three sources so you can compare them.

Testing the School Fountain

- ① Jordan's science club wanted to choose a way to check whether water from the school fountain contained lead. A social media post claimed that an inexpensive color strip could give an answer in one minute. The post showed no test results, named no scientist, and linked to no instructions. Because lead can harm health, the club decided that a quick claim was not enough evidence for a decision. They needed information from appropriate sources and methods.
- ② The club read a city water report written by the local utility. It listed samples collected at fountains, described laboratory analysis, and gave dates for each result. The report said the utility followed state sampling rules, but it covered samples taken six months earlier. The club also called an accredited laboratory. Its scientist explained that a certified test costs \$24 per sample, detects very small amounts of lead, and includes written results for families and school staff.
- ③ Next, members compared the methods and costs. Color strips were \$2 each, but their package directions said they only show lead above 15 parts per billion. The laboratory method used an instrument that measures lower concentrations. The club noticed that the utility report was credible because it gave dates and methods, yet it was not current enough to describe the fountain today. They planned to use the report for background and buy one laboratory test for the fountain.

2

ANSWER WITH EVIDENCE

Use the passage

1

What two details make the social media post a weak source of evidence?

2

Why is the city water report not enough by itself to describe the fountain's water today?

3

Why might the \$2 color strips fail to be cost-effective for this decision, even though they cost less than the laboratory test?

4

How does the club's plan use more than one source and evaluate the testing methods?

3

YOUR TURN

Your own words

An aquarium club needs an exact nitrate concentration before it investigates fish deaths. Compare these options in the table: a store video that calls \$5 test strips “perfect” but gives no method or data, a university extension guide with cited comparisons that says \$5 strips show ranges, and an accredited lab that costs \$30 and reports an exact result using ion chromatography. Use the last row to state which option the club should choose and why.

OPTION	CREDIBILITY AND ACCURACY EVIDENCE	COST AND METHOD	DECISION

PART 1 • READ AND MARK

Underline each detail that supports or weakens a source's credibility or accuracy. Circle each cost or method detail, then number the three sources so you can compare them. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What two details make the social media post a weak source of evidence?	It showed no test results, named no scientist, and linked to no instructions. Any two details are acceptable.
2	Why is the city water report not enough by itself to describe the fountain's water today?	Its samples were taken six months earlier, so the report may not show the fountain's current water quality.
3	Why might the \$2 color strips fail to be cost-effective for this decision, even though they cost less than the laboratory test?	The strips only show lead above 15 parts per billion. They could miss lower amounts, so the cheaper method may not provide the needed information.
4	How does the club's plan use more than one source and evaluate the testing methods?	The club uses the city report as background information and chooses a current laboratory test. It compares the cost and the lower detection ability of the laboratory method with the strips.

PART 3 • YOUR TURN (SAMPLE ANSWER)

OPTION	CREDIBILITY AND ACCURACY EVIDENCE	COST AND METHOD	DECISION
Store video	It gives no data or method, so its accuracy cannot be checked.	\$5 strips, method not explained	Do not choose it for an exact result.
University extension guide	It has cited comparisons and explains that strips show ranges.	\$5 strips that give ranges	Useful background, but not exact enough.
Accredited lab	It is accredited and reports an exact result.	\$30, ion chromatography	Best option for a precise measurement.
My choice	The accredited lab gives the most accurate evidence.	\$30, ion chromatography	Choose the lab because the club needs an exact nitrate concentration.

Accept answers that cite passage details about source credibility, date, method, detection level, or cost. For the open task, accept another choice only if the student accurately explains how its evidence, method, and cost fit the need for an exact result.