

Evidence Guides Action

Evaluate research before science guides a community decision.

6.4 "Scientific and engineering practices. The student knows the contributions of scientists and recognizes the importance of scientific research and innovation on society..."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each source or research method, circle each cost or benefit, and number the resources that could help you explore a STEM career.

Mosquito Research and Community Choices

- ① In the late 1800s, Cuban physician Carlos Finlay proposed that mosquitoes spread yellow fever. Many scientists first doubted his idea. In 1900, the U.S. Army Yellow Fever Commission, led by Walter Reed, ran controlled experiments that supported mosquito transmission. Health leaders then used mosquito-control measures, including removing standing water and covering water containers. These measures helped reduce yellow fever transmission. Finlay's observations and the commission's tests changed scientific thought and helped communities prevent disease during future outbreaks.
- ② Today, a county health department might consider a mosquito-control project. To decide, staff members could examine local surveillance reports that state how many mosquitoes and illnesses were counted, peer-reviewed studies that compare treatments, and a pest-control company's brochure. The first two sources explain methods and can be checked against other evidence. A company brochure may provide useful details, but it is trying to sell a product. Staff must compare the costs of traps, workers, and treatments with benefits such as fewer infections.
- ③ Research also connects students with STEM careers. An entomologist studies insects, an epidemiologist investigates patterns of disease, and an environmental engineer designs systems that protect health and water. A science museum's insect collection can raise questions, while a library can provide books and research databases. Students can also use a state health department website, a professional organization, or a conversation with a STEM mentor. Each resource offers different evidence, training information, or first-hand career experience.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 How did the 1900 commission's research change what health leaders did?

2 Which source in the current project needs extra caution, and why?

3 Give one cost and one benefit that staff should compare before starting the mosquito-control project.

4 If you wanted to investigate insect-related disease, which STEM career and two resources from the passage would be useful?

3 YOUR TURN _____ Your own words

Propose a school project to reduce mosquito breeding. Write exactly 3 sentences that name two sources you would compare, explain one research method you would check, and weigh one cost against one benefit. Include a STEM professional or resource that could help.

PART 1 • READ AND MARK

Underline each source or research method, circle each cost or benefit, and number the resources that could help you explore a STEM career. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How did the 1900 commission's research change what health leaders did?	Its controlled experiments supported the idea that mosquitoes transmit yellow fever. Health leaders used mosquito-control measures, which helped reduce transmission.
2	Which source in the current project needs extra caution, and why?	The pest-control company's brochure needs extra caution because the company is trying to sell a product.
3	Give one cost and one benefit that staff should compare before starting the mosquito-control project.	Costs include traps, workers, or treatments. A benefit is fewer infections.
4	If you wanted to investigate insect-related disease, which STEM career and two resources from the passage would be useful?	An entomologist would be a useful career choice. Useful resources include a science museum's insect collection and a library with books and research databases.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Before installing screens on school rain barrels, I would compare a county health department report that explains how mosquito traps are counted with a peer-reviewed study that compares mosquito numbers in screened and unscreened containers. Screens cost money and staff time, but they may reduce places where mosquitoes lay eggs. I would ask an environmental health specialist at the local health department how to measure the results.

Accept other reasonable school mosquito-breeding projects if students name two appropriate sources, identify a method to examine, and give a realistic cost and benefit. For Question 4, accept any two resources and an appropriate career named in the passage.