

Ice Cube Choices

Use evidence to compare solutions and improve an explanation.

3.1.d.ii "constructing and critiquing conclusions and explanations generate and/or compare multiple solutions to a problem"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the three solutions, circle the evidence Maya used, and write 1 by Maya's conclusion and 2 by Leo's critique.

Keeping Ice Cold

- ① Our class wanted to keep an ice cube from melting during recess. Teams suggested several solutions. One team wrapped its cup in cotton. Another covered its cup with shiny foil. A third put its cup in a small box filled with crumpled paper. Each team used the same size ice cube and left the cups outside for twenty minutes.
- ② After twenty minutes, the cotton cup had the most ice left. The paper box was next, and the foil cup had the least ice left. Maya concluded that cotton was the best tested solution because it kept the most ice from melting. She explained that cotton trapped air, and trapped air can slow the movement of heat into the cup.
- ③ Leo agreed that cotton worked best in this test, but he critiqued Maya's explanation. The teams did not measure the air in each material, so the test did not prove that trapped air caused the result. Leo suggested a new test. Teams could try thick and thin cotton wraps, while keeping the cups, ice cubes, place, and time the same.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What three solutions did the teams test?

2 What was Maya's conclusion? What evidence supported it?

3 Which part of Maya's explanation did Leo critique, and why?

4 How would Leo's new test investigate his idea fairly?

3 YOUR TURN _____ Your own words

A classroom plant dries out over a weekend. Write three possible solutions. Plan a fair test that compares them, tell what you would keep the same, and state what result would support your conclusion.

PART 1 • READ AND MARK

Underline the three solutions, circle the evidence Maya used, and write 1 by Maya's conclusion and 2 by Leo's critique. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What three solutions did the teams test?	They used a cotton wrap, a shiny foil cover, and a box filled with crumpled paper.
2	What was Maya's conclusion? What evidence supported it?	Maya concluded that cotton was the best tested solution. The cotton cup had the most ice left after twenty minutes.
3	Which part of Maya's explanation did Leo critique, and why?	Leo critiqued the idea that trapped air caused the result because the teams did not measure the air in the materials.
4	How would Leo's new test investigate his idea fairly?	It would compare thick and thin cotton wraps while keeping the cups, ice cubes, place, and time the same.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Possible solutions are adding mulch, using a tray of water, and moving the plant to shade. I would use three same-size plants in the same soil. Each plant would get the same amount of water before the weekend. I would use one solution for each plant and check the soil dryness and leaves on Monday. The plant with the moistest soil and healthy leaves would show the best solution in this test.

Accept equivalent names for the three ice-cube solutions and evidence-based conclusions. For the open response, accept any three reasonable solutions, a fair comparison with controls, and a result that could support a conclusion.