Change It Back

Find evidence that a physical change can be reversed.

P.5.5C.2 "Analyze and communicate the results of physical changes to a substance that results in a reversible change (e.g., changes in states of matter with the addition or removal of energy, changes in size or shape..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the first change at each station, circle the action that reverses it, and number the stations 1, 2, and 3 to track three kinds of changes.

Three Stations at the Science Fair

1. At the science fair, Lia places a cup of water in a freezer. Hours later, the water is solid ice. The freezer removed heat energy, so the liquid froze. Lia leaves the cup on a warm counter. Heat enters the ice, and it melts into liquid water again. Nothing new formed. The water changed state twice, first from liquid to solid, then from solid to liquid.

2. At the next table, Lia gently pulls a rubber band until it is longer and thinner. When she lets go, it returns nearly to its first size and shape. Pulling did not make a new substance. It changed the band's shape. Lia records both the stretched length and the length after release. Those observations help her explain why this change can be reversed.

3. At the last table, Lia pours dry rice and large dried beans into one bowl and stirs. She can still see rice grains and beans, even though they are mixed. She uses a strainer with holes big enough for rice but too small for beans. The rice falls through, and the beans stay behind. She can put them back in separate bowls, so the mixing can be reversed.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did removing and then adding heat energy change the water? Explain how Lia reversed the first change.

2. What two observations show that the rubber band's change can be reversed?

3. How did Lia reverse the mixing of the rice and beans? What happened to each part?

4. Compare the water station and the rice-and-beans station. What changed at each, and what evidence shows that no new substance formed?

3 YOUR TURN

Your own words

Choose a substance or mixture not named in the passage. In three or four sentences, describe a physical change, what you would observe, how to reverse the change, and why no new substance forms.

ANSWER KEY

Change It Back

GRADE 5 · P.5.5C.2

PART 1 · READ AND MARK

Underline the first change at each station, circle the action that reverses it, and number the stations 1, 2, and 3 to track three kinds of changes. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did removing and then adding heat energy change the water? Explain how Lia reversed the first change.	**Removing heat froze the liquid water into ice. Adding heat melted the ice back into liquid water.**
2	What two observations show that the rubber band's change can be reversed?	**The band became longer and thinner when pulled, then returned nearly to its first size and shape when released.**
3	How did Lia reverse the mixing of the rice and beans? What happened to each part?	**She used a strainer. The rice fell through its holes, while the beans stayed behind.**
4	Compare the water station and the rice-and-beans station. What changed at each, and what evidence shows that no new substance formed?	**Water changed state and became liquid water again when warmed. Rice and beans were mixed, then separated; the rice grains and beans remained visible.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would place solid coconut oil in a warm spot until it melts. I would see it turn into a liquid that flows. In a cool place, the oil would become solid again. It is still coconut oil because changing state did not make a new substance.

Accept other accurate ways to describe the changes and reversals. For Part 3, the example must be different from the materials in the passage and must describe a change that can be reversed.