

## Objective

By the end of this lesson, the student will understand the concepts of reversible and irreversible changes in materials. They will be able to identify examples of each type of change and explain why some changes can be reversed while others cannot.

## Materials and Prep

- Pencil and paper for notes
- Access to a computer or tablet for research (optional)
- Kitchen items for experiments (e.g., water, ice, sugar, vinegar, baking soda)
- Safety goggles (if available, for safety during experiments)

Before the lesson, review the definitions of reversible and irreversible changes. Prepare to conduct simple experiments that demonstrate both types of changes using common kitchen items.

## Activities

- **Experiment 1: Ice to Water**

Start by placing ice cubes in a bowl. Observe how they change from solid to liquid as they melt. Discuss how this change is reversible because you can freeze the water back into ice.

- **Experiment 2: Baking Soda and Vinegar**

Mix baking soda with vinegar in a container. Watch the fizzing reaction and how it creates a gas. Discuss how this is an irreversible change because you cannot turn the gas back into the original ingredients.

- **Research Activity**

Use a computer or tablet to find additional examples of reversible and irreversible changes. Write down at least three examples of each and be prepared to share them.

- **Creative Drawing**

Draw two pictures: one showing a reversible change (like water freezing) and one showing an irreversible change (like cooking an egg). Label each picture to explain the changes happening.

## Talking Points

- "What do you think happens when ice melts? Is it still ice?"
- "Can we turn the melted ice back into ice? Why or why not?"
- "When we mix baking soda and vinegar, what do we see? Is it a change we can undo?"
- "How can we tell if a change is reversible? What clues do we look for?"
- "Can you think of other examples of reversible changes? What about irreversible changes?"
- "Why do you think some changes can be reversed while others cannot? What makes them different?"

- "How do these changes happen in nature? Can you think of a natural process that is reversible?"