

Name _____

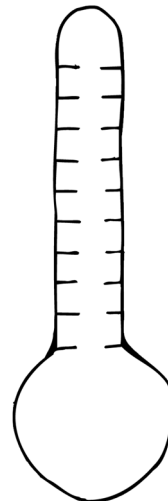
Reversible and Irreversible Changes with Heating and Cooling

Objective:

Students will learn that some changes caused by heating or cooling can be reversed, while others cannot, by observing different materials and their reactions to heat and cold.

Materials:

- Ice cubes
- Chocolate pieces
- Eggs (raw)
- Bread slice
- Frying pan (for teacher use only)
- A stove or hot plate (for teacher use only)
- Clear cups
- Plate
- Spoon
- Notebook and pencil



The Scientific Method Steps:

Ask a Question:

Can all changes caused by heating or cooling be reversed? What do you think will happen to ice, chocolate, eggs, and bread when we heat or cool them? Can they go back to their original form?

Make a Hypothesis: (What do you think will happen when each thing is heated up and cooled back down?)

Conduct the Experiment:

Part 1: Ice Cube

Place an ice cube on a plate and leave it at room temperature.

What happens to the ice as it gets warmer? _____

Melted Ice:

Pour the melted water into a cup and place it in the freezer.

What happens when the water gets cold again? _____

Was the change reversible? _____

Part 1a: Chocolate

Place a piece of chocolate on a plate.

Use a hairdryer on low heat (or leave it in the sun) to gently melt the chocolate.

What happens to the chocolate when it gets warmer? _____

Melted Chocolate:

Place the melted chocolate in the fridge to cool it down and harden it again.

Does the chocolate become solid again? _____

Was the change reversible? _____

Part 2: Raw Egg

Crack a raw egg into a frying pan (teacher use only).

Heat the egg on the stove and observe how it cooks.

What happens to the egg when it's heated? _____

Cooked Egg:

Can the egg go back to its raw form? _____

Was the change reversible? _____

Part 2a: Bread

Toast a slice of bread in a toaster or on the stove (teacher use only).

What happens to the bread when we heat it? _____

Toasted Bread:

Can the toast go back to being soft bread? _____

Was the change reversible? _____

Analyze the Data:

Think about the results from each experiment. Which changes were reversible and which changes were irreversible?

Conclusion:
