

Photo Description



A big ball of ice sits in a blue tray. The ice ball has cracks and lines all through it. Water is melting from the ice and making puddles in the tray.

Scientific Phenomena

This image represents the Anchoring Phenomenon of ice melting due to heat transfer from the surrounding environment. The ice ball is absorbing thermal energy from the warmer air around it, causing the solid water molecules to gain enough energy to break their rigid bonds and transform into liquid water. The radial crack patterns show how ice expands and contracts as it changes temperature, creating stress fractures throughout the structure.

Core Science Concepts

1. States of Matter: Ice is solid water that changes to liquid water when it gets warm enough
2. Heat Transfer: Warmth from the air moves into the cold ice, making it melt
3. Observable Changes: We can see and feel the ice changing from hard to soft to liquid
4. Temperature Effects: Cold things get warmer when they are in warm places

Pedagogical Tip:

Use concrete, hands-on experiences with ice cubes in different environments (sunny windowsill vs. shaded area) to help first graders observe and compare melting rates. This builds their observation skills while reinforcing the concept.

UDL Suggestions:

Provide multiple ways for students to document their observations - drawing pictures, taking photos, using simple recording sheets with pictures, or verbally describing what they notice. This supports different learning styles and abilities.

Zoom In / Zoom Out

1. Zoom In: Inside the ice, tiny water pieces called molecules are stuck together tightly. When the ice gets warm, these tiny pieces start moving faster and break apart, turning into liquid water we can see dripping.
2. Zoom Out: This melting ice connects to the big water cycle on Earth. When ice melts in nature (like snow on mountains or ice on ponds), it becomes water that flows into streams, rivers, and eventually back to the ocean where it can evaporate and make clouds.

Discussion Questions

1. What do you notice happening to the ice ball? (Bloom's: Observe | DOK: 1)
2. Why do you think the ice is changing into water? (Bloom's: Analyze | DOK: 2)
3. What would happen if we put this ice ball in the freezer instead? (Bloom's: Predict | DOK: 2)
4. How is this melting ice ball like snow melting outside in spring? (Bloom's: Compare | DOK: 3)

Potential Student Misconceptions

1. Misconception: "The ice is disappearing or going away"
Clarification: The ice is changing into water - it's still there, just in a different form
2. Misconception: "Only fire or hot things can melt ice"
Clarification: Room temperature air is warm enough to melt ice - anything warmer than freezing (32°F) can melt ice
3. Misconception: "The cracks mean the ice is broken or damaged"
Clarification: Cracks are natural and happen when ice expands and contracts as temperature changes

NGSS Connections

- Performance Expectation: 2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties
- Disciplinary Core Idea: 2-PS1.A - Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature
- Crosscutting Concept: Patterns - Patterns in the natural and human designed world can be observed

Science Vocabulary

- * Melt: When something solid becomes liquid because it gets warmer
- * Solid: Matter that keeps its shape and feels hard
- * Liquid: Matter that flows and takes the shape of its container
- * Temperature: How hot or cold something is
- * Observe: To look carefully and notice what happens

External Resources

Children's Books:

- Ice Is Nice! by Robin Nelson
- Solid, Liquid, or Gas? by Fiona Bayrock
- Snow Is Falling by Franklyn Branley

YouTube Videos:

- "States of Matter for Kids" - Simple explanation of solids, liquids, and gases with fun animations (<https://www.youtube.com/watch?v=ZjjS5VcBmS4>)
- "Ice Melting Time Lapse" - Real footage of ice melting to show the process in action (https://www.youtube.com/watch?v=NiV_1HfmC0I)