SCIENCE

Lesson 9

Year 1

Topic: Understanding warming and recycling

Examining warming as a physical change

Lesson concepts

- Everyday materials can be physically changed in a variety of ways
- Science involves asking questions and describing changes
- People use science in their daily lives
- Questions can be responded to, posed, and predictions made
- Investigations can explore and answer questions
- Observations can be collected and recorded
- Information can be sorted
- Observations can be compared with predictions
- Observations can be compared with others
- Observations and ideas can be represented and communicated

Today students will:

► understand that some materials can be physically changed by warming them.

Resources

Sheets

Sheet 11 — Photos of ice cubes before and after

Sheet 12 — Investigation: Warming

Sheet 13 — Warming (cut out)

Find and prepare

Cooling source
(for example, cooler box or bag)

2 teaspoons of butter

2 ice cubes

2 squares of chocolate

2 cubes of cheese

2 biscuits

2 apples

2 small containers

6 iceblock sticks

glue

scissors

Key terms

For definitions and explanations of terms, please see the Glossary.

Lesson

Consider physical changes to material caused by warming

Say to students

In this lesson you will investigate physical changes that can be made to things by warming them.

1. Display the photographs of the ice cubes on **Sheet 11 —** Photos of ice cubes before and after and ask students to describe what they think has happened.

Focus questions

Q. *What has happened to the ice cube in the second picture?*

A. For example: It has started to melt.

Q. *Why has this happened?*

A. For example: It got hot. It is not in the freezer.

Q. *Could we change the ice cube back? How?*

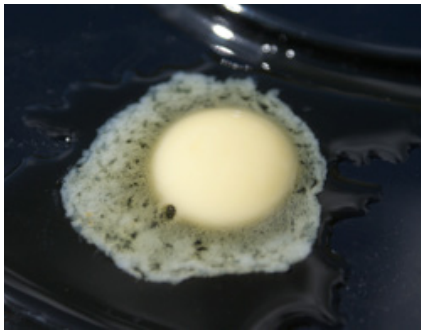
A. For example: Yes, we could put it back in the freezer.

Q. *What other things have you seen melting when they were warmed?*

A. For example: My ice-cream melted really quickly when we were at the beach last summer. You melt the butter when you are making pancakes.

Say to students

Knowledge of what happens to things when they are warmed is used by people in their everyday lives. It helps them know what things need to be kept cool, for example, in the fridge or how to use them when they are warmed, for example, melting butter to make pancakes.



Investigate physical changes made by warming

Say to students

Scientists observe and investigate physical changes caused by warming. In this lesson, when you observe and investigate physical changes caused by warming, you will be working like scientists.

2. Ask students to share what they know about cooler boxes or bags.

Focus questions

Q. *Why do we use cooler boxes or bags?*

A. For example: To keep food cool. To put our fish in when we catch them.

Q. *Where do we normally take cooler boxes or bags?*

A. For example: When we work out in the paddock all day. When we go for a picnic.

Q. *What sorts of food are usually placed in a cooler box or bag?*

A. For example: Our sandwiches and drinks.

Q. *Do we put anything else in cooler boxes or bags to help keep the food cool?*

A. For example: We put ice packs in.

Q. *What happens to food when we take it outdoors if it is not put into a cooler box or bag? Why?*

A. For example: It will get hot and sometimes it melts because there is nothing to keep it cool, because the sun is hot.

3. Open up the cooler box or bag and display the following food items:
   - Two teaspoons of butter
   - Two ice cubes
   - Two squares of chocolate
   - Two cubes of cheese
   - Two biscuits
   - Two apples

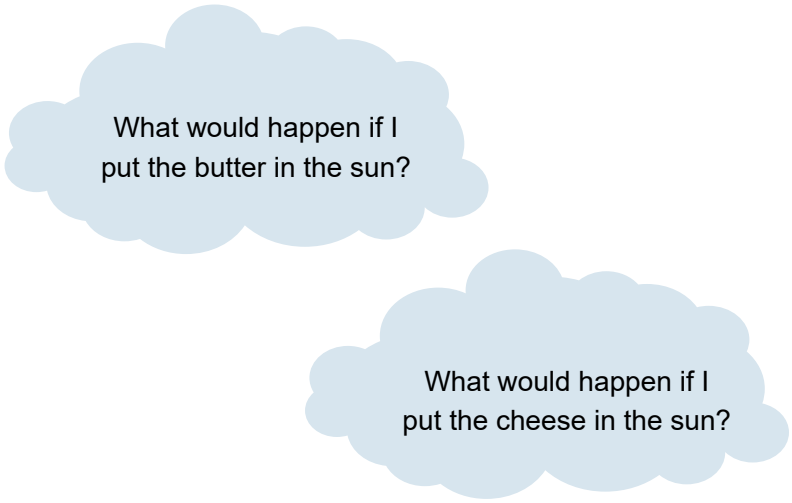
Say to students

"You are going to investigate what happens to food and water when they are placed in the sun.

You are going to leave one set of food items in the cooler box or bag, and place the other set outside in the sun to observe the physical changes that take place.

That way you will be able to see if they have changed when they are warmed."

4. Ask students 'What would happen if' questions about what physical changes may occur if the food items are left in the sun, for example:



5. Display **Sheet 12 —** Investigation: Warming.
   a. Read the question in the question bubble with students.
   b. Ask students to:
      - choose three of the items to investigate (butter, ice cubes, chocolate, cheese, biscuits, apples)
      - draw each of the selected items in the column on the left
      - circle 'yes' or 'no' to predict whether each item will physically change when warmed.

Say to students

Place each of the items to be investigated into a separate container.
Place the tray with items into direct sunlight.
Leave the items in the sun while we do the next activity.

Investigate real-world application

6. Arrange pictures cut from **Sheet 13 —** Warming in random order for students to view.

Focus questions

Q. *What can you see in these pictures?*
A. For example: ice, butter, chocolate, wax, ice-cream.

Q. *What do you think has happened to the items in these pictures?*
A. For example: They have been warmed.

Say to students

Your task is to:

- Sort these pictures so that you have all pictures of the same item together.
- Place the pictures in order to show the sequence of what happens when they are warmed.
- Glue sequenced pictures in your Science journal.

Focus questions

Q. *How did you know how to sequence the pictures in this way?*
A. For example: I have seen things melt before. I used my science knowledge.

Q. *When have you seen things melting like this before?*
A. For example: My ice-cream melted one day when it was really hot.

a. Tell students to collect the items left in the sun.

Note

Ensure students are supervised when observing physical changes to materials that have been warmed in the sun, as they could be very hot. Use a tool, such as an iceblock stick, to test the physical changes.

b. Ask students to compare the items with the samples left in the cooler box or bag.

Focus questions

Q. *What do you notice about the items?*

A. For example: They look different. They have warmed up. They have melted.

c. Tell students to:

- Look again at **Sheet 12 — Investigation: Warming**.
- Draw a picture to show what happened in each section of the results.
- Circle 'yes' or 'no' to answer the question 'Did it change?'

Focus questions

Q. *Is that what you thought would happen?*

A. Personal response required.

Q. *What does this tell you about physical changes and warming items?*

A. Some things can physically change when they are warmed.

d. Ask students to record new understandings about physical changes made to materials by warming in their Science journal.

Say to students

"When you observed and investigated physical changes caused by warming, you were working like a scientist.

In the next lesson, you will be investigating how physical changes are made to materials when they are being recycled."