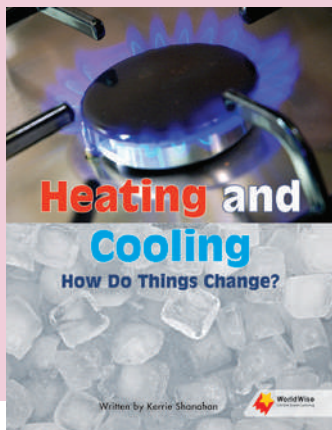


Lesson Plan

**Fluent
reading stage
Levels 19–20**



Heating and Cooling: How Do Things Change? explains what happens to various foods and drinks when they are heated or cooled. It investigates changes to these foods and drinks; ones that can never be undone and ones that can be reversed.

Informative text types:
Explanation

Science Curriculum links

Australia

- **SIS (ACSI37)** Pose and respond to questions, and make predictions about familiar objects

New Zealand

- **MW:** Compare physical and chemical changes

Key concepts

- Heating and cooling foods and drinks can cause them to change.
- Some changes to foods and drinks can never be undone.
- Some changes to foods and drinks can be reversed.

Content vocabulary

boil, changes, colour, cooked, cool down, cooled, cooling, freezer, frozen, fry, heated, heating, investigate, reversed, shape, smell, taste, temperature, toasted, undone, warm up

Text features

- Chapters with headings and sub-headings
- Photographic tables
- Glossary and index

Reading strategy

- Identifying the pattern in a book

First reading session

Getting started

Introducing the book

Activate students' prior knowledge. Ask: *What's your favourite food? How do you think it's made?* Invite students to share their answers.

Ask: *What do you know about chocolate when it is heated? What do you know about other foods and drinks when they are heated or cooled?* Have students turn and talk about this with a partner. Discuss as a whole group.

Provide each student with a copy of *Heating and Cooling: How Do Things Change?*. Say: *This book explains what happens to different foods and drinks when they are heated or cooled.* Have students browse through the book.

Exploring vocabulary

Ask: *What words or phrases might be in this book?* Have students work with a partner, then share with the group. List the words on a chart and invite students to make suggestions about what each word means. Where appropriate, have the students add a drawing (for example, a picture or a symbol) to the words on the chart to make the meaning clear. Discuss each word as you list them on the chart. If necessary, introduce the content vocabulary and add these words to the list.

Introducing the reading strategy

Say: *Good readers can predict what sort of information is coming up next by recognising the patterns in a book.* Have students browse through the book and identify the patterns, e.g. each section has a "what happens when?" question and a "what happened?" question. Have them share their ideas and discuss.

Reading the text

Have students turn to pages 4 and 5 and read the introduction independently. Ask: *Which foods do you know about that can never be changed back after being heated or cooled?*

Have students read chapter 1 independently. Say: *As you read, remember to use what you know about the question and answer pattern of the book. This can help you to understand the text better.*

Second reading session

Building understanding

Ask: *How can heating foods change them?* Discuss as a whole group.

Have students read chapter 2 independently.

Ask: *Why is changing water to ice called a change that can be reversed? How does changing the temperature change the way chocolate looks?*

Have students turn and talk to a partner about their ideas.

Final reading session

Have students read chapter 3 and the conclusion independently. Say: *After you have finished reading, revisit pages 16 and 17. Talk with a partner about each of the foods in the two tables. Use the questions underneath the tables to guide your discussion.*

Bringing it all together

Ask: *What have you learnt about changing foods and drinks?* Have students turn and talk with a partner. Invite students to share their knowledge.

Ask: *What do we now know about heating and cooling foods and drinks?* Discuss as a whole group. Use students' ideas to formulate two or three generalisations about the topic. Write these on a chart.

Students could complete the Blackline Master about changing foods and drinks by heating and cooling.

Reflecting on the reading strategy

With a partner, have students choose a graphic from the book. Ask: *Where are the questions? Where are the answers to each question?* Invite pairs to share their ideas.

Ask: *How does it help your reading to know about the pattern of a book like this one, which has questions and answers?* Discuss as a whole group.

Going beyond the book

Speaking and listening

Have students work with a partner to play a game of “Who am I?”

One student chooses a food or drink from the book. They then say two or three clues that describe it. Encourage students to give clues that describe how it changes if it is heated or cooled, as well as clues that explain what it is like before and after it changes.

The other student tries to guess which food or drink is being described by listening to the clues and searching for it in the book.

When the student guesses correctly, it is their turn to say the clues.

Vocabulary

Write the words *heat* and *cool* on a chart. Say: *With a partner, write down all the words you can make with these words by adding word parts to the front of the word (prefixes) or to the end of the word (suffixes).*

Have pairs share their lists (e.g. *heats, heated, heating, reheat, reheated, cooled, cools, cooling*) and create a group list. Discuss how the meaning of the words change as a prefix or suffix is added.

Visual literacy

Working with a partner, have students draw up a T-chart on a large sheet of paper, and write the headings “Can be changed back” and “Cannot be changed back”. Pairs then work together to draw foods and drinks under the appropriate headings on their chart.

Students can share their completed charts with the whole group.

Writing

Have students write an explanation about how one of the foods or drinks in the book changes if it is heated or cooled, or both. Provide the students with a template detailing the structure and elements of an explanation.

Planning to write an explanation

Name: _____

Getting started

What is my topic? _____

What do I want to explain? _____

Who am I writing for? _____

Where will I find information? _____

Planning my explanation

1. General statement

What am I explaining? _____

2. Explanation of the process

First _____

Next _____

Then _____

Finally _____

 **Hint:** Explanations tell *how* and *why* things happen. They use words like *as*, *because* and *result*. They use phrases that describe time.

Additional features I could use

- ☐ Maps to show location
- ☐ Text boxes to provide additional information
- ☐ Photographs and diagrams to support text
- ☐ Captions and labels to explain photographs and diagrams
- ☐ Time line to show history of key events

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WorldWiseReading.com.au/teacherresources

Download the template at

www.WorldWiseReading.com.au/teacherresources

Say: *Reread information in the book about the food or drink you are going to write about.* Students can also use research skills to find out extra information.

Encourage students to share their ideas with a partner.

Say: *Talk about the food or drink you are writing about and what information you will include.*

Use the template to remind the students about the structure of an explanation. Say: *Follow the template when you write. Start by stating what it is you are explaining; how the food or drink changes. Then write about how it changes, and what it is like after it changes; what it looks like, feels like, tastes like, etc.*

Blackline Master: Hot and cold changes

Name/s: _____

Use words and pictures to show what happens to each food or drink after it is heated or cooled.

Food or drink	Changed by ...	Draw what it looks like now	Describe what it looks like now
	melting		
	heating		
	frying		
	freezing		

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Developed by
Eleanor Curtain Publishing
Text: Kerrie Shanahan, Jenny Feely
Consultants: Linda Hoyt, Lyn Reggett
Designed by Derek Schneider
Printed in China through
Colorcraft Ltd, Hong Kong

Distribution details:
www.ecpublishing.com.au/contact-us

More information:
www.WorldWiseReading.com.au
www.ecpublishing.com.au

ISBN: 978-1-76086-888-8

