

NGSS Literature Lesson Plan

Performance Expectation(s):

[2-PS1-4](#)

Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

Literature Connection

Literature: *Ice Boy* by David Ezra Stein

ELA Connection:

RI 2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

W 2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

Student Background Information

Prior Student Knowledge:

Student Misconceptions:

Students may over generalize the connection between heating and melting to apply to all substances - not so with eggs or pancakes which change from liquid to solid when heated.

Barriers:

Engage

Read aloud the book *Ice Boy*. When finished, complete the [story map](#), describing the changes that happen to Ice Boy during the course of the book.

Explicitly teach the following vocabulary.

heating – raising the temperature

cooling – lowering the temperature

properties - describes how something look, acts, feels

Have students identify where they saw heating and cooling in the book, and what changes resulted in *Ice Boy*. Add to the story map as needed.

Explain that some changes from heating and cooling are reversible - they can be undone. *Ice Boy* heated up into water which was undone what he was cooled back down and became ice again.

Materials/Resources

[Beginning/Middle/End Story Map](#)

Other changes from heating and cooling are irreversible - they are permanent and cannot be undone.	
Explore	
<p>Link Menu Give each child a recording sheet. Complete the first row for Ice Boy.</p> <p>Provide students access (via Google Classroom or bitly) to this link menu to videos of different objects heating and cooling. Have students complete their chart as they watch. (or watch videos as a whole group). Also the option of creating a free ReadWorks account to access articles listed at right.</p> <p>After students have an opportunity to explore, regroup to share out student observations and complete a chart together - clearing up any misconceptions.</p> <p>Chocolate Put students into groups of 3 - 4. Give each group a plastic ziploc bag and several chocolate chips. Depending on weather, bags can be put outside in the sun or put in a bowl of hot water in the classroom. Have students observe as the chocolate chips melt. Then have students put the ziploc bag into a bowl of ice water and observe. Add observations to the chart.</p>	<p>Materials/Resources</p> <p>Recording Sheet Link Menu</p> <p>Optional ReadWorks Articles A Camping Trip - marshmallows Breakfast Time - eggs and butter Crayons</p> <p>For each group of 4: ziploc bag 6 chocolate chips bowl of ice water bowl of warm water (optional)</p>
Explain	
<p>Lead students in writing in response to the following prompt, using the Claim-Evidence-Reasoning graphic organizer to scaffold:</p> <p>Explain what happens to a popsicle on a hot summer day. Is there a way to get that popsicle back?</p>	<p>Materials/Resources</p> <p>CER Graphic Organizer</p>