

## Daily Lesson Plan

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**Date:** Monday, April 11, 2016

**Subject:** Science

**Grade:** Second

**Driving Question:** How do things change when we heat or cool them?

**Targeted Learning Goals:** Students will be able to recognize that substances may change as a result of heating or cooling, and that these changes cannot always be reversed.

**NGSS:**

2.PSI-4. Conduct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

**Science and Engineering Practices:**

2.PS1.4 Construct an argument with evidence to support a claim.

**I-AIM Sequence Function(s) and Rationale:**

Explore phenomena for patterns, explore ideas about patterns

This unit serves as a prerequisite for chemical reactions, which is a skill learned in upper grades.

**Materials & supplies needed:**

- Driving question anchor chart
- Group role anchor chart
- Group role cards (one set/group)
- Wooden grouping chips
- Observation journal (one/group)
- Pencils
- Tap water
- Clear containers (one/group)
- Ice cube trays
- Paper plates (one/group)
- Blow dryer
- Group work surveys
- Teacher rubrics
- Chart paper
- Markers
- Group folders (one/group) contents:
  - Observation journal
  - Wooden chips
  - Group work surveys
  - Group role cards

**Procedures and approximate time allocated for each event**

**MORNING:**

**Introduction to the lesson: 10-15 minutes**

**Academic, Social and/or Linguistic Support during each event**

- I will be wearing a microphone throughout my entire lesson. The increased volume of my voice will

- Review the group roles using the anchor chart.
- Assign the children their roles for the day using the wooden shape chips.
  - Teddy Bear: Conversation Captain
  - Apple: Understanding Umpire
  - Heart: Materials Manager
  - Butterfly/Apple: Presentation President
- Introduce children to the Observation Journal. This is where they will take notes during and after investigations. There is one journal per group, and it is the Presentation Presidents' job to record in it.
- Read today's driving question: How do things change when we heat or cool them?
- To help us reach an answer to this question, we will be doing an investigation with water today.
- The first thing you will be doing today is observing tap water. Think about everything you know about water. Make observations about the water—What does it look like, smell like, feel like, etc.?
- Remind the children that if they disobey classroom rules, they will be asked to be an observer.
- Dismiss the students to their seats, but ask the Materials Managers to stay to gather supplies.

**Outline of key events during the lesson: 15 minutes**

- Give each Materials Manager a clear container filled with water.
- The Materials Manager carries the water back to their group.
- The Conversation Captain should begin facilitating the group's discussion.
- The Understanding Umpire should begin by making sure everyone is getting along and remaining positive.
- The Presentation President should begin actively drawing/writing in the observation notebook.
- As students work, walk around the room, listen in on conversations, and record notes on the teacher rubrics for TE 804 Inquiry Project.

**Closing summary for the lesson: 5 minutes**

- Engage the students in a whole-class discussion about what just happened:
- Presentation Presidents share their groups' observations.
- Chart observations on the easel.
- Show the students a plastic ice cube tray.
- Explain that I will be dumping the same tap water they observed into my ice cube trays and placing them in the freezer until after lunch.
- We will investigate what happens this afternoon!

accommodate auditory learners or any students with hearing difficulties, and will help keep students' attention on me.

- I have created a large, colorful anchor chart. This assists visual learners and serves as a reference point to reinforce new concepts and vocabulary.
- Instead of raising their hands, students will be asked to place their hands on their head, on their shoulders, etc. This will help eliminate students waving their hands, putting their hands in their mouths, and playing with their shoes. This will also accommodate my students who need to be moving constantly. I will also use these motions as total participation techniques at times, ensuring participation of all students.
- Students have assigned groups and group roles to encourage cooperative learning and increase participation and engagement.
- Students will be seated at their assigned places at the gathering place. This also ensures students are seated next to those they can work cooperatively with.
- Students have the opportunity to share their thoughts in a small group setting. This accommodates students who struggle with public speaking who may not want to volunteer to talk in front of the entire class.
- Quiet Critters are distributed to encourage a quiet and positive work environment.

## AFTERNOON:

### Introduction to the lesson: 10 minutes

- Review the group roles using the anchor chart.
- Remind the children of their roles today:
  - Teddy Bear: Conversation Captain
  - Flower: Understanding Umpire
  - Heart: Materials Manager
  - Butterfly/Apple: Presentation President
- Briefly review this morning's observations.
- Who remembers what I did at the very end of our lesson this morning?
  - Poured tap water into ice cube trays and placed them in the freezer.
- Now we are going to investigate the result!
- Inform the Presentation Presidents that they will be recording observations from this investigation on a new page.
- Dismiss the students to their seats, but ask the Materials Managers to stay to gather supplies.

### Outline of key events during the lesson: 15-20 minutes

- Give each Materials Manager four-five (depending on number of group members) ice cubes on a paper plate.
- If the ice cubes do not begin to melt after a couple of minutes, take out a blow dryer to expedite the process (or do a demonstration with the hot air from the blow dryer if the cubes are still frozen by the end of the lesson!)
- The Conversation Captain should begin facilitating the group's discussion.
- The Understanding Umpire should begin by making sure everyone is getting along and remaining positive.
- The Presentation President should begin actively drawing/writing in the observation notebook.
- After a few minutes of observing the ice cubes, ask the students to begin blowing air from their mouths onto their ice cubes.
- Remind the Presentation President to keep recording the group's observations.
- As students work, walk around the room, listen in on conversations, and record notes on the teacher rubrics for TE 804 Inquiry Project.

### Closing summary for the lesson: 10 minutes

- Engage the students in a whole-class discussion about what just happened:
- Presentation Presidents share their groups' observations.
- Chart observations on the easel.
- If any of the remaining ice cubes are still frozen, melt the ice cube using hot air from the blow dryer. How is this the same or different than what you did

<p>with your mouths?</p> <ul style="list-style-type: none"> <li>• What do you think would happen if I put the melted water back into the freezer? Why?</li> <li>• Thank you for being responsible participants and working cooperatively today!</li> <li>• Before we head to media, I would like you to take this quick survey about how you felt about group work today. It is the same survey you took last week. We will be taking it after every science lesson this week!</li> </ul> <p><b>Transition to next learning activity</b></p> <ul style="list-style-type: none"> <li>• Prepare students for the transition to media.</li> <li>• Upon arrival back to the classroom, have students finish their survey if necessary.</li> </ul>	
<p><b>Assessment</b></p> <ul style="list-style-type: none"> <li>• The assessment for today's lesson is formative.</li> <li>• Since this is the beginning of the unit and I-AIM sequence, children are investigating and discussing phenomena, and I will use these discussions and their observation journals to assess their current understanding.</li> </ul>	<p><b>Academic, Social, and/or Linguistic Support during assessment</b></p> <ul style="list-style-type: none"> <li>• Students will be provided with oral instructions.</li> <li>• Students have the freedom to write as much or as little as they would like to.</li> <li>• Students will share their thoughts with their small group. This accommodates students who struggle with public speaking or who do not have the role of Presentation President.</li> </ul>