



Lesson: Winter Snow and Ice

(To follow Amplify CKLA K, Knowledge 8: Seasons and Weather, Lesson 2: Winter)

At a Glance

In this lesson, students use historic photographs and a science experiment to investigate how people in New Hampshire handle winter's snow and ice.

Primary Focus Objectives

- Students will identify and describe characteristics of winter in New Hampshire.
- Students will compare photographs and describe differences in how people in New Hampshire deal with snow on roads today compared to long ago.
- Students will conduct an experiment with ice cubes to investigate melting.

Formative Assessment

- Group discussions of photographs
- Ice melting prediction
- "The Four Seasons in New Hampshire" booklet

Standards

CCSS.ELA-LITERACY.SL.K.1

Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.

CCSS.ELA-LITERACY.W.K.2

Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.

Materials

- Infographic: [The Four Seasons](#)
- Thermometer diagram
- Focus Text: [Learn It! New Hampshire Geography "NH Climate," page 4](#)
- Vocabulary Card: Blizzard
- Focus Text Facts: Snow and Roads
- Infographic: [Harvesting Ice](#)
- "Will it Melt?" worksheet
- Crayons or color pencils
- Small plates or trays
- Ice cubes
- Sawdust and (optional) masks
- "The Four Seasons in New Hampshire" cover page

Time Needed

Two 30-40 minute class sessions

Learning Activity

- 1. Share the infographic and mark the thermometer.** Project "The Four Seasons" and explain the general purpose of this infographic. Read aloud the section about winter. Use the questions to generate discussion about the content. Distribute the thermometer diagram and help students shade in the high temperature range for winter in New Hampshire. (*10 minutes*)
- 2. Read the Focus Text and discuss Vocabulary Cards.** Project the Focus Text "NH Climate" and read it aloud. Discuss the Vocabulary Card and define the word using context clues in the read aloud. (*15 minutes*)



- 3. Compare the images.** Project the image "Rolling Snow" and conduct a brief Notice and Wonder with students. Record student observations about what is happening in the photograph, if they think the photo is from today or long ago, and the evidence that makes them think that way. Repeat this process with "Plowing Snow." (15 minutes)
- 4. Share the infographic.** Project or distribute the Infographic: Harvesting Ice. Read and discuss the content together. (10 minutes)
- 5. Conduct the experiment.** Distribute "Will it Melt?" worksheet to students and explain the process of drawing what they observe, making a prediction, and then drawing the result. Distribute prepared trays to small groups and support students as they complete the experiment. Details and suggestions can be found in Educator Rationale and Answer Guide. (30 minutes)
- 6. Begin compiling New Hampshire Seasons book.** Provide students with the cover page to decorate and mark with their names. Collate cover with thermometer diagram and "Will it Melt?" worksheet using a paper clip. Pages will be added with subsequent MxA Seasons and Weather lessons. (10 minutes)



Educator Rationale and Answer Guide

Connection to Amplify

This lesson extends student understanding developed in Amplify CKLA K, Unit 8: Seasons and Weather, Lesson 2: Winter. A variety of infographics, non-fiction text, and historic photographs provide students with the information they need to evaluate how people in New Hampshire have dealt with, and made use of, snow and ice. Students use their developing historical thinking skills to analyze photographic evidence of how snowy roads were made passable long ago and today. Then, after exploring an infographic to learn about the historic industry of ice harvesting, students conduct a simple science experiment and record their observations about how ice melts in different conditions.

Share the infographic and mark the thermometer diagram

Explain the purpose of the infographic and tell students they will see it again as they learn about each season. After reading the section about winter, spend time talking about the thermometer and ensure students understand what a thermometer is and why it is helpful. Ensure the image is large enough that students will be able to read it and shade in their own thermometer correctly. Consider working together to match the degree markings on the infographic to those on the diagram, circling the numbers and drawing horizontal lines to mark the section for shading. Give students time to draw a picture of themselves doing their favorite outdoor winter activity.

Read the Focus Text and discuss the Vocabulary Cards

You may wish to present the Vocabulary Card before reading the Focus Text selection. Ask students if they've heard the word before. One of the historic images used in this lesson is featured on the Learn It! page. If students ask about it, explain that this photograph shows the result of a blizzard. Let students know they will take a closer look at the photo after the read aloud is finished.

Compare the images

Explain to students that they will compare two photographs of New Hampshire people on roads in the winter. As you project each image and record student observations, be sure to talk about why people need to be able to travel on roads in the winter and why snow makes that difficult. Encourage students to share specific things they notice about the images to support their ideas about what is happening. Most importantly, encourage students to think about which image is from long ago and which is from today. What is different about the way we deal with snowy roads today and why? Some students may connect to information learned in the read aloud; if not, refer back to details about how sleds and sleighs traveled on snow differently than cars do today.

This is a good place to pause if dividing the lesson across two class sessions.

**Share the infographic**

Before exploring the infographic together, ask students what ice is used for today. Tell students that ice used to be a product that people harvested, just as a farmer harvests crops grown on a farm. As you read and look at the images together, discuss the reasons why ice was harvested, the tools used to cut it into blocks, and how it was stored so it wouldn't melt.

Conduct the experiment/prepare cover page

Explain to students that they will conduct an experiment to find out if sawdust really does prevent ice from melting, as they saw described in "Harvesting Ice." Provide them with "Will it Melt?" and preview the features of the worksheet. Support students as they circle their prediction. Then, provide small groups with a tray with an ice cube in the middle. Set a timer so that students can make sketches of the ice cube at the start of the experiment, at 5 minutes, and at 10 minutes. (Adjust times depending on temperature of the room.) As they make their visual observations, they may notice the ice makes sounds as it melts and that it moves on the tray. Repeat the process with an ice cube that has sawdust packed around it. Consider having students work on their book cover pages between making their sketches. After completing the experiment with both ice cubes, help students circle the result and discuss why they think the ice melted faster or slower in each situation.

THE FOUR SEASONS

People who live in New Hampshire experience very different weather in all four seasons!
Some people prefer one season over another, but there are plenty of options for things to do all throughout the year.

Spring in New Hampshire means that the snow thaws and the temperature rises. The melted water fills rivers and streams across the state. Spring also brings something delicious to New Hampshire: maple syrup! Maple sugaring happens in March and April, before the weather gets too warm.

Average high temperature

March: 35°F to 45°F

April: 45°F to 58°F

May: 60°F to 70°F

Winter in New Hampshire runs from December to March, but it can snow from October to May. People love to ski, snowboard, snowshoe, and snowmobile all over the state. Winter can bring blizzards and ice storms. Granite Staters are proud of their ability to drive in the snow!

Average high temperature

December: 27°F to 38°F

January: 14°F to 34°F

February: 14°F to 35°F

Summer in New Hampshire means a lot of heat and humidity. People all around the state go to beaches on lakes or the ocean to cool off. Kids go to summer camps and towns celebrate Old Home Day. Sometimes huge thunderstorms happen in summer. And Granite Staters love summer fireworks!

Average high temperature

June: 70°F to 80°F

July: 75°F to 85°F

August: 73°F to 81°F

Autumn in New Hampshire brings fall leaves in beautiful reds, oranges, and golds. Lots of tourists visit the state to see the colors! Autumn tourism is very important for New Hampshire's economy. Temperatures are cooler in autumn, so it can be a great time to go hiking or be active outside.

Average high temperature

September: 65°F to 75°F

October: 55°F to 65°F

November: 25°F to 50°F

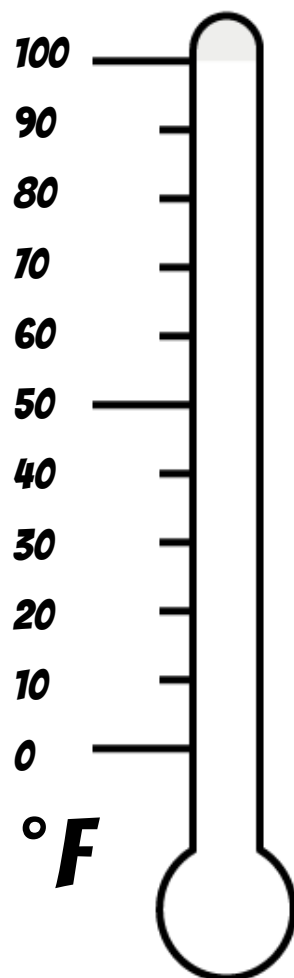


1. What are some activities people enjoy in each of the four seasons?
2. Which season do you think brings the most people to visit New Hampshire? Why?
3. What is the highest temperature average in a season? The lowest? What's the difference between them?
4. Which season is your favorite? Why?



Name _____

WINTER IN NEW HAMPSHIRE



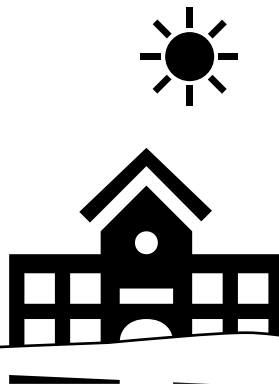
In winter, I like to...



BLIZZARD

Definition: A storm that brings lots of snow and lasts a long time.

How to use it: The **blizzard** started in the morning and by lunchtime the ground was covered with two feet of snow.





SNOW AND ROADS

It snows a lot in New Hampshire. Snow can make it hard to travel on roads. Look at these photographs of machines from long ago and today that are making snowy roads safe for travel.



This is a snow roller in the early 1900s.



This is a snow plow in 2021.



MASON'S CHALLENGE

What differences do you see between the two machines? Why do you think we use a different machine today? Talk about:

- How each machine is powered
- What each machine is doing to the snow
- The vehicles that will travel on that road when the machine is finished with its job

ICE HARVESTING

What is ice harvesting?

Every winter, when NH's lakes froze over, people used to cut the ice into big blocks. The blocks of ice were used to keep food cold even after the weather warmed up. And they used it to make ice cream in the summer!



How did they harvest ice?

People used tools like ice saws to cut the ice into big rectangles. Then they used ice picks to move the ice to a clearing area. Ice tongs were used to lift the big blocks of ice out of the water.

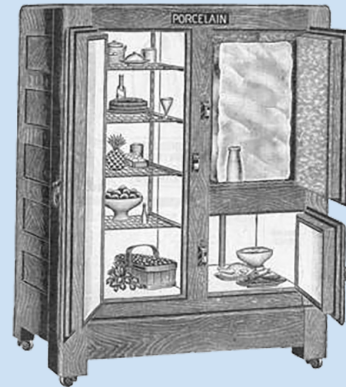


When was the ice ready to be harvested?

The ice needed to be about 12 inches thick before it could be harvested. Usually ice harvesting was done in January and February.

How did they keep the ice from melting?

Once the weather warms up, there's no way to stop ice from melting. But Granite Staters had ways to slow down how fast the ice melted. They stored the ice in ice houses, which were built in the shade so the sun didn't warm up the building. They also packed sawdust around the ice blocks, which protected the ice from heat. The ice would usually last until August!



What was the ice used for?

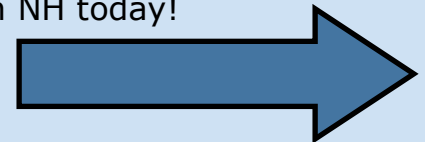
Before refrigerators were invented, people used the blocks of ice to keep their food cold. They had cabinets in their kitchens called ice boxes. One of the compartments of the cabinet contained a block of ice, which kept everything else cold. Once the ice melted, a delivery man would bring a new block of ice to replace it.

During what period did people harvest ice?

In the 19th century, NH was a big producer of ice. Granite State ice companies shipped ice all over the country. Most of the ice companies went out of business in the 1930s when people started buying refrigerators. But some people still harvest ice in NH today!



Pinardville ice house, Goffstown, NH





Will it Melt?

Prediction (circle your choice): The ice cube **with** **without** sawdust will melt faster.

Observations (sketch each ice cube three times):

Beginning

Middle

End

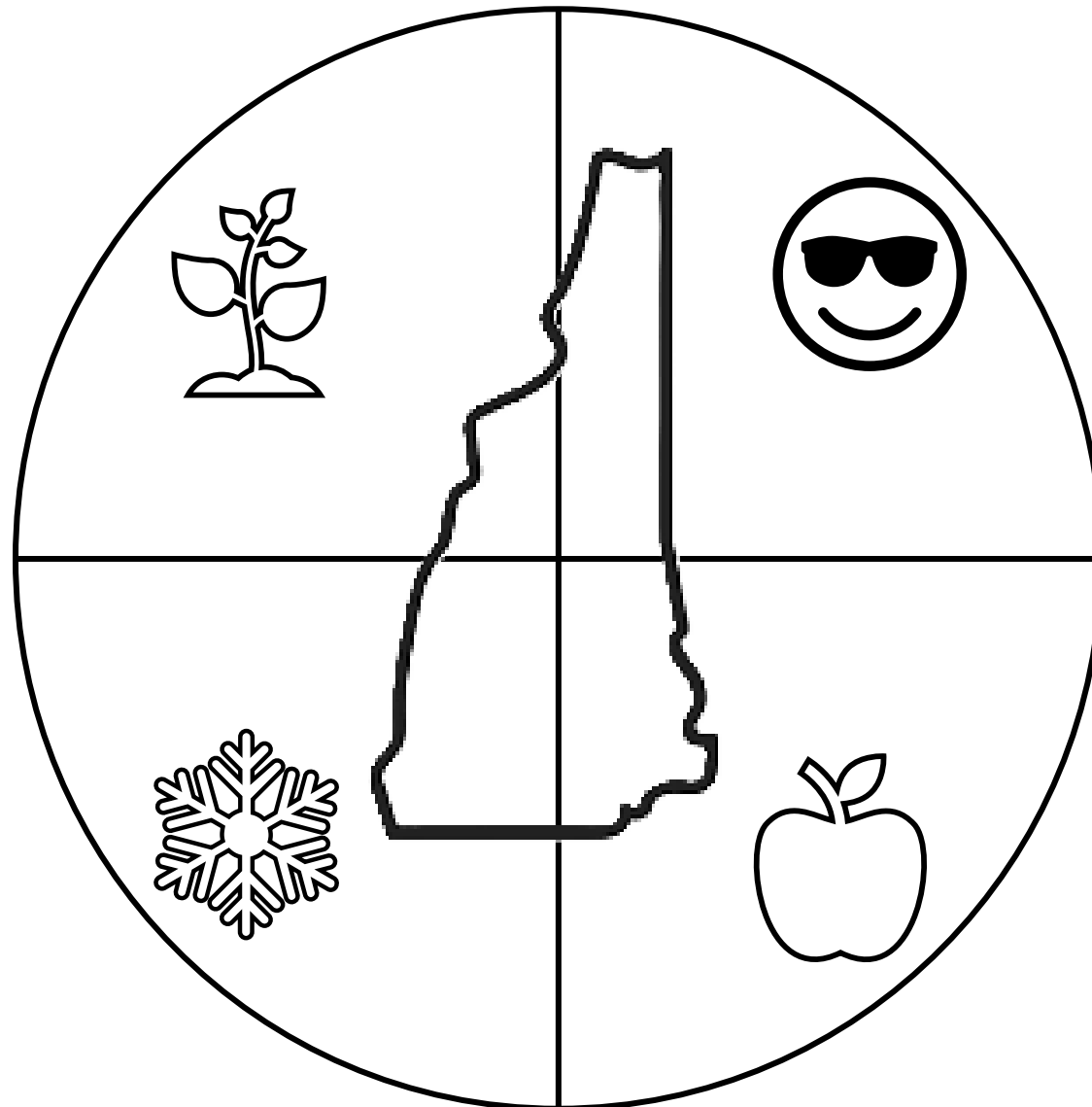
Ice cube without
sawdust

Ice cube with
sawdust

Result (circle your choice): The ice cube **with** **without** sawdust melted faster.



THE FOUR SEASONS IN NEW HAMPSHIRE



BY
