



Lesson 1.3 “New Hampshire’s Land”

Unit 1: New Hampshire Geography

Lesson Objectives

- Students will conduct an experiment to explain how glaciers shaped the landscape of New Hampshire.
- Students will be able to describe in writing the three land types in New Hampshire: Coastal Lowlands, Eastern New England Uplands, and White Mountains.
- Students will identify landmark locations in New Hampshire and categorize them into one of the three land types.
- Students will create a physical map of New Hampshire and locate the different land types on the map.

Lesson Competencies

- I can use evidence from observations, data, and maps to make predictions and support evidence-based explanations about how systems change over time (e.g., weather and climate, Earth’s systems). (Science 8)
- I can develop my ideas using sources to gather concrete details, facts, quotes, and other information related to my focus. (ELA 5)
- I can use sources (pictures, primary and secondary sources, discussion) to expand my understanding of the topic/text and locate information to support my point of view. (ELA 6)
- I can construct and analyze maps and other geographic representations to explain relationships between people and the environment. (Moose SS)

Essential Question

How has New Hampshire come to be the way it is?

Focus Questions

What physical and human characteristics define New Hampshire?
How did New Hampshire’s boundaries and regions come to be the way they are today?

Estimated Time

Three 40-minute class sessions

Materials & Equipment

Three metal trays or pans
Small piles, separately, of dirt, sand, small rocks, and 10 ice cubes
Class set of “Observation Sheet” worksheet
“Mason Explains: Glaciers in New Hampshire” video for projection
Class set of “Land Types” worksheet
“New Hampshire Topographic Map” for projection
Class set of “Topographic Map of New Hampshire with Land Types” and for projection
Group copies of postcards of New Hampshire
Post-it notes
Playdough or modeling clay, enough for student maps
Class set of “Describing New Hampshire’s Land” worksheet



Educator Introduction & Rationale

From its Atlantic coastline, through its dense forests and meandering rivers, across its lakes, and over the peaks of its alpine mountains to its international border with Canada, New Hampshire's geography is like no other state. Hundreds of millions of years of upheaval deep within the earth and glacial erosion on the earth's surface created the shape of the land, cut through with rivers, rolling with forested hills and mountains, and dotted with lakes. Faults, folds, and even volcanic activity pushed up chains of mountain ridges. The land called New Hampshire ranged from sea level to an elevation of 6,288 feet at the top of Mount Washington, which stretches more than a mile into the sky. Please reference the Educator Overview for more information.

In this lesson, the third lesson of Unit 1: New Hampshire Geography, students investigate the three land types of New Hampshire—Coastal Lowlands, Eastern New England Uplands, and the White Mountains—and analyze which major geographical landmarks are in each of these areas. Please note that this unit generally references the seven geographical regions of New Hampshire, except in this lesson where students explore the three land types created by geographical forces. Lesson 1.5 "New Hampshire's Regions" explores the seven geographical regions in detail.

Students explore glacial erosion through a hands-on activity and gain an understanding of how New Hampshire's land was formed. Students then investigate a topographical map of New Hampshire and identify the unique landscapes across the state, using postcards to deepen their understanding of the geography of New Hampshire. In the final independent activity, students work with partners to create a 3-dimensional representation of New Hampshire's three land types. Please adapt all the material in this lesson, as necessary, to meet the needs of the students in your classroom. Lesson vocabulary and definitions are at the end of this document. You may wish to preview these with your students.

A reinforcement activity is included for students who would like to consider the various activities offered by the different land types. Extension activities are available for students who are interested in investigating the conservation efforts within New Hampshire or connecting the different land types to the many plants and animals that thrive in each area.

Learning Activity

Actuation

Glacier experiment. Set up three inquiry areas. In each, put a metal baking pan or other tray; then in the first, put a pile of dirt, in the second, a pile of sand, and in the third, place small rocks. Give directions and hand out the "Observation Sheet," then have students circulate through the areas. Tell students to take ice cubes and move it across the various materials. Once all students have had time to observe what happens with the various materials and record their observations, discuss the following questions:

- What happens to the different materials when the ice cube moves over them?
- What happens to the ice cube in different materials?
- Discuss the speed with which the students move the ice cube; how quickly do glaciers move?
- What happens to the various materials and the ice cube when the ice cube moves at different speeds?

Direct Instruction

Glaciers in New Hampshire. Ask students what they know about glaciers. After a few responses, tell students that they were simulating what the glaciers of the north did over 10,000 years ago in New Hampshire and other parts of North America.

View the explainer video "Mason Explains: Glaciers in New Hampshire" and connect it to the experiment with the activities of glaciers in New Hampshire. Find the video in the Media Library by selecting "Explainer Videos" resource type and this unit.

Guided Practice

Land types in New Hampshire. Project the "Topographic Map of New Hampshire" and discuss with students:

- What is a topographic map?
- What do the lines mean on the map?
- What does it mean if they are closer together or farther apart?

Possible outcomes:

- Topographic maps show you the shape of the land and the height of land above sea level. They show a 3-D picture of the land.
- The lines are called contour lines. Each line is a circle that shows the same elevation.
- You go up or downhill when you travel from one line to another.
- The closer the lines together, the steeper the land.

Pass out the worksheet "Land Types" and read the definitions with students. Have students predict where on the map each land type is present. Guide students to notice how the elevation changes across the state to determine the general location of these three land types. Display "Topographic Map of New Hampshire with Land Types" that identifies these three areas and compare with student predictions.

Teaching Tip: If you are going to pause the lesson, this is a good place to do so.



Guided Practice **Postcards of land types.** Create groups of two or three students and distribute “Topographic Map of New Hampshire with Land Types” to each student. Depending upon the size of your class, you can plan for each group to have a few postcards or one postcard each.

Pass out the postcards. Ask the students to use their understanding of the land types and the topographical map to identify which of the three land types their postcard would fall into. They should look at the landscape in the postcard for key physical features (e.g. lakes, valleys, shoreline, rounded hills, or high mountains) and use their observations to determine the land type. They should write the land type on a sticky note and put it on the side of the postcard. Finally, students should look at the map and make their best guess about where on the map their postcard belongs.

Invite groups to come up one at a time to show their postcard and explain their claim. They should support their reasoning with information about the land types that they have on their vocabulary sheet, then tape the postcard on the map where they think it belongs. Once all groups have presented, invite the class to make observations about the pictures of the land types on the map. How do the land types look different?

Teaching Tip: If you are going to pause the lesson, this is a good place to do so.

Independent Practice

Constructing land types in New Hampshire. Tell students that they will be creating their own model of New Hampshire’s land types using playdough in pairs. They can choose to use the topographical map of the state as a base, or they can create the outline of the state themselves. Put the topographical map of New Hampshire on display for the class. Pair students up and have them decide how they will form the state. If they will draw the state freehand, they should sketch out a draft of their creation on a piece of printer paper before being given the materials.

Pass out a baseball size portion of playdough for each partnership. Encourage students to refer to the map in order to complete their models on a piece of printer paper or on the topographical map. If possible, have a tray or other hard object beneath the paper for support. When their map is complete, students should label the three regions.

Reflection

Physical characteristics of New Hampshire. Distribute the “Characteristics of Land Types” worksheet and allow students time to complete it. They can work in pairs or independently and should reference all the lesson activities.

Review as is best for your class. Can students answer the bonus question? How did glaciers affect each type of land in New Hampshire?

Reinforcement

1. **Activities and land types.** Using the student worksheet “Land Types,” ask students to write a list reflecting how each of the land types offer different activities for residents of New Hampshire and people who visit the state.

Extension

1. **Land types and plants and animals.** Collect for students information about the animal and plant life of the three land types. They will make a bulleted list of animal and plant life found in that part of New Hampshire. Why do different animals and plants thrive in the different land types?
2. **Conservation in New Hampshire.** Individually or in groups, students research conservation efforts in an area of New Hampshire. They need to include the area of conservation, describe what efforts are being implemented, and explain how the conservation efforts affect the wildlife and/or population of New Hampshire. Suggested resources:
 - The Conservation Fund at www.conservationfund.org/where-we-work/new-hampshire
 - New Hampshire Association of Conservation Commissions at www.nhacc.org/
 - The Nature Conservancy at www.nature.org/en-us/get-involved/how-to-help/places-we-protect/?s=new-hampshire

Supporting Materials

New Hampshire Historical Society Resources

1. Crawford Notch, 1928
2. Asquam Lake, 1928
3. Little Boar's Head Beach in Hampton, circa 1836–1876
4. New Hampshire Lakes, circa 2000s
5. Center Harbor in the Fall, circa 2000s
6. Pier in Gilford, circa 2000s
7. Mount Washington State Park, circa 2000s
8. North Conway in Winter, circa 2000s
9. Cathedral Ledge, North Conway, circa 2000s
10. Enjoying a Day at the Beach, circa 2000s
11. Mount Chocorua, circa 2000s
12. Meredith in the Fall, circa 2000s
13. New Hampshire Mountains, circa 2000s
14. Hampton Beach, circa 2000s
15. The Boardwalk at Hampton Beach, circa 2000s
16. The City of Manchester, circa 2000s
17. Franconia Notch, circa 2000s

Other Resources

- *New Hampshire Topographical Map.* NH GRANIT Database, Complex Systems Research Center, University of New Hampshire, and New Hampshire Historical Society. Topographic data added by New Hampshire Historical Society staff.
- *New Hampshire Topographical Map with Land Types.* NH GRANIT Database, Complex Systems Research Center, University of New Hampshire, and New Hampshire Historical Society. Topographic and land type data added by New Hampshire Historical Society staff.

Standards

“Moose on the Loose” Content:

- ✓ Students will understand that New Hampshire has a diverse geography, with mountains, seacoast, and farming land. They will understand it has been inhabited for thousands of years and has a variety of resources. (3-5.T1.1)

“Moose on the Loose” Skills:

- ✓ Gathering, Interpreting, and Using Evidence (3-5.S1.2)
- ✓ Comprehensive Geographic Reasoning (3-5.S4.1)

New Hampshire Social Studies Frameworks:

- ✓ The World in Spatial Terms (SS:GE:4:1:3)
- ✓ Places and Regions (SS:GE:4.2.1)
- ✓ Physical Systems (SS:GE:4:3:2)

NCSS Themes:

- ✓ Theme 3: People, Places, and Environments

C3 Frameworks:

- ✓ Geographic Representations: Spatial Views of the World (D2.Geo.1.3-5, D2.Geo.2.3-5)

Common Core ELA:

- ✓ Text Types and Purposes in Writing (W.4.1)
- ✓ Comprehension and Collaboration (SL.4.1)

Science NextGen:

- ✓ Earth’s Systems (4-ESS2-1, 4-ESS2-2)

Lesson Vocabulary

border	(noun) A real or imaginary line that divides two places. Usually a human feature; also called a boundary
elevation	(noun) the height of land measured from the level of the sea
geography	(noun) The study of the physical, biological, and cultural features of Earth's surface
physical feature	(noun) A naturally occurring feature on Earth's surface such as a landform or body of water
region	(noun) A section of a state or country that has specific characteristics but does not have an official boundary