



Gunter Chain, circa 1750 Source: New Hampshire Historical Society





Surveyor's Compass, circa 1770 Source: New Hampshire Historical Society





Tripod, circa 1739 Source: New Hampshire Historical Society





Surveying the Land, circa 1923 Source: New Hampshire Historical Society





Surveying the Boundary, 1891 Source: New Hampshire Historical Society



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Lesson 1.7: Mapping New Hampshire



Surveyor in Woods, 2008 Courtesy of the Bureau of Land Management



Name

Surveying and Mapmaking: Tools, People, and Process

What do you notice?	What do you wonder?	



Details on Surveyor Tools

Gunter chain	Also called a surveyor's chain, the Gunter chain was invented by the English mathematician Edmund Gunter in the early 17th century. The Gunter chain is a measuring device used to calculate land systems in English-speaking countries. It is exactly 22 yards long and is divided into 100 links. Each link is a metal bar. One acre is measured by an area of 10 square chains.
compass	A compass is used for direction-finding on the surface of the earth. It is primarily used in surveying and navigation. Inside magnetic compasses, there is a magnetic stone called a lodestone that shows the user where north is. It was first developed in the 12th century in China and in Europe. Compasses are still used by people every day and are in ships, aircraft, and land vehicles all over the world.
tripod	A tripod is any piece of furniture that has three legs, since the prefix "tri" means three and "pod" means foot in Greek. Specifically, in surveying, a tripod is used to hold steady any number of tools used while measurements are taken, especially on uneven ground. Surveyor tripods today have adjustable legs and platforms, while in the past the height of the tripod was fixed.

Source: Encyclopedia Britannica





Map of New Hampshire and Vermont, 1796 Source: New Hampshire Historical Society







Map of New Hampshire and Vermont, 2019 Source: GoogleEarth



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Name

Classroom Surveyor: Make a Gunter Chain

A Gunter chain is a tool used by surveyors to measure distances on land. It was invented in 1620 by an English mathematician named Edmund Gunter. A real Gunter chain has 100 links. Each link is 7.92 inches long, which means the whole chain measures 66 feet. You will make a shorter version of this chain to use in the classroom. Follow the steps below and look at the picture for guidance.

Before you start, gather these materials: a ruler, a pair of scissors, string, masking tape, and a marker.

- 1. Use your ruler and scissors to measure and cut six pieces of string that are each 12 inches long. These are your links.
- 2. Lay the pieces of string end to end. Do not overlap the ends.
- 3. Use a small piece of masking tape to connect each piece of tape to its neighbor.
- 4. With the marker, make a dot on the tape at the point where the pieces of string meet.
- 5. Cut a short piece of string, about three or four inches long.
- 6. Make a loop with the short string and tape it to one end of your chain.

Your chain should look something like this:



What is your chain's length? Use the space below to show what one chain is equal to in feet.

How would you write a measurement that didn't use the entire chain? Use the space below to explain your thinking.





Classroom Surveyor: Map Measurement Table

Use this table to record your chain measurements and then convert them to feet and inches. When you have determined the scale for your map, convert your real measurements to the lengths in inches.

Example:

Description	Chain Measurement	Converted Measurement	At scale of 1 in. = 3 ft.
Back wall of classroom	3 ½ chains	3 x 6ft = 18 feet	21 ÷ 3 = 7
		$\frac{1}{2}$ of 6ft = 3 feet	Total scale length is 7 inches
		Total length is 21 feet	

Description	Chain Measurement	Converted Measurement	At scale of 1 in. = ft.



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Name_

Scale Map of My Classroom

