# CITIES OF THE AURORA

OVERVIEW

## Lesson Summary:

Students discover the aurora is visible at latitudes under the aurora oval and recognize that the aurora oval can expand after a storm on the sun.

## Objectives:

The student will:

- locate and identify cities from which the aurora is visible;
- convert the percentage of nights the aurora is visible from a certain location into the number of nights the aurora is visible each year from that location;
- recognize the frequency in which people can see the aurora depends on the latitude at which they live;
- explain that Elias Loomis watched the night sky and recorded where he saw the aurora, then pinpointed those places on a map to discover that auroral displays circle Earth's North Pole; and
- discover that the aurora oval expands.

## GLEs Addressed:

Science

[5-8] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.

[9] SD3.2 The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by explaining the phenomena of the aurora.

[5] SG4.1 The student demonstrates an understanding that advancements in science depend on curiosity, creativity, imagination, and a broad knowledge base by investigating that scientists' curiosity led to advancements in science.

Math

[7] E&C-5 The student accurately solves problems (including real-world situations) by converting between equivalent fractions, terminating decimals, or percents (10% = 1/10 = 0.1) (M3.3.5).

[8] E&C-4 The student accurately solves problems (including real-world situations) by converting between equivalent fractions, decimals, or percents (M3.3.5).

[7] PS-5 The student demonstrates the ability to apply mathematical skills and processes across the content strands by using real-world contexts such as science, humanities, peers, and community (M10.3.1 & M10.3.2).

[8] PS-5 The student demonstrates the ability to apply mathematical skills and processes across the content strands by using real-world contexts such as science, humanities, peers, community, and careers (M10.3.1 & M10.4.2).

## Search Terms:

- latitude
- aurora oval
- solar storm
- percentage
- calculation
- Elias Loomis
- map
- geography
- charting
- aurora
- Northern Lights