

AURORA MISCONCEPTIONS: RAINBOWS & AURORA

Lesson Summary:

Students learn scientists once believed rainbows and the aurora were created in the same way. In 1868, Anders Jonas Angstrom used a prism to prove the theory wrong. He discovered that rainbows are created by bent or refracted sunlight and the aurora is created by different gases in Earth's atmosphere.

Objectives:

The student will:

- discover rainbows and auroras are not created in the same way;
- differentiate between spectrums of aurora light and sunlight;
- confirm a certain, constant order of color is created whenever sunlight or white light is bent, or refracted;
- explain rainbows in the sky are created when sunlight is bent, or refracted, through water droplets in the air;
- conclude auroras are created by different gases in Earth's atmosphere;
- explain scientific theories can change, or be proven wrong, when new information is presented; and
- demonstrate how to use a prism.

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.
- [7] SB1.1 The student demonstrates an understanding of the structure and properties of matter by using physical properties (e.g., density, boiling point, freezing point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures).
- [8] SB1.1 The student demonstrates an understanding of the structure and properties of matter by using physical and chemical properties (i.e., density, boiling point, freezing point, conductivity, flammability) to differentiate among materials (i.e., elements, compounds, and mixtures).
- [6] SB2.1 The student demonstrates an understanding of how energy can be transformed, transferred, and conserved by recognizing that energy can exist in many forms (i.e., heat, light, chemical, electrical, mechanical).
- [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.

Search Terms:

- aurora
- Northern Lights
- Anders Jonas Angstrom
- rainbow
- gases
- Earth's atmosphere
- refracted light
- prism
- spectrum