

LIGHT SPEED AND REFRACTION

Lesson Summary:

Students learn about the index of refraction and its effect on the speed of light as it passes through a substance. Students use the index of refraction in calculations and make discoveries about the relationship between the density of an object and the speed of light passing through the object.

Objectives:

The student will:

- calculate the speed of light in different substances; and
- correlate the density of substances with the speed of light in the substance.

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] SB4.3 The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by describing the interactions of waves (i.e., reflection, refraction, wave addition).

Math

- [7] PS-4 The student demonstrates an ability to use logic and reason by using informal deductive and inductive reasoning in concrete contexts or stating counterexamples to disprove statements; or justifying and defending the validity of mathematical strategies and solutions using examples (M9.3.1, M9.3.2, M9.3.3).
- [8] PS-4 The student demonstrates an ability to use logic and reason by generalizing from patterns of observations (inductive reasoning) about mathematical problems and testing using a logical verification (deductive reasoning); or justifying and defending the validity of mathematical strategies and solutions using examples and counterexamples (M9.3.1, M9.3.2, & M9.3.3).
- [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:

- refraction
- light speed
- density
- mathematics
- aurora
- Northern Lights

