

HOW DENSE CAN THEY BE?

Lesson Summary:

Students learn about density by conducting a laboratory experiment using common liquids to produce a model of the upper atmosphere where auroral activity occurs.

Objectives:

The student will:

- hypothesize the relative densities of three substances based on information they obtain about the mass and volume of each substance;
- use three common liquids to build a simulation of atmospheric gases; and
- use their observations to gain an understanding of density as it relates to the gases in our atmosphere and the aurora.

GLEs Addressed:

Science

- [5] SA1.2 The student demonstrates an understanding of the processes of science by using quantitative and qualitative observations to create inferences and predictions.
- [6] SA1.2 The student demonstrates an understanding of the processes of science by collaborating to design and conduct simple repeatable investigations.
- [7] SA1.2 The student demonstrates an understanding of the processes of science by collaborating to design and conduct simple repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings.
- [8] SA1.2 The student demonstrates an understanding of the processes of science by collaborating to design and conduct repeatable investigations, in order to record, analyze (i.e., range, mean, media, mode), interpret data and present findings.
- [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).
- [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:

- density
- Earth's atmosphere
- modeling
- mass
- volume
- gas
- liquid
- solid
- aurora
- Northern Lights

