

Density of Gases

Purpose

To demonstrate that different gases have different densities.

Materials

balloons filled with the following gases: helium, methane, nitrogen, oxygen, argon, and carbon dioxide.

Procedure

1. Before lecture fill the balloons to about equal volume. It may be helpful to use a different colored balloon for each gas.
2. Have volunteers each hold one balloon about 6 feet above the floor.
3. Have the volunteers drop the balloons at the same time.
4. Observe the order in which the balloons fall (or rise).

Additional Information

1. You can write the gases on the board and have the students match the balloon with the gas and explain.

Questions for the Students

- I. Identify the gas in each balloon.
- II. Order the balloons from largest to smallest: pressure, volume, temperature, number of particles, mass of gas, density, average kinetic energy, and average speed of particles. Explain.

Disposal

Release each of the gasses from the balloons **in the hood**.