

Ideal Gas Law – PhET Simulation

Introduction

In this simulation you will look at the motion of gas particles to describe the relationships that exist between pressure, volume, temperature, number and type of atoms in a contained gas.

Procedure

1. Open: http://phet.colorado.edu/simulations/index.php?cat=Heat_and_Thermo
2. Select - gas properties simulation – run now!
3. Select constant volume
3. Pump handle just a little bit – wait for pressure to stabilize (gas well mixed)
Note temperature and pressure
Add more atoms by pumping some more. What happens to the temperature and pressure?

Explain your answers in terms of mechanics of the gas atoms

Sketch a graph of how you think the pressure of the gas in the container depends on the number of atoms in the container.



Describe a real world situation that would be described by the graph you drew.

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4. Press reset.
 5. Put 40 “**heavy species**” atoms in the chamber at constant volume. Note the temperature and gas pressure when well mixed.
Press Reset
Put 40 “**Light species**” atoms in the chamber at constant volume. Note the temperature and gas pressure when well mixed.

Compare the temperature and pressure for equal numbers of heavy or light gas atoms in the container
