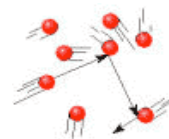


Name _____ Date _____ Period _____



The Behavior of Gases WebQuest

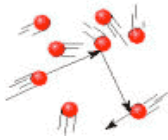


Directions: Use the websites provided to find the answers to the questions about the behavior of gases.

Chemistry Dictionary <http://environmentalchemistry.com/yogi/chemistry/dictionary/#G>
States of Matter simulation http://www.harcourtschool.com/activity/states_of_matter/
Kinetic Molecular Theory <http://www.psinvention.com/kinetic.htm>
Typical Motion of Matter <http://www.chemistry.ohio-state.edu/betha/realGasLaw/fr1.1.html>
Temperature Conversions <http://www.fordhamprep.com/gcurran/sho/sho/lessons/lesson29.htm>
Chemical elements.com <http://www.chemicalelements.com/>
Inventions and Inventors <http://www.enchantedlearning.com/inventors/1600.shtml>
Pressure in Gases <http://www.schoolscience.co.uk/content/3/physics/bama/aerosch4pg1.html>
Gas Law Simulation <http://intro.chem.okstate.edu/1314F00/Laboratory/GLP.htm>
Pressure of a Confined Gas <http://library.tedankara.k12.tr/chemistry/vol1/physics/trans64.htm>
Volume of a gas at constant temp <http://library.tedankara.k12.tr/chemistry/vol1/physics/trans62.htm>
Relationship between pressure and volume <http://chem.salve.edu/chemistry/boyle.asp>
Summary of Gas Laws <http://www.chemtutor.com/gases.htm>
Boyle's Law Simulation http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/gaslaw/boyles_law_graph.html
Charles' Law simulation <http://www.grc.nasa.gov/WWW/K-12/airplane/Animation/gaslab/chv1mp.html>

Extra Practice: As we work through our unit on the behavior of gases, you will be required to perform many calculations. The following websites give practice problems for each of the gas laws and will help you prepare for the Gas Law Test at the end of the unit. You will need a calculator to complete these problems.

Boyles Law Practice Problems <http://science.widener.edu/svb/tutorial/boyleslaw.html>
Charles' Law Practice Problems <http://science.widener.edu/svb/tutorial/charleslawcsn7.html>
Avogadro's Law Practice Problems <http://science.widener.edu/svb/tutorial/avogadrolawcsn7.html>
Combined Gas Law Practice Problems <http://science.widener.edu/svb/tutorial/combinedgascsn7.html>
Ideal Gas Equation Practice Problems <http://science.widener.edu/svb/tutorial/idealgascsn7.html>



The Behavior of Gases WebQuest



1. What is a gas?
2. What does the kinetic molecular theory explain?
3. Describe the three states of matter.
4. Describe the typical motions of atoms in a solid, a liquid and a gas.
5. The Kelvin scale is based on the concept of absolute zero. Explain this concept.
6. Read about temperature conversions and fill in the following chart.

Comparison of Temperature Scales

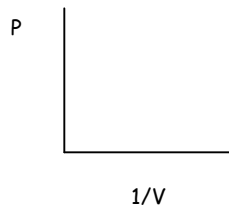
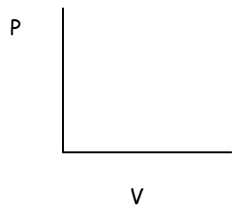
	Fahrenheit	Celsius	Kelvin
water boils			
Body temperature			
Water freezes			
Absolute zero			

7. What are the boiling points of Oxygen, Nitrogen and Fluorine gas?
8. In what state are these three elements gases at room temperature? (No link for this one, you have to think)
9. Who invented the mercury barometer and what is it used to measure?
10. What causes the pressure that a gas exerts on the walls of its container?
11. Why do we not feel the weight of the atmosphere?
12. Read the page "Pressure in Gases" and answer the questions at the end. After you have answered the questions, click "show answers" and record your score.

Score

13. Use the Gas Law Simulation to find the volume of 1 mole of Helium gas when the pressure is 1.47 atm and the temperature is 287 K?
14. Use the Gas Law Simulation to find the pressure when there is a total volume of 10.0 L of gas with 2 moles of helium gas and 3 moles of neon gas when the temperature is 300K?
15. Use the Gas Law Simulation to find how the pressure changes when the total volume is increased to 20.0L?

16. What happens to the pressure of a confined gas at a constant temperature when the volume is reduced by $1/2$?
17. What happens to the volume of a gas at constant temperature when the pressure is increased?
18. Use the relationship between pressure and volume simulation to see if changing the volume of the gas has a direct or inverse relationship with pressure when considered at a constant volume. Draw each graph. (Hint: If the graph of Pressure vs. Volume is a straight line, the relationship is directly proportional, if the graph of P vs. $1/V$ is a straight line, the relationship is inversely proportional.)



Are pressure and volume inversely or directly proportional?

19. Write Boyle's law using both words and a formula.
20. Write Charles's law using both words and a formula.
21. Write Avogadro's Law using both words and a formula.
22. Write the Combined Gas using both words and a formula.
23. Use the Boyle's Law simulation and describe how the volume and pressure of a gas are related.
24. Use the Charles's law simulation and describe how the temperature and volume of a gas are related.