

Name: _____

Gas Laws Webquest

Click here to answer. <http://environmentalchemistry.com/yogi/chemistry/dictionary/#G>

What is a **gas**?

Click here to answer. <http://www.chm.davidson.edu/vce/kineticmoleculartheory/BasicConcepts.html>

What does the **kinetic molecular theory** explain? (at least 3 things)

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Click here to answer. <http://legacyweb.chemistry.ohio-state.edu/betha/realGasLaw/fr1.2.html>

Describe the three states of matter in terms of how they fill a container.

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Click here to answer. <http://www.chem.purdue.edu/gchelp/liquids/character.html>

Describe the typical motions of atoms in a solid, a liquid and a gas.

Click here to answer. <http://legacyweb.chemistry.ohio-state.edu/betha/realGasLaw/fr1.3.html>

What are the 4 physical (measurable) characteristics of a gas?

<http://www.enchantedlearning.com/chemistry/glossary/Kelvin.shtml>

The Kelvin scale is based on the concept of absolute zero. What is absolute zero, and what happens to particles at absolute zero?

Click here to answer. <http://www.enchantedlearning.com/chemistry/glossary/Kelvin.shtml>

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			

Click here to answer. <http://www.chemicalelements.com/>

7. What are the boiling points of Oxygen, Nitrogen and Fluorine gas?

8. Who invented the mercury barometer and what is it used to measure? <http://chemistry.about.com/od/elementfacts/a/mercury.htm>

9. How does the barometer work? Draw a quick diagram and label it below.

<http://weather.about.com/od/weatherinstruments/a/barometers.htm>

10. What causes the pressure that a gas exerts on the walls of its container? <http://resources.schoolscience.co.uk/BAMA/11-14/aerosch4pg1.html>

11. Why do we not feel the weight of the atmosphere? <http://www.newton.dep.anl.gov/askasci/gen01/gen01760.htm>

12. Read the rest of 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= _____

Use the simulator to answer the following questions. <http://intro.chem.okstate.edu/1314F00/Laboratory/GLP.htm>

You may have to visit different simulations to answer the following:

<http://phet.colorado.edu/en/simulation/gas-properties>

http://www.chem.ufl.edu/~itl/2045/MH_sims/gas_sim.html

<http://jersey.uoregon.edu/vlab/Piston/>

<http://www.grc.nasa.gov/WWW/K-12/airplane/Animation/frglab2.html>

13. Use the Gas Law Simulation to find the volume (lock the volume) of 1 mole of Helium gas when the pressure is 1.47 atm and the temperature is 287 K? You can manually change the values by double clicking the numbers.

14. Use the Gas Law Simulation to find the pressure (lock 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 in the last example changes when the total volume is increased to 20.0L?

Click here to answer. <http://library.tedankara.k12.tr/chemistry/vol1/physics/trans64.htm>

<http://phet.colorado.edu/en/simulation/gas-properties>

http://www.chem.ufl.edu/~itl/2045/MH_sims/gas_sim.html

<http://jersey.uoregon.edu/vlab/Piston/>

<http://www.grc.nasa.gov/WWW/K-12/airplane/Animation/frglab2.html>

16. What happens to the pressure of a confined gas at a constant temperature when the volume is reduced by 1/2?

Click here to answer. <http://library.tedankara.k12.tr/chemistry/vol1/physics/trans62.htm>

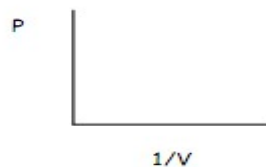
17. What happens to the volume of a gas at constant temperature when the pressure is increased?

Click here to answer. <http://chem.salve.edu/chemistry/boyle.asp>,
http://group.chem.iastate.edu/Greenbowe/sections/projectfolder/flashfiles/gaslaw/boyles_law_graph.html,
<http://www.grc.nasa.gov/WWW/K-12/airplane/aboyle.html>,

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. Change the % volume and click on the update button for each of the %'s. **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.)



Direct?/Inverse?



Direct?/Inverse?

Click here to answer. <http://www.chemtutor.com/gases.htm>

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.

Click here to answer. http://www.chem.iastate.edu/group/Greenbowe/sections/projectfolder/flashfiles/gaslaw/boyles_law_graph.html

23. Use the Boyle's Law simulation and describe how the volume and pressure of a gas are related.

Click here to answer. <http://www.grc.nasa.gov/WWW/K-12/airplane/Animation/gaslab/chvtmp.html>

24. Use the Charles's law simulation and describe how the temperature and volume of a gas are related.