GAS LAWS WEB QUEST

The states of matter are just the beginning part of our journey to understanding why and how matter acts the way that it does. Think about all of the matter that makes up us, the things in this classroom, and the rest of the universe. To gain a better understanding of the matter around us, we have recently discussed the differences between a solid, liquid, and gas. There are also two other known types of matter. In fact the 4th major type of matter actually makes up close to 99% of the matter that makes up the universe, but it is a type of matter that is RARELY found on earth!

Through this Web Quest, you will get to become familiar with the two other types of matter, as well as a few ideas that help us understand the behavior of gases. Understanding the behavior of gases is what first led scientists to the idea of the Kinetic theory of matter which is the current explanation for why matter takes on different states!

Please follow these instructions carefully and answer all of the questions as you go.

1. Open up a new Word Document
2. File – Save: Name the document: YourName-LabPartnersName.docx
3. Title the document – **GAS LAWS WEBQUEST**
4. Put your names underneath the document and your hour
5. Answer each of the questions on the web quest in the document with a number that corresponds to the question.
6. Write the name of the website used to answer any of the following questions

START HERE:

1. **Using a search engine of your choice type in this for the search "The fourth state of Matter".**
    a. What is the fourth state? (Can you tell from the titles of webpages)
    b. Choose a reliable source and find the definition of this state of matter.
    c. What is an example of this type of matter?
    d. Can you find an image of this type of matter? Copy and paste it to your document.

2. **Go back to your search engine – search the term Bose-Einstein condensate. Find a reliable source to find the information below**
    a. What is the definition of this type of matter?
    b. Who discovered the matter?
    c. What happens at 0 K, or absolute zero? Have scientists reached Absolute Zero?

3. **Boyle's law explains the relationship between the volume of a gas and the pressure of a gas – you will have either defined pressure already in your book, or you will define it once you get to the book work.**
    a. Click on this http://group.chem.iastate.edu/Greenbowe/sections/projectfolder/flashfiles/gaslaw/boyles_law_graph.html
    b. Choose a gas to observe, air, oxygen, hydrogen or helium
    c. Drag the plunger's volume to 30 ml, 25 ml, 20 ml, 15 ml, 10 ml, and 5 mL. Data should begin to fill the table
    d. Click on Graph and display the graph
    e. What happens to the pressure of the gas as the volume is increased?
    f. Does the graph show a direct proportion or inverse proportion? (google direct proportion graph & indirect proportion graphs)
    g. According to the graph, what is the manipulated variable (independent variable)? (HINT: X-axis)
    h. What is the responding variable (dependent variable)? (HINT: y-axis)

4. **Charles's Law explains the relationship between the temperature of a gas and the pressure of a gas.**
    a. Click on this http://group.chem.iastate.edu/Greenbowe/sections/projectfolder/flashfiles/gaslaw/charles_law.html
    b. Slide the temperature bar to as low as it will go.
    c. Look at the graph that pops up, what happens to the pressure as temperature increases?
    d. Does the graph show a direct proportion or inverse proportion?