SPS5 – Students will compare and contrast the phases of matter as they relate to atomic and molecular motion.
b. Relate temperature, pressure, and volume of gases to the behavior of gases.

Name _____ *Date* _____ *Period* _____

Boyle's Law Lab

Learning Target: I can explain and demonstrate the relationship between volume and pressure of gases.

Purpose: To determine graphically the relationship between pressure and volume (Boyle's Law). In this lab experiment you will collect and graph data to illustrate the relationship between volume and pressure.

Predictions:

1) What will happen to the volume of the balloon as books are added on top of it?

2) What will happen to the volume of the balloon as books are removed?

3) How does this experiment relate to Boyle's Law of volume and pressure?

Materials: Books, Ruler, Balloon

Procedure:
1.) Blow your balloon up all the way and tie it.
2.) Measure the height of your balloon in centimeters and record it for Zero in your data table.
3.) Add books on top of the balloon and record the height of the balloon in centimeters as you add each book until you get to t1 books.
4.) Plot the data on your graph and draw a line through the data points on your graph.
x = pressure (books) y = Volume (balloon)
5.) Start your first data point at 0 for pressure of books. Once complete, answer your lab questions

Data Table:

# of Books (Pressure)	**0**	**1**	**2**	**3**	**4**	**5**
Trial #1 Volume in cm						
# of Books (Pressure)	**6**	**7**	**8**	**9**	**10**	**11**
Trial #1 Volume in cm						

Results: What did you observe as you added more books? _____

_____

Conclusion: _____

_____

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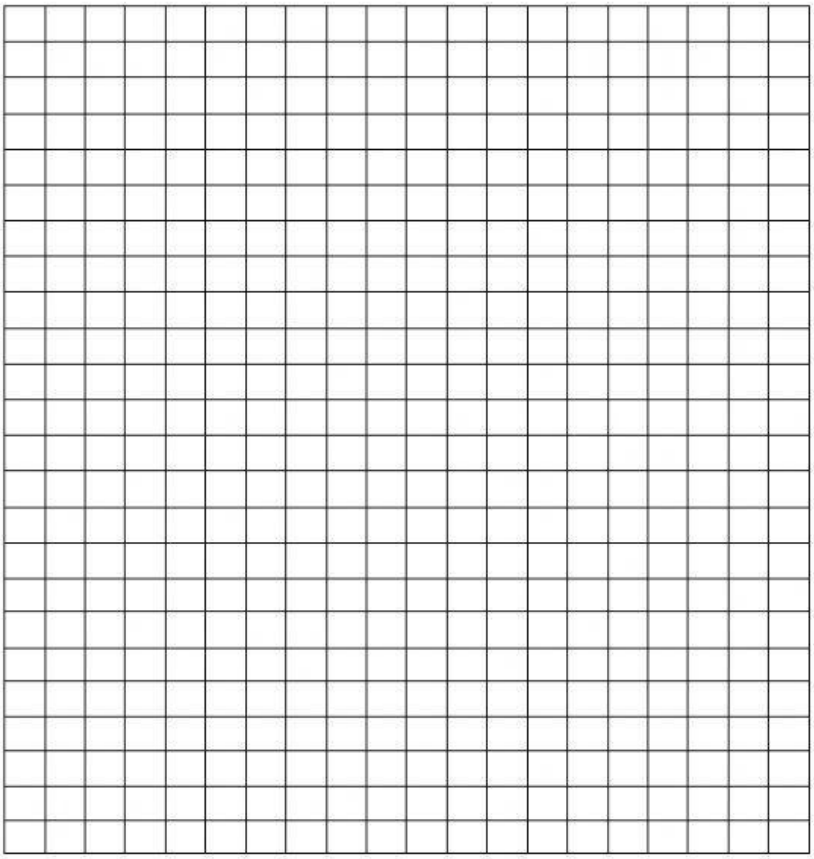

1.) What two variables are graphed in the Boyles Law experiment?

2.) Which of the three variables that affect a gas is held constant?

3.) Predict what would happen if you removed the books from on top of the balloon..

4.) Does this experiment show a direct relationship or an inverse relationship? Explain why.

5.) Does the data show a constant change between pressure and volume? Explain your answer.

6.) How does this lab demonstrate the relationship between volume and pressure of gases?

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