



3 Kinds of Variables

Independent Variable

something that is changed by the scientist (*I change it*)

- What is tested
- What is manipulated
- What is made different

Dependent Variable

something that might be affected by the change in the independent variable

- What is observed
- What is measured
- The data collected during the investigation

Controlled Variable

anything that is not changed

- Also called constants or, especially in biology, a *control experiment*
- Allow for a “fair test”

Check List Graphs

1. Large: fill the page
2. Label axes, including units
3. Y axis Dependent Variable
4. x axis Independent Variable
5. Title
6. Use a ruler

Title:

Date:

1. Define what you mean by _____:

2. Write a research question using the word “affect”:

3. Identify the **independent variable** in your question:

4. Identify the **dependent variable** in your question:

5. Identify the **controlled variable(s)**:



6. Write a hypothesis using an ***if... then*** statement:

7. **Materials & Diagram**

8. **Procedure or Method:**

Design an investigation to test your hypothesis.

Write the steps of the procedure in order. Start with:
The experiment was set up as shown in Diagram 1.

9. **Use the data table below** to record your observations (***use Excel if possible***)



| Volume* (cm) | Measurement 1 Pressure (atm) | Measurement 2 Pressure (atm) | Measurement 3 Pressure (atm) | Mean Pressure (atm) | Pressure 1000 Pa = 1 kPa |
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*Volume – the normal unit is , of course, cm³.
But we are using the distance across the box as a measure of “volume” in cm

**10. Use your data to draw a graph. (see page 5)
Describe any patterns or relationships.**



11. Write a conclusion to your experiment.

12. Suggest how the experiment can be improved.

What questions remain to be answered?

Outline, briefly, further experiments that could be carried out.

