

Pill bug experiment: Expectations for your write up

Name: _____

As you already know, your task has been to work with your partner to design and carry out your very own science experiment with pill bugs! I asked for you to provide, in the end, the following:

- a. The general question that your experiment addresses;
- b. The specific hypothesis you tested;
- c. Your specific independent and dependent variables;
- d. A description of how you measured these variables;
- e. A list of important variables that were kept constant;
- f. A description of your control group;
- g. A description of the methods you employed (written so that anyone reading your description could repeat your experiment);
- h. Your experimental data;
- i. A summary of your results;
- j. An interpretation of your results;
- k. Suggestions for modifying your methods to better test your hypothesis (know that you have time to make multiple attempts at conducting your experiment!);
- l. A list of questions that you now have as a result of designing and carrying out your experiment;
- m. A reflection on your process (using the simplified version of the flow chart describing the real process of science).

In terms of a formal write up, I ask that you turn in a report written in the following format, addressing the following questions in the order given (word-processed, double-spaced, using 12 pt font):

- 1) **Title:** Does your title capture the essence of the intent of your experiment?
 - a. Include both your name and your partner's name after the title.
- 2) **Introduction** (1 page max): Your introduction should include:
 - a. The general question you are testing, including the following details:
 - i. What stimulated your question? Your own observations? An experiment you read about? A section in your text? Why is this question interesting to you?
 - b. What is the specific hypothesis you are testing?
 - i. What is the rationale for making your prediction?
 - c. What are your independent and dependent variables?
 - d. How were these variables measured or qualified?
- 3) **Procedure** (2 pages max): What was the procedure you finally settled upon?
 - a. Write this like a baking recipe so that anyone reading it will be able to repeat your procedure.
 - b. Include a description of the important variables you kept constant and your control group(s).
 - c. What kinds of modifications did you need to make in your procedure as you tried it? Why?
- 4) **Results** (variable length, except for summary): What were your results?
 - a. Include your *original* data table(s)—one partner can submit a photocopy.
 - b. Include a graphical representation of your results (your graph or graphs should help *summarize* your results).
 - c. Include a written summary of your results (1 page max for the summary).
- 5) **Interpretation of Results** (2 pages max): What interpretations and inferences can you draw from your results?
 - a. Was your hypothesis supported? Refuted? Is it unclear as to which? Why?
 - b. What is the evidence upon which you make your interpretations? Use specific data from your results.
 - c. What variables did you find difficult to control? Why?
 - d. What further modifications would you make in your procedure if you were to repeat the experiment?
 - e. What further questions are stimulated by your experiment?
- 6) **Reflection on Process:** What was the path that you followed in making initial observations and in designing, carrying out, and interpreting your experiment?

- a. Write a summary of the steps that you took in your process, and number them. Start with “1. My teacher gave my partner and me a choice chamber containing 10 pill bugs. We simply watched the pill bugs for a while.” (1 page max).
- b. Record the numbers for these steps on a copy of the Science Flowchart “How Science Works.” Draw a small circle around each number. Then “connect the dots.”
- c. Provide a reflection on your process. At which points did you experience your greatest successes? At which points did you experience your biggest challenges? In the end, what did you learn most about the process of science? Please be honest and open in your reflection. If at certain points you were genuinely intrigued and excited by what you were doing, say so. If at certain points you felt that your journey was dull and boring, include this, too. (1 page max).

Important note:

The following sections of your report may be *written in collaboration with your partner*:

Title, Introduction, Procedure, Results.

The following sections of your report need to be *written on your own, using your own words*:

Interpretation of Results and Reflection on Process.