

PLANNING AN INVESTIGATION

As 8th grade students you are required to plan an experiment or investigation based upon some testable question and/or hypothesis. Your plan will require that you be able to do the following:

- Identify information/evidence that needs to be collected in order to answer the question, hypothesis, prediction.
- Develop an organized and logical approach to investigating the question, including controlling variables.
- Provide reasoning for appropriateness of materials, tools, procedures, and scale used in the investigation.

Use the following set of questions to help you plan and write your investigation. While the answers to some of these question need not be directly answered in your procedure, you must be able to answer them in order to develop a complete and appropriate procedure.

QUESTIONS TO BE ANSWERED PRIOR TO WRITING YOUR PROCEDURE

1. What is your testable question?
2. What types of evidence (data) should be gathered to answer the testable question / test your hypothesis?
 - a. What are your independent and dependent variables?
 - b. What variables will be kept constant during the investigation?
 - c. What will your data table look like?
 - d. How many trials will be completed?

WRITING YOUR PROCEDURE

A well written procedure includes:

1. A diagram labeled using scientific terminology that supports procedures and illustrates the setup .
2. Identifies and uses appropriate tools and technology for collecting data that produces the least amount of experimental error.
3. A list of steps that are written sequentially and logically.
4. An explanation of which variables will be manipulated (independent variable) and which variable will respond (dependent variable).
5. Identifying variables that will be kept constant (control) throughout the investigation.
6. Uses appropriate scientific terminology that supports the procedure.
7. Use of a control group for comparing data when appropriate.

QUESTIONS YOU SHOULD BE PREPARED TO ANSWER AFTER WRITING YOUR PROCEDURE

1. Explain what safety precautions / ethical considerations you took into account when developing your procedure.
2. Explain why the materials, tools and technology you chose are appropriate for your investigation.
3. Did you choose to use a control group? Why or why not?
 - a. If so, what is your experimental group?
4. Will the number of trials be sufficient to fairly test your hypothesis?
5. Does your scale of measurement provide a reasonable amount of precision and accuracy?