GUIDELINES FOR AN EXPERIMENT/INVESTIGATION

Think of a topic or subject that interests you. Start asking yourself, "What if. . .?" questions. One of these questions is what you will focus on to design your experiment. It is called the TESTABLE QUESTION.

Once you have a testable question, you have some decisions to make:

- How do you design the experiment to answer your question?
- What measurements do you need to record your results?
- How do you use a CONTROL, in your experiment? A control is a part of your experiment that you don't change so that you can compare the results of your test. It helps you to be sure that what you are testing for is really happening because of what YOU DO in your experiment.
- Think about what might happen in your experiment. This is called a HYPOTHESIS. Write down your hypothesis (prediction) BEFORE actually doing the experiment.

Now that you have planned your experiment, gather all the materials you will need. As you begin, make detailed observations of what is happening. Take your measurements carefully. Keep detailed written notes about what you are doing and how you are doing it.

Then, REPEAT THE EXPERIMENT over again at least two more times. Record your results as carefully as you did the first time. Most scientists repeat their experiments: you will, too.

When you have all of your results from all the trials you did with the experiment, you need to design the way that you will report your results. Many students use graphs, charts, and written summaries of what happened in the experiment. Display all your results and measurements, **even if they don't match what you thought was going to happen.**

Look again at your HYPOTHESIS and the results of your experiment. Think about what happened and why it happened that way. Write down the reasons you think the results happened the way they did.

On the project board for your experiment, write down everything again, this time neatly. Think of an interesting title. Include the following parts:

- Testable Question
- Hypothesis
- Materials
- Procedure
- Results (observations)
- Conclusions
- Research
- Bibliography
- Acknowledgement of Help