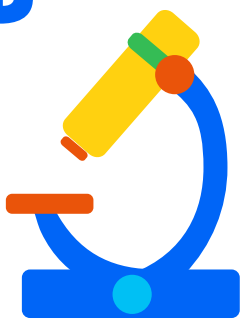
GETTING STARTED



Topic Research

☐ Choose a science category that interests you such as biology, chemistry, physics, or geology and narrow down your topic from there.

Science Log

☐ Brainstorm ideas in your science log by writing them down. When you select a topic, write down notes, observations, thoughts, questions, and data as you conduct research and perform your experiment.

THE SCIENTIFIC METHOD

1. ☐ **Ask a question** about something you observe. Good questions will include the words who, what, when, where, how, which, why?

Examples:
What is the effect of _____ on _____?
How does the _____ affect _____?

2. ☐ **Conduct research**
Use the Internet and library to conduct background research on your chosen topic and keep your findings in your log book

Interview experts- you can interview teachers, scientists, authors, and other experts on your topic.

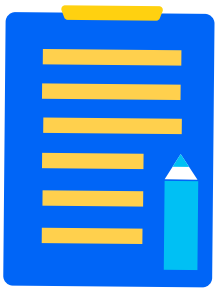
3. ☐ **Make a hypothesis**
A hypothesis is an educated guess on what you think the results of your experiment will be. You do not have to be right but your guess should be based on your research and what you have learned about the topic.

You should be able to fill in the blanks with a good hypothesis:
"If I _____ (do this), then _____(this will happen).

4. ☐ Plan the experiment

Plan the experiment to test your hypothesis.

☐ Make a step-by-step list of everything you will do to conduct the experiment. It should be detailed enough that one of your friends can read your instructions and do the experiment exactly the way you did.



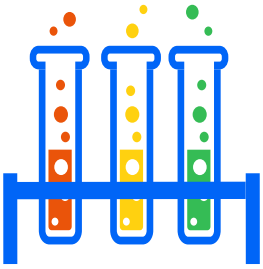
☐ Keep track and make notes about the following variables:

1. Independent variable: the one (and only one!) condition you change in the experiment.

2. Dependent variables: conditions that you observe that could change from the change in the independent variable

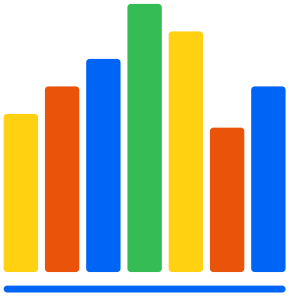
3. Controlled variable: Conditions that remain the same through the whole expriement

☐ Make a materials list of things you will need to buy for the experiment and show it to one of your parents. Get approval on your hypothesis and experiment from your teacher.



☐ Perform your experiment a few times and record the results in a data chart in your log book. Write down your thoughts, observations, and questions. Take photos or videos of each step of the process.

Analyze the data and present it with charts, graphs, or diagrams. Write a summary about whether or not your findings support or contradict your hypothesis



Sources: http://www.pardonmypoppet.com/PipSqueaks/2012/08/science-fair-project-cheat-sheet-infographic/
https://www.sciencebuddies.org/science-fair-projects/science-fair/variables