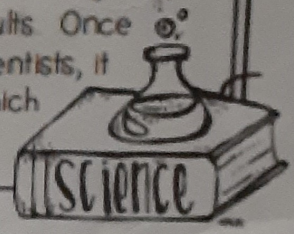
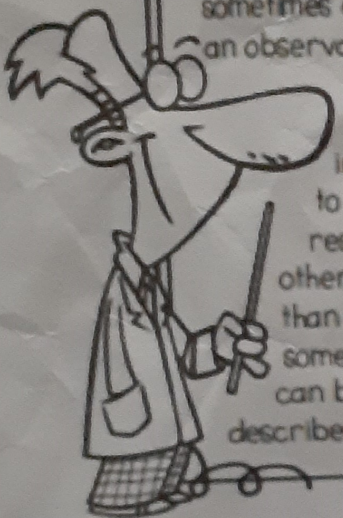


Exploring the Scientific Method

The **scientific method** is a process that scientists use to better understand the world around them. It includes making observations and asking a question, forming a hypothesis, designing an experiment, collecting and analyzing data, and drawing a conclusion. This is sometimes also referred to as scientific inquiry. A **hypothesis** is a possible explanation for an observation. A good scientist will design a **controlled experiment** to test their hypothesis. In a controlled experiment, only one variable is tested at a time. It is called the manipulated or **independent variable**. The **experimental group** will test the independent variable. The **control group** will be left alone, so you have something to compare your results to. The variable that determines the data is the responding, or **dependent variable**. It responds to the manipulated variable. All other variables in the experiment should remain the same, because if you change more than one variable, you will not know which variable explained your results. Once something has been tested many different times by many different scientists, it can become a **scientific theory**. It is different from a **scientific law**, which describes what will happen every time under a particular set of conditions.



True or False

If the answer is true, write "true" on the line. If the answer is false, replace the underlined word or phrase with one that will make the sentence correct. Write the new word(s) on the line.

- 1 False ~~make~~ make observation Forming a hypothesis is the first step of the scientific method.
- 2 False explains or describes A scientific law is different from a scientific theory because it describes something in nature without attempting to explain it.
- 3 True In order for a hypothesis to be testable, scientists need to be able to carry out investigations that will either support or disprove it.
- 4 Control group The experimental group is the group that is left alone during the experiment.
- 5 True The manipulated variable is the same thing as the independent variable.

