Name_____

Designing an Experiment

Background Information: One way to investigate an answer to a question is by doing an **EXPERIMENT**. A true experiment involves **VARIABLES**.

In an experiment, scientists ask a question about how one variable [called the **INDEPENDENT VARIABLE**] will affect another variable [called the **DEPENDENT VARIABLE**.] Some variables are held **CONSTANT** – they do not change during the experiment.

Usually a **HYPOTHESIS** is made; this is a prediction about how the independent variable will affect the dependent variable. Then a **PROCEDURE** is developed to test the hypothesis.

The experiment must be **REPEATED SEVERAL TIMES** to be confident in the accuracy of the results.

The results [called **DATA**] of the experiment are recorded, frequently in a **TABLE**, and then analyzed.

After the data is analyzed **CONCLUSIONS** can be drawn about the variables. The original question may be answered, although sometimes more research is needed to be certain of the answer.

A hypothesis is either supported by the data or not supported by the data.

Given this RESEARCH QUESTION: *Does the color of a Tootsie Roll Pop affect how long it takes to get the chocolate center*?

1. Identify the *independent variable* in this question.

2. Identify the *dependent variable* in this question.

3. Identify at least 3 *constants* for this question.

4. State a *hypothesis for this question.*

5. Write a *procedure* to test this hypothesis:

6. What *materials* will you need to conduct this investigation?

7. Design a *data table* to collect and display your results.