FOLLOW THE ARROWS TO BECOME A SCIENCE SUPERSTAR!

Name: _____

THE SCIENTIFIC METHOD

I'm investigating _____

Observation

What do you see, hear, smell or feel?

Question

What question do you have about your observation?

Try again!

Do you have new questions based on your outcome? What could you change?

Hypothesis

What do you think will be the outcome?

Outcome

What happened? Do you accept or reject your hypothesis?

Experimental procedure

How will you test this? What are your variables?

Name: _____

THE SCIENTIFIC METHOD!

THE SCIENTIFIC WHAT-NOW?

What is it?

The scientific method is a specific way of investigating something in order to learn from it. The scientific method includes steps in a certain order that we, as scientists, follow whenever we want to do an experiment. If we conduct an experiment by the scientific method we can make sure our experiment is a **fair test.** A fair test is an experiment that keeps everything constant except one changing variable.

Beth wants to find out which flavor jelly she likes best with peanut butter. She wants to test grape, strawberry and fish. She needs bread, jelly and peanut butter for her experiment. The experiment will be done three times.

For each experiment, which of the three things she needed will be changed? What will stay the same?

The scientific method is OLD; it goes all the way back to the ancient Greeks and Egyptians! Over time scientists have improved it little by little to what we know as the scientific method today. Since scientists all over the world use the same method it is easy for other scientists to understand and replicate those experiments. (Only the results of experiments done multiple times count so in science we want to replicate *everything*.)

These words are science-y!

Here are some words we use when talking about the scientific method:

- **Observation** – Use all your senses! See, hear, smell, feel, taste! What can you observe about the thing you want to investigate?
- **Question** – Use what you observed to write a question that starts with Who, What, Where, When, Why, How, or Which.
- **Hypothesis** – This will be your guess at how your experiment will turn out. What will happen?
- **Experimental procedure** – This is basically the "recipe" you will follow in your experiment. All the steps should be listed in the order they will be done.
- **Variables** – A variable is any *thing* (like the time, temperature or the physical characteristics of any object involved) in an experiment. There are three different kinds of variables – independent, dependent and controlled.
- **Independent variable** – This is the thing that is changed by the scientist. We think of this as the "cause."
- **Dependent variable** – This is the thing in the experiment that will change as a result of the independent variable. We can think of this as the "effect".
- **Controlled variable** – This is anything else in the experiment that the scientist wants to stay constant (the same). Sometimes keeping things constant is a challenge in experiments!
- **Outcome or results**- As the scientist, this is when you check out what happened. Maybe it was what you were expecting from your hypothesis – maybe not! Do you have new questions from what you observed? You know what comes next…repeat! Yay!