**Scientific Inquiry**

1. **Scientific Method**
	1. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scientists use to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a problem, question, and/or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. ***Scientific Method: Making Observations***
	1. **Observation**: when you use your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to obtain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Types of observations:
		1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Observations that involve \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: Observations using your \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. **Inference:** Making a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; cannot be directly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; not a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. ***Scientific Method: Making a Hypothesis***
	1. **Hypothesis:** an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ guess (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) that tries to explain a scientific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; a testable inference
	2. Written as an **\_\_\_\_\_** …**\_\_\_\_\_\_\_\_** statement
4. ***Scientific Method: Designing an Experiment***
	1. **Variable:** Factor that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in an experiment
		1. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable:** factor that the experimenter changes; If you are the experimenter you say it’s the variable “I” changed
		2. **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable:** factor that changes in response to the independent variable; the experimenter makes observations of this variable
	2. **Experimental group(s):** Groups in which the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable is changed
	3. **Control group:** The “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” or “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” group; used to compare to experimental groups
	4. **Controlled experiment:** an experiment that contains only \_\_\_\_\_\_\_ independent variable
	5. **Constants:** Factors that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in an experiment

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| **PRACTICE:** Patrick believes that fish that eat food exposed to microwaves will become smarter and would be able to swim through a maze faster. He decides to perform an experiment by placing fish food in a microwave for 20 seconds. He has the fish swim through a maze and records the time it takes for each one to make it to the end. He feeds the special food to 10 fish and gives regular food to 10 others. After 1 week, he has the fish swim through the maze again and records the times for each. |
| What was Patrick’s hypothesis?  |
| What is the independent variable? Dependent variable? |
| Control group? |

* 1. **Procedure:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		1. Experiments require many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to improve accuracy of the data collected.
			1. **Trials:** Repetition of testing during experiment
1. ***Scientific Method: Collecting and Analyzing Data***
	1. **Data:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ made during an experiment
	2. **Data Table:** a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of data using \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Size of Bread Loaf (cm3)
Trials

**Ex.** **How Does Sugar Affect Bread Loaf Size**



* 1. **Graph:** \_\_\_\_\_\_\_\_\_\_\_\_\_ display of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ data; \_\_\_\_\_ major parts to a graph
		1. Types of Graphs:
			1. Bar graph
			2. Line graph
			3. Pie chart
1. ***Scientific Method: Writing a Conclusion***
	1. What was the question/problem you were investigating?
	2. What was your hypothesis?
	3. Is your hypothesis supported or unsupported by your data?
	4. What is the explanation for what happened in the experiment? (This could be an inference)
	5. What improvements would you make next time?