Notes: Scientific Method

Make Observations
Things that make you go "Hmmmm…."

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Ask/Form a Question (Problem)
What do you want to know or explain? Write a question that addresses the question or topic.

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Research the Question (Problem)
Gather background information on the question from various sources. What do you want to know or explain?

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Form a Hypothesis
Using research gathered/observations form an educated guess to predict the answer to the question.

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Identify Variables
Variables must first be identified prior to designing the experiment. Variables include an independent (manipulated) variable, dependent (responding) variable, and constants.

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Test the Hypothesis

1. Design the Experiment

2. Perform the Experiment

3. Record Data/Observations (Qualitative and Quantitative)

4. Organize/Analyze Data

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Interpret Results
Determine whether the hypothesis was supported or not supported (rejected). Determine if any patterns occurred with the data. Check for and explain out liers (extraneous/anomalous data).

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Communicate the Results
Summarize the important aspects of the experiment. Discuss the results and their interpretation. Use data in word form. Discuss the limitations of the data and the experiment.

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Retest the Experiment