

Wheel of logic/ Scientific Method

1. **Activate prior knowledge**

Summarize prior knowledge you already know or were taught about the concepts in this lab.

Define vocabulary and concepts concerning the topic.

2. **Generate a Question**

Clearly write a testable statement or question in a complete sentence that relates to the topic of study.

Example: Which freezes faster- fresh water or salt water?

3. **Create Hypothesis:**

This is what you THINK the answer will be to the question you asked in the "generate question" section.

A hypothesis must be something that can be tested.

For a 3~ "I think _____ because _____.

For a 4~ "If, _____, then _____ because _____.

Example: If I add salt to fresh water, **then** the water will take longer to freeze **because** salt lowers the freezing point of water.

4. **Conduct Experiment**

A. Materials: List all materials and supplies (and technology if needed) used to conduct the investigation.

B. Procedure: Write a numbered, step by step set of instructions of exactly what you will do to test your hypothesis.

Only one direction should be included in any one step.

C. Variables:

The *manipulated* variable in this experiment is: the variable that you change on purpose.

The *responding* variable in this experiment is what you measure or observe to obtain your results.

The *controlled* variables are kept constant (unchanged) throughout the experiment.

5. **Collect Data**

Construct a data table/chart to organize all measurable variables; Label the chart! (display headings, labels and units.)

Record observations, illustrations, models and journal entries in a table.

Facts only here!

6. Analyze Data

To analyze the data you need to look for any patterns or trends. Think through what the data reveals.

Tell the reader what you think your data means. Why do you think the result turned out the way it did? Discuss any data that doesn't seem to belong and why.

7. Make Conclusion

Answer your original question.

State whether or not your results supported your hypothesis.

What did you learn from this investigation?

8. Share

All final reports must be written neatly or typed.

All sections should be labeled and titles underlined.

No errors, scribble outs, typos or spelling errors. Use rulers to draw graphs or tables.