

Science Writing Heuristic

Beginning Questions:

- What do you have to investigate or figure out about this concept?
- What will be the main questions that will guide your learning?

Hypothesis:

- Considering what you already know about this concept, write a cause and effect statement that explains what you anticipate will occur.
- If then..... due to..... (Must show cause and effect and should explain why you believe this will occur.)
- “How does one variable depend on another variable?”
- Avoid: “Why?” questions, factoid question, questions that can be answer without doing the experiment

Safety Considerations:

- List what general safety concerns should be considered when working with equipment or procedures in the laboratory (Look at S.D.S.)

Tests:

- What tests or procedures will I follow to help answer my questions?
- What are the independent and dependent variables? What is the control and the constants to ensure test validity?

Observations:

- Observations (qualitative and quantitative) that occurred during the lab.
- **3 drawings (particle diagrams, apparatus set-up, before-during-after)**
- It includes data table, balanced questions, mathematical equations, calculations and graph.

At Least 3-4 sentences

Claims & Evidence:

- State your claim based on your evidence (data collected from observations).
- What do you claim to be true?
- Consider this: Within a court room both sides have the same data but make different claims
- In this investigation...

This is where you use your data to back up the claim you made.

- This involves analyzing your tables and graphs.
- How can you prove what you are stating? (Back it up)
- The claim that when, then (happens)

Refer back to your hypothesis:

The hypothesis was **correct/incorrect** because...

At least 4-5 sentences

Reading

Internal Sources:

In this section you compare your data with *your classmates*. Make sure that you include any examples that may make your ideas clear. Example any Errors that may have resulted inaccurate or not precise data

External Sources:

In this section you compare your data with other *scientists*. Use articles, books, or the internet. Below is an example to cite your sources:

EXAMPLE:

Harris, Robert. "Evaluating Internet Research Sources." *VirtualSalt*. 15 June 2008. Web. 20 Apr. 2009. <<http://www.virtualsalt.com/evalu8it.htm>>.

At least 4-5 sentences

Reflection: How have my ideas changed?

- What did you learn about this concept?
- How can you connect this learning to something outside of the classroom?
- Are there any new questions you have about the concept?

- Your thoughts after the experiment (Understandings, Related Thinking, Connections)
After conducting this experiment it is

- How has your thinking changed based on internal and external sources?
This concept is similar to..... because....
The evidence shows that to be true..... and notbecause this is what occurred.