Choosing and Researching My Project

Investigation Question:
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

Reason we chose this question:
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

Answer the following to validate whether your question will work for this assignment: (If you answered with any “NO’s”, rethink your question until you choose ALL “YES” responses to the questions below.)

- Is there a specific answer? \(\text{YES} \quad \text{NO}\)
- Do I know how to find the answer? \(\text{YES} \quad \text{NO}\)
- Do I have enough time? \(\text{YES} \quad \text{NO}\)
- Can I get the materials we need? \(\text{YES} \quad \text{NO}\)
- Is it safe? \(\text{YES} \quad \text{NO}\)
- Is it ethical? (Good purpose) \(\text{YES} \quad \text{NO}\)
- Is my question related to States of Matter? \(\text{YES} \quad \text{NO}\)
- Is it an original idea? \(\text{YES} \quad \text{NO}\)
- Am I truly interested in this question? \(\text{YES} \quad \text{NO}\)

My Prediction: (What I PREDICT will happen \textbf{and} WHY I think this will happen)
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

List the \textit{controlled variables} for the investigation:
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________

List the \textit{experimental or manipulated variable} for the investigation:
**My Plan.** Be sure to include detailed scientific and mathematical procedures that would allow another person to easily repeat your experiment.

- **Step 1:** ______________________________________________________________________________________

- **Step 2:** ______________________________________________________________________________________

- **Step 3:** ______________________________________________________________________________________

- **Step 4:** ______________________________________________________________________________________

- **Step 5:** ______________________________________________________________________________________

- **Step 6:** ______________________________________________________________________________________

- **Step 7:** ______________________________________________________________________________________

- **Step 8:** ______________________________________________________________________________________

- **Step 9:** ______________________________________________________________________________________

- **Step 10:** ____________________________________________________________________________________

Have another scientist review your procedure before you continue your investigation.

☐ Ready to Go! Excellent detail. We can understand and follow these steps.

☐ Almost Ready! Add more detail to....

Another 5th grade scientist’s signature _________________________________

Have a teacher review your procedure before you continue your investigation.

Teacher’s or Mentor’s signature: _________________________________

☐ Ready to Go! Excellent detail. I can understand and follow these steps.

☐ You’re making progress! Consider…

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Materials Needed:
Submit a list of requested materials that you need to borrow from the teacher. BE SPECIFIC (include measurement tools, quantities, size, color, etc… when requesting materials for your investigation). (Ex. 4 T. sugar; Three 11” x 18” sheets of orange construction paper…). 

NOTE: You will be responsible for providing unavailable materials. If you are not able to provide the other materials due to cost and/or availability you should reconsider your question and investigation.

Gather Quantitative Data
➢ Collect and record measureable data on the following lined pages.
➢ Create graphs or tables as needed to display your data in an easy-to-read format.
➢ Use metric measurements whenever possible.
➢ Consider the following questions:
  ▪ What will you count or measure in your experiment?
  ▪ How will you collect and present your data and scientific observations? (Ex. chart, journal, graph, etc…)
  ▪ What type of graph would work best to display your data? (bar, line, pie?)

Gather Qualitative Data
➢ Take photos, draw pictures, and /or write detailed descriptions of your results.

It’s time to Conduct Your Investigation

Understand Your Data
What do you notice about your data?

If you conducted multiple trials, were the results the same or different? How can this be explained?

Are there any patterns in the data?

Explain what your data suggests.

Research Your Topic

- Conduct additional research to learn more about your topic using at LEAST 2 of the following: books, magazines, and/or websites. Record research below.

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Important Information from source:

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Write Your Conclusion

- Come to a conclusion or a reasonable explanation based on your data. Refer back to your hypothesis. Be sure to include your **Opinion, Evidence, and Scientific Reasoning**.
- Write OR type your responses using complete sentences.
- Consider: *What did you learn? Was your hypothesis correct? Why or why not?*

Scientific Opinion or Claim Based Upon Evidence:

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Evidence:

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Scientific Reasoning to Support Your Claim:

____________________________________________________________________________
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____________________________________________________________________________
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