Scientific Inquiry Using Scientific Practices Questions

Team Collaboration

1. How was your team formed? Was your team assigned or did you choose to work with each other?
2. Provide a detailed description of each team member's responsibilities and jobs during your work on the Mission Folder.
3. Did your team face any problems working together? If so, how did you solve them? If not, why do you think you were able to work together so well?
4. What were some possible advantages to working together as a team on this project? How would working as individuals have made this project more difficult?

Use of Scientific Inquiry Using Scientific Practices

- **Problem Statement**
    1. What problem in your community will your team be investigating through scientific inquiry using scientific practices? Specifically, based on this problem, what question will you be trying to answer?
    2. Research your problem. You must learn more about the problem you are trying to solve and also what possible solutions already exist. Find AT LEAST 10 different resources and list them here. They should include books, periodicals (magazines, journals, etc.), websites, experts, and any other resources you can think of. Be specific when listing them, and do not list your search engine (Google, etc.) as a resource.
    3. Explain what you learned from your research. What did you find out about your problem that you didn't know before? What kinds of experiments have been done by other people before you? Be sure to put this in your OWN words, do not just copy and paste information. Also, be sure to cite your sources.
- **Experimental Design**
    1. Based on the question you are trying to answer, and your research, what is your team's hypothesis for this investigation? Be sure to include the independent and dependent variables and how they are related along with evidence of your research.
    2. What are the independent and dependent variables in your investigation?
    3. What are the constants in your investigation?
    4. Will your investigation have a control group? If so, describe the control group. If not, why not?
- **Experimental Process**
    1. List all of the materials you used in your experiment. Be sure to include all physical materials as well as any technology or websites used to collect data (not websites you used in your research).
    2. Explain your experimental process. Be sure to list all of the steps and ALL SAFETY PRECAUTIONS for your experiment. Remember to write it so someone else could follow the steps and recreate your experiment.

- **Data Collection and Analysis**
    1. Present the data you collected from your experiment. Be sure to include all of the data you collected from your observations and measurements. Use of graphs and charts is HIGHLY encouraged. Explain how your data support or refute your hypothesis.
    2. What are your potential sources of error? Remember, this doesn't mean "Did everything work?", all tests have potential sources of error, so make sure you understand what that means. Explain how these sources of error could have affected your results.
- **Drawing Conclusions**
    1. What conclusions can you draw based on the data you gathered during your experiment(s)? Be sure to include data and how it relates to the experiment(s) and the original question. Your conclusion should be related to your original problem and your experiment, include the data you collected, and discuss if your hypothesis was supported or refuted by your experiment.

Benefit to the Community

1. Explain how investigating the problem your team chose will help the community. Be sure to include the impacts your research will have on individuals, business, organizations, and the environment in your community (if any). Make it very clear why solving this problem would help your community.