



Engineering Design Process Questions

Team Collaboration

- Describe the plan your team used to complete your Mission Folder. Be sure to explain the role of each team member and how you shared and assigned responsibilities. Describe your team's process to ensure that assignments were completed on time and deadlines were met.

Use of Engineering Design

- **Problem Statement**
 - What problem in your community did your team try to solve? Why is this problem important to your community?
 - List at least 10 resources you used to complete your research (e.g., websites, professional journals, periodicals, subject matter experts). Use multiple types of resources and do not limit yourself to only websites.
 - Describe what you learned in your research.
- **Experimental Design**
 - Develop a design statement. Be sure to describe what exactly your device should be able to do. Do not describe HOW it's going to do what it needs to do.
 - Determine the criteria for a successful solution and identify constraints for your design. Discuss what the device must have in order to accomplish its job and the restrictions of the device (i.e. the size, the cost, the weight, etc.).
 - Identify the relevant variables you will use to test your prototype or model and explain how you will measure your variables.
- **Build Prototype or Model**
 - Develop a design and list the materials you used in your design. Include technologies you used (e.g., scientific equipment, internet resources, computer programs, multimedia, etc.).
 - Explain how you built your prototype(s) or model(s). Include each of the steps in your process. Include all safety precautions used by your team as step one.
- **Test Prototype or Model**
 - Present the data you collected and observed in your testing. Use of data tables, charts, and/or graphs is encouraged.
 - Analyze the data you collected and observed in your testing. Does your data support or refute your design statement? Do not answer with a "yes" or "no." Explain your answer using "Our data supports/refutes the design statement because . . ."
 - Explain any sources of error and how these could have affected your results.
- **Drawing Conclusions**
 - Interpret and evaluate your results and write a conclusion statement that includes the following: Describe what you would do if you wanted to retest or further test your design. Evaluate the usefulness of your prototype or model. What changes would you make to your prototype or model for the future, if any?

Benefit to the Community

- How could your design help solve your problem and benefit your community? Describe next steps for further research/design and how you have or how you could implement your solution in the future.