For all exhibits, be prepared to explain:

1) What did you plan to learn or do? (What was your exhibit goal(s)?)
2) What steps did you take to learn or do this? Explain what you wanted to do so it is easily understood. The judge wants to know and understand the steps you used to make your exhibit.
3) What were the most important things you learned?

All engineering exhibits should include the following:

• Clearly defined problem
• Identified criteria for a successful product and constraints on production (e.g. cost or materials limitations)
• A careful design or plans created before beginning construction
• Notes on the brainstorming, design, testing, redesign, etc. processes used to improve the final product
• An organized notebook or other record of the design process
• Use of appropriate materials and techniques
• Prototypes (initial attempts at creating a product that may or may not become the final product) tested and results recorded
• Final product meets stated project criteria
As youth become more advanced in engineering, look for the following:

- Background research was conducted to discover how others have solved similar problems
- Multiple possible solutions were considered before selecting one to attempt
- Choices and tradeoffs between criteria and constraints (e.g. materials, cost, production, aesthetics) are explained
- Data from prototype and final product testing is organized in a useful manner
- Youth understand what further testing is needed
- Final product is workable: acceptable to users, economically feasible, and potentially reproducible
- Design offers real improvements or significant alternative to other attempts to solve this problem
- Design represents creative, innovative solution to a real problem which could help others