



Here are a few tips that may be helpful to you during the Creative Design Challenge:

Technical Design

- The motors do not generate much power and it is recommended to gear them down to produce more torque. Just remember the tradeoffs between torque and speed.
- Electromagnets drain batteries very quickly and should be used sparingly.
- While cardboard is a great tool to “mock up” your design, it cannot withstand the amount of use required to test and consistently run your vehicle. This is especially true for the gear box and any other mechanically moving part.
- Please use heat shrink when covering solder connections or exposed wires.

Engineering Log Books

- It is good to record mistakes and failures in the Log Book. This will show how much or how little you have progressed.
- Attempt to be consistent while writing in the Log Book. Label figures, tables, and charts in the same manner each time and keep everything clear and easy to find.
- Photos can be added to your logbook. This is a great way to display your design process.
- Don't forget to refer to inserted figures, tables, and charts. A figure that is not described or referred to properly can lead to confusion.

Oral Presentation

- Practice answering questions so when the time comes, you can effectively answer the judge's questions without rambling and confusion. Learn how to organize your thoughts, and answer in a clear and logical manner. Take your time.
- Business casual is the recommended dress code.
 - Not appropriate: T-shirts, torn, sagging and baggy jeans, skirt too short, torn sneakers, hats.
 - Appropriate: **Men** – collared shirts, slacks or nice jeans, jacket, sweater. Tie not required. **Women**: skirts (appropriate length), pants, dress, jacket, blouse, sweater. If what you have on is questionable, then it is probably inappropriate.
- Make sure each member of your team knows every aspect of the apparatus not just the part they are presenting.
- Team members should practice working together as a team - hand off information from one person to another.
- Team members should remain engaged during the presentation even when they are not speaking. Look at the presenter and even nod in agreement from time to time.
- Smile at the audience and try to look relaxed. Do not say "we are so nervous" because that will make your audience nervous.
- Have a captain for the Q and A session who will handle the distribution of questions. Get everyone involved in answering questions. Do not answer questions that were not asked.
- If available, use an electronic pointer if you are going to have to point things out on your slides.
- Use visual aids such as your apparatus or parts of your apparatus. It is okay to go in front of the judges and have "show and tell" as long as you have enough time to include within your total presentation.
- Practice your presentation—pacing is critical for success—rushing through slides at the end of your presentations will show that you did not practice enough.
- Look like a team! This will show teamwork.
- Make sure to have clear pronunciation of what you are saying. When practicing, have someone stand in the back of a room to see if each team member can be heard.
- Practice your Q & A with people who have not seen your presentation.
- Read the scoring guidelines carefully:
 - **Project overview**: What was the PROCESS you used to come up with your design? How did the CONCEPT EVOLVE and WHY? How did you go about your DECISION MAKING PROCESS? Finally, how did you run your project—how did you manage time, where did you meet, and what were your biggest challenges.
 - **Engineering Principles**: One or two examples, clearly presented, of an engineering principle you used and how it worked for you.
 - **Presentation**: See the tips above. Biggest tip—5 polished minutes is what will score well. This is a performance, and like any other, it needs to be practiced and practiced and then performed.
- Remember your oral presentation is 5 minutes with a 10 minute Q&A. Be mindful to pace yourself and watch your time.
- An oral presentation is a group effort; share the spotlight.

Written Report

- You already have half of the work done! Make sure to summarize the most important aspects from your Log Book.
- Briefly explain original designs and reasons as to why they were not implemented.
- Explain your design in detail.
- Explain the team's biggest problem technically (with the apparatus), your biggest problem logistically (delegating the tasks), and how the team overcame these issues.