



Grand Blanc High School Robotics Team



Advanced Level Deliverables
Research Documentation

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Mentor(s) to ask if you have questions about, and may sign off on this Challenge: Clinton Bolinger, Brandi Bolinger or Cathy Fillwock

Gather the following Materials:

1. Computer or other device with internet access (suggested sites noted in entry instructions)

Background Information – IMPORTANT, PLEASE READ:

1. Sustainability of the FRC Team is one of our main goals, and it cannot be achieved without the help of each person. New ideas are the cornerstone of CHANGE and CONTINUOUS IMPROVEMENT.
2. This challenge is similar to the SMART goal deliverable in the aspect that you are looking to make change, BUT the intended purpose of this deliverable is **SELF IMPROVEMENT**.
3. Students must work independently on this Deliverable, but may request assistance with spelling, grammar, and readability for each submission during the process.
4. This deliverable is opinion-based, so you will be judged on the quality of your work, and level of seriousness and dedication to self-improvement when approaching the problem.
5. Students may not represent the Team, or contact any organization or business on behalf of the Team during the course of this deliverable without the expressed written permission of the Team's Head Mentors. Infractions will be dealt with very seriously.
6. Students may not attempt to implement any type of solution without the expressed written permission of the Team's Head Mentors.
7. Students may not make or initiate any purchases on behalf of the Team, and will not be reimbursed for any purchases that are made in conjunction with this Deliverable, unless they have received written permission of the Team's Head Mentors.
8. Students may not gain access to Premier Tooling Systems outside of the designated Team Meeting schedule without permission from the Team's Head Mentors.

General Advice and Guidelines:

- a. Pick something that really interests you. You'll enjoy learning about something more if you are interested in it.
- b. Feel free to include pictures, charts, drawings, etc.
- c. You may take as long as you need to complete this deliverable, and work on it over multiple entries throughout the off-season (just indicate which pages include progress on this challenge in your table of contents).
- d. You may ask for advice from your Teammates, Mentors, family and friends, but you must come up with the identification, proposed solution, and research on your own.
- e. General Examples of research subjects (do not limit yourselves to these, they're just ideas):
 - i. Specific methods and languages for programming
 - ii. Specific Building materials and uses
 - iii. Areas of Engineering/careers that cross apply with Robotics
 - iv. STEM Training or careers
 - v. Best Practices for Mechanical and Electrical disciplines
 - vi. Non-profit organizations for outreach projects



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Part One – Identification

1. Identify a specific *area/thing* that you'd like to learn more about; something that you believe would be beneficial for the engineering, programming, electrical, financial, operational sustainability, (etc.) of YOU as a member of The EngiNERDs.
 - a. This *area/thing* doesn't have to have a physical outcome (although it can)
 - b. This needs to be something that can be researched, received training on, or experienced.
2. In your Engineering Notebook, write *about* one or two paragraphs (or more if you want) that describes the *area/thing* that you want to learn more about, and why it's important to you to gain more information about it.

Part Two – Research and Documentation

1. Now that you have identified a personal DELTA, begin doing and documenting research on the subject.
 - a. Seek our information that would help you to better understand the subject matter, and make an impact on your knowledge base.
 - b. You can use the Internet, books, and magazines, speak to experts in the area, or find other sources of information.
 - c. Your research does not need to be formally documented (like a research paper), but it needs to be organized and able to be understood by a third party.
 - d. Depending on your subject, you can insert copies of articles or photos that assist you in learning about and documenting your topic.

Engineering Notebook Entry Questions:

Your responses do not need to be lengthy, but you need to write legibly and use complete sentences. While you don't need to answer these questions exactly, write an entry that discusses the following topics (in the manner of your choosing):

1. What was the most valuable information that you learned about your chosen subject? What was the most surprising?
2. Are you still as interested in the subject as you were when you began research? Why or why not?
3. How do you plan to use the knowledge you gained to help yourself become a better Teammate?
4. How can the insight you've gained benefit the Team and its members?
5. How to you plan to pass these observations to other members of the Team?
6. Do you have plans to continue research on this subject?
7. Do you have a "next-step" plan of execution using this information? If so, what is it?

To Complete Your Challenge:

1. Ensure that your Engineering Notebook entry is complete for BOTH Steps 1 and 2.
2. Find one of the Mentors listed on this deliverable and present him/her with your Engineering Notebook to inspect your completed work.
3. Ask one of the Mentors listed on this deliverable to approve your Engineering Notebook entry and have your deliverables checklist validated.
4. Clean your workspace AND the floor around you:
 1. Wipe off tables
 2. Push in Chairs
 3. Sweep the floor