

**Element E**

**Objective:**

Your proposed solution should be well substantiated with STEM principles and practices that apply to all or nearly all design requirements and functions claims. You should have substantial evidence that the application of those principles and practices have been reviewed by two or more experts (qualified consultants and/or project mentors) and that those reviews provide confirmation (verification) or detail necessary to inform a corrective response.

1. Create a Word Document (title it STEM Analysis), that substantiates your use of the STEM principles – Science, Technology, Engineering and Math. For each STEM area, explain how your project is connected, and give specific examples of content knowledge that is used for your project. Address STEM and its importance in general first, and then specifically apply to your project. (This should probably be at least 2 pages in length, single spaced.)
2. Create a form that you can use, to take to two or more experts (qualified consultants and/or project mentors) where they write down a review of the project. You should make sure that when you have them review your project that you have your ENB with sketches/inventor renderings of your idea for them to see.

Turn in these items to Mrs. Floyd (the expert forms will be handwritten) and also scan these to upload to Schoology, along with the Word Document STEM Analysis.

Math, Science, & Engineering (STEM) Concepts:

Engineering consists all concepts from science, engineering, technology, and math. In order to correctly identify all the aspects of these Zach and I have dug deep into our design to extract as many components as possible. In our extraction of concepts we came across chemistry, biology, math, and mechanical engineering, etc. Chemistry is a big contributor to think about for the materials that we will use for our solution. Chemistry has everything to do with what the material is made of how it will affect the overall practicality of the product in the long run. For our briefcase the chemistry components include the leather, carbon fiber, wood, and any other materials we decide to use in the production of our product. Biology is another factor we have to consider because we are dealing with the lives of others. Therefore, we had to consider if our product will be safe for everyone and will it allow people to use our product in a healthy manner. It also has to be ergonomic because that will affect the human body negatively if our briefcase does not help with their posture. Engineering is obvious mainly because we have to engineer something that is efficient and practical for someone that is trying to solve the problem of working on the go. If our Math was used to calculate the market shares of different companies and where we would end up in the long run. Mechanical engineering will be used in the future once we start designing parts that will be used to construct our prototype. Materials engineering is concerned with the selection, processing and development of materials to design and make products. Materials - metals, alloys, ceramics, polymers and composites - give manufactured products their functional and aesthetic qualities. All these components make up our project and are the basis of what this world is made up of.