

Name: _____

Date: _____

Group Members: _____

Product: _____

ORGANIZING THE DESIGN PROCESS

Understanding the different constraints that need to be understood

1. First you need to understand the constraints on your individual product

Ask yourself questions like:

Will the part be in a harsh environment? (Acid rain, salt water, sand storms, snow and ice, and other environmental constraints that can cause corrosion)

Does the product have to be appealing to others to sell? (Look good, work well, something new, cheap and other market constraints)

What are the forces on the product? (Is it in tension, is it in compression, is it in torsion, are there other forces)

What is my budget limitation? (How much did the original material cost, is cost of the material important (often depends on how much material is used))

2. Next you'll have to find out about different materials to see if they would be a good match for your product. Keep the above constraints in mind when thinking about a material as well as the following.

Processing Constraints – In what ways can this material be processed? Metals, ceramics, and polymers are all processed differently. Which method would work best to produce your product, and does that affect your materials selection?

Conductivity Constraints – Is the heat or electrical conductivity of the material important in this application?

Waste Constraints – Do I need to use different types of materials? Will this product be recycled? (Recycling is easiest when one material is used.)

If you don't understand terms like corrosion, conductivity, tension, compression, torsion, etc., make sure that you go to see the constraints information page on the Materials Selection Evidence Page (yellow).