## ACTIVITY 3: DFD (Design for Dematerialization)

Activity Objective: Take any product and create a design that would reduce the amount of material to manufacture the product.

Materials: Chapter 12, paper, computer, printer, Internet Access

Definition: Design for Dematerialization is a DFE strategy that reduces the amount of material required to make a product, which usually results in lower energy use. The dematerialization of a product means less material is used to deliver the same level of functionality to the user. Material and energy reductions can be obtained through straightforward design changes to minimize the material or packaging required. One way to reduce material requirements is to reduce a parts physical dimension. In the injected molded plastic parts business, reinforcement ribs can be used to provide rigidity in place of using a thicker wall. Engineers working with aluminum can perform calculations to determine minimum wall thickness needed to maintain structural integrity that can minimize the use of aluminum. The wall thickness of a beverage can vary from 0.55 inches 20.33 inches near the middle of the camp.

REVIEW VIDEOS:

Eco efficient Modern Energy Solutions <https://www.youtube.com/watch?v=6I5bmxnmMKw>

Design and reuse <https://www.youtube.com/watch?v=vk_DTAYVqRs>

Design for Manufacturing: <https://www.youtube.com/watch?v=EwwqUoS5PAE>

### Procedure:

1. Work as partners or small teams.
2. Research the Internet for How to Design for Dematerialization.
3. Create a product design or the actual product where you can reduce the amount of material used to manufacture that product.
4. Develop a Power point presentation on how the design would work.

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| RUBRIC | | **4**  **World-Class Learner** | **3**  **Proficient  Learner** | **2**  **Developing Learner** | **1**  **Emergent Learner** | | --- | --- | --- | --- | | **Learner at this level has gone beyond mastery of knowledge, skills, & attitudes described in project. World-class learner consistently exhibits high-quality performance.** | **Learner at this level has had opportunities to apply knowledge, skills, & attitudes of component of project. Proficient learner has mastered essential attributes, thus proving mastery.** | **Learner at this level has been exposed to & had opportunity to apply knowledge, skills, & attitudes of project. Developing learner may have only a few essential attributes to master before mastery.** | **Learner at this level may or may not have been exposed to knowledge, skills, & attitudes required by academic standards of the project.** | |
|  | **1= Emergent Learner**  **2 = Developing Learner**  **3 = Proficient Learner**  **4 = World-Class Learner** |