

Common Text Great Appliance Challenge Rules and Information

What does it take to make an everyday object from scratch and then make it into something else?

Take apart an object in teams and create a poster answering the following questions. Everyday objects will be provided to the team beginning September 23 at the Office of Leadership and New Student Programs (E 413 Student Center). You will have until October 24 to take apart the object and prepare a poster. Some of the objects might include (telephone, toasters, answering machine, typewriters, computers, hairdryers, microwave ovens, single use cameras, and so forth). Your team will be assigned an object randomly. Please take safety seriously! Protect and be aware of your eyes, hands, feet. The tools you will need include screwdrivers, pliers, plastic bags, containers, masking tape or duct tape.

- Name parts and functions
- What are the parts made of (materials)?
 - Where do they come from ?
- How is the part manufactured?
- What happens at the end-of-life of the object?
 - Where do the parts go to?
- How can the object or its parts be recycled or repurposed?
- EXTRA: Perform a life-cycle assessment of the object. How much energy is used? How much water? How many industrial sectors are involved?

The contest:

Form your team. A team can consist of anywhere from two to six people. The poster can be created with a standard science fair tri-fold, as long as your poster is not bigger than 4' x 4'. You will also have some space to display your disassembled object. Posters will be presented on October 26. From 11:00 a.m. to 3:00 p.m. a team of judges will review the posters and there will be a public reception and awards ceremony beginning at 3:30. Team members need to be present to answer questions during the day at a time to be named later. You will be judged based on the rubric/scale shown on page two.

References:

"The Toaster Project" <http://blog.ted.com/2010/11/07/tedsalon-in-london/>

Life cycle assessment examples and explanations. This gives a sense of the level of complexity involved. You don't have to do it at this level or scale of all the phases.

http://www.oc-praktikum.de/en/articles/pdf/LCAExample1_en.pdf

<http://lcafood.dk/LCA/LCA.htm>

	4	3	2	1
Completeness	Answers all the questions completely and thoroughly	Answers all the questions adequately	Answers most of the questions	Answers some of the questions
Mechanics (conventions) aesthetics, neatness	Attractive display. Well organized	Organized and neat display	Display conveys the basic information	Confusing or messy display
Creativity	Shows innovation in the project that extends the project	Covers the project thoroughly	Covers the basic elements of the project	Does not cover all the basic elements of the project
Communication	Uses effective means to clearly communicate ideas to the audience	Organized presentation of ideas	Presents the basic ideas of the project	Some lack of organization impedes communication
Knowledge	Clearly shows knowledge gained in the project providing detailed supporting information and covering all object parts and functions	Shows knowledge gained in the project answering all questions with references	Provides answers without supporting detail or references for most object parts	Some errors or confusion in the information

Remember – there will be prizes given to some of the winning teams, with \$500 in total cash to be distributed. Total distribution will be determined by the number of entries.

For more information:

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Reverse Engineering of a Common Product

Disassembly Questions

Answer these questions after you have taken the device apart.

- 1. How do the parts work together to create systems within the device? Describe one of the systems.**
- 2. Think about the engineering of this product. Identify some of the requirements, specifications and constraints that influenced the design, material selection and manufacturing of the product.**
- 3. What kinds of tradeoffs do you think the engineers had to make?**
- 4. Identify at least two lifecycle issues for the product. What parts do you think will be the most difficult to dispose?**
- 5. What kinds of materials were used? Why were these materials selected?**
- 6. What kinds of specialists do you think were involved in the design of this product?**