**Virtual Product Dissection**

Product dissection is often done in industry and academia to uncover opportunities for re-design. Designers take apart and analyze all components of a product to understand its structure and properties. Through understanding the product, design opportunities can be uncovered and applied to the redesign of a product. Therefore, the goal of dissection is to improve the functionality, maintainability, and reliability of a product through the examination, study, capture, and modification of other existing products.

During this activity, you will perform a virtual product dissection on a product of your choice by taking it apart and analyzing the function of each component. Your goal is to understand strengths and weaknesses of the product in order to develop new innovative concepts that satisfy the design goal.

The goal is to *design an innovative water toy for use by kids ages 4-6. The toy must be safe to use and fun.*

**Task 1:**

As a team decide on which product each of your teammates will be dissecting by choosing products from the product dissection lab manual write-up: [www.manual.eg.poly.edu/Virtual\_Product\_Dissection](http://www.manual.eg.poly.edu/Virtual_Product_Dissection). Each teammate should dissect a *different* product. When deciding on which product to dissect, choose a product that does not directly solve your design problem, but that you believe could be applied to your design task (i.e. a water toy). For example if you were designing a toothbrush, you wouldn’t want to dissect a toothbrush because it may limit your solution space, instead you may want to dissect a handheld device that spins.

**Product Dissected by Team Member 1:­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Product Dissected by Team Member 2:­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Product Dissected by Team Member 3:­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Task 2 (page 1 of 2):**

You have **15 minutes** to (1) describe and (2) draw the product you are dissecting and (3) identify application opportunities for your design prompt. Describe and sketch the function of the different parts of your chosen product in the table provided below. Provide as much detail as you can on how you think the product works with respect to the following categories:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Functional Description**  | **Visual Representation** | **Application Opportunity** |
| Power Supply/Energy Source | How is power supplied to the device? | Sketch and label all components in the system | How can this be applied to my design task (water toy)? |
| Primary Motion | How is mechanical motion (rotation, translation, etc.) achieved in the device? | Sketch and label all components in the system | How can this be applied to my design task (water toy)? |

**Task 2 (page 2 of 2):**

You have **15 minutes** to (1) describe and (2) draw the product you are dissecting and (3) identify application opportunities for your design prompt. Describe and sketch the function of the different parts of your chosen product in the table provided below. Provide as much detail as you can on how you think the product works with respect to the following categories:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Functional Description**  | **Visual Representation** | **Application Opportunity** |
| Energy Flow | How is power transferred to create motion in the device? | Sketch and label all components in the system | How can this be applied to my design task (water toy)? |
| Form and Outer Body | How does the user interact with the outer components of the device? | Sketch and label all components in the system | How can this be applied to my design task (water toy)?  |

STOP: PLEASE DO NOT TURN THE PAGE UNTIL INSTRUCTED TO DO SO.

**Task 3:**

Now that you have completed the dissection of your product, we will be completing a second idea generation session. During this idea generation session you may continue to explore your dissected product on your computer to draw inspiration for your design task.

Once again, the goal is to *design an innovative water toy for use by kids ages 4-6. The toy must be safe to use and fun.*

As you generate ideas, look back at the application opportunities that you identified during the product dissection activity and apply them in your new ideas. Your application opportunities may take the following forms:

|  |  |  |
| --- | --- | --- |
|  | Indirect Reuse | Direct Reuse |
| Power Supply/Energy Source | Drawing inspiration from the way the dissected product gets power and applying it to your new product | Reusing components that contribute to the power supply of the dissected product in your new product |
| Primary Motion | Drawing inspiration from the method of motion in the dissected product and applying it to your new product | Reusing components that contribute to the primary motion of the dissected product in your new product |
| Energy Flow | Drawing inspiration from how power is transferred to create motion in the dissected product and applying it to your new product | Reusing components that contribute to the energy flow of the dissected product in your new product |
| Form and Outer Body | Drawing inspiration from the design of the dissected product or how a user interacts with the dissected product and applying it to your new product | Reusing components that contribute to the form and outer body of the dissected product in your new product |