

## Product Dissection & Benchmarking Project: Lab I

### Preparation:

1. Read about product dissection and benchmarking from the course text, *Engineering Design: A Practical Guide* Chapter 8.

**Section:** 7 \_\_\_\_\_  
**Team:** 8 \_\_\_\_\_  
**Members:** **Jordan Janinek** \_\_\_\_\_  
Evan Bedel \_\_\_\_\_  
Sam Schmucker \_\_\_\_\_  
Matt McClerland \_\_\_\_\_

### Lab I Assignments:

1. Complete data sheet 1.
2. Make seven copies of your completed data sheet 1 (Do not include your name on the copies).
3. Prepare a comprehensive features comparison table for features that are in your list of features to be benchmarked.

### Laboratory Tools:

1. Digital scale,
2. Camera.

**Estimated time:** 1 hour.

#### *A. Visual Inspection:*

### Tasks:

1. Take digital pictures of the product, its parts and the packaging.
2. Record the following information for the product you are given for dissection on data sheet 1.
3. Recorded information should reflect everyone's opinion in the dissection team. Therefore, if there is a difference of opinion among members, opinions and members who provided them should be noted.

## DATA SHEET 1

### Getting Ready for Dissection: Part I

Manufacturer/Model Number: Oral-B 4739

#### General Product Information:

How many detachable pieces the product has? \_\_\_\_6\_\_\_\_

Part number:	Part name:
____1____	base _____
____2____	brush _____
____3____	battery 1 _____
____4____	battery 2 _____
____5____	battery cover _____
____6____	brush cover _____

Describe the pieces including their functions and their materials.

Part number:	Material & Functional Description:
____1____	plastic, houses motor and batteries, runs machine, on/off switch, grip
____2____	plastic, toothbrush bristles, spins to clean teeth
____3____	power source A
____4____	power source B
____5____	plastic and metal, holds batteries in place, completes the circuit
____6____	clear plastic, keeps brush clean, prevents germs

Is it easy to detach each part?

Part number:	Detachment (Easy, difficult, use of force etc.):
____1____	origin of detachment
____2____	minimum use of force to detach
____3____	fall out once cover is removed
____4____	fall out once cover is removed
____5____	push two restrictors with small amount of force
____6____	pull off with small amount of force

Describe the packaging. Is it easily opened? Describe the opening procedure.

The packaging is composed of clear plastic sealed tightly. The packaging is not easily removed. It requires a sharp tool such as scissors or a knife. Slice plastic with sharp object and then pry open the hole with your fingers.

<b>DATA SHEET 1</b>	
<b>Getting Ready for Dissection: Part I (cont.)</b>	
<b>Product Features:</b> Provide team's collective opinion related to features of the product using the following list as a starting point.	
Packaging (including information insert)	Too difficult to open without tools, sharp edges can be dangerous, sufficiently stores and protects product, pamphlet includes detailed information of product function
Aesthetics (multi-color, etc.)	Packaging clear, brush cover clear, base white with teal accents, brush head white and blue, it is a neutral design
Cleaning	Simple cleaning directions, presented in pamphlet
On/off switch location	Good location in the middle of the brush and easily accessed while in use
Battery location	Good location because it is away from water and it puts the weight at the bottom so the brush stands up on its own
Ease of switch use	Requires a subtle but firm button push to cause it to turn fully on/off
Handle (Ergonomics)	One member feels that the handle caters to left-handed people who are less common, but the three others think it is appropriate for right or left handed usage
Quality	The initial quality is good but we do not know how it will hold up, Oral B is a household name so we trust the product
Safety	Batteries are covered completely with no metal exposed to water, bristles are soft enough to not cause irritation of the mouth at first glance
Versatility, attachments	Everything is easily detached and replaced
Weight with batteries	Bottom heavy, giving the toothbrush a good base to stand up on and not too heavy to lift.
Environmental friendliness	Packaging warns that batteries are not rechargeable and should not be disposed of as if they were normal trash. Plastic packaging is not biodegradable.

Other features	Clear brush cover appears to do its job adequately

## Product Dissection & Benchmarking Project Handout I – Part II.

### Laboratory Tools:

1. Computers which are connected to the internet,
2. Library resources.

**Estimated time:** 1 hour.

### B. Market Realities for the Product:

#### Tasks:

1. Using on-line and library resources gather and record information on the market presence of the product.

DATA SHEET 1	
Getting Ready for Dissection: Part II	
Cost (Be prepared to record multiple values and sources)	\$10.99 - <a href="http://www.just4teeth.com/Oral-B-Advance-Power-400_2">http://www.just4teeth.com/Oral-B-Advance-Power-400_2</a> \$17.14 - <a href="http://www.ebay.com/itm/2x-NEW-BRAUN-ORAL-B-ADVANCE-POWER-400-ELECTRIC-TOOTHBRUSH-BATTERIES-INCLUDED-/260869490473">http://www.ebay.com/itm/2x-NEW-BRAUN-ORAL-B-ADVANCE-POWER-400-ELECTRIC-TOOTHBRUSH-BATTERIES-INCLUDED-/260869490473</a>
How long has the product been in the market?	Nine years (copyright 2003)
Target population	People who seek adequate dental hygiene
Versions of the product (Previous versions of the product)	No older versions, yet newer versions exist (450)
What are improvements between versions of the product?	Stop and go timer, faster oscillation
How is it sold (TV infomercial, drugstores, etc.)	Television commercials, drug stores, dentists
Patented Features (Please include patent dates).	Spill resistant pharmaceutical system (US6656482)

