

A Product's Life



Objective

To teach students the concept of product life cycles, including the various steps and related environmental issues involved.



Activity Description

Using the *Life Cycle of a CD or DVD* and/or *Life Cycle of a Cell Phone* or other life cycle posters as an example of a product life cycle, students research the steps involved in a product's life cycle and present their findings to the class.



Materials Needed

- The *Life Cycle of a CD or DVD* poster and/or *The Life Cycle of a Cell Phone* poster located at <www.epa.gov/epawaste/education/pdfs/finalposter.pdf> and <www.epa.gov/epawaste/education/pdfs/life-cell.pdf>. To order copies of these materials, please visit <www.epa.gov/epawaste/inforesources/pubs/pub-l.htm> or call EPA at (800) 490-9198 and reference document numbers EPA530-H-03-002 and EPA530-H-04-002.
- Index cards.
- Library, computer/Internet access, EPA's *Let's Go Green Shopping Guide* (available at <www.epa.gov/epawaste/education/pdfs/shopping.pdf> or order online at <www.epa.gov/epawaste/inforesources/pubs/pub-l.htm>), or other sources of research.
- For enrichment activity:
 - Scissors
 - Markers
 - Heavy-duty (cardstock) paper



Key Vocabulary Words

"Cradle to Grave"
Extraction
Life cycle
Manufacturing
Processing
Remanufactured products
Recovered materials
Virgin resources
(natural resources)



Duration

Day 1: 1.5 hours
Day 2: 1 hour



Skills Used

Research
Reading
Communications
Motor Skills



Activity

Day 1

Step 1: Introduce the concept of product life cycles. (Refer to the Teacher Fact Sheets, titled *Products* on page 25 and *Natural Resources* on page 5; the *Let's Go Eco-Shopping* activity

on page 39; the information on the *Life Cycle of a CD or DVD* and/or *Life Cycle of a Cell Phone* poster; and EPA's *Let's go Green Shopping Guide*.) Start by giving a general overview of life cycles, and relate this concept to something familiar to the students (e.g., our own lives, the life cycle of a tree). Continue by explaining that all products are made of something that ultimately comes from nature; and



language
arts



art



science

that all products end up somewhere after we are finished using them.

Step 2: Move on to more in-depth discussions of the various steps of a product's life cycle. Be sure to define each step: raw materials acquisition/extraction, materials processing, manufacturing, product packaging, distribution, use (lifespan), and end use (reuse, recycling, disposal). Discuss how each of these steps can have environmental consequences.

Step 3: Investigate the life cycle of an everyday item. Have the class select one or two products whose life cycles they would like to research. Choose a common product, such as one used often in class or at home. (For example: calculator, radio, remote control, light bulb, pencil sharpener, computer keyboard or mouse.)

Step 4: Divide the class into research teams for each item chosen. As a homework assignment or an in-class activity, have students work in groups of three or four individuals to research an individual step of the chosen product's life cycle. Students can use the library, Internet, and other resources, including those listed on the Teacher Fact Sheets in this binder.

Day 2

Step 5: Direct the students to use their findings to organize a short presentation to the class. Give each group a handful of index cards on which they can write down notes. Have each group give an oral presentation to the entire class on what they discovered through their research. Be sure to only discuss one product's life cycle at a time and have the groups present in the proper order of the steps of a life cycle (i.e., materials extraction, then processing, then manufacturing, etc.). Encourage the students to be creative, including using props or other visual means of presenting their information.



Assessment

1. Oral presentations can be judged and graded on the following criteria:
 - Comprehension of life cycle concept and comprehension of individual step in the life cycle.
 - Effectiveness of presentation
 - Creativity
 - Completeness
 - Research method and sources
 - Ability to work in a group
2. Ask the students if knowing more about a product's life cycle might affect their decision to buy the product. Discuss the choices we have as consumers. (Refer to the *Let's Go Eco-Shopping* activity on page 39 for more information.)



Enrichment

1. Compare the lifespan of various products and how this relates to product life cycles. For example, compare the environmental impacts of various types of cameras (disposable vs. traditional film vs. digital) as they relate to product life cycles. Include a discussion of the advantages/disadvantages of each product option.
2. Using the same groups created for the main activity, create a graphic display of the chosen product's life cycle.
 - a. Have each group of students create a graphic display of their step of the life cycle. Encourage the students to be creative but ask that each display indicates movement from one step of the life cycle to the next.
 - b. After each team gives their oral presentation, have the class work together to display the final product in sequential order along the walls of the room, in the hallway, or a similar appropriate space. (The end result may look similar to *The Life Cycle of a CD or DVD* poster when completed.)