Chapter 12 Lesson Plan

Product Development

Chapter Resources		
Textbook Activity	**Teacher CD**	**Online Learning Center**
Reverse-Engineer a Product Reverse-engineer a product to find out how it works, what parts are included, and what materials were used to make it.	Lesson Plan Flash® Presentation *ExamView*® Chapter Test	Chapter Activities Chapter Quizzes

FOCUS

Chapter 12 encompasses product development, manufacturability, types of product analysis, and marketing.

Objectives

- Explain where product ideas come from.
- Name two important factors that must be considered in the engineering of a product.
- Describe the three types of engineering analysis.
- Summarize the steps taken to market and distribute a product.
- Explain the stages in a product's life cycle.

Tying to Previous Knowledge

Display an ad for a contemporary, popular (with youth especially) product. Ask the class to consider how the need for this product may have first manifested itself, and why the product did indeed become successful.

TEACH

1. **Product development.** Ask the class whether the saying "necessity is the mother of invention" applies to new product development. Have them give reasons for their answers.
2. **Technology and society.** Assign the task of differentiating among patents, copyrights, and trademarks. Ask for examples of each. What do these legal conditions attempt to do?
3. **Advertising and marketing.** Construct a bulletin board entirely of advertisements cut from magazines and newspapers. Include as many large familiar trademarks and logos as possible. Discuss the function of logos. Why might corporations spend many thousands of dollars on a logo design?

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Chapter 12 Lesson Plan

Product Development (continued)

4. **Marketing plan.** If your students have been manufacturing products as described in previous chapters, have each team devise a marketing plan based on what the students learn in this chapter. Student teams should conduct marketing surveys, design an advertising campaign, and sell their product with direct sales techniques. If no hands-on manufacturing took place, suggest a product for the marketing plan.

ASSESS

Have students complete Chapter Test 12. Chapter tests are found in the *ExamView*® Assessment Suite on this Teacher Resource CD-ROM.

Reteach

1. Review the design and problem-solving processes introduced in Chapter 3. Help students understand that product development steps relate to the problem-solving process. The students discovered in Chapter 3 that identifying a problem correctly is essential to solving that problem. Product development begins when someone or some group gets an idea for a product that may solve a specific problem. If the idea develops into a product that does not solve the problem, it probably will not (or should not) be produced. A product that does not solve the specific problem that a consumer expects it to solve will not usually be successful—unless an advertising campaign convinces consumers otherwise!
2. Discuss with students that even extensive planning and testing do not guarantee that consumers will purchase the product. This will help them understand that manufacturing any new product is risky and has a fair chance of failure.

Enrich

1. Select a product that ultimately was unsuccessful, such as the beta format videocassette player or the Edsel automobile, and have students research what happened and why.
2. The cost of research and development can be a very large part of a company's budget. In the pharmaceutical industry, for example, researching an effective new medicine and bringing it to market can take many millions of dollars. Discuss ways that this expense might be reduced (for any industry).

REFLECT

A popular myth says that engineers analyzed the wing area and weight of bumblebees and calculated that these bees cannot fly. Since they obviously can, the "bumblebees can't fly" story is often cited as an example of the failure of theory to account for reality. While this story is an urban legend, it is true that theoretical conclusions and even laboratory results cannot always predict what will happen in the real world. What impact might this phenomenon (the disconnect between theory and reality) have on corporate or scientific development and research programs?

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