

Summary

- Industrial designers use engineering design processes to design new products and improve existing products.
- Research and development requires the industrial designer to study, test, refine, and then either use or discard many different designs.
- Good designs are functional, honest, appealing, reliable, safe, colorful, and made with quality.
- Design problems may have many different and equally effective solutions.
- The concurrent design process and engineering design process are basic guidelines to help develop good designs.

Test Your Knowledge

Answer the following questions using the information provided in this chapter.

1. Define design.
2. Describe the specific areas in which industrial designers must have knowledge and explain their role in industry.
3. List four qualities that can be identified in a good design.
4. List and briefly describe each step of the engineering design process.
5. Book rack
6. Storage box for CDs
7. Toolbox
8. Turned bowl
9. Clock
10. Nightstand table
11. Stereo cabinet
12. Bicycle rack
13. Storage container for DVDs
14. Display cabinet for awards and trophies
15. Fiberglass model boat
16. Cutting board
17. Metal base for a table lamp
18. Coffee table
19. Tray
20. Turned wooden lamp
21. Plastic soft food spreader
22. Salad server (laminated wood, wood, metal, or plastic)
23. Wall shelf
24. Disposable wastebasket (made from corrugated cardboard)
25. Desktop pencil holder
26. Storage folder for drawings
27. Carrying case for drafting tools

Applying Your Knowledge (optional)

The design problems listed below are presented to give you practice in design activities. You may also develop your own ideas for products you wish to design.

1. Hand-launched glider
2. Jet-propelled (CO_2 cartridge engine) model automobile

STEM Activities (optional)

1. **Engineering:** Following the five basic design problem steps that were covered in this chapter, design a hand-launched glider made of $1/16''$ thick balsa wood. Calculate the amount of material needed to build the glider and determine the cost of the glider. Acquire material cost information either from your instructor or a local craft supplies store. Build the