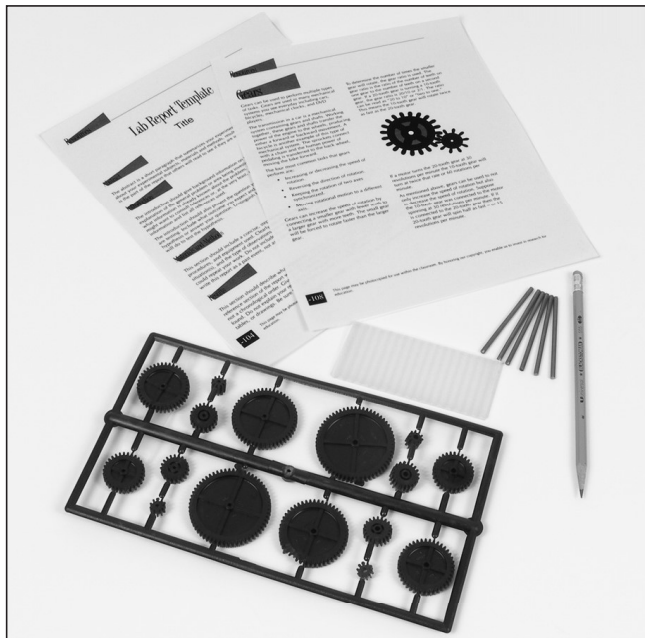


Quick View

Design and conduct an experiment to determine the relationship between the number of teeth in each gear in a two gear system and the relative number of turns of each gear.

Materials

- 6 axles
- Gear font
- Chassis plate
- "Gears" resource page
- "Lab Report Template"
- Pencil
- Hobby knife



Procedure

1 Locate the required materials. Read the “Gears” resource page and the “Lab Report Template.”

2 From the gear font, detach Gear A (30-tooth, 1/8-inch bore), Gear B (10-tooth, 1/8-inch bore), Gear C (20-tooth, 1/8-inch bore), Gear D (60-tooth, 1/8-inch bore), Gear I (40-tooth, 1/8-inch bore), and Gear L (50-tooth, 1/8-inch bore). There may be some flashing, or burrs, on the gear, which will keep the gear from running smoothly. Using the hobby knife, carefully cut off any flashing.

3 Press an axle into each gear. Pick up the chassis plate and count two holes back from one end. Insert the 20-tooth axle into this hole. Count two more holes toward the middle of the chassis. Insert 10-tooth gear into this hole. The teeth of the gears will mesh together, but the fit will be very tight.

4 Use the pencil to mark the tooth on each gear that most meshed into the other. Rotate the 10-tooth gear clockwise one revolution. Note the direction the 20-tooth gear rotates and the position of the mark on the 20-tooth gear.

5 Continue rotating the 10-tooth gear until the 20-tooth gear has completed one revolution. Count and record the number of revolutions made by the 10-tooth gear.

6 Write a hypothesis that describes the relationship between the gear ratio and the number comparison of the revolutions of two connected gears.

7 Calculate the gear ratio of the 10-tooth gear turning the 20-tooth gear.

8 Design and conduct an experiment to test your hypothesis. Use various gears detached from the font for your experiment. Write a lab report of your experiment. Record all data and conclusions.