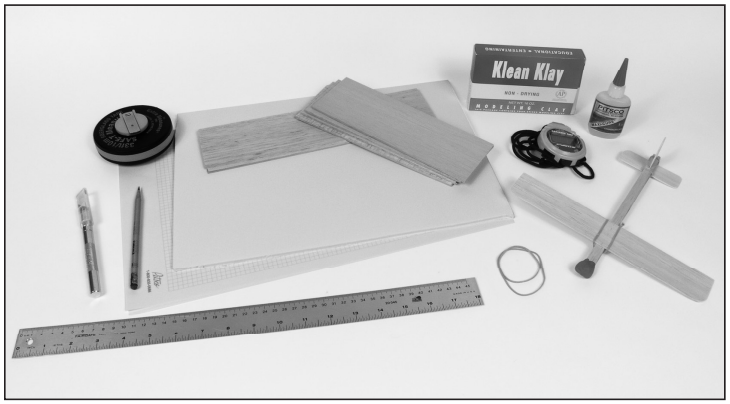
QuickView

Design and conduct an experiment to determine how the size of a balsa glider affects its average flight time.

Materials

- Completed balsa glider
- 1 mm thick balsa wood
- 3 mm thick balsa wood
- Pitsco Insta-Cure+ glue
- Modeling clay
- Ruler
- Metal straightedge (shown same as ruler)
- Rubber bands
- Pencil
- Sharp hobby knife
- Cardboard or paper-covered Styrofoam
- Graph paper
- Stopwatch (optional)
- Tape measure (optional)
- "Lab Report Template" (not shown)



Procedure

1 Design a glider with all dimensions exactly half those of the original glider. Determine the length and width of the wings, the stabilizers, and the length of the fuselage. Record these measurements and include them in the lab report you create at the end of this activity.

2 Cut the wings and stabilizers from the 1 mm thick balsa wood. Cut the fuselage from the 3 mm thick balsa wood.

3 Determine the location on the fuselage where the wings and stabilizers will be placed. Remember, all measurements should be one-half the measurements of the original glider.

4 Assemble and glue the wings, fuselage, and stabilizers.

5 To balance the plane properly, place the plane on the tips of your thumb and forefinger, each about two centimeters from the fuselage and about 1/3 of the chord length from the front of the wing.

6 When the plane is in this position, it should balance from front to back on your fingertips. However, the back of this plane is heavier than the front, so you will need to add some mass to the nose.

7 Use a little modeling clay to add some mass to the front of the plane until it balances properly.

8 After the glider is built, design an experiment or series of experiments to determine how changes in the size of the glider affect its flight. You may choose to test the time of flight, the distance the glider flies, or other factors related to flight.

9 Conduct the experiment or experiments you designed and complete a lab report for each experiment following the format of the "Lab Report Template." Make sure each report contains an overview, a hypothesis, a description of the experiment, the experimental procedures, the data, an analysis of the data, a conclusion, and a summary.