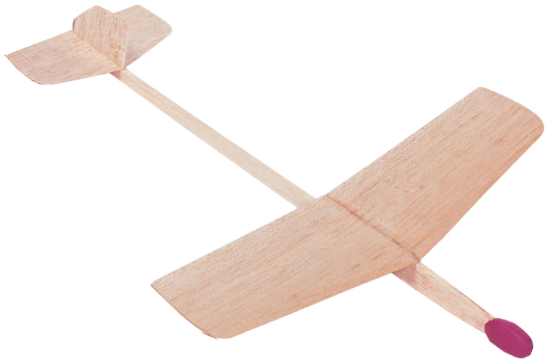
Balsa Glider

Grades 6+ | Students Served: 30

MIDDLE LEVEL HIGH SCHOOL



Essential Questions

What factors affect the flight of the glider from traveling in a straight line?

What are the flying forces that aircraft designers have to consider?

How can you prove the existence of air?

Career Connections:

- Aeronautical Engineer
- Aircraft Technician
- Air Traffic Controller
- Pilot

STEM Connections

Science

- Force and motion
- Center of gravity/pressure
- Aerodynamics

Technology

- Problem solving
- Construction techniques
- Materials science

Engineering

- Technological design
- Scale and structure
- Modeling

Math

- Ratios
- Surface area
- Measurements

⚠ **WARNING:** Drilling, sawing, sanding, or machining wood products can expose you to wood dust, a substance known to the state of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information, go to www.P65Warnings.ca.gov/wood.

Sample Activity

Gliders Galore

Challenge

After building the balsa glider as instructed, students predict how a flap applied to the wings of the glider will affect its flight.

- After constructing the glider, students trim the wings for long, level flights.
- Students then practice a throwing procedure, attempting to throw the glider with the same motion each time. When they're confident in their throwing motion, the students throw the glider and record the distance it travels and its deviation left or right of a straight path. Students also keep an observation log of the flights, describing the flight path with as much detail as possible.
- Using a 1-1/2" x 2" sticky note, students add a flap to the back of one side of the wing, about two-thirds of the way from the fuselage to the wing tip. The flap is bent to an approximate 45-degree angle, and the glider is thrown with the standard motion. Results and observations are recorded.
- The flap is moved to the opposite wing and the procedure is repeated. Flaps are then attached to both wings, and the students predict the results before they throw.

Discussion

How is the glider predicted to fly with a flap on each wing? Why?

Continuation

Change the size of the sticky notes. Does this make a difference in the path the glider takes or the distance traveled? Does the quantity of sticky notes make a difference?