






Forces of Flight

Materials

-  Straw
-  Index Card (or stiff paper)
-  Tape
-  Scissors

Students will learn about the basics of aerodynamics by creating and observing a hoop glider.

3rd - 5th
Grade

Directions

1. Cut index card into 3 equal strips down the long side.
2. Tape one of the strips to another strip to form an extra long strip, overlapping the ends slightly.
3. Form a hoop with each strip and secure them with tape. This should give you one large and one small hoop. Be sure the ends overlap slightly.
4. Tape the hoops to each end of the straw, making sure the straw is touching the inside of each hoop.
5. Throw the glider (small hoop in front) and observe!

Extend your Observations

- There are 4 basic forces acting on the glider:
 - **Thrust** - The force that is causing the glider to move forward. Where does the force come from?
 - **Drag** - The force pulling back on the glider, slowing it down. What force causes this?
 - **Weight** - The force pulling the plane down. What force causes this?
 - **Lift** - The force that causes the glider to rise or stay in the air. Why does this happen?
- Does the placement of the hoops on the straw affect its flight distance?
- Does the length of straw affect the flight?
- Do more hoops help the hoop glider to fly better?
- Do the hoops have to be lined up for the plane to fly well?

