HOOP GLIDER

THE GOAL:

Learn about aerodynamics by constructing and flying a hoop glider.

WHAT YOU NEED:

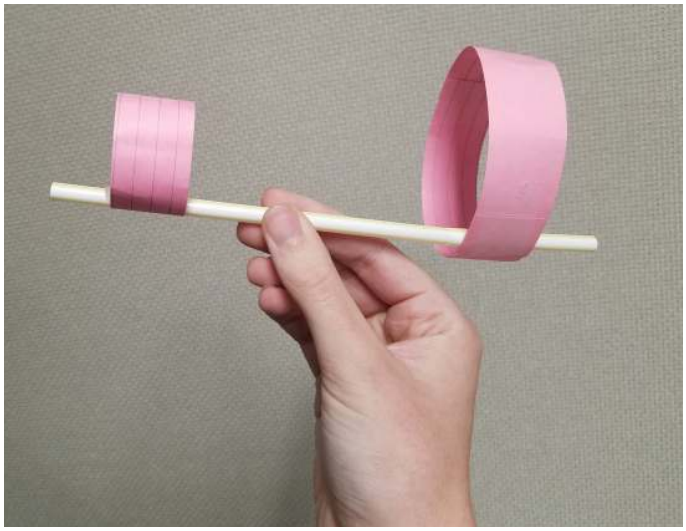
- Drinking straw
- Index card
- Tape
- Scissors

TRY THIS:

1. Cut the index card vertically into three equal strips of paper.
2. Take one of the strips and form a hoop with it, overlapping the two ends and taping them together.
3. Take the other two strips and tape them together, forming one long strip.
4. Form another hoop with the longer strip, taping the two ends together. You should now have two paper hoops, one slightly larger than the other.
5. Tape one end of the straw to the inside of one of the hoops. Tape the other end of the straw to inside of the other hoop.
6. Fly it! Hold the straw in the middle with both hoops facing up. Tilt the hoop glider up and throw it the way you would throw a dart.

DID YOU KNOW?

The four forces of flight are lift, weight, thrust, and drag. They act on a flying object from many directions at once-- up, down, forward, and backward.



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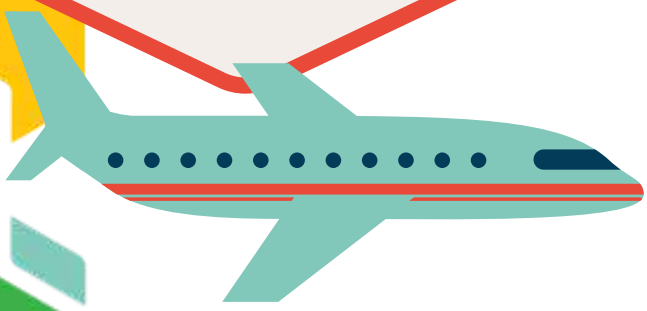
How does it work?
The hoops work a little bit like wings. Their curved shape creates differences in air pressure which cause the air to push them up, achieving lift. The little hoop helps the glider maintain direction, and the big hoop in the back creates air resistance (or drag) which helps keeps the straw level.

If the hoops are heavier than the straw, why doesn't the glider turn over? That's the nature of gravity! Lighter and heavier objects fall at the the same speed. So when the hoops are above the straw, they will remain above the straw.

MORE TO EXPLORE

READ ALL ABOUT IT!

- **DK Eyewitness: Flight** by Andrew Nahum
- **To Fly: The Story of the Wright Brothers** by Wendi C. Old
- **The Hallelujah Flight** by Phil Bildner



- Experiment with changing the placement of the hoops on the straw. Move the hoops to different parts of the straw, or adjust them so they aren't lined up. How does this affect the way the glider flies?
- Add more hoops to the glider. How does this affect its flight?
- Test out different lengths. Cut the straw in half, or double its size by taping two straws together. What happens?

STANDARDS

This activity aligns with the following Oklahoma Academic Standards:

- 3-PS2-1, 3-PS2-4, & 5-PS1-1 Motion and Stability: Forces and Interaction
- 4-PS3-3 Energy

Note: The instructions for this lesson were adapted from the website Science Bob. It can be found at sciencebob.com.

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