

PRESENTED
BY:

girlstart

Paper Helicopter

It's a bird, it's a plane, no it's a paper helicopter! Construct a simple and sturdy paper helicopter using the template provided. How many different modifications can you make to the rotor to improve your helicopter's flight?

TEKS:

SCI 1.8 D: The student is expected to demonstrate that air is all around us and observe that wind is moving air.

SCI 3.6 C: The student is expected to observe forces such as magnetism and gravity acting on objects.

SCI 4.6 D: The student is expected to design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

SCI 5.6 D: The student is expected to design a simple experimental investigation that tests the effects of force on an object.

Materials:

- Paper Helicopter Template – attached
- Paperclip
- Scissors

How To:

1. Print out the Paper Helicopter Template attached to this lesson.
2. Cut the solid, bold line above A.
3. Cut the solid, bold line above B.
4. Fold tab A backwards on the dotted line.
5. Fold tab B backwards on the dotted line, making sure it overlaps tab A.
6. Fold tab C on the dotted line.
7. Place the paper clip over the folded C tab.
8. Fold tabs D and E on the dotted line in opposite directions.
9. Hold your helicopter as high as you can and drop it!

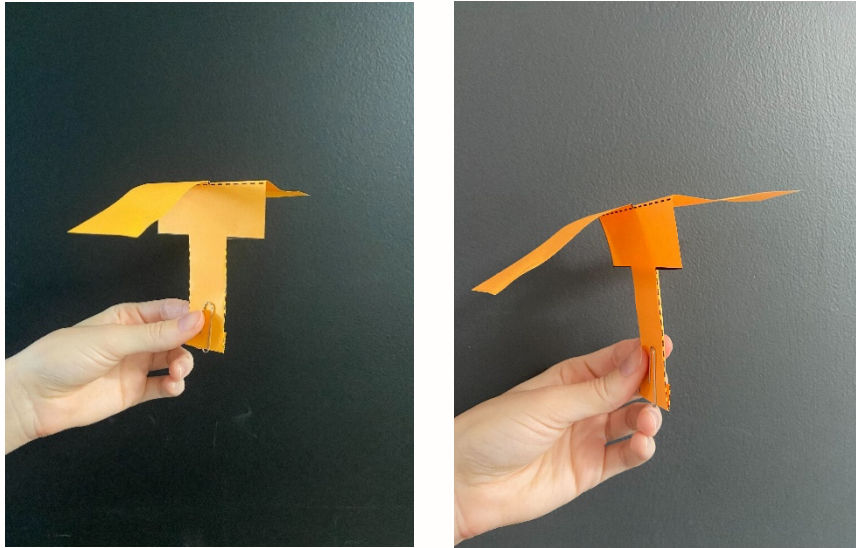
31 Days of STEM FUN!

www.destember.org | [#deSTEMber](https://twitter.com/deSTEMber) | © 2022 by Girlstart www.girlstart.org

DeSTEMber is a trademark of Girlstart

Do a Test Flight:

Raise the paper helicopter as high in the air as you can. Now, drop it. What do you observe? Which way do the blades turn? Drop the paper helicopter from a higher spot. How does the performance change or how is it different? What happens if you adjust the rotor?



STEM Explanation:

When the helicopter falls, air pushes up against the blades, bending them up just a little. When air pushes upward on the slanted blade, some of that thrust becomes a sideways, or horizontal, push. Why doesn't the helicopter simply move sideways through the air? That's because there are two blades, each getting the same push, but in opposite directions. The two opposing thrusts work together to cause the toy to spin! Next time you drop the helicopter, notice which direction it spins as it falls. Is it clockwise or counterclockwise? Now bend the blades in opposite directions: if blade A was bent toward you and blade B was bent away, bend B toward you and A away. Drop the helicopter again. Now which way does it spin?

Career Connection:

Aerodynamicists are engineers who specialize in aerodynamics, or, the study of how air moves around objects. They design and construct the safest and most efficient vehicles that travel through the air.

Resources:

<https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-aerodynamics-k4.html>

<https://www.jpl.nasa.gov/edu/teach/activity/make-a-paper-mars-helicopter/>

<https://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-a-helicopter-58.html>

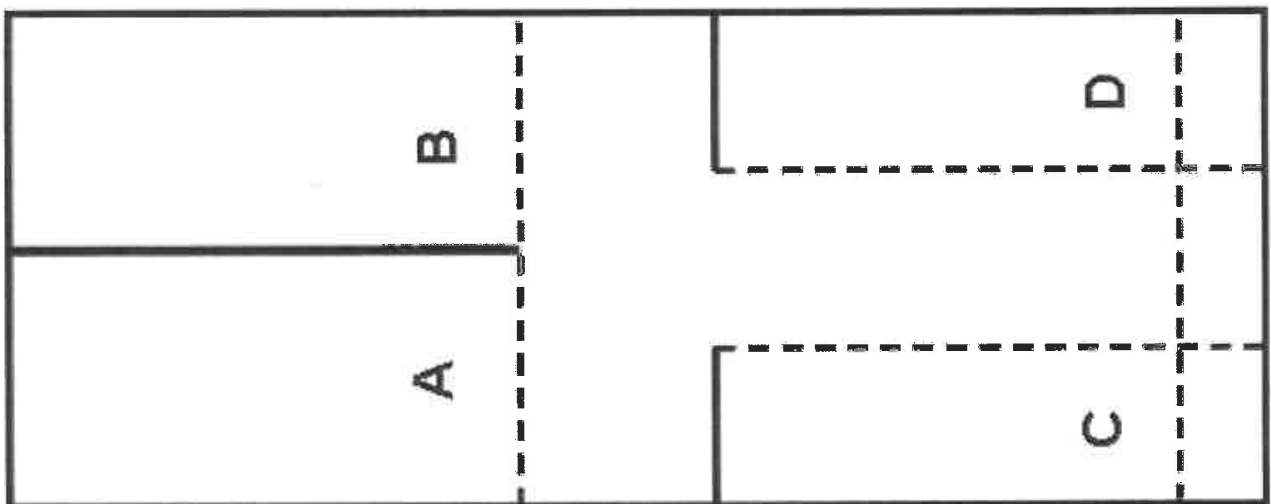
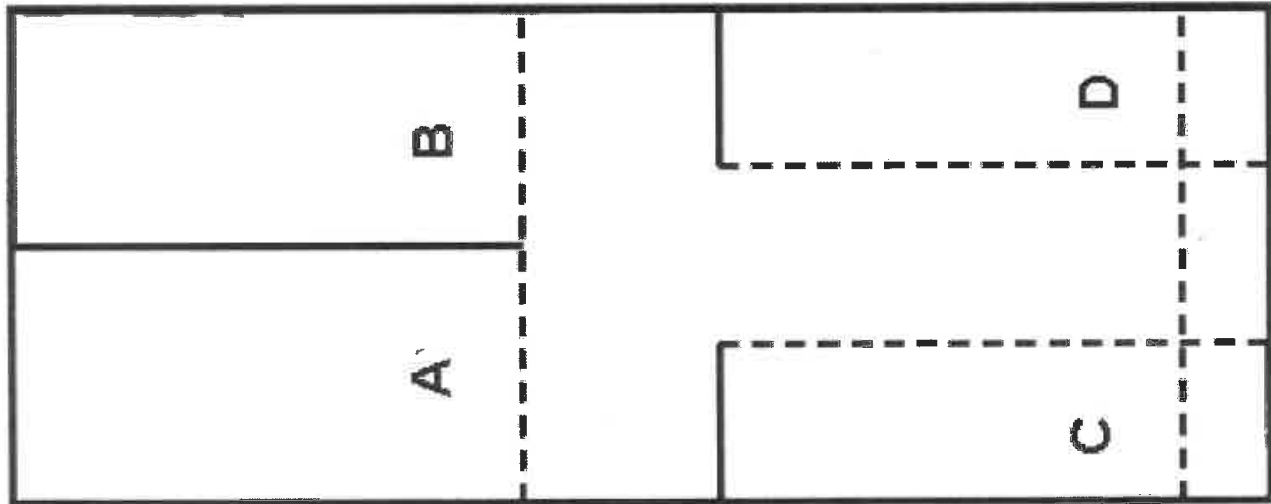
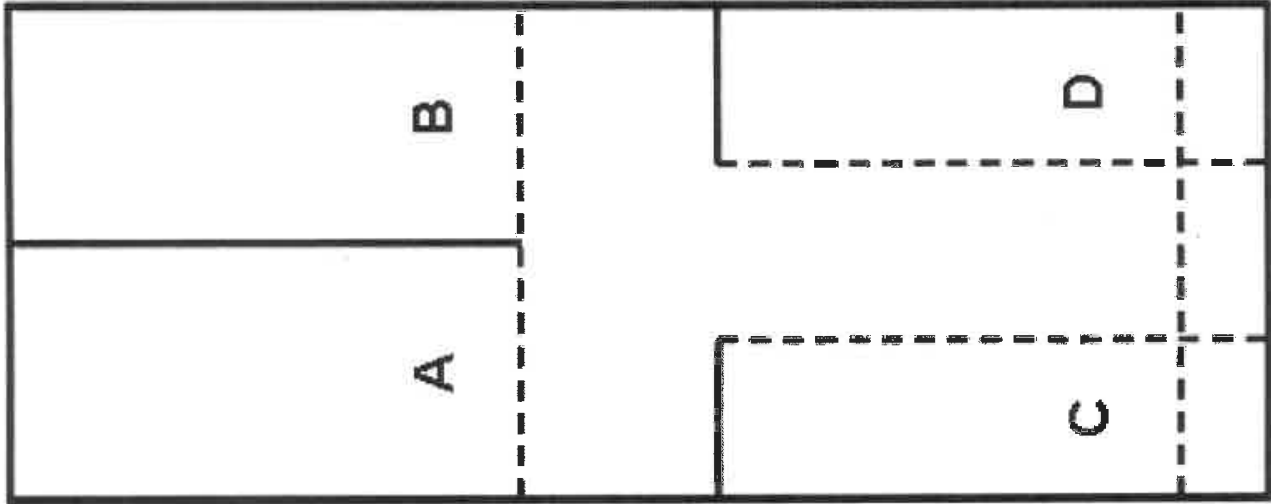
Template Source: <https://www.papertoys.com/spinning-helicopter.htm>

31 Days of STEM FUN!

www.destember.org | #deSTEMber | © 2022 by Girlstart www.girlstart.org

DeSTEMber is a trademark of Girlstart

Paper Helicopter Template



31 Days of STEM FUN!

www.destember.org | #deSTEMber | © 2022 by Girlstart www.girlstart.org

DeSTEMber is a trademark of Girlstart