



High Touch High Tech®

Science Experiences That Come To You

Fly a Paper Helicopter!

Ingredients & Supplies:

- Paper helicopter template
- Safety scissors
- paperclips

Instructions:

1. Print out the Paper Helicopter template.
2. With your safety scissors, cut the outside shape of the helicopter.
3. Cut along the center line.
4. Now fold along the dotted line so that one rotor bends forward and the other backward.
5. Push 1 paper clip onto the bottom end of the paper.
6. Hold your helicopter above your head. Drop it and watch how it spins!

Now experiment with your helicopter. Try holding it a different way. If you can, go up a few stairs and see what happens when dropped higher up.

What is the purpose of the paperclip? Try attaching 1 or 2 more clips to your helicopter. What happened? Did it spin more? Did it drop faster? Which way did it spin? Clockwise or counter-clockwise? Did it turn upside-down?

Try many different experiments with your helicopter to find out what makes it work.

The Science Behind It:

A helicopter is a type of aircraft that flies because of its *aerodynamic* support from an engine. Unlike an airplane that has 2 unmoving wings, a helicopter has blades, or rotors, that spin around a vertical axis. These rotors create lift when spinning, allowing the helicopter to rise and descend vertically. This means the helicopter can move up and down. But, it gets better! Since a helicopter has rotors on the top of the aircraft and rotors on the tail, it can also move forward, backward, hover and spin!

When you drop your paper helicopter, air rushes out from under the wings in all directions. Air hits the body of the helicopter, causing it to spin. What happens when you add paperclips? The clips add weight to your helicopter, which turns your blades to a slant and more air hits the blades. As the air hits the blades, they spin even faster!

What a great experiment! Good job!



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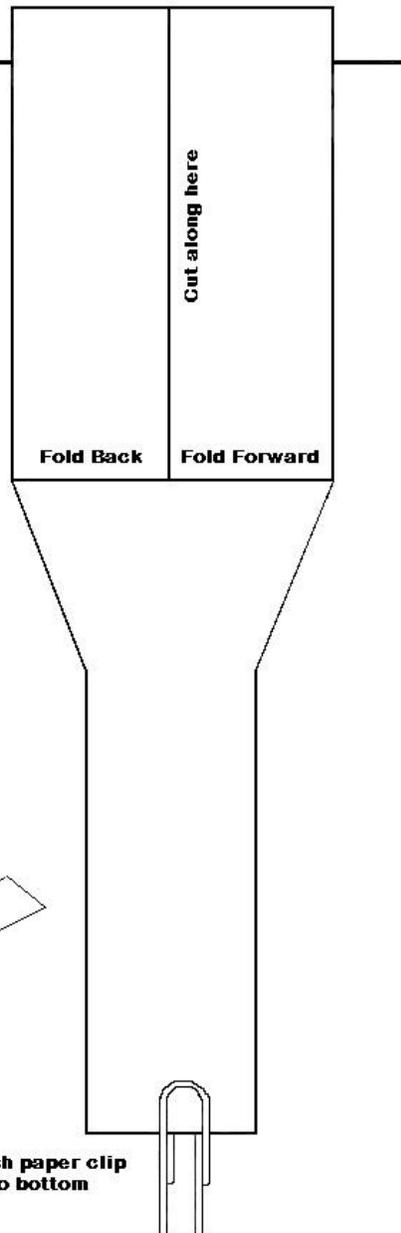
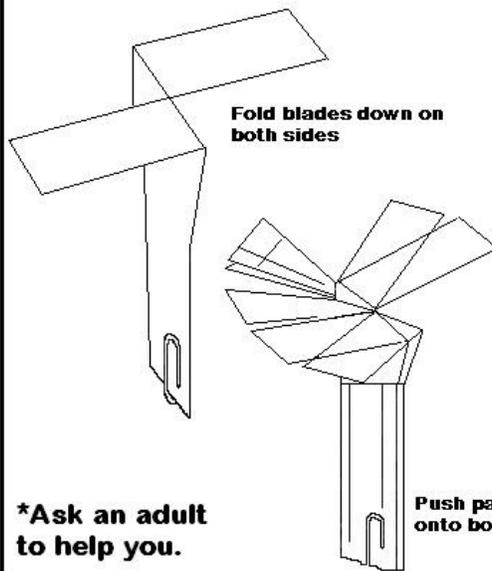
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Science Made Fun!



Make a Paper Helicopter

1. On paper about 8 inches by 2 1/2 inches, draw a shape like the picture and cut it out.*
2. Cut along the center line.*
3. Fold along the dotted line so that one rotor bends forward and the other backward.
4. Push a paper clip onto the other end of the paper.
5. Drop your helicopter from a height and watch how it spins.
6. Bend the rotors the other way. In which direction does the helicopter spin now?
7. Drop your helicopter upside down. Will it turn the right way up again?



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