



Student Worksheet

Make a Mars Helicopter

NASA's Perseverance Mars rover, launching in July 2020, will carry the first helicopter to the surface of Mars! This helicopter has to be super lightweight to fly on Mars. It also needs large blades that can rotate really fast so it can generate enough lift to overcome the gravity of the Red Planet and lift off the ground.

In this project, you will build a paper helicopter. Then, just as NASA engineers had to try out different versions of the Mars helicopter before coming up with a final design, you will experiment with the design of your helicopter to see what works best. Online activity available at: go.nasa.gov/3e4GcXI

Materials

- Plain paper OR this template
- Scissors
- Measuring Tape
- Pencil
- (Optional) 3-meter (10-foot) length of lightweight ribbon OR smartphone camera

Instructions

- 1. Cut out the helicopter:** Cut along the dashed lines of the template. If you're using plain paper, make a sketch of the helicopter solid and dashed lines as a guide.
- 2. Fold along the solid lines:** The propeller blades, A and B, should be folded in opposite directions along the solid lines. The X and Y panels fold toward the center, and Z is folded upward to give the body of the helicopter rigidity and lower its center of gravity.
- 3. Do a test flight:** Stand up and hold the helicopter from its body. Raise it as high in the air as you can. Now, drop it. What do you observe? Which way do the blades turn? Drop the helicopter from a higher spot. (Climb a few stairs or stand on a step stool.) How does the performance change?

Visit the link below for the rest of the activity. Find out how to test and modify your helicopter to make it even better!

go.nasa.gov/3e4GcXI

