# Paper Whirlybird

#### Sections





## **Challenge Areas**

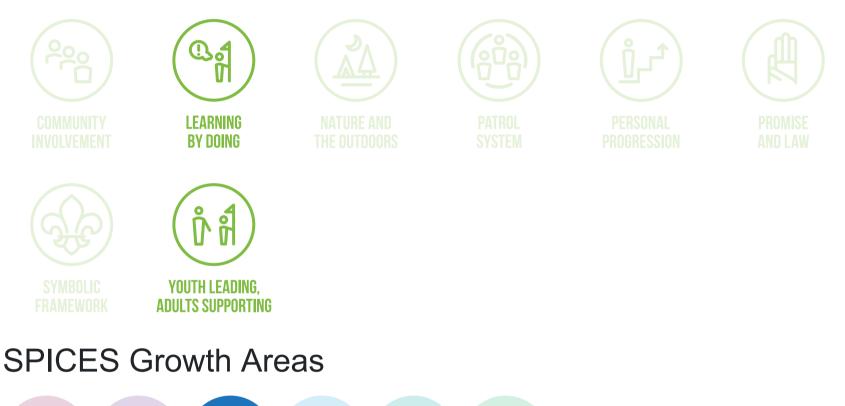


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# Scout Method Elements





# The Adventure

Find out how helicopters fly by making your own paper whirlybird!

## Plan

1. Investigate how helicopters fly, and why they have spinning blades. Look into how gravity and lift factor into flight.

Scientific American have a good article about whirlybirds, upon which this Challenge Card was based: <u>https://www.scientificamerican.com/article/make-a-whirlybird-from-paper</u>

#### Do

- 1. Print out the whirlybird template, or use a ruler to draw your own based on the dimensions. a. <u>https://www.sciencebuddies.org/science-fair-projects/whirly-bird-template.pdf</u>
- 2. Cut along the solid lines.
- 3. Fold along the dashed lines.
- 4. Place a paperclip on the folded section at the bottom as a weight.
- 5. Now it's time to take flight! Drop your whirlybird from as high as you safely can.

#### Review

- 1. How long did it take for your whirlybird to reach the ground?
- 2. Did it start spinning straight away, or did it freefall before it started spinning? Why do you think this is?

## Safety

- Be careful using when using scissors to cut out your whirlybird.
- When folding the paper and using your whirlybird, be careful of papercuts.
- The higher the whirlybird can be dropped from, the better flight it will have. Younger members may need to stand on a step, or similar. Be careful if doing this and ensure that youth members are supervised at all times.

## Variations

- In the name of science, repeat your drop multiple times. You might wish to time how long it takes for it to drop each time.
- Do different types of paper make any difference to the time it takes for your whirlybird to reach the ground?
- What if you don't use a paperclip? What if you weigh your whirlybird down with multiple paperclips?
- What if you made your whirlybird bigger, using an A3 sheet of paper instead of an A4 sheet? Do you think anything would change?