

Historical helicopters

Explore the science
behind helicopter flight
by making quadcopters



Helicopters play an important role in military and search and rescue operations, as well as commercial flight. Using the information provided, help your section get a buzz from understanding the science behind helicopter flight and what makes this aircraft so versatile.



Suitable for Scouts

You will need (per quadcopter)

- A4 paper
- A4 card
- double-sided sticky tape
- drafting compass (for drawing circles)
- pencil
- eraser
- scissors
- ruler
- split pins

Instructions

1 Before your meeting, make an example of a paper quadcopter to pass round, so the young people can see the end result. Then, support them to make their own, using the instructions below.

2 Mark out a 10cm square in a bottom corner of a sheet of A4 paper using the pencil and ruler. Cut out the square carefully using the scissors.

3 Using the compass and pencil, draw a small circle in the centre of the paper square.

4 Use the pencil and ruler to draw lines from the outside of the circle to the four corners of the paper. Then cut along the four lines. The square of paper now has four flaps.

7 Add a piece of double-sided tape to the centre of the circle. Fold in and stick down the point of each flap, creating the shape of a windmill.

8 Repeat steps 2–7 three more times, so you have four windmills.

9 Using the card, cut out two 3cm wide strips from the long side.

10 Place the two strips of card together to make a cross and stick them in the middle using double-sided tape.

11 Use the split pins to attach the windmills to the ends of the cross. Make a hole in the card using a pencil, push the pins through the centre of each windmill and open them out.

12 Then test the quadcopters' flying capabilities. Share the information on this page and discuss what helps them fly. Unlike aeroplanes, helicopters have spinning wings called blades or rotors. As the blades spin, they create a force called 'lift' that allows the helicopter to rise into the air.

Time needed 45 minutes

Badge



The Royal Air Force partners the Scout Air Researcher Activity Badge

Partner

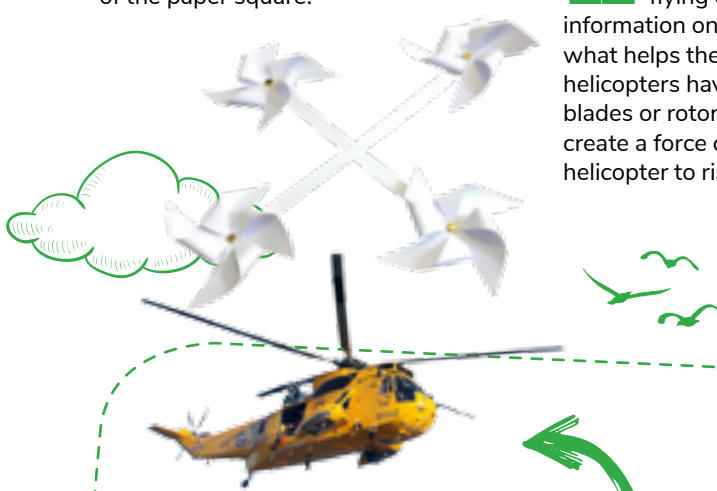


Outcomes

Your section will learn the principles of helicopter flight and how helicopter blades push air away, allowing them to fly. They will also gain a better understanding of the history of the helicopter and its important role in commercial, military, and search and rescue operations.

More information

The Royal Air Force is delighted to be working in partnership with the Scouts as part of a strategy to inspire and enthuse young people about science, technology, engineering and maths. Please visit the partner page to download the Air Researcher Activity Badge resources and to find information on future Scout take-over days: scouts.org.uk/RAF.



The Westland 'Wessex' helicopter

The Westland 'Wessex' helicopter was introduced in the 1950s and had the important tasks of anti-submarine missions and moving troops in combat situations. It was also involved in search and rescue operations on land and at sea until the early 2000s. Today, helicopters using the same flight technology as the Wessex are used as air ambulances for remote and rural communities, as well as sea and mountain rescue aircraft. In 2017–18, civilian search and rescue helicopters were called out 2,636 times.

