How Helicopters Work



Helicopters, with their horizontal propeller called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_, do not require forward propulsion. Each of the long, thin blades of the rotor is shaped like an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The spinning blades create an area of \_\_\_\_\_\_\_\_\_\_ pressure under them and an area of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ pressure over the top of them. This produces the lift needed to take the helicopter into the air. When the helicopter’s blades are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, it flies in the direction of the tilt.

If a helicopter was designed with a single rotor it would be very difficult to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The rotor, spinning in one direction, sends the body twisting in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ direction. To overcome this effect, some helicopters are designed with two rotors, each turning in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ direction. This is typical of large helicopters used to carry \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ loads. Most helicopters compensate for this twisting by adding a smaller, sideways facing rotor on the \_\_\_\_\_\_\_\_\_\_\_\_\_. It creates an equal but opposite \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ force to that produced by the main rotor.