

Read the article “Flying High” before answering Numbers 1 through 5.

Flying High

An airplane is large, long, and heavy, yet look up in the sky and you’ll see planes soaring through the air. How on Earth do they ever get off the ground? And once they get off the ground, how do they stay up? If you jump up, it is only a matter of seconds before you fall back to Earth, and you are much lighter than any plane.

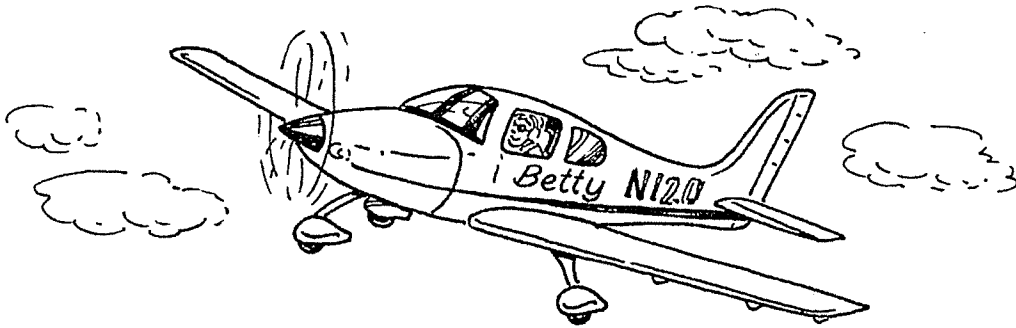
The answer is lift. Lift is a force that moves a plane up and holds it there. Every part of the plane helps produce lift, but the wings are the most important part. An airplane’s wings are straight on the bottom but curved on the top. This shape is responsible for lifting the plane.

As a plane speeds down a runway, it is moving through air. An airplane’s wings cut through the air, forcing the air above and below it to move. The air flowing above the wing moves up and then down its curved top. As the air moves down, its speed increases. It becomes lighter. So it doesn’t push down on the wing as much. Meanwhile, the heavier air under the wing’s flat bottom is pushing up on the wing. Its push up is stronger than the top air’s push down. So the air under the wing “wins” the game of forces. It pushes the wing up, lifting the plane off the ground.

As long as the plane keeps moving forward, the air will keep it up. On the ground, the plane’s engine and wheels move it forward. Yet up in the air, wheels are no good. How does the plane move forward in the air? Its propeller helps move it forward. Each blade of a propeller is shaped like a wing. It is curved on one side and flat on the other. The curved sides face away from the plane. The flat sides face the plane. As the propeller blades spin, the air in front of them speeds up and becomes lighter. The heavier air behind the blades pushes on them, moving them forward. The plane gets pulled along for the ride.

How does a plane come back down safely? A pilot cannot just stop the plane from moving. The key is to slow down the air over the tops of the wings. However, the air must be slowed down gradually, little by little. So the pilot slowly cuts back on the engine. This slows down the propeller. Also, flaps on the back part of a wing can be moved so they slant up. The air moving into the flaps slows, causing it to become heavier. So it pushes down more on the wings.

Air flight is possible, then, because air can push things around. As wind, it can be strong enough to push you around. It can even be strong enough to lift a huge and heavy airplane.

**GO ON →**

How does air affect airplanes? Include information from the article to support your answer.
