

Floating Festival

What helps hot-air balloons go up, up, and away?

Each fall, hundreds of hot-air balloons float over Albuquerque (AL-buh-kur-kee), New Mexico. Some even come in wacky shapes, like this cow, octopus, and rubber ducky! The spectacle kicks off the annual Albuquerque International Balloon Fiesta—the largest in the world.

Liftoff!

How do these giant balloons get off the ground? Attached to the top of each balloon's basket is a gas burner. It heats the air inside the balloon. As the air in the balloon gets warmer, its molecules move faster and farther away from one another. Liter-for-liter, the balloon's spread-out air then weighs less than the regular air outside. In other words, the air inside is **less dense**.

That difference in density makes the balloon float upwards.

Riding the Wind

Hot-air balloons don't have steering wheels. Pilots must catch a breeze that will blow them in the direction they want to go. This is one reason Albuquerque is a great place for the fiesta. During the best ballooning weather, it has a lower air current blowing from the north and a higher



air current blowing from the south. A balloon can travel in one direction in the lower air current. Then the pilot can heat the air inside the balloon to lift it into the higher air current. The balloon is then blown back in the opposite direction. Finally, the pilot slowly releases hot air from the top of the balloon. The balloon sinks back to the ground, making a perfect round trip.



Balloon Basics

GOING UP:

A hot-air balloon rises because the hot air inside is less dense than the cooler air outside.

AIR OUTSIDE

AIR INSIDE

AIR VALVE:

Pulling a cord opens a valve at the top of the balloon. As hot air escapes, the balloon sinks.

BURNER: A gas burner shoots a flame up to 9 meters (30 feet) high into the balloon. It heats the air inside.

ENOVELOPE: The balloon's shell is made of panels of tough nylon fabric sewn together.

BASKET: The basket holds the pilot, passengers, and gas tanks to power the burner. It's attached to the balloon by steel cables.

INSTRUMENTS: Onboard devices measure how high and fast the balloon rises.

