Taking Off

Balloons get off the ground in different ways. For some balloons, the pilot and passengers use a small step ladder and climb into an upright basket. For others, the balloon, the basket, and the people in it lie on their sides. A large fan blows air into the mouth of the balloon. When the balloon is half **inflated** (in-FLAY-tuhd), the pilot starts the burner. The flames heat the air inside the envelope. As the air heats up, the balloon rises and pulls the basket upright.

A fan blows air into the mouth of the balloon while the balloon passengers lie on their sides in the basket.

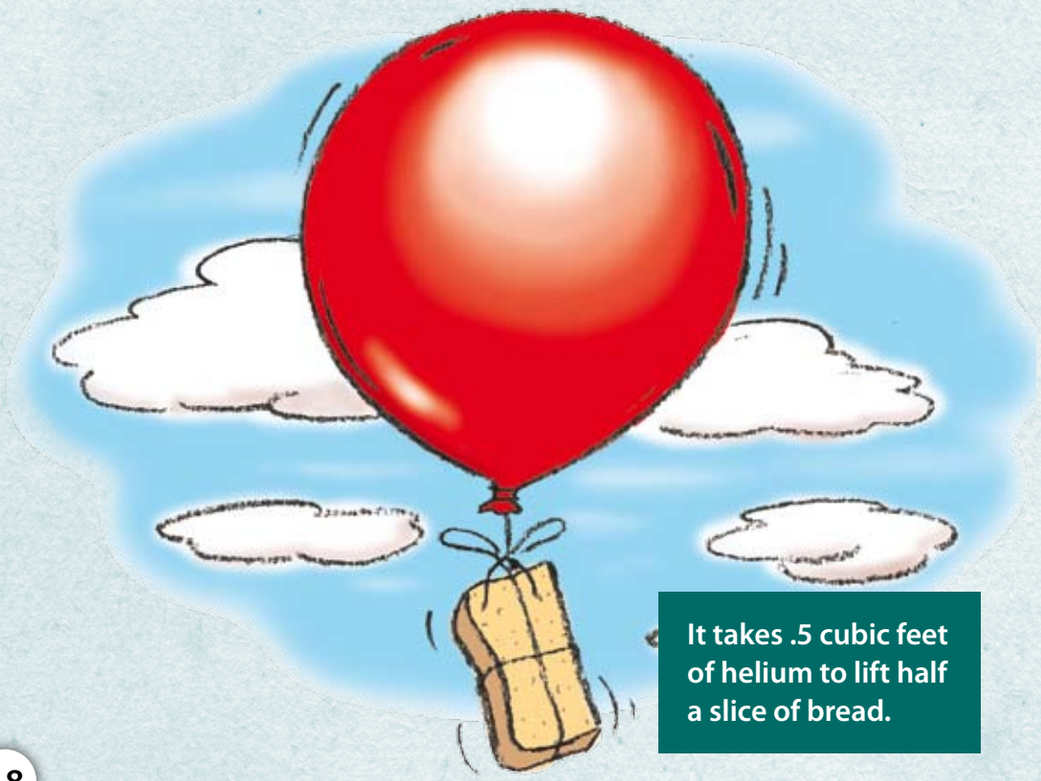
When the basket is upright, the pilot turns the burner up. As the flames heat the air inside the envelope, the basket lifts off the ground.

The balloon and its passengers ascend into the sky.

Helium Balloon Lift

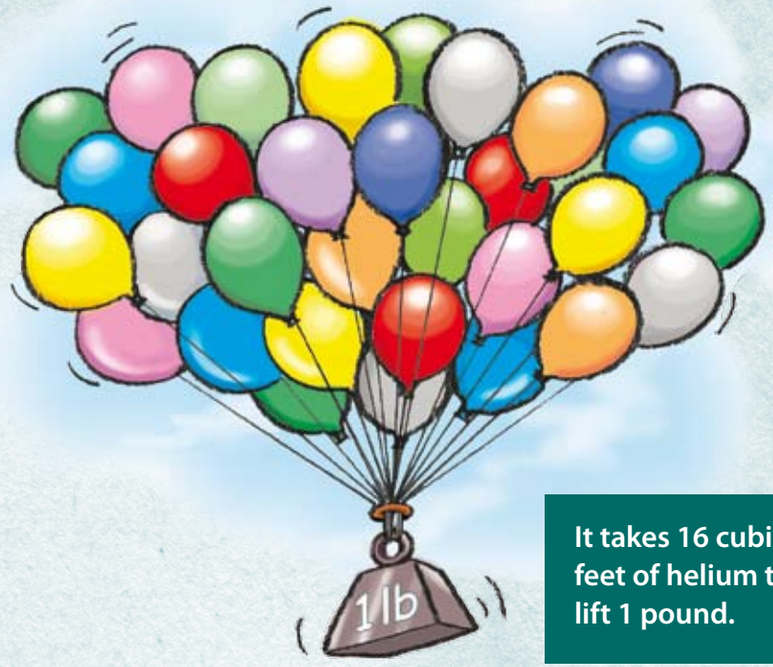
You probably know about helium-filled balloons. You know how easily they float away. Think about the lifting power of helium-filled balloons. How many balloons do you think it would take to lift you off the ground?

Say you have a balloon with a **diameter** of 1 foot and a volume of .5 cubic feet (over 14,000 cm^3). That volume is enough to lift half a slice of bread. A slice of bread weighs 1 ounce (28 g). That means it would take 2 balloons of this size to lift one slice of bread. In other words, 1 cubic foot of helium gas can lift 1 ounce.



It takes .5 cubic feet of helium to lift half a slice of bread.

There are 16 ounces in 1 pound. So, if 1 balloon can lift .5 of an ounce, you would need 32 helium-filled balloons of that size to lift 1 pound. That is quite a lot of balloons!



It takes 16 cubic feet of helium to lift 1 pound.

LET'S EXPLORE MATH

A balloon's wicker basket has the following measurements: 4 feet long, 4 feet wide, 5 feet high.

a. What is its volume?

One person takes up this much room in the basket: 2 feet in length, 2 feet in width, and 5 feet in height.

b. How many people can fit into the basket?

Hint: You will need to work out the space that 1 person takes up first.