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Mission: Raven Hill provides a place that enhances hands-on and lifelong learning for all ages by connecting science, history & the arts.

Bernoulli's Principle

In the 1700's, Daniel Bernoulli discovered and explained how objects can stay up in the air. Bernoulli found that there are differences in air pressure. In a plane, the difference is above and below the wing. Air has to travel faster over the curved top of the wing and so there is less pressure there, allowing the air underneath to "lift" the airplane. Lift is the force that is greater under wing and less on top that allows a plane to fly in the air. Use a blow dryer to demonstrate lift. Place a ping pong ball on a blow dryer. Keep dryer in a vertical position. Turn dryer on high & watch ball "float". Fast moving air in all cases has less pressure and fewer air particles. Imagine a column of fast moving air right above the blow dryer and still or slow moving air that has greater pressure and more air particles surrounding that fast-moving column of air. The object "floats" in the column of fast moving air. As the air is "blown away", the slow moving air fills in at the bottom of the column. The floating object is in that fast moving part of the column and slow moving air moves in from underneath to lift the object. When air moves quickly, pressure is low and there are fewer air particles. When the air moves slowly, pressure is high and there are more air particles to lift. Try other objects, like a cotton ball or a piece of tissue wadded up or flat. What works best? Does low speed work better or worse than high speed? Limit time running the blow dryer to a count of 10, then let it cool. CAUTION: Blower will get hot.

