

## UAMN Virtual Family Day:

# Paper Airplane Folding Instructions



*[Image courtesy of Air Force Research Laboratory.](#)*

Find more paper airplane designs and how-to videos:

[www.foldnfly.com](http://www.foldnfly.com)

# Airplanes and Flight

## How Do Airplanes Fly?

Four forces affect all flying things. A plane flies when all four forces are balanced and work together.

Lift is the force that pushes a plane upward. It is created by the *Bernoulli Effect*: the wings of a plane are curved so there is more pressure from the air pushing up on the wing than there is pushing down.

Weight is the force of gravity pulling down on the plane.

Thrust is the force that moves a plane forward through the air. Engines create thrust for airplanes, and muscles create thrust for flying animals.

Drag is resistance to moving through the air. Because of friction with air molecules, this force slows the plane.

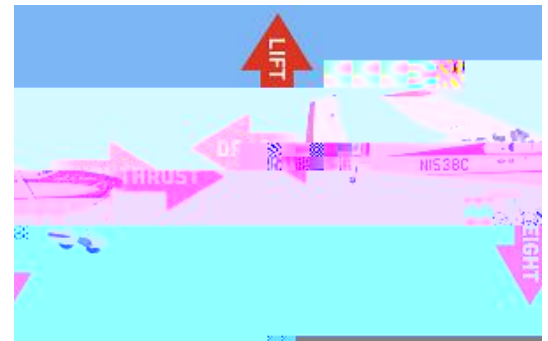


Image: Smithsonian National Air and Space Museum.

Learn more about the four forces of flight: [howthingsfly.si.edu](http://howthingsfly.si.edu)



Space Shuttle Endeavour landing in 2001. Image: NASA/Jim Ross.

Did You Know? There is no air in outer space, so lift and drag do not affect spacecraft. However, they do need thrust to launch, which is provided by rockets. NASA's space shuttles were designed much like an airplane, with specially-shaped wings to re-enter the atmosphere and glide to a landing. NASA is currently designing new kinds of spacecraft to carry astronauts to outer space.

## Airplanes in Alaska

Airplanes have played an important role in the history of Alaska. In the 1920s, pilots like Carl Ben Eielson and Noel Wien first flew airplanes across the state. Airplane travel transformed the lives of Alaskans; they could now communicate more quickly with people in other areas, and receive supplies on a regular basis.

Right: Noel Wien and his Stinson Detrouiter airplane. Image: UAF Archives, UAF-2010-50-401.



Many parts of the state do not have roads, and one of the only ways to reach them is by airplane. Planes also deliver mail and supplies. Today, flying is an important part of life for many Alaskans.

Left: Eielson's Curtiss JN-4D "Jenny" airplane, on display at the Fairbanks airport. Image: Theresa Bakker.