

Launching Paper Airplanes



AGE RANGE: 2nd-6th grade • PREP TIME: 5 minutes • LEARNING TIME: 15 minutes

Have you always dreamed of flying? Try this.

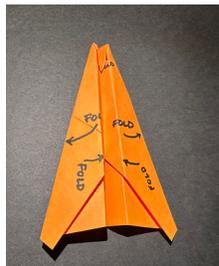
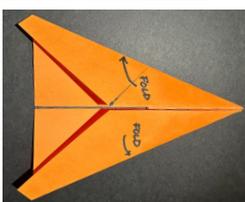
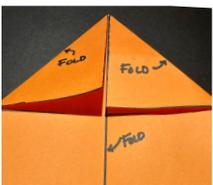
Launch your paper airplane with this easy homemade launcher. All you need is a piece of cardstock and a rubber band and your airplane can really fly.

Instructions

Gather the following items:

FOR PLANE

- Square piece of regular paper
1. Fold regular paper in half. Open it up and fold each top corner to the middle line. You should have a "house" shape.
 2. Then fold from the top point again so that you have a pointier shape.
 3. Fold the top tip down so that it is flat across the top.
 4. Then fold the whole shape in half along the center line (all of the folds should be inside).
 5. To complete the plane shape, fold each side down to create the wings.



FOR LAUNCHER

- Square piece of cardstock (same size as paper for plane)
- Stapler
- Rubber band

1. Fold cardstock in half.
2. Fold each side in half again to make an M shape with your paper.
3. Staple the rubber band into place on the interior of the launcher.

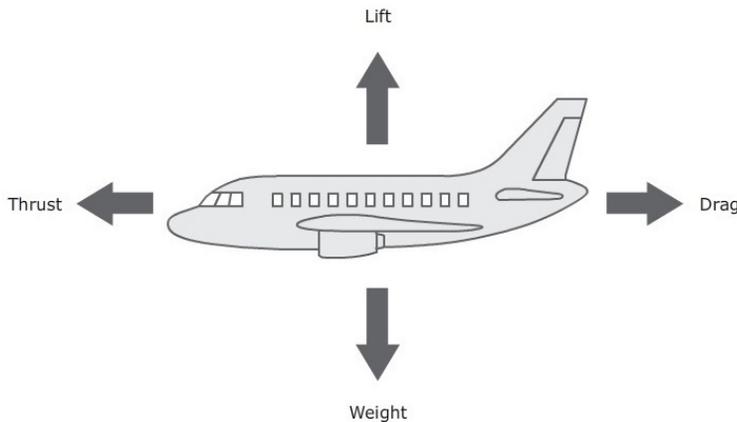


4. Wrap it around the exterior along the long side of the launcher. The "front" of the launcher is the side with the staple in it. To launch the airplane, place the paper airplane into the top crease of the front of the launcher (staple side). Slowly pull apart the top layer of cardstock at the back of the launcher and watch it fly!



How do things fly?

For thousands of years, people have dreamed of flying. We see it in legends and fairy tales, but in real life, flight is only possible when the right forces work together. Birds, planes, and even gliders stay in the air because of four main forces: lift, weight, thrust, and drag.



Lift and Weight

Gravity pulls everything toward Earth. This pull is called weight. To stay in the air, birds and planes need lift, a force that pushes up against gravity. Lift happens because of the way air moves over and under wings.

Thrust and Drag

To move forward, a flying object needs thrust. Birds get thrust from their wing muscles, planes use engines, and gliders rely on gravity to move forward. Drag is the force that slows things down—it happens because air pushes against the moving object.

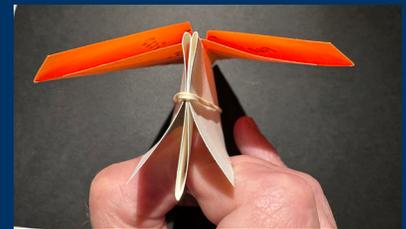
For flight to work, lift must be strong enough to overcome weight, and thrust must be strong enough to overcome drag. Understanding these forces has helped humans go from simple gliders to powerful jet planes!



Why use a launcher?

A launcher helps a paper airplane fly further and faster by providing a controlled, powerful initial thrust, allowing the plane to gain more lift and maintain flight for a longer duration than when thrown by hand.

Increased speed from a launcher translates to greater lift, the upward force that keeps airplanes airborne. The faster the plane moves, the more air is pushed downwards by its wings, creating a greater upward reaction force (lift).



Check out our Science at Home section on the website.



TRAIL SPONSORS

