

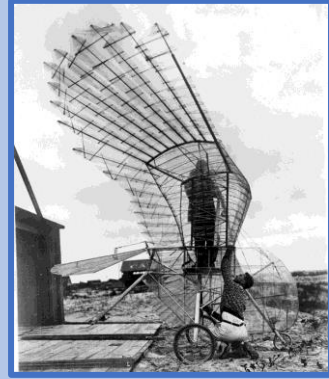


At Home Science – Birds & Biomimicry

Science for Families: using what you have at home

I hope you enjoyed meeting Beni, our Blue Throated Macaw! Those beautiful feathers assist these parrots in their daily to search for food. Their tail feathers are even used as a brake to slow down in flight.

The flight of birds has fascinated people for centuries. Many, including Leonardo Di Vinci in 1485, were sketching and designing devices for humans to fly like birds. In early 1920's George White, began experimenting with bird-like flight. He was an inventor and an aviator. For six years, he experimented and secretly made 21 flights. In 1928, after successful flights in Cocoa, St Augustine residents witnessed him successfully fly a moving wing, foot-propelled ornithopter on the beaches of St. Augustine.



Fun With Learning

Up, Up, and Away – Thrust, Lift, Drag, and Gravity of Paper Airplanes

Thrust, lift, drag, and gravity allow paper airplanes to fly. These are the same forces which allow real planes to fly. The thrust of a paper airplane is your hand pushing the plane forward. The air flowing under and over the wings is the lift. Curved wings of a real airplane allow the air to flow faster above the wing and slower below the wing, creating lift. Air pushing back against your paper airplane, slow it down. This is drag. The weight of your plane affects flight, due to gravity.

Materials: paper, a few fold designs, paper clips (optional). Start designing and folding! There are many websites which will help you with new designs. I tried this one. It truly is the best and very easy! Measure to find out how far yours will travel. Mine flew 17 feet!

<https://www.instructables.com/id/how-to-make-the-fastest-paper-airplane/>



Cool Science – a lesson tying into our cancelled program, "Birds, Birds, Birds".

Biomimicry is taking what we learn from nature to solve human problems. From sharks to kingfishers to humpback whales, engineers have been solving problems through the study of nature. Check these and more out! <https://www.digitaltrends.com/cool-tech/biomimicry-examples/>

What can we learn from feathers? Not all feathers are alike.

Take a look around your yard, go on a nature walk to look for feathers, or google bird feather. *Remember collecting bird feather of native birds is illegal in the US.* Take a picture or better yet, take the time to sketch the feather. It doesn't have to be perfect. Identify what type of feather you have found – wing, down, tail, contour, semiplume, filoplume, or bristle. If you have a microscope or a magnifying glass, use this to sketch a close look at the feather barbs. Learn more about identifying these feathers

here: <https://www.sciencedaily.com/releases/2019/01/190116150632.htm>



How do feathers help us solve human problems? We already learned about wings and the ornithopter, but how can feathers help us solve human problems? Have you ever run your fingers along the edge of a feather and to watch it unzip and then pull itself back into a zipper line again? Scientists are studying this feather feature to possibly make a better velcro.

<https://www.sciencedaily.com/releases/2019/01/190116150632.htm>

