

Professor Wingnut Wants to Fly



## Professor Wingnut Wants to Fly

*Recommended for*

*Ages 3 to 8*

*PreK – Grade 2*

### A Reproducible Learning Guide for Educators

This guide is designed to help educators prepare for, enjoy, and discuss **Professor Wingnut Wants to Fly**. It contains background, discussion questions and activities appropriate for ages 3 to 8.

### Programs Are Made Possible, In Part, By Generous Gifts From:

D.C. Commission on the Arts & Humanities  
The Nora Roberts Foundation  
PNC Foundation  
Smithsonian Youth Access Grants Program

DC Public Schools  
Philip L. Graham Fund  
Smithsonian Women's Committee  
Sommer Endowment



Smithsonian Associates

Discovery Theater • P.O. Box 23293, Washington, DC • [www.discoverytheater.org](http://www.discoverytheater.org)  
Like us on [Facebook](#) • Instagram: [SmithsonianDiscoveryTheater](#) • Twitter: [Smithsonian Kids](#)

## HUMAN FASCINATION WITH FLIGHT



Since the beginning of time, humans have always been interested in flight! We've watch **birds, insects, and bats fly** from one place to the next and wanted to do that as well. First, we had to realize that we were not built to fly. We're just too heavy. So we had to experiment and develop different ways of flying.

In 1903, **Wilbur and Orville Wright** made the first successful flight near Kitty Hawk, North Carolina. They did all kinds of experiments using gliders, kites, and wind tunnels to learn about how flight works. However, it wasn't until the invention of the **internal combustion engine**, which was light and powerful, that we could really fly far distances.

## FOUR FORCES OF FLIGHT

There are four forces that affect flight:

- **Lift** is created by the plane's wings as they move through the air.
- **Weight** is our perception of gravity, which you must overcome to fly.
- **Thrust** is created by a plane's propeller or its jet engines.
- **Drag** is the natural force of air that resists an airplane's forward movement.

The wings of an airplane are designed to provide enough **lift** for an airplane's **weight**. The engine provides enough thrust to overcome **drag** and **thrust** the airplane forward.



## FOR THE BIRDS



The scientific study of birds is called **ornithology**, which began in the 1700's. Birds are amazing! Everything about them is made for flight. Have you ever watched them? They take off without a running start! They can do twists and turns, soar and dive! They are really special creatures!

**Discussion:** How do birds fly? Why can't people fly? How do planes fly? What about Helicopters, or hot air balloons?

## INTERVIEW WITH SEYMOUR THE SEAGULL

### What is the average lifespan of a seagull?

Seagulls live anywhere between 5 to 15 years depending on their environment and predators, some have lived over 25 years. But I won't tell you my age, seagulls never tell!

### What do seagulls eat?

Seagulls will eat just about anything, from fish to small rodents. You can feed them French fries and pieces of bread, and they know how to break open clams and other shellfish to get to the good parts. That's pretty fishy!

### Can seagulls drink salt water?

Yes, seagulls can indeed drink both fresh and salt water. They have a special pair of glands right above their eyes, specifically designed to flush the salt from their systems through openings in the bill. I'm my own personal water filter, what's cooler than that?

### Do seagulls fly south for the winter?

Yes, especially ones who live in the North. They go south during the winter to where the pickins' are better. That's called migration. Don't you think I'd look cool with sunglasses and a pool floaty?

Learn more about seagulls at [http://www.onekind.org/be\\_inspired/animals\\_a\\_z/seagull/](http://www.onekind.org/be_inspired/animals_a_z/seagull/)



## SMITHSONIAN CONNECTION



This show takes place in the Smithsonian's very own Air and Space Museum—the Smithsonian's largest and most visited museum. Go check out the How Things Fly exhibit after the show. You can learn more about gravity, air, flight, and more in this interactive exhibit, perfect for kids. This exhibit also includes interactive online resources so that learning does not have to end after the show.

For the Young Set: Visit the "Flights of Fancy"—Stories for Children in the Barron Hilton Pioneers of Flight Gallery to read stories about famous aviators, hot-air balloon flights, trips to Mars, characters visible in the night sky, or creatures that have their own wings. Each session includes one story and a hands-on activity. Put on your goggles, and fly, fly away!

For more information, please visit:

[www.airandspace.si.edu/visit/museum-dc/things-do/story-times](http://www.airandspace.si.edu/visit/museum-dc/things-do/story-times) or [www.howthingsfly.si.edu](http://www.howthingsfly.si.edu)

## 5 FUN FACTS ABOUT BIRDS:



- All birds have feathers, between 1,000 and 25,000 of them! Feathers are light, but very **strong and flexible**.
- The hummingbird flaps its wings **10 times per second** and flies **60 mph**.
- The Peregrine falcon can fly 100 mph and can dive **200 mph!**
- There are **8,600 species** of birds in the world today.
- Birds have also become symbols for human values. Owls mean **wisdom**, the dove **peace**, and the eagle **power statesman ship**.

## WATCH BIRDS LIVE!

- <http://cams.allaboutbirds.org/> Link to live-streaming birds!
- Don't miss the West Texas Hummingbirds and their 60 mph flight!



## MAKE A PINECONE BIRDFEEDER

### You Will Need:

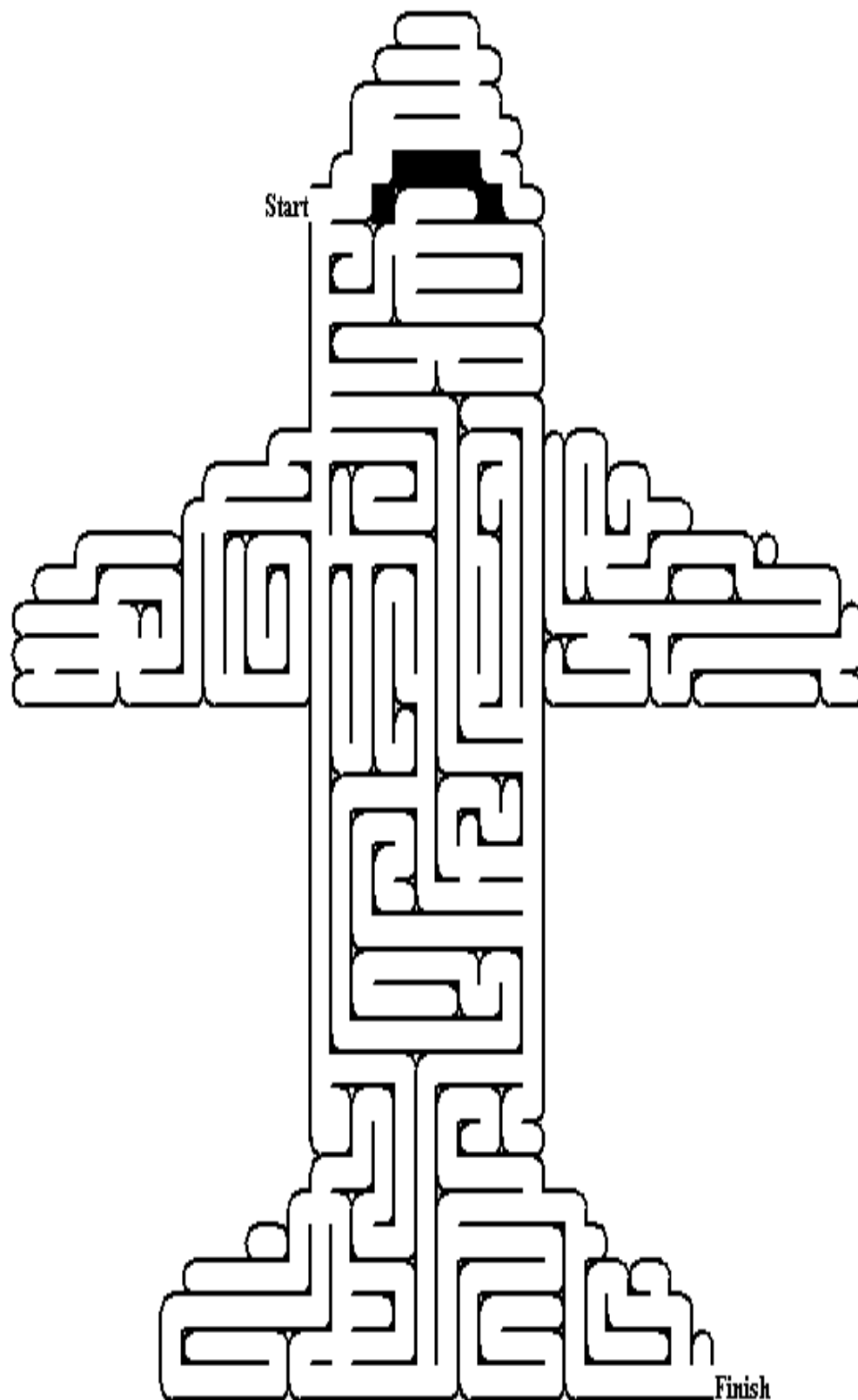
- Several large pinecones (bought, or better yet, found on an outside adventure)
- Peanut butter (vegetable shortening for people with nut allergies)
- Birdseed
- String, pipe cleaners or wire
- Scissors (if using string)
- Butter knife
- 2 or more plates
- A place to hang your bird feeder (a tree or bird feeder hanger work nicely)

- 1) Tie string, pipe cleaner, or wire to the top tier of the pinecone
- 2) Spread peanut butter on pinecone (butter knife or fingers!)
- 3) Roll pinecone in birdseed, multiple times if needed!
- 4) Hang your birdfeeder in a tree, off a balcony, anywhere you can see your local birds gather to feast on your homemade treat!





## TAKE A TRIP ON AN AIRPLANE MAZE



D

g



## Smithsonian Institution

### OUR MISSION: "THE INCREASE AND DIFFUSION OF KNOWLEDGE"

Smithsonian Associates advances the Institution's mission through life-enriching educational and cultural experiences inspired by the Smithsonian's research and collections for DC-region students, families, and adults, and for learning communities nationwide.

Discovery Theater has been presenting DC-area children with live educational performances for almost 40 years. With programs that enrich the Smithsonian experience for nearly 50,000 children annually, Discovery Theater is a gateway to the exhibits, collections, and themes contained in the museums and galleries on the National Mall and beyond. We explore American history and cultures, folk tales from around the world, and exciting, accessible science and math programs in the company of puppeteers, storytellers, dancers, actors, and musicians. Discovery Theater performances unite ideologies, enact themes that reflect the diversity of its audiences, open avenues of self-reflection, and offer an enjoyable means for parents and teachers to demonstrate life's lessons. There's so much to do and explore at the Smithsonian—and Discovery Theater is the ideal place to begin!



#### Our Location

The S. Dillon Ripley Center, 3rd Sublevel  
1100 Jefferson Drive, SW  
Washington, DC 20024

#### Mailing Address

Discovery Theater  
P.O. Box 23293  
Washington, DC 20026

**Email:** [info@DiscoveryTheater.org](mailto:info@DiscoveryTheater.org)

**Phone:** (202) 633-8700

**Fax:** (202) 633-1322

**Office hours:** Mon-Fri, 9:00am - 4:30pm