The Tech Interactive at Home

Building for Birdie

Who says all the fun has to happen at The Tech Interactive? This DIY engineering activity can be done with inexpensive supplies and things you find around your home!

Introduction

Birds are some of the most ingenious engineers of the natural world. Bird homes come in a variety of shapes and can be made out of everything from mud and stones to sticks and ribbons! In this design challenge, you'll engineer a sturdy home for a bird. You can make an *eggheaded* plan first, or *just wing it* — either way let your imagination *take flight*!

Design Challenge

Design and build a home sturdy enough to keep a "bird" safe.

Subject:
Science, Language Arts

Ages:
5+

Time:
30 minutes

Key concepts:
Ornithology, structural engineering, compare and contrast

Materials

Find a couple items from each category. Don't limit yourself to the items on this list. Use whatever you have on hand — be creative!

Structural	Cushion/Filler	Connectors	Tools
• Cardboard pieces • Coffee stirrers • Craft sticks • Paper towel/ cardboard rolls • Sticks	• Cotton balls • Fabric (small scraps, socks, etc.) • Foam pieces • Grass, straw, leaves, feathers, etc	• Clothes pins • Paper fasteners • Pipe cleaners (chenille stems)/twist ties • Rubber bands/hair ties • String • Other natural materials	• Hole punch • Scissors • Tape measure or ruler (helpful)
• Something to represent a bird or egg: ex: small toy, ball or rolled up paper		**Tip:** Try building without tape or glue so you can change your designs faster and reuse materials.	

Instructions

STEM Storytime

For some inspiration, read one of these picture books before you build.

- *About Birds: A Guide for Children* by Cathryn Sill
- *Mama Built a Little Nest* by Jennifer Ward (author) and Steve Jenkins (illustrator)

As you read, think about:

- What shapes and structures do you see?
- What do the bird homes have in common? How are they different?
- Which kind of bird will you build a home for?

Imagine A Dream Home

1. Take a look at the materials you've gathered and think about how you want to design your bird home.
2. Let your imagination *take flight* or design with a specific bird in mind. If you need some inspiration, check out the **Bird Homes** pictures on page 4, STEM Storytime books or other real-world examples.
   - How big is your bird?
   - What kinds of places does it build its home (tree, ground, cliff, etc.)?
   - What would your bird need in their home to keep it warm, safe, and protect its young?
   - What materials will you use to make your bird home stable? How will you connect those materials?
3. Once you have some ideas, sketch a design or just start building!

Learn More

- Find out more about specific birds and the types of homes they need with the Cornell Lab of Ornithology through **Nest Watch**.
- Observe some birds on **live cams** or in your own **neighborhood**. What do you notice about them? What do you think they need in a home?

Create and Test

1. Start building your bird home.
2. Consider the shapes you might use for stability and how you can combine or attach materials.
3. As you build, test it out. Put a small object in to be your “bird” or "egg."
   - Does it stay together when you add your “bird”?
   - How might you change your design to make it sturdier?
   - What kind of materials did you use? How do the materials affect the stability and strength of the home?
4. Engineers test, redesign and test over and over! Use what you’ve learned from testing to improve your design and make a better home for your bird.

Explore More

Once you have a stable home, try one of these extra challenges.

Full Nest

Change your design to hold more birds or eggs. How many can you fit before it falls apart?

Bored Bird

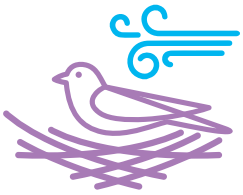
Add something fun to your nest that the bird might play with or enjoy.

Wildlife Rescue

Imagine you are taking care of your bird in a wildlife center and you need to move its home to make room for more birds. Test if your home stays together when you move it. Make sure your bird doesn’t fall out!

Strong Winds

Birds like puffins, albatrosses and cliff swallows live in very windy spots. Make some wind (use a fan, hairdryer or even your breath) to test how well your bird home stays together in *fowl* weather. How can you redesign it to protect your bird?



Important

If you find a bird who has fallen out of a nest, or have a nest that is in an unsafe location, don’t try to move it yourself! Contact your local wildlife rescue group. See the **Wildlife Education Rehabilitation Center (WERC)** or **The Humane Society of the United States** for more information.

Share Your Results! Keep us posted about your design challenges on social media with **#TheTechatHome.**

The Tech Interactive at Home

thetech.org/athome

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Building for Birdie
Bird Homes

Gila Woodpecker Home

Bowerbird Home

Cliff Swallow Home

Bald Eagle Home

Hummingbird Home

Sociable Weaver Home

Asian Paradise-flycatcher Home

Puffin Home

Baya Weaver Home