# Build a Bird Nest Challenge

-- Original directions by *Ben Fineo in Science Buddies*,
-- **Adapted by Ms. Stark, (writing is in bold)**

Biology, Animals ,Engineering, Natural Materials & Habitat

**Why are we doing this?**

- **During coronacation- we are all like birds in our nests- not able to go far and waiting for some special deliveries**
- **Bird nests deserve appreciation and building one will help us admire our feathered friends who don't have fingers and do it with their beaks**
- **Building a bird nest will mean getting outside to collect materials**
- **This is another great project to learn the design process**
- **5th graders in Brookline study birds.**

<u>Introduction</u>

Different species of birds lay their eggs in a variety of places. Some birds build tiny nests in bushes, and some build enormous nests in tall trees. Some lay their eggs directly on the ground or on rocky ledges. Those birds that build nests use many different types of materials. **In this bird nest challenge** you will try to build your own bird nest using only natural materials that you can find outside.

**You get to use your hands. Birds only have beaks.**

- **First challenge- you will build at least one nest using your all your fingers and toes if you need them.**

- **Second challenge (optional): You could to use only your thumb and pointy finger. (Like a beak) or some other tool that imitates a beak...**
- **Third challenge.. We are heading into bird nest boxes**

# STEP 1- READ, OBSERVE, PREPARE:

Depending on where you live you might sometimes see bird nests outside.
You might see them tucked along building ledges, bushes or trees. If you look closely (without disturbing a nesting bird or the eggs), you can probably see what materials the nest is made out of. **We have two in 5S. Did you ever see them? One was a robin's nest. I don't know what the other one was. Orson found one recently. Orson, maybe you can take a photo and send it in.**

Some birds weave grass and twigs to form a basket. Others might use binding materials, such as mud or even their own saliva to build or help support the nest. **You are not expected to use your own spit! :) I wonder if their saliva is more sticky than ours?**

Depending on the location and climate of the bird's habitat, bird nests might need to serve different purposes. In a cold climate, birds might line their nests with insulating materials, such as grass, to help keep the eggs warm. In warmer climates, birds might use rocks because the gaps allow better airflow to keep the eggs cool. Birds that build their nests on the ground might want to keep them well camouflaged to help hide them from predators, and birds that build their nests in trees need them to be well supported so they don't get blown out by a gust of wind. All of these different factors result in nests that are different sizes and shapes—and made from different materials.

No matter how they build their nests, wild birds have one thing in common: they rely on materials they can find outside. In this project you will challenge yourself to build a bird nest that can safely hold an egg using **only natural materials**. That means you **cannot** use any tape, glue or tools, such as scissors.

## Materials:

- At least one **or more** chicken eggs (or rocks or other round object that you can pretend are eggs)
- Assorted natural materials that you find outside, such as twigs, grass, leaves, dirt, rocks, sand, water and so forth. The materials you have available will depend on where you live—just like the birds!
- Bucket or other container to collect materials
- Tray or other flat surface (optional; if you'll be building your nest inside, build your nest on a tray or other surface to make cleanup easier.)

## Preparation:

- Read, read, read, observe, observe observe:
- Online background information: **See below**
- Check out this link of materials I collected for you!

Go outside to see if you can spot any bird nests. If you find one, observe it carefully from a distance—but don't get too close and disturb the nesting birds or eggs! *Can you tell what materials the nest is made of?*
If you can't find any bird nests outside, look on the internet or Ms. Stark's handy dandy library of cool bird nest photos.

*How many different types of nests can you find? What are the nests made out of?*

# STEP 2: Procedure

❏ When you are outdoors, look around you for materials you can pick up easily, such as twigs and small rocks.

❏ Make sure you read the background section above and think about the purposes different materials could serve.

❏ *What materials do you think would make a good nest?*

❏ *Do any of them match the nests you saw in person or online*

❏ ***TAKE PHOTOS OF ALL THE STEPS AS YOU DO THEM***

❏ Use your bucket to gather a bunch of nest-building materials.
-- Note this is a convenient time-saving tool for you, but birds have to make many back-and-forth trips, often carrying one twig at a time!

❏ Now use your materials to try to build a nest (**your first prototype**) that will be able to safely hold one or or more eggs. This is an open-ended process—there is no single "correct" procedure to follow.

❏ "Test" your nest (gently at first). *Can you blow on it or place an egg inside it? Does the nest fall apart or stay together?*

❏ *If it falls apart, what can you change to make it sturdier?*

# Step 3: Observations & Redesign:

**What happened?**
**Describe your first prototype here or on a separate document**

If you made a pile of dry material, such as sticks or grass, your nest probably didn't stay together very well. It might have disintegrated if you blew on it. Describe that.

You can try again and  make your nest sturdier by weaving the materials together (like the weaving bird)  to form a basket or using a binding material, such as mud, as "glue" to hold the pieces together. This is your 2nd prototype.
Test it again.
Write down your results here:

# Step 4: Share your  Results

SHARE YOUR PHOTOS AND RESULTS with the class.

We can have a competition and vote together for...

- most unusual
- most beautiful
- strongest
- Most attempts (prototypes) for  improving...

Answer these questions:

- What did you learn from this challenge?
- What questions do you have?
- What would you do differently the next time?

Cleanup
When you are done with your bird nest–building, return all your natural materials back outside where you found them.

**NEXT STOP:** **Nest house Challenge - (bird houses...)**

## More to Explore

Bird-Spotting Science: Predict a Bird's Lifestyle Based on its Feet, from *Scientific American*
STEM Activities for Kids, from Science Buddies