

Bird Nest Engineering



Bird nests are many different shapes, sizes, and styles. They can also be found in varying locations from tree branches, shrubs, or the ground. Nests provide a place for birds to lay, incubate, and care for their eggs. This design challenge tests your engineering skills in building a functioning bird's nest! This activity can get a bit messy, so it is best to do outside.

Key Terms

Incubation- process of keeping eggs at the proper temperature to allow for normal development, accomplished in birds by sitting on the eggs until they are ready to hatch

Scrape nests- simple depressions in the ground or leaf litter, can be plain or with stones or leaves added

Platform nests- flat nests on the ground, in trees, or on the tops of vegetation or debris in shallow areas of water

Cupped nests- shaped like a cup and can be found in varying locations

Part One- Observation

Before designing your nest, try to find examples of different bird nests in nature. Head to your backyard, patio, or local natural area and look closely for signs of birds. Try to find their nests, only observe from a safe distance, and be sure not to disturb wildlife.

Guiding Questions

1. Where did you most commonly find nests?
2. What sort of materials were the nests made of?
3. Was there a shape of nests that was most common? If so, what was it?
4. How did the nests appear to be held together?
5. There are many different types of bird nests, our list in the key terms is definitely not all encompassing. Did you find any bird nests that didn't fit our short list? You can learn more about types of bird nests here:

<https://goldengateaudubon.org/conservation/make-the-city-safe-for-wildlife/tr ee-care-and-bird-safety/types-of-bird-nests/>

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Part Two- Natural Materials Materials

A basket or bucket for material collection
Natural materials (sticks, twigs, grasses, etc.
found outdoors)

Eggs for testing your nest, or an egg substitute such as a ball or an egg sized rock

Procedure

1. Take your basket or bucket outside, and collect any natural materials you want to use for your nest. This could be sticks, twigs, leaves, etc. Think like a bird!
2. Time to build your nest! Think about the function a nest serves, and use your materials to build your ideal bird nest. This is a creative process, and there are no wrong answers! The goal is for your nest to safely hold at least 1 egg.
3. Test your design.
 - a. Place your egg into the nest
 - b. Gently blow on your nest
 - c. Try to pick it up
 - d. Did your nest safely hold at least 1 egg?
4. Refine your design! What changes can you make to improve your nest?

Guiding Questions

1. How did you hold your nest together? Did materials fall apart, or did they successfully stay together?
2. Was your nest strong enough to support the egg, or did it fall through or crack? Do you need more support or cushioning?
3. If you could use any items found in your house to improve your nest, what would they be?
4. Bird eggs can be all different sizes, from hummingbirds with eggs smaller than half an inch long, to ostrich eggs that can be up to 6 inches long! Would your nest have been successful if your egg were larger or smaller than the egg you used? Why or why not?

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Extension

Some larger birds can have nests bigger than people! Bald Eagles build nests between 6-10 feet in diameter. Find a spacious area in your home or yard, and try to build a nest large enough

for a Bald Eagle. Think about how you'll

design this nest, and what you might need. Sketch your design in the space below to help guide your construction:

Guiding Questions

1. What materials might you use to make a nest this large?
2. How many people can you fit in your nest?
3. Where would a Bald Eagle be able to build a nest this size?