Investigation
Designing a Bird’s Nest

Investigation Designer: Wade Institute for Science Education

Grade level: 2

Time Required: 50 - 60 min.

Investigation Focus:

It is very common for birds to make nests. Most of the time, birds do this to prepare for the coming little birds. And when the little ones grow old enough to live by themselves, the parent birds will stop making nests. For most of the birds, the nests play a very essential part in the process of welcoming and bringing up and insuring survival of the next generation. The following are some important functions of the nests.

- The nest can support the weight of the parent birds and the eggs and chicks.
- The nest can prevent the egg from rolling out and keep all the eggs in roll bulk. In this way, the eggs will not easily fall out and be broken.
- The nest can provide convenience for the parent bird to feed the chicks and help protect them from other animals that might want to eat them.
- The nest can help to keep the right temperature for the growth of the birds.

Students will select an environment and build a model of a bird’s nest, using materials that one would expect to find in that environment. The students will need to consider nest strength, support, protection, and cushioning in their design. Students build their model bird’s nest and demonstrate and describe its design features.

State Learning Standards:

2-LS2-3 (MA). Develop and use models to compare how plants and animals depend on their surroundings and other living things to meet their needs in the places they live.

Learning Outcomes:
Students will:
- Be able to identify reasons why birds will build nests
- Select among various materials to build a model nest that they might find in a particular habitat
- Build a model bird’s nest that will meet the requirements of a specified habitat
- Communicate why their model nest is suitable to the environment they have chosen and explain the purpose of its parts.

Materials List*:
- Pictures of different habitats for student reference.
- Pictures of different kinds of nests for students to examine.
- Clay, real eggs, or egg-sized stones to use as eggs in model nest

Inquiry Scale

Confirmation --> Structured --> Guided --> Open
- Nest materials such as straw, yarn, chenille pipe cleaners, thread, string, small twigs, dried sphagnum moss, fabric scraps
- Adhesive/binder nest materials: glue, Play-doh, clay, paste of flour & water, mud
- Nest liner materials (cushioning): cotton batting, cotton balls, feathers, craft foam, etc.
- Nest protective materials: For camouflage: leaves, construction paper scraps, wrapping paper scraps, etc. For securing nest to its supporting structure: string, straws, chenille pipe cleaners, etc.
- Tree branches with forked branches or wire shirt hangers bent to form a V-shaped platform
- At least one of the following books:
  - The Best Nest Ever by PD Eastman
  - Mama Built A Little Nest by Jennifer Ward
  - The Nest the Robin Built by Denise Fleming

*Alternatively, the instructor may ask students to bring materials from home. In order to build the collection of materials for the class, the instructor could then ask students to sort the materials into the four categories of strength, how it will stick together, cushioning to make it comfortable, and protection from other animals and bad weather.

**Literacy Connection:**

Read aloud one or more of the following books:

- The Best Nest Ever by PD Eastman
- Mama Built A Little Nest by Jennifer Ward
- The Nest the Robin Built by Denise Fleming

**Engaging Experience:**

Introduce the lesson by eliciting students’ prior knowledge about nest-building using questions such as these:

- Have students seen nests around their homes? What do they know about the construction of birds’ nests? Are all birds’ nests the same? How do they know?
- How can birds’ nests help to make sure that baby birds can survive?
- Look at pictures of different habitats to think about the types of nest materials that might be found in that habitat?
- Look at the nests of different birds and think about why they might look the way they do.
- Depending on the school location, the class may be taken outside to view birds’ nests nearby.

Use online videos and segments of videos to show students the nest-building behavior of some birds. Examples include:

Robin’s nest build:
http://www.youtube.com/watch?v=tGPvf-M5h6k

Weaver bird nest build:
http://www.youtube.com/watch?v=6svAlqEnFvw

Hummingbird nest build:
http://www.youtube.com/watch?v=aupSOnl7W0

**Guiding Question(s):**
How can I build a bird’s nest that will meet the following criteria?

- Securely holds 3 model birds’ eggs
- Suitable to a particular habitat
- Be the right size to hold a particular size bird
- Be strong enough to hold the bird parents and babies, stick together and not fall apart in storms or bad weather, have cushioning to make it comfortable, and provide protection from other animals and bad weather.
- The nest will stay put where it is constructed (in a hole in a tree, on the ground, in a marsh, etc.)

**Investigations:**

Prior to class:

Have materials readily available for each pair of students to produce a nest. Group the materials in the following categories:

1. **Strength** – forms the structure of the nest; enables it to hold 3 model eggs
2. **How it will stick together** - holds or glues pieces of the nest together while adding little weight
3. **Cushioning to make it comfortable** - makes the nest cozy, soft, and warm; protects eggs from injury
4. **Protection from other animals and bad weather** - keeps the eggs and young safe from predators: camouflage, secure structure to branch, etc.

During class:

- Students should be placed in groups and each group should be given a picture of a habitat. Each group should be tasked to build a nest that will work in their habitat.
- Provide students with adequate time to construct their nests.

**Present Findings and Draw Conclusions:**

Once students have assembled their nests,

- ask each team to describe and show its model nest to the class.
  - During the presentation, students should explain why they selected particular materials and identify the role or roles each material plays in the nest.
  - Students should also discuss anything that made building their model nests difficult and describe how they managed those challenges.
- ask each team to talk about why they are called “model” nests.

**Assessment:**

During students’ presentations of their nests, the teacher may assess key aspects of the process and product by using the checklist provided below.

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<thead>
<tr>
<th>Designing a Bird’s Nest</th>
<th>Criteria</th>
<th>Component</th>
<th>Present? (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nest Structure</td>
<td>Size and shape to fit environment</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>How it will stick together</th>
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<tbody>
<tr>
<td>Cushioning to make it comfortable</td>
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<tr>
<td>Protection from other animals and bad weather</td>
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</tbody>
</table>

**Resources:**

This lesson is adapted from the following websites:


**Wrap Up:**

Students dispose of building scraps, recycling materials whenever possible. Extra, unused supplies should be returned to the appropriate locations identified by the teacher.

**Adaptation to Different Inquiry Levels:**

To enhance the level of Guided Inquiry used in this lesson, the teacher could have students sort the nest-building materials into the four categories of materials (strength, adhesives, cushioning, protection).

The lesson could be modified to the Open Level of inquiry-based instruction by asking students to suggest a particular problem they want to address regarding nest construction.