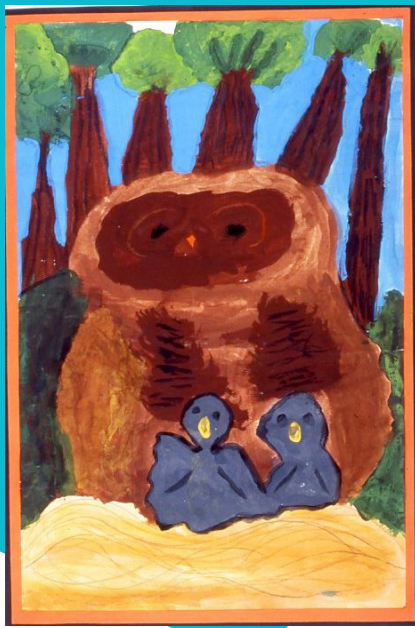


For The Birds



Jessica M.



Design Thinking

Introduction

Birds are some of nature's finest recycled materials artists. They creatively use natural elements such as sticks, grass, moss, mud, and feathers to build their nests, and sometimes incorporate items discarded by humans such as string, yarn, and plastic. In this project, children will observe and research local birds' nests and design an innovative habitat that meets the needs of these feathered neighbors.

LEARNING OBJECTIVES

Children will:

- observe and research and then sketch neighborhood birds and their nests;
- design an innovative bird's nest;
- present their work for artistic critique by others; and
- use feedback to improve their innovative nest designs.

Vocabulary

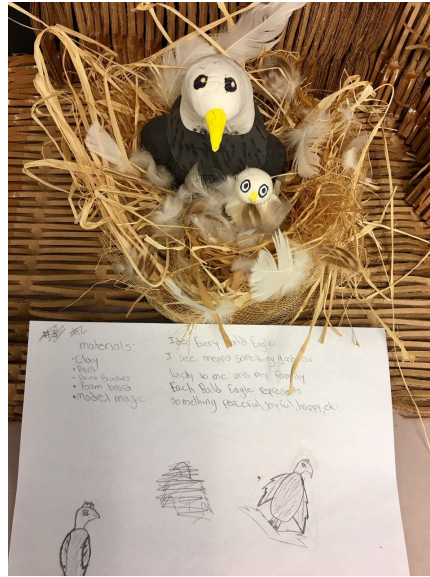
innovative	camouflage	environment	texture
design	imitate	recycle	weave
architect	nature	scavenge	

Essential Questions

- Why do birds build nests?
- Why do you think birds build their nests where they do?
- How do birds use scavenged materials to build their nests?
- How could we design an innovative nest that imitates nature's elegant solutions and use those design ideas to meet the needs of birds or humans?

Guiding Questions

- What birds do we see outside?
- Where could we see birds' nests?
- What do you notice about their nests? What materials do they use?
- What lines, shapes, and textures do you see in birds' nests? Are most nests curvy and circular?
- Where might we see other shaped nests tucked into protected spaces?
- Why would some birds make their nests visible while other birds intentionally hide their nests?
- What innovative ideas for different kinds of nests might come to mind when you observe and sketch birds' nests?



Ava T. and Owen B.

Supplies

- Crayola® Colored Pencils
- Paper
- Crayola® Model Magic®

Optional if constructing a three-dimensional structure:

- Crayola® Glue or Tape (strong such as packing or duct tape)

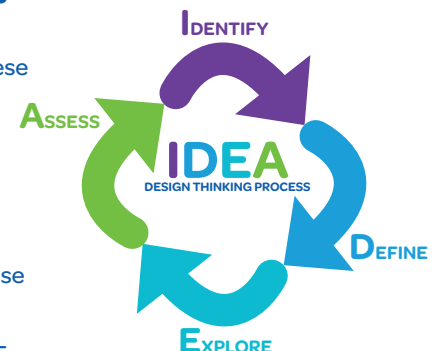
- Recycled Cardboard (cereal boxes, shoe boxes, or corrugated boxes)
- Recycled Weaving Materials (yarn or string, ribbons, flexible twigs, etc.)
- Scavenged Natural Materials (any fallen, safe item such as pine needles, tiny sticks, etc.)

Prepare

Observe neighborhood birds and their nesting habits. If you find an active nest, keep your distance and do not touch the nests. This project can take several days, so plan to observe, collect, design, present, assess, and revise the designs.

Applying the Design Thinking Process to this Project

- **IDENTIFY** how birds' nests are designed and how they meet these creatures' needs.
- **DEFINE** what human designers could learn from birds, nature's superb architects.
- **EXPLORE** design ideas by sketching an innovative bird house or home for humans or other animals. (Optional: build a three-dimensional model.)
- **ASSESS** which solution works best to meet the needs of the creature.





- Look for birds outside your window or by walking around the neighborhood. If you don't see any, look up nature organizations' webcams or photos of birds' nests. Observe or research how the birds' sizes and behaviors fit their nest structures, what construction materials were used, and where various birds decide to locate their nests.
- Have children compare nests that seem to be tightly woven and sturdy versus those that look sloppy or weak. Find out more about how bird nest materials are held together.
- Have children sketch pictures of birds' nests. Discuss what innovative construction ideas humans can learn from birds and how solutions to other housing problems might come from mimicking nature.



- Ask children to share their sketches and observations about birds' nests with others. Consider using a video conferencing app to share innovation ideas and photographs remotely with friends and family.
- Help children solicit feedback from those viewing the presentation. Remind children presenters to ask questions and be open to hearing other innovative ideas that could improve their designs.



- Ask children to think about how they might incorporate the feedback and suggestions they received into other designs.
- If children presented to others remotely they might write a thank you note or email to the audience members and explain what other innovative home designs they plan to create next.



- Compare a bird's nest design with a human's or other animal's home design. How are the purposes similar? Why is protection from harm a central need for all animals no matter where or how they live? In what ways are the processes of planning, finding appropriate materials, and maintaining homes similar, regardless of who lives there? What skills are similar when any animal designs and constructs a home?



Chuck R.



For Younger Children

Read books about birds and birdhouses to learn more about how birds build different kinds of nests. Some suggestions include: *Bird Builds a Nest: A First Science Storybook* by Martin Jenkins, *Birds Make Nests* by Michael Garland, *Birds, Nests & Eggs (Take Along Guides)* by Mel Boring, and *The Nest that Wren Built* by Randi Sonenshine.

Use blankets, sheets, and pillows to create a nest or cozy indoor place for young children to use for resting or reading. Encourage dramatic play by having children pretend to be birds who live in that nest. What if an egg in the nest were ready to hatch? What sounds and movements would they make?



For Older Children

- Expand the research beyond neighborhood birds and explore sea birds' nests as well as species in different states, regions, and countries. Some helpful books include: *About Birds: A Guide for Children* by Cathryn Sill, and *National Geographic Kids Bird Guide of North America* by Jonathan Alderfer.
- Explore how artists and innovators have used birds' nests as inspirations for their creative work. For example, artist Patrick Dougherty's *Stickwork* sculptures and Martha Posner's woven installations are inspired by birds' nests.



Jennifer H.

Child Reflections

- What did you learn about birds and nests in your neighborhood?
- What was the most challenging part of designing an innovative home for a bird, human, or other animal? How did you overcome that challenge?
- What did you learn about yourself as an innovative designer from this project? How are art, architecture, and innovation all related?

Adult Reflections

- What did you learn about birds' and other animals' homes from your children's observations, research, and designs?
- How did this project increase your awareness of your children's observation and innovative thinking skills?
- What role did you play when guiding your children on this project? Why is it most helpful for children to be the project leader and develop independent thinking skills?



STANDARDS AND SKILL DEVELOPMENT

Educational standards outline what children should know and be able to do in the many areas of academic and social/emotional learning. Teachers and family members are urged to use creativity to modify projects to address children's needs and interests, as well as the subject area standards from the curriculum. This project aligns the following educational standards:

LANGUAGE ARTS

- Draw upon information from multiple print or digital sources, demonstrating the ability to locate answers to questions and solve problems efficiently.
- Speak and listen to develop comprehension and presentation skills.
- Develop an increasing command of language conventions and vocabulary and use these accurately to communicate ideas.

MATHEMATICS

- Make sense of problems and persevere in solving them.
- Look for and make use of structure as part of mathematical solutions.
- Reason abstractly and quantitatively.

SCIENCE

- Plan and carry out investigations.
- Develop and use models.
- Construct explanations and design solutions.
- Obtain, evaluate, and communicate information based on evidence.

VISUAL ARTS

- Imagine and create art to convey meaning.
- Select, analyze, and interpret art for presentation.
- Use art vocabulary to describe choices while creating art.
- Use observation and investigation to prepare for making art.
- Repurpose objects to make something new.
- Design or redesign objects, places, or systems to meet the identified needs of diverse users.

SOCIAL AND EMOTIONAL COMPETENCIES

Help children understand how emotions, behaviors, skills, and attitudes impact achievement in school, career, and life by building skills in:

- **Self-awareness**—setting and achieving goals to better understand oneself.
- **Social Awareness**—understanding others' points of view and respecting diversity.
- **Responsible Decision Making**—making decisions that are consistent with goals and consider the well-being of oneself and others.

