New York State
EDUCATION DEPARTMENT
Knowledge › Skill › Opportunity

SCIENCE EVERYWHERE

Presented By:
The Office of Early Learning and Office of Cultural Education

Science Everywhere

HOUSEKEEPING

MICROPHONES MUTED

CAMERAS OFF

RECORDING IN PROGRESS

Q & A

CHAT FEATURE

PRESENTERS

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01 Provides direction and support to inform Statewide policies and programs related to best practices across PreK to Grade 3.

02 Support LEAs in the provision of high-quality prekindergarten programming

03 Guidance for Voluntary Registered Nursery Schools and Kindergartens

04 Support early learning providers, school districts, and families

05 Remains current with review of research to inform policies and practices related to early childhood education

06 Monitors State-Administered Prekindergarten

OBJECTIVES

Today’s Webinar will cover...

1. What is Science Everywhere?
2. What is Inquiry -Based Learning?
3. What does inquiry -based learning entail in early childhood education?
4. Learn about the first Exploration! “Bird Nests: A Prekindergarten Exploration."
5. The OEL is seeking organizations interested in serving as a pilot district for Science Everywhere.

INTRODUCTIONS

If you feel comfortable, please share the following information using the chat feature.

- Name
- Affiliation
- Title

WHAT IS SCIENCE EVERYWHERE?

Science Everywhere

SCIENCE EVERYWHERE

- Encourages Curiosity and Exploration
- Develops Critical Thinking and Problem Solving Skills
- Promotes Hands -on Learning
- Builds Foundational Knowledge
- Fosters Collaboration and Communication

SCIENCE EVERYWHERE IS NOT

- Strictly teacher -led
- Rote memorization
- Limited to a specific curriculum
- Solely focused on outcomes
- Passive learning

DISCUSSION

How familiar are you with Inquiry -Based Learning (IBL)?

- I am very familiar.
- I am somewhat familiar.
- I do not know anything about IBL.

INQUIRY-BASED LEARNING IBL

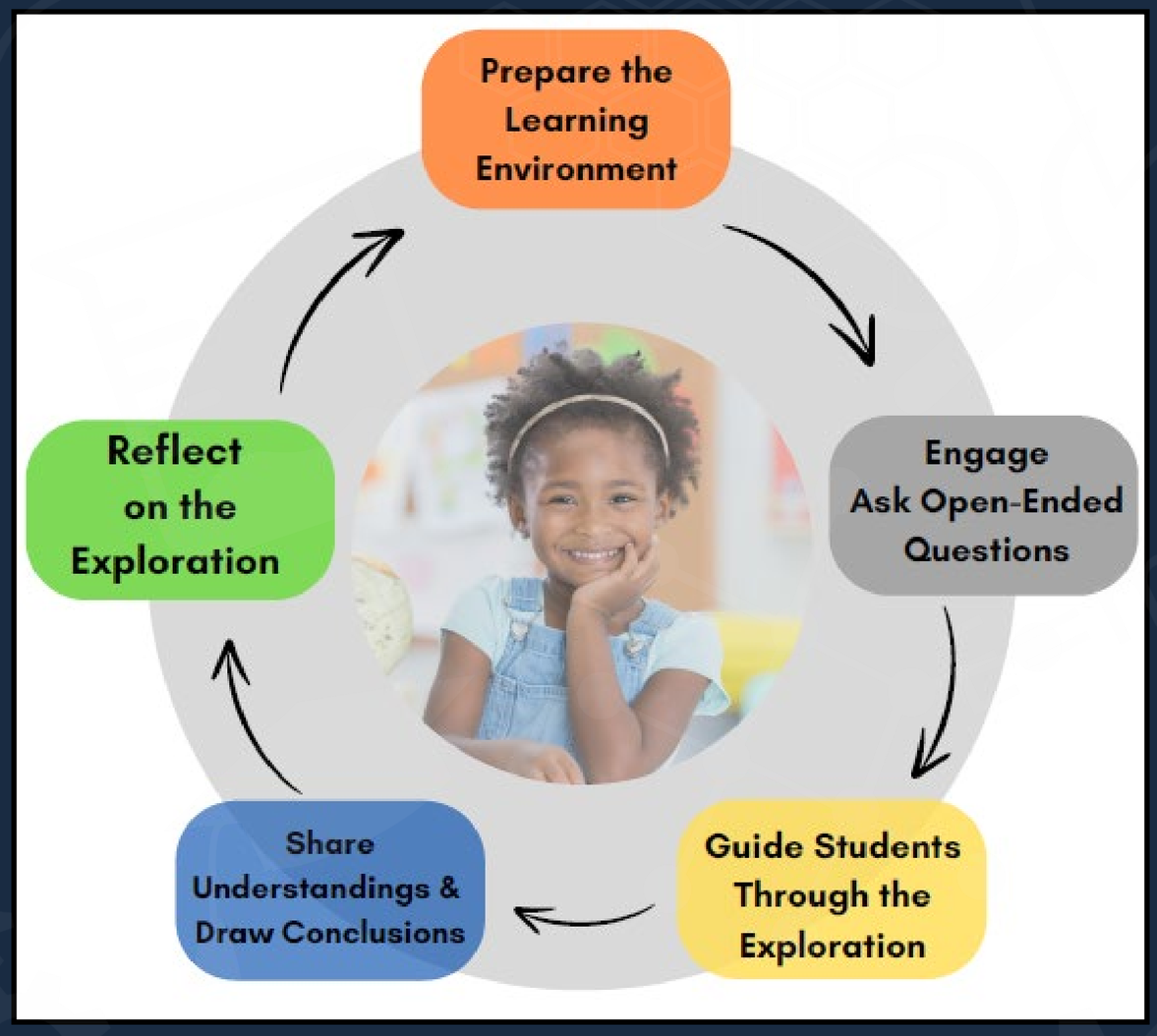
- Child-Centered Approach
- Active Engagement
- Collaborative Learning
- Reflection
- Open-Ended Questions

TYPES OF IBL

Structured Inquiry

Controlled Inquiry

INQUIRY CYCLE



HOW DOES IBL SUPPORT PREKINDERGARTNERS?

- Development of Critical Thinking
- Encouragement of Curiousity
- Enhanced Social Skills
- Holisitic Development
- Foundation for Future Learning

GETTING STARTED

SCIENCE EVERYWHERE

Prekindergarten Inquiry-Based Learning:
Nurturing a child's curiosity while instilling a life-long love of science.
New York State Education Department

Children are innately curious and possess a natural desire to discover and explore the world around them. As caregivers or educators, we have a responsibility to nurture this innate curiosity and encourage their natural inclination to ask questions. Science Everywhere is an initiative that aims to do just that by utilizing inquiry-based learning. This approach empowers children to take ownership of their learning and expand their knowledge by problem-solving and making real-world connections. The best place to start? Right outside your windows and doors! Here are five easy steps to get you started regardless of the topic you choose:

1 Set the Stage!

Inquiry-based learning, or IBL for short, is a student-driven approach to learning that begins with a question. The classroom or outdoors becomes the space for student-led exploration. Students ask questions, investigate, and research in order to answer them. To initiate this process, pay attention to your students, listen and observe them carefully. Record the questions they ask and look for emerging themes such as changes in seasons, different kinds of birds, families, friends, bugs, flowers, etc. Use one of these questions as a starting point for planning and let the students take the lead in their own learning journey.

EXAMPLE You took your class on a walk around the neighborhood and saw a nest in a tree. You overheard the students ask: Why do birds live in nests? What are nests made of? Are all nests the same size? How many colors do birds come in? How do birds fly? since you saw a nest and many students asked about it, you consider "What are nests?" for your essential question.

2 Prepare for Learning

Once you've decided on your essential question or topic, create a stimulating environment. Set up spaces with open-ended materials and resources that are sensory rich to encourage exploration and (e.g., art supplies, photographs, magnifying glasses, books, natural items, field trips, video clips, music, etc.)

EXAMPLE Preparing your classroom with bird-themed items can be both fun and educational. Here are a few ways to incorporate a bird inquiry in your classroom:

- Include photos of birds, nests, and natural items to create a visually stimulating environment.
- Leave open wall space to display student art and anchor charts created for use throughout the investigation.
- Provide birdseed (if nut allergies use dyed dry rice or chick peas), nest materials, feathers, and plastic eggs for hands-on exploration.
- Stock up on both fiction and non-fiction books related to the topic to encourage reading and learning.

3 Let the Exploration Begin!

To develop a deep understanding of any topic, it's important to invest time in background research and learning new vocabulary. Give your students ample time to explore their interests and questions through various activities in whole group and small group settings and thematic learning centers.

EXAMPLE Let's shake things up with some hands-on learning!

- Take a hike in nature.
- Blast off on a virtual or in-person field trip.
- Whip up some culinary magic in the kitchen.
- Spark those curious minds by tossing out open-ended questions and making a safe space where students can fire off their own questions like rockets.

4 Guide Students Through the Exploration

When working on a problem, guide your students through a process of critical thinking to help them arrive at solutions. Your role is to facilitate and lead your students through different learning activities, such as whole group, small group, and thematic learning centers. As you guide them, it's important to provide space for independent exploration.

EXAMPLE Spread a variety of nonfiction texts about different bird species and nests across tables. Give students the opportunity to delve into the texts. Offer guidance by sharing observations like "I notice a large nest" and ask prompting questions such as "Which bird species do you think built this nest?"

5 Support Students to Share their Understandings

Children play and work in small and whole groups and discuss their ideas, observations, and conclusions, sometimes with prompting from the teacher. Learning for young children is a social process, so provide opportunities for children to explain their thinking with their peers. Encourage children to compare their observations and ideas.

Collaborative problem-solving and investigating shared interests with others are excellent ways to enhance children's learning. The inquiry process provides a context for educators to engage in sustained, shared conversations with children. For both teachers and children, the practice of sharing ideas, observations, assumptions, and new learnings is an important part of making meaning out of the inquiry process.

EXAMPLE

Whole Group

- Display an assortment of images to encourage discussion
- Create an anchor chart question and solicit responses from students
- Turn and talk

Small Group

- Create authentic artwork
- Design models (example: design a nest)
- Integrate the NYS PreK Learning Standards within the investigation (example: sequencing and sorting)

6 Reflect on the Exploration

Reflection is an integral part of the inquiry learning process. It's not just about asking students to consider their opinions on the subject matter, but also reflecting on the learning process itself. This is where metacognition comes into play; encouraging students to think about their thinking. By focusing on how they learned, in addition to what they learned, students can improve their overall learning experience.

EXAMPLE

- What is one interesting thing you learned about birds this week, today, or during this activity?
- What do you think you did well today?
- What was challenging for you during this activity?
- What accomplishment during the activity made you feel proud?
- What else would you like to learn about birds?
- Which aspect of this project did you enjoy the most, and why?
- What changes would you make for next time?

Timelines and Classroom Management

Inquiry projects can vary in duration, taking anywhere from a few weeks to several months, depending on how interested children remain in the topic of exploration. It's important to remember that if children lose interest, it's time to move on to a new exploration to keep them engaged and motivated.

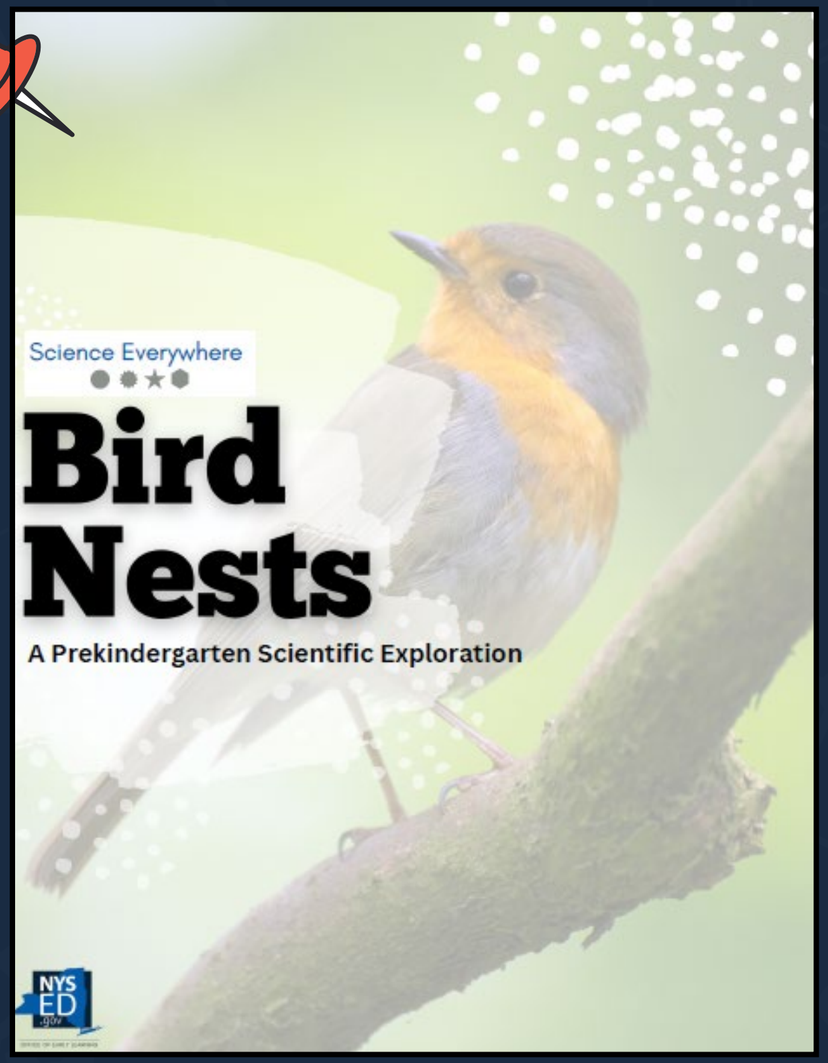
GETTING STARTED

- Set the Stage
- Prepare for Learning
- Let the Exploration Begin!
- Guide Students Through the Exploration
- Support Students to Share their Understandings
- Reflect on the Exploration

QUESTION

What is one important insight you have gained regarding Inquiry -Based Learning?

PREKINDERGARTEN SCIENTIFIC EXPLORATIONS



SCIENCE EVERYWHERE

Prekindergarten Inquiry-Based Learning:
Nurturing a child's curiosity while instilling a life-long love of science.

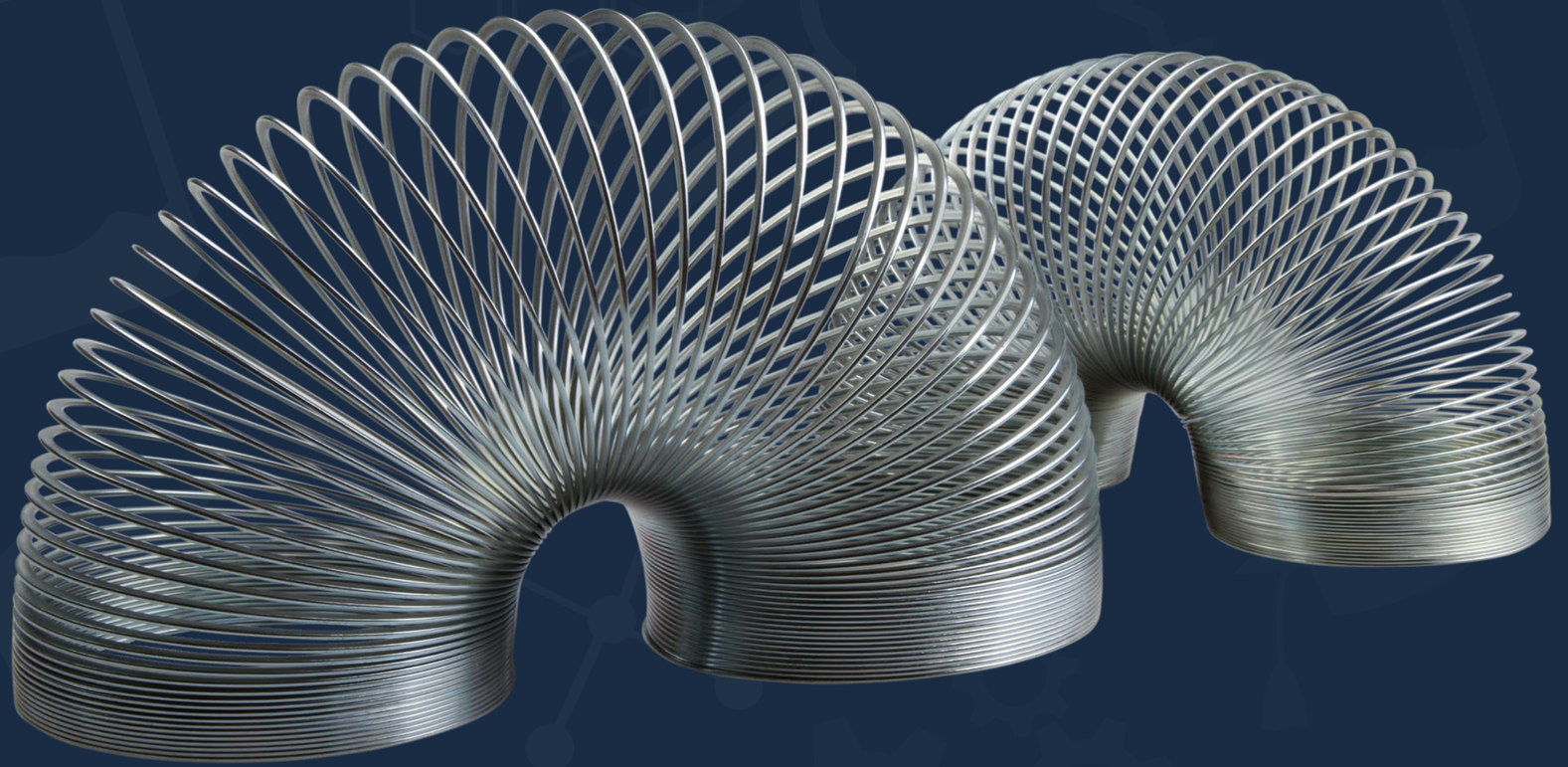
Our Partners | Getting Started | Explorations

Science Everywhere is an early learning initiative, emphasizing the importance of Inquiry-Based Learning. Spearheaded by the New York State Education Department's Office of Early Learning and Office of Cultural Education, the initiative seeks to foster a love for science and nature in young children through hands-on learning experiences.

Science Everywhere offers cost-free prekindergarten explorations based on inquiry, which can be implemented in any al community, providing students with a wider understanding of natural science and the world. The initiative aligns with New State P-12 Science Learning Standards. As the Science Everywhere team continues to develop additional resources, website will expand accordingly.

- Prekindergarten Scientific Explorations
- What is Science Everywhere?
- What is Inquiry-Based Learning?
- The Inquiry Cycle
- Why is Inquiry-Based Learning Important for Children?
- Inquiry-Based Learning and the NYS Learning Standards

FLEXIBLE Implementation



BIRD NEST$: A PREKINDERGARTEN EXPLORATION

WHY BIRDS?

BIRD BASICS

To learn more about birds visit:

www.allaboutbirds.org

Science Everywhere

TYPES OF BIRDS NESTS

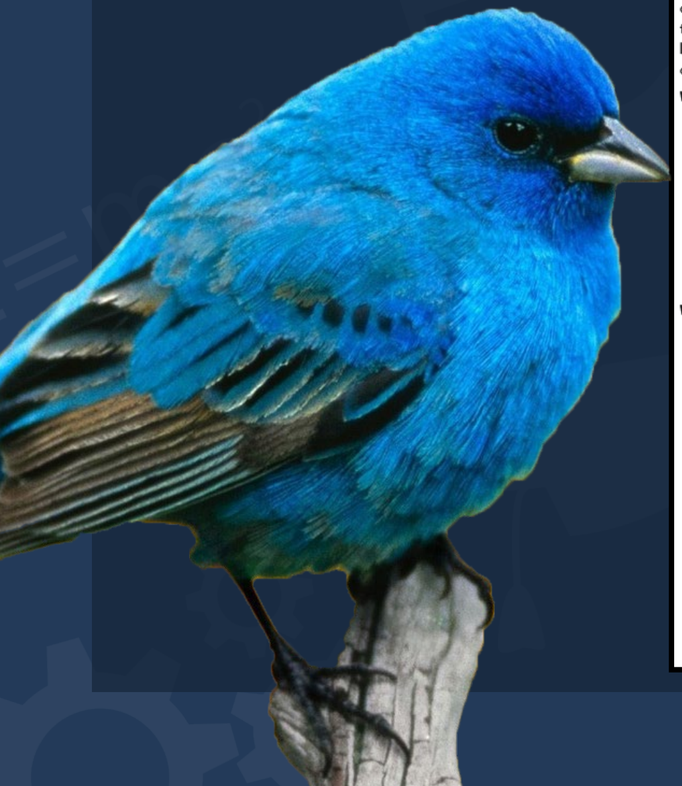
Types of Birds' Nests

Type of Nest	Description of Nest	New York State Bird
Woven Cup Nest	Many bird species utilize cup-shaped nests made of a sturdy outer shell woven from materials such as twigs, bark strips, grass, rootlets, tendrils, and fine vines. These nests are then cushioned with soft materials such as moss, downy feathers or fluffy seeds. Spider's web is commonly used to secure the nest, while additional elements like lichen and moss are incorporated on the exterior to blend in with the environment. These nests are typically positioned in the fork of a tree.	• American Crow • Blue Jay • American Robin • Ruby-throated Hummingbird • Northern Cardinal • American Goldfinch • Chipping Sparrow
Mud Nest	Birds create mud nests by collecting wet mud pellets in their beaks and placing them methodically, forming cohesive nuggets that harden and bond together. These nests are strong and durable and can adhere to vertical surfaces like cliffs. Typically cup-shaped, mud nests are spotted in barns, beneath bridges, on cliffs, and various man-made structures.	• Barn Swallow • Purple Martin
Ground Nest	Ground-nesting birds gather twigs, leaves, and feathers from their habitat to craft their nests. Despite the vulnerability of their choice in nesting location, these resourceful birds have evolved unique strategies to protect their homes and young from potential predators.	• Killdeer • Mallard • Wild Turkey • Northern Harrier

Bird Nest Photographs

1

PREPARE THE LEARNING ENVIRONMENT



Science Everywhere

Bird Nests

A Prekindergarten Exploration

Upon completion of this exploration, students will be able to:

- Enumerate the different locations where birds construct their nests and the reasons behind their choices.
- Create a bird nest model using innovative design techniques.
- Ask questions based on observations to find more information about bird nests.
- Explore the purpose and creation of bird nests while recording thoughts, ideas and observations.

Prepare the Learning Environment

To prepare the learning environment in a structured inquiry, the classroom environment and learning centers are conducive to exploration and aligned with the subject matter prior the start of the exploration. When students enter the classroom, they should be immersed in the topic. For this exploration, bird-related visuals, texts, and ambient bird sounds fill the classroom (see Appendices for resources). Additionally, the teacher should have prior knowledge of bird basics and potential vocabulary that can be imbedded throughout the exploration.

When creating the classroom environment be sure to provide:

- Inspiration and Displays of Student Learning- Photographs of birds and nests throughout the classroom. Leave open wall space to serve as a canvas to exhibit student artwork and collaborative anchor charts that document their discoveries.
- Prepared whole group and small group learning activities to engage and guide students through the exploration.
- Themed Learning Centers - Science does not have to stay in one center. Centers are a great way to integrate exploration and problem-solving across content areas.
- Go beyond the classroom- Go on a nature walk, take a field trip to a local pet store that has birds, or a museum with a bird exhibit. Exploring bird nests virtually can be a great option (Appendix G).

When studying bird nests, *some* materials might include, but are not limited to:

- Topic-related fiction and non-fiction books for read-aloud, classroom library, and learning centers
- Images of birds and their nests
- Birdseed (if nut allergies use dyed dry rice or dried chickpeas)
- Bird Nest *Model* Materials (Materials include things birds do not use, e.g., pipe cleaners, pretend grass, tissue paper, shredded paper, cotton balls)
- Toilet paper rolls
- Feathers (from a craft store)
- Preschool-sized tongs/clothespins
- Playdough
- Paints
- Paper plates, bowls
- Natural items (e.g., twigs, grass, acorns)
- Egg cartons
- Pom-poms
- Plastic eggs
- Craft sticks
- White paper (preferably cardstock)

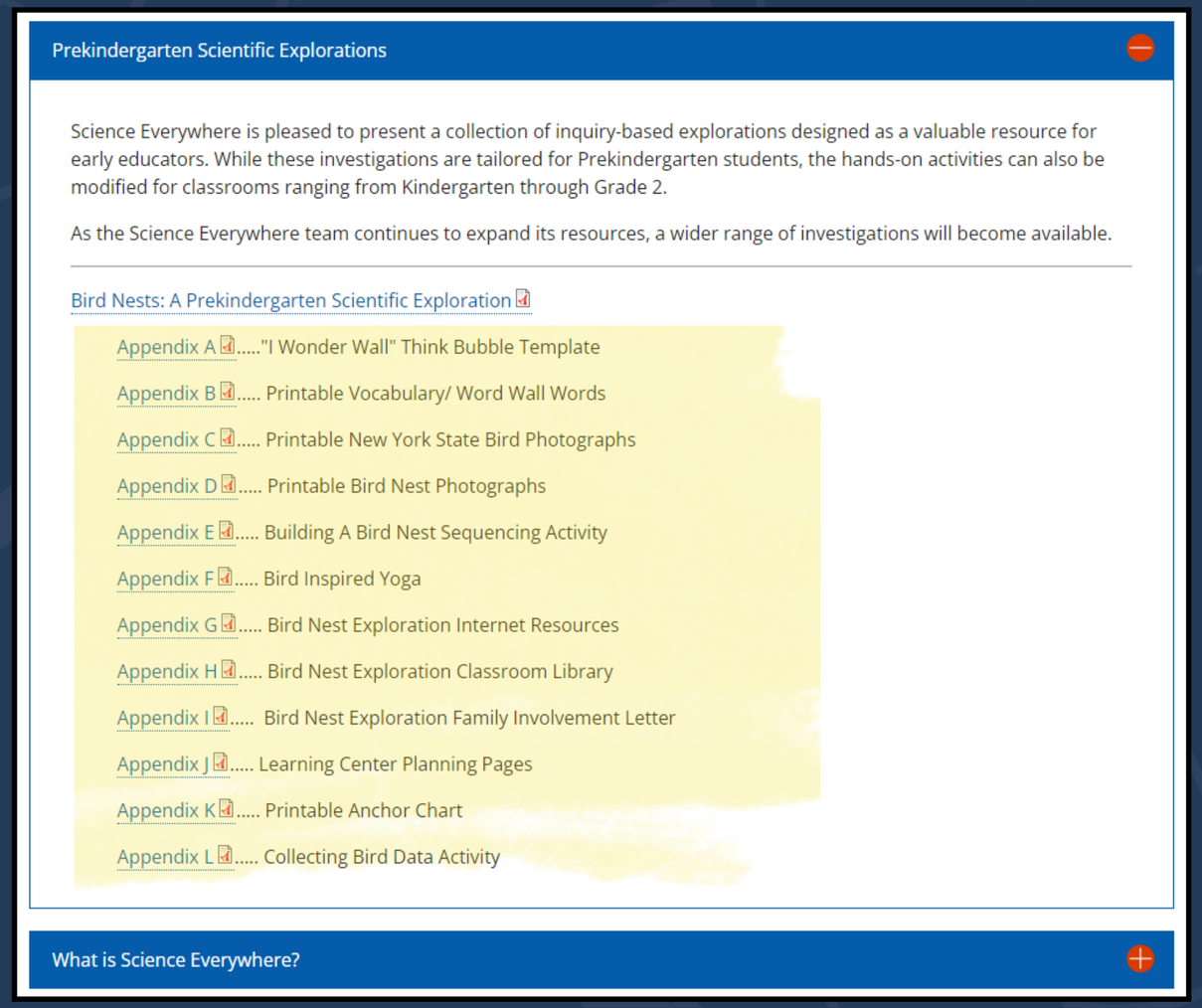
When selecting items for an exploration, keep in mind the following:

- Are they child-friendly and interesting?
- Will they be accessible to the children?
- Is there enough to explore, but not too much to be overwhelming?
- Switch out the materials to keep students engaged.

The use of authentic nests in this exploration is not advised as it is illegal in New York State to remove or move bird nests from the wild.

4

GATHER EXPLORATION RESOURCES



Prekindergarten Scientific Explorations

Science Everywhere is pleased to present a collection of inquiry-based explorations designed as a valuable resource for early educators. While these investigations are tailored for Prekindergarten students, the hands-on activities can also be modified for classrooms ranging from Kindergarten through Grade 2.

As the Science Everywhere team continues to expand its resources, a wider range of investigations will become available.

Bird Nests: A Prekindergarten Scientific Exploration

Appendix A ....."I Wonder Wall" Think Bubble Template
Appendix B ..... Printable Vocabulary/ Word Wall Words
Appendix C ..... Printable New York State Bird Photographs
Appendix D ..... Printable Bird Nest Photographs
Appendix E ..... Building A Bird Nest Sequencing Activity
Appendix F ..... Bird Inspired Yoga
Appendix G ..... Bird Nest Exploration Internet Resources
Appendix H ..... Bird Nest Exploration Classroom Library
Appendix I ..... Bird Nest Exploration Family Involvement Letter
Appendix J ..... Learning Center Planning Pages
Appendix K ..... Printable Anchor Chart
Appendix L ..... Collecting Bird Data Activity

What is Science Everywhere?

- "I Wonder Wall" Think Bubble Template
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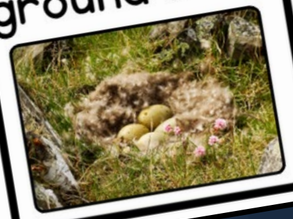
Printable Vocabulary/Word Wall Words

cup nest

mud nest

ground nest



cavity nest

Vocabulary/Word Wall

platform nest

bird

beak

habitat

Common New York State Birds

Blue Jay

Robin

Crow

Downy Woodpecker

ledge/cliff nest

feed

build

incubate

House Sparrow

House Wren

Pigeon

Northern Cardinal

Ruby-throated Hummingbird

Bald Eagle

SET THE STAGE

What We Know
About Bird Nests

Printable Anchor Chart
in Resources

Set the Stage

Gather the class at a central area to open discussion regarding your students' knowledge of birds and their nests. To grab their interest, simply share an experience your students can connect to. "Over the weekend I was on a walk in the park. On my walk I spotted a nest on a tree branch. All of a sudden, a bird flew right past me with pieces of grass hanging from its beak and flew right to the nest I had spotted! Does anyone have any ideas of what the bird was doing?" Allow children to share their ideas. Facilitate the conversation and lead the class to determine that the bird was building a nest. Then state, "Seeing this bird building a nest made me have so many questions about bird nests. What do we already know about bird nests?" As students share their insights, document their thoughts on an anchor chart to be displayed prominently in the classroom for the duration of the Exploration (Appendix K).

Sample questions to facilitate discussion:

- Where do you find nests?
- What does a bird nest look like?
- What is the purpose of a birds nest?
- Do most birds build nests?
- What do birds use to make their homes?
- Do all birds build the same size nest?

Following the discussion, guide your students on a brief ten-minute nature walk to observe bird nests and birds in their natural habitat. In cases where a nature walk is not feasible, utilizing the Cornell Lab Bird Cams can serve as an excellent alternative activity.

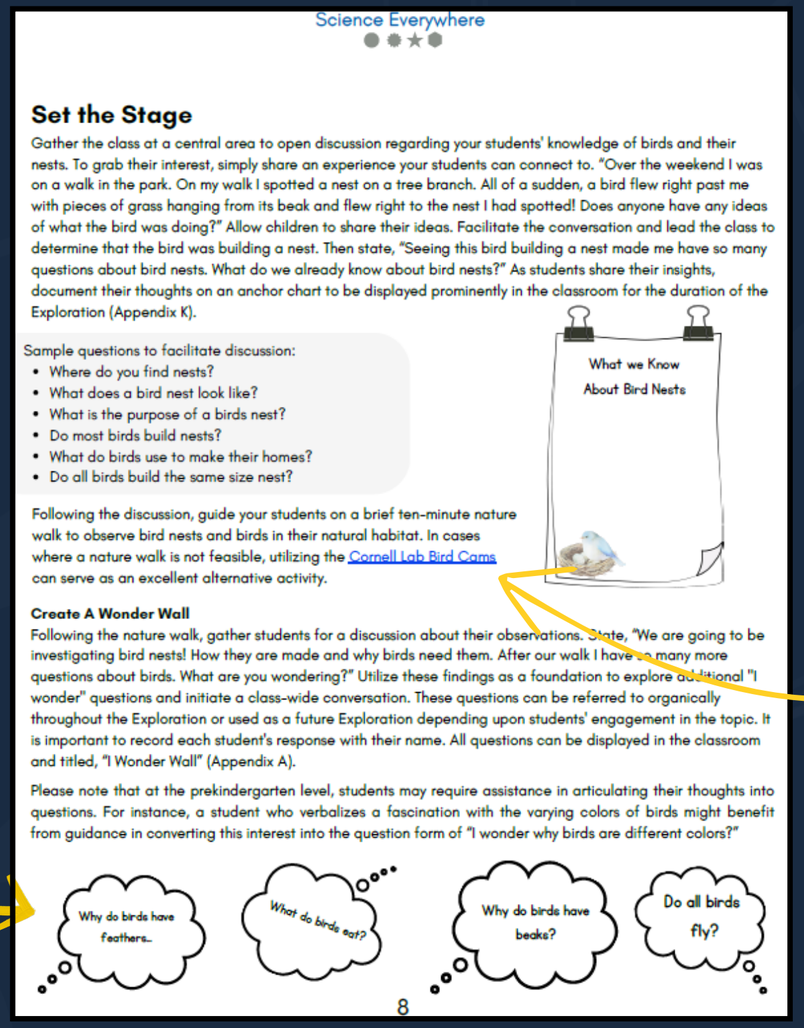
Create A Wonder Wall

Following the nature walk, gather students for a discussion about their observations. State, "We are going to be investigating bird nests! How they are made and why birds need them. After our walk I have so many more questions about birds. What are you wondering?" Utilize these findings as a foundation to explore additional "I wonder" questions and initiate a class-wide conversation. These questions can be referred to organically throughout the Exploration or used as a future Exploration depending upon students' engagement in the topic. It is important to record each student's response with their name. All questions can be displayed in the classroom and titled, "I Wonder Wall" (Appendix A).

Please note that at the prekindergarten level, students may require assistance in articulating their thoughts into questions. For instance, a student who verbalizes a fascination with the varying colors of birds might benefit from guidance in converting this interest into the question form of "I wonder why birds are different colors?"

SET THE STAGE

Printable “I Wonder Wall” Template in Resources



Science Everywhere

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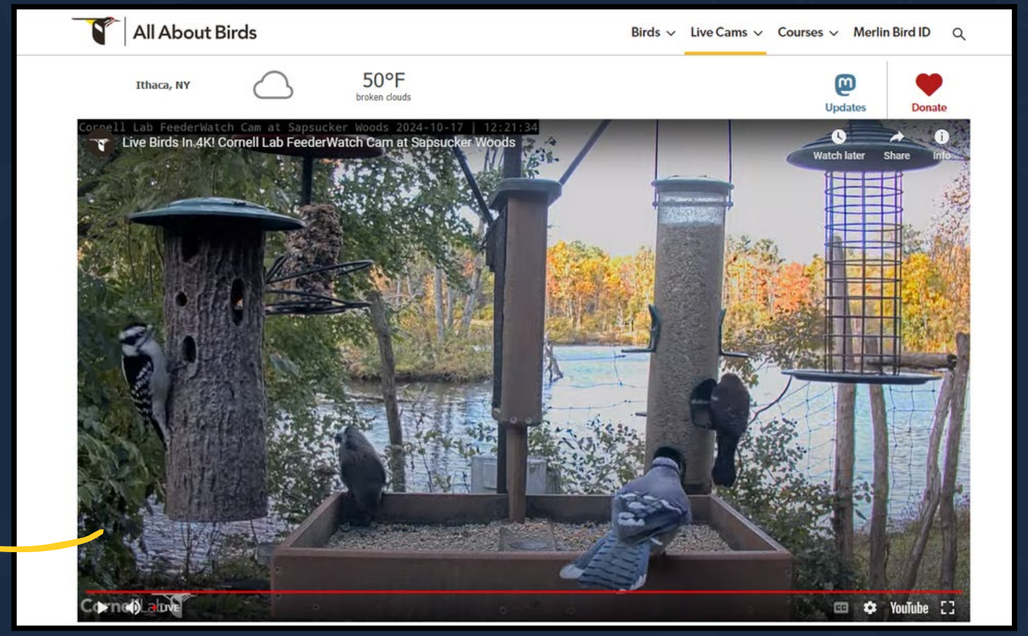


Cornell Lab Live Bird Cam

GUIDE STUDENTS THROUGH THE BIRD NEST EXPLORATION

GUIDE STUDENTS

Let the Exploration Begin! Guide Students through the Exploration and Support in Sharing their Understandings

At the core of this inquiry lies the fundamental question: "What are Nests?" Yet, this seemingly straightforward question encompasses a wealth of learning opportunities for students to explore and expand their knowledge of birds. These include the diverse construction methods deployed in nest-building among different species of birds and their habitats and how these structures safeguard the fledglings. Ultimately discovering that birds use nests for shelter and protecting their fledglings.

Whole Group Learning Activities

Navigate Nonfiction Texts

On the floor or tables, spread an assortment of nonfiction texts that contain a variety of bird species and their nests (Appendix H). Encourage students to examine the pictures and identify features they recognize about the nests. Guide them by citing examples such as "I see a big nest."

Ask students:

- Who do these nests belong to?
  - A big bird or a small bird?
  - How long does it take to build a nest?
- Where are these nests built?
  - High in a tree?
  - On a branch?
  - In a tree trunk?
- What are the nests made of?
  - Why do you think they are made of these materials?

Sample Teacher Language:
Put on your explorer hat because today we're venturing into the wild world of nests! We'll be checking out all the coolest spots from tippy treetops to underground homes. We'll learn about where birds are living and what they're using to build their shelter. Get ready to become the ultimate nest expert!

Display additional images of bird nests (Appendix D). Continue to discuss the type of bird that may live in that nest, the structure of the nest, the materials used and why (Preparing the Learning Environment p.6). Display these images in a visible area in the classroom.

Sample Teacher Language:
Have you ever wondered why birds spend hours building their nests? These nests are like cozy homes for their eggs and fledglings. And guess what? Their instincts are like a superpower, guiding them to build the exact same nest their parents made! It's like they just know how to do it. These nests keep fledglings safe and snug from harm's way. So, why do birds need a shelter like this? To protect themselves and their fledglings. Protect means to keep safe.

Pretend to be a bird

To encourage creativity and exploration, request your students to imagine being birds and search for an ideal site to build a nest. This activity can be conducted either indoors or outdoors, depending on the available resources. Various bird species construct their nests in diverse settings, so students can use their ingenuity to determine the best spot to build a nest. Subsequently, allow your students to share their thought processes on their preferred location for the nest. This helps in fostering a better understanding of the birds' habitat and behavior while promoting critical thinking among the students.

Sample Teacher Language:
Birds nests can be found in many different places. Even spots you many not think of- tree branches, the ground, city skyscrapers, you name it! Every bird species has their own unique nests, but one thing's for sure - a strong nest keeps them cozy and secure from harsh weather like thunderstorms and snow. It even keeps them safe from sneaky predators. A predator is an animal that hunts and eats another animal for food. No wonder it's the perfect place to call home!

Gather Nest Materials

The children can collect a variety of materials to construct a model of a bird's nest, either inside or outside the classroom. Grass, hair, straw, twigs, paper, mud, or string can be gathered to create a protective and comfortable environment for the eggs. Teachers can facilitate discussions on the various materials birds use to construct their nests and encourage children to brainstorm ways to keep the eggs warm once they are laid (typically, the bird will sit on the eggs). As an added challenge, students can be provided with a tool that simulates a bird's beak, such as preschool-sized tongs or clothespins, to aid in the collection of materials.

Sample Teacher Language:
Birds are master builders. They're always on the hunt for the perfect materials to create their cozy homes. Imagine you were a master nest builder. What materials do you think birds might use to create a warm and fuzzy nest for their precious eggs?

Small Group Learning Activities

Nest Sequencing:

Develop a visual sequence of a bird constructing its nest, utilizing photographs that capture each stage of the process. Prompt students to engage in an oral discussion, examining each step while providing support that enables them to share their comprehension of the process of a bird constructing its nest, as well as the function of the nest (Appendix E).

Create a Model Nest

Your students have likely gathered materials necessary for creating a model of a bird's nest. It's now time for them to apply their knowledge and build their own model, incorporating the collected materials. Additional model materials may be provided along with plastic eggs or pom-poms to resemble eggs (see Preparing the Learning Environment, p. 4). Using playdough as a base within a paper plate bowl, students can shape and construct their model in a manner that reflects their creativity. Support students in the process of trial and error as they construct their model, asking reflective questions such as "What worked in your model?" "What didn't work in your model?" "What would you try differently next time?"

Sample Teacher Language:
When a bird builds its nest they add a soft touch to make it like a snuggly bed. But, what does a bird use to make it cozy? And why go to such lengths? Well, it's all about keeping their precious eggs and fledglings safe and sound. Bird eggs and fledglings are as fragile as can be and come in all different shapes and sizes. So, it's no wonder a bird wants to cushion them with the softest and safest materials around!

Bird Puppet

Provide white paper or cardstock, if available. Supply students with an assortment of materials such as markers, crayons, pipe cleaners, and feathers to design their own unique bird. Encourage the students to explain their choices in creating their bird, such as its color or size. Further, have them describe their bird's potential habitat and nest characteristics. After the bird is complete, students can glue or tape it to a popsicle stick, creating a puppet for use in the dramatic play learning center.

Sample Teacher Language:
Imagine a bird with your eyes closed. Picture any bird species. What size is it - big or small? What color feathers does it have? Does it possess a long, sharp beak or a short, dull one? Let's bring your bird to life!

Bird Watching Data Collection

Utilize the Cornell Lab Bird Cam or any other source of bird watching to have students collect data and record observations. Bird watching can be a fascinating and educational activity for students of all ages. By utilizing resources like the Cornell Lab Bird Cam or other bird watching tools, students can actively engage in collecting data and recording their observations of various bird species and their bird nests. This hands-on approach not only enhances their understanding of different birds' behaviors and characteristics but also promotes a deeper appreciation for the natural world around them. Encouraging students to document their findings can lead to meaningful discussions and opportunities to analyze patterns in nesting habits and even feeding preferences. Overall, integrating bird watching into the learning experience can spark curiosity, foster a sense of environmental stewardship, and inspire a lifelong interest in ornithology (Appendix L).

WHOLE GROUP LEARNING ACTIVITIES

Classroom Library Examples

Non-Fiction:

Where Do Birds Live? by Betsy Chesen
Birds (Look and Learn) by National Geographic Kids
A Nest is Noisy by Dianna Hutts Ashton
An Egg is Quiet by Dianna Hutts Ashton
Cardinals (Backyard Birds) by Lisa J. Amstutz (also, Blue Jays, Robins, Hummingbirds, Mourning Doves, American Crows, House Sparrows, and Goldfinches)
Birds, Nests, and Eggs (Take Along Guides) by Mel Boring
Bird Builds a Nest by Kevin Jenkins
Feathers Not Just for Flying by Sarah S. Brannen
Beaks by Sneed B. Collard III
Where Do Birds Live? by Betsey Chessen
Scholastic Discover More: Birds by Penelope Arlon
The Things Birds Eat by Betsey Chessen
From Egg to Robin by Jan Kottke
Mr. McCloskey's Marvelous Mallards, The Making of Make Way for Ducklings by Emma Bland Smith

Fiction:

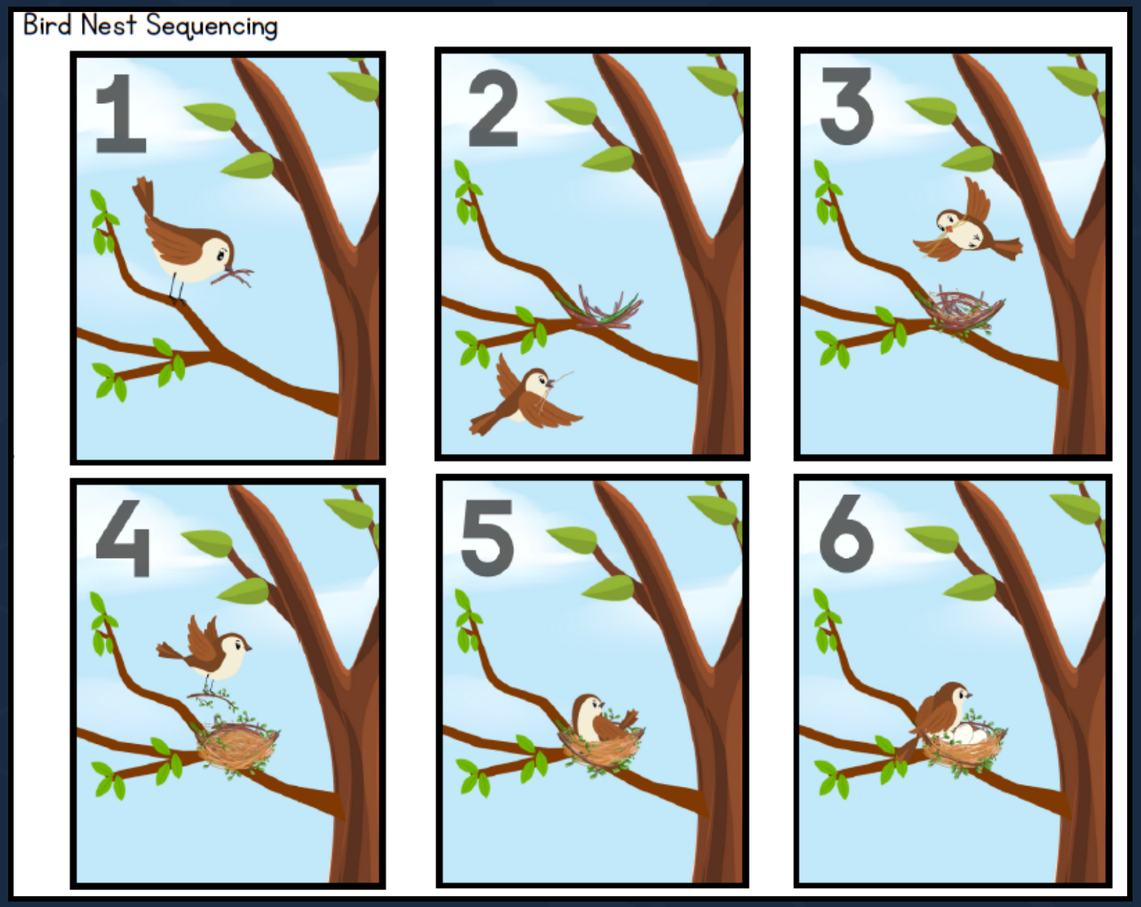
Outside My Window by Linda Ashman
Birds by Susan Canizares and Pamela Chanko
Have You Seen Birds? by Joanne Oppenheim
In My Nest by Sara Gillingham
Little Owl's Night by Divya Srinivasan
Outside My Window by Linda Ashman
There Is A Bird On Your Head! by Mo Willems
Are You My Mother? by P.D. Eastman
Birds by Kevin Henkes, illustrated by Laura Dronzek
Red and Lulu by Matt Tavares
Flora and the Flamingo by Molly Idle
Nest by Jorley Hurley
Don't Let the Pigeon Drive the Bus! by Mo Willems
Mama Built a Little Nest by Jennifer Ward, illustrated by Steve Jenkins
Have you Heard the Nesting Bird? by Rita Gray, illustrated by Kenard Pak
Birdsongs by Betsy Franco, illustrated by Steve Jenkins
Make Way for Ducklings by Robert McCloskey
Owl Moon by Jane Yolen and illustrated by John Schoenherr
A Bird is a Bird by Lizzy Rockwell
Bird Watch by Christie Matheson
An Egg is Quiet by Diana Hutts Aston and illustrated by Sylvia Long
Bird House by Blanca Gomez

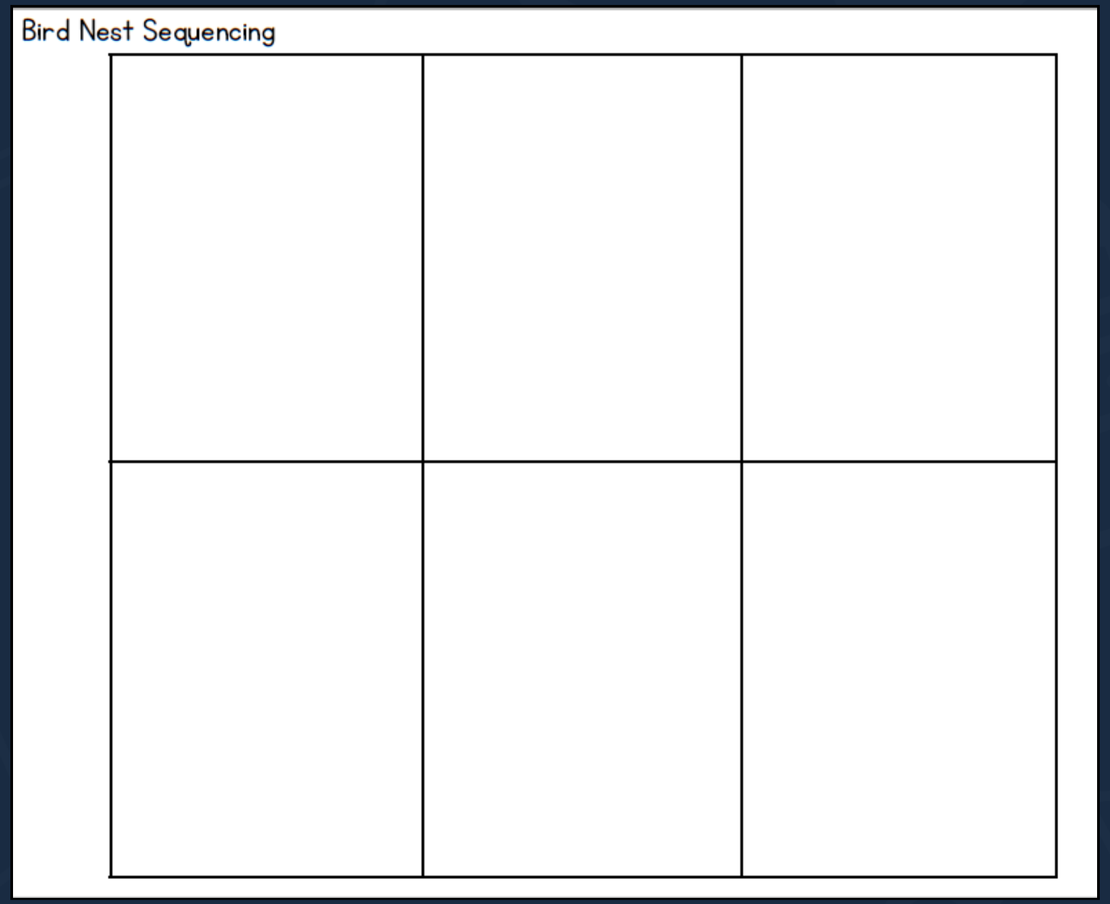
Types of Birds' Nests

Type of Nest	Description of Nest	New York State Bird
Woven Cup Nest	Many bird species utilize cup-shaped nests made of a sturdy outer shell woven from materials such as twigs, bark strips, grass, rootlets, tendrils, and fine vines. These nests are then cushioned with soft materials such as moss, downy feathers or fluffy seeds. Spider's web is commonly used to secure the nest, while additional elements like lichen and moss are incorporated on the exterior to blend in with the environment. These nests are typically positioned in the fork of a tree.	• American Crow • Blue Jay • American Robin • Ruby-throated Hummingbird • Northern Cardinal • American Goldfinch • Chipping Sparrow
Mud Nest	Birds create mud nests by collecting wet mud pellets in their beaks and placing them methodically, forming cohesive nuggets that harden and bond together. These nests are strong and durable and can adhere to vertical surfaces like cliffs. Typically cup-shaped, mud nests are spotted in barns, beneath bridges, on cliffs, and various man-made structures.	• Barn Swallow • Purple Martin
	Ground-nesting birds gather twigs, leaves, and feathers from their habitat to craft their nests. Despite the vulnerability of their	• Killdeer • Mallard

SMALL GROUP LEARNING ACTIVITIES

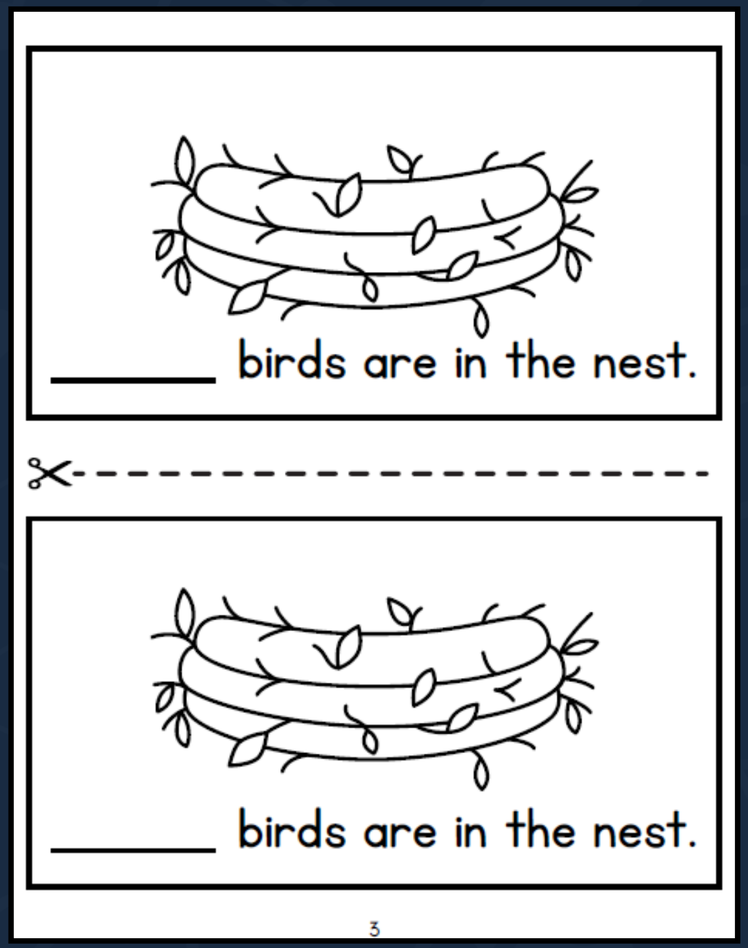
Bird Nest Sequencing





SMALL GROUP LEARNING ACTIVITIES

Bird Watching Data Collection



Small Group Learning Activities

Create A Model Nest

THEMATIC LEARNING CENTERS

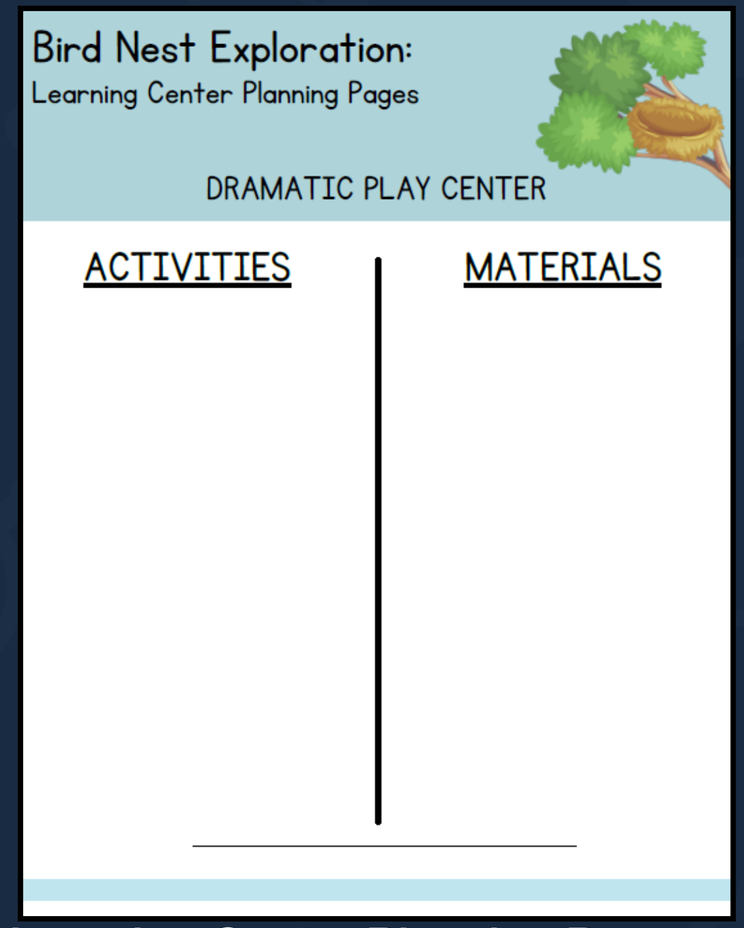
Thematic Learning Centers

Opportunities for new discoveries and sharing new learning will be available during center time. Learning centers are planned and arranged before students begin their exploration (Appendix J). Consistently rotating activities and materials within these learning centers is essential to maintaining student engagement.

Art	Dramatic Play	Library
• Use feathers as brushes to paint. • Creating bird sculptures using playdough and images of various bird species as references. • Free drawing exercise of birds either from observations made in the classroom, nature or using images. • Paint birds using watercolors.	• Provide a large cardboard box or several smaller ones to act as nests. • Create a life-size bird nest using a plastic kiddie pool, fill materials to resemble a cozy bird nest. • Incorporate the bird puppets created in the small group activities (See Small Group Activities p. Bird Puppet).	• Curate a collection of both fiction and non-fiction literature on birds and establish a comfortable reading environment. • Bird matching, match the pictures of various birds while learning the names of a variety of birds-print two sets of bird cards (Appendix C). • Bird Themed Word Wall (Appendix B).
Mathematics	**Writing**	**Music/Movement**

• Categorize birds by their color and/or size (small, medium, large).
• Sort animals into categories such as birds and not birds.
• Create a bird with shapes.
• Sequence building a nest (Appendix E).
• Visit www.allaboutbirds.org live feeder cam- count the number of different bird species that visit the feeder (Appendix G).
	• Create a bird seed writing tray where students can practice letter formation. This can be facilitated by providing alphabet cards or magnetic letters. For example, pick a magnetic letter out of a nest or place the letter in a plastic egg. The letter that is revealed will be formed on the seed writing tray.
	• Youtube.com- Observe and record/draw observations using paper, a clipboard and drawing materials.
		• Listen to songs about birds.
		  ◦ 5 Little Ducks,
		  ◦ The Chicken Dance
		  ◦ Three Little Birds
		• Bird Yoga (Appendix F).
		• Move like birds (fly, flap wings, eat like a bird).

Science	**Sensory/Fine Motor**	**Blocks/Building**
Create a bird exploration table: • Feathers • Nest-building materials (shredded paper, small twigs) • Plastic eggs • Model/toy birds • Bird seed • Bird photographs Provide a magnifying glass and as students explore, scaffold their thinking through discussion.	• Gather a variety of materials, including birdseed, plastic eggs, egg cartons, scoops, pom-poms, plastic eggs, clothespins/tongs, and bird figurines, and place them in a bin for children to explore. • Using clothespins/tongs, place the egg (pom-pom) in the nest (egg carton).	• Take on the role of an architect and construct a bird's nest using a tower of blocks. • Once the nest is constructed, enhance its comfort and appeal by adding soft materials (small blankets, tissue paper, newspaper). • Include some birdie buddies, such as stuffed animals.



Learning Center Planning Pages

THEMATIC LEARNING CENTERS

Art Center

Dramatic Play

Library

Mathematics

Writing

Music and Movement

Science

Sensory/ Fine Motor

Blocks/ Building

REFLECT ON THE EXPLORATION

Reflect on the Exploration

It's time to pause and reflect. An inquiry never really ends. While this bird nest exploration is coming to an end, thinking may be "shelved" for a period. Although the students' pursuit of knowledge may have reached its conclusion, their curiosity persists.

In the inquiry cycle, it is paramount to take the lead from your students. Tailor instruction to match their curiosity and interests. Suppose your students exhibit high motivation for exploring the topic of birds and are enthusiastic about continuing their exploration. In that case, revisiting the Wonder Wall created at the start of the inquiry and persisting with further learning is recommended.

Reflection is an integral component throughout the inquiry learning process. It's not just about asking students consider their opinions on the subject matter, but also reflecting on the learning process itself. This is where metacognition comes into play; encouraging students to think about their thinking. Scientists are always aski "What's Next?" They ponder what their next question may be or what their next exploration may be. By focusi on how they learned, in addition to what they learned, students can improve their overall learning experience and continue to explore like a scientist.

Sample Teacher Language:

- What is one interesting thing you learned about birds this week, today, or during this activity?
- What do you think you did well today?
- What was challenging for you during this activity?
- What accomplishment during the activity made you feel proud?
- What else would you like to learn about birds?
- Which aspect of this project did you enjoy the most, and why?
- What went well when creating your model?
- What changes to your model would you make for next time?
- How are models different from real birds' nests?

Additional Bird Explorations:

- What makes a bird a bird?
- Why do birds need feathers?
- Do birds have different beaks?
- How do birds survive?
- Do all birds make the same sounds?

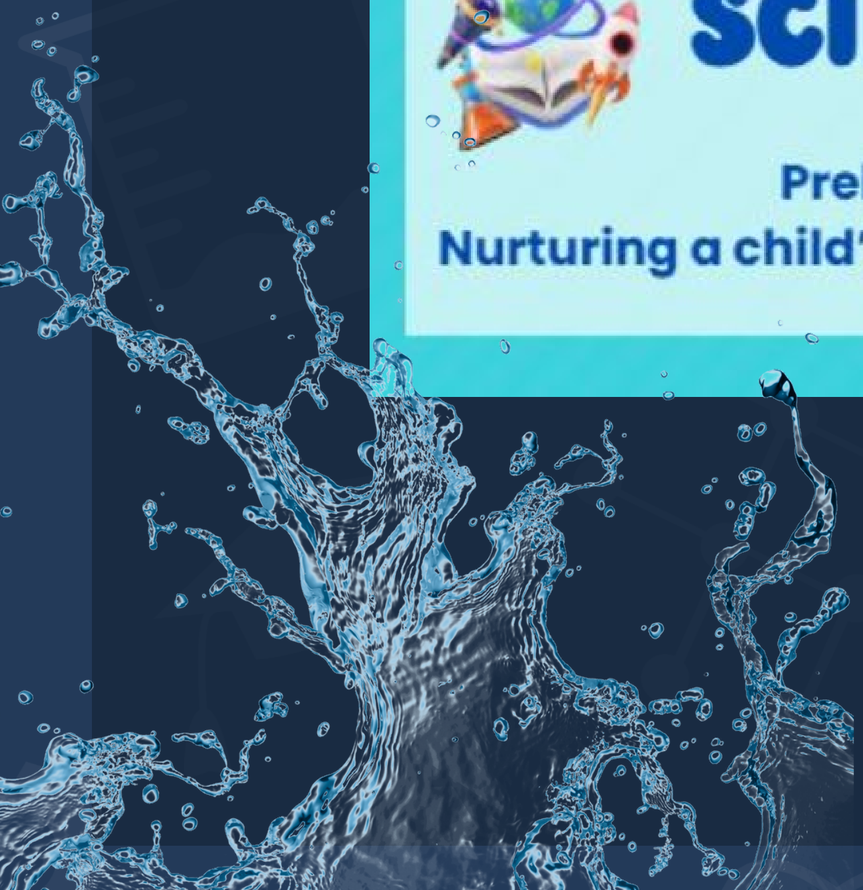
Timelines and Classroom Management

Inquiry projects can vary in duration, taking anywhere from a few weeks to several months, depending on how interested children remain in the topic of exploration. It is important to remember that if children lose interest, it's time to move on to a new exploration to keep them engaged and motivated.

MORE TO COME...

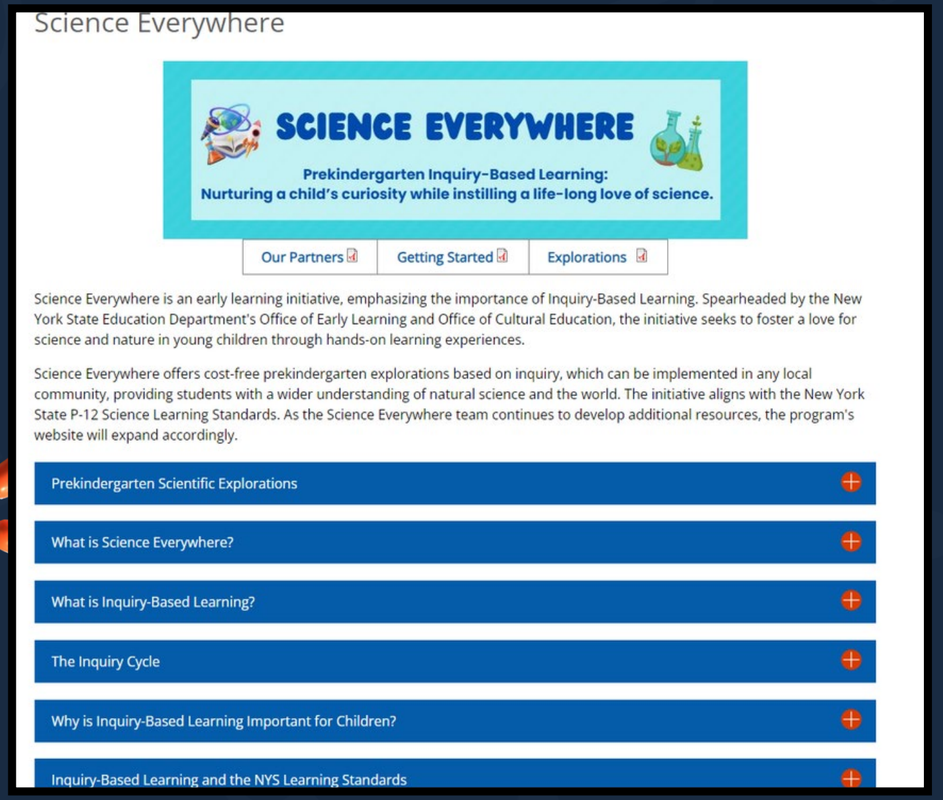
SCIENCE EVERYWHERE

Prekindergarten Inquiry-Based Learning:
Nurturing a child's curiosity while instilling a life-long love of science.



WHERE CAN YOU FIND SCIENCE EVERYWHERE?

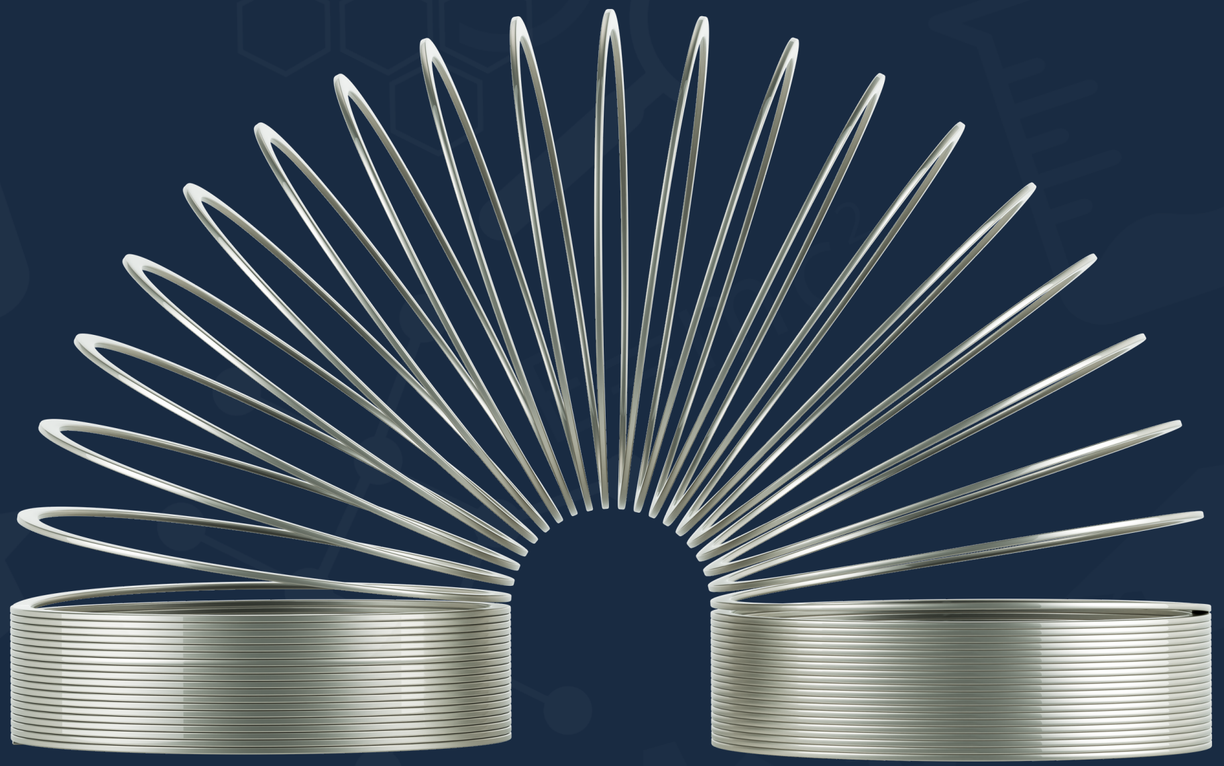
Science Everywhere | New York State Education Department (nysed.gov)



WHAT DOES PILOTING THE EXPLORATION LOOK LIKE?

- Implement!
- Document!
- Take pictures!
- Share!

FLEXIBLE Implementation



Next Steps: Looking for volunteers to pilot the exploration.

Science Everywhere Pilot Interest Form

Science Everywhere

THANK YOU FOR JOINING US TODAY!

Contact Us:

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www.nysed.gov/early-learning

New York State
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Science Everywhere