

Bluebird Trails, Bluebird Tales
Curriculum for Teaching about Bluebirds in Kansas

K-2

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Topic 1. The Bluebird's Food Web

Background: All living things fit into a complex relationship based on their nutritional needs. Plants require sunlight, carbon dioxide, and water, and then through photosynthesis create sugar as their food and oxygen as their waste. Animals use plants for food, but may also prey on other animals. Bluebirds eat a variety of foods throughout the year, mainly insects and berries.

Activities:

1. To introduce this topic, have students identify what foods they ate for lunch. You may need to help them with foods that are combined, like pizza or hamburgers. You may need to be sensitive to dietary restrictions among your students. As a class, try to work backwards on several foods to figure out how even our food is part of a food chain. Example: hamburger comes from a cow that ate grass that made its food with energy from the sun. Or—sushi contains fish that probably ate other fish that ate algae that made its food with energy from the sun.
2. Use the worksheet of plants and animals. Students will connect lines that indicate what berry plants need (sun, water, air) in green; what insects need (leaves, other insects, water) in brown; what bluebirds need in blue (insects and berries) [K-LS1-1. Use observations to describe patterns of what plants and animals need to survive.]
 - a. To expand on this idea, have them sit outside and try to observe which birds they see and what they might be eating. They will likely see common birds such as robins or blue jays. They might also see hawks or vultures soaring in the sky. Depending on your purpose, you can have them sketch or describe each bird they see. A good online resource to identify birds they find is allaboutbirds.org, through Cornell Lab of Ornithology.

Topic 2. The Changing Environment

Background: Nature is constantly changing. Not only do physical things like weather or erosion change the environment, plants and animals affect their habitats as well as each other. Sometimes these changes help each other, as when native thistles go to seed at exactly the time goldfinches are nesting. Sometimes, these changes can harm others, such as when an invasive plant outcompetes the plants animals depend on for food. Since humans change the environment more than anything else, we can affect many plants and animals with our actions.

Activities:

1. To introduce this topic, project a photo of a grocery store shelf of cereals (there are many good photos to use on the internet). Put all the names of the visible cereals in a hat. Let all the students pick their favorite cereal out of those shown and write it down. They can list as many as they like. It is fine if some students choose none. Tell them there is a brand new cereal coming out, but since the shelves are full, it is just going to take place of some of the other cereals. Pick a few cereals out of the hat, crossing them off the projection as you do. Keep going until most students have lost some of their choices. Have them compare this to when food sources animals rely on are replaced by other things. Some questions to explore:
 - a. Were some students more affected than others? Why? (This happens in nature, too. Some animals eat a wider variety of things while others are only able to eat a few things.)
 - b. What would we do if this really happened? (We might go to another store or eat something besides cereal) What happens to animals if their food disappears? (Their numbers will decrease and they may even have to leave an area or become extinct. They don't have as much choice as we do)
 - c. What would happen if the stores only sold food 3 months out of the year? (it would be very hard to stock up enough) If native sources of food disappear, there may be times when there is very little food available. How would this affect animals? (They may not survive, even though lots of food is available sometimes.)
2. Show this video on honeysuckle at <https://www.youtube.com/watch?v=biUbulTQEWI>. Have students use the page on invasives in the resources at the end of this curriculum to learn how honeysuckle and other invasive plants have changed local habitats. Discuss whether these changes have been helpful or harmful for bluebirds. **K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.**
 - a. Take a walk around the school grounds. Can you find evidence of any of the invasive plants? If so, do they appear to be affecting native plants? If not, can you find other plants that might benefit bluebirds, either with berries or by supporting insects? (Most school grounds will have very few truly native plants. You can decide whether to have students research what plants they see are native. If your school has an outdoor learning space, use it for this activity). **2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.**
3. Show a bluebird house from the gallery. Have students describe what kind of place bluebirds like to build their nests (help them identify the small entrance, a dry cavity, protection from predators, height from ground, etc.). Have them draw places in nature they think would be similar to the boxes. Have them write descriptions. **K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including**

humans) and the places they live. K-2-ETS1-2. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

- a. Extension: Humans changed the environment both to the benefit (building nest boxes) and harm (removing natural cavity sites and changing vegetation) of bluebirds. After students have identified what bluebirds look for in nests, discuss how human activity first made it harder for bluebirds to find nests (clearing land), and then how we helped them (establishing bluebird boxes). W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- b. Early on, 2 different types of bluebird houses were used on the Bluebird Trail. Have the students identify how the boxes are the same and different. Look at the data from both types of boxes. Which style was more successful? Have the students propose reasons for the success. K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Topic 3. Life cycle of a bluebird

Background: Bluebirds begin life as an egg among a clutch of eggs in a well-constructed nest hidden inside a cavity. The eggs are incubated by the mother until they hatch. Both parents will hunt for insects to feed the babies until they are old enough to learn to fly. At this point they are “fledglings.” This is a dangerous time, when they might be caught by predators. Once they can fly, they will hunt on their own. They will migrate in the fall far enough south to find insects and then return in the spring. They will find a mate and begin the cycle again.

1. “What Bluebirds Do” is an excellent introduction to the bluebird life cycle. Read it together and then create a timeline together to show the changes throughout the season.
2. Read one of the nonfiction books about bluebirds, as well as one about a different kind of bird. Create a web graphic organizer for each with information from the books. Try to include this such as appearance, nesting, food, etc. for each species.
3. Use the pictures to show the various stages of a bluebird’s life. Identify the differences in nests and eggs between bluebirds and other species. Which nests contain more eggs? K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.

Topic 4. How many eggs?

Background: The goal of the Bluebird Trail is to create a habitat to allow bluebirds to successfully raise their young, by providing safe nest boxes, decreasing predation and encouraging a healthy food supply. We can use data to help us determine if we are doing a good job. By arranging data into graphs, we can easily see the results.

1. Look at an example bar graph with your students. Point out the title, labels for x and y, and the units. Show how the data from the table was used to make the bar graph. Ask them which box was the most successful in the year shown. How many more eggs did it produce? There are 3 blank bar graphs with data from other years. Help the students decide how to label the graph and to place the data into it. You could also choose to create a picture graph to show eggs or fledglings. **2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.**

Topic 5. Bluebird Reader's Workshop

There are many books with birds as fictional characters, as well as many excellent non-fiction books. For this workshop, each student or group of students will pick a book from both the fiction and non-fiction section at the end of this curriculum (of course your library may have even more than are listed here!). Then they can complete 1 of the following projects:

1. Create a Venn diagram or other graphic organizer to show the difference in information between the books and how birds are depicted. **W.2.7 Participate in shared research and writing projects**
2. Create a quiz about birds based on their non-fiction book. Let them try to answer each other's quizzes. **[RI.K.1 With prompting and support, ask and answer questions about key details in a text.]**
3. Have small groups use a presentation program such as Prezi or Animoto to create presentation about their topic: food web, nesting, life cycle, etc. For younger students, it will be easier if they have all read the same non-fiction book. Older students may benefit from having read different books and bringing their information to the group. **[W.K.7 Participate in shared research and writing projects . SL.K.5 Add drawings or other visual displays to descriptions as desired to provide additional detail.] RI.2.1 Ask and answer such questions as who , what , where , when , why , and how to demonstrate understanding of key details in a text. (K-2-ETS1-1) W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K - 2 - ETS1 - 1),(K - 2 - ETS1 - 3)**
4. Have them create a recording of their book. Where appropriate, have them include bluebird song recordings (or other species). You can find these at All About Birds, the Cornell Lab of Ornithology website. **SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K - 2 - ETS1 - 2)**

Topic 6. A Walk in the Park

Background: Sometimes research and data can be hard to imagine and understand and it is helpful to have a visual reference. It is also good to instill good stewardship habits in your students. For instance, they should understand that as much as they love bluebirds, they should never disturb a nesting box (something only trained individuals should do!).

1. If your school is located near a bluebird trail, you may be able to do a “walking field trip” to see where boxes are located. Have students draw the area from their observations and take time to write about the experience.
2. Contact Extension Master Naturalists to arrange a speaker. They can bring in a nest box and other materials while explaining bluebird natural history and what our monitors do. Again, your students should draw and write based on what they learn. **W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1), (K - 2 - ETS1 - 3)**

Bluebird Reading Resources

Fiction

Amelia Bedelia is for the Birds by Herman Parish (robin nest)

**Baby Bluebird, Please Come Home* by Amma Lee (pre-K)

The Best Nest by PD Eastman

Bird by Olivia Cosneau (pre)

Bird Builds a Nest by Martin Jenkins

**Bluebird* by Lindsey Yankey

**Bluebird* by Bob Staake (picture book)

**Blue Sky Bluebird* by Rick Chrustowski (realistic fiction)

**Bluebird Summer* by Deborah Hopkinson (realistic fiction)

Early Bird by Toni Yuly (pre-K)

Flap Your Wings by PD Eastman

Forever Friends by Carine Berger

Grumpy Bird by Jeremy Tankard (pre)

Have You Heard the Nesting Bird? Words by Rita Gray / pictures by Kenard Pak

Jabber the Steller's Jay by Sylvester Allred / illustrated by Diane Iverson (example of another blue bird)

Hooray for Birds! By Lucy Cousins (pre-K) (general bird characteristics)

I Spy in the Sky by Edward Gibbs

Nope! A Tale of First Flight by Drew Sheneman (pre)

**Ricki's Birdhouse* by Monica Wellington (with birdhouse plans in the back) (realistic fiction)

**The Robot and the Bluebird* by David Lucas (pre-K)

**Today at the Bluebird Cafe* by Deborah Ruddell (pre-K)

This is the Nest that Robin Built by Denise Fleming

Up! Tall! High! By Ethan Long (pre-K)

Nonfiction

ABC Birds by American Museum of Natural History (pre-K)

Baby Bird's First Nest by Frank Asch (pre-K)

A Bird Is A Bird by Lizzy Rockwell (pre-K)

Bird Songs by Betsy Franco (pre-K)

Birds - A Question and Answer Book by Isabel Martin

Birds Build Nests by Yvonne Winter (pre-K)

Birds Make Nests by Michael Garland (pre-K)

Birds by Kevin Henke (pre)

Birds by Trudi Strain Trueit

Birds by Jill McDonald (pre)

Baby's First Book of Birds & Colors by Phyllis Limbacher Tildes (pre)

**Bluebird's Nest* by Dorothea Deprisco (pre-K)

Every Day Birds by Amy Ludwig VanDerwater

Feathers: Not Just for Flying by Melissa Stewart / illustrated by Sarah S. Brannen

My Book of Birds by Geraldo Valerio (pre-K)

A Nest Full of Eggs by Priscilla Belz Jenkins (pre-K)

Sparrow, Eagle, Penguin, and Seagull - What Is A Bird? By Brian P. Cleary (pre-K)

What Is A Bird? By Lola M. Schaefer (pre-K)

Little Kid's First Big Book of Birds by Catherine Hughes (Nat Geo)

A Place for Birds by Melissa Stewart / illustrated by Higgins Bond

**What Bluebirds Do* by Pamela F. Kirby

Where Do the Birds Go: a Migration Mystery by Rebecca Olien / illustrated by Katie McDee

Wild Fliers by Martin and Chris Kratt (K-2)

You Nest Here with Me by Jane Yolen and Heidi Stemple (Pre-K)

*Designates a book mostly or entirely about bluebirds. Others focus on other species, but may be useful.

Essays about Eastern Bluebirds for young adults and adults:

Julie Zickefoose: *The Bluebird Effect: Uncommon bonds with common birds*

Julie Zickefoose: *Baby Birds: An artist looks into the nest*

John Yow: *The Armchair Birder: Discovering the secret lives of familiar birds*

Resources:

Backyard Birds by Karen Stray Nolting and Jonathan Latimer

Birds: A Fully Illustrated, Authoritative and Easy-to-Use Guide (A Golden Guide) by Herbert S. Him and Ira N. Gabrielson

Bluebirds Forever, Toops (1994)

Birds of Kansas by Stan Tekiela

Birds in Kansas, Thompson, et.al (2011)

Egg & Nest by Rosamond Wolff Purcell

A Field Guide to Western Birds' Nests by Hal H. Harrison

The Guide to Kansas Birds and Birding Hot Spots, Gress & Janzen (2008)

Nests by Sharon Beals

TECHNOLOGY - OPTIONAL VIDEOS

If you have access to technology in your classroom, here are a few educational videos you may wish to watch and/or show your class.

<https://www.youtube.com/watch?v=gSiH4fAXkl4> - Bird song identification

https://www.youtube.com/watch?v=W7_D0DopQW4 - Bird song identification

<https://www.youtube.com/watch?v=z4RjLwn3hqw> - Bluebirds hatching

<https://www.youtube.com/watch?v=eMWeQWGla0Y> - Tranquil birds singing (for relaxation)

<https://www.raptorresource.org/birdcams/decorah-eagles/> - Live stream of Eagles in Decorah, Iowa

<http://cams.allaboutbirds.org> - Various bird webcams

<https://www.audubon.org/birdcams> - Various bird webcams