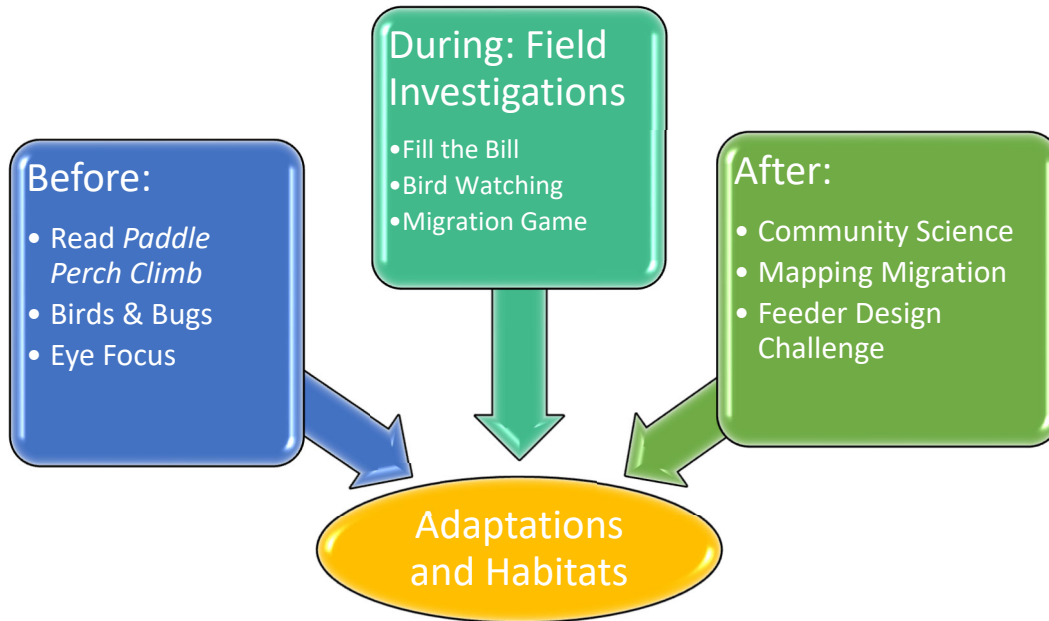


It's for the Birds



Your students will be visiting Blandy to engage in a field investigation focused on bird adaptations and life needs. To enhance classroom connections, we have developed this lesson cluster. Field investigations are more meaningful to students when they are integrated into their curriculum. This lesson cluster can be used to introduce and/or review adaptations, habitats, and life needs as well as synthesize data and consider civic responsibility. This systems approach increases depth of knowledge.

Before-visit activities will develop understanding of bird adaptations through literacy connections, and develop observation skills helpful in bird observations. **During the field investigations**, students explore bird beak adaptations, go on a bird walk as young ornithologists, and engage in a kinesthetic migration activity. With the **after-visit activities**, students use map reading skills to deepen their understanding of the adaptation of bird migrations and engage in citizen science and stewardship to assess and possibly create bird feeders.



It's for the Birds

BEFORE 1: Literacy Connection- *Paddle Perch Climb: Bird Feet are Neat*

Before your visit, introduce students to the concept that bird feet are adaptations that help birds to find food and function in various habitats.

Estimate time: 30 minutes

VA Standards Addressed

English (2024): 2.C.1, 3.C.1, 4.C.1

Science (2018): 3.5

Materials

- Copies of [Paddle Perch Climb: Bird Feet are Neat](#)

Instructional Strategy- These instructions were copied from <https://cdn.sourcebooks.com/assets/downloads/activitykits/PaddlePerchClimb.pdf> Tips for reading aloud.

1. Preview the book *Paddle Perch Climb Bird Feet Are Neat* ahead of time. Engage children by reading with expression. Use a different voice for the “watch out” statements, such as “Watch out for the fox!” and “Be careful of the bobcat!”
2. Read aloud the title then identify the author and illustrator. Ask children to look at the cover illustration and make predictions about what information is in the book. What do you think you will learn by reading the book?
3. Read aloud, pausing to clarify the meanings of new words.
4. Have children review their predictions. What does the author want you to learn by reading the book?
5. Read the book again. Ask children to listen closely to find out how each bird moves to get its food.
6. After reading, discuss how the shape and size of each bird’s feet and legs are clues to what it eats and how it moves. Invite children to perform words, such as paddle, perch, cling, scratch, and grasp.
7. “Look Out!” Tell children that while birds are eating, they need to be careful not to get eaten. Turn the pages and ask children to find each bird’s predator hiding in the illustration.



It's for the Birds

BEFORE 2: [Birds & Bugs from PLT](#)

Before your visit to explore the concepts of camouflage as an adaptation for survival and to practice data analysis.

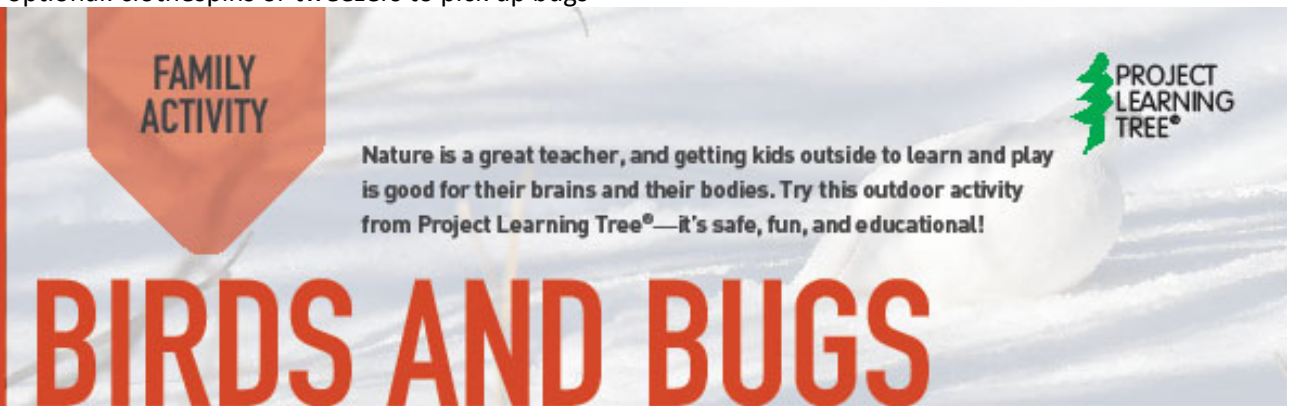
Estimate time: 30 minutes

VA standards addressed: Math (2023) 2.PS.1, 3.PS.1, 4.PS.1; Science (2018) 2.7, 3.1, 3.4, 3.5, 4.2, 4.3

Materials:

- ~60 small, bio-degradable objects in at least three colors (tri-colored noodles, beans, cereal, etc.) which will be the “bugs”
- large chart paper or white board
- crayons or markers
- optional: clothespins or tweezers to pick up bugs

Inst



Discover the value of camouflage by pretending to be birds in search of worms.

Many animals are “color coordinated” with their surroundings. Any coloration, body shape, or behavior that helps an animal hide is called camouflage. Take children outside to explore this concept.

Collect equal amounts of small, biodegradable objects in at least three colors that can be used to represent “bugs” in an outdoor setting. Consider using tri-colored noodles, beans, or shreds of paper.

Once outside:

- Spread or hide your colored objects (bugs) in a defined area.
- Have children “fly” around as birds and try to find the bugs.
- Make a chart or graph to visually record children’s findings.

If your first trial was on grass, try the same exercise again on asphalt, or within a forested area. If you are working with multiple children, set up a relay race to find the scattered bugs, in which each child takes turns to go find a bug. The winning team is the first one to get all their members to find one bug. Children will most likely find the least camouflaged objects first.

After completing the activity, ask:

- What color was easiest to find? How does this help the birds to survive?
- What color was hardest to find? How does this help the bugs survive?

MAKE LEARNING FUN!

Encourage your child's school to incorporate outdoor learning by connecting with your local PLT program.

Visit plt.org/yourstate

FOREST FACT

Even a box turtle can camouflage. A box turtle’s dappled shell mimics the spots of sunlight on the forest floor.



CAMOUFLAGE WORD SEARCH

Find the camouflaged animals listed below.

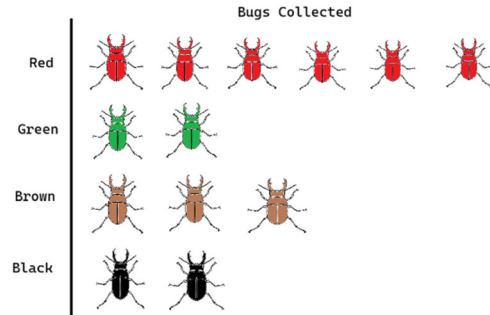
C	G	Q	N	H	I	R	A	C	C	O	O	N	X	J
H	U	M	M	I	N	G	B	I	R	D	C	D	H	K
T	U	V	B	O	M	U	T	X	H	F	D	B	P	H
A	G	O	W	L	B	O	X	T	U	R	T	L	E	H
D	S	O	U	L	P	R	E	L	Y	D	P	W	E	U

It's for the Birds

Suggestions to graph results of bugs collected:

<u>Red</u>	<u>Green</u>	<u>Brown</u>	<u>Black</u>

Have student teams record their results and discuss any similarities or differences. After, students can create pictographs or bar graphs to represent the data they collected. Help students interpret the graphs.

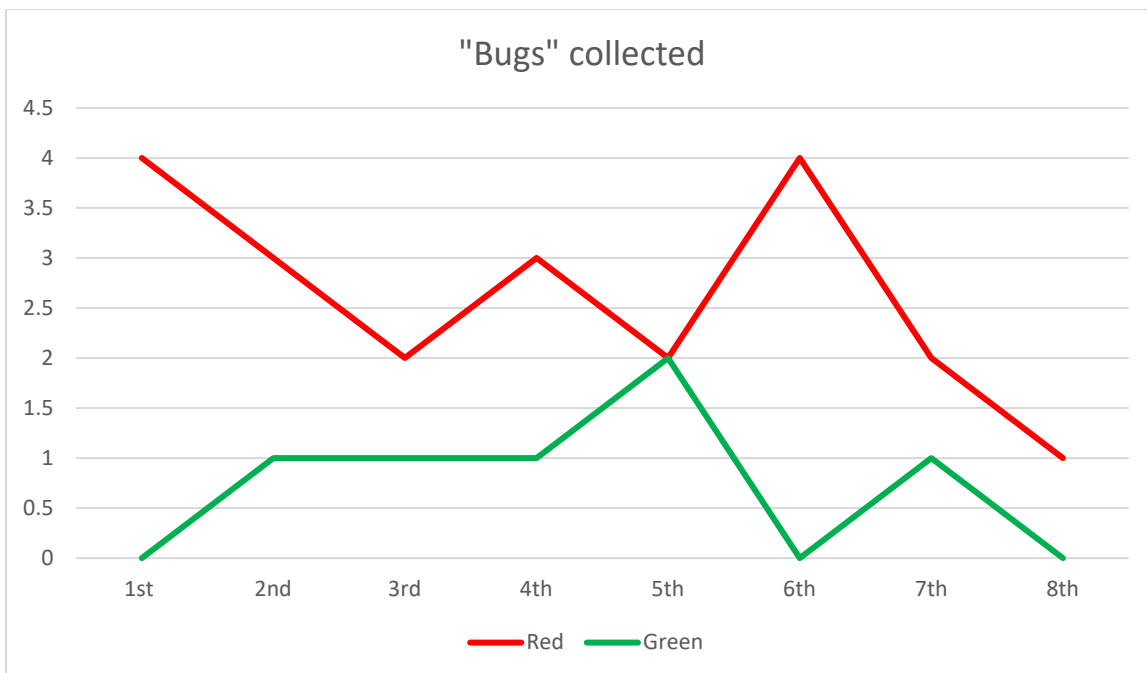


Alternative chart for 3rd-4th grade, where bugs are recorded in order based on the student's position in line, example:

1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th
4 red	3 red	2 red	3 red	2 red	4 red	2 red	1 red
	1 green	1 green	1 green	2 green	0 green	1 green	0 green

Have students total and record the number of colored bugs in each column. Is there a pattern to the order in which the bugs were found? What might the pattern tell us?

Prompt students to brainstorm how to graphically display this data for analysis. Fourth grade prioritizes line graphs (example provided below).



It's for the Birds

BEFORE 3: Eye Focus

Before your visit to develop student observation skills in preparation for field observations at Blandy.

Estimated Time: 30 minutes

VA Standards Addressed

Science (2018): 2.1, 3.1, 4.1

Materials

- Paper
- Clipboard
- pencils

Lesson Preparation

1. The day before this activity, assess the safety and accessibility of the schoolyard for your students. You may choose to designate certain areas for observations.

Instructional Strategy

1. Introduction- Inform students that they will be using observation skills to look for and watch birds on their Blandy field investigation. Ask: What do you think we mean when we use the words "observation skills"? Generate a list of responses to form a classroom definition.
2. Prepare to go outside- Ask students to adjust their brains and senses for observations and collect paper and pencil to make observations in the schoolyard.
3. Outside- Tell students they are to spread out a little bit from one another to begin making observations. Encourage them to use as many senses as they can and record what they observe. Allow five minutes before giving a return signal (Create a unique sound for students to return such as a bird call! For example: You call "CHICK-A" and students call back "DEE-DEE-DEE" which is the call of a common feeder bird, the chickadee.) to bring class together to share.
4. Discuss: what did you focus on? Did you focus on one sense more than another? Did your brain start to wander around all the sights and sounds or did you focus on one thing?
5. Send students back to their observation spots for another five minutes; instructing them to turn over the page to start anew.
6. Bring class back together. Share observations. Ask: how are these observations different than your first set? How are they the same?
7. Conclusion: The observation practice in this activity will help with bird observations at Blandy. Features we will focus on will include bird body shape, beak shape, flight patterns, feather colors and arrangement. If time allows and you have a bird feeder, you could make some bird feeder observations with students to prepare them for the field investigation.



It's for the Birds

Field Investigation:

During your field investigation at Blandy, your students will engage in several indoor and outdoor lessons. Below is an overview of the “typical” program activities to assist you with integrating this field experience into the classroom experiences. The activities can change due to weather, volume of students, or through communication with environmental educators.

Fill the Bill- Students consider strategies that help birds secure shelter and find food and explore how bird beaks are adapted for gathering and eating certain foods.

Bird Watching- Outdoors, fledgling ornithologists use binoculars to observe birds in their natural habitats, and collect data to interpret and share in citizen science projects as part of civic responsibility

Migration Game- Students engage in a kinesthetic game modeling the process of bird migration, including the trials and tribulations birds meet on their migration journeys.

VA Standards Addressed

Science (2018): 2.1, 2.5, 2.7; 3.1, 3.4, 3.5, 3.8; 4.1, 4.3, 4.8

English (2024): 2.C.1.A, 3.C.1.A, 4.C.1.A, 2.RV.1.A, 3.RV.1.A, 4.RV.1.A



It's for the Birds

AFTER 1: Community Science- share your bird data with the world!

After your visit to review the birds that students observed, share data with the science community, and to learn about world citizen science projects.

Estimated time: 30 minutes

VA Standards Addressed

English (2024): 2.R.1, 3.R.1, 4.R.1

Science (2018): 2.1, 3.1, 4.1

Materials

- Bird observation sheets from Blandy's bird watching or list sent by Blandy educators
- Tablets or computers with internet access

Lesson Preparation

1. Contact Blandy educators to obtain bird checklists if your class did not make a checklist.
2. Create a login for <https://ebird.org/home> to enter data.

Instructional Strategy

1. Recap: Ask- what did we study outside at Blandy? What are things that we noticed and observed about the birds we saw?
2. What is citizen science? *It is the collection and analysis of data relating to the natural world by members of the general public, typically as part of a collaborative project with professional scientists.*
3. Sharing data: explain to students that you are going to enter data into a big file that can be shared with hundreds of scientists.
4. On your Smartboard, navigate to ebird.org to login and then go to "Submit" tab at the top. Choose "Blandy Experimental Farm" from your list then click "continue". Choose the observation date, the purpose, and enter information about time of day and distance on bird observation walk. Then click "continue" to enter data.
5. After data is entered, explore Blandy Experimental Farm as a birding hotspot. Ask students: Did we see birds that others saw on the same day/week/month? Was there anything unique that we saw? Anything unique that others observed?
6. Extend: What can we do if we want to continue to make bird observations? Can we make feeders?



It's for the Birds

AFTER 2: Mapping Migration

To use **After** your visit to expand on the migration game conducted at Blandy. Brings in map reading skills, mathematics, and social studies to deepen understanding of migrations.

Investigative Question: What species of bird migrate? How far do they migrate?

Objectives: Using maps and measuring tools, students will track the migration of a particular bird species to determine the approximate distance of its migration in terms of months, weeks, days. Students understand that many species of birds migrate, and migration routes differ among species.

- ~ **Knowledge:** Students learn that many types of birds migrate to a variety of places depending on adaptations and needs. Students will learn migratory routes of a specific species in relation to a map of North and South America.
- ~ **Skills:** Students use non-standard and standard forms of measurement to calculate a migration route on the map to the nearest foot, yard, and meter. Students will use math skills to find equivalent periods of time for migration. (Hours into days; days into months).
- ~ **Values:** Students gain an appreciation for the distance of migratory paths as well as the difficulty of migrating, in North and South America.

Estimated time: 1 hour, can be split into two 30-minute sets

VA SOL addressed:

Mathematics (2023): 4.MG.4, 5.MG.1

Science (2018): 2.1, 2.5, 2.7; 3.1, 3.4, 3.5, 3.8; 4.1, 4.3, 4.8

Social Studies (2015): 2.6, 3.6, VS.2

Note to Educator: Because of the wide range of grade levels and learners, there are various extensions and further options for each grade level. Adjust this lesson to fit your needs!

8

Materials:

- Migration Info Cards
- Wet erase markers and wet wipes
- Colored string/yarn (5 different colors, one for each bird route)
- Measuring devices (meter tape, meter stick, or rulers)
- Large, laminated map (Sample Map for Mapping Migration)- as large as you can make them for groups of 4-5 students
- Conversion Sheet for Mapping Migration

Instructional Strategy

1. Students refer to the Migration Info Cards from the migration game for this activity.
2. Recap the bird migration game and discuss migration. Look at the large, laminated map of North and South America. Ask students: What is this a map of? What do you see on the map? Check: does the map have all the features it should?
3. In groups, students reread the information for their bird and its migration route.



It's for the Birds

4. Instruct each group to draw their bird's migratory path on the laminated map. Each bird has a corresponding color.
5. Next, estimate the distance of their bird's migratory route by using context clues (using a map scale or distance from east coast to west coast and the conversion sheet).
6. Ask: What are some ways we can determine the distance of the migration route?
7. Distribute colored string to groups. Place the string over their bird's migratory path on the large, laminated map. Students should look at the scale (1 in: 205 miles) provided on the map to determine the approximate distance of their migratory route. 1 inch on the map = 205 miles (1:205). If the measurement of the route is 4 inches, then the distance of that bird's route is 820 miles.
8. Distribute the rulers to groups and then ask each group to calculate the distance traveled using the scale provided on the map. Round up or down as needed.
 - a. If time allows, students can convert the final measurement from English standard to the metric system (kilometers). The large, laminated map has a meter scale for help. It may help to round down the conversion from 1 inch= 205 miles to 1 inch = 200 miles.
9. Ask students which form of measurement is easier (the string estimate or ruler measurement)? Which is more accurate?
10. With the information given on each of the bird information sheets, students can convert their bird's total length of migration into equivalent time periods: days, months, hours (ex. 15 days= ½ month, 2 months = 60 days). This may be total migration or a portion of their bird's migratory route.
11. Questions to extend the investigation
 - **Where did your bird frequently visit?**
 - **Did your bird migrate to the same location every year? If so, why?**
 - **What do the birds need to survive?**
 - **What characteristics in the landscape was your bird searching for?**

Extensions

- Create a legend on the laminated map.
- Analyze and compare the migratory patterns and distances of each species of bird.
- Research migration flyways (flight used in bird migration) <https://www.birdlife.org/migratory-birds/>
- Students explore different locations of their bird's migration and make a prediction as to why birds stopped at specific locations. Research different areas of the migration route.
- Create a large number line/migration line down a hallway at school. Online resources are available to track a current bird's migration by The Center for Conservation of Biology and Wildlife tracking. <http://www.cbbirds.org/what-we-do/research/bird-migration/>
- **Engineering and Technology-** Students can use technology to research satellite transmitters and their specific use in tracking. Use engineering design principles to build/design a transmitter model. In what ways can the original transmitters be improved?
- **Abstract thinking –** Students find their bird migratory path on a globe. How is the path different once you consider the sphere that is Earth? Does a bird fly in a straight line? How does bird flight speeds and distances compare to airplane speeds and distances?



It's for the Birds

Teacher Background Information

Northern Pintail

“Pintails were caught with both rocket nets and swim-in traps and then fitted with transmitters. The satellite transmitters weigh 20g. The weight of the transmitter is critical as the overall weight of the transmitter/harness package should not exceed approximately 3-4% of the weight of the bird. Because we are primarily interested in large-scale movements over the course of 1 year, our transmitters are programmed to send a signal every 65 seconds for eight hours every six days. These routines conserve battery power and should allow researchers to track the pintails through spring migration, breeding, and the following fall migration (North Carolina Wildlife Resource Commission).”



North Carolina Wildlife Resource Commission

<https://www.ncwildlife.org/species/northern-pintail>

Whimbrel

“Beginning in 2008, the Center for Conservation Biology collaborated with The Nature Conservancy to investigate the stopover ecology of whimbrels along the Delmarva Peninsula. The study includes aerial surveys to estimate seasonal numbers, traditional transmitters to examine stopover periods, and satellite transmitters to document migration pathways and breeding destinations for birds leaving the site (wildlifetracking.org).”

http://www.seaturtle.org/tracking/?project_id=369

Eagles

“Wildlife tracking.org banded and satellite tagged Bald and Golden Eagles in the upper Chesapeake Bay, USA as part of a program funded in part by the US Army. The Chesapeake Bay is a unique convergence zone for eagles along the Atlantic Coast of North America. It hosts over 1,000 breeding pairs of Bald Eagles year-round, plus thousands of migrant eagles from the southeastern US and northeastern US and Canada. Using the satellite tracking data, we can study the eagles' migration path, roosting patterns, foraging sites, and nesting sites. In addition, we can determine common causes of mortality and provide management recommendations to reduce future eagle mortalities. Eagles were tagged as nestlings or captured as free flying birds. We fitted eagles with backpack harness to hold the solar-powered transmitter in the middle of the eagle's back. Eagles were named after rivers and creeks in the Chesapeake Bay watershed, Canada, and Florida (wildlifetracking.org).”

http://www.seaturtle.org/tracking/?project_id=349



It's for the Birds

Peregrine Falcon

“Center for Conservation Biology began a research program called [FalconTrak](#) as a cooperative project designed to answer questions about the movements and survival of Peregrine Falcons (*Falco peregrinus*) within the mid-Atlantic region of North America. Sixty-one falcons were tracked between 2001 and 2012 with solar-powered, satellite transmitters to investigate the spatial dynamics of their annual cycle and to identify causes of mortality (The Center for Conservation Biology).”

http://www.seaturtle.org/tracking/index.shtml?tag_id=8175a

Northern Harrier

Avian Research and Conservation Institute

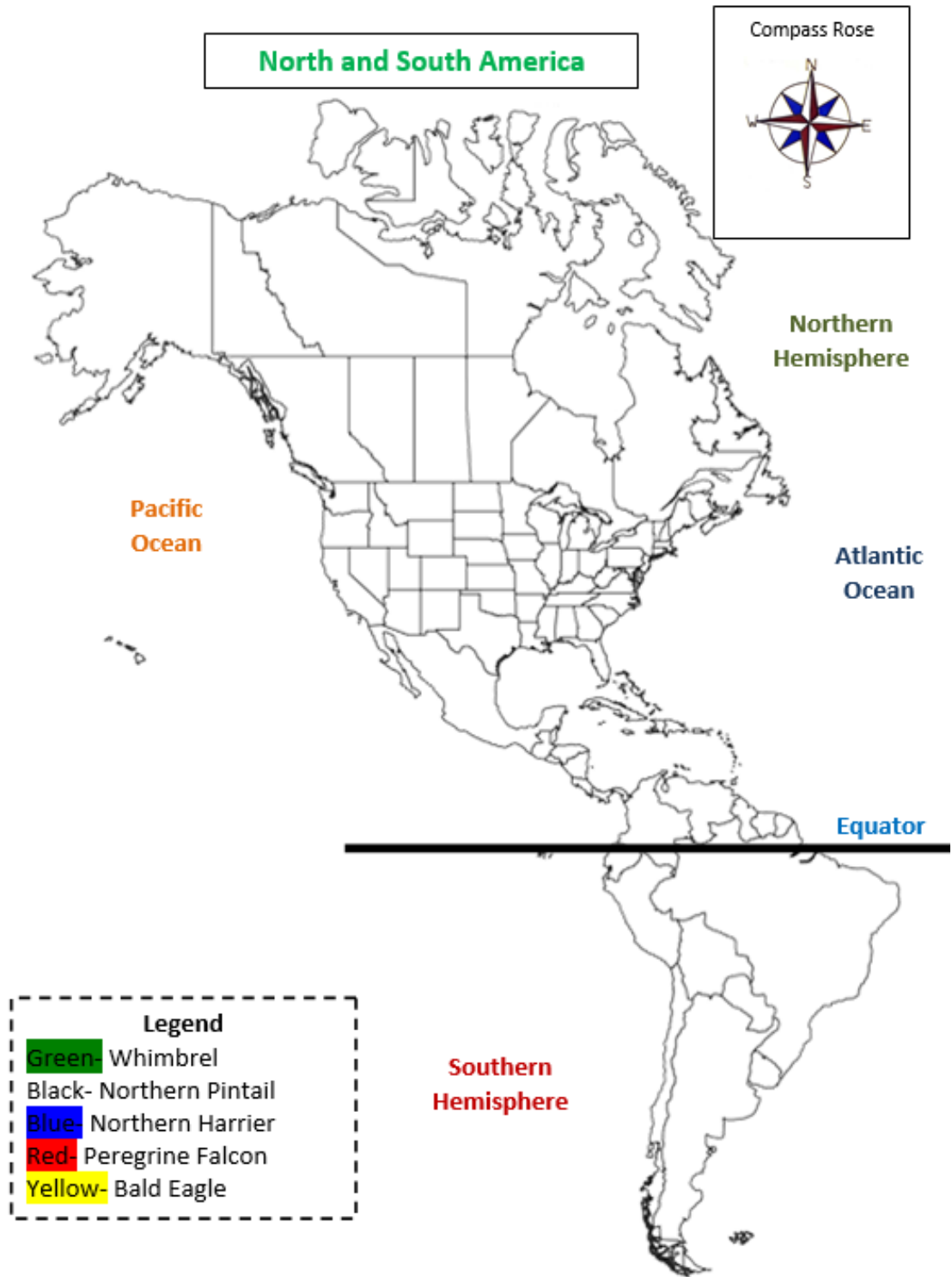
“During the fall of 2010 and again in 2012, we deployed satellite transmitters on a total of five Northern Harriers (*Circus cyaneus*) migrating through the westernmost reaches of the Florida Keys. This study was a first attempt at identifying pathways, stopover sites, and wintering destinations for this long-distance migrant (Avian Research and Conservation Institute).”

http://www.seaturtle.org/tracking/?project_id=556



It's for the Birds

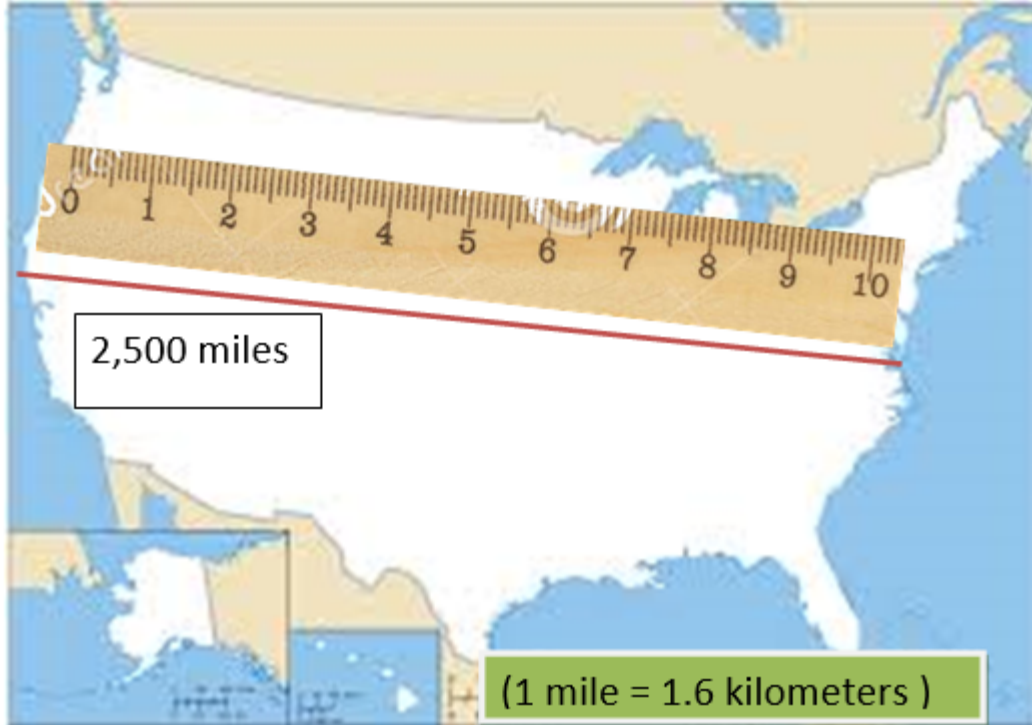
Sample Map for Mapping Migration



It's for the Birds

Conversion Sheet for Mapping Migration

Conversion Sheet
The United States



*This map is not to scale & numbers are rounded up or down.

Inches	Miles	Kilometers
1 in	250	1 mile = 1.6 km
East Coast to West Coast inches		E. Coast to W. Coast Kilometers
10"	2,500	2500 m = 4000 km




It's for the Birds

Migration Info Cards

Species: Bald Eagle
Life Stage: Sub- Adult
Gender: Male
Release Date: 10/17/2008
Release Location: Harford County, Maryland
Last Location: 10/10/2010

Bald Eagle Migration



This bald eagle is a summer visitor to the Chesapeake Bay.

In fall, this eagle flies to Florida for the winter months, a distance of 800 miles.

In spring, this eagle will return to the Bay to hunt spawning fish along the many tributaries of the Bay.

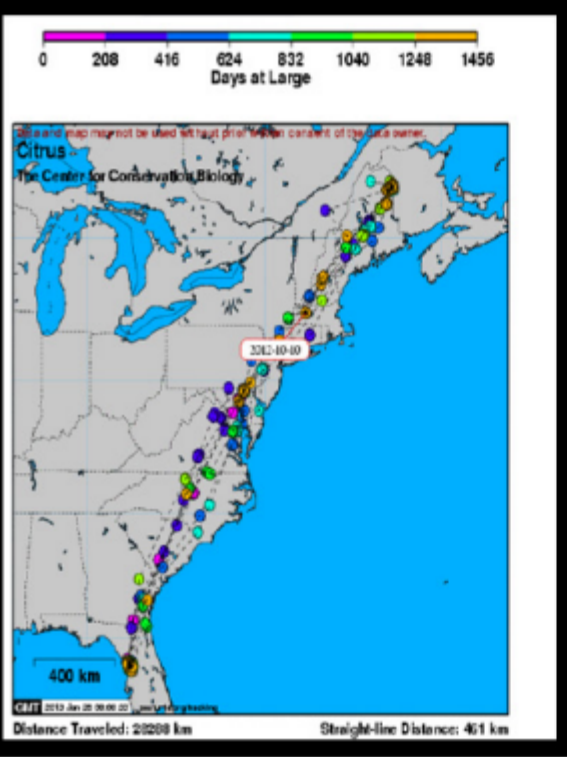
Bald eagles build their nests in large trees near rivers or coasts. A typical nest is around 5 feet in **diameter**.

Eagles often use the same nest year after year. The largest nest recorded weighed two tons. (National Geographic)

HABITAT- in FORESTS next to large bodies of water.

DIET- Fish, amphibians, invertebrates (like crabs), and some birds

Spring Migration
March 31, 2009 to June 8, 2009



Sticks placed in trees result in cylinder or cone shaped nests. Disk shaped nests are built on the ground or a tree branch which is nearly level. Bowl shaped nests occur where the tree trunk branches off into smaller upright branches.

http://www.wildlifetracking.org/index.shtml?project_id=349



It's for the Birds

Whimbrel Migration



Species: Whimbrel
Life Stage: Adult
Gender: Female
Release Date: 05/22/2013
Release Location: Bloody Marsh,
St. Simons Island, Georgia
Last Location: 09/14/2014

One of the most wide-ranging shorebirds in the world, the Whimbrel breeds in the Arctic in the eastern and western hemispheres, and migrates to South America, Africa, south Asia, and Australia.

Essential stopover sites (in and on waterways) allow whimbrels to refuel before the next leg of their journey.

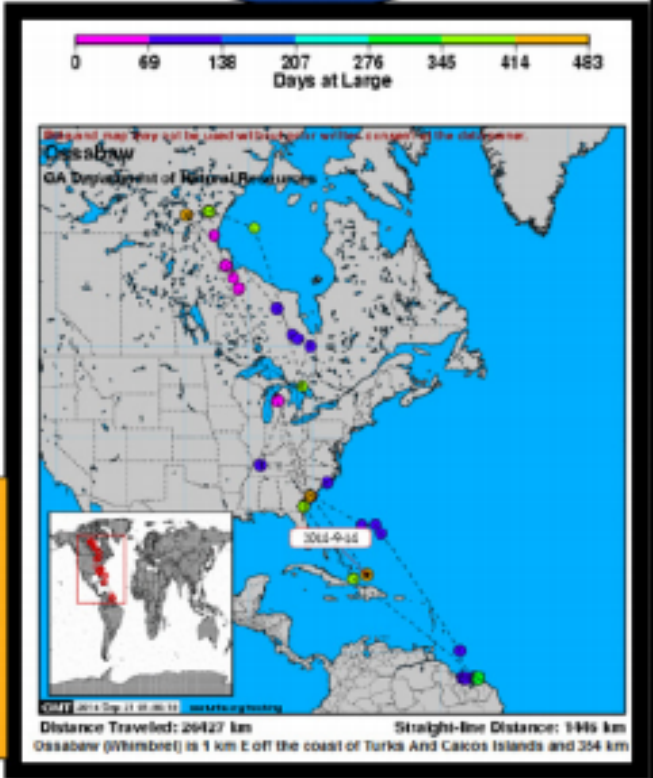
They use their long, down-curved bill to probe deep in the sand for food.

Whimbrels nest on the ground in a shallow bowl shape lined with leaves and grasses.

HABITAT- Tundra in wet, low areas, and dry shrubs. Winters on shores of coastal plains.

DIET- Invertebrates (insects and crabs), berries

Fall Migration
October 26, 2013 to November 27, 2013



Some migrating Whimbrels make a nonstop flight of 4,000 km (2,500 miles) from southern Canada or New England to South America.

http://www.wildlifetracking.org/index.shtml?project_id=369



It's for the Birds

Peregrine Falcon Migration



The word "peregrine" means wanderer or pilgrim. Peregrine falcons live all over the world.

On average, southbound migration is 2,000 miles.

Peregrine falcons do no nest building beyond a ritualized scraping of the nest ledge to create a depression in the sand or gravel of the nest site.

Scrapes area about 9 inches in diameter and 2 inches deep.

Other nesting sites include electricity lines and towers, quarries, silos, skyscrapers, churches, and bridges.

HABITAT- Open habitat but prefer coastlines, lake edges, and barrier islands.

DIET- Mostly birds: from shorebirds to songbirds, and occasionally fish.

Spring Migration
April 26, 2003 to May 18, 2003

DANGER!
Of the 11 tracked Peregrine Falcons:
7 flew into man-made structures
3 were killed in storms
1 was lost at sea.

http://www.allaboutbirds.org/guide/peregrine_falcon/id

http://www.wildlifetracking.org/index.shtml?tag_id=8175a

Species: Peregrine Falcon

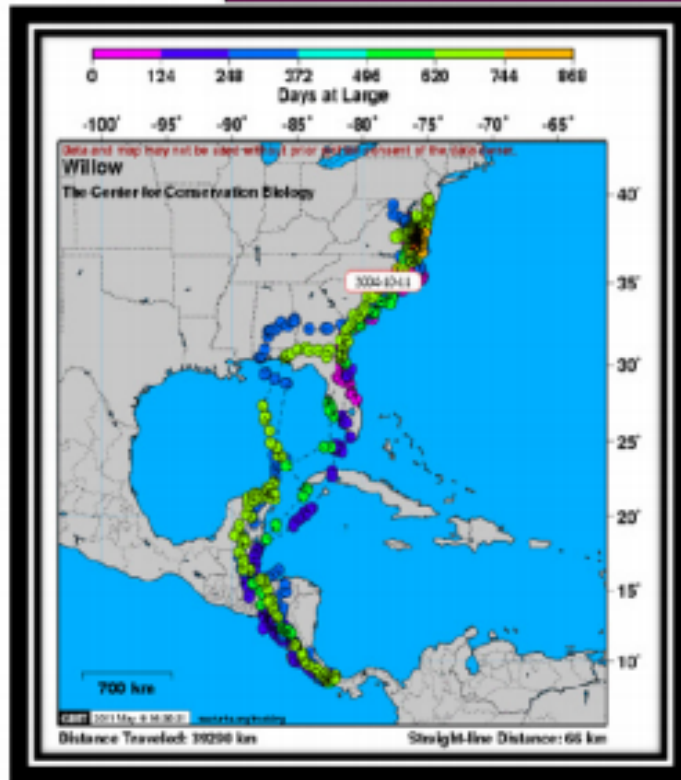
Life Stage: Juvenile

Gender: Female

Release Date: 5/31/2002

Release Location: Watts Island, Virginia

Last Location: 10/12/2004



It's for the Birds

Northern Pintail Migration

Species: Northern Pintail

Life Stage: Adult

Release Date: 02/04/2004

Release Location: Pine Island Hunt Club,
Currituck County, NC

Last Location: 10/07/2011, Refuge, Florida



The Northern Pintail stays in low, thick vegetation, such as freshwater marshes and lightly grazed meadows.

They can be found in old fields across Canada and the northern United States.

Northern Pintails are a highly prized species by hunters.

Their population has been in decline due to avian (bird) diseases, loss in habitat, and changes in farming practices.

Northern Pintails nest by scraping in the ground, in brush, or in grass. They line their nests with grass.



HABITAT- Large wetlands and grassland habitats.

DIET-Plants and small invertebrates



The transmitter batteries used to track these birds usually last an average of 169 days. This Pintail was tracked for almost 7 years!

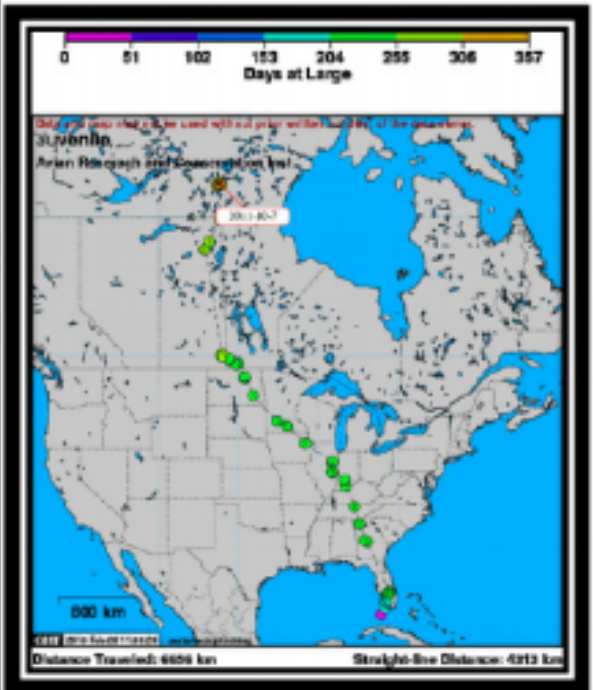
<http://www.ncwildlife.org/Hunting/waterfowl/SatelliteTrackingofNorthernPintails.aspx>




It's for the Birds

Northern Harrier Migration

Species: Northern Harrier
Life Stage: Juvenile
Gender: Female
Release Date: 10/16/2010
Release Location: Key West, National Wildlife Refuge, Florida
Last Location: 10/07/2011





Northern harriers fly low over the ground when hunting.

They weave back and forth over fields and marshes as they watch and listen for small animals.


They eat on the ground, or perch on low posts and trees.

Their nests are concealed on the ground in grasses or wetland vegetation.

HABITAT: Northern Harriers breed in grasslands or wetlands and prefer wide-open areas like fields, the Arctic tundra, prairies, deserts, and open marshes for hunting.

DIET: small mammals (mice, moles, voles), reptiles, amphibians, birds

Spring Migration: April 4, 2011 to June 6, 2011



http://www.seaturtle.org/tracking/index.shtml?tag_id=98355b
http://www.allaboutbirds.org/guide/northern_harrier/id



It's for the Birds

AFTER 3: Feeder Design Challenge

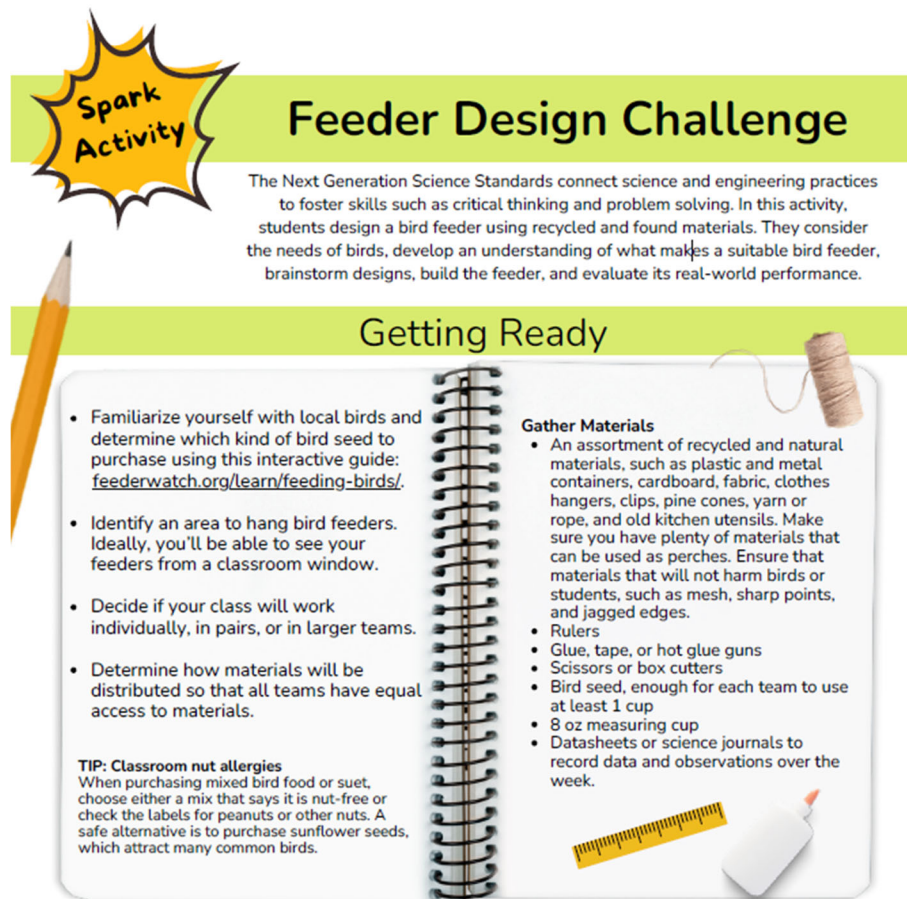
After your visit to apply knowledge about bird diet and habitat to building bird feeders. Students design a bird feeder using recycled and found materials. They consider the needs of birds, develop an understanding of what makes a suitable bird feeder, brainstorm designs, build the feeder, and evaluate its real-world performance.

Estimated time: two 45 minute sessions

Materials & Instructional Strategy

For all lesson components, see the downloadable PDF of the Feeder Design Challenge from Cornell University.

<https://www.birds.cornell.edu/k12/spark-guide-feeder/>



Spark Activity

Feeder Design Challenge

The Next Generation Science Standards connect science and engineering practices to foster skills such as critical thinking and problem solving. In this activity, students design a bird feeder using recycled and found materials. They consider the needs of birds, develop an understanding of what makes a suitable bird feeder, brainstorm designs, build the feeder, and evaluate its real-world performance.

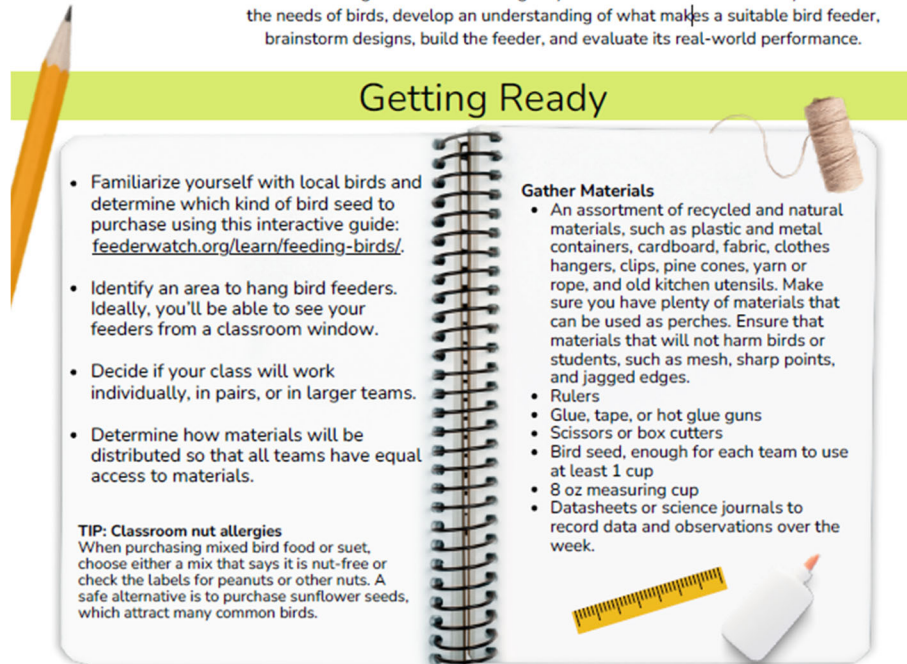
Getting Ready

- Familiarize yourself with local birds and determine which kind of bird seed to purchase using this interactive guide: feederwatch.org/learn/feeding-birds/.
- Identify an area to hang bird feeders. Ideally, you'll be able to see your feeders from a classroom window.
- Decide if your class will work individually, in pairs, or in larger teams.
- Determine how materials will be distributed so that all teams have equal access to materials.

TIP: Classroom nut allergies
When purchasing mixed bird food or suet, choose either a mix that says it is nut-free or check the labels for peanuts or other nuts. A safe alternative is to purchase sunflower seeds, which attract many common birds.

Gather Materials

- An assortment of recycled and natural materials, such as plastic and metal containers, cardboard, fabric, clothes hangers, clips, pine cones, yarn or rope, and old kitchen utensils. Make sure you have plenty of materials that can be used as perches. Ensure that materials that will not harm birds or students, such as mesh, sharp points, and jagged edges.
- Rulers
- Glue, tape, or hot glue guns
- Scissors or box cutters
- Bird seed, enough for each team to use at least 1 cup
- 8 oz measuring cup
- Datasheets or science journals to record data and observations over the week.



Distributing Materials

Distributing materials for the challenge can be chaotic with larger groups. To streamline, consider:

- Categorizing materials by size and allocating a quantity from each category to every group, e.g., one large item, two medium items, and five small items.
- Implementing a point system for material categories, limiting students to a certain number of points to "purchase" supplies. Assign a higher point value to larger or more desirable items, with smaller items like perches worth fewer points. This fosters critical thinking and creativity in designs.

Explain your distribution method clearly and let students review materials before starting their designs.

