The purpose of this mini-unit is to inspire critical thinking and generate discussion about the impact of birds on humans, society and the urban environment. It is designed to encourage students to make connections between themselves and the birds around them. By thinking critically and respectfully listening to their peers, students learn new things about birds in their city and consider bird conservation issues from a new perspective. Through activities, discussions and projects, students play an active role in exploring the world of urban birds and the larger ecological and societal role that urban birds are a part of.

**Note to Teachers:** This lesson incorporates the use of structured debate, research and the writing of a culminating paper. It is not within the scope of the lesson to provide methodology on those pedagogical strategies. If you feel that your students lack fundamental skills in these areas, we suggest the following to help students be successful:

- a) Referring to your school’s agreed-on approach to debating and research
- b) Collaborating with social studies and ELA teachers to create extensions that help practice these skills
- c) Modeling for students what you expect.

**Objectives**

Students will:
Think critically and generate discussion about the impact of birds on humans, society and the urban environment and ways in which humans in cities can help birds.

**Materials and Resources**

- The list of “What Has a Bird Done for You Lately?” statements and supporting information.
- Copies of the Moving Opinion Vote Tracker for each student.

**Setting**

The first activity can take place either indoors or outdoors, as long as the acoustics are appropriate for a quality discussion that everyone can hear and be engaged in and there is space for students to spread out to reflect their different opinions. The other parts of the unit can take place in a classroom.

**Time Needed**

To be determined by the teacher.
Birds are ever-present and are quite abundant in cities. No matter the species, birds make significant ecological and cultural contributions. Especially for the untrained eye, it is easy to take the important contributions of birds for granted. For that reason it is necessary to highlight birds and think critically about them. Birds embody numerous cultural, symbolic and economic meanings to different societies around the world. In urban centers, many ethnicities co-exist, providing a unique opportunity to share the variety of meanings birds represent to a variety of people from multiple backgrounds.

Urban birds are unique in their ability to adapt to and thrive in what appear to be ecologically limited environments. Scavengers like pigeons thrive because of the literal smorgasbord of food available on city streets. Insect and berry-eating birds also have an abundance of choices. As cities have made efforts to become greener and cleaner, natural food sources have flourished and therefore so have birds. For aquatic birds like cormorants, cleaner waterways mean more fish to eat. Ecologists often say you can tell how clean a body of water is by the size of the cormorant population. Cities also offer unique nesting sites and perches for birds of prey, such as window ledges and bridges. In addition, cities make for friendly rest stops for migratory birds. Bird-watching groups are less and less likely to leave the city to practice their hobby, opting instead for a stroll through their local urban park.

There is an important and unique connection between people in cities and birds. Urban wildlife can often get a bad rap. Not many people have nice things to say about common urban critters like cockroaches, rats and mice. While some people may find pigeons to be a nuisance and beachgoers may find a fight on their hands with some hungry gulls, birds represent that little bit of wild nature that is part of the urban landscape. Common species such as sparrows, starlings, robins and crows fill everyday life in cities. On a lucky day, one might see a Northern Cardinal, a Blue Jay, a Great Blue Heron, a hawk or a falcon. But whether it’s because they’re often overhead or we’ve just gotten used to them, we may be unaware of just how special and important birds are in our urban lives.

Pigeon breeding, a practice that dates back hundreds of years, is still alive on some urban rooftops. Often to the annoyance of neighbors and landlords, it is a passionate hobby for (mostly) men from countries all over the world. It serves as a connector to their cultural heritage and strengthens the human bond with nature. Although it’s not a good ecological practice, sitting on a park bench feeding the birds is still common in cities, providing a calming relief from the hustle and bustle of urban life. So although birds in the city may represent nuisances and possible carriers of disease to some, to others, having birds in the city – even pigeons – can bring joy and a unique connection to nature that is not as readily available among the concrete and asphalt.
Procedure

PART 1
Moving Opinion Vote

Note to Teachers: You will do this activity twice. The first time, it occurs right at the beginning of the mini-unit. It is assumed that students do not, at this point, have a lot of background about birds or the statements you will read to them. That is OK and is expected. The lesson is designed to get things started by having students share what they already know. It doesn’t matter if they are right or wrong, and it will be interesting and sometimes surprising to hear their thoughts. Even their misconceptions will be valuable to bring up in later discussions.

1. Challenge participants to share their ideas about birds through a “Moving Opinion Vote.” Indicate that one side of the room is labeled “Completely, Totally Agree” and the other side is labeled “Completely, Totally Disagree.” (As part of your preparation, you should post these statements on opposite sides of the room beforehand.)

Between these extremes is the range from agree to disagree. If students are undecided or neutral, they should be in the middle. Have all students begin the activity in the neutral location. The statements for you to read aloud are below. Ordered from most basic to most complex, they are for you to use as a tool to keep your group interested and thinking.

Once everyone is standing in the appropriate place, ask different students why they chose to stand where they did. If you want, share the background information provided about each statement and encourage further discussions and critical thinking. Remind your students that in this activity, there are no right or wrong answers. Students are entitled to change their minds and change positions as they listen to their peers. Encourage them to explain why they found a classmate’s argument so compelling.
Bird Statements

Notes to Teacher: While some information that supports opposing viewpoints has been provided, depending on how much time you have, you may want to assign students the task of researching these topics to add rigor and depth before entering into the second round of this activity. You may also choose not to read the point/counterpoint information and allow students to come to these conclusions on their own.

As in any activity like this, the issue of equitable opportunities to speak will arise. Some students will want to give their opinion constantly, others will never raise their hands and many will fall somewhere in between. Careful planning can prepare for this scenario. Here are a few of the many possible ways to manage it.

- Set up ground rules such as: You are allowed one comment per question; once you’ve spoken, you must wait __ minutes to speak again; once you’ve spoken, five people must speak before you speak again, etc.
- Only people who have a last name that begins with the letters A-M may speak for this question, etc.
- Create teams beforehand. Those teams earn points when a new person from their team speaks.
- You must repeat someone else’s point before you state your own.

Your skills as a teacher managing a classroom and creating an environment of respect and good listening will be your best tool for this activity.

Statement 1: Birds are cool!
Fact: Birds come in many amazing colors, shapes and forms, and have a lot of very interesting behaviors. On the other hand, some people are afraid of birds, find them to be a nuisance, or worry that they carry diseases.

Statement 2: Caging, killing or hurting one bird won’t affect bird populations.
Fact: On the one hand, one bird is just that – one bird – and it is only a drop in the bucket of thousands of birds. On the other hand, if every person, even in just one town or city, decided to cage, kill, or hurt one bird, the numbers would start to add up very quickly, and the impact on bird populations would be significant. Furthermore, to successfully protect bird populations now and into the future, it is important to create a culture of conservation attitudes and behaviors, and such attitudes and behaviors include being respectful of all birds – even just one – and not harming them in any way.

Statement 3: Plants and birds are equally dependent on each other.
Fact: Without birds to keep insect populations in check, insects would damage hundreds of trees by eating their bark and leaves. A real life example of how birds keep forests healthy is in the territory of Guam. Of the approximately 40 species of trees on Guam, about 60 to 70 percent once depended on birds to eat their fruits and disperse their seeds. The birds may have just nicked and dropped seeds somewhere along a flight path, or they could have swallowed the seeds, digested their tough coats and excreted them elsewhere. Sadly, this dependence is now apparent after the introduction of the Brown Tree Snake. The snake has decimated this island’s bird populations, and as a result its forests are suffering.

On the other hand, birds depend on plants for many of their needs. What needs do you think plants help birds with? (Examples: building their nests, providing their food)
Statement 4: Urban Gardeners and Farmers love birds.
Fact: Some gardeners and farmers feel a strong dislike for birds, which they say damage or destroy their crops. On the other hand, many birds help control agricultural pests. For example, research has shown that birds help reduce insect populations on coffee plantations, which contributes to more successful harvests and helps farmers earn higher incomes. In apple orchards, birds protect the crops by eating a major apple pest, the codling moth larvae.

Note to Teachers: A few years ago, the concept of farms might have been unfamiliar to students in cities, and this may still be the case. However, urban farms, urban farmers’ markets and community gardens have grown in number and popularity. This laudable trend has increased urban citizens’ awareness of the farm-to-table connection. If you feel your students are not familiar with this connection, this is an excellent opportunity for an extension to explore it. We leave this up to you. Enter “farms and cities” as a Google search and go from there. You could share the NPR podcast on Michelle Obama’s White House garden: http://www.npr.org/2012/05/29/153705721/the-first-lady-cultivates-american-grown-gardening or this YouTube video on a rooftop farm in New York City http://www.youtube.com/watch?v=t3mLPy0ttqc. The possibilities are endless.

Statement 5: Birds can help people earn money.
Fact: Birding is the fastest-growing outdoor recreational activity in the world. In Latin America, birding attracts thousands of tourists each year. For example, the Tourism Institute of Costa Rica calculated that almost half of the nation’s $1 billion tourism income in 1999 came from bird watching. In North America, about $20 billion per year is spent by Americans on bird-related materials such as feeders and seeds or on trips to see birds in other countries (such as Costa Rica).

On the other hand, birds can be costly to keep away from crops, airports, etc., and bird conservation efforts undertaken by governments and/or non-profit organizations can be very expensive.

Statement 6: Pigeons are a public nuisance and cost the city thousands of dollars a year.
Fact: As with most issues, there are two sides to the story, depending on who you ask.
Anti-pigeon arguments: “Pigeons carry a number of diseases and can cause excessive damage to city property, buildings, automobiles and machinery. Their droppings deface buildings and can also kill vegetation. The pungent odor and unclean appearance is unpleasant to passing pedestrians and customers. Economic losses can be significant due to the need to clean droppings, repair damage and to maintain safe working conditions. In addition, feathers can plug ventilation units and can cause other problems including health hazards. These problems require an expert that specializes in pigeon control. Pigeon droppings can transmit a number of diseases such as histoplasmosis, pigeon ornithosis, salmonellas, cryptococcosi, toxoplasmosis, and encephalitis. Pigeons can host numerous ectoparasites as well, such as ticks, flies, fleas, mites and biting lice. These ectoparasites infest buildings and can bite humans and pets, which is why it’s important to consult an expert to discuss pigeon control.” Source: www.crittercontrol.com

Pro-pigeon arguments: “Pigeons are flying street cleaners. They gobble up tons of bread, popcorn and other leftovers from humans each year. And pigeons have become part of the urban landscape around the world. They provide many city dwellers with beauty and companionship. In 1986 the Association of Pigeon Veterinarians issued a statement that concludes, ‘…to our knowledge, the raising, keeping, and the exercising of pigeons and doves represents no more of a health hazard
than the keeping of other communal or domestic pets.’ A spokesman for the American Pigeon Fanciers Council says this statement applies to feral pigeon flocks, too. He says the homing and racing pigeons that people raise stay healthy even though they often come into contact with feral pigeons.” Source: [http://www.birds.cornell.edu/pigeonwatch/your-questions/great-questions-about-birds/](http://www.birds.cornell.edu/pigeonwatch/your-questions/great-questions-about-birds/)

**Statement 7: For birds in desperate need of habitat, a small patch of forest such as an urban park, or buildings and other built structures are better than nothing.**

*Fact:* On the one hand, it is good for a bird to have at least a small patch of forest such as an urban park where it can build a nest, find food and raise a family. Some birds, such as pigeons, are even better adapted to the manmade surfaces in urban areas. That’s because human-made structures are good substitutes for the cliffs and ledges of the birds’ natural habitat. Other birds are also adept at making their homes in urban areas. To find out more, visit [http://www.50birds.com/dcitybirds.htm](http://www.50birds.com/dcitybirds.htm). Learn more about “funky nests in funky places” by ‘Celebrate Urban Birds’ and how birds can make themselves right at home in urban settings ([http://www.birds.cornell.edu/celebration/challenge/Funky2010/Funky%20Entries](http://www.birds.cornell.edu/celebration/challenge/Funky2010/Funky%20Entries)).

On the other hand, in a small patch of forest, predators such as chipmunks, raccoons and even bigger birds such as Blue Jays and hawks can get to birds more easily, so for a smaller bird, the task of raising a family becomes harder and more likely to be unsuccessful. Another problematic predator for birds is the house cat. Be sure if you own a cat to keep it inside, or put a bell around its neck that will alert birds to its presence.

**Statement 8: Cities can be welcoming rest stops for migrating birds.**

*Fact:* On the one hand, cities can be treacherous places for migrating birds. Many buildings leave their bright lights on all night (which is the time of day that birds do most of their long-distance flying). The lights disorient the birds, as they use the stars as one of their guides during migration. Many birds end up flying towards the light and hitting the windows of buildings, which often leaves them severely injured, or, in the worst cases, dead.

On the other hand, different organizations are working hard to help address this problem, such as FLAP (Fatal Light Awareness Program) in Toronto, Canada ([http://www.flap.org/](http://www.flap.org/)). There are also “Lights Out” campaigns underway by Audubon Society chapters in many major cities, including Toronto, Boston, Chicago and New York. These campaigns are intended to encourage building owners to turn off the lights at night during migration periods. You can help make cities more welcoming rest stops for migrating birds by volunteering for such organizations and campaigns, and/or by creating bird habitat (by planting trees and native species, or by putting out bird feeders and bird baths).

**Statement 9: Habitat loss is the biggest issue facing birds.**

*Fact:* Habitat loss is definitely a huge issue, because without habitat, conservation efforts cannot succeed. But birds are also harmed by bad habitat (discussed above); pesticide use in growing food; predators, migration challenges and climate change.

**Statement 10: Helping birds helps people.**

*Fact:* On the one hand, helping birds supports income-earning activities for humans, such as
agriculture and ecotourism. On the other hand, birds can also cause problems for people that lead to systematic bird-reduction policies. For example, in big cities, overwhelming pigeon populations can lead to concerns about sanitation and health.

Statement 11: I can help birds in my community.
Fact: Many birds migrate. In the Western Hemisphere, birds migrate between Central/South America and North America, while in the Eastern Hemisphere birds migrate between Africa and Europe. Therefore, it is equally important for these species to have good habitat across many nations. On the other hand, creating habitat and/or helping birds in your own backyard is a great way for you to make a difference when it comes to bird conservation, plus you set a good example for family, friends and neighbors, and can inspire them to help birds too!

Brainstorm examples of how you can help birds in your community, such as:
• Planting native species of flowers, trees, etc.
• Putting up nest boxes for species such as Eastern Bluebirds and Tree Swallows
• Encouraging family and friends to buy products that support birds, such as bird-friendly coffee and produce grown without pesticides

Statement 12: Birds have no impact on my life, so I really don’t need to worry about them or think about them. No information is given here as students should be encouraged to consider all that has been discussed up to this point in deciding on their opinion.

PART II
What does this qualitative data tell us about people’s perceptions of birds in cities?
1. Students keep track of their responses as they move through the activity using the Moving Opinion Vote Response Tracker.
2. Teacher takes note of how students positioned themselves (taking a photo would be even better so you know exactly who stood where) and of statements by students. These notes MUST be saved for later use.
3. Lead students on a guided reflection of these results. Here are some sample guiding questions for this reflection:
   • Why do you think birds are so appealing to some people and not to others?
   • Are they appealing to you? Why or why not?
   • Do you think birds benefit you? Why or why not?
   • Do you think birds benefit society? Why or why not?
   • How do birds benefit the urban environment?

*Optional Homework Assignment:
Students ask these same questions of people in their community, again keeping track of the results.

Students use the results of their in-class moving opinion poll and their community poll to answer the question: “What are people’s perceptions of birds in cities?” Students write a short essay that answers this question using the poll results (statistics) to guide their essay and support their statement.
PART III
Bird Observation Field Trip and Data Collection
Please see the lesson eBird and Citizen Science that appears later in this anthology.

PART IV
Urban Bird Research Project: Why should we care about the birds?
Note to Teachers: As was stated in the overview section, it is outside the realm of this lesson to discuss methodologies of teaching research skills to students and how to write a research paper. Again, if you feel that your students lack these skills, take a step back and spend time teaching them or collaborate with a colleague in your Social Studies or English departments. Also, you may want to work with a colleague who teaches students with special needs to create a modified version of this project.
Time: 3-4 weeks.

Week 1: Gathering of information, interviews and field observations.

1. Students choose an urban bird-related research topic
   Possible Topics:
   • Pigeons: disease carriers?
   • Rooftop pigeon breeding
   • Birds and their role in insect control in cities
   • Urban birds of prey – what is their ecological importance?
   • Bird adaptation in cities
   • Cities as stopovers for migratory birds

2. Students choose a particular argument that they will support or disprove through their research (to make it more interesting and challenging, you could require that students choose the opposite of their own viewpoint). For example, you could have a student write an article arguing that while some pigeons may carry diseases, they do more good than harm in cities.

3. Students spend a week researching this topic independently and interviewing urban bird experts in their city (such as the local Audubon chapter).

Week 2: Students write the first draft of a five-page report on their research topic and turn the draft in to their teacher for review (or set up an in-class peer review).

Week 3: Students edit and write a final research report and use findings to put together a creative visual presentation and prepare to report on their topic.
**Product:** In-Class “What Has a Bird Done for You Lately?” Celebration.
Students present their findings through their reports, visual presentations and oral presentations to classmates, teachers, parents, urban bird organization representatives, urban conservation organizations, parks department representatives and others.

**Assessment**

1. Repeat the Moving Opinion Vote activity to assess what students now know about urban birds and birds in general. When completed, show students the original way in which they placed themselves and share some of the original statements.
2. Take note of new responses to measure student learning.
3. Collect bird research papers and hear presentations. (Rubric for scoring to be determined by teacher).

**Helpful Resources**

Facts about pigeons:
- [www.birds.cornell.edu/pigeonwatch/your-questions/great-questions-about-birds/](http://www.birds.cornell.edu/pigeonwatch/your-questions/great-questions-about-birds/)
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