

Bird Safe Guelph: School Programs

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Thank you for taking the opportunity to help educate your students about avian conservation! At Bird Safe Guelph, we believe that we can make a meaningful impact to help protect wildlife, and that education is one of the best ways to achieve this goal. Our classroom package is geared towards primary school students from grades K-6 and provides an interactive and informative presentation that can be delivered within a 15 - 30 minute time period to best suit the needs of different ages. This presentation is divided into three sections:

- 1) A standard 15 to 20-minute talk, where you and your students can discuss the conservation challenges being faced currently, and how we can overcome them. This section encourages students to engage in wildlife conservation by asking them to relate their own experiences and ideas to meaningful conservation challenges. Passages that are italicized are intended to be presented as open questions to students that can then be expanded upon in subsequent slides.
- 2) An optional active, in-class game that should last between 10-15 minutes and allows students to learn about a specific conservation challenge through play. This can either be done in a large open space within a classroom or outdoors. (See post-lesson activities).
- 3) Optional take-home or in-class colouring and research projects for students to continue engaging with the concepts presented in these lessons at the instructor's discretion. (See post-lesson activities).

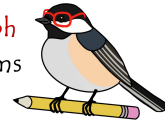
K – 2: Let's Learn About Birds!

Our K-2 module largely focuses on what makes a bird a bird, and why they are important. We invite your class to explore the key characteristics of birds, then discuss reasons why they think birds are important. At the very end we briefly touch on the three main conservation challenges that Bird Safe Guelph is tackling and suggest ways in which children can get involved.

We leave it up to the teacher to decide how best to deliver the content of this module, and provide a short (10-15 minute) presentation with examples of different topics to cover. Feel free to incorporate whatever we have provided or modify it as you see fit! At the end of this lesson plan we have provided two different activities that your class can choose to take part in to actively engage with the subject matter (see post-lesson activities).

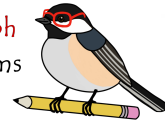
What are Birds?

- Ask students *what are some words that come to mind when they think of birds?*
 - Stuff like feathers, beaks, wings, songs will likely come up
- Ask the students *what they think the 6 defining features of birds are?* (They likely mentioned some of these in the previous question, so you can circle back to that and reinforce that they did a great job). Highlight that most of these features are not diagnostic of



a bird alone (many other animals possess some of these features, such as wings in bats and insects), but it's the combination of these six features that makes a bird a bird.

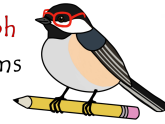
- This can either be done on powerpoint, or the visual assets from this slide can be taken and incorporated through another platform of the instructors choosing. One option is printing out each image and allowing students to actively place the appropriate features onto the bird.
- 1. Feathers
 - Birds possess specialized structures called feathers that provide insulation and help them fly
- 2. Wings
 - All living birds have a single pair of wings. Most birds use these wings for flying, but they can serve many other purposes such as swimming, producing visual displays, and even making sounds!
- 3. Beaks
 - Birds don't have teeth. All birds have a lightweight toothless beak
- 4. They lay hard-shelled eggs
 - All birds lay hard-shelled eggs. Most of you have probably eaten eggs before. These most often come from chickens!
- 5. Warm-blooded
 - Birds are warm-blooded animals, just like us mammals! This means that they can maintain a steady body temperature and stay active in cold weather
- 6. Lightweight Bones
 - Most birds actually have hollow bones. This helps them with flying as it reduces their weight.
 - I've also included a link to the bird anatomy tool at the Cornell Lab of Ornithology's All About Birds website (<https://academy.allaboutbirds.org/features/birdanatomy/>). Depending on how in-depth you want to go, this can let you cycle through all the different organ systems of a bird.
- They are actually dinosaurs!
 - The birds we see today [evolved from therapod dinosaurs](#) like velociraptor
 - The first bird we have evidence of is *Aurornis xui* (pronounced Awr-roar-nis so-ee)
- Birds are diverse!
 - There are over 10,000 species of birds! (Callaghan et al., 2021)
 - Birds are found on every continent
 - Some fly, some walk and run, and others swim!
 - What are some birds that you have seen?
 - Highlight both the Black-capped chickadee as Guelph's municipal bird, and the Common Loon as Ontario's provincial bird
- Birds are important
 1. Ecological significance
 - Birds are a crucial part of almost every ecosystem around the world
 - There are over 900 species of birds like the Ruby-throated hummingbird that are important pollinators for plants (C. H. Sekercioglu, 2006)



- Many species like the Turkey Vulture, are important scavengers that help clean up decaying organic matter and control the spread of diseases (Ç. H. Sekercioglu et al., 2021)
 - Some species even have very special mutualistic relationships with other animals, like the Egyptian plover, that helps clean the teeth of Nile crocodiles. The crocodile gets its teeth cleaned, while the plover gets an easy meal!
2. Cultural Significance
- Birds hold an important place in many cultures around the world
 - Such as the [Ruru/Morepork](#) of Aotearoa (New Zealand), which the Māori view as a watchful guardian from the spirit world. Its different calls are recognized as either a good omen or a warning.
 - Many countries have included birds as national symbols, like the [Bald Eagle](#) in the United States
 - The [Greater Honeyguide](#) helps with Yao people of Mozambique find bee nests. The bird and the people each have unique sounds they make to each other to communicate. In return for guiding the people to the bees, the honeyguide gets to eat the larvae and wax, which it would not be able to get at itself.
3. Economic significance
- In Canada alone, people eat around [822 million eggs a year](#) and raised around [233 million chickens](#) for food (as calculated from mean mass of poultry chicken/net mass produced for 2019).
 - Birds eat up to 500 million tons of insects every year! Many of these are species that would eat our food crops. (Nyffeler et al., 2018)
 - Birdwatching is becoming an increasingly popular hobby that lets people get outside, explore nature and find new birds. Kind of like real-life Pokémon! You can even download apps like [eBird](#) that help you identify and keep track of all the different birds you've found.
- *Does anyone have a cool bird story they would like to share?*

How you can help birds

- In this section you can review three of the main ways that people can help avian conservation, including:
 - 1) Bird-proofing windows
 - By providing opaque patterns on the exterior of your window, you can significantly reduce the number of birds that collide with windows, thinking the reflection is more green space.
 - 2) Turning your lights off at night.
 - Did you know that most migratory birds actually travel at night? Artificial light at night can disorient birds and draw them away from important stopovers. It also reduces their ability to use the stars for navigation on these long journeys.
 - 3) Keep your pet cat inside
 - Cats are amazing hunters, and account for an estimated 4 billion bird deaths per year in the United States alone! By keeping your cats inside, you keep both your feline friend, and your local birds safe.



Post-lesson activities

1) Piping Plover Game

This game is designed to have kids engage with and learn about a conservation concept through active play. While this game should be fun, it's also important to take a moment once it is over to reflect on the impacts that each of these slight changes to the game have on the piping plovers in this scenario. You can ask you class whether each of the following changes made it easier or harder for the kids playing as plovers:

- 1) Increasing the number of children playing as dogs
 - This simulates increased predator density and should have a negative impact on the plovers
- 2) Decreasing the number of markers available
 - This simulates the impacts of climate change on resource abundance, and should have a negative impact
- 3) Increasing the size/number of their safe zones
 - This simulates increasing protected areas for wildlife and should have a positive impact

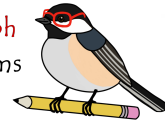
We hope, that through playing this game and reflecting on how each round goes that your class will both have fun and a greater appreciation for the impacts that (1) invasive predators, (2) climate change, and (3) conservation areas can have on wildlife.

Materials

- Markers (food)
- Cones (to mark safe areas)

Steps

- 1) First, scatter the markers across the floor (somewhere with lots of space, gym) or outside
- 2) Mark an area with cones that represents the Dunes, where the Piping Plovers can escape predators and humans (this is where they nest and often it is illegal to step on the dunes)
- 3) Randomly select some children to be the piping plovers, and for the first round, choose someone to be a dog
- 4) The dog must try to catch the piping plovers, who have to get at least three or more markers in order to survive the round
 - a. Each round should last 1-2 minutes
- 5) If they don't, they become dogs and must chase the rest of the piping plovers
- 6) Each round (up to instructor how many are played) replenish the markers
 - To make the game more challenging, explain that the summer is passing by, less insects are available because they hatched early due to global warming
 - Another addition that can be made is adding more safe areas or increasing/decreasing the size of the safe area for the piping plovers
 - This can be used to highlight the importance of protected areas for wildlife



End of game discussion

- Explain to the children or ask, was it harder to get markers when there were more dogs chasing you? (Trying to make connection that more traffic = less food)
- How does this connect to the real world and how piping plovers are affected?
- If added on challenge:
 - o How is climate change affecting birds? Why do you think there are less insects for the birds to eat later in the season?
 - o With added safe spaces, was it easier for piping plovers to get back to safety?

2) Colouring and livestream of bird nests

- a) At the instructor's discretion, you may elect to do a more subdued activity. In that instance, we have provided a booklet of printable colouring pages from the [Cornell Ornithology Lab](#) for students to colour while watching live camera feeds of a number of different birds around the world.
- The link to the Cornell All About Birds live-feeds can be found [here](#), or on the final slide of the presentation.
 - The species and locations available will vary throughout the year, so the instructor may need to try a few different cameras before finding one with anything going on.
- b) This activity can also be provided as a take-home exercise:
- Allow students to each choose a colouring sheet with a specific bird.
 - Ask them to research their chosen bird at home, colouring them in as close to their natural colours as possible, and provide one interesting fact about their chosen bird.

Primary Literature Cited

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