

UNIT 1

ENGLISH: RESEARCHING BIRDS IN MY YARD

LESSON DESCRIPTION

This lesson will permit students to conduct research about different birds that live in their municipality. The students will apply reading comprehension and research skills to explore the uniqueness of the fauna in Puerto Rico.

LESSON PLAN APPLICATION

The lesson plan corresponds to the Unit 3.1 of English. The plan can be used following a discussion on research skills.

STANDARDS AND INDICATORS

Reading:

- Conducting a critical reading of a variety of relevant texts to describe ideas, phenomenon, cultural identity and literary elements in texts, asking and responding questions of who, what, where, when, why, and how to demonstrate detail comprehension. Recognize the difference between data vs. opinion and between fiction vs. non fiction. (3.R.1)
- Use efficiently a variety of characteristics of texts (for example: titles, subtitles, glossary, index, menus, and icons) to locate data or key information in an informative text.

Writing:

- Using a variety of digital tools, including collaboration with classmates to produce and publish a text. (3.W.5)

LEARNING OBJECTIVES

The students will be able to:

- Classify birds as: endemic, migratory, and endangered.
- Carry out research about birds in their municipality.
- Produce an informational flyer about birds in their municipality.

TEMPORALITY

- 4 class sections

Day 1	Star 10 minutes	Development 45 minutes	Closing 5 minutes
Day 2	Star 10 minutes	Development 45 minutes	Closing 5 minutes
Day 3	Star 5 minutes	Development 50 minutes	Closing 10 minutes
Day 4	Star 10 minutes	Development 45 minutes	Closing 5 minutes



Fuente:

https://www.pinterest.co.uk/offsite/?token=274443&url=http%3A%2F%2Fwww.clker.com%2Fclipartbirds.html&pin=101612535312564081&client_tracking_params=CwABAAAADDM0MDkyNDc2MzE3OQA~0

MATERIALS

- Blackboard/Whiteboard
- Chalk or Whiteboard markers
- Library
- Computers
- Internet service
- Construction paper
- Pencil
- Crayons
- Glue
- Scissors
- Curly ribbon or string
- Bird information
- Photos of birds
- Worksheet (one per student subgroup)

VOCABULARY

- Endangered bird- The species of birds that are in danger of becoming extinct.
- Endemic bird- Bird exclusive to a specific locality or region.
- Migratory bird- Bird that every year travels, in the fall or the spring, from the place where the bird nests and returns the following fall or spring.
- Research- Activity has the goal of amplifying scientific knowledge.

CLASS GUIDE**TEACHER PREPARATION BEFORE THE CLASS**

- The teacher will realize a list of birds according to the number of subgroups (subgroups of 3 students) that corresponds to the number of students in the group.
- To complete the list of birds (with name and image), the teacher can follow the links below:
 - Birds in Dorado:
<http://ebird.org/ebird/pr/GuideMe?reportType=location&bMonth=01&bYear=1900&eMonth=12&eYear=2016&parentState=PR-DO&countries=PR&states=PR-DO&getLocations=states&continue.x=35&continue.y=14&continue=t>
 - Birds in Cataño:
<http://ebird.org/ebird/pr/GuideMe?reportType=location&bMonth=01&bYear=1900&eMonth=12&eYear=2016&parentState=PR-CT&countries=PR&states=PR-CT&getLocations=states&continue.x=21&continue.y=7&continue=t>
 - Puerto Rico eBird:
<http://ebird.org/content/pr/>
<http://ebird.org/ebird/pr/GuideMe?reportType=location&bMonth=01&bYear=1900&eMonth=12&eYear=2016&parentState=PR-FL&countries=PR&states=PR-FL&continue.x=58&continue.y=15&continue=t>

DAY 1: ASSIGNMENT

- The teacher will divide the group in subgroups of three students.
- Every subgroup will be able to choose the bird they would like to research.
- The teacher will turn in a sheet with instructions for the guided research project to facilitate the process to the student. The following information for the project is suggested (the teacher will design the sheet according to their criteria):
 1. Name of the bird
 2. Picture of the bird
 3. Classification: endemic, migratory, and/or endangered
 4. Places where the bird is found
 5. Places and season of migration (if applicable)
 6. Food that the bird consumes
 7. Factors that put the bird at risk
 8. Information that family and neighbors can provide about the bird
 9. The student will identify where they have seen the bird (moments of the year, places in the municipality)
- The teacher will explain of what the project Folleto Informativo de Aves de Nuestro Municipio consists of. The pamphlet explains the process of the project.
- The students will conduct the research using the library and/or internet.

DAY 2: START**Time: 10 minutes**

- The teacher will brainstorm with the concepts **endemic birds, migratory birds, and endangered birds**.
- Following this exercise, a relationship will be established in relation to the importance of knowing birds in the municipality, Puerto Rico, and the world and the factors that affect them (like climate change; consult Attachment 1). The teacher will stimulate students to learn about birds in their municipality through research.

DAY 2: DEVELOPMENT**Instructional Activities****Time: 15 minutes**

Simulation of research project:

- The teacher will explain what is the project Folleto Informativo de Aves de Nuestro Municipio.
- The teacher will conduct a simulation of the work on the board, the teacher will explain how the information on the worksheet (turned in on Day 1) will be used (see Attachment 2).

Alternate assignment: The teacher will be able to conduct with students the informational sheets and the pamphlet in digital format. In this manner, the teacher will have the opportunity to save the informational pamphlet in storage devices or will be able to send it through email to the students and/or parents, to be able to consult the information in a future occasion.

Time: 30 minutes

Collaborative work:

- The students will complete the worksheet in a collaborative manner in their subgroups.

DAY 2: CLOSING

Time: 5 minutes

- The teacher will provide a summary of the class.
- The teacher will indicate the assignment that will be continued in the following class: Writing the report of the assigned bird.

DAY 3: CONTINUATION OF COLLABORATIVE WORK

Time: 50 minutes

- The teacher will indicate the instructions related to the continuation of the collaborative work.
- The subgroups will create and write an informative sheet about the assigned bird, using the Venn diagram completed on Day 2 as a reference (see Attachment 3).

DAY 3: CLOSING

Time: 10 minutes

- The teacher will offer a summary of the class.
- The teacher will indicate the assignment for the following class: the creation of the informative pamphlet with the teacher and the oral report of the students.

DAY 4: START

Time: 10 minutes

- The teacher will explore what the students have learned throughout the research process.
- Explore the importance of knowing about trees in the municipalities. In this discussion, the teacher will review the concepts **endemic bird, migratory bird, and endangered bird**.

Guide questions:

1. Why is it important to learn about birds in our municipality?
2. How can we help protect birds in our municipality?
3. How do birds contribute to the environment?

DAY 4: DEVELOPMENT

Instructional Activities

Time: 15 minutes

Creation of informative pamphlet:

- The teacher along with the students will construct the informative pamphlet. They will design a cover page for the pamphlet.
- The teacher will gather the worksheets of each subgroup.
- The teacher will open three holes in the sheets to make a small book.
- The teacher will place a string through each hole to unite and tie.

Time: 30 minutes

Oral reports:

- Each subgroup will complete a brief oral report about the assignment.
- The teacher will facilitate the process of the oral report. They may use the following guide:
 1. Name of the bird
 2. Classification of the bird: endemic, migratory, endangered
 3. Relevant details of the bird
 4. What caught the attention of the students
 5. What information did family and neighbors provide about the bird
 6. How can the bird be protected

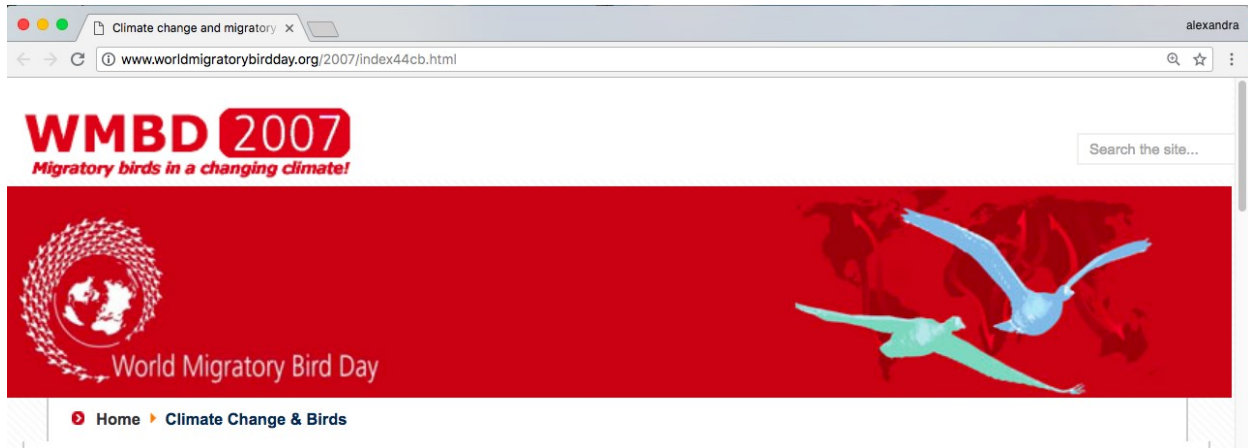
DAY 4: CLOSING

Time: 5 minutes

- The teacher and the students will offer a summary of what has been learned in the past four days of class.

ATTACHMENTS

Attachement 1. Educational source for the teacher



Introduction - The black stork exhausted

The black stork is exhausted. The long journey to his non-breeding grounds south of the Sahara desert was arduous. The majestic bird is desperately looking for a place to rest, where he can recover and refuel until taking up his journey to return to his breeding grounds in a few months time. But instead of water and wetlands, which were once common across the region, all he sees is sand and dust. Gradually his black wings flap more slowly and his tired eyes continue looking for a place to rest - in vain.



In a few decades, this scenario might become reality. We are on the best way towards it. Human-induced climate change has begun to affect our planet and the organisms that live on it. Many migrating birds are very sensitive to environmental changes and are already being affected by climate change. Increasing temperatures, changing vegetations and extreme weather conditions lead to significant changes of the birds' essential habitats. In many cases these are likely reasons for the decline of bird populations and changes in migration patterns.

The ways in which migratory birds respond to these environmental changes differ across species: Generally speaking, short and middle distance migrating birds can adapt to climate changes more easily, whereas long distance migrants are at a disadvantage. Their migration rhythm is usually more fixed and they struggle with readjustment to changing temperatures. Because of this rigidity they suffer more from the impacts of climate change than other birds.

Climate change is likely to impact migratory birds in a number of different ways. Increased storm frequency, lowered water tables, higher drought frequency, sea level rise and habitat shifts resulting from climate change could all have a dramatic impact on migratory birds. Currently, several different scenarios exist about the impact climate change will have on migratory birds and although it is difficult to make certain predictions, some of these include:

1. No Fuel on the flyway - The loss of habitats

One of the major effects of climate change is the loss of habitats. The habitats migratory birds depend on are in danger to change and to disappear due to increasing temperatures, flooding or desertification. Coastal wetland areas that migrating birds use for nesting and foraging are an example. During their migration, birds rely on these areas to provide food and resting places. There they can refuel and repose before continuing their long journeys. Rising sea levels due to climate change cause the flooding of these habitats and they are lost for birds and other animals. Without these stop-over places, the birds have insufficient reserves to continue and have difficulties completing their journeys.

The loss of habitats continues through increasing desertification for example of the Sahel region. Increasing populations lead to a demand for more land to grow crops and graze animals and to the intensified use of land. This contributes to further land degradation and leads to expansion of desert areas. Climate change worsens the effect by a decrease in rainfall in the Sahel region. As a consequence of the dryness, the desert expands further. The crossing of the Sahara is one of the most challenging parts of the birds' journey because they have no possibility of resting. The Sahara expansion, combined with destruction of the habitats, gradually makes it nearly impossible for African-Eurasian migrants to cross this ecological barrier successfully. A lot of them will fail and perish.



Other habitats, among them many breeding habitats, are also strongly affected, for example the Siberian tundra where many goose species breed. They use the tundra's rocky bedrock for breeding and raising their offspring. However, climate change is rapidly changing its vegetation structure: The increasing temperatures make the permafrost soil thaw, enabling forest to expand into the tundra. This new green carpet changes the habitat completely and makes it impossible for the geese to breed. Experts predict a loss of 10 to 93 % of the breeding habitat area of different arctic goose species as a result of this forest expansion.

2. Journeys cancelled - Climate change affects patterns of migration



won't survive.

Global warming also influences the routes of many migratory birds and their annual migration rhythm. A lot of migratory birds change their routes, shorten or completely cancel their journey as a result of changing temperatures. For example, some small bird species do not winter in Spain, France or in the north of Africa anymore. Instead, they prefer to stay in England, where they breed. Cranes, which normally migrate to Spain and Portugal, stay in Germany, accompanied by Starlings. Unfortunately their inactivity has severe consequences. They are not used to low temperatures and in case of a hard onset of winter, most of them

3. Sorry, no vacancies - Warm weather increases the competition for breeding places

Mild winters help resident birds to survive. They start to use food resources and breeding places of long distance migrants. As a consequence, long distance migrants might find their breeding grounds occupied by a large number of resident birds. This increases the competition between the species for food and breeding grounds.

4. The early bird catches the worm? Climate change leads to food shortages

The warm spring temperatures in some regions have led to an earlier arrival of many birds. For example, British birds arrive at their breeding areas two or three weeks earlier than they did thirty years ago. Thus, they start to breed earlier. At the same time, increasing temperatures also make the vegetation bloom and insects hatch earlier. Unfortunately, these shifts are not in line with each other. The vegetation bloom and insect peak occurs even before the young birds hatch. As a result of this mismatch, the birds cannot provide enough food for their offspring.

5. Global threat - Climate change amplifies the danger to migratory birds

The earth's climate has been changing throughout time. Some of the earth's bird species were able to adapt to these changes, while others could not and have become extinct as a result. This is a natural process. However, the climate change we are experiencing today is different: human-induced global warming is happening at an accelerated speed and it is becoming increasingly difficult for many bird species to keep up with the resulting shifts. In addition, adapting to climate change becomes even more difficult for some species, because other man-induced threats add to the challenge. The world's remaining habitats are also lost or degraded for many other reasons, such as pollution, fragmentation, or conversion and overbuilding. Furthermore, migratory bird species also suffer from barriers like wind farms or competition from newly introduced alien species. Species that are already on the decline due to these factors are especially vulnerable to climate change. In other words, for some species, climate change may give these already very vulnerable species the final push towards extinction.



Regarding the different threats migratory birds have to face, one thing becomes apparent: climate change is already happening and it endangers migratory birds. Especially long distance migrating birds feel the effect; as they are less flexible than other birds, they suffer most.

What can we do?

Climate change is in progress, and it is clear that it is affecting our environment, by adding to the disarrangement of ecological balances. It is not only in the interest of migratory birds, but also in our own interest to protect all species on the planet earth against the impact of climate change.

Although the process cannot be stopped completely, we have the possibility to interfere. Everyone can join the fight against climate change every day: reduce the energy you use, turn off the lights, reduce heating and take up cycling. Check if the ministry in your country provides information on climate change – there are many have useful tips about what you can do! Start the energy-saving habit today!

Another way to help is to inform others about these predicted impacts on migratory birds , by joining the World Migratory Bird Day 2007 campaign! This year's theme 'Migratory birds in a changing climate' highlights the impact and extent of climate change on migratory birds and also accentuates the need for more conservation. Join in, take action and raise awareness for the needs of migratory birds! Help protect one of nature's magnificent resources and let the Black Stork's journey succeed.

For more information on the topic of climate change and migratory birds please look at the links we provided for you in the **links section**.

Additional sources of information:

- Birds of Puerto Rico:
http://www.fs.fed.us/global/iitf/pubs/IITF_gtr35.pdf (consult pages 55-63)
- Endangered animals of Puerto Rico:
<http://drna.pr.gov/wp-content/uploads/2015/04/Animales-en-peligro-de-extincion.pdf>
- Video climate change and birds:
https://www.youtube.com/watch?v=aN2-a82_3mg
- Climate change and birds:
https://www.wwf.or.jp/activities/lib/pdf_climate/environment/wwfsummary.pdf,
<http://climate.audubon.org/>, <http://climate.audubon.org/sites/default/files/Audubon-Birds-Climate-Report-v1.2.pdf>

Attachment 2. Worksheet

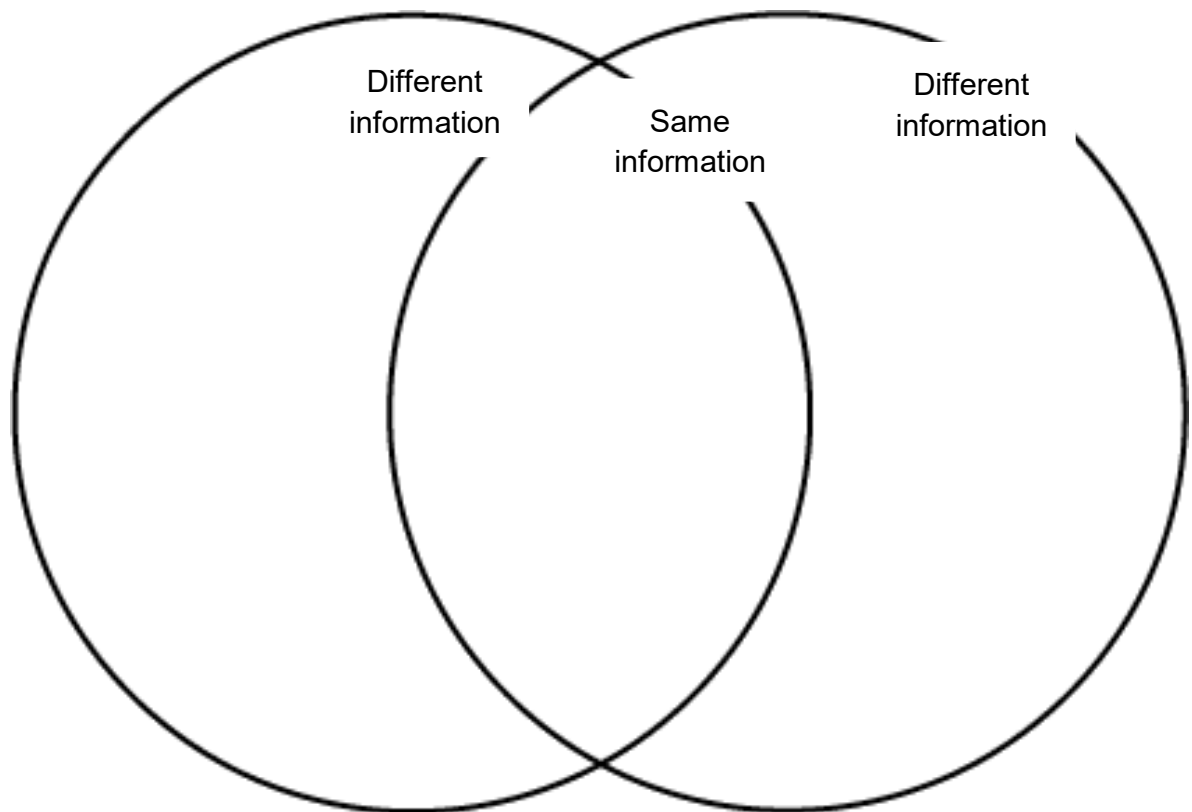
The birds in my yard

Names:

This is a Venn Diagram. It will help you organize the information you found in your research.

Instructions:

1. Write the information that you have in common in the circle identify as **Same information**.
2. Write the information that you do not have in common in the circle identify as **Different information**.



Attachment 3. Information sheet model

Nombre del ave

Lámina de ave

- Sentence identifying the type of bird (endemic, migratory and/or endangered)
- Sentence identifying the places where the bird is found.
- Sentence identifying the places and seasons where the bird migrates (if applicable)
- Sentence identifying the foods the bird consumes.
- Sentence identifying the factors that put the bird's life at risk.

REFERENCES

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