

Can that Bird Survive in Your Hometown?
Using Primary Sources in a Culturally Relevant Biology Classroom

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Background Information:

This lesson will take place at Roosevelt High School in the Albany Park Neighborhood of Chicago, IL. This lesson will be taught to a 9th grade English as Second Language (ESL) Biology class. There are 19 students in the class, six girls and 13 boys. Thirteen of the students are newcomers to the United States. There are nine different languages (besides English) spoken among the students (Spanish, Arabic, Gujarati, Serbian, Afrikan, Swahili, Karen, Karenni, and Burmese). The students English Language Proficiency (ELP) levels vary from level 1 (5 students), level 2 (6 students), level 3 (6 students), to level 4 (2 students).

Being newcomers to the U.S. these students have limited experience working with primary sources. Because this is a science class, the primary source that students are used to working with is data. This lesson falls during the unit on evolution. This lesson will take place in the middle of the unit. The teacher will provide background information like the scientists who first discovered the theory of evolution (Lamarck and Darwin), and how we know evolution has occurred. In addition, the day before this lesson, students will conduct a lab in which they will be given a tool that will represent their type of beak and they will travel to different stations in which they have to use their beak to consume the different types of food. From this lab, students will be able to analyze what type of food their beak is best suited for and explain why.

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Lesson Plan

1. Title

Can that bird survive in your hometown? Using Primary Sources in a Culturally Relevant Biology Classroom

2. Overview

During the unit and lesson, student thinking will be centered around the two essential questions how has an organism adapted to its environment and could the organisms found in Chicago survive in my hometown? During the lesson, students will work in pairs or groups of three to analyze a drawing to explain how a bird has adapted to its environment. Students will make connections to between analyzing the primary sources and the lab they completed the day before. Students will look for specific characteristics of the bird and determine how that bird fits in with its surroundings. The students will have to determine if the bird in their drawing would be able to survive in their hometown. Students have had discussions throughout the school year that address what “hometown” means to each individual student. Relating the content to the students’ home cultures engages them in learning and makes the content more accessible to them. Students will be assessed using their ELP level.

3. Objectives

- *Content Objective:* Students will be able to analyze a drawing to explain how an organism has adapted to its environment.
- *Language Objective:* Students will be able to analyze a drawing to explain in writing how an organism has adapted to its environment using a graphic organizer in pairs.

4. Standards (State and Common Core)

- NGSS: *HS-LS4-4* Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
- CCSS: *WHST.9-12.9* Draw evidence from informational texts to support analysis, reflection, and research.
- WIDA: *ELD Standard 4* English language learners communicate information, ideas and concepts necessary for academic success in the content area of science.

5. Time Required

One 50-minute class period

6. Recommended Grade Range

9th – 10th grade

7. Subject/Topic

Science - Biology

PREPARATION

8. Materials Used

Analysis tools, handouts, rubrics, PowerPoint slides, etc. needed to conduct the lesson

9. Resources Used

Title	The Evolution of a Cat-cher
URL	http://cdn.loc.gov/service/pnp/ppmsca/18700/18772r.jpg
Author	H.S. Crocker & Co
Date	Between 1827 and 1838

Title	American Crow
URL	http://cdn.loc.gov/service/pnp/cph/3b50000/3b52000/3b52300/3b52397r.jpg
Author	John Jay Audubon
Date	Between 1827 and 1838

Title	Blue-Winged Yellow Warbler
URL	http://cdn.loc.gov/service/pnp/cph/3b50000/3b52000/3b52300/3b52386r.jpg
Author	John Jay Audubon
Date	Between 1827 and 1838

Title	Coromorant
URL	http://cdn.loc.gov/service/pnp/cph/3b10000/3b14000/3b14800/3b14876r.jpg
Author	John Jay Audubon
Date	1871

Title	Gold Finch
URL	http://cdn.loc.gov/service/pnp/cph/3b50000/3b52000/3b52200/3b52224r.jpg
Author	John Jay Audubon
Date	No date recorded on caption card

Title	Ivory-Billed Woodpecker
URL	http://cdn.loc.gov/service/pnp/cph/3b50000/3b52000/3b52300/3b52390r.jpg
Author	John Jay Audubon
Date	1827

Title	Painted Bunting
URL	http://cdn.loc.gov/service/pnp/cph/3b50000/3b52000/3b52300/3b52366r.jpg
Author	John Jay Audubon
Date	1827

Title	The Yellow-Crowned Heron
URL	http://cdn.loc.gov/service/pnp/cph/3b50000/3b52000/3b52400/3b52404r.jpg
Author	John Jay Audubon
Date	Between 1827 and 1838

PROCEDURE

10. Description of Procedure

1. Bell Ringer (5 min): Does this image illustrate Darwin's theory of evolution or Lamarck's theory of evolution? Appendix A (pg. 7)
2. Discuss the bell ringer by defending their claim (3 minutes), have a student distribute the graphic organizers while discussing the bell ringer
3. Group students in similar first language groups, when possible (Maximum three students per group) (2 min)
4. Students will use the graphic organizer (pg. 6) to analyze one image, each group will have a different image Appendix B-H (pg. 8-14) (30 min). Teacher will walk around the room and ask/answer clarifying questions.
 - Anticipated student questions:
 - How do I spell... ?
 - What are the bird's features?
 - What do I have to write a question about?
 - Can I draw instead of write?
 - Anticipated teacher questions:
 - What does survive really mean?
 - How do you know?
 - What from the picture makes you say that?
5. Combine small groups to create a larger group. Students will discuss their image with the other pair. Give students sentence prompts to help with their discussion (8 min).
 - Sentence prompts:
 - This bird has _____ because there is _____ the environment.
 - This bird **would/would not** survive in my hometown because....
 - Did you notice anything about our picture that we did not say?
 - I wonder...
6. Exit Ticket (2 min): Write one thing that the other group said about how their bird adapted to its environment.

11. Extension Ideas

Students will pick an animal from their home country or hometown and explain if that animal would be able to survive in Chicago.

EVALUATION

12. Evaluation

Students will be evaluated on the completion of their graphic organizer, small group discussions, and exit ticket with their ELP in mind.

CREDITS

13. Designer(s)

Jillian Hartmann

Name _____

Date _____

Period _____

Station Number →	
Describe the bird.	
Describe the environment.	
How are the bird's features related to its environment?	
Could this bird survive in your hometown or home country? Why or why not?	
What questions do you have?	

Extension: Pick an animal from your home country. Would it be able to survive in Chicago? How do you know?

Appendix A: Bell Ringer - The Evolution of a Cat-cher



Appendix B: Source 1 - American Crow



Appendix C: Source 2 – Blue-Winged Yellow Warbler



Appendix D: Source 3 – Coromorant



Appendix F: Source 5 – Ivory-Billed Woodpecker



Appendix G: Source 6 – Painted Bunting



Appendix H: Source 7 – The Yellow-Crowned Heron

