

## **The Near Extinction of the Bald Eagle**

### **A Lesson for Grades 3-5**

**Note:** This lesson is based on the published lesson “Clues to the Past” from Science and Children, January 2010, Volume 47, Number 5.

It will take several days to execute this lesson plan. The pacing will depend on your students and schedule.

#### **Illinois State Standards for Learning:**

Goal 11-Know and apply the processes of scientific inquiry and technological design to investigate questions, conduct experiments, and solve problems.

Goal 12- Understand the fundamental concepts, principles, and interconnections of the life sciences.

State Goal 3- Write to communicate for a variety of purposes

State Goal 4- Use the language arts to acquire, assess, and communicate information.

#### **Materials:**

Chicken eggs (1 soaked in vinegar for 24 hours, 1 not) for each group

1 bag of clues in a paper lunch bag for each group filled with the following:

- 1 plastic insect
- plastic plankton
- 1 small plastic fish
- 1 large fish
- river and raindrops cut from construction paper (or printed out pictures)
- can of DDT (use a pop can with a label you have made) also include the DDT information printout`
- 1 farmers crop (a Ziploc bag filled with corn or wheat grains)
- Instruction sheet

Timeline of basic eagle facts.

## Eagle Fact Sheet

### Books about eagles

#### **Engagement: Mysterious decline**

1. Group students in the way you would like them grouped for working on these lessons.
2. Begin by telling students that eagles were very close to being extinct in the 1960's.
3. Ask students to discuss in their groups what might have happened to put the eagles in such danger. Discuss whole group.
4. Distribute the eagle timeline. Groups discuss any additional ideas they have based on the timeline. Discuss whole group.
5. Give each group of students two chicken eggs, one that has been soaked in vinegar for 24 hours and one that has not. The egg that has soaked in vinegar will have a very thin shell, down to the membrane. Groups should discuss how a thin shell could impact the hatching of new eaglets. Share whole group.

#### **Exploration: Teacher Directed Inquiry**

1. Each group is given a bag of clues from the eagle's habitat to piece together a possible reason for the decline of the eagle population. The instruction sheet should be provided to students along with the bag.
2. It is important at this point that groups understand that they must account for all of the clues.
3. Students at this point may decide that they need more information about eagles in order to account for all the clues. They may use the books you have provided about eagles, the internet, or the eagle fact sheet.
4. Once students have completed their diagrams each group will present their diagram and explain their thinking.
5. After all groups have presented, have a class discussion about the ideas and which seem most plausible. Any questions students have should be noted at this time.
6. If you have access to discovery education, view the video: "Eagles and the Effects of DDT on the food chain" Students should watch and determine whether their group solved the mystery.

7. At this point students could write an entry in their science log in which they discuss the clues from their diagram and how they are all connected.

### **Elaboration: Rehabilitators**

1. By now students should have discovered that DDT was responsible for the alarming decline in the population of the bald eagle, but now that that has been determined students need to think about, "What is next?"
2. Pose the following questions to students:  
If DDT is banned will the eagles recover on their own?  
How will the eagle populations be "brought back" now that the problem has been discovered? How long will it take? Who will be involved?
3. Brainstorm with students their thoughts on the questions mentioned in #2.
4. After creating a list of possible solutions give students tools to research the reality. In finding the answers, students should also consider the following questions:
  - Could this happen again?
  - Could it be happening now?
  - Could humans be unintentionally harming another species
5. Discuss whole group student's ideas in regard to the questions posed in #4. An extension activity could be for students to examine the declines in populations that are still unexplained. (Ex: honeybees, etc.)

### **Evaluation:**

Individual teachers will evaluate/assess students learning in a way most suited to their own programs.

Before the zoo trip talk to students about the fact that the eagle is the National Symbol of the United States of America. The eagle was named the national symbol in 1782. When the vote was taken the eagle beat another large North American bird by one vote. You may want to ask students to brainstorm a list of birds that could have been the second runner up.

Share the lists and discuss why the birds that students came up with might make a good national symbol. Share the correct answer with students. (The wild turkey was the bird supported by Benjamin Franklin that took second place to the

eagle.) Distribute the wild turkey fact sheets for students to read in preparation for the zoo trip.

## **At the Zoo**

Give students two copies of the animal information sheets and one copy of the Venn diagram. Students will use one animal information sheet for the turkey and the other for the eagle. As they visit these birds at the zoo, they will work together to fill out the information sheets.

When they have finished filling out the information sheets they will complete the Venn diagram in order to compare and contrast the two birds.

## **After the Zoo**

Upon your return from the zoo, you may want to have students use the information they have learned to do some writing. Below is a list of prompt suggestions.

- As you learned, the turkey and the eagle were both in the running to be the National Symbol of the United States. Choose the turkey or the eagle and write a paper to convince the reader to choose your bird as the National Symbol of the United States.
- In learning about the turkey and the eagle at Phillips Park Zoo you found that the two birds have many similarities and differences. Write a paper discussing either the similarities or the differences.
- Choose either the eagle or the turkey and write a paper discussing how the physical appearance and adaptations help it to survive in its environment.
- Write a paper discussing DDT and how it impacted the eagle population in the United States. Also, discuss how the eagle recovered and its current population status.



