

LESSON: Student Solutions for Endangered Species

GRADE: 3

OBJECTIVES:

Biological Evolution: Unity & Diversity

- **3-LS4-4** Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

MATERIALS & RESOURCES:

- Access to internet:
 - Success Stories for Endangered Species-<http://www.esasuccess.org> (click on “Find Species in Your Region”)
 - Statistics for Endangered Species-
<http://www.statisticbrain.com/endangered-species-statistics/>
 - Endangered Species website- <http://www.fws.gov/endangered/>

PRESENTATION:

Many animals and plants have been added to the list of the Endangered Species Act (1973) because they need protection or they won't exist anymore. The problems which lead to extinction are complicated and so are the solutions. In this activity, students get to look into the solutions that have been used to preserve endangered animals or plants. It's important to understand the problem in order to design a solution. Students get to participate in a team competition in which each team will choose an endangered species to learn about and then design a solution. The solutions will then be evaluated by the rest of the class. There are a variety of categories which make a good solution. Each team can win in a particular category. Maybe it will be the “Best in Creativity” or the “Most Likely to Be Successful” award.

DIRECTIONS:

1. As a class, become familiar with the concepts listed below. There is a vocabulary list included later in the lesson plan:
 - Species
 - Endangered and extinct
 - Environmental changes: land characteristics, water distribution, temperature, food, and other organisms
 - Endangered Species Act
2. Divide children into teams. Give them time to explore the information about the success stories of the Endangered Species Act. They can find stories about various species with short synopsis of what caused the environmental change and the solution. Use this website: Success Stories for Endangered Species-<http://www.esasuccess.org>
3. Have the children evaluate the solutions. Encourage them to be specific about what they find useful and not so useful. Encourage them to offer alternatives even if they think the current solution is good. There might be more innovative solutions.
4. Have the teams choose a species of plant or animal from the Endangered Species List. Use this website: Endangered Species website-
<http://www.fws.gov/endangered/>
5. Each team should identify and write down the change or problem that is leading to endangerment and what they think could be done to help that species cope with the change in the environment. Encourage them to write down all ideas to begin with. Sometimes great ideas seem silly at first but end up being really successful.
6. Ask the kids to come up with a short list of characteristics of a good solution. For example: creative, practical, inexpensive, easily implemented.
7. Once they have narrowed the list of solutions, have them share their “recommended solution(s)” with the rest of the class. The class then evaluates. Use characteristics of success for categories. Each team should be receive at least one category award.

Garden Unit Directions: What organisms are crucial to growing food? For step number 4, have students choose species which are important to the garden. Pollinators, decomposers, seed dispersers, plants that attract pollinators, plants that repel pests? Are there plants or animals that do these jobs but are endangered? Honey bees, monarch butterflies, milk weed are a few examples.

TIME:**45-60 min**

Successful Endangered Species Stories

Problem Solution

Aleutian Canada goose Once nearly driven extinct by foxes introduced to their nesting islands in Alaska and by habitat destruction and hunting in California and Oregon, Aleutian Canada geese are today a clear success story. After a small population was found on a remote Alaskan island in the Aleutian chain, the goose was listed as an endangered species in 1967. Nonnative fox populations were controlled, nesting habitat was protected with the Alaska Maritime National Wildlife Refuge's creation in 1980, and wintering and migration habitat was protected in California and Oregon. The Aleutian Canada goose population grew from 790 birds in 1975 to more than 60,000 in 2005. It was down-listed to "threatened" in 1990, declared recovered and removed from the endangered list in 2001, seven years earlier than projected by its recovery plan.

American peregrine falcon The use of DDT and other organochlorine pesticides thinned American peregrine falcon eggshells, causing reproductive failure and population declines. The banning of DDT, captive-breeding efforts and nest protections allowed falcons to increase from 324 breeding pairs in 1975 to 3,005 pairs as of 2006. The species was delisted in 1999.

Gray Wolf Western Great Lakes Hunting and persecution drove the gray wolf to near extinction, with only a small number of wolves remaining in Minnesota and Michigan when the species was listed in 1974. The total Great Lakes wolf population increased from fewer than 1,000 at the time of listing to approximately 4,013 in 2008. In 1974 the gray wolf became one of the first species protected (illegal to kill this species) under the 1973 Endangered Species Act.

Vocabulary

Act- a law, a formal written record of transactions, proceedings, etc, as of a society, committee, or legislative body

Endangered- any species which is in danger of extinction

Environment- The circumstances or conditions that surround one; surroundings.

Extinct- No longer existing or living.

Habitat- The area or environment where an organism or ecological community normally lives or occurs

Interdependent- depending on each other

Merit- An aspect of character or behavior deserving approval or disapproval

Migration- The seasonal movement of a complete population of animals from one area to another. Migration is usually a response to changes in temperature, food supply, or the amount of daylight, and is often undertaken for the purpose of breeding. Mammals, insects, fish, and birds all migrate. The precise mechanism of navigation during migration is not fully understood, although for birds it is believed that sharp eyesight, sensibility to the Earth's magnetic field, and the positions of the Sun and other stars may play a role.

Non native- An introduced, alien, exotic, non-indigenous, or non-native species, or simply an introduction, is a **species** living outside its **native** distributional range, which has arrived there by **human** activity, either deliberate or accidental.

Persecution- to persecute: to subject to harassing or cruel treatment

Pesticide- any chemical substance used for killing pests, as insects, weeds, etc.

Protected- kept safe or defended from danger or injury or loss

Species- United States environmental law passed in the 1973. It is designed to protect critically imperiled species from extinction as a "consequence of economic growth and development un-tempered by adequate concern and conservation."

Threatened- any species which is likely to become an endangered species within the foreseeable future.