



**Animals in Jeopardy
Grades 4 - 6
Teacher Packet**

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For age-appropriate In-Zoo Activities, please visit:

<http://www.pittsburghzoo.com/zoo.asp?ContentID=228>



Animals in Jeopardy

Grades 4 – 6

In a lively game of endangered species jeopardy, this class examines why animals are endangered and what zoos are doing to help in the conservation of these incredible animals.

Academic Standards for Environment & Ecology

- 4.2 Renewable and Nonrenewable Resources
 - B Identify products derived from natural resources
- 4.7 Threatened, Endangered, and Extinct Species
 - A Identify differences in living things
 - B Know that adaptations are important to survival
 - C Define and understand extinction
- 4.8 Environmental Laws and Regulations
 - A Know that there are laws and regulations for the environment



Background Information

It is no secret that animals are in trouble. Scientists estimate that an animal species may go extinct each and every day, however, no one really knows for sure. When humans focus their efforts, we have succeeded in bringing animals back from the brink of extinction. The most important step in this reversal is discovering the threats all animals face that put them in this state of peril. One method used to understand these threats is through studying the "HIPPO Dilemma." The HIPPO Dilemma uses the acronym "HIPPO" to teach about the most significant threats all animals face. This acronym in no way refers to an actual species of hippopotamus; each letter stands for a wide-spread problem that contributes to declines in biodiversity.

"H" stands for Habitat Loss, perhaps the greatest threat to all animals. An animal's habitat features all the necessities of life including access to food, water, shelter, and space. When people cut down forests, dig mines, build cities, or make roads, they destroy habitats.

"I" stands for Introduced Species. An animal introduced to a new area competes with native species for resources. In some cases, an introduced species is more successful than and proceeds to decimate its native counterpart.

The two "P's" stand for Pollution and Population growth. Pollution affects animals both directly and indirectly. For example, acid rain destroys forests, oil spills kill coastal plants and animals, poisons wash into waterways, and plastic trash entangles wildlife. The second "P" represents the number of people on our planet. Currently, our planet houses over 6 billion people. All of whom compete for resources such as food, water, medicine, clothes, shelter, and fuel, which affects how much the animals have.

"O" stands for Over-consumption. In particular, many experts believe that industrialized nations consume resources at a rate faster than the resources can be reproduced. People everywhere must learn to reduce consumption, reuse, and recycle the Earth's resources.

This "HIPPO" acronym helps us to recognize the many threats to the future of all species. Through the enactment of such laws as the Endangered Species Act, the Marine Mammal Protection Act, and the Convention on International Trade of Endangered Species, threats to species survival are being addressed judiciously. Zoos undertake many efforts to protect animals from extinction, most notably education programs and the Species Survival Plan or SSP. This plan is put into action by accredited zoos to provide for the most diverse gene pool possible among the captive population of some endangered species. Zoos are careful to maintain as much genetic diversity as possible in order to obtain a viable population should the animal in question become extinct in the wild.

The best thing that anyone can do to combat these threats is to educate themselves. Learn about the issues and decide how you can make a difference, then share this knowledge with family, friends, and colleagues.



Vocabulary

Adaptation - Behavioral or physical change that improves a plant or animal's chance for survival in its habitat.

Biodiversity - The variety of life on our planet.

Carrying capacity - The maximum number of healthy individuals within a species that a habitat can sustain.

Conservation - The wise use of natural resources in order to ensure continued availability to future generations.

Ecology - The study of the interrelationships among organisms and their environment.

Ecosystem - An ecological community together with its environment, functioning as a unit.

Endangered - A species at risk of becoming extinct unless conservation measures enable the populations to increase.

Endemic - An animal found in only one certain region on the planet.

Introduced or exotic species - An organism that is introduced into a new area; one that is not native to that area.

Extinction - The complete loss of a species.

Habitat loss - The depletion of natural settings due to human activity or natural disasters.

Keystone species - A single species of critical importance to the stability of an ecosystem.

Niche - The role played by an organism in a biological community.

Non-renewable resources - Non-living resources which do not regenerate themselves.

Overconsumption - The excessive use of an animal by humans that results in a decline in the wild population of that species.

Pollution - Any substance that destroys the purity of land, air, or water.

Population - The number of people living within a specific area.

Reintroduction - The release of an animal or plant species into its natural range.

Renewable resources - Living resources which have the capacity to regenerate themselves.

SSP - Species Survival Plan, a program to ensure the continuation of endangered species in captivity.

Threatened - An organism whose population is declining in numbers, but has not yet become endangered.



Suggested Reading List

Biography of a Rhino by Alice Lightner Hopf
Children Save The Rainforest by Dorothy Hinshaw Patent
The Chimpanzee Kid by Ron Roy
Gentle Ben by Walt Morey
Jeremy and the Gorillas by Lilian Bourd
Journey of the Red-Eyed Tree Frog by Martin and Tanis Jordan
Julie of the Wolves by Jean Craighead George
Panther Dream by Bob and Wendy Weir
The Jungle Book by Rudyard Kipling
The Leopard by Cecil Bodker
A Tiger for Malgudi by R.K. Naryan
Travelers by Night by Vivien Alcock

Teacher Resources

Ecology, Usborne Science & Experiments by Richard Spurgeon
Elephants and Other Giants by Eleanor Graves
Endangered Animal Babies by Thane Maynard
Endangered Arctic by Toni Albert
Endangered Coral Reef by Toni Albert
Endangered Oceans by Toni Albert
Every Day is Earth Day by Kathy Ross
How the Environment Works by Preston Gralla
Mountain Animals in Danger by Gary Turbak
Ocean Animals in Danger by Gary Turbak
Ranger Rick's Nature Scope: Endangered Species: Wild & Rare edited by Judy Braus
Ranger Rick's Nature Scope: Problems and Solutions edited by Judy Braus
Sea Otter River Otter by Sandra Chisholm Robinson
Take Action - An Environmental Book for Kids by Ann Love and Jane Drake
Who's Endangered on Noah's Ark - Literary and Science Activities for Teachers and Parents by Glenn McGathery and Norma J. Livo
The Wonder of Wolves by Sandra Chisholm Robinson

Internet Resources

www.scilinks.org
www.endangered.fws.gov/kid_cor
www.wildones.org/teachers
www.izoo.org
www.resinets.com
www.aacps.org/aacps/boe/INST/CURR/COMED/approved/Science
www.curriculumweb.org
www.FunBrain.com-Kids



Endangered Species Act: To Be or Not to Be?

Pre -Visit Activity

Time Required: Three Class Periods

OBJECTIVES:

- TSW define the term endangered as a species whose population is at risk of extinction unless conservation measures enable populations to increase.
- TSW will understand the impact of the Endangered Species Act (ESA)
- TSW will debate the common arguments in favor and in opposition of the ESA

MATERIALS:

- Stuffed animals (one per student)
- Blankets (minimum of three)
- Rules for Debate handout
- "Who Would You Save First" handout

PROCEDURES:

ANTICIPATORY SET: Animal Toss / Blanket Activity

1. Lay out the blankets on the floor and distribute the stuffed animals to each of the students. Explain that the students are trees in the forest, and the blankets are the forest floor which provide the homes for the animals that they are holding. Have the students stand on the blankets.
2. Ask the students to attempt to define the word endangered. Write the following definition on a chalkboard. *Endangered – A species whose population is at risk of extinction unless conservation measures enable populations to increase.*
3. Challenge the students to come up with reasons for endangerment. As the students give a reason, take away some of the trees. As the trees are removed, have them give their animal to the remaining trees to hold. Once a tree has been removed, it needs to leave the forest (step off the blanket). When only a couple of trees remain in the forest, remove the blanket to show that this is an acre of forest that is no longer available as animal habitat. Continue to have students name the reasons until there is only one blanket left. Ask the students to come up with ideas that promote healthy habitats. As they name reasons, allow them back into the forest (blanket).
4. Introduce the Hippo Dilemma – the five basic reasons for endangerment.
 1. H = Habitat loss
 2. I = Introduction of exotic species
 3. P = Pollution
 4. P = Population
 5. O = Over consumption



DEVELOPMENT OF LESSON:

Period One:

1. Review the term endangered.
2. Explain that the class will debate the whether or not the ESA should be reenacted.
3. Divide the class into two groups. One group is to do research on why the ESA should not be reenacted, and the second group is to research why the ESA should be reenacted.
4. Inform the students that they will need to keep an accurate bibliography which must include the following:
 - One encyclopedia or book
 - One environmental organization
 - One internet site
5. Distribute and review the *Rules for Debate* handout.

Period Two:

1. Have the students research their position and formulate position statements.
2. Use the following questions to guide the students in their research.
 - How many US endangered species are listed?
 - How many endangered species have been removed from the list?
 - When was the ESA first enacted? When did it come up for renewal?
 - Does the cost of saving endangered species justify continuation of the practice?
 - Does the ESA work?
3. Each group will need to pick two spokespeople.

Period Three:

1. Arrange the classroom to facilitate the debates.
2. Each team is to be given three minutes to state their position after which the opposing team is given one minute of rebuttal time.
3. Once the debate is finished, the teacher is to summarize all points addressed during the debate. Have the students act as a legislating body and vote on the reenactment of the ESA.

SUMMARY:

Discuss with students the importance of communication and public awareness of environmental issues. Encourage the students to continue research on their own.

EXTENSION:

Who Would You Save First? This attached activity challenges students to determine an order of importance in saving endangered animals.



Rules For Debate

- State your position at the beginning and end of your presentation, and several times in the middle.
- Anticipate your opponent's arguments beforehand and point out the weaknesses.
- Use visual aids (blackboard, handouts, overhead projector etc.) to support your position.
- Conclude your argument by summarizing your major points.
- Leave personal views and experiences out of the presentation. Concentrate on arguments and think through your position. Present only the facts.
- Speak loudly and clearly, and address your remarks to the audience.
- Speak confidently; always sound as if you believe absolutely in what you are saying.
- Use notes; always prepare more notes than you think you will need. If you feel that you are running out of time, skip some of your notes and jump to the conclusion.
- Never agree with the other side or suggest compromise positions.
- If a team is proposing a plan of action, they must show supporting evidence or proof that the plan is needed. Facts presented in this manner must be accurate.
- No new arguments may be introduced during rebuttal of the opposing position.



WHO WOULD YOU SAVE FIRST?

Post-Visit Activity

1. What are some of the factors that should be considered when making decisions about protecting endangered species?	
2. Your town is thinking about building a recreation center in your neighborhood. But the proposed site is the home of an endangered insect, and building the center might wipe out the insect. Do you think it's okay for the recreation center to be built on that site? Explain your answer.	
3. Would you feel differently if there were an endangered bird living on the site where the center might be built? Why or why not?	
4. Which of the following do you think is most important to save? <ul style="list-style-type: none"> • Animals that are very beautiful • Large animals, such as whales and giant pandas • All types of animals • Animals that provide people with food or clothing • Animals that live in the United States 	
5. You have been put in charge of a team that will be working to save the ten endangered species listed below, but you have only enough money and materials to work with one species at a time. Number the animals in the order you would try to save them, with #1 being the most important species to save. What other information would you need to make your decision?	
California condor	Orangutan
Salt marsh harvest mouse	Mission blue butterfly
Indiana bat	Amur leopard
Cheetah	Aruba island rattlesnake
Giant panda	Northern spotted owl

