Endangered Species

This packet is to help introduce your students to terms and ideas that will be discussed during your visit to Peoria Zoo. It is designed to enhance your program experience, either through class prep or follow-up. By using the vocabulary, activities, and ideas it will help reinforce the program and meet the State Standards listed on page 4.

Terms to introduce to students:

- Endangered species – a species that is close to being extinct, so it is put on a protection list
- Extinct species – a species that no longer exists
- Habitat – the environment where an organism usually lives
- Pollution – the altering of the environment to cause conditions harmful to living organisms
- Threatened species – a species that is close to being endangered
- Vulnerable species – a species that could become threatened
- Developed Country- advanced in industrial capability, technological sophistication, and economic productivity
- Underdeveloped Country- having a low level of economic productivity and technological sophistication within the contemporary range of possibility
- Environmental indicator- something that shows the condition of the environment, whether good or bad

Ideas covered in program:

- The difference between Endangered vs. Extinct vs. Threatened vs. Vulnerable
- The pet trade and how/why this has effected animal species
- The concepts of pollution (air and water), habitat loss and destruction, and deforestation
- Introduce how animals can be our environmental indicators (specifically frogs and toads)
- When discussing the causes of endangerment, it is important to understand that individual species are not the only factors involved in this dilemma. Endangerment is a broad issue, one that involves the habitats and environments where species live and interact with one another. Although some measures are being taken to help specific cases of endangerment, the universal problem cannot be solved until humans protect the natural environments where endangered species dwell.
- The many causes of endangerment of an animal species: habitat loss, pollution, competition from other species, disease, predation, unregulated or illegal killing, introduced species, etc.
- Taking a closer look at the web of life and how one animal becoming endangered, affects the other organisms in that habitat.
- Looking at the factors that can affect a population or species of animals.
- Discuss the animals that were brought to the classroom and the problems that they are facing in their natural habitat.
- Looking at how there are different beliefs in different counties, which can affect species (Eastern medicines, animals they eat, etc)

Activities for students:

ENDANGERED SPECIES

- Select endangered species for your students (or you can have them pick their own animals). Have students research the species, concentrating on what the cause of endangerment is and what, if anything, is being done about it. Have them present their animal to the class.

SPECIES EXTINCTION

- Tell the students to pick an animal. Then tell the class that they all represent one individual of that specific type of animal. Have them stand in a circle and talk about what that animal needs to survive. Then inform them that the class represents a population. This population is going to face the same kind of things that a real, wild population faces. Then go over some events that happen to decrease the number of individuals in the population and have those students sit down ("die") (ex. pollution, deforestation, disease, hunting, etc.). Then, as the population gets smaller, classify them as vulnerable, threatened, endangered, and then finally extinct. Variations on activity: have population increasing factors and allow some of the students to stand back up (ex. babies born, release from captivity/rehabilitation, etc)

REDUCE, REUSE AND RECYCLE?

- Recycling is something the students have grown up with, but might not realize the impact it can have. Have students investigate how much energy is used to make one sheet of paper versus recycling it, same with aluminum cans, etc. Students can research what can be recycled and where (all of this information can be found on the web)
- To give students an idea on how much waste we create, gather all of their waste from lunch in a garbage bag and weigh it every day for a week. Talk about over packaging, wastefulness, etc and challenge them to cut back on the waste. They can reuse lunch bags, put food in reusable containers, bring in thermoses, etc. Weigh the trash collected for another week and compare weights. Have them calculate how much waste they could create in a year. Compare it to average household waste.

WEB OF LIFE*

- Materials Needed- 30 white note cards
  Four different colored balls of yarn

  Make a set of cards with the following labels

Sun	Bulrush	Snow Goose
Eagle	Raccoon	Bacteria
Crawdad	Mosquito	Dragonfly
Red-Winged Blackbird	Sandhill Crane	Marsh Grass
Muskrat	Cattail	Beaver
Leopard Frog	Black Fly	Mule Deer
Coyote	Algae	Mallard Duck
Mud Worm	Sandpiper	Cranefly
Little Brown Bat	Water Moccasin	Maggot
Fungus	Earthworm	

  Make name tags by punching holes in each card. Loop a piece of yarn through the holes so that students can wear cards like a necklace.

  Give one name tag to each student. Have everyone sit in a large circle so they can see each other's name tags. Explain to students that they will be using the yarn to trace the flow of energy and

nutrients through an ecosystem by connecting the organism on their name tag to one that consumes that organism. These connections will be held as the game continues.

Using a ball of yarn, begin with the student who wear the "sun" name tag. Ask them to hold onto one end of the yarn and roll the ball to a student wearing a plant name tag. Ask the "plant" to hold onto the yarn and roll the ball to an animal they think eats plants. Discuss with the class whether his guess makes sense. Why or why not? Now have the "animal" roll the ball to another animal they think is a predator. Eventually the group will run out of animals in this chain that eat each other. At this point the ball should be rolled to a decomposer to complete the chain.

Sample food chain:

Sun…Cattail…Muskrat…Marsh Hawk…Maggot

Begin again with the "sun" using a different colored yarn. The group is making a series of food chains that together make up a food web.

Continue until all students are a part of at least one food chain. Discuss the connections made by the yarn. What would happen if one type of animal (species) disappeared? How about a plant? Have one plant wiggle the yarn, how many animals in the web feel the vibration?

Can students name an organism that can safely be removed from the web without affecting others? What predictions can students make about effects on the food web of the events listed below?

- a virus kills all the waterfowl
- pollution kills all the decomposers
- poachers kill all the raccoons

*PBS Audubon society provided this activity

BIRD COUNTS

- There are many ways to get your class involved with the community, National Wildlife Federation and the National Audubon Society does bird counts, which allows the students to learn to identify different birds, along with participating in a study conducted by scientists. National Wildlife Federation also has a program where you can create a habitat on your school yard. Students can be involved in picking native species of plants, watching for native wildlife and more!

COUNTRY LIFE

- Assign each student a country. They should research customs, endangered species, whether they are developed or underdeveloped and why, population numbers and pollution issues. They can present their countries, to the class along with what species are endangered and what's being done to help.

State Standards met by:

Listening to the program-
4.A.2a-b
4.A.3a-b; 4.B.3d
Writing about what they learned in the program-
3.A.2; 3.B.2a-d; 4.B.2a-d
3.A.3; 3.B.3a-b; 4.B.3a-c
Endangered Species-
1.B.2a-d; 1.C.2a-d; 1.C.2f; 3.A.2; 3.B.2a-d; 4.B.2a-d; 5.A.2a-b; 5.B.2a-b; 5.C.2a-b; 12.B.2b
1.b.3a-d; 1.C.3a-d; 1.C.3f; 3.A.3; 3.B.3a-b; 4.B.3a-c; 5.A.3a-b; 5.B.3a-b; 5.C.3a-c; 12.B.3b
Species Extinction
12.B.2a
12.B.3b
Reduce, Reuse and Recycle
1.B.2a-d; 1.C.2a-d; 1.C.2f; 3.A.2;3.B.2a-d; 4.B.2a-d; 5.A.2a-b; 11.A.2a-e; 12.E.2c; 13.B.2b-d; 13.B.2f; 17.B.2a; 17.C.2a-c
1.B.3a-d; 1.C.3a-d; 1.C.3a-d; 1.C.3f; 3.A.3; 3.B.3a-b; 4.B.3a-c; 11.A.3a-g; 12.E.3c; 13.B.3d-f; 14.E.3; 16.E.3a-c; 17.C.3b
Web of Life
12.A.2a; 12.B.2a
12.B.3a; 12.B.3b; 17.B.3b
Country Life
1.B.2a-d; 1.C.2a-d; 1.C.2f; 3.A.2;3.B.2a-d; 4.B.2a-d; 5.A.2a-b; 13.B.2b-c; 13.B.2e
1.B.3a-d; 1.C.3a-d; 1.C.3a-d; 1.C.3f; 3.A.3; 3.B.3a-b; 4.B.3a-c; 13.B.3a-b; 17.B.3a; 17.B.3b; 17.C.3b