

CUB SCOUTS: Ecosystems!

Overnight Outcomes:

1. Scouts enjoy spending time at the Zoo (Measure –post survey, “We had fun.”)
2. Scouts are empathetic for wildlife (Measure –post survey, “We want to help save animals in the wild.”)
3. Scouts recognize “Take Action” messages to help save wildlife (informal assessment)
4. Scouts are motivated to “take action” to reduce threats to wildlife (Measure –post survey).
5. Scouts describe how their personal actions may positively or negatively affect wildlife (Measure –informal assessment).
6. People practice environmentally responsible behaviors (3-6 month follow up)

Good to Know Terms:

Producer	Niche	Abiotic Factors
Consumer	Ecosystem	Biotic Factors
Decomposer	Endangered Species	
Food chain/web	Natural Resources	

Key Conservation Messages:

Paper – Tree habitats where many animals live are being cut down to make paper and other products. Did you know that the average household uses 120 rolls of toilet paper each year? 27,000 trees are cut down each day to provide toilet paper to the world. These trees are important habitat for primates (like chimpanzees and orangutans) as well as North American species such as black bears, jaguars, and birds. Solution – Houston Zoo uses toilet paper made from recycled paper. You can help by recycling your paper in school and at home, or using both sides of a piece of paper before throwing it away. What other actions can you take to help reduce your use of paper products?

Cell Phones – A mineral used to make cell phones, iPads, video games, etc. is mined in Africa where many of our animals live. The miners also kill animals to eat as bush meat. Solution – Houston Zoo partners with Eco-Cell, a company that collects and reuses phones/recycles this mineral. You can help by taking good care of your personal electronics so you can keep them as long as possible and making sure to bring old electronics to the zoo to recycle. Large scout groups can also join the yearly Action for Apes Challenge! It takes place February through April.

Materials:

Colored wristbands	Camera trap photos
Ecosystem Jenga	Cell phone view box/coltan mining photo
Small balls of yarn	

Welcome & Introduction

- Guests will be entering at Gate 1, dropping gear off at the stroller gate, and parking in the employee gravel lot. Volunteers and staff will help guide guests to the BEC.
- Encourage restroom use and anything they might need on tour (i.e. jackets and bug spray)
- Kahoot in Auditorium until 7:15pm
- Assess prior knowledge of your group while grouping up in the BEC or heading out on tour and be sure to introduce/review ecosystem, niche, natural resources and food web terms

Night Hike I – Elephant, okapi, giant anteater, Ankole cattle, NE (identifying primary and secondary consumers)

- Story about bee fences and giant armadillo project
 - Photos of giant armadillo burrow visitors from camera traps
- When visiting Okapi and species that occupy same habitats as gorillas, you can discuss Coltan mining and cell phone initiative.
- **Example questions and phrases:**
 - Tell me what you know/notice about this animal.
 - Is this animal important? Why?
 - What does this animal do for the environment?
 - What does this animal need to survive?
 - What challenges do these animals face in the wild?

Ambassador Animal II – three-banded armadillo/tenrec, chuckwalla/alligator, invertebrate

- Story: introduce endangered species term and share history of alligators decline and recovery or chuckwallas on San Esteban Island.
- Ask how humans have impacted the balance of nature and what actions scouts can take to help!
- **Example questions and phrases:**
 - Tell me what you know/notice about this animal.
 - What does this animal need to survive?
 - What challenges do these animals face in the wild?
 - Why/How might people living near crocodilians feel differently about them?
 - What action do you think you can take to save these animals in the wild?

Night Hike II – bears and cats (identifying tertiary consumers)

- Spend time at exhibit, pointing out different traits of carnivores and tertiary consumers. Be sure to mention Niassa Carnivore Project and what our partners are doing to help in the wild.
- May also discuss the role of Species Survival Plans in zoos with our recent jaguar cubs and Hassani (male lion)
- **Example questions and phrases:**
 - What are some ways carnivores might interact with human populations? Humans with wildlife?
 - How do you think people might feel about that?
 - How can we help protect wildlife and also keep people safe? Tie in paper initiative!

Snack & Break –

- Personal stories about your work here at the Zoo and Q&A with guests

Indoor Activity– Giant Ecosystem Jenga or Yarn Food Webs

- Location – BEC Hall or Classrooms
- Stay in groups of 20 or less and have participants play either ecosystem jenga or Food Web yarn game to get them thinking about the connections between species
 - Outcome: to understand that every species is essential for an ecosystem to stay healthy, no matter how big or small. Abiotic factors also play a part in ecosystem health and survival.

How to play: Weaving Energy Food Web

Start the game by throwing the ball of yarn to one person and explaining how your species (a producer) is connected to theirs. He or she, in turn, chooses someone else in the circle. After explaining how their species is connected to the species represented by the person they chose, toss them the ball of yarn. Continue until everyone is linked into the ecosystem. **Note: The progression of tosses does not need to be linear like a food chain (i.e. a primary consumer can toss their yarn to a producer). They just all need to be connected.**

Once all participants are part of the ecosystem web, you can ask questions to explore how changes in abiotic factors and habitat affect the web, as well as presence of predators. For example, you might ask: If a farmer removes the wolves in the area to protect their livestock, how would it affect the ecosystem? Have the person representing the wolf let go of their string to show that the wolves are no longer part of the web. This exercise further demonstrates how connected the ecosystem really is.

How to play: Ecosystem Jenga

Each player will roll the die. If a 1 or 6 is rolled, the ecosystem has not been damaged; they do not need to remove a block. If a 2,3,4, or 5 is rolled, use the table below to determine which colored block should be removed. Blocks cannot be removed from the top!

Number on die	Ecosystem damage
1	No damage
2	Water pollution = blue
3	Animal extinction = red
4	Plant extinction = green
5	Air pollution = yellow
6	No damage

When a block is removed, set the block aside. Each player will take turns rolling the die and removing blocks until the tower falls. Each round, the blocks removed should be kept in separate piles so participants can count how many total blocks were removed.

Time permitting, the group can help rebuild a healthy ecosystem! Explain that there are actions each of us can take to promote the health and wellbeing of our environment. Taking turns, have each person then share one action they can take to promote clean air and water as well as protect plants and animals. After sharing, they can add back pieces of the tower that correlate to that action (i.e. by using a reusable water bottle, I am decreasing plastics that can find their way into sea turtle habitat, therefore saving sea turtles that may mistake the trash a food and reducing water pollution).

Evening Wrap- Up –

- Pull the kids and adults in, recap what they've experienced. Go over sleeping expectations and explain sleeping arrangements to adults. Lights out by 11pm.

Morning Activities:

- Breakfast at Macaw! Please be wrapped up by no later than 8:15am
- Ecosystem Walk: As your group is walking through the Zoo, task them with finding examples of local wildlife living in the Zoo & discuss their ecosystem role here in Houston.
- Tour stop options: Sea lions, red panda, Bird Gardens/ BoW, CZ, Giraffe, and cheetah/lion