Track 3: Nature and Conservation

SESSION 2: ECOLOGY AND WILDLIFE

Overview: Ecology and Wildlife introduces youth to the relationships between living organisms and their environments. This session explores ecosystems, food chains, and the role of wildlife in maintaining balance in nature. Youth engage in hands-on activities to observe, identify, and appreciate the diversity of life around them.

Objectives

- Understand basic ecological concepts like ecosystems and food webs.
- Identify local wildlife and their roles in nature.
- Develop observation and inquiry skills.

Supplies

- Field guides or wildlife ID sheets
- Magnifying glasses or binoculars
- Clipboards and nature journals
- Printed food web diagrams
- Animal role cards (for example, predator, prey, decomposer)

Advisor Notes

- Choose a location with visible wildlife or plant life.
- Encourage curiosity and respectful observation.
- Use storytelling to explain ecological relationships.
- Optional: Invite a naturalist or wildlife expert.

SESSION OUTLINE

Welcome and Icebreaker Activity: Wildlife Charades (10-15 min)

- Youth act out animals and discuss their roles.
- Explain how every living thing plays a role in nature's balance.
- Use a short story or example to illustrate interdependence in ecosystems.
- Wildlife Charades: Each youth draws an animal card and acts it out.
- After each charade, discuss the animal's role: predator, prey, decomposer, etc.

Safety Moment: Safe Wildlife Watching (2-3 min)

- Discuss the importance of keeping a safe distance from animals.
- Explain how loud noises or sudden movements can disturb wildlife.
- Share tips: Use binoculars, stay on trails, avoid feeding animals.

Ecosystem Exploration (20-30 min)

- Youth explore and record observations of plants and animals.
- Guide youth through a nearby natural area (park, trail, schoolyard).
- Use nature journals to record observations: plants, insects, birds, etc.
- Encourage youth to sketch or describe what they see.
- Ask: What do these organisms need to survive? How do they interact?

Food Web Game (20-30 min)

- Youth build a food web using role cards and discuss interdependence.
- Distribute animal role cards to participants.
- Use string or yarn to connect roles and build a visual food web.
- Discuss how energy flows through the web: producers, consumers, decomposers.
- Ask: What happens if one species disappears? How does it affect others?

Resources

- Local Wildlife Guide—Online Resources. Includes links to state or national park wildlife resources

REFLECTION SECTION

Advisor note: These are sample questions. They are designed to help the participants apply what they have learned to their own interests. You are welcome to use these questions or develop your own questions.

Focusing Questions

- What wildlife did you observe today?
- What was the most interesting part of the food web?

Analysis Questions

- How do animals and plants depend on each other?
- What happens when part of an ecosystem is damaged?

Generalization Questions

- Why is biodiversity important?
- How can you help protect wildlife in your community?

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PRINTABLE HANDOUT:
FOUR TYPES OF CONSUMERS IN AN ECOSYSTEM (FOOD CHAIN)

Producers

- Organisms that make their own food using sunlight, water, and nutrients through photosynthesis. They form the base of the food web and provide energy for all other organisms. (Examples: plants, algae, phytoplankton, grass, trees, sunflower, ferns, moss, seaweed)

Primary Consumers

- Herbivores that eat producers (plants and algae) to obtain energy. They are the first level of consumers in a food chain. (Examples: rabbits, deer, grasshoppers, caterpillars, beavers, squirrels, cows, horses, sheep, moose, antelope, geese, butterflies)

Secondary Consumers

- Carnivores or omnivores that eat primary consumers. They occupy a higher level in the food chain and help control herbivore populations. (Examples: foxes, snakes, hawks, wolves, owls, bobcats, coyotes, mountain lions, weasels, frogs, bass (fish), raccoons, spiders)

Decomposers

- Organisms that break down dead plants and animals into nutrients, recycling matter back into the ecosystem. They play a critical role in soil health and nutrient cycles. (Examples: fungi, bacteria, earthworms, mushrooms, millipedes, slugs, snails, mold, yeast, beetles, termites, lichens, nematodes)

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PRINTABLE HANDOUT: WILDLIFE CHARADES ANIMAL CARDS

Wolf **Role:** Predator **Fun fact:** Wolves hunt in packs and are top predators in many ecosystems.	**Rabbit** **Role:** Prey **Fun fact:** Rabbits are herbivores and a common food source for many predators.	**Bear** **Role:** Omnivore **Fun fact:** Bears eat both plants and animals, making them omnivores.	**Deer** **Role:** Prey **Fun fact:** Deer graze on plants and are prey for large carnivores.
Fox **Role:** Predator **Fun fact:** Foxes are skilled hunters and often prey on small mammals and birds.	**Raccoon** **Role:** Omnivore **Fun fact:** Raccoons eat a variety of foods including fruits, insects, and small animals.	**Hawk** **Role:** Predator **Fun fact:** Hawks have excellent vision and hunt small animals from the sky.	**Mouse** **Role:** Prey **Fun fact:** Mice are small rodents and a food source for many predators.
Skunk **Role:** Omnivore **Fun fact:** Skunks eat insects, small animals, and plants.	**Snake** **Role:** Predator **Fun fact:** Snakes use stealth and venom to catch their prey.	**Squirrel** **Role:** Prey **Fun fact:** Squirrels gather nuts and are prey for birds of prey and mammals.	**Coyote** **Role:** Predator **Fun fact:** Coyotes are adaptable predators found in many habitats.
Beaver **Role:** Herbivore **Fun fact:** Beavers build dams and eat tree bark and aquatic plants.	**Opossum** **Role:** Omnivore **Fun fact:** Opossums eat insects, fruits, and small animals.	**Moose** **Role:** Herbivore **Fun fact:** Moose feed on aquatic vegetation and tree leaves.	**Owl** **Role:** Predator **Fun fact:** Owls hunt at night and have excellent hearing and vision.
Chipmunk **Role:** Prey **Fun fact:** Chipmunks store food and are prey for many forest predators.	**Vulture** **Role:** Decomposer **Fun fact:** Vultures feed on dead animals and help clean the environment.	**Turkey** **Role:** Omnivore **Fun fact:** Turkeys forage for seeds, insects, and small reptiles.	**Elk** **Role:** Herbivore **Fun fact:** Elk graze on grasses and shrubs in forested areas.

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PRINTABLE HANDOUT: NATIONWIDE FIELD GUIDE RESOURCES

NatureServe Explorer. A comprehensive portal covering over 100,000 plant and animal species and ecosystems across the Americas. Search by location for species profiles.

explorer.natureserve.org

USDA Plants Database. National database for plants with state- and county-level maps and downloadable fact sheets.

plants.usda.gov

iNaturalist Guides. Create custom field guides and explore local observations. Great for citizen science and youth engagement.

inaturalist.org/guides

National Parks. Explore all U.S. National Parks, monuments, and historic sites through the official National Park Service website.

nps.gov

State Parks. Find state parks across the U.S. with links to each state's official park system website.

stateparks.org

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PRINTABLE HANDOUT: FOOD WEB GAME

Objective

- Youth will learn about ecosystems, energy flow, and interdependence by building a food web using role cards and connecting them with string.

Materials Needed

- Animal Role Cards (Producers, Primary Consumers, Secondary Consumers, Decomposers)
- String or yarn (to connect roles)
- Open space for participants to stand and form a web

Setup Steps

- Print and cut out Animal Role Cards.
- Arrange participants in a circle or open area.
- Provide each participant with one role card.

How To Play

- Distribute animal role cards to participants.
- Start with a Producer and connect it to a Primary Consumer using string.
- Continue connecting consumers and decomposers to show energy flow.
- Build a complete food web with all participants connected.
- Explain how energy moves from producers to consumers and decomposers.

Discussion Questions

- How does energy flow through the food web?
- What happens if one species disappears?
- How are all organisms connected and interdependent?

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PRINTABLE HANDOUT: ANIMAL ROLE CARDS

Producers **Grass**	Producers **Oak Tree**	Producers **Pine Tree**	Producers **Maple Tree**	Producers **Sunflower**
Producers **Clover**	Producers **Fern**	Producers **Moss**	Producers **Algae**	Producers **Seaweed**
Producers **Wildflowers**	Producers **Cactus**	Producers **Prairie Grasses**	Producers **Shrubs**	Producers **Phytoplankton**

Primary Consumers **Rabbit**	Primary Consumers **Deer**	Primary Consumers **Grasshopper**	Primary Consumers **Caterpillar**	Primary Consumers **Beaver**
Primary Consumers **Squirrel**	Primary Consumers **Cow**	Primary Consumers **Chicken**	Primary Consumers **Sheep**	Primary Consumers **Moose**
Primary Consumers **Elk**	Primary Consumers **Antelope**	Primary Consumers **Goose**	Primary Consumers **Butterfly**	Primary Consumers **Goat**

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PRINTABLE HANDOUT: ANIMAL ROLE CARDS

Secondary Consumers **Fox**	Secondary Consumers **Wolf**	Secondary Consumers **Hawk**	Secondary Consumers **Snake**	Secondary Consumers **Owl**
Secondary Consumers **Bobcat**	Secondary Consumers **Coyote**	Secondary Consumers **Mountain Lion**	Secondary Consumers **Weasel**	Secondary Consumers **Frog**
Secondary Consumers **Bass**	Secondary Consumers **Raccoon**	Secondary Consumers **Skunk**	Secondary Consumers **Spider**	Secondary Consumers **Eagle**

Decomposer **Earthworm**	Decomposer **Fungi**	Decomposer **Mushrooms**	Decomposer **Bacteria**	Decomposer **Millipedes**
Decomposer **Slugs**	Decomposer **Snails**	Decomposer **Mold**	Decomposer **Yeast**	Decomposer **Beetles**
Decomposer **Termites**	Decomposer **Nematodes**	Decomposer **Lichens**	Decomposer **Actinomycetes**	Decomposer **Dung Beetles**