

**COSI ON WHEELS**  
**Exploring Ecology**  
**Program Description**



**Exploring Ecology** is designed to introduce students to Ecology. The program consists of a 45 minute interactive assembly followed by exciting hands-on activities that engage the students and encourage the development of Science Process Skills.

During the assembly, the following concepts will be explored:

- Ecology is the study of the relations and interactions between living things and their environment.
- A habitat is the environment in which a species lives.
- An ecosystem is a variety of populations (many species) living in a community and interacting with one another and the non-living elements of the system.
- Plants and animals have physical structures and behaviors that help them survive and in their particular habitats.
- Animals and plants in an ecosystem rely on each other.

The hands-on activities are presented in 30-45 minute sessions with each session accommodating 62 or fewer students. Students will have the opportunity to learn how animals use camouflage to survive in their habitat, explore life cycles of different animals, study the impact of changes to plants and animals, and discover how different animals see the world. In the hands-on sessions students informally interact with the activities, spending as little or as much time as they like at each station. While many students will try all of the activities, some may choose to have a more in-depth experience with only a few.

To prepare you and your students for **Exploring Ecology**, we suggest familiarizing yourselves with the Hands-On Activity descriptions and vocabulary list provided. Also, for extension activities go to [www.cosi.org](http://www.cosi.org) and click on 'Extension Activities' under Exploring Ecology.

**NOTE:** *Students should be reminded to never eat or drink any of their experiments, even when experimenting with food items.*

## EXPLORING ECOLOGY HANDS-ON ACTIVITIES

<b>Beaks as Tools:</b>	Students will investigate the different ways that birds use their beaks as tools to acquire food: an adaptation developed in relationship to specific plants
<b>C.A.M.O:</b>	Students will explore how adaptations, such as camouflage, help animals blend in with their physical surroundings and survive in their habitat.
<b>Ecological Monitoring:</b>	Students will explore the same habitat in four different seasons to discover how living things adapt to seasonal changes.
<b>Pyramid Power:</b>	Students will build food chains to better understand the relationships between predator and prey organisms, as well as the relationships to plants and soil.
<b>Just Fur Science:</b>	Students will investigate real animal furs and learn how their fur helps them survive in their environment.
<b>Mighty Morphin' Power Changers:</b>	Students will explore the life cycles of animals that undergo complete body changes and how this cycle fits into the larger ecosystem
<b>The Root of it All:</b>	Using a large plant model, students will test their knowledge about the different parts of a plant and the role of photosynthesis.
<b>Eye See You:</b>	Students will experience how different animals and insects see and how those various methods of vision aid in the animals' survival.
<b>ProSEED to Grow:</b>	Students will test different types of seeds and explore how the strategy of dispersal relates to the ecosystem in which the plant is situated.
<b>Who'da Trunk it:</b>	Using a variety of tree rings, students will observe and discuss what changes in the environment could have impacted the tree's growth, a method an ecologist might use to look at an ecosystem over time.

## EXPLORING ECOLOGY VOCABULARY

**ADAPTATION:** Anything an animal has on its body, or a way an animal behaves, that helps it to live in its environment.

**CAMOUFLOUGE:** When a organism disguise itself by either blending into the background, breaking up the shape of the organism, or looking like something that the organism is not.

**ECHOLOCATION:** When an animal produces a high-pitched sound that travels forward until it hits something, then the sound bounce back to the animal, allowing the animal to tell how far away that object is.

**ECOLOGIST:** A scientist who studies the relationship between organisms and their environments.

**ECOLOGY:** The study of the relationship between organisms and their environment.

**ECOSYSTEM:** All of the living and nonliving things in an area and how the energy runs through it.

**FOOD CHAIN:** A group of organisms where each member is eaten in turn by another organism.

**HABITAT:** An area that provides everything an organism needs to survive: food, water, shelter and living space.

**METAMORPHOSIS:** A natural physical change that happens to an animal's body, often happening when an animal is changing from a youth into an adult.

**ORGANISM:** An animal, plant or single-celled life from.

**POLLINATION:** When pollen from one flower to moved to another flower allowing the plant to make seeds.

**SEED DISPERSAL:** The process in which seeds are moved away from the parent plant.

## SCIENCE PROCESS SKILLS

On the day of the program students will have the opportunity to participate in a variety of hands-on activities. The activities are intended to create a fun and stimulating environment which encourages the development of Science Process Skills. These skills include:

**OBSERVING:** Using the senses and/or appropriate tools to gather information. Observing may also include the skills of: **Measuring, Comparing** and **Classifying**.

**INFERRING:** Making preliminary conclusions by assessing what is already known. Inferences are what you reason to be true, but have not observed or tested.

**QUESTIONING:** Raising questions about objects, events, or phenomena. This includes recognizing and asking *investigable* questions, often beginning with phrases like 'What causes,' 'How does,' or 'What makes.'

**HYPOTHESIZING:** Offering a possible explanation or testable statement. A hypothesis can be a good reference point for further investigation.

**PREDICTING:** Using ideas or evidence to foretell the outcome of a specific future event. Often involves an action and a reaction or an if/then statement.

**PLANNING:** Designing one's own investigation using procedures to obtain reliable data. *Planning is not always formal.*

**INVESTIGATING:** Carrying out a planned experiment based on your hypothesis. Investigation uses many of the previously stated Process Skills.

**INTERPRETING:** Drawing conclusions by assessing the data. Finding patterns or other meaning in the data.

**COMMUNICATING:** Expressing observations, ideas, conclusions, or models by talking, writing, drawing, etc.

**RELATING & APPLYING:** Relating makes parallels to similar concepts, and applying uses the knowledge gained to help solve a challenge.