

Garden of the Gods Park
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Program updates can be found at: <https://gardenofgods.com/educational/edu-1/school-field-trips>

Land Use Acknowledgement:

We gratefully acknowledge the native peoples on whose ancestral homeland we gather, as well as the diverse and vibrant Native communities of Colorado today.

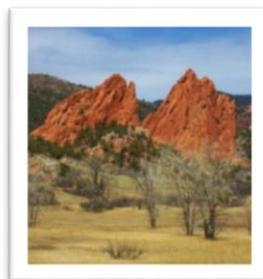
Garden of the Gods Ecology Program

Welcome! We look forward to sharing the ecological story of Garden of the Gods with your students.

We align with current Colorado Academic Standards for middle and high school Life Science.

Goals:

- Students become invested in understanding and caring for the exceptional wonder of the Garden of the Gods and the world around them
- Students gain an understanding of the various forces at work that shape and color the natural world
- Students gain an understanding of how humans use and shape natural surroundings
- Students are familiarized with the park's six ecosystems, how organisms have adapted to the conditions of these ecosystems, and how introduced species and human activity impact ecological balance
- Students understand responsible citizenship bolstered by knowledge of the region's history and how it shaped the world they've inherited



Teacher Reference Guide:

Garden of the Gods Ecology

An **ecosystem** is influenced by biotic and abiotic factors including: climate, weather, disease, population density, resource availability, predators, competition, and human impact. Human impact greatly affects the health of an ecosystem and our park holds many examples of this.

The Garden of the Gods is a tapestry of plants and animals from six different ecosystems.

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- **Prairie Grasslands**
 - Animals include: Prairie Rattlesnake, Coyote, Striped Skunk, Mule Deer, Magpie, Red-Tailed Hawk
 - Plants include: Prickly-Pear Cactus, Yucca, Paintbrush, Buffalo Grass
 - **Wetlands**
 - Animals include: Black Bear, Red Fox, Gray Fox, Magpie, Red-Winged Blackbird, Prairie Rattlesnake
 - Plants include: Common Fireweed, Cottonwood Tree, Cattail
 - **Mountain Shrublands**
 - Animals include: Rocky Mountain Bighorn Sheep, Cottontail Rabbit, Bobcat, Prairie Falcon, Wild Turkey, Eastern Fence Lizard, Honeybee
 - Plants include: Wild Rose, Mountain Mahogany, Piñon Pine, Three-Leaf Sumac, One-Seed Juniper
 - **Piñon and Juniper Woodlands**
 - Animals include: Mountain Lion, Mule Deer, Least Chipmunk, Spotted Towhee, Scrub Jay, Honey Ant
 - Plants include: Prairie Coneflower, Pasque Flower, One-Seed Juniper, Gambel Oak, Piñon Pine, Rocky Mountain Juniper
 - **Cliff Islands**
 - Animals include: Least Chipmunk, Rock Pigeon, White-Throated Swift, Violet-Green Swallow, Northern Goshawk
 - Plants include: Yucca, Three-Leaf Sumac, One-Seed Juniper, Ponderosa Pine
 - **Montane Forests**
 - Animals include: Little Brown Bat, Pack Rat, Red-Tailed Hawk, Mule Deer, Mountain Lion, Prairie Falcon, Tiger Swallowtail Butterfly
 - Plants include: Rocky Mountain Penstemon, Butterfly Weed, Ponderosa Pine, Chokecherry, Mountain Mahogany

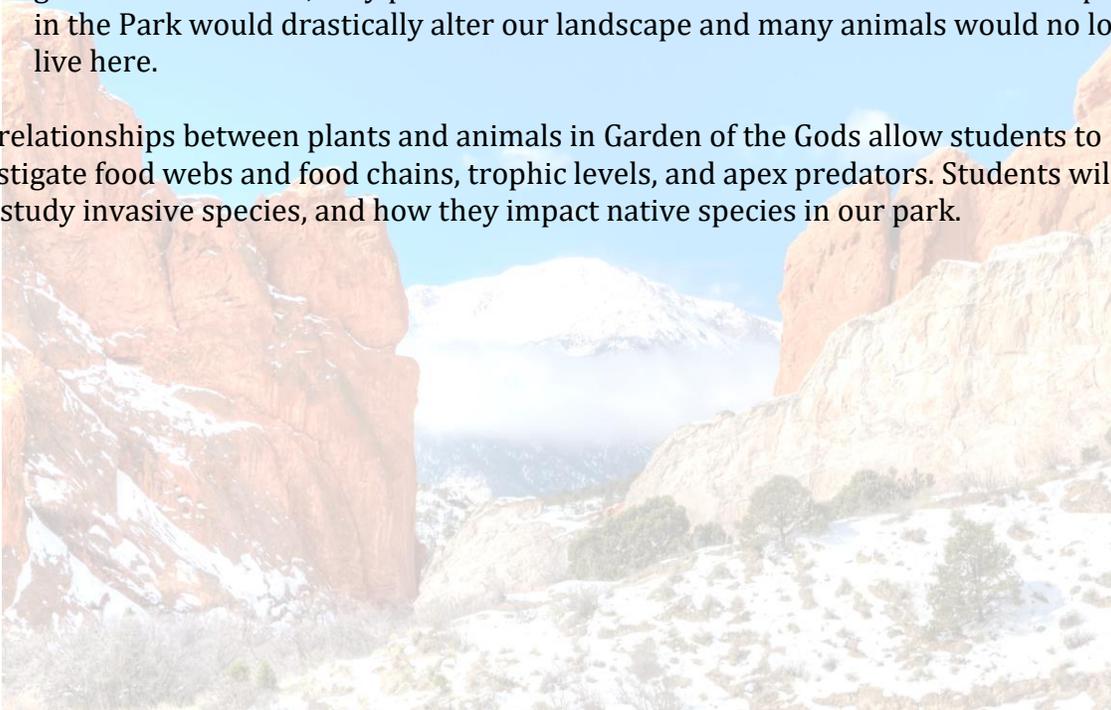
Animals and plants in the Garden exist as part of delicate food webs and numerous other forms of relationships, such as symbiosis. Organisms adapt to the unique conditions of their environments and ecosystems and develop a variety of survival strategies. All compete for resources. Some organisms have developed cooperative relationships to better survive. For example:

The Tiger Swallowtail Butterfly (Colorado's largest) lays its eggs on the chokecherry shrub. The chokecherry's poisonous nature make it an ideal *host plant* for the butterfly as browsing animals won't eat egg-bearing leaves. The eggs hatch, the larvae feeds on the leaves, and then they spin their chrysalis on this same plant. The adult butterfly pollinates the plant allowing it to reproduce. This relationship is an example of *symbiosis*. Loss of the chokecherry can result in a loss of the butterfly and vice versa.

Certain plants and animals in our Park serve as *keystone species*. That means that their presence is of primary importance to the Garden's biodiversity. For example:

The Gambel's Oak provides shelter and nesting sites for many of the Park's birds. It provides forage for mule deer, black bear, and many rodent species. Since they grow in wide stands, they provide excellent erosion control. The loss of this species in the Park would drastically alter our landscape and many animals would no longer live here.

The relationships between plants and animals in Garden of the Gods allow students to investigate food webs and food chains, trophic levels, and apex predators. Students will also study invasive species, and how they impact native species in our park.



Supplemental Activities:

- Collect pictures to identify animals and plants from the Garden of the Gods or your region. What ecosystems do they thrive in?
- Research resident plants and animals and identify adaptations that allow them to exist in your local ecosystems.
- Identify keystone species in your locality and what could result should they be removed.
- Complete artwork or creative writing projects based on your experience in the Garden of the Gods.

Additional Resources:

Official Guide to Garden of the Gods and Rock Ledge Ranch Historic Site. 2012.

Young, Mary Taylor, Colorado Wildlife Viewing Guide, Watchable Wildlife, Inc.; 2007

Veblen and Lorenz, The Colorado Front Range: A Century of Ecological Change, University of Utah Press, Salt Lake City, UT; 1991

