

Garden of the Gods

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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.

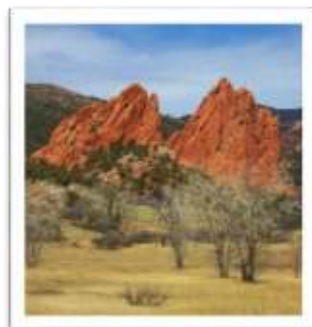
Explore the Park Program

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

We align with current Colorado Academic Standards for K-5 Life Science and Earth and Space Science.

Goals:

- Students recognize the exceptional natural and geological wonder of the Garden of the Gods.
- Students gain a broad understanding of and appreciation for the science of geology.
- Students identify the three rock layers experienced in the Park, their ages and composition.
- Students recognize how different ecosystems coexist within the Park, making the Garden a crossroads of plant and animal life.
- Students identify how the Garden's ecology has supported human habitation for over 4,000 years.
- Students appreciate the Garden's historical role in the Pike's Peak Region.



Teacher Reference Guide

An **ecosystem** is a single environment and all the living and non-living things in it. This means an ecosystem is more than just the plants and animals in an area. An ecosystem is also defined by the type of soil and rocks, the amount of precipitation, the elevation, and several other factors.

The Garden of the Gods is a crossroads of six different ecosystems. Below is a list of common plant and animal species found in the park and their corresponding ecosystems. Note that some are found in multiple ecosystems, which is indicative of the park's special biological diversity.

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

Not only is the Park a crossroads of plants and animals, it has long been a gathering place for many different peoples. Archaeologists have evidence of human habitation in the Garden for the last 4,000 years. Many American Indian nations have history in the Front Range. The Ute (*Nuu-ciu*) maintain that they have always lived here amongst the rocks of the Garden and we honor their tradition. Sun Mountain (*tava*) is their name for Pikes Peak. They thrived here, making use of the area's natural resources and climate. The *Nuu-ciu*

wintered here, sheltered among the rocks and hunting deer, turkey, and bison. They utilized the yucca, three-leaf sumac, piñon pine, and other local plants for food and amenities.

European presence in the area began with the Spanish in the mid-1500s. French fur trappers frequented the area through the 18th and early 19th centuries. American exploration began in 1806 with Lt. Zebulon Pike's expedition, followed by Major Stephen Long in 1820 and Brevet Captain John C. Fremont in the 1840's. Settlement began in earnest with 1858's Pikes Peak or Bust gold rush.

The Garden of the Gods Park is composed of sedimentary rock layers. They are geologically remarkable due to their vertical and in some cases beyond vertical positions. This allows study of rock that in other areas has been buried by nearly a mile of sediment. Two of these formations found in the popular Central Garden area include:

The Fountain Formation (320-300 million years old): Composed of sand, gravel, and mud that washed down from the Ancestral Rockies in alluvial fans. These sediments compacted and cemented into the conglomerates, sandstone, and mudstone (shale) of the Fountain Formation. This layer is over 4,500 feet thick. Formations in the western part of the Garden are made up of Fountain Formation: Balanced Rock, Siamese Twins, and Three Graces.

Lyons Formations (300-260 million years ago): The local climate changed and this part of Colorado became a windswept desert filled with sand dunes. The formation is composed of three layers, two of which are visible in the Park (Red Lyons and White Lyons). The red color is from iron becoming iron oxide (rust), which helps cement the grains together. The Lyons formations are the tallest rocks in the Park and include: North Gateway Rock, South Gateway Rock, White Rock, and Gray Rock.

There are other, younger rock formations in the Park, including the Lykins and Morrison Formations, Dakota Sandstone, Benton Group, Niobrara Formation, and Pierre Shale.

All the various sedimentary layers were gradually compacted and cemented into rock. Beginning about 70 million years ago these layers were broken and tilted upright. Erosion has exposed the ridges and carved out the valleys to what we see today.

Fossil evidence of dinosaurs and ancient marine animals has been found in the Park. The skull of a dinosaur named *Theiophytalia kerri*, a type of iguanodon, was found in the Garden of the Gods in 1878 by Colorado College Professor, James Kerr. The fossil dates to the early Cretaceous period and is the only evidence this species found anywhere in the world.

Supplementary Activity Ideas:

1. Have students do artwork, creative writing, or journaling based on something that impressed them about the Park.
2. Have the class learn more about the story of the Garden's first human inhabitants, how they lived in the area, where they are now, and how they are thriving in modern America. Check out <https://www.colorado.gov/pacific/ccia/fourth-grade-ute-resource-guide> for more information.

