

UC Santa Barbara

Educational Materials

Title

Chaparral Plant Adaptations Lesson

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SBBG: Chaparral Plant Adaptations

Next Generation Science Standards

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats. [Clarification Statement: Emphasis is on the diversity of living things in each of a variety of different habitats.] [Assessment Boundary: Assessment does not include specific animal and plant names in specific habitats.]

3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.]

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.]

Lesson Plan: Chaparral Plant Adaptations

Objective: Students have been introduced to dune plant adaptations and wetland plant adaptations. This lesson will follow up by introducing them to chaparral plant adaptations and the general characteristics of a Mediterranean climate. Students will become familiar with the concept of a floristic province.

Materials: KIN Journal, 6 hand lenses, plant identification cards, Chaparral Communities Fun Facts page, map of Mediterranean climates of the world,

Preparation: Prior to student's arrival, locate an area in the Manzanita Section with other typical chaparral plants nearby. Identify and locate several species of native plants with characteristics of chaparral communities (e.g. Manzanita species' woody stems, Scrub Oak's waxy, spiny leaves, or the grayish leaves of many sages)

Introduction: Use the map of California (KIN Journal pg. 94) and the California Flora facts (Chaparral Communities Fun Facts page) to familiarize students with the diverse flora in California due the varying topography, temperatures, precipitation, geology, climates, and change in latitude. Explain that we live (in most of California, but especially here in Santa Barbara) in a Mediterranean climate. Define the characteristics of a Mediterranean climate (see Chaparral Communities Fun Facts page) and show students where other Mediterranean climates of the world are located.

Procedure: Familiarize students with the concept of adaptations in organisms, mainly plants for this lesson. Explain the major natural forces that shape the chaparral community (Mediterranean climate; dry environment, almost year round intense sunlight, rocky soils). Describe and point out the many adaptations chaparral plants have evolved to live in this harsh environment (Use Chaparral Communities Fun Facts page and KIN Journal pg. 97)

Conclusion/Assessment: If time permits, have students fill in the blanks on the chart in the KIN Journal on the bottom of page 97.