Springs and Seeps in the Garden

Ferns

Look around for some ferns growing in the Garden. Ferns grow in damp areas near water. California has many species of ferns. Ferns and horsetails have been found in early fossils and so we know that they have been on earth for a very long time. They existed before the cone-bearing plants like pine trees and redwood, and long before the flowering plants like oak trees and California poppies.

Look at the back of a fern frond and you may see rows of dark spots. These are the areas where the spores are formed (called sori). Ferns, unlike many plants, reproduce by spores, not seeds. They have swimming sperm; they need to have moisture during part of the year in order to complete their entire life cycle.

Mosses, Fungi, and Lichens

There are many different kinds of fungi that grow in moist areas like riparian corridors or oak woodlands. The moisture, held in by the dense layer of leaf litter, helps moisture loving flora thrive. The mushrooms and puffballs that you see are the reproductive structures or fruiting bodies produced by a huge network of fungal threads (called mycelium) that grows in the soil or in the tissues of a nearby tree. Fungi can be parasites that harm plants, but many of them are saprophytes that feed on dead organic matter and help with the process of decomposition. Molds are fungi that have microscopic reproductive structures. You can often see molds growing on rotting leaves when the weather is damp.

Lichens are epiphytes that grow on tree branches or on rocks. They do not harm their host plant. Lichens are actually composite organisms and are a combination of fungi and algae that grow together. The fungus partner provides mineral nutrients while the algal partner has chlorophyll and so produces sugars through the process of photosynthesis.

You will also see mosses on the rocks near the pond. These small green plants produce spores and they are also confined to damp habitats as they too have swimming sperm like ferns.

See **Oaks in the Garden**, **Leaf Litter Activity**, and **Soil Experiment** for more information and activities on soil health and decomposition.

Grasses, Sedges, and Rushes

See if you can find one of each of these different types of plants near the ponds.

Tules, cattails, and pond lilies each have many important human uses. Our local Chumash people built their houses (aps) with a frame of willow and a thatch of tule. Inside the ‘ap’, people often slept on mats made from tule. Some native people also used tule to make buoyant boats for fishing and hunting birds on lakes and marshes.

See **Chumash Uses of Native Plants** for more information on the Chumash and how they used reeds, sedges, and rushes.

Suggested Questions for your Visit

1. Look at the backs of a few fern fronds. On many of these you will see rows of dots. What are these?
2. How to ferns reproduce? Find a sign that helps you answer this question.

3. Cattails and Pond Lillies are adapted to life in wet places. Can you see these plants growing in the pond?
4. Note two ways in which the Chumash used tules.
5. What is another name for a Horsetail? What is the reason for this name?
6. How can you tell Sedges from Rushes? Tule is from the Sedge family.