Teacher's Resource Guide

Plant Portraits: The California Legacy of A. R. Valentien features watercolor paintings of native California plants. The detailed, botanically accurate works were painted over the course of ten years—from 1908-1918. The exhibited paintings, selected from a collection of paintings of nearly 1500 different species, illustrate a blending of science and art. The accompanying book, *Plant Portraits: The California Legacy of A. R. Valentien*, provides insight into the art history of early 20th century California, the biodiversity of this state, and information about the plants depicted in the paintings.

This guide includes an exhibition overview, background information, glossary, references, classroom activities, and a Museum visit exercise.

The activities in this packet align with California Content Standards: Life Science (grades K, 1, 2, 3, 4, 7), Visual and Performing Arts (all grades), and History/Social Studies (grades 3, 4).

Exhibit Overview

Presented in collaboration with The Irvine Museum, this exhibition displays 80 beautiful watercolors of native California plants painted in the early 1900s. In addition to the lifelike paintings, the local exhibition will include examples of Valentien's Rookwood pottery, landscapes in oil, historical photographs, and personal artifacts.

Background

The Artist

Albert Robert Valentien was born in 1862 in Cincinnati, Ohio. At the age of 19 he was employed at Rookwood Pottery in Cincinnati, where he became head decorator. He created many beautiful ceramic pieces that are now owned by museums around the world. His works in ceramics, as well as his paintings, are considered very valuable by collectors.

In 1899 he and his wife, Anna, also a Rookwood employee, traveled to Europe to prepare the Rookwood Pottery exhibit for the Paris Exposition of 1900. During a visit to the Black Forest in Germany, he began to paint the wildflowers of that region. This experience proved to be a turning point in Valentien's career.

In 1903, Albert and Anna came to San Diego to visit her brother. Over the next eight months, Valentien painted 150 species of plants. The couple resigned from Rookwood in 1908 and moved permanently to San Diego.

Shortly after arriving in San Diego, Valentien was commissioned by local philanthropist Ellen Browning Scripps to paint all the wildflowers and plants of California. For the next ten years Valentien traveled all over the state painting wildflowers, trees, grasses, and ferns. By 1918 he had completed 1094 sheets depicting approximately 1500 species.

At the completion of his project, Valentien hoped to have his works published. Miss Scripps, however, was deterred by the cost. Disappointed, the artist returned to painting landscapes in oil and to exploring other subjects. Valentien died in 1925. After the death of Miss Scripps in 1933, the collection of watercolors was transferred to the San Diego Natural History Museum. This exhibition and the publication of the accompanying book provide the first comprehensive public viewing of Valentien's wildflower paintings.

The Artist's Technique
To make white flowers more visible, the paintings were done on gray-green paper. Each finished painting was mounted on architect's linen. Valentien used a painting technique called *gouache*—a method that uses opaque water colors and produces bright colors.

When possible, all parts of the plant were included: roots, leaves, flowers, buds, fruits. Large plants were cut in two to fit on the page. A hand lens was sometimes used to observe details on small plants. He did not try to "prettify" plants, but showed them with blemishes such as insect holes in leaves.

Pigments
Pigments are chemical compounds that absorb certain wavelengths of visible light and reflect other wavelengths. Pigments such as chlorophyll and carotenoids occur naturally in plants. Pigments are also found in various rocks and minerals. These pigments were the sources of paints for earlier artists. Today, many pigments are manufactured synthetically.

Landforms and Habitats
Landforms are the physical features such as mountains, valleys, and canyons that describe the surface of an area. These features are created by tectonic forces in the Earth and shaped by the weathering of wind, water, and ice. These landforms, along with their associated climates, create *habitats* for living things. Due to its topography and varied climate, California has an unusual diversity of habitats with an estimated 7000 native vascular plant species. Valentien found a wealth of subject matter for his paintings in a variety of settings.

California Native and Non-native Plants
California's "native plants" are considered to be those that existed in the state before the visitations of Europeans several centuries ago. Non-native species have been introduced in several ways such as grain for livestock, crops, or ornamentals for landscaping. Sometimes, these non-natives grow so successfully that they spread and crowd out the native plants. Presently, California's native vegetation is rapidly being scraped away for the development of housing, roads, and commercial use.

Many ecological preserves now have projects targeted at removing non-native plants and re-planting natives to restore areas to more natural conditions.

Recently, home gardeners have shown interest in the use of local, native plants. Use of these plants—already adapted to soil, moisture, and climatic conditions—eliminates the need for expensive soil amendments and the excessive use of water.

Restoration projects and the use of native plants in home and school gardens will help to preserve some of the natural vegetation that Albert Valentien so admired.

Plant Portraits in the Exhibition
Fifteen paintings have been chosen for evaluation by students visiting the exhibition. The plants in the paintings represent a variety of habitats. In addition to the habitat represented by each plant, students might explore plant characteristics such as flower types, structure and arrangement of leaves, adaptations to the environment, and any uses native people might have had for the plant. Since all of the paintings are worthy of study, you may wish to make up your own list. See the Resources section for a complete list of specimens in the exhibition.

Pre-Visit Activities

1. Mapping

On a map locate areas in California, or your state, where you might find any of the following habitats:

Desert
Chaparral
Coastal Sage
Woodlands
Grasslands
Mountains

2. Habitat Search

Do a library or internet search of each of the above habitats. List some of the habitat's characteristics such as annual rainfall, temperature ranges, elevations, types of plants or animals that might be found. See the Resources section for some suggested websites.

3. Scientific Names

Scientists use two words to name or describe an organism. The first word tells the genus to which the plant belongs; the second—the species. These names are often descriptive of the organism. However, some names are derived from the name of a person (*fremontii* from John C. Fremont), while other names come from an area or location (*occidentale*—meaning western).

The common and Latin names are given for each of the fifteen study plants. Some Greek and Latin roots words are also listed. Using these root words, try to determine the meaning of each plant name. Does the plant's common name make sense? Do you know another word that comes from the same root?

Plant Names

Common Name	Latin Name	Meaning
Beavertail Cactus	*Opuntia basilaris*	_____
California Black Oak	*Quercus kelloggii*	_____
California Lilac	*Ceanothus tomentosus*	_____
California Poppy	*Eschscholzia californica*	_____
Coast Redwood	*Sequoia sempervirens*	_____
Cottonwood	*Populus fremontii*	_____
Crystalline Iceplant*	*Mesembryanthemum crystallinum*	_____
Five Finger Fern	*Adiantum aleuticum*	_____
Giant Horsetail	*Equisetum telmateia*	_____
Lemonade Berry	*Rhus integrifolia*	_____
Ocotillo	*Fouquieria splendens*	_____
Ponderosa Pine	*Pinus ponderosa*	_____
Purple Needle-grass	*Nassella pulchra*	_____
Toyon	*Heteromeles arbutifolia*	_____
Western Thistle	*Cirsium occidentale*	_____

*a non-native species

Greek and Latin Root Words

Root Word	Meaning	Language
anth	a flower, brillancy	Greek
arbut	strawberry tree	Latin
basi	a base foundation, step	Latin
ceanoth	kind of thistle	Greek
chil	a lip	Greek
cirsium	a kind of thistle	Greek
equi	a horse	Latin
folia	leaf	Latin
hetero	other, different	Greek
integ	whole, complete	Latin
linea	a line	Latin
meles	a badger	Latin
mesembri	noon	Greek
nass	a wicker basket	Latin
occidental	western	Latin
pinus	pine	Latin
ponder	weighty	Latin
pulch	beautiful	Latin
querc	the oak	Latin
rosa	rose-colored	Latin
semper	always	Latin
telma	pond, pool	Greek
tomentos	dense hair	Latin

Botanical Terms

Refer to textbooks, and or field guides for illustrations.
Draw and label the following parts:

- petal
- sepal
- pistil
  - ovary
  - style
  - stigma
- stamen
  - filament
  - anther

Draw and label stems and leaves that illustrate one or more of the following terms:

- arrangement on stem
  - alternate
  - opposite
  - whorled
  - fascicled (bundled)
  - clustered
- types
  - simple
  - compound
- shapes
  - linear
  - oblong
  - elliptical
  - ovate
  - cordate
- margins
  - entire
  - serrate
  - lobed
- tips
  - acute
  - rounded
  - obtuse
- venation
  - parallel
  - palmate
  - pinnate

Museum Visit

Divide the class into teams. Assign each team a different plant portrait to investigate.

Reproduce enough Museum Visit worksheets for each team or student.

Post-visit

1. Discuss your visit to *Plant Portraits: The California Legacy of A. R. Valentien*.
• Were there any plants that you were familiar with? Which ones?
• What were your feelings about the artist's work?

2. Write or give reports about the paintings studied on the Museum visit.

3. Use watercolors or another medium to draw or paint a plant, flower, or tree.

4. Differentiate between a scientific illustration and artistic interpretation. To which category do the Valentien paintings belong?

Museum Visit

_____
name/team

Directions: Choose one plant to investigate.

Common Name _____

Scientific Name _____

Meaning of Scientific Name _____

Type of Plant _____
(flower, grass, fern, tree, bush, cactus)

Color _____

Habitat _____

Range _____

Interesting Fact _____

Sketch of plant

Glossary

Alternate Leaves—single leaves, not in pairs
Anther—the part of the stamen that bears pollen
Basal—at the base
Calyx—all of the sepals of a flower
Compound Leaf—leaves that are divided into leaflets
Corolla—all the petals of a flower
Filament—thread-like part of the stamen
Margin—the edge of the leaf
Opposite Leaves—leaves that are in pairs at a node on the stem
Ovary—basil portion of a pistil where seeds develop
Ovate—leaves that are egg-shaped
Palmate—leaves shaped like a hand
Petal—blade of corolla
Pinnate—two rows of lateral branches
Pistil—female part of a flower (ovary, style, and stigma)
Sepal—leaf-like part of the calyx
Serrate—leaves with sawtooth margins
Simple Leaf—undivided leaf blade
Stamen—male part of a flower (anther and filament)
Stigma—tip of the pistil that receives the pollen
Style—narrow part of the pistil that connects the stigma and ovary
Vascular—having vessels that carry sap
Whorled—leaves in a circle of three or more around the stem

Resources

For a complete list of specimens, see
www.sdnhm.org/valentien/plantportraits

For more information, see
www.dfg.ca.gov/whdab/pdfs/TEPlantspdf
State and Federally Listed Endangered, Threatened, and Rare Plants of California.
www.cnps.org
California Native Plant Society
www.sandiegozoo.org/teachers/habitat_booklet.html
San Diego County habitat curriculum, PDF format

National Audubon Society Field Guides: Wildflowers and Trees

Credits

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