



# Pacifica's Mobile Nature & Horticulture Center

## "The All – Encompassing ECO-WEB" Second and Third Grade Program Outline

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**Introduction:** All of life is interdependent on each other. Within each habitat are niches where the most fragile of species can be found. Each organism is part of a larger ECO-WEB called life. Students will learn how all living things are parts of this fragile web. As students enter, they will be given the names of creatures and plants. During the discussion of the interdependence of all things, the "student-creatures" will be temporarily connected by a string in an appropriate eco-web sequence. In addition, there will be a discussion of the finiteness of the earth's resources.

### NATURE CENTER STATION OBJECTIVES:

1. To develop a hypothetical food chain.
2. To discuss what a habitat and a niche is with regards to organisms.
3. To examine how different species live within habitats.
4. To explore how energy is dispersed through the eco-web.

### ACTIVITIES:

#### YELLOW:

1. Students will choose a predator, and hypothesize how much land and water will be needed for their predator. Then they will develop an approximate answer.
2. They will be introduced and explore how energy is dispersed through the eco-web.

#### BLUE:

1. As a precursor to the activity a discussion about how each species lives in its own different world, filling a niche. That these creatures use a far different "clock" than humans use. Students will observe and discuss ants in their

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world and then make an "ant's trail map" in a square foot of forest sod, noting landmarks than ants might notice.

HORTICULTURE CENTER STATION OBJECTIVES:

1. To understand the interdependence that organisms have to each other in the eco-web.
2. To examine the importance of plant life to humans and other creatures.
3. To discuss and examine how plant life can be used to make other items that are useful to humans.
4. To make a rope from yarn to demonstrate of using other materials to create a useful tool.

ACTIVITIES:

RED:

1. Ethnobotany: Students will complete a chart of how plants are important to humans now and discuss ways that they were important in years gone by – acorn use and making rope.

GREEN:

1. Planting Station: Students will plant vegetable seeds and discuss the various cycles of plants.\*
  2. Students will examine the seasons with a tilted globe and “sun”.
- \*Note: Use of the planting station in the mobile classroom will be used for these experiments.

Connections to the Certificate of Initial Mastery (CIM) Standards:  
Nature Center Objectives –

Unifying Concepts and Processes: Understand and apply major concepts and processes common to all sciences.

Common Curriculum Goal: Apply foundation concepts of change, cycle, cause and effect, energy and matter, evolution, perception, and fundamental entities.

Content Standards: Use concepts and processes of – Systems, order, and organization.  
Leads to or meets Benchmark at Grade 3:

1. Student will be able to recognize and diagram the parts of a system.

Unifying Concepts and Processes: Understand and apply major concepts and processes common to all sciences.

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Content Standards: Use concepts and processes of – Evidence, models, and explanation.

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Leads to or meets Benchmark at Grade 3:

1. Student will be able to compare objects, drawings, and constructions to the real things they represent.

Unifying Concepts and Processes: Understand and apply major concepts and processes common to all sciences.

Common Curriculum Goal: Apply foundation concepts of change, cycle, cause and effect, energy and matter, evolution, perception, and fundamental entities.

Content Standards: Use concepts and processes of – Evolution and equilibrium.

Leads to or meets Benchmark at Grade 3:

1. Student will be able to identify examples of change over time.

Life Science: Understand structures, functions, and interactions of living organisms and the environment.

Common Curriculum Goal: DIVERSITY/INTERDEPENDENCE – Understand the relationships among living things and between living things and their environment.

Content Standards: Explain the interdependence of organisms in their natural environment.

Leads to or meets Benchmark at Grade 3:

1. Student will be able to describe a habitat and the organisms that live there.

Life Science: Understand structures, functions, and interactions of living organisms and the environment.

Common Curriculum Goal: DIVERSITY/INTERDEPENDENCE – Understand the relationships among living things and between living things and their environment.

Content Standards: Explain the interdependence of organisms in their natural environment.

Leads to or meets Benchmark at Grade 3:

1. Describe the habitat and the organisms that live there.

Horticulture Center Objectives –

Unifying Concepts and Processes: Understand and apply major concepts and processes common to all sciences.

Common Curriculum Goal: Apply foundation concepts of change, cycle, cause and effect, energy and matter, evolution, perception, and fundamental entities.

Content Standards: Use concepts and processes of – Systems, order, and organization.  
Leads to or meets Benchmark at Grade 3:

1. Student will be able to recognize and diagram the parts of a system.

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Content Standards: Explain the interdependence of organisms in their natural environment.

Leads to or meets Benchmark at Grade 3:

1. Describe the habitat and the organisms that live there.

**These benchmark standards can be used for both the Nature Center and Horticulture Center Objectives.**

Scientific Inquiry: Use interrelated processes to pose questions and investigate the physical and living world.

Common Curriculum Goal: Formulate and express scientific questions and hypotheses to be investigated.

Content Standards: Formulate and express scientific questions and hypotheses to be investigated.

Leads to or meets Benchmark at Grade 3:

1. Ask questions about objects, organisms, and events that are based on observations and can be explored through simple investigations.

Scientific Inquiry: Use interrelated processes to pose questions and investigate the physical and living world.

Common Curriculum Goal: Design scientific investigations to address and explain questions and hypotheses.

Content Standards: Design scientific investigations to address and explain questions and hypotheses.

Leads to or meets Benchmark at Grade 3:

1. Plan a simple investigation.

Scientific Inquiry: Use interrelated processes to pose questions and investigate the physical and living world.

Common Curriculum Goal: Conduct procedures to collect, organize, and display scientific data.

Content Standards: Conduct procedures to collect, organize, and display scientific data.

Leads to or meets Benchmark at Grade 3:

1. Collect data from an investigation.

Scientific Inquiry: Use interrelated processes to pose questions and investigate the physical and living world.

Common Curriculum Goal: Analyze scientific information to develop and present conclusions.

Content Standards: Analyze scientific information to develop and present conclusions. .  
Leads to or meets Benchmark at Grade 3:

1. Use the data collected from an investigation to explain the results.

Post-Visit Activities:

1. Complete the activities begun in the "Caterpillar":
  - a. The simple worm experiments using light sensitivity, preference for wet/dry, etc.; as variables (information is in the back pocket of the notebook).
  - b. Review the plant cycle and water cycle follow-up assignment sheets.
  - c. Continue to care for the vegetable seeds planted in pots:
    - i. Send them home for the students to care for the plants.
    - ii. Create and maintain a school or classroom garden.
2. There is information about several possible post-visit activities are in the back pocket of each grade level's folder.



## A Different World

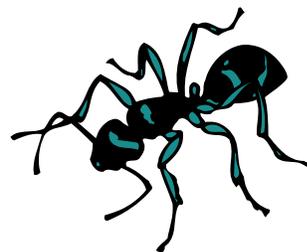
Each creature sees the world in a different way than we do. A tree might be much larger and live much longer than we do. On the other hand, some insects think that the world is only the size of a life. That IS their whole world. They don't know or need to know or want to know about anything else. Different creatures also see time in different ways. What seems like a day to you might be some creature's whole life, or it might seem like just the blink of an eye to another. **OUR WAY IS ONLY ONE WAY TO SEE THE WORLD. THERE ARE MANY OTHERS.**

First, some information about ants

There are about 20,000 species of ants on Earth.

How many species of man are there?

\_\_\_\_\_.



Ants can walk at what would be 65 miles per hour for us, and can carry something 50 times as heavy as they are. Could you carry something that weighs 2000 (1 ton) pounds?

Ants have been on the earth over 100 million years. Man has been here for around 3 million years.

Watch the ants in the colony. What do they do when they meet each other? \_\_\_\_\_

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Ants use their bent (elbowed) antennae for smell, touch, and taste. They leave a scent trail to find their way home or to tell other ants where there is food.

**THINK SMALL!! – Pretend you're an Ant**

Choose a trail through the square of forest floor in front of you to the food at the far end. Then draw your trail in the box below. Note at least 4 things that could be landmarks for other ants along the way. Draw a picture. What would the trail look like to an ant?

**COPYCATE PAGE – AN ANT'S A-MAZING WORLD**



**ETHNOBOTANY**

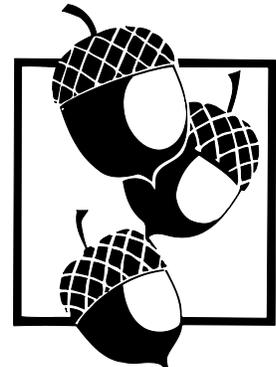
**HOW MANY WAYS CAN YOU THINK OF THAT HUMANS USE PLANTS?**

- |          |           |
|----------|-----------|
| 1. _____ | 6. _____  |
| 2. _____ | 7. _____  |
| 3. _____ | 8. _____  |
| 4. _____ | 9. _____  |
| 5. _____ | 10. _____ |

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**MAN CAN NOT LIVE WITHOUT PLANTS!** When the Indians lived here, however, plants were even **MORE** important to man because there were no grocery stores or toy stores, no stores at all! In Southern Oregon one of the most important plants was the oak tree.

What did they collect from oak trees? \_\_\_\_\_  
 How many acorns are there in a pound? Weigh them. \_\_\_\_\_  
 Each family had to collect 500 pounds of acorn a year.  
 How many acorns did they have to collect? \_\_\_\_\_

After collecting the acorns they were dried.  
 Then they were pounded into flour in a shallow rock.  
 This flour was bitter with oak tannin so it had to have water poured through it over and over and over again.  
 It could take all day to make enough cereal for just two days.



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**SOMETIMES** there was a need for **ROPE**.  
 If you were in the woods what might you make rope out of?  
 \_\_\_\_\_

One of the things that the Indians used was the tiny but strong threads along the edge of an Iris leaf. They also used strips of bark from special trees. Whatever they used they twisted it and re-twisted it to make the rope. It could take up to a week to make just two feet.

- You can try twisting rope for yourself with a piece of yarn.
- 1) Fold it in half and have a friend hold the doubled end while you hold the two-strand end.
  - 2) You twist one direction and your friend twists the other direction. Don't go the same way.
  - 3) Twist until it starts to buckle in the middle and then twist a bit longer and tighter.
  - 4) Grab the middle of your new rope and, holding it tightly, hand your end to your friend.
  - 5) While your friend holds the ends tightly, you pull downward to help your rope twine.

**STATION RED ACTIVITY SHEET**