



## **Rings, Ripples, and Echoes K-2<sup>nd</sup> Grade**

An Inquiry Science and Cultural History Investigation at Muir Woods National Monument

### **Overview**

#### ***What do living things need for a healthy habitat?***

This Essential Question frames *Rings, Ripples, and Echoes* and is meant to allow students to engage in place-based inquiry science and cultural history at Muir Woods National Monument. The Essential Question:

1. Reflects the essence of what they will study without directing them to one correct answer.
2. Provokes “how” or “why” questions rather than “what” questions.
3. Applies to places beyond Muir Woods.
4. Invites discussion from everyone based on both experience and understanding.

Students conduct their own investigation in cultural history and forest ecology through inquiry. Students pose questions, search for evidence, illustrate patterns, and suggest explanations. The program provides a tangible model for students to explore a redwood forest through learning activities in the classroom and in a National Park (Muir Woods).

### **Program Goals**

- Enrich their understanding of place through inquiry.
- Learn about the natural patterns that shape the Muir Woods habitat.
- Experience National Parks as places for learning and recreation, and develop a personal connection to their local national park.

### **Program Objectives**

- Students will be able to recognize the patterns of a healthy habitat.
- Students will be able to identify the needs of living things.
- Students will be able to begin to understand how individuals and communities can help protect natural areas.

## **Ties to the Curriculum – Next Generation Science Standards, CA Common Core, and CA History-Social Science Content Standards for K-5.**

### **Next Generation Science Standards:**

K-LS1-1. Use observations to describe patterns of what plants and animals need to survive.

1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.

### **California’s Common Core State Standards:**

Writing:

W.3.K: Use a combination of drawing, dictating, and writing to narrate a single event, include details.

W.3.1 & W.3.2: Write narratives to develop events, include details.

Speaking and Listening:

1. K, 1.1 & 1.2: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led).

### **California History-Social Science Content Standards:**

K.6.3. Understand how people lived in earlier times and how their lives would be different today.

1.5.2. Understand the ways in which American Indians have helped define Californian and American culture.

1.5.3. Compare the traditions of the varied cultures.

2.4.1. Describe food production and consumption long ago and today, including land and water resources.

## **Program Logistics**

Please take careful note of the following:

- The teacher and chaperons are ultimately responsible for the conduct and safety of the students.
- Clothing appropriate to the nature of the activities and weather conditions at the park is required. Advise students to dress in layers to accommodate the variable temperatures of the woods. We conduct the program regardless of weather conditions.
- Arrangements can be made to accommodate students with special needs. Please discuss specific circumstances with National Park Service staff prior to your program.

## **Rules and Regulations**

Please make your students aware of the park rules and regulations before your visit:

- The class will stay on the main trail at all times, unless directed by park representative to do otherwise.
- No plants or other natural features can be removed from the park.
- Feeding or disturbing animals is not allowed.
- Portable radios, musical instruments, and electronic games will not be allowed on the field session.

## **Cancellation Policy**

Please let us know of any changes in rescheduling your program dates. Because of the volume of schools participating, there is little room to reschedule your original date. Please plan accordingly.

## **Directions**

Most classes will be taking buses to Muir Woods. Bus companies are familiar with the route.

For those classes that will be carpooling:

Muir Woods National Monument is located on the South Side of Mount Tamalpais, 12 miles North of San Francisco. Take Highway 101 to Mill Valley in Marin County. Take the Stinson Beach / Highway 1 exit. Follow the signs to Muir Woods.

Note: The narrow, winding road leading to the park is not accessible by vehicles larger than 35 feet, according to the regulation of the California Highway Patrol (CHP). There is no public transportation to the park.

## **Program Description – Rings, Ripples, and Echoes**

The program has three elements: pre-site classroom lessons provided by the teacher; a field session at Muir Woods facilitated by teacher and introduced by Ranger; and suggested post-visit lessons guided by the teacher.

### **Perspectives – Teacher Facilitated Lessons**

Students are introduced to the program by considering the essential question “*What do living things need for a healthy habitat?*” Students are introduced to Muir Woods and related vocabulary by viewing the *Rings, Ripples, and Echoes* power point. The lessons are completed by asking students to draw a healthy forest habitat from what they learned in prior lessons.

### **Time**

Determined by class

### **Materials**

*Rings, Ripples and Echoes* power point  
Large butcher paper  
Crayons or colored pencils

### **Activity One:**

Teacher introduces the students to the *Rings, Ripples, and Echoes* program by posing the Essential Question on the board:

What do living things need for a healthy habitat?

Before responding directly to the question, students define *living*, *healthy*, and *habitat* on the board with the help from the teacher. After students define the concepts, they answer the question in pairs, in a group, or with the entire class.

### **Activity Two:**

Teacher presents *Rings, Ripples, and Echoes*, a power point that introduces students to Muir Woods and redwood forest vocabulary. Have students comment on what they see in the power point.

### **Activity Three:**

Teacher asks students to imagine a healthy forest habitat. Ask students what their healthy forest habitat may look like. In a small group, students draw a healthy forest habitat with living and non-living things.

## **Muir Woods Field Session**

Teachers will be provided with a backpack that includes: self-guides with special stops to aid you while hiking in the woods, animal and plant guides, and plant cards related to Coast Miwok culture.

Groups at the park on an educational visit will receive an admission-fee waiver.

### **Summary:**

Students are invited to use their senses while investigating the Essential Question in the woods through applied inquiry methods. Students examine the characteristics of a healthy and unhealthy habitat. They are also encouraged to observe and identify the patterns of a healthy habitat.

### **Time**

Ranger Inquiry base lesson: 15 minutes

Redwood Habitat Investigation: 1-2 hours (suggested time)

### **Investigation in Muir Woods**

National Park Service staff will welcome the students upon arrival at Muir Woods. Staff will conduct a 15-minute inquiry-based lesson on the redwood forest ecosystem in a special outdoor classroom. The inquiry-based talk will engage students with *I see, I think, I wonder* questions. During the talk, students will be prompted to investigate the patterns of a healthy habitat.

Teacher and adult chaperones then accompany the students in the investigation of the redwood forest.

## **Post-Visit Classroom Lessons**

These follow-up activities are designed to build upon the students' inquiry experience at Muir Woods. Students can demonstrate what and how they have learned during their national park experience. Please conduct at least one of the following activities:

### **Activity One:**

Illustrate the patterns of a healthy habitat. Make sure to include living (also people) and non-living things.

### **Activity Two:**

Use different materials to make a part of a plant or animal that can help you survive, grow, and meet your needs in a redwood forest. For example: redwood bark, thorns, roots, slime, large ears.