The Golden Gate National Parks—with their fragile indigenous habitats and historic landmarks, ancient redwood groves and dramatic coastal preserve are also settings for one of the largest and most inspiring urban outdoor classrooms. Deeply committed to young people, the National Park Service, Golden Gate National Parks Conservancy, and Presidio Trust partner with educators, students, and the community to design programs that encourage inquiry-based learning linked to school curriculum. The goals and principles of the K–12 program confirm Golden Gate's commitment to authentic, inclusive, and relevant education.

Crissy Field Center, located on the Presidio of San Francisco, is a partnership project of the Golden Gate National Parks Conservancy and the National Park Service. The Center offers multicultural programs that actively engage us with our environments and promote collaborations in building a more sustainable and environmentally just society.

The Presidio Trust's mission is to preserve and enhance the natural, cultural, scenic, and recreational resources of the Presidio for public use in perpetuity, and to achieve long-term financial sustainability. The Trust partners with educators from schools, universities and other organizations on a variety of educational program opportunities offered by a national park in the city.

www.nps.gov/goga/forteachers/
www.crissyfield.org
www.presidio.gov

DEAR TEACHER:

Welcome to the **Parks as Classrooms** program at Fort Point National Historic Site. The Parks as Classrooms program, a servicewide initiative, strives to introduce teachers to the National Parks as a tool and educational resource. These programs, created in partnership with educators and community members, engage teachers and students in the mission of the Park Service while at the same time serve and meet the educational needs of our communities and park supporters.

We are pleased that your class is participating in ***Sensible Habitats***, an education program for kindergarten through second grade. This program uses the natural resources of Fort Point to lead students on an exploration of the concept of habitats and the living and non-living things within them.

We hope that you will enjoy participating in the program, and that your visit to Fort Point is educational and exciting! If you have any questions about the program or need help planning your visit, please contact our staff at 415-561-4329.
We look forward to your visit!

PROGRAM OVERVIEW

This is a student directed program designed to allow the students to discover for themselves the meanings of certain concepts, such as living or non-living, as well as habitats, through questioning, hands-on exploration and facilitated discussion.

Each activity is designed to build on the previous to show students' developing understanding of concepts. Concepts addressed in this program include:

- Living or Non-living things
- Habitats
- Aquatic and terrestrial plant and animal life
- Habitat protection

There are four parts to the program:

- Pre-visit introductory lesson
- National Park Service Field Session
- Post-visit learning activities
- Program assessment

Pre-visit Introductory Lesson

This lesson should be conducted at least one day prior to your visit. It is designed to initiate student thinking about the needs of living things. The teacher acts as a facilitator while the students begin to formulate their own ideas about life.

National Park Service Field Session

Students continue their inquiry of living things and their needs during the park session. During their visit, students create their own criteria for living and non-

living things, then, through further activities, examine their standards and re-evaluate their ideas.

Park rangers, teachers and adult volunteers act as facilitators and guides through the student's process of discovery. We allow the students to examine and question all assumptions, correct or incorrect, and let them draw their own conclusions.

Post-visit Learning Activities

Included in this Teacher's Guide is a suggested list of post-visit activities. These activities are designed to allow the students to examine further their criteria and assumptions for living and non-living things and habitats in the classroom. They use their initial ideas and their experiences during the on-site visit to demonstrate through creative art *what* they learned and *how* they learned it.

Program Assessment

Students present their findings during a presentation to the class. This presentation should highlight the *process* of learning the students engaged in, beginning with their first assumptions, then showing if, and how, those assumptions changed during their park visit, and the conclusions they drew. Students have the opportunity to teach what they have learned to visitors of their classroom presentation.

The primary objectives of this program are to allow the students to use their natural curiosity about the world to explore scientific concepts, and to lead them to the ideas of care and stewardship for our environment.

The teacher is required to complete an evaluation form at the end of the program. An evaluation of the program is necessary to measure the program's effectiveness and its ability to meet the needs of the students. Your professional opinion and experience is valuable to the program's future.

Program Goals

Students will:

1. Develop their sense of inquiry, and to pose questions of deeper meaning.
2. Understand the concept of habitats.
3. Understand what living things need to survive.
4. Compare and contrast life on land with life in the ocean.
5. Develop a sense of respect for all living organisms and their habitats.
6. Develop a sense of responsibility to preserve National Parks and their own communities.

Program Objectives:

Upon completion of the program, students will:

1. Define habitat.
2. Identify living things and name at least three (3) things living things need to survive.
3. Name three (3) things that live on the land and in the ocean.
4. Describe two (2) ways to protect national parks and two (2) ways to protect their own neighborhoods.

PARK INFORMATION

Please make sure that each person in your group has the following items:

- lunch and small snack in a plastic bag
- layered clothing, including pants and sweatshirt or jacket
- sturdy walking shoes
- nametag
- rain jacket (optional)
- **GROUP DRAWINGS** (these will be used during the field trip!)

Please arrive at the Golden Gate Bridge (toll plaza) at least 10 minutes early to organize your group. Restroom and water fountains are located near the parking lots.

The park staff will greet your group at the statue of Joseph Strauss. Students should wear their nametags to the park. Please have your students bring a snack to eat just prior to the start of the program.

Note: This area is famous for its magnificent views of the Golden Gate Bridge. Be aware that visitors often want to take pictures of the scenery. We need to respect their space. Please keep an eye on your school group and have adult chaperones help you at all times, especially when using the public rest rooms.

This program focuses on the natural aspects of Fort Point National Historic Site and will not include a visit to the fort at Fort Point. Students will be in an outdoor setting at all times.

RULES

During your visit, you and your adult chaperons are responsible for the conduct of your students. Please make certain that everyone understands the rules before your visit.

- Walk at all times. Running can be dangerous.
- Stay together as a group. Don't leave the trail.
- Keep the park clean. Do not leave food or trash on the ground.
- Respect the plants and animals in the park. Do not pick plants, hurt animals, disturb their homes, or throw rocks.

WEATHER

The weather at Fort Point is generally cold and windy throughout the year. Fog and rain are common during the winter and summer months. Always wear warm, layered clothing and sturdy shoes.

PARKING

Free parking for buses and cars is located at the Battery East parking lot near the bridge. For public transportation MUNI routes #28 and #29 stop at the toll plaza. For more information on bus routes within the Bay Area, just dial 817-1717 and press 1 for public transportation.

CANCELLATIONS

We request that you cancel or reschedule your program at least 24 hours prior to your reservation date. If unusual circumstances arise on the day of your program, please call us promptly at 9:00 a.m. if you need to cancel.

If you have questions or need more information, please call 415-561-4329.

Natural History of Fort Point

Terrestrial Life

The biosphere can be generally divided into two systems, an aquatic ecosystem and a terrestrial ecosystem. Smaller, more specific ecosystems or habitats can be identified within the larger systems, differentiated by factors such as salinity, soil type, moisture, temperature, elevation, and latitude. During our nature walk around the Fort Point area, we will examine the terrestrial and aquatic habitats typical of Northern California.

The terrestrial habitat at Fort Point is classified as California coastal scrub. Once very similar to the green headlands seen across the bay in Marin, this classic California coastal bluff is covered with many low-growing shrubs like coyote brush and ceonothus, poison oak and wild blackberry. Trees such as the Monterey pine and Monterey cypress, though not native to this area, have naturalized and can be found here as well. Deer, coyote, and bear once made their homes here, along with the raccoons, skunks, rodents, reptiles, and birds we still see today.

The area's many seedy, low-growing plants provide excellent homes and food for various species of rodents. Where there are rodents, there are raptors! With its abundant food supply and location directly on the migration route through the Golden Gate, Fort Point is an exceptional location for raptor watching. Southern raptor migrations take place in the fall, and thousands of hawks, eagles, falcons and vultures can be seen gliding through the sky. Frequently seen raptors includes red-tailed, sharp-skinned and Cooper's hawks; American kestrels; and turkey vultures. Pigeons follow human populations and take advantage of the debris left by people. They also provide a ready food source for the native red-tailed hawk and peregrine falcon.

People have interacted with the landscape in very different ways over hundreds and thousands of years. The area's indigenous people, the Ohlone, took advantage

of the plants and food sources they found in the ocean, marshlands and sand dunes that once covered much of San Francisco. They used fire to promote the growth of seed-producing annual plants and to create open areas. They hunted deer and other wildlife that were attracted to the open areas.

Dramatic landscape changes came with the arrival of the Europeans. When Europeans settled here, they brought plants and animals, purposely and accidentally, that did not occur here naturally. They introduced new grasses as a food supply for themselves and their livestock. Many of these new plants displaced indigenous plants and affected the habitats of local wildlife. These plants are called exotic. Some of these exotic plants can become invasive. Often, invasive species have no established predators or other limiting factors and out-compete indigenous species for resources.

Following habitat destruction, the introduction of exotic species is the greatest threat to indigenous plants and animals. For example, the eucalyptus trees and fennel plants we will see on our walk are invasive species. These plants secrete a substance that is toxic to some indigenous plants. Another exotic, black mustard, brought by the Spanish, uses the habitat's limited resources; when grown to full size, it also shades out indigenous plants. The indigenous plants we will see on our walk include poison oak, wild blackberry, and horsetail. Also, there are many indigenous willows growing in more moist areas of the bluffs, along with berry-producing plants like toyon and California coffeeberry.

As part of this habitat, people continue to change it. The National Park Service's responsibility is to protect the habitat and the wildlife that live here. Park staff encourages indigenous plant regeneration through revegetation and invasive-plant mitigation projects. The park also asks visitors to remain on the trails and respect leash rules so that people and pet can enjoy the area's natural beauty without too much disruption of plant and animal homes.

Aquatic Life

The aquatic habitat is just as diverse as the terrestrial habitat. While terrestrial habitats include ecosystems such as deserts, forests, and mountains, the aquatic habitats comprise sandy beaches, rocky beaches, intertidal zones, and splash zones. Indeed, scientists believe that bordering the United States are more

marine plants and animals in more kinds of marine habitats than are found off the coast of any other country in the world.

Northern California's coastal zone is classified as "Californian Subtropic" and is characterized by mountainous, rocky shorelines with sheer cliffs or headlands, sandy beaches, and upwelling of bottom waters. The nutrients that are carried by this upwelling support the rich diversity of marine life we see off the coast of California.

During our program, we will examine a sandy beach and the life found in the intertidal zone, whose residents must adapt to both aquatic and terrestrial life as the tides rise and recede. Plants and animals typical of this zone include sea lions, crabs, sand fleas, sand crabs, sand dollars, and a wide variety of shore birds that take advantage of food sources washed in by the tides.

Invasive species, such as the Asiatic green crab, create problems in aquatic habitats as they do in terrestrial habitats. However, the crabs most likely to be seen – rock crabs, red crabs, Dungeness crabs and kelp crabs -- are all indigenous.

Golden Gate Bridge
(*You may want to discuss this information with your students prior to your visit.)*

Construction of this six-lane, $32 million bridge began January 5, 1933. It was completed May 27, 1937, and opened to the public on May 28, 1937. It joins San Francisco with Marin County, and its total length is 1 2/3 miles (8,981 feet). The two great steel towers, which rise 746 feet above the water, are among the world's largest and tallest bridge towers. The paint, which isn't golden as the name implies, but is in fact a color called International Orange, protects the bridge's steel from rust.

Introductory Lesson

Summary
Students conceptualize a place for living things. They consider methods for protecting places for plants, animals and people. Students design a habitat for themselves using their knowledge of the world as a basis. They also discuss the rules of behavior in a national park.

Learning Objectives
Students will:

- Name three living and non-living things
- Name three things needed for survival
- Name at least one way to protect a special place

Time
One hour

Materials
Butcher paper
Crayons or colored pencils
Protecting Habitats (included in booklet)

Lesson

Part One
Teacher explains to the class that they will visit a national park to learn about special places. Students form four groups in which they will work throughout *Sensible Habitats.* Each group receives a piece of butcher paper and crayons or pencils.

Teacher explains to the class that they are going to create a special place for everyone in their group to live together. Ask them to consider what their special

place will look like, what they are going to need to survive, what things might hurt their special place, and what they could do to protect it.

Students draw their special place and include themselves and all the things they are going to need. Teacher tells students to either draw or be prepared to explain some possible interactions they have with the things in their special place. For example, students might explain that "Tina is in charge of feeding all the pets, and Oscar is in charge of watering all the plants."

When the students have completed their drawings, they make certain that their group name or symbol is on the picture. Teacher explains that students will bring their pictures on the National Park Field Session and that the park staff will be very interested in what the groups drew as their special place.

Part Two
Teacher tells students that they will be visiting a very special place called a National Park. They will help protect the park while they are there. Discuss the following situations and questions:

- In a national park, we do not hurt plants. How do you think you could hurt a plant?
- In a national park, we do not hurt animals. How do you think you could hurt an animal?
- In a national park, we make certain that the park stays clean of garbage. What things do you think you can do to help keep the park clean?

Teacher distributes *Protecting Parks* to each group. Students look carefully at the image and circle the pictures of children they think are behaving in ways that will help the park. Teacher guides discussion in which students share their thoughts.

National Park Service Field Session

Summary
Students conduct specific activities and investigations at stations. Adult facilitators assist the students in using their *Sensible Habitats* booklet.

Time
2 hours

Materials
- Hand lenses
- Clipboards & *Habitat Detectives* booklet
- "Who am I" game supplies
- Crabbing Equipment- net bait and plastic crab

Program

Toll Plaza (approximately 15 minutes)
Park staff welcomes the students and accompanies them to the restrooms. The entire group then walks to the statue of Joseph Strauss for a *very* brief introduction of the day's activities. Students form their small groups. Staff gives students one rule: no running! The group heads downhill to the picnic area overlook.

Golden Gate Overlook: Introduction Circle and Habitat Drawings
(approximately 15-20 minutes)

Materials: Student drawings

- Students form a circle and conduct the group handshake by having all of the students raise their right hand and walk into the center of the circle until they touch someone else's hand. Say, "Welcome to Golden Gate National Parks."

- The class divides into two groups: each with two of the original groups and their drawings.

- Students *sit* in a semi-circle as they talk about their drawings. They describe what is represented in their drawings - what they need to survive, if they have any special jobs, and how they can protect their special place. The two groups compare their drawings and what they thought was important to have in them.

- The class comes together again in the larger circle. Students are asked to explain what they know about habitats. Students then are asked to think about how drawings of human habitats might be different than drawings of animal and plant habitats. During the field trip, they will be able to see first-hand what the differences might be.

- Students form lines to enter the tunnel through the battery. Before starting, park staff asks them to repeat the first rule, and if there are any other actions that they should not take while in the park, such as picking plants and touching animals.

- Students then are asked to go on a "silent walk" to the next site. They are encouraged to look around and use all their senses, other than speech.

Andrews Road: Habitat Exploration (approximately 30 minutes)

Materials: Hand lenses, clipboards and *Habitat Detective* booklets

- Class gathers in another big circle. Students describe some of the things that they experienced on their walk.

- Students then are asked to close their eyes for 30 seconds and to listen to the sounds of this new habitat. When they open their eyes, park staff will ask several students to describe what they heard.

- Students talk about what they think they will find in this habitat. *Any answer is acceptable*. Park staff explains that students will be "habitat detectives" and will shortly find out if their guesses were right.

- Students form their small groups. Each adult is assigned to one group. Each group leader will hold the clipboard and ask the students to consider the questions from the *Habitat Detectives* booklet.

- Students will determine how they know if something is a living or non-living element. They will look carefully in their area for three things that are alive and three things that are not alive based on their criteria.

- Each facilitator will lead their group down the trail and have them explore a particular area. Remind the students to stay in their groups. Adult facilitators can look for banana slugs, snails and salamanders. When they do find something, park staff will take it from group to group and let the students ask questions.

- After 15 minutes or so, students will gather in another circle at the beginning of the trail. Each group will describe living and non-living things they have seen. After each group has shared, park staff will hold up a eucalyptus seed from the ground and ask them if it is living or non-living. Students will be asked to compare the seed to a rock, and think about issues such as watering, planting and growth. The students will decide for themselves if the seed is alive with limited facilitation from park staff.

- Adult facilitators will review the *Habitat Detectives* booklet with the small groups to make certain that the group still agrees with their original criteria.

- Park staff will let the students know that they have explored a terrestrial habitat and that they will also be seeing an aquatic habitat. Students will take a moment to share what they think may be one important difference between the two habitats. The group then will walk down the stairs towards the pier.

Building 989 benches: "Who am I?" game (approximately 15 minutes)

Materials: 4 game bags, "Who am I" question sheets, snack

- Students sit in their animal groups. Each student receives a snack. They can also eat a small snack from their lunches if they choose. Restrooms are available nearby.

- After the snack, students receive the "Who am I" bags. They spend a few minutes looking at the objects in the bags. Park facilitators visit with each group and let students ask questions about what they see and feel.

- When all groups are ready, the class plays the "Who am I?" game. The park facilitator reads the game questions from the sheets. Students raise the object to which the question is referring.

- The class then discusses what in the bag is alive, dead, or non-living. The small groups again have a moment to decide if they want to change or add to their criteria based on the "Who am I" activity.

Fort Point Pier: Crabbing (approximately 15 minutes)

Materials: Crabbing net, bait, and plastic crab

- Park staff baits the net and throws it into the water. Wait several minutes before pulling up the net.

- While the net is still over the pier, the staff will show, and pass around, the plastic crab to the class and ask them what they know about crabs.

- Park staff will bring up the live crab in the net and let each student take a closer look, without actually touching the live crab. The group will identify which kind of crab it is and how it lives.

- Park staff also will facilitate a discussion about sea stars and seaweed if they also are pulled up in the net.

Crissy Field picnic tables: What did we learn? What did we enjoy?
(approximately 15 minutes)

- Students form their small groups one final time. They review their handbooks and decide if they have new ideas about what is living or non-living.

- The class sits on the stone bleaches overlooking the beach and Crissy Airfield. Students are asked to share their favorite experience from the day or

something new that they learned. They also share their ideas about habitats and living or non-living things in the habitat.

- Park staff thanks the class for coming to Golden Gate National Parks, and extends an invitation for them to return with their friends and families.

Post-visit learning activities

What do I want to share?

Summary
Students continue their exploration of the concept of habitats by using their experiences in the park to teach others what they have learned.

Time
Determined by teacher

Materials
Student drawings
Habitat Detective booklets

Lesson

Students imagine they are National Park rangers. Their job is to tell people what they have learned about the plants and animals they saw at Fort Point. Students are asked to decide if the park is a special place, and, if so, how they think people can help to protect and appreciate it.

Students prepare a presentation that can be shared with their classmates, other classes or parents and guardians. Teacher helps students to think about how they might illustrate any changes in their thinking that occurred from the initial special places drawing through the field session.

Possibilities for presentations include:

- Exhibition
- Illustrated storybook
- Mural
- Diorama

Post-visit learning activities

Dr. Seuss' *The Lorax*

Summary
Students use the story of *The Lorax* to examine the problems of pollution.

Time
One hour

Materials
The Lorax book or video

Lesson

Teacher and students read the book or watch the video of *The Lorax* by Dr. Seuss together in class.

Teacher facilitates a discussion based on the following questions:

- In the beginning, what did this place of "Truffula Trees" look like? Green trees, blue skies and clean air filled the place of "Truffula Trees." Birds, fish, swans, etc. lived here.

- Then what happened next in the story? The Once-ler found that he could earn money by making clothes out of tree tufts. He invited his relatives to help him with his factory.

- How did his "Truffula Trees" clothing business harm other living things? The animals lost their homes when the trees were cut down. The machines polluted the fresh air. So the animals had to leave to look for food and a home.

- Did the Once-ler finally realize that he was hurting other living things? Yes, he noticed that the sky wasn't blue, the air wasn't as clean and other living things disappeared, all except him.

- At the end of the story, what did he ask the boy who came to visit him to do? He told him to plant the last "Truffula Tree" seed so more trees can grow, the air will be cleaner and all other living things can grow again.

- What did the animals need to stay healthy? All living things need a home, food, air, water, light (energy), and space to grow.

- What is the difference between needing something and wanting something? A need is something you must have to stay alive. A want is something you wish to have or can live without.

Teacher asks students what questions they have about the story. The group responds to these questions. Students also identify positive ways they can help protect habitats and their own neighborhoods.

Program Assessment

School: _____Grade: _____

Teacher: _____

1. How well do you feel the program conveyed the concepts of living and non-living, habitats, aquatic and terrestrial plant and animal life, and habitat protection?

2. Were the learning activities at the appropriate level for your students? How well did the program fit into your curriculum needs?

3. In what ways did the program facilitators encourage student inquiry and self-exploration?

4. Did you have your students prepare a follow-up presentation? If so, how do you feel it helped your students demonstrate their learning?

5. Other comments about the overall program.

____ Yes! I would like to participate again next year.

____ I am not certain that this is an effective program for my students.

Please return to
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