

GALLERY/FLOOR ACTIVITIES

MacGillivray Freeman's

NATIONAL PARKS ADVENTURE



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National Parks Adventure

Introduction to the Guide

This Museum Floor Activity Guide offers four short activities for museum educators to conduct in their gallery space or on the floor of their museum during the exhibition of MacGillivray Freeman's *National Parks Adventure*. The activities are themed to subject matter found in the film and will help museum educators extend the film's learning with visitors of all ages. These activities are designed to be conducted by a volunteer or educator who will engage directly with museum visitors. Each activity is accompanied by a set of questions that educators can ask visitors during the activity. Materials are low-cost and readily available.

About the Film

The US National Park Service turns 100 years old in 2016, marking a major milestone in the preservation of America's pristine wild spaces. Today's National Park System includes more than 400 iconic landmarks—spectacularly beautiful places like Yellowstone, Yosemite, the Everglades, and Glacier National Parks—that represent the heritage and spirit of America and make a rich palette for a film for IMAX® and giant screen theatres. *National Parks Adventure*, narrated by Academy Award®-winner Robert Redford, brings the magnificence of these landscapes to the giant screen and introduces us to world-class mountaineer Conrad Anker, adventure photographer Max Lowe and artist Rachel Pohl as they hike, climb and explore their way across America's outdoor playgrounds. An action-packed celebration that will inspire the adventurer in everyone, *National Parks Adventure* highlights how important it is that we protect these treasured landscapes that belong to us all.

National Parks Adventure is a MacGillivray Freeman film produced in association with Brand USA. The film is presented globally by Expedia, Inc. and Subaru of America, Inc with major support from the Giant Dome Theater Consortium. *National Parks Adventure* is directed by Academy Award®-nominated filmmaker Greg MacGillivray and produced by Shaun MacGillivray. The film has a run time of 43 minutes.

To learn more, visit www.nationalparksadventure.com.

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Animal Tattlers

Subject: Zoology, Ecology

Learning Goal:

By tracking the populations of certain organisms, scientists can track the health of other species and environmental conditions

Materials

□ Cubes/Blocks, 30 two inch cubes/blocks,

10 per habitat set

(that can have picture glued on)

□ Species Pictures

Place one species picture one each cube.

There will be one picture per cube.

Description:

1. Welcome guests and ask: **“Would you like to create a habitat?”**

2. Give guests one set of species blocks, tell them that all the species live together in “Lake/Forest/Desert (name of Museum)” and depend on each other for survival

Ask **“First, choose the blocks that are the basis for life in our habitat. What do creatures need to survive?”**

“What things are able to survive because of these bottom/foundational blocks?”

3. Task them with stacking the blocks so that the pyramid forms layers that are dependent on each other

4. Ask: **What would happen if we removed this block from “Lake/Forest/Desert X”?**
“Can the blocks above it survive?”

5. Have guests physically remove any block not on top and watch the structure tumble, and then have them rebuild pyramid

6. Ask: **If a scientist knows that a certain species lives in “Lake/Forest/Desert X”, what other species can they guess are also there?**

Tell guests **“When scientists observe the top block species, they know that everything underneath it must live in the area in order for the top block to survive. This makes them an *indicator species* because it indicates that other types of life are present.”**

Taking it further

7. Ask: **How could indicator species be used to track population size?**

Notes

If guests incorrectly stack the blocks, do not correct them, but ask why they chose the configuration that they did. As long as they have a reason that makes sense to them, positively reinforce. Food pyramids can be more accurately be depicted as food webs, so there is no simple “right answer” in nature

Pyramids:

Forest



Desert



Pond



Study Resources

Indicator Species:

<http://eol.org/info/465>

<http://www.nature.com/scitable/knowledge/library/bioindicators-using-organisms-to-measure-environmental-impacts-16821310>

<http://www.environmentalscience.org/birds-environmental-indicators>

http://wwf.panda.org/about_our_earth/species/flagship_keystone_indicator_definition/

Food Webs:

<http://education.nationalgeographic.com/encyclopedia/food-web/>

Bill Nye the Science Guy, Season 2, Episode 6: Food Webs

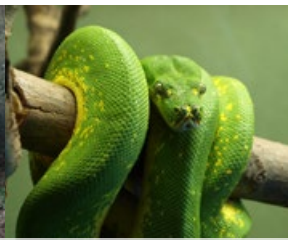
Forest



Wolf



Badger



Snake



Squirrel



Deer



Ant



Moss



Grass



Tree



Earthworm

Desert



Vulture



Rattlesnake



Tarantula



Mouse



Cricket



Horned Lizard



Cactus



Desert Needle



Prickly Poppy



Yucca Shrub

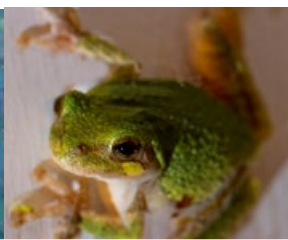
Pond



Great Blue Heron



Fish



Frog



Snail



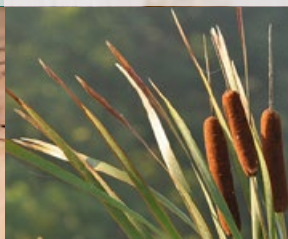
Shrimp



Dragonfly



Mosquito



Cattail



Algae



Lily pad

Logical Layers

Subject: Geography, Stratigraphy, Relative Dating

Learning Goal:

Relative dating is a method of dating that relies on the position of one layer/artifact in relation to another

Materials

- (4) Shallow Trays
- Bottle Caps
- Dry Beans
- Dry Noodles
ex. macaroni, shells, rotini
- Corks
- Special "Artifact" object such as a bead, small piece of jewelry, small rock
- Strata Cards: easy, medium, hard
(In printer options, change setting to short-edge binding)
- Laminated Strata Picture

Taking it Further

- Small Shells
- Small Leaves
- Human Artifacts

Description:

1. Ask: **"Would you like to help me arrange some rock layers?"**
2. Have guests place all items in separate trays
3. Show guests laminated strata picture, let them know **the earth is constantly putting new layers on top of the old ones, therefore, things towards the bottom are typically older than what's on top**
4. Let guests know **each tray represents a different rock layer, and slide trays around to demonstrate how they can be in a single line to mimic rock faces**

5. Give them a strata card based on age/background knowledge
6. Task them with arranging the "rock layers" so that they fulfill the requirements of the card
7. Have guest place "artifact" in in any of the four trays
8. Ask: What can we tell about the age of our artifact?
"Do we know the exact age?"
Let them know **"This is referred to as *relative dating*, it helps scientists learn about environments and creatures that lived in prehistoric times by comparing things to other layers"**

Taking it further

9. Have guests place shells in one tray, leaves in another and human artifacts in another
10. Ask: **If we find these fossils in our layers, what does that tell us about the history of the area? "When did humans live here? What kinds of environmental conditions did they live in?"**

Relative Dating:

http://paleobiology.si.edu/geotime/main/foundation_dating2.html

<http://sciencelearn.org.nz/Contexts/Dating-the-Past/Science-Ideas-and-Concepts/Relative-dating>

Stratigraphy:

<http://www.tulane.edu/~sanelson/eens1110/geotime.htm>

Medium: 1

Cork
Beans
Noodles
Bottle caps

Easy: 2

Noodles
Beans
Cork
Bottle caps

Easy: 1

Beans
Bottle caps
Noodles
Cork

Hard: 2

Bottle caps
Noodles
Cork
Beans

Hard: 1

Beans
Cork
Bottle caps
Noodles

Medium: 2

Cork
Noodles
Bottle caps
Beans

Easy: 1

- The beans are the youngest
- The corks are older than the bottlecaps
- The noodles are older than the bottlecaps
- The noodles are younger than the corks

Easy: 2

- The corks are younger than the bottlecaps, but older than the beans
- The beans are older than the noodles

Medium: 1

- The bottlecaps are older than the corks
- The noodles are not the oldest
- The beans are older than the corks, but younger than the noodles

Medium: 2

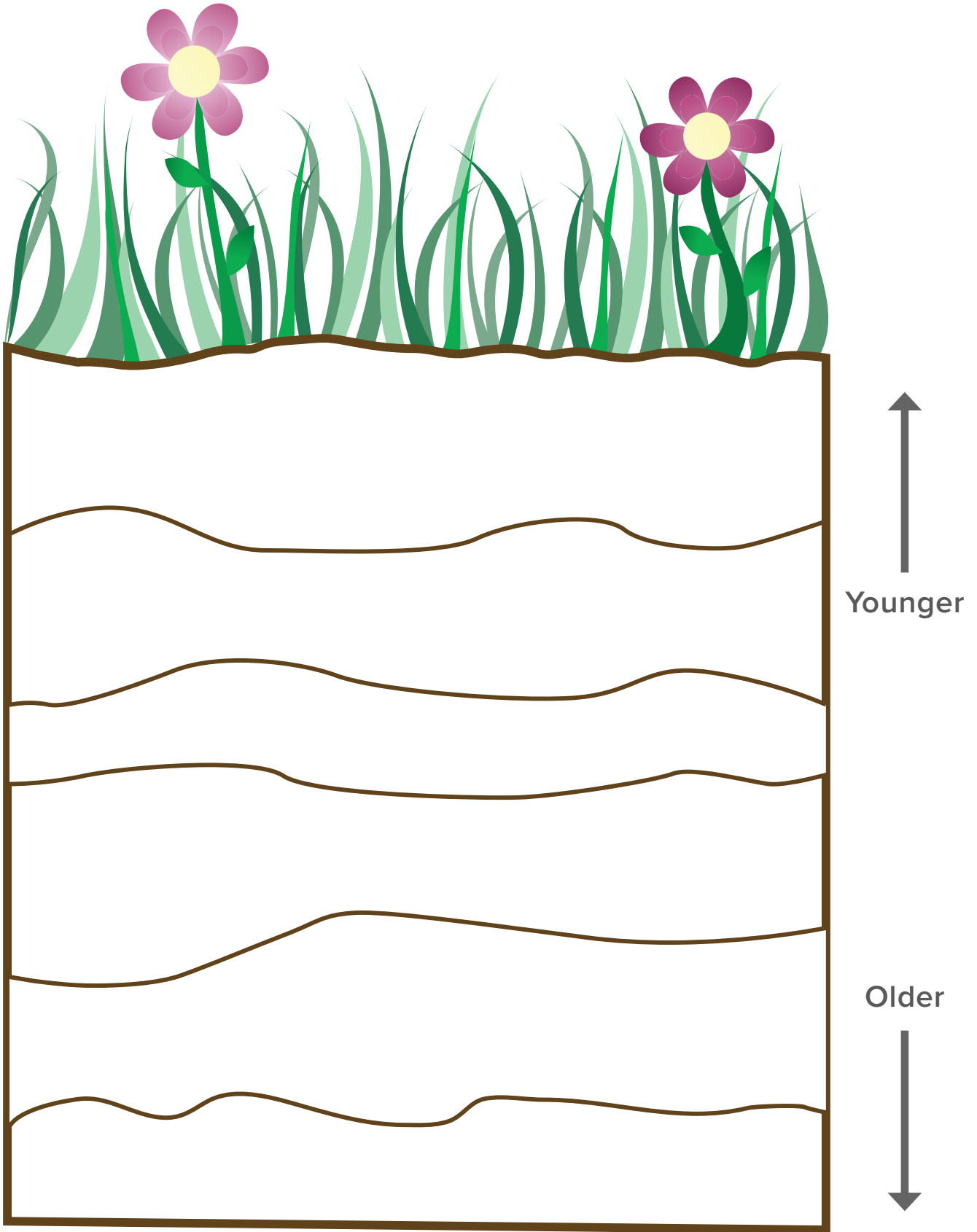
- The corks are younger than the bottlecaps
- The beans are older than the bottlecaps
- The noodles are older than the corks, but younger than the bottlecaps

Hard: 1

- The beans are younger than the noodles
- The corks are younger than the bottlecaps
- The corks are older than the beans
- The bottlecaps are younger than the noodles

Hard: 2

- The corks are not the youngest
- The noodles are not the oldest
- The bottlecaps are younger than the noodles
- The corks are older than the noodles, but younger than the beans



Spread Those Seeds

Subject: Botany

Learning Goal:

There are many different ways to deposit and spread seeds

Materials

- Plastic Easter Egg
- Small Pinecone that fits into Easter Egg
- Birdseed

Place pinecone and birdseed into Easter Egg

- Hand Helicopters

- Soft Playdough
(homemade recipe works well)

- Ziploc Freezer Bag with hole cut in bottom corner

- Sunflower Seeds
Mix into playdough

Description:

1. Let guests know, **“We are going to be exploring different ways that plants distribute their seeds.”**

2. Ask **“Why would it be important for plants to have their seeds protected and moved far away from them?”**

3. Ask **“What are some ways that plants could send their seeds away?”**

4. Positively reinforce all answers, emphasizing any answers that refer to dandelions having their seeds carried away on little gliders.

If it's not brought up, ask **“Have you ever seen people blow on a dandelion, or have you done it yourself? What happened?”**

5. Hand guests the hand helicopters, ask them to recreate dandelions spreading their seeds

6. Let guests know, **“That’s not the only way to send seeds far away.”** Ask guests **“What kinds of plants have lots of seeds in them?”** When guests answer fruits or vegetables, ask **“Do only humans eat fruits and vegetables? No? What happens to the seeds when animals eat them? Where do they go?”**

7. Have guests place seed dough in freezer bag as if the animal is putting the seeds in their stomach, and then squeeze out in different area of table/surface

8. Ask **“Will the animal leave the seeds behind right away, or will it take some time?”** Let guests know **seeds have protective coatings so that they can survive an animal’s stomach**

9. Tell guests **“Animals eating plants and pooping out the seeds is a really important way for plants to spread their seeds”**

Description:

10. Let guests know **“Those are two very common ways for plants to spread their seeds so that they can be planted, but there is another very special way for a specific kind of tree”**

11. Ask guests what they already know about Redwood trees and where they grow

12. Tell guests **Redwood tree seeds can only be spread during and after a forest fire**

13. Hand guests Easter Egg with pinecone and birdseed inside

14. Tell them **“Redwood pinecones have a protective resin on them that can only melt in a fire”**

15. Have guests open Easter Egg and unintentionally scatter birdseed on surface of table

16. Let them know **you were acting as the forest fire melting the coating and letting the seeds out**

17. Ask **“Why would Redwoods want to protect their seeds? How is this similar or different from the first two ways we talked about?”**

18. Ask **“Which method was your favorite? Why?”**

Study Resources

Seed Dispersal:

<http://www.mbgnet.net/bioplants/seed.html>

http://www2.bgfl.org/bgfl2/custom/resources_ftp/client_ftp/ks2/science/plants_pt2/index.htm

<http://theseedsite.co.uk/dispersal.html>

<http://www.pbs.org/wnet/nature/the-seedy-side-of-plants-video-shooting-seeds-burrowing-seeds/4665/>

What's in a Park?

Subject: National Park Diversity

Learning Goal:

Learn about the diversity of National Parks and what parks exist in local areas

Materials

- Tablet/Laptop
(display nps.gov, “Find a Park” select your state from map)
- State Park Location Cards
- Blank Postcards
- Crayons/pencils/pens

Description:

1. Ask: **“Would you like to play a National Park trivia game?”**
2. Display National Park Cards, let guests know **some of these may or may not be National Parks**
3. Have guests sort cards by which locations/monuments are maintained by the National Park Service
4. Once cards are sorted, let guests know **“All of these places across the country are overseen by the Park Service!”**
5. Ask **“Are any of these surprising? Why?”**

6. Using the tablet or laptop, show guests the map of their state and parks that are in the area

7. Ask **“Why do you think these are preserved and kept clean and safe for people to visit?”**

8. Have willing guests create postcards for a new park that they would want to create or place they'd like to preserve

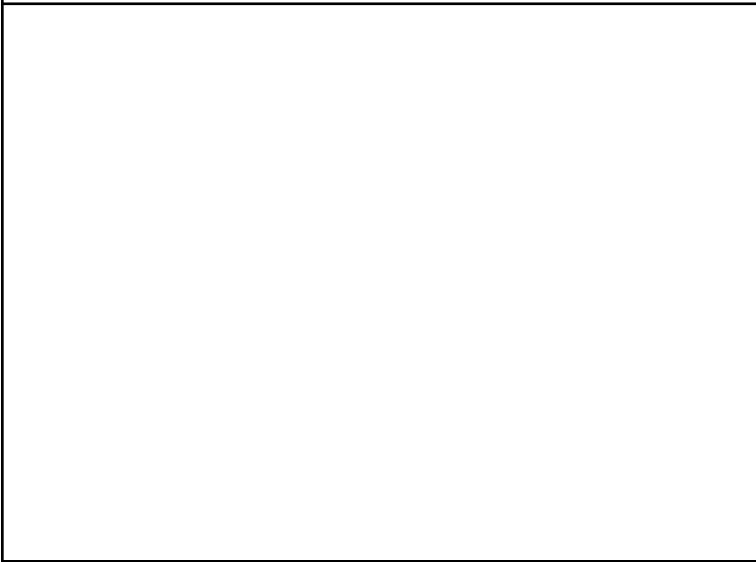
“What places in your community would you want to preserve? Why?”

Instruct guests to draw a picture of a place they would like to preserve or create in their neighborhood. Suggest they write a description of their park on the other side of the postcard and encourage them to send it to a friend or family member.

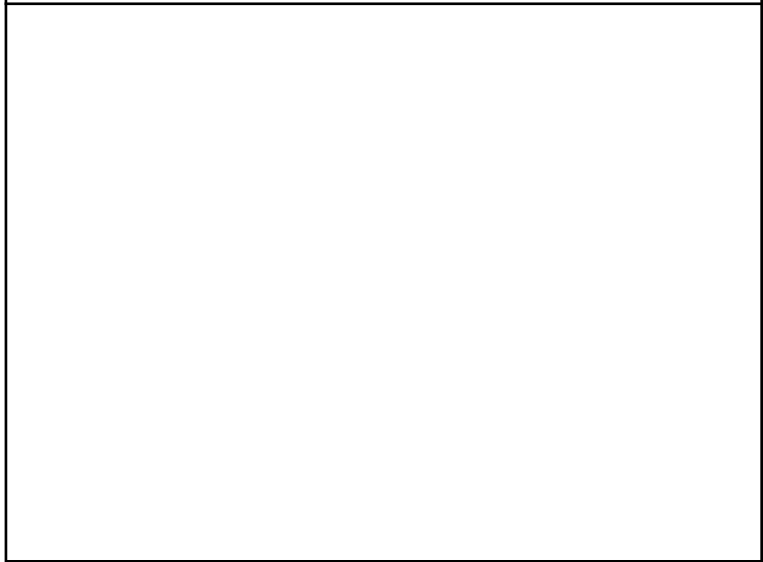
Study Resources:

National Parks and Monuments:
<http://www.nps.gov/findapark/index.htm>
<http://www.nps.gov/history/>

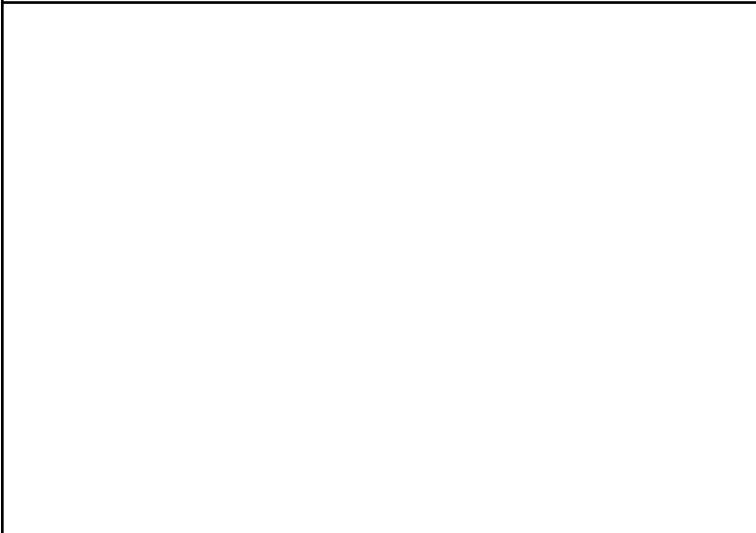
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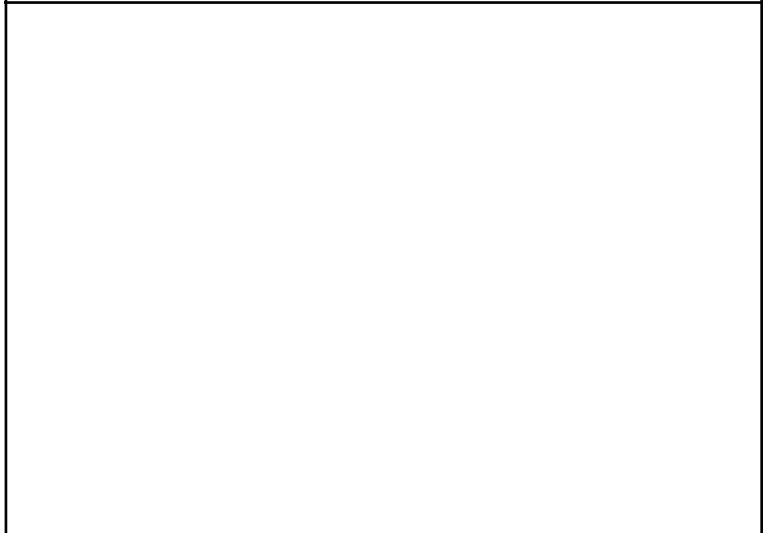
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Hoover Dam, NV



Gettysburg, PA



Manzanar, CA



Statue of Liberty, NY



Harriet Beecher
Stowe House, CT



US Capitol, DC



Cape Canaveral, FL



Cahokia Mounds, IL



Joshua Tree, CA



Isle Royale, MI



Hagerman Fossil Beds, ID



Devils Tower, WY



Biscayne, FL



Carlsbad Caverns, NM



Crater Lake, OR



Haleakala, HI



Kenai Fjords, AK



Voyageurs, MN

