



Primary Trunk

Travelin' Trunk
Lesson Plan

Dear Educator,

We are pleased that you and your class are taking part in Grand Canyon National Park's Travelin' Trunk program. This program is designed to transport students and teachers to one of the world's premier learning destinations without ever leaving the classroom.

Travelin' Trunks provide a variety of materials and activities designed to assist you in making classroom study of Grand Canyon lively and interesting. Each trunk has a particular focus, and all are equipped with more material than most classrooms can typically use. This allows teachers to choose from a variety of lesson plans and activities in order to complement existing required curriculum.

We suggest that you review this teacher's guide and the contents of the trunk. Then, choose lessons and activities most appropriate for your students.

Please fill out the enclosed evaluation form. This feedback is important to us and future trunk users. We review and improve the contents of the trunks based on your feedback.

A *Certificate of Completion* is enclosed for you to copy and issue to your students. Please return the original to the binder for others to use.

Instructions for shipping the trunk back to the Grand Canyon Association are included in this binder. If the trunk needs replacement items, or if you have any questions, please contact us at outreach@grandcanyon.org, or by phone: 800-858-2808 ext. 7141 or 928-638-7141.

Please keep in mind that many of the items contained in the trunk are available for purchase through the Grand Canyon Association mail order department at 800-258-2808 ext 7030 or online at www.grandcanyon.org.

Thank you for visiting the Grand Canyon!

Grand Canyon Association

CONTENTS

LESSONS

- LESSON 1** WHY NATIONAL PARKS?
- LESSON 2** WHAT IS GRAND CANYON?
- LESSON 3** ROCKS AND THE CANYON
FOR GRADES K-2
FOR GRADE 3
- LESSON 4** CLUES TO THE PAST: FOSSILS
- LESSON 5** CANYON CRITTERS
- LESSON 6** WEB OF LIFE
- LESSON 7** LEARNING CENTER
- LESSON 8** VIDEO VIEWING

RESOURCES & INFORMATION

- VOCABULARY LIST
- TRUNK INVENTORY
- ACADEMIC STANDARDS
- RELATED WEB SITES & RESOURCES
- PACKING AND SHIPPING INSTRUCTIONS
- EVALUATION FORMS
- CERTIFICATE OF COMPLETION

LESSON 1 *WHY NATIONAL PARKS?*

DURATION	About 15-20 minutes
LOCATION	Classroom
KEY VOCABULARY	National park, mission, protection, preservation
TRUNK MATERIALS	Map of Arizona
ADDITIONAL MATERIALS	U.S. Map
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. Locate Grand Canyon on a U.S. and/or Arizona map2. Explain the reasons national parks exist
BACKGROUND	<p>Grand Canyon was first given federal protection as a forest reserve in 1893. It later became a national monument. In 1919 it was made a national park, only three years after the creation of the National Park Service. The National Park Service is an agency of the Department of the Interior and oversees more than 80 million acres of public land in the United States.</p> <p>The mission of all national parks and monuments is the same:</p> <p><i>"To conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."</i></p> <p>National Park Service, Organic Act, 1916</p> <p>Grand Canyon National Park protects 1,904 square miles (1.2 million acres) including the canyon and the plateaus on both the North and South Rims. Almost five million visitors come from all over the world to enjoy Grand Canyon each year. Prior to the creation of Grand Canyon National Park, many people came to the canyon with dreams and schemes for making their fortunes. One of the things tried was mining. Bat guano, copper, asbestos, and uranium were mined through a variety of methods. Tourist camps and hotels were built both in the canyon and on the rim. Building a railroad through the canyon was also entertained.</p>

LESSON 1 *WHY NATIONAL PARKS?* (cont.)

SUGGESTED PROCEDURE

Ask students the following questions:

1. Who has been to a national park? Which park or parks?
2. What was special about it?
3. How was the national park different from other parks or attractions that you have visited? Using a map of the United States ask students to locate the Southwest, then Arizona.

Explain that Grand Canyon National Park is located in the northern part of Arizona.

4. Why do we have national parks? What is their mission? (clarify as needed)

Explain to students that the materials and activities in the trunk are for their enjoyment and learning. It is hoped that as they increase their knowledge and appreciation of Grand Canyon National Park, they will also focus on the beautiful and interesting places in their area that are worth visiting and protecting.

EVALUATIONS

Ask students to imagine what Grand Canyon might be like if it were not protected as a national park? What might have been built there, and what might it be like to visit?

EXTENSIONS

1. Ask students to think of a feature or an area nearby that they feel would be worthy of preserving as a park. Have them explain (either verbally or in writing) why. What would be the benefits of this area becoming a park?
2. As time permits, or as a follow-up to trunk use, have students design a park and draw a map of it with a key to show the layout. Would this park preserve and protect the area or feature? Would it provide for the enjoyment of visitors without destroying what made it special in the first place?

LESSON 2 *WHAT IS GRAND CANYON?*

DURATION	One class period
LOCATION	Classroom
KEY VOCABULARY	Historic, grand
TRUNK MATERIALS	<i>I See Something Grand, A Trail Through Time, Letters From the Canyon</i> cards
ADDITIONAL MATERIALS	U.S. map, butcher paper, Crayons or colored pencils
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. Locate Grand Canyon on a United States map2. Name at least five things found at Grand Canyon in addition to the rock layers that form it
BACKGROUND	<p>Grand Canyon is located in the northwest corner of Arizona. Most of Grand Canyon lies within the boundaries of Grand Canyon National Park and is managed by the National Park Service. The park includes over a million acres of land. Most people measure the canyon along the course of the Colorado River at the bottom of the canyon. By that standard Grand Canyon is 277 river-miles long. Width and depth vary from place to place, but at Grand Canyon village it is about ten air miles wide and one vertical mile deep. Although the canyon is best known for the beauty of the rock layers exposed there, many other aspects contribute to make it a unique and special place. These include plants, animals, historic buildings, trails, and of course the famous Colorado River.</p> <p>Work with students to locate Grand Canyon on a United States map. Measure the length of it with a ruler or a piece of string and compare it to familiar landmarks or distances.</p>

LESSON 2 *WHAT IS GRAND CANYON?* (cont.)

SUGGESTED PROCEDURE

1. Discuss and list questions students have about Grand Canyon. Read *I See Something Grand*. Discuss which of their questions the book answered.
2. Introduce the idea that Grand Canyon is more than rocks and a hole in the ground. Explain that they are each going to get one or more cards with a letter of the alphabet on it. It will also have pictures and words about things that are found at Grand Canyon.
3. Pass out laminated cards from the book *Letters From the Canyon*. Allow students time to look at the cards and identify two or more things that are part of Grand Canyon. Proceed by calling out alphabet letters and having students share two or more things found on their cards that they think are especially interesting. If you wish, keep a master list of the things they name.
4. Display cards in your classroom. If you are working with a large number of students you may wish to divide them into groups to give them a more hands-on experience. If so, have some students work on other activities or work independently (for example, view one of the videos, or use the CD-ROM).

EVALUATIONS

Evaluate participation and discussion.

EXTENSIONS

Using brown and orange butcher paper, create a backdrop canyon mural. Students will add things they remember or from the master list that are part of Grand Canyon (plants, animals, trails, buildings, etc). Students may color or paint directly on the mural, or color, cut, and glue pieces to it. If you wish, copy pages from the Grand Canyon coloring book found in the trunk and use them for this project.

LESSON 3 *ROCKS AND THE CANYON*

GRADES	K-2
DURATION	One class period
LOCATION	Classroom
KEY VOCABULARY	Geologist
TRUNK MATERIALS	<i>Everybody Needs a Rock</i> , hand lenses
ADDITIONAL MATERIALS	None
LEARNING OBJECTIVES	Students will be able to explain: <ol style="list-style-type: none">1. That there are different kinds of rock2. That Grand Canyon is made of layers of rock that were cut by a river3. The oldest rocks are at the bottom, the youngest rocks are at the top
BACKGROUND	The rock that makes up Grand Canyon was laid down over a period of many millions of years. It is believed that the canyon itself formed in the last five or six million years, carved by the Colorado River. The rock at the bottom of the canyon is igneous and metamorphic rock. It is the oldest rock found at Grand Canyon. The layers above these are younger sedimentary rocks- laid down by shallow seas or windswept deserts.

LESSON 3 *ROCKS AND THE GRAND CANYON (cont.)*

SUGGESTED PROCEDURE

Read *Everybody Needs a Rock* to the class. Ask each student to bring in two or three rocks that are different from each other (smooth, jagged, rough, different colors). Ask them to remember where they found the rocks. Bring some of your own to assure variety.

1. When most have brought in their rocks, place them on a table or on a light colored sheet on the floor. Ask students to observe how the rocks are different (shape, size, color). Ask them what senses in addition to sight they could use to find out more about these rocks.

2. Ask for ideas about how the rocks could be sorted. Allow time for students to handle and sort rocks into various categories using their senses. Provide hand lenses for observing the rocks more closely.

3. Explain that scientists called geologists also study rocks to learn how they are formed and what they are made of. Geologists can tell a lot about a rock by where it is found and by observing it as you have. One of their favorite places to study rocks is Grand Canyon. Ask students why they think this is so.

4. Conduct Sedimentary Sandwich exercise (p.38 of *Earth Science for Every Kid*). Ask students to think about which layer is oldest (the one that got there first). Explain that the layers of rock found at Grand Canyon are like that. The older ones are below the younger ones.

EVALUATIONS

Evaluate participation and discussion.

EXTENSIONS

See *Earth Science for Every Kid* for additional activities and the Learning Center for extensions.

LESSON 3 *ROCKS AND THE CANYON*

GRADES	Third
DURATION	Two class periods
LOCATION	Classroom
KEY VOCABULARY	Cycle, erosion, igneous, metamorphic, sedimentary
TRUNK MATERIALS	<i>Earth Science for Every Kid, Grand Canyon: A Trail Through Time</i>
ADDITIONAL MATERIALS	See material lists on pages 36, 38, and 86 of <i>Earth Science for Every Kid</i> . Spray bottle of water
LEARNING OBJECTIVES	Students will be able to explain: <ol style="list-style-type: none">1. Demonstrate the three types of rock using simple experiments2. Explain in simple terms how Grand Canyon formed and that some things about its formation remain mysteries that scientists are trying to solve
BACKGROUND	<p>Grand Canyon is famous for the beauty of the many layers of rock that are exposed there. Scientists from all over the world have come to study the rocks. Although much is known about the age of the layers and what formed them, much is still unknown about how the canyon formed. The Colorado River carved it, but how it got there and began the process remains a mystery that scientists still study and debate.</p> <p>Most of the layers of rock found at Grand Canyon are sedimentary rock laid down over long periods of time by seas and deserts.</p> <p>The oldest rock, found down by the river at the bottom of the canyon, is metamorphic rock, formed by heat and pressure.</p> <p>Igneous rock, seen mostly in the western part of Grand Canyon, was formed by molten rock called magma that cooled either below or on the earth's surface.</p>

LESSON 3 *ROCKS AND THE GRAND CANYON (cont.)*

SUGGESTED PROCEDURE

Part 1

Ask students what Grand Canyon is made of (rock). Explain that there are three main types of rock that have long names.

1. Conduct and discuss the following three experiments from *Earth Science for Every Kid*:

Crunch (metamorphic rock) page 36

Sedimentary Sandwich (sedimentary rock) page 38

Squirt (igneous rock) page 86

2. Explain that although all three types of rock are found at Grand Canyon, most of the rock layers found there are sedimentary rock.

Part 2

Review the main types of rock (sedimentary, igneous, and metamorphic). Tell students that Grand Canyon has all of these types of rock and they were there long before the canyon formed. Ask them to think about what would be strong enough to cut through all that rock to make a canyon. Allow time for them to share their ideas. Tell them that you have it right with you, that it is something they need and use every day. Have a spray bottle of water available and explain that running water is one of the strongest forces on earth—strong enough to carve the Grand Canyon. Explain that even though scientists know the Colorado River carved Grand Canyon, there are many things about how it happened that they are still studying and debating.

1. If possible conduct the following experiments found in *Earth Science for Every Kid*:

Speedy, pages 102-103

Wander, pages 104-105

2. Introduce the word and concept of erosion. Tell them that water from a big river called the Colorado River carved Grand Canyon, and water from rain and snow helped make it wider. Ask if they think the canyon is finished growing and changing. The river, side streams, snow, and rain are still carving and changing the canyon.

3. Take a walk around the school grounds or nearby areas to find examples of erosion.

4. Read the book *Grand Canyon: A Trail through Time*.

EVALUATIONS

Give students a small piece of paper. Ask them to put their name on it and number it from one to four. Divide students into four groups. Secretly give each group one of the following words: sedimentary, metamorphic, igneous, erosion. Ask them to think of a way to act out their word without speaking. Give them a few minutes to work, then have groups perform. After each performance ask students to mark their papers with an S, M, I, or E, to indicate which word is being shown. Collect papers. The group whose word gets the most correct answers wins. Evaluate skits and papers.

EXTENSIONS

See *Earth Science for Every Kid* for additional activities and the Learning Center for extensions.

LESSON 4 *CLUES TO THE PAST: FOSSILS*

DURATION	Two class periods
LOCATION	Classroom
KEY VOCABULARY	Fossil, petrified, extinct
TRUNK MATERIALS	<i>Fossils Tell of Long Ago</i> , <i>Earth Science for Every Kid</i> , clay, petroleum jelly, art plaster, fossil specimens, hand lenses, <i>If You Are a Hunter of Fossils</i>
ADDITIONAL MATERIALS	Paper cups, paper plates, spoons, sea shells and additional objects to “fossilize”
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. Explain how fossils form and why they are important2. Make and explain in their own words a simple fossil model
BACKGROUND	<p>A fossil is any “remains” of a plant or animal that has been preserved in rock. Fossils tell us much about what the earth was like millions of years ago. The fossil record at Grand Canyon is rich. Visitors on the rim are most likely to see marine invertebrate fossils found in the limestone of the Kaibab Formation. These include brachiopods, sponges, and crinoids. Fossils that are found in other canyon layers include plant remains and animal tracks where plants and animals left imprints in a layer of mud or sand. If nothing collected in the prints, they dried and formed what is now called a <i>cast fossil</i>. If the imprints were filled with minerals that turned into rock is called a <i>mold fossil</i>.</p>

LESSON 4 *CLUES TO THE PAST: FOSSILS (cont.)*

SUGGESTED PROCEDURE

Ask students if they have ever seen fossils. Discuss their ideas about what fossils are.

1. Divide students into small groups. Conduct the following experiment from *Earth Science for Every Kid: Prints*, pages 48-49.
2. Discuss the fossil models that result from the experiment.
3. Read and discuss all or part of *Fossils Tell of Long Ago*. Ask students the following questions:
 - Why are scientists interested in fossils?
 - What can be learned by looking at fossils?
 - What do you find interesting about fossils?
 - What might people in the future find fossilized from our time?
4. View the fossils found in the trunk (and any others brought in) using the hand lenses.
5. Read *If You Are a Hunter of Fossils*.

EVALUATIONS

Evaluate student explanations of fossil formation using “fossils” made in class.

EXTENSIONS

Take a field trip to a local area where fossils are found. Do simple fossil identification, rubbings, or casts using art plaster or clay.

Ask students to bring in any fossils they may have collected to label and display.

LESSON 5 CANYON CRITTERS

DURATION	One or two class periods
LOCATION	Classroom
KEY VOCABULARY	Extinct, habitat
TRUNK MATERIALS	<i>California Condors</i> and plush condor; Animal pictures (from Web of Life in Lesson 6); squirrel sticks, and pinecones; <i>Grand Canyon for Kids</i> , desert creatures stamps, <i>Grand Canyon Critters</i> , <i>An Introduction to Grand Canyon Ecology</i>
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. Explain two ways the Kaibab and Abert squirrels are alike and two ways that they are different2. Explain how scientists are trying to save California condors from extinction3. Draw two animals found at Grand Canyon in their habitat
BACKGROUND	<p>There are many interesting animals found at Grand Canyon. Three of them with particularly interesting stories are the Kaibab and Abert squirrels, and the California condor.</p> <p>The Abert and Kaibab squirrels are referred to as tassel-eared squirrels. They are not to be confused with the rock squirrels often seen along the rim and trails begging for food from visitors.</p> <p>The Abert squirrel is found on the South Rim of the canyon. She has a white belly, gray back with a reddish streak in it, and a gray and white tail. The Kaibab squirrel, found on the North Rim, has an all-gray body, the same reddish streak down its back, and an all-white tail. Except for their coloring, they are alike.</p> <p>Scientists believe that they have evolved differently over time because they are isolated from each other by the deep canyon. Both squirrels are entirely dependent on the ponderosa pine forest. They eat the seeds from the pinecones, the juicy layer on twigs, and the truffles attached to the roots of the tree. Truffles are mushroom-like organisms that help the tree absorb moisture. The squirrels build their nests in the tree branches. These squirrels are helpful to the trees by spreading seeds from the pinecones and spores from the truffles.</p> <p>California condors are an endangered species. They were hunted and poisoned to near extinction and are therefore very rare. Their enormous size makes them quite something to see. The California condors that have been released in the Grand Canyon area weigh between fourteen and twenty pounds. Their adult wingspan is eight to ten feet. They are scavengers. They eat dead animals.</p> <p>California condors are being brought back from near extinction by a captive breeding program. Some have been released in the Grand Canyon area because it offers a relatively safe place to live with plenty of food, water, and shelter. However, these condors have not yet reached a stable population. The birds are carefully monitored and sometimes recaptured for medical assessment and treatment. Lead poisoning is a threat that has caused the death of at least five birds and required medical treatment of others who have ingested lead shot from carcasses.</p> <p>For current information on the location and status of the condors go on the Web to www.peregrinefund.org and click on "Notes from the Field," then "California condor releases." These notes are updated periodically.</p>

LESSON 5 *CANYON CRITTERS (cont.)*

SUGGESTED PROCEDURE

Ask students to name some of the animals they think might live at Grand Canyon. Ask them to think about where each animal might live—in the forests, on the rim of the canyon, in the dry rocky places below the rim, or down by or in the river at the bottom of the canyon. It may help to use the animal cards from the Web of Life activity (see Lesson 6).

Using the picture of the squirrels and the ponderosa pine tree found in the Web of Life game, introduce the squirrels and ask students to describe how they are alike and how they are different (see background above). Show and pass around the “squirrel sticks” and pinecones (found in the trunk) that have been munched by squirrels. Ask students to explain why the squirrels don’t just cross the canyon.

Read the book *California Condors*. Measure out the wingspan of a condor on the floor or on a piece of butcher paper. Have students compare it to the size of things they are familiar with. If you draw it, be sure to include the primary feathers. Discuss the following questions:

- Why have condors become endangered (almost extinct)?
- Why do you think people are working so hard to save condors?
- What makes their job hard?

EVALUATIONS

Ask students to draw two animals that live at Grand Canyon. Ask them to show appropriate habitat in the drawing.

EXTENSIONS

Use the stamps and stencil book found in the trunk to make note cards or to decorate materials. Read *Grand Canyon Critters* book.

Select and duplicate appropriate pages in coloring book (*Grand Canyon for Kids*).

LESSON 6 *WEB OF LIFE*

DURATION	One class period
LOCATION	Classroom or outdoors
KEY VOCABULARY	Web of life, interdependence, biodiversity, habitat
TRUNK MATERIALS	Ball of yarn and Web of Life laminated cards, <i>An Introduction to Grand Canyon Ecology</i>
ADDITIONAL MATERIALS	None
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. Explain how the plant, animal, or other component on their card fits into the overall "web of life"2. Demonstrate a level of understanding of the importance biodiversity plays in ecosystems3. List at least three ways that people affect the ecosystem at Grand Canyon
BACKGROUND	The ecosystem at Grand Canyon is complex and, as with ecosystems everywhere, consists of many interdependent organisms and conditions. Students actively explore how these organisms interact and depend upon each other as they play the Web of Life game. It will be helpful for you, as facilitator, to take time to read the information on the back of each card so that you are familiar with the "players." For more detailed background see <i>An Introduction to Grand Canyon Ecology</i> by Rose Houk.

LESSON 6 *WEB OF LIFE (cont.)*

SUGGESTED PROCEDURE

1. Pass a Web of Life card to each student. Make sure that sun, water, soil, and air are among those passed out.
2. Explain each item as appropriate, depending on the time available and age group.
3. Seat players in a circle and have them hold the card showing what they represent so that it is visible to other players.
4. Give one student the ball of yarn and ask him or her to connect to another part of the Grand Canyon ecosystem. Have him or her explain the connection. Older students can be required to give a more complete explanation for the connection than younger students.
5. Continue passing the yarn until all players are connected at least once.
6. Ask students the following questions about the web they have created:
 - What makes it strong?
 - What happens if there are fewer players?
 - What roles do humans play in the web of life?
7. Have one key item (like water) tug on the web. How many others feel the effect of water? Point out that sometimes the loss of small and seemingly unimportant members of a community can have significant and long-lasting effects that we do not always anticipate or understand.
8. Introduce fire to the web. Discuss how fires might start and their possible effects. Be sure to point out that fire is often an important part of ecosystems and should not always be viewed as a bad thing. Are there other natural or man-made processes or events that affect webs? What are they?

EVALUATIONS

Give students a list of ten or more community or ecosystem members.

Ask them to draw a web of life using these members and write a paragraph explaining five of the connections made in the web.

EXTENSIONS

Have students make a Web of Life game for their local environment and play it with a younger group of students.

Invite a local biologist to explore a local ecosystem with students and to help them identify and inventory its components. (Contact your local college or university for assistance in locating a guest speaker.)

Create a classroom web-of-life bulletin board showing the components and how they are interdependent. (This could be Grand Canyon, local, or both for comparison.)

LESSON 7 *LEARNING CENTER*

DURATION	Duration of trunk visit
LOCATION	Classroom. You may wish to put out all appropriate materials on a table or counter, or a few items at a time. You may choose to use the activities as whole-group activities or individual. This will depend on your group, your goals and the time and space available.
TRUNK MATERIALS	Books, videos, posters, pamphlets, and other trunk items.
ADDITIONAL MATERIALS	Provide an area specifically for these activities. Have on hand a cassette player (with headphones?), DVD/VCR player with TV, PC (for CD ROM), pencils, paper. If coloring books are used, please select and copy appropriate pages for students to color. Do not write in or on any of the materials provided.
LEARNING OBJECTIVES	Students will be able to express verbally or in writing, their thoughts and feelings about Grand Canyon topics and National Parks in general.
BACKGROUND	The intent of the learning center is to allow exploration of trunk materials by small groups or individuals. Allowing time and choice offers students the opportunity to reflect upon and respond to the materials using a variety of learning styles and modalities (music, art, poetry, etc).
SUGGESTED PROCEDURE	<p>Create a Learning Center by setting out materials on a table or counter with instructions. Spend a few minutes introducing the students to the materials. Set aside time when individuals or groups may work with these materials and set clear expectations. For example: complete one activity before going on to the next. Indicate how many people may work in the area at one time. Where should completed work be placed? Demonstrate how to handle fragile items.</p> <p>Possible activities to accompany music include painting, drawing, writing a poem or story. Books may be read aloud to each other. Crossword puzzles could be created from vocabulary used in books. After reading a book, a small group may perform a short skit telling the story.</p>
EVALUATIONS	Evaluation will vary depending on how these materials and activities are used, and the expectations teachers have set for students.

LESSON 8 VIDEO VIEWING

DURATION	One or two class periods
LOCATION	Classroom.
VOCABULARY	Erosion, protection
TRUNK MATERIALS	<i>Canyon Song</i> (33 min.), <i>Arizona Highways—Grand Canyon</i> (60 min.) <i>Grand Canyon Suite</i> (32 minutes)
LEARNING OBJECTIVES	Students will be able to: 1. Name at least five things they noticed about the canyon from watching the video
BACKGROUND	The videos are included for optional enrichment. <i>Canyon Song</i> is shorter (33 min.) and more general, so may be most appropriate for younger students. <i>Arizona Highways—Grand Canyon</i> is 60 minutes long and includes a broad range of information including natural and human history of the canyon. <i>Grand Canyon Suite</i> (32 min.) has no narration and is Ferdinand Grofe's translations of his vivid impressions of the Grand Canyon. It is recommended that you preview the videos and select the one (or part of one) most appropriate for your study and students.
SUGGESTED PROCEDURE	<ol style="list-style-type: none">1. Preview and select a video.2. Prepare students for what they will see with a brief discussion. Suggest a few things they should look for or focus on (for example: animals, color of the river, things they see people doing, etc.).3. View video and discuss it in relationship to previously completed lessons and activities.
EVALUATIONS	Conduct a discussion following up on number 2, above, to see what students noticed while watching the video.

RESOURCES & INFORMATION VOCABULARY LIST

cycle	A series of events that are repeated over and over again, as in the cycle of the seasons
erosion	The gradual wearing away of a substance by water or wind, as in soil erosion
extinct	If a type of animal or plant is extinct, it has died out
fossil	The remains or traces of an animal or plant from millions of years ago, preserved as rock
geologist	A scientist who studies the earth's layers of soil and rock
grand	Large and impressive—as in the Grand Canyon
historic	An event or place that was important in the past
igneous rock	Rock formed from magma, such as lava, granite, and basalt
lava	Magma that has flowed above ground
magma	Melted rock from deep in the earth
metamorphic	Rock that has gone through changes caused by heat and pressure
mission	A special job or task
national park	A section of land or historic site set aside by the government for protection and public use
petrified	Turned into stone because minerals have seeped into its cells.
preservation	The act of protecting something so that it stays in its original state.
protection	The act of guarding or keeping something safe from harm, attack, or injury.
sedimentary	Rock that is formed by layers of rock, sand, or dirt being pressed together.

PRIMARY *TRUNK INVENTORY*

TEACHER'S GUIDE

BOOKS

California Condors
Earth Science for Every Kid
Everybody Needs a Rock
Exploring the Grand Canyon
Fossils Tell of Long Ago
Fun Guide to Grand Canyon (2 copies)
Grand Canyon-A Trail Through Time
Grand Canyon Critters
Grand Canyon for Kids coloring book
I See Something Grand
If You Are A Hunter Of Fossils
An Introduction to Grand Canyon Ecology
The Mail Must Go Through
National Park Service Activities and Adventures for Kids
Stencil books – Desert Animal and Southwest Indian

AUDIO/VIDEO

Canyon Song (video)
Grand Canyon (video)
Grand Canyon Suite (video)
Grand Canyon CD ROM
Southwestern Birds (audio cassette)
Sounds of Grand Canyon (audio cassette)

POSTERS

California Condor
Grand Canyon (NPS)
Grand Canyon (scenery)
Life Zones of the San Francisco Mountains
Tonto Platform Wildlife with key

GAMES

Animals of the Deserts of North America
Grand Canyon Web of Life (30 cards and ball of yarn)
Hummingbird Puzzle

OTHER

Condor (stuffed animal)
Desert creatures stamps (set of 4)
Fossils
Hand lenses (6)
Letters From the Canyon alphabet cards
Pinecones and Squirrel Sticks
Pocket Field Guide (2)
Recreational Map of Arizona (folded)
Scorpion (stuffed animal)
Wild Animal Masks (set of 7)
View Master (2 with 6 reels)

CONSUMABLES

Art Plaster, Petroleum Jelly, Clay

RESOURCES AND INFORMATION *ACADEMIC STANDARDS*

NATIONAL SCIENCE EDUCATION STANDARDS

Trunk lessons and activities address the following standards. However, it is the teacher's responsibility to integrate lessons into an appropriate framework of long- and short-term goals, and adapt them to appropriate curricula.

Content Standard A: Science As Inquiry

As a result of activities in grades K-4, all students should develop:

- Abilities necessary to do scientific inquiry
- Understanding about scientific inquiry

Content Standard C: Life Science

As a result of activities in grades K-4, all students should develop understanding of:

- The characteristics of organisms
- Life cycles of organisms
- Organisms and environments

Content Standard D: Earth and Space Science

As a result of their activities in grades K-4, all students should develop an understanding of :

- Properties of earth materials
- Changes in earth and sky

Content Standard F: Science in Personal and Social Perspectives

As a result of activities in grades K-4, all students should develop understanding of:

- Characteristics and changes in populations
- Changes in environments

Content Standard G: History and Nature of Science

As a result of activities in grades K-4, all students should develop understanding of:

- Science as a human endeavor

STANDARD 2: HISTORY AND NATURE OF SCIENCE

Students understand the nature of scientific ways of thinking. Students understand that scientific investigation grows from the contributions of many people.

Foundations (Grades 1-3)

Understand that scientific inquiry has produced much knowledge about the world, that much is still unknown, and that some things will always be unknown.

Describe and explain the interrelationship of populations, resources and environments.

Describe and explain cause-and-effect relationships in living systems.

Identify major features of natural processes and forces that shape the earth's surface, including weathering and volcanic activity.

Standard 3: Personal and Social Perspectives in Science and Technology

Students understand the impact of science on human activity and the environment and are proficient in the uses of technology as they relate to science.

RESOURCES AND INFORMATION *ACADEMIC STANDARDS* *(cont.)*

Standard 4: Life Science

Students understand the characteristics of living things.

Standard 6: Earth and Space Science

Students understand the composition, formative processes, and history of the earth, the solar system and the universe.

RESOURCES AND INFORMATION *RELATED WEBSITES*

Listed below are Web sites that you may find of interest.

GENERAL GRAND CANYON SITES

Grand Canyon National Park Environmental Education

Includes information on a variety of programs and activities, and contact information for the park environmental education specialist. [*http://www.nps.gov/grca/education*](http://www.nps.gov/grca/education)

Grand Canyon Association

Information on educational opportunities and materials can be found here as well as information pertinent to the 'Travelin' Trunk' program.

[*http://www.grandcanyon.org/fieldinstitute*](http://www.grandcanyon.org/fieldinstitute)

Official Grand Canyon National Park Information

The latest news from the park, and a broad range of information.

[*http://www.nps.gov/grca/grandcanyon*](http://www.nps.gov/grca/grandcanyon)

Edu-source.com Natural History of Northern Arizona

Includes interesting information, photographs, and graphics.

[*http://www.edusource.com*](http://www.edusource.com)

GRAND CANYON ECOLOGY SITES

Peregrine Fund

Includes information on the California condors as well as peregrine falcons. Of particular interest is the section called "Notes from the Field." Here you can read what these giant vultures are up to and how they are thriving in the wild. [*http://www.peregrinefund.org*](http://www.peregrinefund.org)

RESOURCES AND INFORMATION *PACKING & SHIPPING*

PACKING

Please reassemble the trunk contents as you found them. Double check to be certain all “pieces” are repacked by using the Trunk Inventory. This will ensure that the next user will have all they need, and will save the time and trouble of tracking down missing pieces. If pieces have been lost or damaged, please notify us so that we may replace them.

SHIPPING

Please carefully read the following RETURN SHIPPING INSTRUCTIONS.

The return shipping fee is already paid!! Use the enclosed return shipping label to ship the trunk back to us via UPS ground.

NOTE - If your school has REGULARLY SCHEDULED UPS shipping & receiving service, arrange for the trunk to go to that pickup/drop off location for UPS pickup.

NOTE - If your school **DOES NOT** have REGULARLY SCHEDULED UPS service, you must take the trunk box to an authorized UPS location such as *UPS Store, Mailboxes, etc.*, or give the labeled box to any UPS driver. To find the nearest authorized UPS location, call UPS at 800-742-5877 or visit their website at www.ups.com.

If you have any questions regarding return shipping procedures, please call the Grand Canyon Association: toll free 800-858-2808 ext. 7141

If you have not sent your shipping fee, please send a check for the following amount:
\$15 Arizona \$25 for states bordering Arizona \$40 for all other states

Send Check To:
GCA / Travelin' Trunks
PO Box 399
Grand Canyon, AZ 86023

If you have questions or problems, **PLEASE CONTACT US!**

Grand Canyon Association
800-858-2808 ext. 7141
E-mail outreach@grandcanyon.org

RESOURCES AND INFORMATION *EVALUATION FORM*

Evaluation forms and self-addressed stamped envelopes are provided to help us to improve upon existing and educational outreach endeavors. We appreciate you taking the few moments to complete and return this form.

School/ Group Name _____ City _____

Name of Trunk Used _____

1. How many students used the trunk? _____

2. How many teachers used the trunk? _____

3. Have you used GCA Travelin' Trunks in the past? _____

4. Are you planning to use a trunk next school year? _____

5. How did you pay for the shipping fee?

School funds ____ Personal funds ____ Parent Group ____ Other ____

6. Please check items that were used:

teacher guide

lesson plans

videos

cassettes

cd rom

books

posters

slides

other (please be specific) _____

7. Favorite activity?

8. Please rate your overall experience with the trunk by checking below:

excellent good good, but needs improvement poor

Additional Comments

