



John Wesley Powell

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

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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 *EXPLORATION OF THE COLORADO RIVER: BOAT BUILDING*

DURATION	Approximately two one-hour sessions
LOCATION	Classroom
KEY VOCABULARY	Explorer, uncharted, rapid, whitewater
TRUNK MATERIALS	<i>The Exploration of the Colorado River and its Canyons</i> by John Wesley Powell; craft sticks, pipe cleaners, 1 foot length string, cloth pieces
ADDITIONAL MATERIALS	Paper, pencils, glue, scissors, plastic tub, pennies, paper clips
LEARNING OBJECTIVES	<p>This hands-on, cross-curricular activity is designed to capture student interest and serve as an introduction to John Wesley Powell's exploration of Grand Canyon.</p> <p>The student will be able to:</p> <ol style="list-style-type: none">1. Demonstrate creative problem solving and group cooperation skills2. Use math skills appropriate for lesson calculations3. Make predictions and observations concerning boat materials and designs
BACKGROUND	<p>John Wesley Powell is the most famous of Grand Canyon explorers. He was a self-educated teacher from Illinois. He served in the Civil War where he lost his right arm in the Battle of Shiloh. Major Powell headed his own topographical survey, then served as director of the U.S. Geological Survey and Bureau of Ethnology. An amateur naturalist of the Colorado Rockies, he came west in 1869 determined to float the Colorado River.</p> <p>In May 1869 Powell inventoried his scant supplies: military rations, scientific instruments provided by his patrons, and boats of his own design that had been built in Chicago and transported to their launching point by railroad. He and his makeshift crew of nine men then set off from Green River, Wyoming, in four wooden boats. Within three weeks they found themselves struggling for survival when they lost one boat and most of its contents in a rapid Powell subsequently named Disaster Falls. Things only got worse from there as they encountered what seemed to them a nearly unbroken series of rapids.</p> <p>Four months into the expedition and only two days from the end (of course, they didn't know that), three of the exhausted, frightened, discontented men left the expedition at Separation Rapid. No one knows for sure what happened to them, but most believe that Indians killed them as they attempted to hike out. Another theory is that Mormons killed the</p>

LESSON 2 *EXPLORATION OF THE COLORADO RIVER: BOAT BUILDING (cont.)*

BACKGROUND (cont.)

three when they were mistaken for federal agents.

Powell learned some important facts concerning the courses of the Green and Colorado Rivers, but returned to make a second and far more fruitful expedition in 1871–72, during which time he completed the scientific work his first expedition had begun. Powell's explorations and mapping sparked national interest in the area, and resulting publicity began to attract geologists and later eastern visitors to the region.

SUGGESTED PROCEDURE

1. Divide students into groups of three or four, then present the following scenario:

Imagine that you are living in the West in 1869. This is wild, unsettled frontier country, a place where you must be tough to survive. European Americans have recently explored much of this region, but a wild, uncharted river cuts through an unexplored canyon. Some who have been to this area have predicted that it will never be explored.

You have made earlier trips to the area and have decided to take on the enormous challenge of exploring and mapping this wild waterway. You must now build a boat to carry you on your journey. The boat will need to be strong, as you will likely encounter rapids of varying sizes and other unknown hazards. It will also need to hold cargo and supplies to last for a three-month trip.

2. Post a list of supplies and the cost for each item (see list below and add other items as desired). Explain that the boats will be judged on strength and cost. The winning boat will be decided by taking the cost of each boat and dividing by the number of pennies each boat holds (one less than the number it takes to sink it) to get a total cost per penny of cargo. Boats may be as elaborate as students wish to make them with as large a cost as they wish, but students must remember that the winning boat will be the strongest boat for the money!

Each group will need:

- A supply officer — in charge of getting supplies
- A recorder — in charge of keeping track of expenses and writing down boat data
- A planning officer — in charge of drawing boat plans (with input from all) and explaining them to the class
- And, if there is a fourth team member, a cargo officer — in charge of placing the pennies on the team's boat

LESSON 2 *EXPLORATION OF THE COLORADO RIVER: BOAT BUILDING (cont.)*

SUGGESTED PROCEDURE (cont.)

3. Have students draw a rough sketch of their boat, labeling its different parts. Sketches should include approximate length and height of boat parts. Using the sketch, ask them to make a list of needed supplies.

4. Have each group's supply officer come to you to get their supplies. The recorder must keep track of the money spent during construction.

5. Allow time for students to build their boats.

6. Completed boats should be brought to a central place for judging. Each planning officer will then be asked to explain their boat and share the team's reasons for its design.

7. Before floating each boat in the testing tub and loading it with cargo (pennies) until it sinks, each group will make a prediction of the number of pennies it will hold (see separate form). Students must calculate and graph each group's projected cost per penny of cargo.

They will also record the actual results as they occur then calculate and graph the actual cost per penny of cargo. Provide help or teach as a group lesson if needed.

8. Students may place the pennies on their boat in any fashion they desire. The teacher acts as timekeeper (one penny every five seconds) and serves as referee, making sure that all conditions are identical for each group. She/he calls out for the recorders the number of pennies each boat holds before it sinks.

9. Now groups will calculate and graph the actual cost per penny of cargo for each boat. The winning boat is determined by reaching consensus on the cost per penny of cargo for each boat.

10. Use the following questions to debrief the class:

- How did different building materials affect the outcome?
- How did the different boat designs affect the outcome?
- Did it matter how or where the pennies were placed on the boat?

LESSON 2 *EXPLORATION OF THE COLORADO RIVER: BOAT BUILDING (cont.)*

SUGGESTED PROCEDURE (cont.)

Give students a brief overview of John Wesley Powell's real-life adventure as he explored and mapped the untamed Colorado River through Grand Canyon. Explain that they will soon be reading and listening to parts of Powell's journal and studying this historic journey. Powell designed the boats used on this expedition. Now that students have had experience in boat design, ask them to consider the following:

- What would you have done to ensure that your boat could handle enough cargo to last at least three months?
- How would you calculate the amount of food to bring and carry in the boats?

EVALUATIONS

Use the groups' boats, calculations, graphs, as well as amount and quality of participation in the debriefing discussion as evaluation tools.

SUGGESTED SUPPLIES

Craft sticks \$1/each
Glue \$5/bottle
String \$1/foot
Pipe cleaners \$1/each
Cloth \$1/sq ft
Paperclips \$1/each

Unused supplies may be returned for 50% of their purchase price.

Teachers Lance Barnes and Cole Young contributed this lesson to the Grand Canyon Curriculum Project.

**LESSON 2 *EXPLORATION OF THE COLORADO RIVER:*
*RECORD SHEET***

BOAT ACTIVITY RECORD SHEET

**GROUP
NAME**

\$ SPENT for construction	CARGO PREDICTION # of pennies	COST PREDICTION cost per penny	CARGO ACTUAL # of pennies of cargo	COST ACTUAL cost per penny of cargo

LESSON 3 MAJOR POWELL'S JOURNAL

DURATION	Will vary
LOCATION	Classroom
KEY VOCABULARY	Drifter, sublime, rapid, portage
TRUNK MATERIALS	<i>The Exploration of the Colorado River and Its Canyons</i> by John Wesley Powell <i>John Wesley Powell River Journal: Grand Canyon of the Colorado</i> (audiocassette) <i>Powell's Colorado River Expedition Coloring Book</i> <i>Lost in the Grand Canyon</i> (video)
ADDITIONAL MATERIALS	United States map
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. Explain who John Wesley Powell was and what he accomplished as an explorer2. Show on a map where the Colorado River flows3. Explain three factors that made the Powell expedition dangerous and challenging
BACKGROUND	See background for previous lesson, see books in the trunk, and preview the video <i>Lost in the Grand Canyon</i> .

LESSON 3 MAJOR POWELL'S JOURNAL (cont.)

SUGGESTED PROCEDURE

1. Use the United States map to locate and trace the Colorado River from its origin in Colorado through Grand Canyon and into Mexico. Note that the expedition began in Green River, Wyoming, because that was where the boats, built in Chicago, could be delivered by railroad. The Green River starts in Wyoming and flows into the Colorado River in Utah.

2. Select appropriate times to read key entries from John Wesley Powell's *Exploration of the Colorado River and Its Canyons* with or to students.

Passages of particular interest are listed below (select according to interest and available time). You may also choose to listen to them on the audiocassette *John Wesley Powell River Journal: Grand Canyon of the Colorado*.

- May 24—the beginning of the expedition, description of the boats, supplies and men (pages 119–125)
- June 9—Disaster Falls—Wreck of the No Name (pages 152–157)
- June 16—Fire in the willows (pages 160–163)
- June 18—Powell stranded on the cliff (pages 168–169)
- July 12—The river rescue (pages 195–198)
- July 26—Water pocket climb (pages 219–223)
- August 13—From the Little Colorado to the foot of the Grand Canyon (pages 247–248)
- August 27 & 28—Separation Rapid (pages 277–284)

3. Ask students to list criteria for selecting people to undertake this kind of exploration. Discuss the list. What kinds of explorations are taking place nowadays that require some of these same traits? What are the risks the explorers face? What precautions might be taken to lessen the risks?

EVALUATIONS

Use the learning objectives stated above as a quiz or writing assignment after completing readings and discussion.

EXTENSIONS

Use the coloring book (copy pages ahead of time) and the Powell biography to learn more about Powell and his expeditions. Read about Powell in *Grand Canyon Stories*.

Teachers Lance Barnes and Cole Young contributed this lesson to Grand Canyon Curriculum Project.

LESSON 4 CANYON VIDEOS

DURATION	One class period
LOCATION	Classroom
KEY VOCABULARY	Sublime, drifter, rapid, portage, rations, expedition
TRUNK MATERIALS	<i>Lost in the Grand Canyon</i> and <i>River Song</i> videos
ADDITIONAL MATERIALS	TV/VCR
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. List three or more desirable characteristics for any person going as a crew member on such an expedition.2. Write a paragraph explaining the importance of the Powell expedition.
BACKGROUND	<p>John Wesley Powell is the most famous of Grand Canyon explorers. He was a self-educated teacher from Illinois. He served in the Civil War where he lost his right arm in the Battle of Shiloh. Major Powell headed his own topographical survey, then served as director of the U.S. Geological Survey and Bureau of Ethnology. An amateur naturalist of the Colorado Rockies, he came west in 1869 determined to float the Colorado River.</p> <p>In May 1869 Powell inventoried his scant supplies: military rations, scientific instruments provided by his patrons, and boats of his own design that had been built in Chicago and transported to their launching point by railroad. He and his makeshift crew of nine men then set off from Green River, Wyoming, in four wooden boats. Within three weeks they found themselves struggling for survival when they lost one boat and most of its contents in a rapid Powell subsequently named Disaster Falls. Things only got worse from there as they encountered what seemed to them a nearly unbroken series of rapids.</p> <p>Four months into the expedition and only two days from the end (of course, they didn't know that), three of the exhausted, frightened, discontented men left the expedition at Separation Rapid. No one knows for sure what happened to them, but most believe that Indians killed them as they attempted to hike out. Another theory is that Mormons killed the three when they were mistaken for federal agents.</p>

LESSON 4 CANYON VIDEO (cont.)

BACKGROUND (cont.)

Powell learned some important facts concerning the courses of the Green and Colorado Rivers, but returned to make a second and far more fruitful expedition in 1871–72, during which time he completed the scientific work his first expedition had begun. Powell’s explorations and mapping sparked national interest in the area, and resulting publicity began to attract geologists and later eastern visitors to the region.

SUGGESTED PROCEDURE

1. Preview and select the video most appropriate for your group and the time available.

A. Introduce the video *Lost in the Grand Canyon* (one hour). Tell students they will see a partial reenactment of Powell’s journey on the Colorado River and learn more about Powell’s life before and after his famous expedition. This video from PBS provides “Suggestions for the Classroom” on-line: www.pbs.org/wgbh/amex/canyon

B. Introduce the video *River Song* (22 minutes). Tell students they will see many wonderful views of the Colorado River in Grand Canyon and hear more about Powell’s famous expedition in the video.

2. Hold a discussion using the following questions:

- Why did Major Powell want to make this expedition?
- What characteristics made him the right man to lead this expedition?
- What training or experience did his crew members have?
- What troubles did they have on this expedition?

EVALUATIONS

1. Have students write a paragraph explaining the importance of the Powell expedition and why it is remembered today.

2. Ask students to list three or more qualities they would want crew members to have if they were leading an expedition like Powell’s.

EXTENSIONS

See Learning Center Lesson for more suggestions

LESSON 5 PERSONALITIES OF THE CANYON

DURATION

One class period

LOCATION

Classroom

KEY VOCABULARY

Rations, rancid, Inner Gorge, rapid, portage, debate

TRUNK MATERIALS

Crew member character sketches, *The Exploration of the Colorado River and its Canyons*; *Grand Canyon Stories: Then and Now*; *John Wesley Powell River Journal: Grand Canyon of the Colorado* (audiocassette)

ADDITIONAL MATERIALS

None

LEARNING OBJECTIVES

Students will be able to:

1. Demonstrate understanding of the difficulties Powell and his men encountered
2. Explain the importance of the Powell expeditions in opening up the West

BACKGROUND

John Wesley Powell is the most famous of Grand Canyon explorers. He was a self-educated teacher from Illinois. He served in the Civil War where he lost his right arm in the Battle of Shiloh. Major Powell headed his own topographical survey, then served as director of the U.S. Geological Survey and Bureau of Ethnology. An amateur naturalist of the Colorado Rockies, he came west in 1869 determined to float the Colorado River.

In May 1869 Powell inventoried his scant supplies: military rations, scientific instruments provided by his patrons, and boats of his own design that had been built in Chicago and transported to their launching point by railroad. He and his makeshift crew of ten men then set off from Green River, Wyoming, in four wooden boats. Within three weeks they found themselves struggling for survival when they lost one boat and most of its contents in a rapid Powell subsequently named Disaster Falls. Things only got worse from there as they encountered what seemed to them a nearly unbroken series of rapids.

Four months into the expedition and only two days from the end (of course, they didn't know that), three of the exhausted, frightened, discontented men left the expedition at Separation Rapid. No one knows for sure what happened to them, but most believe that Indians killed them as they attempted to hike out. Another theory is that Mormons killed the three when they were mistaken for federal agents.

LESSON 5 *PERSONALITIES OF THE CANYON (cont.)*

BACKGROUND (cont.)

Powell learned some important facts concerning the courses of the Green and Colorado Rivers, but returned to make a second and far more fruitful expedition in 1871–72, during which time he completed the scientific work his first expedition had begun. Powell’s explorations and mapping sparked national interest in the area, and resulting publicity began to attract geologists and later eastern visitors to the region.

SUGGESTED PROCEDURE

1. Assign or let students choose to play a member of Powell’s original crew. (Do not include Frank Goodman who left the expedition long before this event.) See character sketches for crew members’ names and descriptions. Distribute as appropriate.

2. Ask each student to write one or more journal entries from the point of view of their chosen/assigned crew member. Since information on the crew members is limited, encourage students to include their ideas as they imagine what it would have been like to be a member of the party. In their journal entries they should describe the trip conditions, their experiences, and how they are feeling about the expedition and their leader, Major Powell. Share with the class as time permits.

3. Before beginning the debate, set the stage by reading the following:

By August 27, 1869, the Powell expedition has been on the river for over three months. The trip has been much more difficult than the crew ever imagined. Their rations are nearly gone—lost in the river, eaten, or spoiled. Their meats, having become rancid, and the flour, now moldy, must be thrown out. All that remains for sustenance is a little unleavened bread and black coffee. The rainy season has arrived. Because of the high walls in the Inner Gorge, they have been unable to portage. This means daily rescues of crew members from near drowning as they battle through the seemingly endless series of rapids. Discouraged by yet another major rapid looming ahead, some are deeply discouraged and approach Major Powell to argue in favor of abandoning the expedition and hiking out. A long difficult night of discussion and hard choices lies ahead.

4. Hold a role-play debate on the merits of continuing down the river or hiking out. Each student should represent their character based on their knowledge of how that character would respond. Since information is limited, encourage students to include their own ideas about how the men might be feeling at this point in the expedition. Ask them to introduce themselves, to speak in the first person, and to give justification based on what they have learned from readings, videos, and discussions. The teacher should act as moderator and facilitate group consensus in establishing rules for speaking and then hold students to those rules.

LESSON 5 *PERSONALITIES OF THE CANYON (cont.)*

SUGGESTED PROCEDURE (cont.)

5. When the debate is over, take a vote to determine the expedition's future.
6. Explain the real outcome—three men left the expedition to hike out (O.G. Howland, Seneca Howland, and William Dunn). No one knows for sure what happened to them, but it is believed by most that Indians killed them. Another theory is that Mormons killed them when they were mistaken for federal agents. Ask students to consider what else could have happened to them. The rest of the expedition continued on. They passed through Separation Rapid, as Powell called it, and soon emerged from the canyon.

EVALUATIONS

1. Journal entries (see #2)—collect and evaluate.
2. Participation in the debate—look for participation and quality of reasoning.

EXTENSIONS

1. Show either video; discuss.
2. Have students write newspaper articles for *The New York Times* describing the highlights, successes, failures, and the importance of the Powell expedition.
3. Using a medium of their choice (clay, salt-flour, paper-mache, Lego™ blocks, toothpicks) have groups of students make a three-dimensional map of the Powell expedition through Grand Canyon.
4. Create a board game using major events along the expedition as spaces. Include hazard cards and playing pieces (boats).

Teachers Lance Barnes and Cole Young contributed this lesson to the Grand Canyon Curriculum Project.

LESSON 5 PERSONALITIES OF THE CANYON

CHARACTER SKETCHES



The crew members of the first Powell expedition of 1869

The crew members of each boat are listed below the name of the boat.

On the boat EMMA DEAN (named after Powell's wife)

JOHN WESLEY POWELL

John Wesley Powell, the expedition leader, became a major during the Civil War. He lost part of his right arm in the Battle of Shiloh. He was 35 years old on his first expedition through Grand Canyon and a self-taught natural history teacher. He was the only scientist in the group. Powell also had extensive river-running experience that was helpful to the expedition. He has been described as tough, curious, ambitious, and courageous. His enthusiasm and perseverance (he never gave up) were largely responsible for the completion of the trip. Powell was not always popular with his men, and there is some evidence of conflict between him and Dunn.

J. C. SUMNER

Sumner was a Civil War soldier. He had traveled widely in the wilds of the Mississippi Valley and the Rocky Mountains. One of his great feats was crossing the Rocky Mountains in the winter on snowshoes. In 1886–87 he hunted and killed a number of animals in Colorado for the purpose of helping Powell assemble natural history collections. Animals he hunted included grizzly bears, mountain lions, elk, deer, wolves, and beavers. Sumner met Powell a couple of years before the expedition. He did some guiding for him and was later asked to join the Colorado River expedition. At the time, he was running a trading post and had O. G. Howland, Bill Dunn, and Billy Hawkins working for him. He was thus responsible for these three men joining the Powell expedition. Sumner was a leader. He managed the lead boat from which all signals were given to the others at places of danger. He also saved Major Powell from drowning on one occasion. He was the only member of the 1869 party asked to participate in the second expedition.

WILLIAM (BILL) H. DUNN ▣

Dunn was a hunter, trapper, and mule packer in Colorado for many years. He dressed in buckskins that were soaked with grease from eating fatty venison and skinning beavers he had killed. He had long black hair, as he hated scissors and razors. He was working for J.C. Sumner and was recruited by him to join the Powell expedition.

LESSON 5 *PERSONALITIES OF THE CANYON* (cont.)

CHARACTER SKETCHES

On the boat KITTY CLYDE'S SISTER

G. Y. (GEORGE) BRADLEY

George Bradley was a lieutenant during the Civil War and then a sergeant in the army. He had recently been discharged from the army to join Powell's expedition. He was a strong and able worker. Although Powell once said that little mishaps excited Bradley, he could be counted on as a brave and generous soul. Bradley wrote in his journal the night before three men left the expedition to climb out:

There is discontent in camp tonight and I fear some of the party will take to the mountains but hope not.

This is decidedly the darkest day of the trip but I don't despair yet. I shall be one to try to run it [the rapid] rather than take to the mountains. 'Tis darkest just before the day' and I trust our day is about to dawn.

W. H. (WALTER) POWELL

Walter was John Wesley Powell's brother. He was a captain during the Civil War. In 1864 he was captured in Atlanta and put in prison for ten months. He was brought along on the expedition in an attempt to help him with mental problems caused by being in prison. He was said to be sometimes silent, moody, and sarcastic, but he was loyal to his brother. He had a fine bass voice and sang many popular ballads of the day.

On the boat NO NAME

O. G. (ORAMEL) HOWLAND ☐

Oramel, the older Howland brother, was a printer by trade, an editor by profession, and a hunter by choice. He was active in the business and social affairs of Denver and also was an outdoorsman. Howland's thin hair and long beard made him look wild when the wind blew. He went on the expedition to prospect for minerals and trap animals for the fur trade.

SENECA HOWLAND ☐

Seneca was the younger Howland brother. He was quiet and reserved. He was a favorite of all the men. Although he was loyal to his brother in the end, he did argue in favor of staying with the rest of the party before climbing out of the canyon at Separation Rapid.

FRANK GOODMAN

Frank Goodman was an Englishman and a stranger to the others. He came on the expedition for adventure. He was a stout and willing worker, but left the expedition early after losing everything he owned in the wreck of the No Name.

LESSON 5 *PERSONALITIES OF THE CANYON* (cont.)

CHARACTER SKETCHES



On the boat MAID OF THE CANYON

BILLY HAWKINS

Billy Hawkins was the cook for the expedition. He was a soldier in the Union Army during the Civil War. He had been living in the West and hunting in the mountains since the war. At the time the expedition was formed he was working for Sumner who recruited him to come along. He was an athletic and happy fellow who hardly seemed to know how strong he was. It was rumored that he was an outlaw from Missouri. He was loyal to Major Powell.

ANDREW HALL

Hall was a 19-year-old Scotsman. He had deep-set blue eyes and a beak nose. Although he was young, he had considerable experience in hunting, trapping, and fighting Indians. He was a good storyteller and was always ready for work or play. Major Powell referred him to as “the character” of the party.

☐ William Dunn, O. G. Howland, and Seneca Howland left the expedition at Separation Rapid, never to be seen again.

LESSON 6 *MAP MAKING*

DURATION	One or two class periods
LOCATION	School yard or school building
KEY VOCABULARY	Legend, compass rose, uncharted
TRUNK MATERIALS	Ten-foot lengths of cord
ADDITIONAL MATERIALS	Paper, colored pencils, writing surface, maps available in your classroom
LEARNING OBJECTIVES	Students will be able to: <ol style="list-style-type: none">1. Draw a simple map2. Interpret a simple map3. Experience and explain some of the challenges involved in mapmaking
BACKGROUND	<p>A part of Powell's motivation to explore the Colorado River through Grand Canyon in 1869 was to map it. Others before him had explored parts of it, however no complete maps of the area existed. Along the way he named much of what he saw including side canyons, rapids, and rock formations. No accurate maps were made until the second Powell expedition in 1871 when Almon H. Thompson, Powell's brother-in-law and a geographer, took charge of topographic mapping. Under Thompson's leadership the party explored the Henry Mountains and the Escalante River and established a nine-mile-long baseline south of Kanab, Utah, that made it possible for them to accurately map the region.</p> <p>This lesson is intended to give students a mapmaking and map-reading experience and to help them understand another aspect of what was involved on the Powell expeditions.</p>

LESSON 6 MAP MAKING (cont.)

SUGGESTED PROCEDURE

1. Explain the importance to the Powell expeditions of creating accurate maps (see background above).
2. Look at the maps available in your classroom. Discuss the features found on most maps and the purpose of each. Show examples (a legend or key, a compass rose).
3. Tell students that today they are to be mapmakers. Ask them to think of places in or around the school (art room, principal's office, basketball court, flagpole etc). Assign or allow them to select one of these places and draw a map from the classroom to it. If time permits have them return by an alternative route. Students may work alone or in pairs.
4. Allow time for students to make a "mapping expedition" to gather information, measure distances (using lengths of cord if desired), and note points of interest along the way. Explain that Powell named many points of interest as he explored, and your students may do the same. Encourage creativity.
5. When students return to the classroom, allow time for them to create their maps.
6. Collect maps when completed. If time permits allow students to try following each other's maps. Ask them to evaluate maps based on the following criteria:
 - Is the map neatly and clearly drawn?
 - Was it easy to follow?
 - Does it include a legend/key and a compass rose?
7. Discuss the challenges of mapmaking and what it must have been like for the Powell expedition and other explorers to accurately map unknown areas.

EVALUATIONS

Collect the maps and evaluate according to the criteria above.

EXTENSIONS

Use the Recreational Map of Arizona for additional practice reading maps.

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, posters, audio/video, 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 John Wesley Powell, 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?</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>
EVALUATION	Evaluation will vary depending on how these materials and activities are used, and the expectations teachers have set for students.

JOHN W POWELL VOCABULARY LIST

- compass rose** A drawing found on a map that shows north, south, east, and west.
- debate** A discussion between individuals or groups with different views. To consider or discuss something.
- drifter** Someone who moves around without any sense of purpose.
- expedition** A long journey for a special purpose, such as exploring.
- explorer** A person who travels in order to discover what a place is like.
- geologist** A scientist who studies the earth's layers of soil and rock.
- inner Gorge** The V-shaped gorge at the bottom of Grand Canyon where the river cuts through ancient, resistant rock.
- legend** The words and symbols written below or beside a map to explain it.
- mission** A special job or task.
- national park** An area set aside by Congress and owned by the people of the United States for the purpose of public use and preserving the best of America's scenery, history, nature, and wilderness for future generations.
- portage** To move or carry boats and supplies around an obstacle (big rapids for example).
- 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.
- rancid** Spoiled, having a rank smell or taste.
- rapid** A place in a river where the water flows very fast, usually over big rocks.
- rations** A limited amount or share of food.
- sublime** Awesome, inspiring.
- uncharted** An area that has not been mapped.
- whitewater** Foaming, whitish water found in rapids and shallow places.

JOHN WESLEY POWELL *TRUNK INVENTORY*

TEACHER'S GUIDE

BOOKS

The Exploration of the Colorado River and Its Canyons by J.W. Powell
Exploring the Grand Canyon
Fun Guide to Grand Canyon (2 copies)
Grand Canyon Place Names
Grand Canyon River Guide
Grand Canyon Stories Then and Now
John Wesley Powell Voyage of Discovery
John Wesley Powell—Explorer of the Grand Canyon
Powell's Colorado River Expedition Coloring Book

AUDIO/VIDEO

Grand Canyon CD-ROM
John Wesley Powell River Journal
Lost in the Grand Canyon (video)
River Song (video)
Slides (10)

POSTERS

Grand Canyon (NPS)
Grand Canyon (scenery)
The Plumbing of the Colorado River Basin

PAMPHLETS

Grand Canyon Geology/Life Along the Rim (2)
Minimum Impact on the River/Archaeological Sites (2)
Pocket Field Guide to Grand Canyon (2)
Recreational Map of Arizona (folded)

OTHER

Historic photos (5)

CONSUMABLES

Materials for boat-building lesson: Craft sticks • Fabric pieces • Pipe cleaners
String (one-foot lengths)
String for mapmaking lesson (10-foot lengths)

RESOURCES AND INFORMATION *ACADEMIC STANDARDS*

ARIZONA ACADEMIC STANDARDS

Standard 1: History

Students analyze the human experience through time, recognize the relationships of events and people, and interpret significant patterns, themes, ideas, beliefs, and turning points in Arizona, American, and world history.

Standard 2: Geography

Students are able to analyze locations, regions, and spatial connections, recognizing the natural and cultural processes that impact the way in which people and societies live and interact with each other and their environment.

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

For more detailed information and updated standards go to www.ade.state.az.us and click on Standard.

RESOURCES AND INFORMATION *RELATED WEB SITES*

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, activities, and contact information for the park's environmental education specialist. <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 trunk program.
<http://www.grandcanyon.org/fieldinstitute>

Grand Canyon National Park Official Information The latest news from the park and a broad range of information. <http://thecanyon.com/nps>

Park Vision Lots of photographs of Grand Canyon and its plants, animals, river, etc.
<http://www.shannontech.com/ParkVision> click on Grand Canyon National Park

JOHN WESLEY POWELL SITES

PBS / The American Experience—Lost in the Grand Canyon Includes photos, timeline of Powell's life, interactive map, and teacher's guide.
<http://www.pbs.org/wgbh/amex/canyon>

John Wesley Powell at Songbird See photos and discussion of Powell's motivation for exploration of the Colorado River through Grand Canyon.
<http://www.Songbird.com/gc/powell.html>

Powell Museum Tour the John Wesley Powell Museum in Page, Arizona.
<http://www.powellmuseum.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
