How would you prefer to explore the Grand Canyon—paddling a wooden boat with a one-armed man as your leader or hiking the back trails with a doctor as your guide?

**Unit Overview**

“John Wesley Powell’s 1869 Exploration”: The Grand Canyon has been explored by many people. Two of these are John Wesley Powell and Dr. Harvey Butchart. They were responsible for mapping much of the physical region of the Grand Canyon. This unit on the Grand Canyon is from a larger unit on the physical, political, cultural, and economic geography of the United States. This lesson focuses on how John Wesley Powell explored the Grand Canyon and the challenges he faced.

I. **Essential Question:** How did a one-armed man explore the Grand Canyon in 1869 and what challenges did he face?

II. **Learning Objectives**

A. **Essential Understandings:** Students will
   1. Classify the supplies and equipment that John Wesley Powell took on his expedition
   2. Describe the dangers, hardships, or problems that the expedition encountered

B. **Essential Knowledge:** Students will
   1. Activate prior knowledge of the physical geography of the Grand Canyon from Lesson 1
   2. Identify dangers, hardships, or problems

III. **Standards Addressed**

A. **Historical Thinking Standards: Standard 2—Historical Comprehension**
   1. Read historical narratives imaginatively, taking into account what the narrative reveals of the humanity of the individuals and groups involved—their probable values, outlook, motives, hopes, fears, strengths, and weaknesses. (2E)

B. **South Dakota Grade Level Standards: Grade 7**
   1. **Standard 1:** Use maps, globes, and other geographic tools to analyze the human and physical features in order to recognize the different map projections and explain the concept of
distortion; explain the characteristics, purposes, and differences among maps, globes, aerial photographs, geographic models, and satellite images; apply the concepts of scale, orientation, latitude and longitude; create an compare political, physical, and thematic maps (e.g., choropleth maps, cartograms) of countries and regions; and create and interpret charts, graphs, and diagrams.

2. **Standard 7:** Know how and why people define regions by identifying a region by defining its distinguishing characteristics, explaining how and why regions change, and analyzing the influences and effects of regional labels and images.

IV. **Learning Activities and Strategies**

A. **Estimated Time:** 47 minute class period
B. **Necessary Materials:** John Wesley Powell’s diary accounts, photos, and drawings, graphic organizer, paper and pencils, classroom map of the Grand Canyon
C. **Primary Source Documents:** *The Exploration of the Colorado River and Its Canyons* by John Wesley Powell, websites with additional photos and information
D. **Resources other than Primary Source Documents:** Graphic Organizer (Student handout #1), Student handouts of diary excerpts (Student handout #2)
E. **Best Practices Strategies:** Use a graphic organizer to classify information. Students work in groups of 3 or 4—assigned by the teacher.
F. **Needs of diverse learners:** Students will work in small groups
G. **Assessment:** Completion of graphic organizer and present information to the class, 3 minute writing activity

V. **Detailed Lesson Description**

This lesson will allow students to read the diary accounts of John Wesley Powell’s exploration of the Grand Canyon in 1869 and view photos and drawings of this journey.

A. The teacher will review the purpose of the exploration by reading aloud a short passage on Page 118-119 of Powell’s book (or use the attached Teacher Notes and show the proposed route on a large classroom map of the Grand Canyon region from Lesson 1. Students will be assigned groups for Part 2 and 3 of this lesson. (5 minutes)

B. In groups, students will brainstorm a list of supplies and equipment that will be needed. They will use a graphic organizer to classify their list and divide it into 4 boats. Each group will share and defend their list with the class. The teacher will then read John Wesley Powell’s May
24, 1869, account of how supplies and equipment were divided and the reasons why. The students will compare their list to Powell’s in small group discussion. (15-18 minutes)

C. Each group will then be given diary accounts related to hardships or dangers or problems that were encountered and will discuss what they learned about the physical region of the Grand Canyon. Group 1-May 25-26, Group 2-May 31-June 8, Group 3-June 11-16, Group 4-July 5-6, Group 5-July 18-21, Group 6-August 10-14, Group 7-August 17—Each group will then share their findings with the class. (15-18 minutes)

D. Reflection—3 minute writing activity—Explain why you would or would not have wanted to be a member of John Wesley Powell’s expedition. Support your decision with references to the physical geography of the Grand Canyon region and what you learned from John Wesley Powell’s diary accounts.

E. Wrap Up—Question for tomorrow—What do you think Dr. Harvey Butchart experienced when he covered over 12,000 miles while hiking the back trails of the Grand Canyon? (2 minutes)
Bibliography

Books:

Websites:


Graphic Organizer—Student Handout #1

Supplies- that John Wesley Powell and his crew of 9 men might have taken on their 1869 journey

**Directions:** In your group, brainstorm a list of supplies that each boat might have been loaded with. Be prepared to explain or defend your answers with the class.

<table>
<thead>
<tr>
<th>No Name</th>
<th>16 feet long—made of pine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emma Dean—Powell’s boat</td>
<td>21 feet long—made of oak</td>
</tr>
<tr>
<td>Kitty Clyde’s Sister</td>
<td>21 feet long—made of oak</td>
</tr>
<tr>
<td>Maid of the Canyon</td>
<td>21 feet long—made of oak</td>
</tr>
</tbody>
</table>
Begun originally as an exploration, the work was finally developed into a survey, embracing the geography, geology, ethnography, and natural history of the country.

Early in the spring of 1869 a party was organized for the exploration of the canyons. Boats were built in Chicago and transported by rail to the point where the Union Pacific Railroad crosses the Green River. With these we were to descend the Green to the Colorado, and the Colorado down to the foot of the Grand Canyon.

May 24, 1869—The good people of Green River City turn out to see us start. We raise our little flag, push the boats from shore, and the swift current carries us down.

Our boats are four in number. Three are built of oak; stanch and firm; double-ribbed, with double stem and stern posts, and further strengthened by bulkheads, dividing each into three compartments. Two of these, the fore and aft, are decked, forming water-tight cabins. It is expected these will buoy the boats should the waves roll over them in rough water. The fourth boat is made of pine, very light, but 16 feet in length, with a sharp cutwater, and every way built for fast rowing, and divided into compartments as the others. The little vessels are 21 feet long, and, taking out the cargoes, can be carried by four men.

We take with us rations deemed sufficient to last ten months, for we expect, when winter comes on and the river is filled with ice, to lie over at some point until spring arrives . . .

* * * * Students brainstorm supplies and how to load the boats with 10 men and the supplies—use graphic organizer

The flour is divided into three equal parts: the meat, and all other articles of our rations in the same way. Each of the larger boats has an axe, hammer, saw, auger, and other tools, so that all are loaded alike. We distribute the cargoes in this way that we may not be entirely destitute of some important article should any one of the boats be lost. In the small boat we pack a part of the scientific instruments, three guns, and three small bundles of clothing, only . . .

List of supplies:

<table>
<thead>
<tr>
<th>Clothing</th>
<th>Ammunition</th>
<th>2 or 3 dozen traps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axes</td>
<td>Hammers</td>
<td>Augers</td>
</tr>
<tr>
<td>Saws</td>
<td>Other tools</td>
<td>Nails and screws</td>
</tr>
<tr>
<td>2 Sextants</td>
<td>4 Chronometers</td>
<td>Barometers</td>
</tr>
<tr>
<td>Thermometers</td>
<td>Compasses</td>
<td>Other instruments</td>
</tr>
<tr>
<td>Flour</td>
<td>Meat (bacon)</td>
<td>Beans</td>
</tr>
<tr>
<td>Coffee</td>
<td>3 Guns</td>
<td></td>
</tr>
</tbody>
</table>
Team of Explorers:
John Wesley Powell—35 years old, one armed Civil War vet

J. C. Sumner—soldier in the Civil War, traveler and hunter in the Mississippi Valley and Rocky Mountains, crossed the Rocky Mountains in mid-winter on snowshoes. William H. Dunn—hunter, trapper, and mule-packer, dresses in buckskin and has long hair down to his back. These 3 are in the “Emma Dean”

W. H. Powell—Captain in the Civil War, he was captured and spent 10 months in a prison, silent, moody, and sarcastic

G. Y. Bradley—a lieutenant in the Civil War, was discharged from the regular army in order to go on this trip, he is very careful, brave and generous. These 2 are in the “Kitty Clyde’s Sister”

These 3 are in the “No Name”
O. G. Howland—a printer, editor, and hunter

Seneca Howland—quiet young man

Frank Goodman—Englishman, a stranger to the others

These 2 are in the “Maid of the Canyon”
Billy Hawkins—the cook, was a soldier in the Civil War, athletic

Andrew Hall—Scotchman, 19 years old, experience in hunting and trapping and fighting Indians, likes to tell stories
We start early this morning and run along at a good rate until about nine o'clock, when we are brought up on a gravelly bar. All jump out and help the boats over by main strength. Then a rain comes on, and river and clouds conspire to give us a thorough drenching. Wet, chilled, and tired to exhaustion, we stop at a cottonwood grove on the bank, build a huge fire, make a cup of coffee, and are soon refreshed and quite merry. When the clouds "get out of our sunshine" we start again. A few miles farther down a flock of mountain sheep are seen on a cliff to the right. The boats are quietly tied up and three or four men go after them. In the course of two or three hours they return. The cook has been successful in bringing down a fat lamb. The unsuccessful hunters taunt him with finding it dead; but it is soon dressed, cooked, and eaten, and makes a fine four o'clock dinner.

May 26, 1869

We land a short distance above the junction (of Henry's Fork a canyon that enters from the right), where a cache of instruments and rations was made several months ago in a cave at the foot of the cliff, a distance from the river. Here they were safe from the elements and wild beasts, but not from man. Some anxiety is felt, as we have learned that a party of Indians have been camped near the place for several weeks. Our fears are soon allayed, for we find the cache undisturbed. (The cache contained chronometers, barometers, and a sextant.) Taking up our cache, we pass down to the foot of the Uinta Mountains and in a cold storm go into camp.

May 31, 1869

We start down another canyon and reach rapids made dangerous by high rocks lying in the channel; so we run ashore and let our boats down with lines. In the afternoon we come to more dangerous rapids and stop to examine them. I find we must do the same work again.
back water, and we drift on as slowly as possible. If I can see a clear chute between
the rocks, away we go; but if the channel is beset entirely across, we signal the other
boats, pull to land, and I walk along the shore for closer examination. If this reveals
no clear channel, hard work begins. We drop the boats to the very head of the
dangerous place and let them over by lines or make a portage, frequently carrying
both boats and cargoes over the rocks.

#3 Optional background material for teacher to read/tell about

June 9—read pages 154-157 about loss of the “No Name”

#5

June 18—read pages 168-169 with sketch about climbing

#7

July 17—read pages 192-196—losing oars and swimming

#9

July 26—read bottom of page 219-223—hiking, getting resin, and storm

#12

August 26—page 275—squash

#13

August 27—page 178-282—3 of the men leave

August 30—meet white men along the river bank-18 miles from 2 Mormon towns

September 1—the expedition splits up—page 287

June 11, 1869    #4
This day is spent in carrying our rations down to the bay—no small task, climbing
over the rocks with sacks of flour and bacon. We carry them by stages of about 500
yards each, and when night comes and the last sack is on the beach, we are tired,
bruised, and glad to sleep.

June 12, 1869
Today we take the boats down to the bay. While at this work we discover three
sacks of flour from the wrecked boat that have lodged in the rocks. We carry them
above high-water mark and leave them, as our cargoes are already too heavy for the
three remaining boats. We also find two or three oars, which we place with them.
As Ashley and his party were wrecked here and as we have lost one of our boats at the same place, we adopt the name Disaster Falls for the scene of so much peril and loss.

**June 16, 1869**
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. . . I go up to explore the alcove. While away a whirlwind comes and scatters the fire among the dead willows and cedar-spray, and soon there is a conflagration. The men rush for the boats, leaving all they cannot readily seize at the moment, and even then they have their clothing burned and hair singed, and Bradley has his ears scorched. The cook fills his arms with the mess-kit, and jumping into a boat, stumbles and falls, and away go our cooking utensils into the river. Our plates our gone; our spoons are gone; our knives and forks are gone.

Later: Then we all go back to the late camp to see if anything left behind can be saved. Some of the clothing and bedding taken out of the boats is found, also a few tin cups, basins, and a camp kettle; and this is all the mess-kit we now have.

**#6**
(The explorers have stopped to camp and some of them hiked up a canyon to a Ute Indian reservation. John Wesley Powell spent some time there talking to an old chief who said he was over 100 years old. Powell is interested in learning the history of these people.)

**July 5, 1869**
The last two days have been spent in studying the language of the Indians and in making collections of articles illustrating the state of arts among them. Frank Goodman informs me this morning that he has concluded not to go on with the party, saying that he has seen danger enough. It will be remembered that he was one of the crew on the “No Name” when she was wrecked. As our boats are rather heavily loaded, I am content that he should leave, although he has been a faithful man.

(Before the exploration a hunter told them of a place he had with a garden and that even if he wasn’t home, that they were welcome to help themselves to his garden produce.)

**July 6, 1869**—Looking about, we soon discover his garden, but it is in a sad condition, having received no care since it was planted. Hall suggests that potato tops are good greens, and, anxious for some change from our salt-meat fare, we gather a quantity and take them aboard. At noon we stop and cook our greens for dinner; but soon one after another of the party is taken sick; nausea first, and then severe vomiting, and we tumble around under the trees, groaning with pain. . . about the middle of the afternoon we are all rid of the pain.
July 18, 1869  #8 (entering the Little Colorado)
The day is spent in obtaining the time and spreading our rations, which we find are badly injured. The flour has been wet and dried so many times that it is all musty and full of hard lumps. We make a sieve of mosquito netting and run our flour through it, losing more than 200 pounds by the process. Our losses, by the wrecking of the “No Name”, and by various mishaps since, together with the amount thrown away today, leave us little more than two months’ supplies, and to make them last thus long we must be fortunate enough to lose no more.
We drag our boats on shore and turn them over to recalk and pitch them and Sumner is engaged in repairing barometers.

Later: While eating supper we very naturally speak of better fare, as musty bread and spoiled bacon are not palatable. Soon I see Hawkins down by the boat, taking up the sextant and I question him concerning it. He replies that he is trying to find the latitude and longitude of the nearest pie.

July 21—We start this morning on the Colorado. The river is rough, and bad rapids in close succession are found. Two very hard portages are made during the forenoon. After dinner, in running a rapid, the “Emma Dean” is swamped and we are thrown into the river; we cling to the boat, and in the first quiet water below she is righted and bailed out; but three oars are lost in this mishap. The larger boats land above the dangerous place, and we make a portage, which occupies all the afternoon. We camp at night on the rocks on the left bank, and can scarcely find room to lie down.

August 10, 1869  #10
I walk up the stream three or four miles this afternoon, crossing and recrossing where I can easily wade it. Then I climb several hundred feet at one place, and can see for several miles up the chasm through which the river runs. On my way back I kill two rattlesnakes, and find on my arrival that another has been killed just at camp.

August 13, 1869—We are now ready to start on our way down the Great Unknown. We have an unknown distance yet to run, an unknown river to explore.

August 14, 1869—About eleven o’clock we hear a great roar ahead, and approach it very cautiously. The sound grows louder and louder as we run, and at last we find ourselves above a long, broken waterfall. . .It is nearly a thousand feet to the top of the granite; so it will be impossible to carry our boats around . . .we must run the rapid or abandon the river. There is no hesitation. We step into our boats, push off, and away we go. . .
August 15, 1869—And now we go on through this solemn, mysterious way. The river is very deep, the canyon very narrow, and still obstructed, so that there is no steady flow of the stream; but the waters reel and roll and boil, and we are scarcely able to determine where we can go. Now the boat is carried to the right, perhaps close to the wall; again, she is shot into the stream, and perhaps is dragged over to the other side, where, caught in a whirlpool, she spins about. We can neither land nor run as we please.

August 17, 1869 #11

Our rations are still spoiling; the bacon is so badly injured that we are compelled to throw it away. We have now only musty flour sufficient for ten days and a few dried apples, but plenty of coffee. We must make all haste possible. If we meet with difficulties such as we have encountered in the canyon above, we may be compelled to give up the expedition and try to reach the Mormon settlements to the north. We have had rain from time to time all day, and have been thoroughly drenched and chilled; but between showers the sun shines with great power and the mercury in our thermometers stands a 115 degrees, so that we have rapid changes from great extremes, which are very disagreeable. It is especially cold in the rain tonight. The little canvas we have is rotten and useless; the rubber ponchos with which we started from Green River City have all been lost; more than half the party are without hats, not one of us has an entire suit of clothes, and we have not a blanket apiece. So we gather driftwood and build a fire; but after supper the rain, coming down in torrents, extinguishes it, and we sit up all night on the rocks, shivering, and are more exhausted by the night’s discomfort than by the day’s toil.