

Grand Canyon National Park



General Activities Lesson Plans

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Glossary of National Park Service Terms

National Park Service Mission Statement

The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The numerous designations within the National Park System (NPS) sometime confuse visitors. The names are created in the Congressional legislation authorizing the sites or by the president, who proclaims “*national monuments*” under the Antiquities Act of 1906. Many names are descriptive -- lakeshores, seashores, battlefields --but others cannot be neatly categorized because of the diversity of resources within them. In 1970, Congress elaborated on the 1916 National Park Service Organic Act, saying all units of the system have equal legal standing in a national system.

National Battlefield: This general title includes national battlefield, national battlefield park, national battlefield site, and national military park. In 1958, an NPS committee recommended national battlefield as the single title for all such park lands.

National Cemetery: There are presently 14 national cemeteries in the National Park System, all of which are managed as part of a larger NPS site.

National Historical Park: This designation generally applies to historic parks that extend beyond single properties or buildings.

National Historic Site: Usually, a national historic site contains a single historical feature that was directly associated with its subject. Derived from the Historic Sites Act of 1935, a number of historic sites were established by secretaries of the Interior, but most have been authorized by acts of Congress.

National Lakeshore: National lakeshores, all on the Great Lakes, closely parallel the seashores in character and use.

National Memorial: A national memorial is commemorative of a historic person or episode; it need not occupy a site historically connected with its subject.

National Monument: Historic landmarks, prehistoric or historic structures, and other objects of historic or scientific interest which are located on public land. The Antiquities Act of 1906 gave *the president* power to declare a national monument by public proclamation based on its scientific, historic, or archeological importance.

National Park: These are areas of national significance, generally large natural places having a wide variety of attributes, at times including significant historic assets. They are preserved for recreational, educational, historical, or cultural purposes *by an act of Congress*. Hunting, mining and consumptive activities are not authorized.

National Park System: In an Act of August 18, 1970, the National Park System was defined in law as, “any area of land and water now or hereafter administered by the Secretary of the Interior through the National Park Service for park, monument, historic, parkway, recreational or other purposes.”

National Parkway: The title parkway refers to a roadway and the parkland paralleling the roadway. All were intended for scenic motoring along a protected corridor and often connect cultural sites.

National Preserve: National preserves are areas having characteristics associated with national parks, but in which Congress has permitted continued public hunting, trapping, oil/gas exploration and extraction. Many existing national preserves, without sport hunting, would qualify for national park designation.

National Recreation Area (NRA): Twelve NRAs in the system are centered on large reservoirs and emphasize water-based recreation. Five other NRAs are located near major population centers. Such urban parks combine scarce open spaces with the preservation of significant historic resources and important natural areas in location that can provide outdoor recreation for large numbers of people.

National River: There are several variations to this category: national river and recreation area, national scenic river, wild river, etc. The first was authorized in 1964 and others were established following passage of the Wild and Scenic Rivers Act of 1968.

National Seashore: Ten national seashores have been established on the Atlantic, Gulf and Pacific coasts; some are developed and some relatively primitive. Hunting is allowed at many of these sites.

National Trail: National scenic trails and national historic trails are the titles given to these linear parklands (over 3,600 miles) authorized under the National Trails System Act of 1968.

Affiliated Areas: The Affiliated Areas comprise a variety of locations in the United States and Canada that preserve significant properties outside the National Park System. Some of these have been recognized by Acts of Congress, others have been designated national historic sites by the Secretary of the Interior under authority of the Historic Sites Act of 1935. All draw on technical or financial aid from the National Park Service.

Other Designations: Some units of the National Park System bear unique titles or combinations of titles, like the White House and Prince William Forest Park.

Glossary of General Terms

Colorado Plateau: a large geologic area uplifted thousands of feet in elevation covering parts of Arizona, Colorado, New Mexico and Utah.

Colorado River: a major river of the southwestern United States, flowing 1450 miles from its headwaters in the Rocky Mountains of Colorado, through the Grand Canyon, and ending in the Gulf of California.

Conservation: the careful use of a resource, thus ensuring its availability over time.

Geography: the study of the earth's surface features, and the distribution of life, including human life and the relationship of humans to their environment.

Inner Gorge: the steep-walled gorge at the bottom of the Grand Canyon where the Colorado River flows.

Natural Resources: materials that are found in nature and that can be used by people in many ways. Fresh water, soil, coal, and forests are all examples of Natural Resources.

North Rim: the top of the north side of Grand Canyon, a less visited part of the park that is closed from mid-October through mid-May due to snow. The North Rim is approximately 8000 feet in elevation, which is 1000 feet higher than the South Rim.

Preservation: action that maintains an area intact for the protection of cultures, wildlife and plants, or other natural resources.

South Rim: the top of Grand Canyon on the south side where most people visit; open year-round. The elevation at the South Rim averages 7000 feet.

Where is Grand Canyon?

School Subjects Math, Social Studies
Grade Level 4th - 6th

AZ Standards Addressed

M03-S1C2-05 and M04-S1C2-03: Select the grade-level appropriate operation to solve word problems
M03-S1C2-06 and M04-S1C2-04: Solve word problems using grade-level appropriate operations and numbers
M05/06-S1C2-01: Select the grade-level appropriate operation to solve word problems
M05/06-S1C2-02: Solve word problems using grade-level appropriate operations and numbers
SS04-S4C1-02: Interpret political and physical maps using the following map elements: title, compass rose (cardinal and intermediate directions), symbols, legend, scale, road map index, and grid (latitude and longitude)
SS04-S4C1-07: Locate physical and human features in Arizona using maps, illustrations, or images: physical (e.g., Grand Canyon, Mogollon Rim, Colorado River, Gila River, Salt River) and human (e.g., Phoenix, Yuma, Flagstaff, Tucson, Prescott, Hoover Dam, Roosevelt Dam)

Lesson Overview

Students will complete a worksheet and use basic map reading skills to identify Grand Canyon National Park's location.

Lesson Objectives

The students will receive background information about Grand Canyon. They will learn the location of the canyon, how it relates to where they live, and what geographical features are near the canyon. Additionally, they will be able to map the best route to the canyon from their hometown.

Materials

- United States map that includes physical geography, roads, Colorado Plateau, Four Corners, named lakes and dams, your city/state and Grand Canyon National Park. Colored maps are easier to read. We recommend the AAA Indian Country map or the AAA map of the United States.
- Paper, pencils, and crayons/colored pencils/markers
- A copy for each student of the *Where is Grand Canyon National Park?* Worksheet (pg. GA-3)

Procedure

1. Arrange students into groups of 2-4.
2. Give each group a map or a quality photocopy of the map. Distribute crayons, colored pencils, or markers to the students.
3. Have students complete the worksheet *Where is Grand Canyon National Park?* using their map.

Worksheet: Where is Grand Canyon National Park?

Part 1: Finding Grand Canyon National Park

- 1) Can you find the place where the corners of four states meet? This is called Four Corners. The states that make up the Four Corners are _____, _____, _____, _____.
- 2) Look west and slightly south of Four Corners and you will find Grand Canyon National Park. It is in the state of _____. The Grand Canyon is located in a geographic area known as the Colorado Plateau, which is characterized by layers of sedimentary rock that have been uplifted thousands of feet above sea level. Grand Canyon National Park protects over one million acres of northwestern Arizona along 277 miles of the Colorado River. The canyon averages 10 miles wide and one vertical mile deep.
- 3) The Colorado River is 1,400 miles long. Since only 277 miles are in the Grand Canyon it must flow through other areas. Begin at Grand Canyon and follow the river upstream to the northeast. The Colorado River begins in the state of _____. After leaving the state where it begins, the Colorado River flows through _____ before entering Arizona. It flows from the _____ mountain range. In Utah, it passes through Lake _____ and the _____ Dam. Label the three states the Colorado River flows through on the map to the right.
- 4) Now trace the river downstream to the west and south of Grand Canyon. The river goes through Lake _____. What dam does the river pass? _____. The river creates the state border between _____ and _____ and then between _____ and _____. The river finally ends in which ocean? _____.



Part 2: How far is Grand Canyon National Park from where you live?

- 1) Using a map that has your city and state and Grand Canyon, determine your route to Grand Canyon. How many total miles will you travel? _____. To calculate how many hours it will take you to drive, divide the number of miles by 50 m.p.h. (this is an average speed). How many hours will it take? _____. How many days? _____. How many states will you pass through? _____. Will you cross any major geographic features? If so, list them: _____, _____, _____, _____, _____.

Create a Journal Cover

School Subjects Science; Art
Grade Level 3rd – 5th

AZ Standards Addressed

SC03-S1C4-01: Communicate investigations and explanations using evidence and appropriate terminology.
SC03-S1C4-03: Communicate with other groups to describe the results of an investigation.
SC04-S1C1-04: Locate information (e.g., book, article, website) related to an investigation.
SC04-S1C4-01: Communicate verbally or in writing the results of an inquiry.
SC04-S1C4-03: Communicate with other groups to describe the results of an investigation.
SC05-S1C1-03: Locate information (e.g., book, article, website) related to an investigation.
SC05-S1C4-03: Communicate with other groups to describe the results of an investigation.
VA-S1C2-202: Demonstrate purposeful use of materials, tools, and techniques in his or her own artwork
VA-S1C4-302: Create artwork that communicate substantive meanings or achieve intended purposes

Lesson Overview

Students create a cover for their field trip program journal. The cover can include a collage of photos and/or drawings of things related to the topic your class will be studying during their trip to Grand Canyon. For example:

- For geology programs, include photos or drawings of rocks, rock layers, fossils, etc.
- For natural history programs, include photos or drawings of plants and animals.
- For history programs, include photos or drawings of historic buildings, archeological sites, famous people or places, etc.

Lesson Objectives

Students will be introduced to the topic of their Grand Canyon field trip program, and will be able to identify several of the natural or cultural resources that help make Grand Canyon a special place. They will understand how a creative and personal approach to their journal will enrich their Grand Canyon experience.

Materials

- Construction paper (various colors may be used; size can be 8 ½ x 11 or 9 x 12)
- Journal insert for activity of your choosing (make enough copies so each student will have one)
- Magazines, brochures, or other media with photos or other images of things related to the topic your class will be studying on their field trip (ie. wildlife and plants, rocks, fossils, geographic features, historic people and places, etc.). Old *Arizona Highways* magazines are a great source for all these.
- Scissors
- Glue and tape
- Colored pencils, crayons, or markers
- Staples and stapler
- Optional: Pertinent reference books, encyclopedias, field guides, Internet sites, etc. (The Grand Canyon National Park website is a good source of information: www.nps.gov/grca)

Procedure

1. Prior to conducting the activity, begin collecting magazines, brochures and other printed media with photos and images of Grand Canyon. Consider having students do Internet searches for pertinent images as well. You can also have students start bringing some of these items in from home, too.
2. Tell the students that they will be making the front and back covers for their Grand Canyon field trip journal. Discuss the value of journaling, and how they are important for the following:
 - Recording observations and data.
 - Recording feelings and impressions.
 - Helping students convey to others what they have learned.
 - Remembering what they learned, and using that information in the future.

- Reconnecting with their Grand Canyon experience, and sharing their experience with family and friends.
3. Hand out the construction paper – if you have a variety of colors, they can come up and choose which color they want. Have students fold the construction paper in half. Get out colored pencils, crayons, marking pens, and the collected magazines or other images. Also get out the scissors, glue, tape and stapler.
 4. Staple the field trip journal pages into the completed cover.

Extension Activity

Have the students write a poem, haiku or other such creative writing about Grand Canyon or the field trip program topic.

One option is the following type of poem, called a “cinquain”, which uses this format:

EXAMPLE

Line 1: one word to name the subject (noun)	canyon
Line 2: two words to describe it (adjective)	huge, colorful
Line 3: three action words about it (verbs)	eroding, growing, changing
Line 4: four-word phrase about it	making me feel small
Line 5: one new word that renames the subject (noun)	chasm

Create a National Park

School Subjects History, English
Grade Level 4th – 7th

AZ Standards Addressed

- SS04-S3C4-03: Describe the importance of citizens being actively involved in the democratic process (e.g., voting, campaigning, civil and community service, volunteering, jury duty).
- SS04-S4C5-03: Describe the impact of human modifications (e.g., dams, mining, air conditioning, irrigation, agricultural) on the physical environment and ecosystems
- W04-S1C1-01: Prepare writing in a format (e.g. oral presentation) appropriate to audience and purpose
- SS05-S3C4-01: Describe ways an individual can contribute to a school or community
- W05-S1C1-01: Prepare writing in a format (e.g. oral presentation) appropriate to audience and purpose
- SS06-S3C4-01: Describe ways an individual can contribute to a school or community
- W06-S1C1-01: Prepare writing in a format (e.g. oral presentation) appropriate to audience and purpose
- SS07-S4C5-01: Identify the physical processes (e.g., conservation of natural resources, mining, water distribution in Arizona) that influence the formation and location of resources
- SS07-S4C5-03: Describe how humans modify environments (e.g., conservation, deforestation, dams) and adapt to the environment
- SS07-S4C5-06: Describe the ways human population growth can affect environments and the capacity of environments to support populations
- W07-S1C1-01: Prepare writing in a format (e.g. oral presentation) appropriate to audience and purpose

Lesson Overview

After a brief overview of what the National Park System is, students will work as individuals or in teams to create their own national park site with recycled items, and arts and crafts items.

Lesson Objectives

The students will understand the purpose and characteristics of a national park, some of the issues facing the management of parks, and the different ecosystems national parks protect.

Materials

- Large white paper, colored paper, markers and/or crayons, glue, paint and brushes, clay or play dough, tape, scissors, and other art supplies.
- Recycled materials (egg/milk cartons, cardboard, lids, small boxes, string, rubber bands, foil, magazines, cereal boxes, paper cups, plastic containers, popsicle sticks, magazines, etc.)
- Small toys such as plastic animals, people, buildings, trees, etc.
- Natural materials collected outside such as leaves, sticks, rocks, etc.

Background Information

What is a National Park?

National Parks are places that represent America's beauty, wildlife, history and people. They also represent our heritage. They protect fragile or unique ecosystems, wildlife habitat, human-made or natural structures, waterways, and riparian zones. Each park has one or more of these features, which is why it is protected.

The National Park System includes parks, monuments, preserves, reserves, lakeshores, seashores, rivers, wild and scenic river ways, scenic trails, historic sites, military parks, battlefields, memorials, and recreation areas. Congress sets these areas aside so that the best of America's scenery, history, nature, and wilderness is protected for future generations. *See the National Park Service Vocabulary found on pages 2 and 3.*

The National Park Service is an agency within the Department of the Interior, created by Congress on August 25, 1916 to fulfill the mission of its Organic Act, which states:

“The Service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations . . . which purpose is to *conserve* the scenery and the natural historic

objects and the wildlife 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.*”

The park service charges rangers to manage our parks for recreation, education, and preservation. For recreation, parks must offer certain facilities and activities, such as campgrounds, hiking trails, overlooks, tours (boat, horse, walking, etc.), lodges and restaurants. Educational efforts by the park service include visitor centers, museums, ranger-led programs, and informational pamphlets, maps, and guides. Furthermore, rangers must be able to answer questions on a variety of subjects, including interpreting the park’s features, problems facing the park, and the dangers within the park. Finally, for preservation, rangers must set and enforce rules. These rules have two purposes: to protect the visitor and protect the park’s resources. Rules ensure that everyone has a safe and enjoyable visit, and that resources are protected for future visitors to enjoy.

Procedure

1. Have students bring in brochures, other literature, or photos from parks they have visited. Students can also write to parks to request information. To find the names and addresses of national parks, visit the National Park Service website at www.nps.gov. You might also check your school library for books on national parks as well.
2. Discuss the purpose of parks, their characteristics, and the different features they protect (i.e. ecosystem, natural or human-made structures, etc.). Discuss the differences between parks managed by the National Park Service and parks managed by other agencies or organizations (i.e. state/county parks, National Forest). Ask if anyone has been to a national park and, if so, which one? What did they see? What was the park protecting? Discuss the reasons for creating a national park. Who owns them?
3. Explain that the students will create their own national park. Have them think about what they would like to see/protect in a national park. Write the Organic Act (see “background information”) on the board and have the students decipher its meaning. Is it possible to conserve resources unimpaired while still providing for their public enjoyment? Brainstorm how park managers can protect park resources and provide for people to visit parks without damaging the resources.
4. Have students work as individuals or in teams to create their own national parks. Students should carefully study the literature and other material they collected from real parks. Encourage them to be as creative as school or home resources will allow. They can simply draw their park on butcher paper, create a three dimensional park on cardboard using natural and recycled material, or come up with other ideas.
5. Start by having the students design the natural and/or cultural features of their park. Remind them that the features in their park must be special enough to the entire nation to justify it becoming a national park. Have them use their imagination when designing their park resources. For instance, sticks can be used for an old-growth forest, blue cellophane can make a river, rocks can become a mountain range or a prehistoric dwelling, and small toys from home can represent wildlife or historic features such as battlefields or buildings.
6. Have them think about what park visitors will need when they visit the park and what might be needed to protect the natural and cultural resources of the park. Again, let their imaginations guide them in developing trails, motels, visitor centers, museums, restaurants, viewpoints, signs, barriers, entrance stations, souvenir and book shops, medical facilities, maintenance facilities, staff housing and offices, campgrounds, transportation facilities (roads, parking lots, busses, etc.), etc.
7. Students will need to design a brochure highlighting the features of the park and what it has to offer. Include a map, safety messages, park rules, fees charged (if any), tours and ranger programs offered. Draw pictures of the park or use cut outs from old magazines.
8. Students can then become the rangers, taking the class on a “park tour” and explaining the features and services provided. Encourage students to ask the presenters thoughtful questions.
9. After everyone has had a chance to present their park, the class should discuss what they learned. Here are some discussion ideas:
 - What was their favorite resource and/or park and why? What would they change about their park?
 - Did all the parks have resources important enough to be protected nationally?

- Did each park have enough facilities to accommodate visitors?
- How were the natural and cultural resources protected?
- Were educational programs offered? What was their purpose?
- How much would it cost to manage their park? Where would this money come from? What would the money be used for? Should an entrance fee be charged? Who should or shouldn't have to pay?
- What should be done with the trash and sewage generated by people living in, working in, and visiting the park?
- Who should manage the hotels, souvenir shops, and restaurants? What limitations, if any, should be put on those who provide these types of facilities.
- What would happen to the park if... (try some different scenarios such as a large fire or other natural disaster occurred, a city grew around the park boundaries, air pollution increased, too many people came to visit, no one came to visit, there were no rules, there were no rangers, there were no facilities, there were too many facilities, people didn't think the park was important, etc.).

*Adapted from *Create a Park*, Everglades National Park

Personal History Timeline

School Subject History to introduce the idea of Geology or Human History
Grade Level 3rd - 6th
AZ Standards Addressed

SS01/02/03-S1C1-01: Place important life events in chronological order on a timeline.
SS03-S1C1- 01: Use timelines to identify the time sequence of historical data
SS05-S1C1-02: Construct timelines of the historical era being studied
SS06-S1C1-03: Construct timelines of the historical era being studied

Lesson Overview

Students will construct a personal history timeline. If your class is completing the Geology or Human History lesson plans, this lesson works well as a preliminary activity to the following lesson plans: *Grand Canyon Geologic Timeline* (pg. GEO-22), and *Human History Timeline* (pg. HH-20).

Lesson Objectives

Students will understand how changes over time may be measured in timelines. This will help them better understand the geologic timeline and/or human history timeline activities.

Materials

- Roll of butcher paper
- Colored markers

Procedure

1. Introduce the concept of timelines: ask whether anyone knows what a timeline is. Think of examples of processes or steps that, taken as a whole, complete an event. For example, making a sandwich, making a cake, going to school, reading chapters from a book, or building a house.
2. Explain that each student is going to create a personal timeline. Ask them to focus on memories of important events in their lives. These can be happy or sad. Include events that the students may know about from hearing family stories but may not actually remember such as birth. Brainstorm and list on the board.
3. Ask students to go home and discuss with their families significant life events beginning with birth. Tell them to record their research including dates and how old they were when each event happened. They can write or illustrate their findings. Have them bring their findings to class the next day.
4. Demonstrate how they are to proceed by placing a five-foot-long piece of butcher paper on the floor. Have a student lay on it with their arms stretched out to the side. Trace around a student from the waist up to include head, outstretched arms and upper torso. Help students determine what the scale will be for their timelines. Locate the mid point of their life (the nose). One end of the fingertips would be birth. Fingertips on the other hand represent today. What would be the scale for one year?
5. Distribute a large piece of butcher paper to each student. Divide the students into pairs. Ask students to trace a body outline of each other including head, outstretched arms, and upper torso.
6. Have students record their timelines on their tracing and share with the class.
7. Discuss time and scale with the students.

Extension Activities

Grand Canyon Geologic Timeline (pg. GEO-22)
Human History Timeline (pg. HH-20).