

North Carolina, USA - www.STEMstudytours.com

Tour: American Canyonlands

Destination: Grand Canyon National Park, Bryce Canyon National Park,

Zion National Park, Lake Powell, Arizona & Las Vegas, Nevada

Specialization: Geology, Geography, Ecology, Nuclear Energy, Alternative

Energy & Culture

		Canyonlan	ds of the A	merican Sou	thwest
Day		Morning	Afternoon		Evening
1	Sun		Nevada; transfer to St e, Utah	Welcome, Safety & Orientation	5 No. 1990b
2	Mon	Milford Wind Project	Bryce Canyon National Park & Hike		Dinner
3	Tues	Zion National Park & Ranger Class		Travel to Arizona	Dinner on Lake Powell
4	Wed	Glen Canyon Dam & Hydroelectric Tour	Navajo Nation & Cameron Trading Post	Grand Canyon National Park - East Rim	IMAX 3D Adventure & Dinner
5	Thur	Grand Canyon	Route 66 Museum	Nevada Solar One	Las Vegas & Dinner
6	Fri	Nevada National Security Site & National Atomic Testing Museum			Dinner
7	Sat	Depart for Home			







As with all sample itineraries, please be advised that this is an 'example' of a schedule and that the activities and hotels shown may be variable dependent upon dates, weather, special requests and other factors. Itineraries will be confirmed prior to travel.

Travel by coach to St George, Utah, or by flight to Las Vegas, Nevada and transfer in, approximately a 2-hour



St George, Utak - Brigham Young sent Mormon settlers down south to grow crops in the big sun.

Your outdoorsy friends love Zion National Park and the surrounding state parks' year-round adventures. Your city-slicker friends just want to be warm and comfortable and have a million restaurant options. Are you ready to come yet? Located in the southwest corner of Utah, just 90 minutes from Las Vegas, St. George is simply an amazing destination in the great southwest!

The city was named for 19th century LDS Church apostle George A. Smith but the Mormons were hardly the first to set up shop. From 1000 BCE to 1300 CE, Ancestral Puebloans (forbears of the modern Hopi, Zuni, Pueblo and Southern Paiute nations) traded their nomadic ways for rows of corn and squash. The Southern Paiutes were settled there when the Dominguez-Escalante Expedition passed through in 1776 and when 300 Mormon families founded a cotton mission in 1861.

Besides a convergence of cultures, the St. George area is also the nexus of three geographical regions. The Mojave Desert, which extends west-southwest to California, gives St. George that where-can-I-fill-up-my-canteen? atmosphere. The Colorado Plateau, which contains southern Utah's other four national parks, adds photo-hungry canyons and a reddish tint. The Great Basin to the north creates an unmistakably endorheic quality. All that makes for a lot of variety, a lot of borders — and good things happen at the geographical edges!



Zion National Park is the area's biggest draw for hikers, bikers, campers, and red-rock-gawkers — and for good reason! But St. George is also the perfect basecamp for national park multitasking. It's 2 hours to Bryce Canyon, 2:30 to Grand Canyon, 3:20 to Great Basin and 3:30 to Capitol Reef, so if you're up to an amazing trip trekking from one of these to the next, St. George should be top of your list!

Sample Hotel: BW Abbey Inn — A fabulous hotel with quality service; a great student fit! Conveniently situated to provide you with easy access to fully enjoy the wonders of Southern Utah. Hotel amenities include an outdoor pool, indoor spa and exercise facility, and gift shop. Room amenities include internet access, hairdryers, coffee and tea services, microwaves and refrigerators. Breakfast is taken at the hotel. Rooms have two queen beds to sleep up to 4 students per room; staff sleep 2 per room.







This evening, we'll have dinner in our hotel or locally. If you get in early enough, let us help you plan something wonderful for your first day!

Day 2

Breakfast & dinner

Rise and shine Utah! Travel north this morning to the small town of Milford for touring of the **Milford Wind Corridor Project**, Utah's largest wind farm producing clean energy in the Utah desert.

The Milford Wind Corridor Project is a 306-megawatt wind farm. It became the state's largest wind facility when the first phase was completed in 2009. The electricity is being sold to the Southern California Public Power Authority. Construction began in November 2008 and the first phase had a posted capacity of 204 MW with 97 wind turbines, including 58 Clipper Liberty 2.5-MW wind turbines and 39 GE Energy 1.5-MW turbines. A second phase of the project began in July 2010 and foundations were poured adding another 68 GE 1.5-MW turbines for a total of an additional 102 MW. In 2016, a 240 MW Escalante Solar



Project went online, located southwest of Milford Wind. The power is being sold under three separate 20-year power purchase agreements to customers in Utah, Idaho, and Wyoming. At 1900 acres (3.0 sq. miles), it is the largest grouping of photovoltaic generators in the state of Utah.

After lunch in the town of Beaver, we will continue on to **Bryce Canyon National Park**, one of the most amazing and fascinating sights on earth.

Bryce Canyon National Park - Thor's Hammer, monstrous hoodoos and a Sinking Ship; Bryce Canyon's redorange-pink amphitheaters stage a Norse myth 70 million years in the making. Hoodoos (irregular columns of rock) exist on every continent, but here is the largest concentration found anywhere on Earth. Situated along a high plateau at the top of the Grand Staircase, the park's high elevations include numerous life communities, fantastic dark skies, and geological wonders that defy description. Wind, water and time have eroded Bryce Canyon National Park's sandstone cliffs into otherworldly characters plucked from the unconscious of a mad



Viking. Rows of humanoid pillars crosshatched by rock strata look almost intentional but perfectly surreal. So silent, eerie and beautiful. So improbable it has to be true.







Today your group will hike the Navajo Loop Trail and enjoy a sunset view before spending the night just outside the park.

Sample Hotel: BW Ruby's Inn - Experience the wonder of being so close to the awe-inspiring Bryce Canyon National Park. After a full day of exploring the area, you'll delight in coming home to the comfortable, well-appointed rooms. Enjoy abundant amenities - including cable satellite television with movie channels, a microwave, a refrigerator, a desk and free wireless Internet. Unwind in the sparkling indoor heated pool or the outdoor seasonal pool and the relaxing hot tub. Check out the basketball court or add on a mountain bike rental. Breakfast is taken at the hotel. Rooms have two queen beds to sleep up to 4 students per room; staff sleep 2 per room.







<u>Day 3</u> Breakfast & dinner

Good morning Utah! This morning visit Utah's oldest and most famous national park, Zion National Park!

Zion National Park – A bajillion years ago, ancient iterations of the Virgin River started wreaking havoc on southwestern Utah. Now there's a faint "You're welcome" echoing through the canyons of Zion National Park.

Zion National Park is like the set of a movie that's so grand you know it's fake, but you don't care because it's delicious to look at; the kind of flick where the art director was given carte blanche and didn't worry about believability.

Zion is unique among national parks in the west, with its aweinspiring monoliths that one early explorer called "temples". Follow the paths where ancient native people and pioneers walked. Gaze up at massive sandstone cliffs of cream, pink, and red that soar into a brilliant blue sky. Experience wilderness in a narrow slot canyon.



Zion's unique array of plants and animals will enchant you as you absorb the rich history of the past and enjoy the excitement of present-day adventures.

This morning we will tour the park, seeing its narrow canyons and dramatic buttes and mesas. Enjoy time for exploring and hiking as well as a Park Ranger lead discussion on the geology and ecology of the park.





In the late afternoon, we'll travel east to Page, Arizona and check into your hotel on the shores of beautiful **Lake Powell**!

Lake Powell, Arizona - Lake Powell is located in northern Arizona and stretches up into southern Utah. It's part of the Colorado River in Glen Canyon National Recreation Area. With nearly 2,000 miles of shoreline, endless sunshine, warm water, perfect weather, and some of the most spectacular scenery in the west, Lake Powell is the ultimate playground!





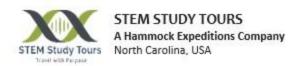
Sample Hotel: Lake Powell Resort — Discover the gateway to all the fun, recreation and adventure that spectacular Lake Powell and majestic Glen Canyon National Recreation areas have to offer! The resort is located at Wahweap Marina, right on the lake. Enjoy comfortable lodging, terrific dining, fun shopping, and a grand gateway for unlimited land and water adventures. Rooms have two queen beds to sleep up to 4 students per room; staff sleep 2 per room.

Day 4

Breakfast & dinner

Rise and shine Arizona! Today we will visit Glen Canyon Dam

Glen Canyon Dam & Hydroelectric Tour – Glen Canyon Dam is a concrete arch-gravity dam on the Colorado River in northern Arizona. The 710' high dam was built from 1956 to 1966 and forms Lake Powell, one of the



largest man-made reservoirs in the U.S. with a capacity of 27 million-acre feet (33 km3). The dam is named for Glen Canyon, a series of deep sandstone gorges now flooded by the reservoir; Lake Powell is named for John Wesley Powell, who in 1869 led the first expedition to traverse the Colorado's Grand Canyon by boat.

A dam in Glen Canyon was studied as early as 1924, but these plans were initially dropped in favor of the Hoover Dam which was located in the Black Canyon. By the 1950s, due to rapid population growth in the seven U.S. and two Mexican states comprising the Colorado River Basin, the Bureau of Reclamation deemed the construction of additional reservoirs necessary. Since first filling to

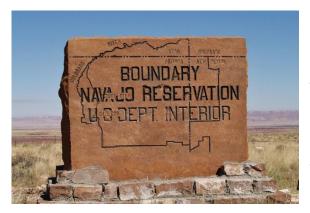


capacity in 1980, Lake Powell water levels have fluctuated greatly depending on water demand and annual runoff. Operation of Glen Canyon Dam helps ensure an equitable distribution of water between the states of the Upper Colorado River Basin (Colorado, Wyoming, and most of New Mexico and Utah) and the Lower Basin (California, Nevada and most of Arizona).

Later, we'll depart Lake Powell and enter the **Navajo Nation**.

Navajo Nation – The Navajo Nation extends into the states of Utah, Arizona and New Mexico

covering over 27,000 square miles of unparalleled beauty. Diné Bikéyah, or Navajoland, is larger than 10 of the



50 states in America. Visitors are intrigued and mystified when they hear the Navajo language – so, too, were the enemy during World War II. Unknown to many, the Navajo language was used to create a secret code to battle the Japanese. Navajo men were selected to create codes and serve on the front line to overcome and deceive those on the other side of the battlefield. Today, these men are recognized as the famous Navajo Code Talkers, who exemplify the unequaled bravery and patriotism of the Navajo people. Today, the Navajo Nation is striving to sustain a viable economy for an ever-increasing population that now surpasses 250,000.

While here, we will visit the **Cameron Trading Post**, where authentic Indian jewelry, blankets, and other craft items produced by the Navajo are available. You'll have time to browse the incredible pottery, rugs, and sand paintings.

This afternoon we'll arrive at the great Grand Canyon!

The Grand Canyon – Located in Arizona, Grand Canyon National Park, "The Grandest Canyon of Them All", encompasses 277 miles (446 km) of the Colorado River and adjacent uplands. The park is home to much of the immense Grand Canyon; a mile (1.6 km) deep, and up to 18 miles (29 km) wide. Layered bands of colorful rock visitors from the rim.

We will take a leisurely tour of the East Rim this afternoon, making stops along its length to photograph the Canyon. Perhaps a contest for best photography?







Grand Canyon East is located in the area along the Colorado River to the north and east of the South Rim. The primary physical attribute of the Grand Canyon East region is the Little Colorado River. The river is responsible for carving several of the smaller canyons in the region, and its lower 40 miles constitute one of the largest arms of the Grand Canyon. The Canyon surrounding the river is over 3,000 feet deep where it joins the Colorado River near Desert View between the South Rim and Grand Canyon East. Because of the mineral content in the Grand Canyon East area, the LCR flows with beautiful blue water in the summer months; in other parts of the year, it runs almost blood red.

In the late afternoon we'll arrive at Tusayan located just outside the park and visit the IMAX Theatre for a special presentation of the spectacular film, "The Grand Canyon." After this thrilling 3-D adventure, we will have dinner before checking into your hotel.

Day 5

Breakfast & dinner

Hello Arizona! This morning we will return to the **Grand Canyon National Park** for an early morning view and some additional touring. Afterwards we will depart and travel on what was once Route 66 as we head west through northern Arizona. We'll stop in Kingman for lunch and touring of the Route 66 Museum, which

highlights the glory days of cross-country automobile travel. Then we'll reenter Nevada and travel just south of Boulder City for touring of Nevada Solar One.

Nevada Solar One - a concentrated solar power plant, with a nominal capacity of 64 MW and maximum capacity of 75 MW, spread over an area of 400 acres. The projected CO2 emissions avoided is equivalent to taking approximately 20,000 cars off the road annually. Watch the video HERE.



After our 'energizing' day, we'll travel ton to the "Entertainment Capitol of the World," Las Vegas, for a twonight stay.

Vexas - You'll spot it from far away... An oasis of glittering lights in the desert, home of the Strip and the drive-in wedding chapel, playground of the Mob, and a visual spectacle complete with its own Eiffel Tower, Egyptian pyramids, and Venetian canals. Welcome to Las Vegas. Think of it as a theme park for the mind rather than a city – it can awe as much as it can overwhelm, and that's part of the appeal. It's a place that's defined as much by vintage camp as by futuristic innovation, where the classic steakhouses and 24-hour casinos



exist alongside world-class dining, sleek hotels, and thrilling entertainment from the acrobatic stylings of Cirque du Soleil to the High Roller, a massive observation wheel. Sin City nightlife is legendary, whether you're moving to the rhythm of DJ-spun beats on a dance floor lined with gold or standing on an open-air terrace taking in the sweeping views of neon-lit city below. This is Vegas, baby.







Sample Lodging – Springhill Suites, Fairfield Inn, Hampton Inn, Las Vegas, NV.

<u>Day 6</u>

Breakfast & dinner

Rise and shine Vegas! We need an early start this morning as we travel out to tour **Nevada's National Security Site** followed by the **National Atomic Testing Museum**. Students will learn the history of nuclear testing outside of Las Vegas, interact with artifacts and technology, view a simulation of a nuclear blast in a Ground Zero Theater, and see footage of some of the 1,000 nuclear bombs that were tested in the Nevada desert. **Visitors must be at least 14 years old**. We'll tour Mercury, NV, Frenchman Flat where the first atmospheric nuclear test took place and much more.



NNSS: Nevada National Security Site – The Nevada National Security Site and its related facilities help ensure the security of the United States and its allies by: supporting the stewardship of the nation's nuclear deterrent; providing nuclear and radiological emergency response capabilities and training; contributing to key nonproliferation and arms control initiatives; executing national-level experiments in support of the National Laboratories; working with national security customers and other federal agencies on important national security activities; and providing long-term environmental stewardship of the NNSS's Cold War legacy. Located in a remote, highly secure area of southern Nevada, the NNSS is a premier outdoor, indoor, and underground national laboratory. It is a preferred location for experiments supporting the National Nuclear Security Administration (NNSA)'s nuclear weapons Stockpile Stewardship Programs, national defense programs, and



national security research, development and training programs, as well as vital programs of other federal agencies.

Tours depart from the National Atomic Testing Museum at approximately 7:30 a.m. and return at 4 p.m. The NNSS is located 65 miles northwest of Las Vegas, Nevada. Each tour usually covers about 250 miles. Tour participants may bring their own food and drinks, but lunch is available at the Bistro. Alcoholic beverages are prohibited. Casual clothing is recommended, and sturdy shoes are required for the rugged terrain. Shorts, capris or sandals are not permitted. Visitors to the NNSS must be at least 14 years old. Pregnant women are discouraged from participating in NNSS tours due to the long bus ride and uneven terrain.

Points of Interest on the Tour

Mercury, NV
Nonproliferation Test and Evaluation Complex
Low-Level Radioactive Waste Management Site
T-1 Training Area

Frenchman Flat
Icecap
Sedan Crater
Apple-2 Houses (Civil Effects Tests)

After our tour, we'll visit the National Atomic Testing Museum.

National Atomic Testing Museum: A Smithsonian Affiliate Museum — Experience Nevada's explosive history! The National Atomic Testing Museum (NATM) is a national science, history and educational institution that tells the story of America's nuclear weapons testing program at the Nevada Test Site. The Museum uses lessons of the past and present to better understand the extent and effect of nuclear testing on worldwide nuclear deterrence and geo-political history. It provides collection-based exhibits and learning activities for greater public understanding and appreciation of the world in which we live. Its collections and activities are inseparably linked to serve a diverse public of varied ages, backgrounds and knowledge.







The National Atomic Testing Museum is one of a handful of private national museums and showcases some of the rarest of artifacts relating to the nation's atomic testing program. Nowhere else can you see a large nuclear reactor that was used in the development of the nuclear rocket and the first air-to-air missile, Genie. Personal atomic weapons that were developed to use in place of conventional weapons such as the Backpack Nuke and the Davy Crockett Weapon System (recoilless gun) are placed throughout the 8,000 square feet of museum exhibits.

From Atomic Age culture to the scientific and technological advances, the Museum highlights 70 years of nuclear testing. The end of the Cold War is depicted through a piece of the Berlin Wall complete with the celebratory graffiti painted by Berliners when the wall came down. Two pieces of the World Trade Center signify the beginning of the Global War on Terror and how the Museum today plays a role in the training of first responders from across the nation who come to learn about the nuclear materials terrorists might use.

After our full day, we will return for our final night in Las Vegas. We will have dinner and then the night is ours for exploration. There's so much to do in Las Vegas! Visitors of every age will find something amazing to enjoy!

<u>Day 7</u> Breakfast

After a hearty breakfast, we will start to say goodbye to the beautiful American Southwest, waving to our new friend as we set off for home.



CANYONLANDS OF THE SOUTWEST

Minimum Booking Numbers: 20 students

What's Included: Roundtrip flights or motorcoach transfers

6-nights' accommodation

Breakfasts & dinners daily starting with dinner on arrival and ending

with breakfast on departure

Airport transfers and transportation to activities shown

Milford Wind Corridor Project Bryce Canyon National Park & Hike Zion National Park – Hike & Ranger Talk

Lake Powell area exploration

Glen Canyon Dam & Hydroelectric Tour Navajo Nation & Cameron Trading Post

Grand Canyon National Park

IMAX Presentation – The Grand Canyon

Route 66 Museum Nevada Solar One

Nevada National Security Site Tour National Atomic Testing Museum

Personal Ambassador

Fund-a-Forest: A tree is planted in the name of each guest Dollar\$ For Scholars: \$2 donation in the name of each guest

24-hour emergency cover

What's Not Included: Fully comprehensive insurance (mandatory)

Transfers to/from home airport

Transportation for activities not shown in the itinerary

Lunches in destination

Cost of visas, full or collective passports

Cost of inoculations or medication required for travel Sightseeing / Entertainment Options not shown

Hotel incidental deposits & bills – meals, mini-bar items, recreation,

purchases billed to room, etc

Any gratuities – drivers, hotel services, area guides, tour ambassador

As always, our staff are always available to you to answer any questions you may have regarding programming.

If we may serve you in any way, please do not hesitate to contact us.