

North Carolina, USA - www.STEMstudytours.com

Tour: Yosemite Science

Destination: San Francisco & Yosemite National Park, California

Specialization: Ecology, Climate Change, Geology, Watersheds, Scientific

Process Development & History

Itinerary: 6-days / 5-nights







Yosemite Science					
Day	Morning		Afternoon	Evening	
1	Travel to San Francisco - hotel check-in & free time			Dinner on Pier 39	
2	Free Time in San Francisco Tra		Transfer to Yosemite	Orientation & Field Overview	
3	Climate Change-Ecology-Geology-History-Watersheds-Process / Personalized Outdoor Education Series			Black Bear Presentation	
4	Climate Change-Ecology-Geology-History-Watersheds-Process / Personalized Outdoor Education Series			Night Hike	
5	Climate Change-Ecology-Geology-History-Watersheds-Process / Personalized Outdoor Education Series			Hetch Hetchy Dam Debate	
6	Continued Series		Transfer to San Francisco; 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.

California... Located on the west coast of North America, California is the largest US state

by population, and the third largest by area. California offers something for everyone: Southern California is home to such popular attractions as Disneyland, Hollywood and glorious beaches; while the northern part of

California offers the iconic Golden Gate Bridge, the hills of San Francisco, the vineyards of Napa Valley, and the capital, Sacramento. Outside California's major cities one finds some of North America's most rugged national parks, incredible skiing opportunities, and quiet and ancient northern forests including the highest mountain peak in the contiguous USA, Mt. Whitney.

The first Spanish missionaries arrived in California in the 1700s, but California didn't become a U.S. territory until 1847, as part of the treaty ending the Mexican-American War. Shortly thereafter, the discovery of gold at Sutter's Mill in 1848 inspired



a wave of settlers to head to the west coast in search of fortune. In 1850 California became the 31st state and is now the third largest state behind Alaska and Texas. With millions of acres of farmland, California leads the U.S. in agricultural production. The state is also home to famous cultural institutions and national parks including Yosemite National Park, Alcatraz, Angel Island and the Golden Gate Bridge.

San Francisco - San Francisco is considered one of the greatest cities in the world for many things

including five-star dining, a happening theatre scene, and more. Beyond the fifty-square-mile city, in the surrounding Bay Area, there's so much more to explore, including Silicon Valley's innovations, Marin's Headlands, the vineyards of Napa Valley and Sonoma County, and Berkeley's free spirit. With so many pockets to choose from - Chinatown, Fisherman's Wharf, Union Square, and a half-dozen other major tourist draws – there's just so much to see and do!



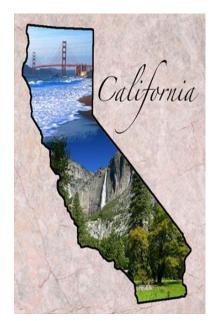


The High Sierra, - The hard part, when thinking about California's High Sierra, is deciding what to

do during your visit. The options include Yosemite, King's Canyon and Sequoia National Parks where John Muir was inspired by breathtaking scenery, now famous mountains, and the majestic sequoias, the oldest trees on earth. Few things are more incredible than a starry summer night in the High Sierra; the sky filled with an impossible number of twinkling constellations. While hotels and rooftops certainly have their place, why not opt for a snug campsite in one of the world's most spectacular destinations in the Sierra - and the world – Yosemite National Park!

Did you know?

- ✓ The highest and lowest points in the continental United States are
 in California and within 100 miles of one another. Mount Whitney
 measures 14,495 feet and Bad Water in Death Valley is 282 feet
 below sea level.
- ✓ Fallbrook is known as the Avocado Capital of the World and Castroville is known as the Artichoke Capital of the World. In 1947 a young woman named Norma Jean was crowned Castroville's first Artichoke Queen. She went on to become actress Marilyn Monroe.
- ✓ Klamath Basin National Wildlife Refuge contains the largest winter population of bald eagles in the continental United States.
- ✓ Death Valley is recognized as the hottest, driest place in the United States. It isn't uncommon for the summer temperatures to reach more than 115 degrees.



- ✓ Inyo National Forest is home to the bristle cone pine, where some of the gnarled trees are thought to be over 5,000 years old. A Mojave Desert creosote bush is among the world's oldest living things at 43,000 years.
- ✓ San Francisco Bay is considered the world's largest landlocked harbor.
- ✓ Sequoia National Park contains the largest living tree. Its trunk is 102 feet in circumference. The redwood is the official state tree and some of the giant redwoods in Sequoia National Park are more than 2,000 years old.
- ✓ One out of every eight United States residents lives in California.
- ✓ If California's economic size were measured by itself to other countries, it would rank the 7th largest economy in the world. Los Angeles is ranked the fourth largest economy in the United States compared to other states.
- ✓ It is estimated there are approximately 500,000 detectable seismic tremors in California annually.
- ✓ There are more than 300,000 tons of grapes grown in California annually. California produces more than 17 million gallons of wine each year.
- ✓ California is usually the country's top state in cash farm receipts growing nearly half of all fruits, nuts and vegetables. Almonds are the biggest export, followed by dairy products, wine, table grapes, cotton, walnuts, pistachios and rice.
- California is the birthplace of fortune cookies, Apple computers, theme parks (Disneyland), blue jeans, the Barbie doll, Frisbee, skateboards, and video arcade games.

Day 1

Dinner; arrival time permitting

Welcome to California! Groups participating in Yosemite Science will generally arrive in San Francisco in the afternoon. Upon arrival we'll transfer to our hotel, relax and get settled. After our Welcome, Safety & Orientation meeting, the remainder of the day is ours for exploration. If you get in early enough, you may wish to set up a city tour, a Bay Cruise, a visit to the Aquarium of the Bay, the Exploratorium, a Chinatown tour, or other amazing activity. We are delighted to help you customize your trip. There's so much to see and do in San Francisco.

Additionally, if you want more San Francisco time, we are happy to customize your itinerary, adding extra days, or decreasing the days in Yosemite and adding more time in San Francisco. Just let us know your preferences.

Tonight, we'll have dinner at Pier 39!







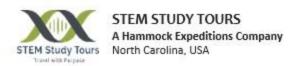
<u>Day 2</u> Breakfast & dinner included; lunch on own

Good morning California! Today, we'll check out of our hotel, store our luggage and then have free time this morning to explore San Francisco. Let us know what you want included for your perfect itinerary.



After our morning of exploration, we'll board our motorcoach and transfer to Yosemite National Park, approximately 4-hours. Once there, we'll settle into our camp and get ready for an awesome adventure!

The Yosemite Institute: Learning in nature's classroom - Our field science programs in Yosemite National Park offer students the opportunity to learn hands-on science in one of the world's most stunning geologic wonders.



Residential outdoor science programs are led by experienced educators and customized to enhance your school's curriculum.

A classroom like no other - Students hike through the dramatic landscapes of Yosemite, explore ancient groves of giant sequoias, ski across snowy meadows, and challenge themselves to reach the tops of waterfalls.

Inquiry-based learning - Students explore the geologic history of the Sierra Nevada, engage in field research projects such as macroinvertebrate biomonitoring, and discover how the environment supported humans from the early Miwok to the present.

Inspired to action - Students are empowered to see how their actions impact their community and the world around them through service-learning projects, such as removing invasive species that threaten biodiversity in the Park.

Program Educators - Field science educators have years of teaching experience in outdoor and environmental education programs and a contagious enthusiasm for exploring the natural world. All of our Program Educators have a bachelor's degree or higher; a Wilderness First Responder certification; and a passion about teaching, youth, and the environment.

Half Dome Village Accommodations — Previously referred to as Camp Curry, Half Dome Village is one of the most popular lodging options inside Yosemite Park. Groups will utilize canvas tent cabins. Because of its popularity, we strongly suggest reservations are made with as much advance notice as possible. Like most properties inside the park, Half Dome Village accommodations do not have televisions or air conditioning. Half Dome Village is conveniently located in the south-central part of Yosemite Valley.

- Canvas Tent Cabins These canvas-covered tents are wood-framed on a raised wooden platform and will accommodate up to five people. Each cabin must use maximum occupancy when available for boy/girl ratio. Cabins are equipped with beds, linens and electrical lights, but no electrical outlets, telephones, televisions or plumbing. Two central shower and restroom facilities are within a short distance.
- Meals The team at Yosemite has a lot of experience preparing meals for participants with varying dietary restrictions. The restrictions that they are not able to accommodate are strictly vegan (participants may bring/purchase food to supplement), nut allergies so severe that participants cannot eat anything processed in a factory with nuts, and strictly kosher (there is no access to a kosher kitchen).

Half Dome Village Amenities

Gift shop & Mountain shop
Outdoor swimming pool
Tour & activities desk
Mountaineering school
Free shuttle bus
Taqueria Stand (Mexican restaurant)
Ice Cream stand

ATM machine
Amphitheatre
Bicycle & raft rentals
Ice skating rink
Village Pavilion
Pizza Deck
Coffee Corner



Areas of Study

In the outdoor classroom, students have the unique opportunity to observe, experience, and personally connect with nature in Yosemite National Park. All groups can select from seven areas of comprehensive study; incorporating up to 4 specific areas. Teachers may feel free to mix and match programs.

Climate Change - Climate change is a critical issue in our world, especially in our national parks. In Yosemite, students study topics such as climate and weather patterns, the greenhouse effect, the carbon cycle, and possible consequences of global climate change. Students learn what climate change is, how it may affect Yosemite, and how actions at home can impact our natural world.

Ecology – Explore the connections between Yosemite's diverse environments and the plants and animals that live there. Delve into Yosemite's ecosystems by studying how plants and animals adapt to their surroundings through observation and identification. Learn how living things and their surroundings are interconnected.

Geology – Students will be inspired by Yosemite's rocks to learn about the ancient and on-going processes that shape and change the earth. Take a closer look at granite to see its minerals, learn about the rock cycle, discover the powers of plate tectonics, or grasp the mighty forces of erosion while learning about the formation of the magnificent Yosemite Valley.

Human History – Explore Yosemite's rich cultural history by learning about the American Indians of this region, pioneer history, and how Yosemite played a pivotal role in the establishment of the USA National Park System. Groups can opt to visit the Indian Museum and learn from an Indian Cultural Demonstrator or focus on how the actions of settlers, explorers, activists, and politicians together resulted in the creation of Yosemite National Park.

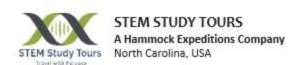
Watersheds – Yosemite's rivers, creeks and waterfalls create a dynamic place to study the science of water. Learn where water comes from and how we can influence this vital resource. Students will become scientists as they take part in a water quality study in one of Yosemite's creeks.

Scientific Process – Bring what students have learned in the classroom to life as they're on a path of discovery. Students will become scientists by answering scientific questions through careful observation, inference, and direct experimentation. Inquiry opportunities range from informal exploratory investigations to utilizing the scientific method and research techniques to process student questions.

Educator Choice (Open) – Field educators come from diverse education and professional backgrounds. Put the decision of academic content for your program in the hands of your field educator. An open academic emphasis allows educators to tailor instruction to the strengths and passions as well as what they feel is best suited for your students.

"The amazing field instructors brought learning to life and their love and passion were passed on to students."

— Teacher, Sherman Oaks, California



Days 3 - 5

Breakfast, lunch & dinner included

Rise and shine Yosemite! After breakfast, we'll engage in our daily sessions. Teachers will have selected their interests prior to travel with a maximum of 4 areas of study included. Sample daily scheduling is as follows for field science participants:

6:30-7:15 AM - Wake up

Students rise each morning and walk out of their cabins into one of the most stunning natural environments on the continent. They will use this time to shower, dress, and prepare for their day.

7:15-8 AM - Breakfast

Participants are served breakfast in the Yosemite Lodge or Wawona Hotel dining rooms. Meals are served buffet-style with numerous options to satisfy even the pickiest of eaters!

8:30 or 9 AM - Morning meeting

Teachers can opt to begin their day of hiking and learning at either 8:30 or 9 AM. At this time, students and staff will meet their field educator.

8:30/9 AM - 4 PM - Instructional day

During the instructional day, your school splits into trail groups that average 12 students per group plus one or two staff. The field educator assigned to your trail group will work with the same group every day. The educators provide the activities and curriculum, staff assist in group management. Lunch is typically eaten out on the trail. Each day's learning adventures are customized to meet the academic and social goals your school has set. Some examples of popular instructional days (seasonality dependent):

- Hiking in Yosemite Valley while learning about the geological processes that formed the Sierra Nevada mountain range and the Yosemite Valley.
- Snowshoeing or cross-country skiing in High Sierra meadows while learning about the winter adaptations of the plants and animals that live there.
- Completing team-building challenges and exploring lessons on leadership while hiking to the top
 of one of Yosemite Valley's waterfalls.
- Hiking in a giant sequoia forest while learning about the unique ecological interconnections that support these ancient and rare trees.

4-6 PM - Recreation time & store visits

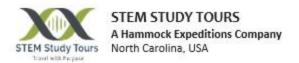
Students can use this time to shower and change, work on journals, or play outside. A school may also use this time for structured learning activities. Teachers will supervise during recreation time. The store in Yosemite Valley is open from 3:30 to 5 PM, Monday - Thursday in the Boystown lodging area. Students can purchase t-shirts, hoodies, baseball caps, beanies, or Klean Kanteen water bottles.

5-6 PM - Dinner

In Yosemite Valley, dinner is served in the Yosemite Lodge or Wawona Hotel dining room. At Crane Flat, dinner is served family style in the Crane Flat dining hall. The food served is nutritious, plentiful and kid-friendly. Meals such as pasta with marinara sauce, burrito bar, meat and vegetarian chili, and the ever-popular pizza frequently appear on the menu.

7:30–8:30 PM - Evening program

Evening programs complement the material being presented during your field day. These large-group programs are engaging, educational, and inspiring. Students may engage in a town-hall style debate about the Hetch



Hetchy Dam, learn about the history of art in Yosemite, take a night hike, or see a presentation about black bears.

9-10 PM - Off to bed

This is the time for students to use bathrooms, change clothes, and brush their teeth. Staff will supervise students during this time. Lights out is at 10 PM.

Safety - The top priority at Yosemite Institute is the health and well-being of participants and staff, and we know safety is a concern for all parents and families. With any outdoor recreation education program or activity there is always a risk. Knowledge is the key to helping reduce these risks. Parents and families can help prepare for their child's visit by thoroughly reading the next two pages. Ask us if you have questions! Yosemite's field science educators are Wilderness First Responders and educate participants about ways they can protect themselves and the environment during their stay in Yosemite. Please visit the **National Park Service** website for updates and information about weather, safety, and other Yosemite news.

Day 6

Breakfast & lunch (Important: Meals shown are dependent upon your specific departure timings and only available <u>if at camp</u> during offered meal timings. If off-site, meals are on own and the responsibility of the participant.)

Good morning California! After breakfast we'll have the morning for our science programming and then begin to get ready for departure. Afterwards we'll start to say goodbye to this wonderful land as we take away memories that will last a lifetime!





HELP PREPARE YOUR KIDS FOR THEIR TRIP TO YOSEMITE

Safety Notes & Packing Lists

Prior to your child's arrival take time to review these important safety items. Our field science educators are Wilderness First Responders and will reinforce and continue to educate participants about ways they can protect themselves and the environment during their stay in Yosemite.

Wildlife Safety

All animals living in Yosemite National Park are an integral part of the ecosystem and are wild. Help keep them wild and keep yourself safe.

- ✓ Don't touch or approach wildlife
- ✓ Don't feed wildlife (no matter how much they beg or how cute)
- ✓ Alert your teacher, chaperone, or field science educator if you see wildlife
- ✓ Follow instructions about what to do if you see wildlife
- ✓ Don't store food in your room (this includes gum, flavored water, and food wrappers)
- ✓ Don't bring additional food/snacks (unless previously arranged with Yosemite staff)
- ✓ Give additional food/snacks to your teachers or chaperones for safe keeping
- ✓ Follow your field science educator's instructions about storing your backpack and disposing of any food garbage at the end of the day

Natural Occurrences

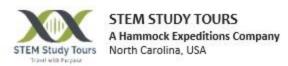
It is rare and unpredictable, but on occasion in Yosemite we experience the earth's natural hazards, such as high winds, snow storms, rock falls, and floods. Here's how you can prepare:

- ✓ Pay close attention to your field educator's lesson on the first day about potential hazards and participate fully in practice drills
- ✓ Know the location of your school's emergency meeting spot
- ✓ In case of high winds, stay indoors, and follow instructions from Yosemite staff & your teachers
- ✓ If there is a forecast for large amounts of snow, Yosemite staff may move you and your school to lodging at a lower elevation

Encountering Strangers

More than 4 million people visit Yosemite every year. Here are some tips if you do encounter strangers:

✓ Keep the door to your room locked even when you are inside, and only open it for your teachers or your trail group chaperones



- ✓ If a stranger is talking to you, you do not have to respond. You can ask politely that they stop or call out to your educator, teachers, or chaperones
- ✓ Pay close attention to your safety officer's lesson about the buddy system. You always need to buddy up when you leave your room and with a chaperone anytime you leave your building

Weather

Follow these guidelines to ensure you stay warm, dry, and protected from the elements.

- ✓ Check the National Park Service's website prior to your trip to learn about expected weather forecasts
- ✓ Follow the packing list provided to your school (you may not be used to wearing your winter hat in May, but you will want one in Yosemite)
- ✓ Dress for the weather every day. Field educators will not let you leave your morning meeting until you are properly dressed
- ✓ Pack your rain gear in your backpack every day, even if the sun is out

Personal Care

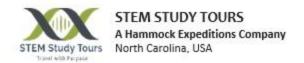
Beyond brushing your teeth and wearing clean socks, there are some additional things you can do to take the best possible care of yourself in Yosemite.

- ✓ Drink water... a lot of it! Staying hydrated is really important, especially at higher elevations
- ✓ Pack two liters of water in your backpack every day. Know where the filling stations are near your lodging and keep your water bottles filled
- ✓ Skip the soda, coffee, and energy drinks at meals
- ✓ Protect yourself from too much sun
- ✓ Pack sunblock in your backpack every day and reapply when field science educators ask
- ✓ Wear a hat every day on trail
- ✓ Wear long sleeves when possible
- ✓ Wear sunglasses every day, even in the winter because snow reflects the sun
- ✓ Wear good hiking shoes that are well broken in
- ✓ Alert your field science educator if your feet hurt when hiking

Emotional Safety

Creating a space where everyone feels safe is incredibly important to all staff and we ask that you help us keep it safe.

- ✓ Bring a positive and respective attitude when you interact with others from your school and anyone else you meet
- ✓ Bullying is NOT tolerated. Report ANY bullying toward you or anyone else to a teacher, chaperone, or Yosemite staff, even if you aren't sure if it is bullying or not
- ✓ Share your feelings with a teacher, chaperone, or educator if you are homesick
- ✓ Participate in the discussions and journaling activities with your trail group
- ✓ Remember that every member of your group (including you) has something important to contribute, and every member (including you) has something important to learn

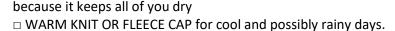




FIELD SCIENCE CLOTHING AND EQUIPMENT LIST

The items on this list are to be brought by each Field Science School participant. Please adjust the number of socks, pants, etc according to the number of days you will be spending in Yosemite. When asked what they could have done to make their stay more enjoyable, many students answer that they would have followed the equipment list more closely.

TO PACK - things you will need before and after trail:
□ TENNIS SHOES OR SNEAKERS for evening activities and use around camp
□ PANTS three rugged pairs (including one pair of warm pants)
□ SHIRTS three rugged shirts, plus a few lightweight shirts for warm weather
□ SWEATER OR FLEECE two lightweight wool or fleece layers are best; avoid cotton
□ JACKET an insulated layer, such as a parka with hood is a good choice
□ SOCKS five pairs of socks (wool or synthetic preferred no cotton)
$\hfill \square$ UNDERWEAR *THERMAL UNDERWEAR (BOTTOMS) polypropylene or capilene very warm and lightweight -
no cotton
□ *WATER PROOF MITTENS (mittens are warmer than gloves)
□ PAJAMAS
□ TOWEL
□ TOILETRIES shampoo, soap, toothbrush, toothpaste, sunscreen, lip balm, moleskin, personal medication
□ HANDSANATIZER
□ SLEEPING BAG synthetic or down fill; sheets and blankets are fine if you don't have a sleeping bag
□ FITTED SHEET & PILLOW if you will be staying at our Crane Flat campus
□ SUNGLASSES to prevent sun blindness in the high-altitude sun reflecting off the snow and granite
□ LIGHTWEIGHT HAT WITH BRIM baseball hat or other type to shade sun
□ FLASHLIGHT with spare batteries and bulb
□ PLASTIC BAGS trash sized to keep your things clean and dry as well as small sizes to put between your sock
and shoe on wet days
□ ALARM CLOCK to get you up on time.
□ OPTIONAL binoculars, field guides, camera, film, book light, umbrella
*Items with star not needed from May to September
DAYPACK - things that will be brought on the trail with you everyday
□ DAY PACK must be big enough to fit the items below and some of the group lunch.
\Box RAIN GEAR waterproof not just water resistant. A rain suit (jacket and pants) is much better than a poncho



□ TWO (2) WATER BOTTLES - unbreakable one-quart plastic bottles with screw-on, leak proof tops, such as soda or sports drink bottles. NO glass bottles please.



□ NOTEBOOK & PENCIL (in ziplock bag)
□ EXTRA LAYERS OF WARM CLOTHING
□ BANDANA serves as your field lunch placemat/crumb-catcher + many other fun uses
□ HIKING BOOTS One pair of broken in lightweight waterproof hiking boots that will keep your feet dry as wel
as happy after a long day on the trail

NOTE TO PARENTS AND STUDENTS PLEASE DO NOT BRING....

- Extra Food, including gum and candy food is not allowed in the cabins. Ample food will be provided
- ➤ Knives are a safety hazard!
- Electrical Appliances / games including Walkman and Discman players
- ➤ Hand Warmers these are wasteful and often end up as litter
- Anything that would be sadly missed if lost!

BE PREPARED!

Please come prepared to hike in a blizzard, in hot sunny weather, or in a rainstorm. Weather is variable. Layer materials (synthetics, polypropylene, pile or wool) for greater flexibility as temperatures change throughout the day. Weather in May- September - is usually warm with cool nights. Shorts, T-shirts and lightweight (but sturdy) walking shoes are recommended, though warm clothes and rain gear should still be included.

A NOTE ABOUT WOOL AND PILE (FLEECE) CLOTHING

Why wool and pile? We believe in them because they can save your life. When wet, wool and pile retain much of their insulating quality and keep you warm. That's not true for down or cotton, which are useless when wet. Military surplus wool garments are often the least expensive warm clothes you'll find. Synthetic polyester fabrics (with names like polar fleece, polypropylene, capilene, polarguard, fiberfill, polarpile and others) maintain insulating qualities even when wet, and they dry quickly. We recommend garments made of these fabrics. Do not bring only cotton clothing! Your life could depend on staying warm when wet.

REGARDING YOUR BOOTS

Purchase boots at least two months ahead of time. Fit with a thick pair of wool socks. Buy boots that fit your needs. Many people over-buy, assuming bigger means better. Big, heavy boots have their place, but for most hikers, they are more than necessary. Heavy Boots should offer ankle support and traction on rocky and slippery surfaces. Above all, boots must be waterproof and comfortable. Blisters can be a painful part of your Yosemite experience. It is important to prepare your boots and your feet for hiking. Wear your boots for half-day periods for several weeks before your Yosemite trip. This allows boots and feet to get used to each other. The boot leather gets softer and your feet get tougher.

WHERE TO GET EQUIPMENT

Wool and many other items on the equipment list may be purchased inexpensively from Army/Navy Surplus, Salvation Army or Goodwill stores. Most sporting goods and backpacking shops carry the equipment listed, and many will rent as well as sell gear.

Yosemite Science

Minimum Booking Numbers: 20 students

What's Included: Round-trip flights or motorcoach transfers

5-nights' accommodation (1-night in San Francisco + 4-nights in

Yosemite)

Breakfasts, lunches & dinners with the exception of lunch on

Day 2. Breakfast & lunch on Day 7 are dependent upon

flight times and may not be available if off-site

Airport transfers in California and transfers to/from Yosemite 4-days of Field Programming with Yosemite Institute Specialists

Free Time in San Francisco Personal Tour 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 if traveling via air

Lunch on Days 1, 2 & 6

Transportation for activities not shown in the itinerary

Cost of visas, full or collective passports

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

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

charges, purchases billed to room, etc.

Any gratuities – drivers, hotel services, area guides for specialty San

Francisco tours, 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.