

*Tour:* **Boston & NYC STEM & History**  
*Destination:* **Boston, Massachusetts & Manhattan, New York**  
*Itinerary:* **7-days / 6-nights**

Boston & New York City STEM & History						
Day		Morning	Afternoon		Evening	
1	Sun	Travel to Boston, transfer and check-into hotel			Welcome, Safety & Orientation	Faneuil Hall & Quincy Market + Dinner
2	Mon	MIT Museum & MIT Master Class	Boston Tea Party	Freedom Trail Tour OR Harvard Campus Tour	Free Time	Local Dinner
3	Tues	Motorcoach to NYC	Intrepid Sea, Air & Space Museum + Physics Tour		Dinner in Times Square	Times Square Walk + Group Photo
4	Wed	Liberty Science Center with 2 Master Classes in Maker & Tech, Engineering & Physics, or Biology & Ecology			Local Dinner & Free Time	
5	Thur	Guided Tour: Wall Street, Financial District & Brooklyn Bridge	Cruise to Statue of Liberty & Ellis Island Immigration Museum + Audio Guides		Local Dinner	Empire State Building
6	Fri	Columbia University Campus Visit	National Museum of Mathematics + Master Class		National Geographic Ocean Odyssey	Times Square Farewell Dinner
7	Sat	Depart New York City 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.

## Day 1

Dinner Voucher

*Boston....* An American city like no other, Boston is a true original! Hip & Historical + Cool & Hot! Full of passion and pride regarding both their city and their sports teams, Bostonians revel at the chance to tell you how great their town is. The thing is, after you're there for a while, you'll tend to start agreeing with them! But this town has more to offer than world champion sports teams and the site of the world's best-known tea party. With over 16 million visitors per year, Boston ranks as one of the most visited cities in the United States.



As the capital of the Commonwealth of Massachusetts, Boston embodies a distinct European feel which is evident in the city's culture. The city's role in the American Revolution has led to the nickname, the "Cradle of Liberty." Groups will be amazed at all the sights showcasing historical wonders around every corner. Once considered ultra-conservative, Boston has developed a progressive culture and attitude with a wonderful blend of stylish sophistication and historic New England charm. Historical buildings, parks and cemeteries are national landmarks, and the city boasts the birthplaces of many famous patriots, presidents and politicians. The city's architectural treasures include lovely brownstones and cobblestone streets, and gas-lamps light the way in many neighborhoods.

Also referred to as the "Walking City", Boston is remarkably compact, all centered on the country's oldest public park, Boston Common. When it comes to nightlife, the modern-day Boston is home to several cafes, restaurants and historic pubs. Foodies can try local favorites, such as baked beans, cod and clam chowder. From amazing restaurants, to buzzing marketplaces and historical quaint, brownstone lined streets to big city entertainment, Boston lives up to its reputation as one of the most popular tourist destinations in the USA.

## *Did you know?*

- ✓ Boston was the site of America's first metro system.
- ✓ Located near the financial district, Boston Common is the oldest public park in the United States.
- ✓ Boston is known as "the Athens of America," a reference to the city's more than 100 colleges and universities. The city of Boston has the unique distinction of being home to both the first public school and the first college in America.
- ✓ Why is Boston called Beantown? Here's the story: When the Puritans arrived from England to Boston, they were forbidden to cook on the Sabbath. Church services often lasted 8-hours and were mandatory for all members of the community. When the congregants returned home they were often cold and hungry, so the solution was to put a pot of beans on the hearth on Saturday, with a piece of meat - usually salt pork, and a sauce of water and molasses to keep the beans from burning.



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This was the one hot meal that children could serve to themselves while the adults remained at the services. Children were generally required to be at services from morning until 2PM and adults remained until 4 or 5 in the afternoon. Those that failed to attend church services were put in cages on Boston Common where they did penance equivalent to the time they missed in church. Family members could bring other family members a hot meal and because it was easy to transport it was often the pot of Boston baked beans. After being on the hearth for more than a day, the molasses became thick and fortified the congregants on the cold days.

- ✓ St. Patrick's Day was first celebrated in North America in 1737, in Boston. In modern times, Boston expects 600,000 revelers on the celebratory day.
- ✓ Boston is reported to have more Irish descendants than the country of Ireland.
- ✓ Ever wonder how Fig Newton's got their name? They were named after Newton, Massachusetts, a suburb of Boston.
- ✓ Boston's best-known dishes are clam chowder, fish and chips, baked beans, lobster, steamed clams, and fried clams.

Groups participating in our 'Boston & Cape Cod Science' will generally arrive in Boston in the afternoon. If traveling by flight, you'll be met by our representative who will get your motorcoach called and ready for boarding. If arriving by coach, we will meet you at the hotel. After check-in, we'll have our Welcome, Safety & Orientation Meeting, and then get started on our action-packed itinerary straight away. Get ready to experience Boston!

**Sample Hotel – Fairfield Inn Boston-Woburn/Burlington:** This hotel is located in the historic Woburn community and offers all the comforts to maintain your balanced routine during your stay. Relax in spacious rooms with complimentary Wi-Fi, plush Marriott bedding, and mobile workstations. Stay active with cardio equipment and free weights in the hotel fitness center and unwind in the refreshing seasonal outdoor pool. Additional amenities include a sundries market, lobby business station, in-room coffee & tea, onsite laundry, mini-fridges and hair dryers. Continental breakfasts are included at your hotel. Students generally sleep 4 to a room in rooms with 2 queen beds. Staff generally sleep 2 to a room.



Note: Groups will generally stay outside of the city center to save unnecessary costs, however if you desire a city center hotel, please just let us know and we will be happy to issue a quote on your preferred property.

Following hotel check-in and our Welcome, Safety & Orientation Meeting, we're off to discover Quincy Hall and Faneuil Marketplace!



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**Quincy Hall and Faneuil Marketplace** - The seat of American history and the site of one of America's most famous shopping and dining experiences, Faneuil Hall Marketplace. For over 250 years, the marketplace has played an integral role in the life of Boston's residents so when you are ready to see, taste, and touch a true Boston experience, you'll adore the historic and exciting Faneuil Hall Marketplace!



Sprawling on 6.5 acres, Faneuil Hall Marketplace attracts more than 18 million visitors annually. Located in the heart of downtown Boston and directly across the street from Boston's waterfront, it combines the glories of the past and the vitality of the present with 49 shops, 44 pushcarts, 18 restaurants, 35 food stalls and Boston's most popular comedy nightclub. The Marketplace is comprised of three restored 19th century buildings. A blend of Neoclassic and Greek revival architecture, the complex is a beautiful representation of old Boston, tastefully enhanced by urban contemporary additions. Ethnic foods, unique gifts and street performers are just a few elements that make the cobblestone streets such a festive and special place. During the warm weather, the outdoor cafes are a perfect spot to relax and have a meal or appetizer and drink.

Each tour participant will receive a **VIP Welcome Pass** to use for discounts at the various marketplace stores plus a meal voucher to dine at one of 19 fabulous restaurants to meet your personal taste and preference. Following dinner, guests will use their dessert voucher to cap off the night.

If you find you arrive early enough and have a bit of extra time, may we suggest that this evening is perfect for a **Boston Ghost Tour**! Let us know if we may add this to your itinerary.

## **Day 2**

Breakfast & dinner

Rise and shine Boston! After breakfast at our hotel, we'll head over to MIT!



**MIT: Massachusetts Institute of Technology** – The Massachusetts Institute of Technology is a private research university located in Cambridge, Massachusetts. MIT has five schools and one college, containing a total of 32 academic departments, with a strong emphasis on scientific and technological research. Founded in 1861 in response to the increasing industrialization, the university emphasized laboratory instruction from an early date. MIT researchers were involved in efforts to develop computers, radar and inertial guidance in connection with defense research during WWII and the Cold War. In the past 60 years, MIT's educational disciplines have expanded beyond the physical sciences and engineering into fields including biology, cognitive science, economics, philosophy, linguistics, political science and management.

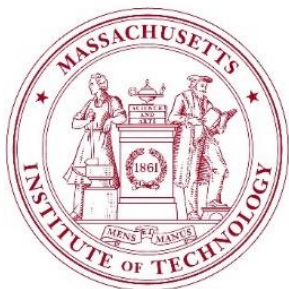
Our morning will consist of a visit to the MIT Museum where we will participate in a hands-on Master Class designed to inspire interest in science, technology and engineering. Master Classes are 1.5 – 2-hours in length with a maximum capacity of 25-students per class. For larger groups, we may split with ½ in class and the other ½ in the museum. Trip Leaders will select their Master Class prior to travel. Options include (subject to change):



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- ✓ **Sail through Engineering** - Learn about the engineering design process by building and testing your own model boat. Participants will use modern technologies, such as computer-aided-design and laser cutting, and explore the methods that Nathanael Herreshoff used to design and build over 2000 boats, including five America's Cup winning yachts, at the turn of the 20th century.
- ✓ **Visualizing Science** - See the world in more detail by using a range of visual technologies. Build observation skills and explore artifacts from the Museum's Collections and actual research objects from MIT labs.
- ✓ **Introduction to Robotics** - Learn what makes a robot tick in this introduction to programming. Participants will use LEGO EV3 Mindstorms to explore how to program robots to move and react to their surroundings.
- ✓ **Advanced Robotics** - Advance your LEGO EV3 programming skills while learning about MIT robotics research. Learn to use sensors to help your robot navigate through new challenges. This workshop picks up where our Robotics Engineering workshop left off.
- ✓ **Illuminating Protein Expression** - Explore the molecular machines that build the proteins we need every day. In this workshop students will carry out their own experiments to create green fluorescent protein, while learning about the relationships between DNA, proteins, and even light.
- ✓ **Make to Move** - Find your inner engineer and artist while exploring the MIT Museum's Gestural Engineering exhibit. Explore the functionality of gears, pulleys, linkages, and more, in order to build your own working kinetic sculpture.
- ✓ **Hello Holography** - In this workshop, students will experiment with light in order to investigate the basic principles behind holography. Learn how three-dimensional objects are "captured" on film through hands-on activities, including the making of an actual hologram.
- ✓ **Structural Engineering: Building Better Bridges** - Learn how simple geometry is used to engineer the longest bridges and tallest buildings in the world by building your own structures. Discover the strength of basic materials, such as paper and 3D printed parts, in this hands-on workshop.
- ✓ **Physics & Photography** - Explore how cameras and light interact to capture images of events that happen quicker than a blink of an eye. Use mobile device cameras to capture events faster than 1/10,000<sup>th</sup> of a second and learn how MIT researchers are developing and using new camera technologies to visualize light itself.
- ✓ **DNA & Protein Synthesis** - How does the human body know how to create the molecules it needs? In this workshop, students will use LEGO pieces to learn about the molecular biology of DNA, RNA, and proteins, and how they are related.



**The MIT Museum** - The Museum presents an exciting array of exhibitions and displays providing a window into MIT's fascinating world of science and technology. The mission of the Museum is to share the creative energy of MIT, and to stimulate an understanding and appreciation of the meanings of scientific and technological innovation in the modern world. The Museum's galleries present on-going and changing exhibitions on science and technology and current research, architecture and design, and oceanography, underwater robotics and ship design. You'll find high-tech artifacts, prototypes, intriguing scientific instruments, historic photographs, amazing holograms, a scientific aquarium, and even ingenious kinetic sculptures.

Preview your visit to the MIT Museum on Tech TV. This short video lets you in on some of the highlights of the Museum's exhibitions and programs. [VIDEO](#)



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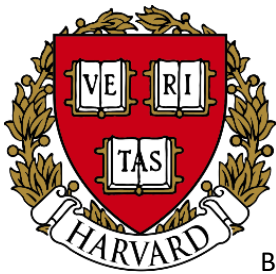
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In the afternoon, we'll grab a quick lunch and then we're off to learn about the Boston Tea Party and what it means to us, as Americans.

***Boston Tea Party*** – Join Samuel Adams and the Sons and Daughters of Liberty as they protest the King's unjust taxes. Your students will play an active role in a riveting reenactment of the historic town meeting held just hours before the Boston Tea Party. They will storm down to Griffin's Wharf and board one of our authentic replica vessels where they will cast off the yoke of tyranny by throwing the Crown's tea into Boston Harbor. Explore below decks, and learn about life at sea, funny anecdotes from the Boston Tea Party, and the strange weather conditions facing the Sons of Liberty when they destroyed the tea. Follow the Sons and Daughters of Liberty as they make their escape from the wharf and discover the last remaining tea crate from the Boston Tea Party which washed up on shore the morning after. Finally, your team will learn how the Boston Tea Party sparked the American Revolution as they are surrounded by the action and sounds of the award-winning, multisensory film, "Let It Begin Here".



In the late afternoon, we'll have a fabulous walking tour. Schools may choose one of the following 2 options:



***Harvard University Campus Tour*** – Dive deep into the rich legends of Harvard's past and discover what makes this school and its students so unique. Tour stops include the Old Yard, Johnston Gate, The John Harvard Statue, Widener Library, Harvard Square Village (student housing), Science Center, Memorial Hall and the Harvard Shop.

***Freedom Trail Tour*** – Dive deep into Boston's rich history and enjoy stories about America's Founding Fathers and the historic landmarks on the Freedom Trail. Tour stops include Boston Common, The State House, Park Street Church, Granary Burying Ground, King's Chapel, Old City Hall, Old South Meeting House, Irish Famine Memorial, Old Corner Book Store, New City Hall, Old State House, Faneuil Hall and Quincy Market.



Tonight, we'll have a great dinner and get ready for tomorrow's transfer to New York!

### **Day 3**

Breakfast & dinner

Good morning Boston! We'll load up and set off early today to get to New York City, approximately 3.5 hours.

***New York City...*** Immerse yourself in New York City for five minutes and you'll see why it's like no other place on earth. It's why countless people have pinned their dreams on the place, thrown caution to the wind and shown up on its doorstep. And it's why visitors keep streaming in from all corners of the globe, grasping at their silver-screen visions – and finding them – but discovering plenty more on the way. New York is



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a city that's got so many sides and so much to offer that it can be intimidating at times but visit with an open mind and you're likely to fall in love with this city. The buildings are soaring, look-at-me towers; crowds are boisterous and diverse; zillions of restaurants and shops cater every conceivable taste; museums and performance venues offer everything from masterworks to avant-garde creations. Around almost any corner is a commingling of energy, congruous and clashing at the same time. The result is messy, beautiful, and very New York!



## *Did you know?*

- ✓ The term “Big Apple” originally referred to horse racing! The city got its most famous nickname from a local newspaper’s horse racing column in the 1920s. Prior to the city’s adoption of the nickname, the phrase “Big Apple” was used to describe a big money prize at horse races held around the city.
- ✓ New Yorkers speak approximately 800 languages. Over 37 percent of New Yorkers were born in another country, so it’s unsurprising that the city’s residents speak a wide range of languages—but by any account, 800 is impressive. 4 in 10 households speak a language other than English.
- ✓ Most of us associate cowboys with the Wild West—not the West Side of Manhattan. But from 1850 to 1941, New York’s 10th Avenue had its own special team of cowboys. Responsible for wrangling people rather than cows, the West Side Cowboys would ride on horseback ahead of the freight trains that ran down the middle of the street, warning people to get out of the way.
- ✓ NYC’s population is the highest of any American city and a little over 8 million people live in the City. It means 1 in every 38 people in the United States call the city home. With over 27,000 people per square mile, it’s not just the densest major city, it also accounts for more than 40 percent of New York State’s entire population.
- ✓ The Bronx takes its name from its first European settler. Jonas Bronck, who moved to America from Sweden in 1639, was the first European to settle in the Bronx. His farm, covering about 500 acres, was referred to as “Bronck’s Land,” and the river was called “Bronck’s River.” Over the years, people started calling the whole area the “Bronx”.
- ✓ France gifted the Statue of Liberty to the United States in 1886 for its centennial celebration. The statue was shipped as 350 pieces in 214 crates and took 4 months to assemble at its current home on Ellis Island.



- ✓ New York City's Federal Reserve Bank has the largest gold storage in the world. The vault is 80 feet below street level and contains \$90 billion in gold.
- ✓ The first pizzeria in the United States opened in NYC in 1895. Since the 1960s, the price of a slice of pizza has been roughly the same price as a subway ride, generating the idea of "Pizza Principle" among economists.
- ✓ Times Square is named after the New York Times. It was originally called Longacre Square until the Times moved there in 1904.
- ✓ New York City became the first capital of the United States in 1789.

On arrival in the city, we will get to our hotel, store our bags and then we are off for fabulous programming. Our driver will drop us at the next stop, and then head back to Boston. From this point forward, we will be taking the Metro to get around the city.

**Rooming:** Typical Manhattan hotel rooms have two full/queen beds and sleep 4 pupils per room. Teachers sleep one person per bed with up to 2 staff in each room. All rooming is based on gender. Please do understand that hotel rooms in NYC are expensive and this is why we always try to maximize occupancy. The most cost-effective times of the year to stay in NYC are January through March; the most expensive times are October and December. Summer can be a great time for hotel rates, but please beware of possible increased fares if flying.

***Intrepid Sea, Air & Space Museum*** – This museum is a unique journey through all things military and maritime, with spectacular interactive exhibits. Located at Pier 86, the complex boasts authentically restored vessels, the most impressive being the World War II aircraft carrier the USS Intrepid and the submarine USS Growler. You'll also spy a British Airways Concorde, as well as Sikorsky, Skyhawk, and Vietnam-era Iroquois Huey helicopters. As for space memorabilia, the Space Shuttle Pavilion showcases the Enterprise, the first space shuttle. You can also visit a replica of an Aurora capsule and try out the virtual flight zone, which simulates the exhilaration of flying in a supersonic jet. While here, students will participate in a specialized private tour.



***Aviation Physics Master Tour***– This tour explores the aircraft carrier *Intrepid* and examines the machinery that makes flight at sea possible. In hands-on activities, students work in groups to demonstrate the physics of flight and how those forces interact with one another.

This evening, we will have dinner in Times Square and then our photographer will take a special **group picture** for you to remember. After dinner, weather permitting, we'll walk and explore **Times Square!**





**Times Square Exploration** – Times Square is a major commercial intersection, tourist destination, entertainment center and neighborhood in the Midtown Manhattan section of NYC at the junction of Broadway and 7<sup>th</sup> Avenue. Brightly lit by numerous billboards and advertisements, it stretches from West 42<sup>nd</sup> to West 47<sup>th</sup> Streets, and is sometimes referred to as “the Crossroads of the World”, “the Center of the Universe”, “the Heart of the Great White Way”, and “the Heart of the World.” It is one of the world's busiest pedestrian areas, the hub of the Broadway Theater District, and a major center of the world's entertainment industry. Times Square is one of the world's most visited tourist attractions, drawing an estimated 50 million visitors annually. Approximately 330,000 people pass through Times Square daily, many of them tourists, while over 460,000 pedestrians walk through Times Square on its busiest days.

#### **Day 4**

Breakfast & dinner

Rise and shine Manhattan! After breakfast at our hotel, we'll head to the Metro station, transferring to lower Manhattan and onto the New Jersey PATH system to take us to the Liberty Science Center.



**The Liberty Science Center** – At LSC, your students will be inspired to learn about the power, promise, and pure fun of science and technology. LSC's hands-on extended laboratory programming offers high-quality, interdisciplinary project-based learning that combines critical thinking, collaboration, and problem-solving skills using real world examples to help support students in making the connection to learning. Students will strengthen the tools and skills necessary for scientific study into math and science connections as well as the world of medical technology and engineering during STEM instructor led facilitated classroom discussions and experiments.

**While here, please know that you may have your choice of 2 Master Classes. Here are options:**



**Intro to Game Design** - Design custom characters with animations and behaviors by completing a crash course in Stencyl. This intuitive toolset is limited only by your creativity. This platform sets a foundation of computational thinking—an essential skill in today's tech-driven world.



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- ✚ **Unreal Creations! Designing a Game with Unreal Engine** - Level up your skills in this game design and programming primer course using industry-level tools! Take the first step into professional-level game design as you learn how to set up your first project in Unreal Engine and learn the basics of coding in C++. Some programming experience is recommended for this class.
- ✚ **Advanced 3D Modeling with Autodesk Maya** - In this program exploring advanced 3D modeling, students will learn the techniques and methods used professionally to create 3D models and meshes. Students will leave with access to a digital model that they have created (requires access to a Google Drive account or similar file-storage service).
- ✚ **Virtual Reality and Your Brain** - Ever want to know what it would be like to stand on an I-beam a few hundred feet in the air without safety gear? Using HTC Vive and other tools, students will learn how their brain perceives reality and why VR is such an immersive technology.
- ✚ **Bridge Engineering: Engineering & Design Challenge** - Your group will be engaged in advanced 3D design of bridges with Autodesk Tinkercad. Learn to work in collaborative groups to solve complex problems using 3D printers.
- ✚ **Physics of Car Crashes** - Explore the physics of car crashes and safety devices through the study of varying types of collisions (elastic and inelastic), force, and impact time. This exploration will guide your students to use Vernier sensors to engineer and analyze their own device which will survive the impact of a 'crash.'
- ✚ **Sphero Rovers: Mission to Mars!** - Can you create the next Mars rover design? In this program use your engineering and design skills to create a Sphero driven rover that can carry a payload across our simulated Mars surface. Once you have designed your rover, jump into the driver's seat and code your way through the tricky terrain!
- ✚ **Aviation: From Paper Airplanes to Drones** - This is drone training 101. Learn basic concepts of flight and apply this knowledge through hands-on experiences like using flight experiments and micro pocket drones.
- ✚ **Stabilizing the System** - Learn about homeostasis and feedback mechanisms as you use Vernier sensors to observe and analyze your own heart rate, lung capacity, blood pressure, and more.
- ✚ **Our Water Systems: What's in Our Water?** - Where does the water we use come from, where does it go, and what happens to it along the way? Students explore our water systems through a gallery format, becoming an "expert" on a contributing aspect such as eutrophication, combined sewage overflow, pH levels, and marine life in New York Harbor. Students then test local water from the Hudson River as well as our tap water, comparing the results to EPA guidelines.
- ✚ **Unlocking Your DNA** - Discover the world of genetics as you explore the human genome. Use hands-on lab techniques and lab equipment such as micro-pipettes, centrifuges, and gel electrophoresis chambers as you solve a genetic mystery.
- ✚ **Forensic Anthropology** - Tibia or not tibia, that is the question! Learn to observe and identify the bones and features that make us unique. Tell the story of a human by reading the patterns in various skeletal features. Then, solve an archaeological crime by using clues dug up from Earth to determine whether you're dealing with a funeral or a fraud.

After our thrilling day, we'll head back to Manhattan for dinner and free time. If you want to add in a Broadway Show, this is the day to it!



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## **Day 5**

Breakfast & dinner

Good morning NYC! After breakfast we will start our day of adventure. First stop, the Financial District.

***Wall Street & the Financial District Walking Tour*** – As insiders, our guides have many stories to share from the trenches of Wall Street. They put faces and events to the buildings and landmarks to personify and demystify Wall Street. Meandering the narrow, winding streets of lower Manhattan, you'll hear stories that will entertain, inform and shock. Learn about 400 years of history that led to modern Wall Street from the Dutch trading outpost to the humble beginnings of the NYSE to the current financial markets. The itinerary includes the New York Stock Exchange, Wall Street Federal Hall, House of Morgan, 40 Wall Mercantile Exchange, Cotton Exchange Pearl Street, Deutsche Bank, Lehman Brothers, Goldman Sachs, Charging Bull, Bowling Green, Canon of Heroes, Trinity Church and the Federal Reserve.

Next, we'll go see the Brooklyn Bridge – up close and in person!

***The Brooklyn Bridge*** – We'll walk across the Brooklyn Bridge to explore and delight in this monumental structure, not only from the physics and engineering viewpoint, but also as an enduring work of human achievement. Since construction first started in 1860, it has inspired poets, artists and writers. As always, any story of epic engineering also comes with a human story equal in depth. We'll learn about the Roebling family and their tenacious 13-year battle to begin and then complete the longest and heaviest suspension bridge ever built. We'll explore the bridge to discuss and observe just how John Roebling's masterpiece was built.



Next, we're in for a real treat....

***Statue Cruises: Statue of Liberty & Liberty Island exploration, plus the Ellis Island Immigration Museum*** – Departing from Battery Park, get a chance to see the Statue of Liberty National Monument and the Ellis Island National Immigration Museum in this absolutely fascinating journey. Enjoy an audio tour and get an in-depth look at America's enduring symbol of freedom: **The Statue of Liberty**. Continue to Ellis Island for access to the **Ellis Island Immigration Museum** and free time to explore. Indoor and outdoor seating is available; concessions and souvenirs are available on board. Be sure to wear comfortable clothing and shoes!



After our afternoon with Lady Liberty, we'll head to dinner and then it's out to a magnificent sight – The Empire State Building!



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***The Empire State Building*** - New York's famous Empire State Building, a New York City and National Historic landmark, soars more than a quarter of a mile into the atmosphere above the heart of Manhattan. Located on the 86th floor, 1,050 feet (320 meters) above the city's bustling streets, the Observatory offers an immersive experience with panoramic views from within a glass enclosed pavilion and from the surrounding open-air promenade. The building, one of New York City's main tourist attractions, offers a variety of activities. Check out the two-story building model and stunning art deco ceiling murals along with the

historical “Dare to Dream” exhibit. There are restaurants, a sushi bar, coffee shops, a drug store, a post office and two banks in addition to the plethora of restaurants and nightlife activities in the surrounding area.

The Observation Deck wraps around the building’s spire, providing 360-degree views of New York and beyond. From up here you’ll get one-of-a-kind views of Central Park, The Hudson River and East River, The Brooklyn Bridge, Times Square, The Statue of Liberty, and much more. Their official Observatory Experience app teaches you about your view from every direction. Then, take advantage of the high-powered binoculars to get a closer look!

### **Day 6**

Breakfast & dinner

Rise and shine Manhattan! It’s our last full day in the city and it is going to be great! We’ll start this morning with a **self-guided** Campus Tour at Columbia University. [Walking Tour Map & Directions](#)

***Columbia University Campus Tour*** - Columbia University is a **private Ivy League research university** in New York City. Established in 1754 on the grounds of Trinity Church in Manhattan, Columbia is the oldest institution of higher education in New York and the fifth-oldest institution of higher learning in the United States. It is one of nine colonial colleges founded prior to the Declaration of Independence, seven of which belong to the Ivy League. It has been ranked by numerous major education publications as among the top ten universities in the world.



Columbia scientists and scholars have played an important role in the development of notable scientific fields and breakthroughs including brain-computer interface, the laser and maser, nuclear magnetic resonance, the first nuclear pile, the first nuclear fission reaction in the Americas, Thomas Hunt Morgan's drosophila experiment – considered the origin of modern genetics, the first evidence for plate tectonics and continental drift, and much of the initial research and planning of the Manhattan Project during World War II. The Columbia University Physics Department has been affiliated with 33 Nobel Prize winners as alumni, faculty or research staff, the third most of any American institution behind MIT and Harvard. In addition, 22 Nobel Prize winners in Physiology or Medicine have been affiliated with Columbia, the third most of any American institution.

The university's research efforts include the Lamont-Doherty Earth Observatory, Goddard Institute for Space Studies and accelerator laboratories with major technology firms such as IBM. Columbia is one of the fourteen founding members of the Association of American Universities and was the first school in the United States to grant the M.D. degree. The university administers the Pulitzer prize annually. Columbia is organized into twenty



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schools, including three undergraduate schools and numerous graduate schools. It maintains research centers outside of the United States known as Columbia Global Centers.

In 2019, Columbia's undergraduate acceptance rate was 5.1%, making it one of the most selective colleges in the United States, and the second most selective in the Ivy League after Harvard. Columbia is ranked as the 3rd best university in the United States by U.S. News & World Report behind Princeton and Harvard. The university's endowment stood at \$10.9 billion in 2019, among the largest of any academic institution.

As of 2018, Columbia's alumni and affiliates include: five Founding Fathers of the United States—among them an author of the United States Constitution and a co-author of the Declaration of Independence; three U.S. presidents; 29 foreign heads of state; ten Justices of the United States Supreme Court, two of whom currently serve; 96 Nobel laureates; 101 National Academy members; 53 living billionaires; eleven Olympic medalists; 33 Academy Award winners; and 125 Pulitzer Prize recipients.

In the afternoon, we will visit the National Museum of Mathematics.

***National Museum of Mathematics aka “MoMath”*** – The coolest thing that ever happened to Math! This museum highlights the role of mathematics in illuminating the patterns and structures all around us. Its dynamic exhibits, gallery and programs are designed to stimulate inquiry, spark curiosity, and reveal the wonders of mathematics. Groups will choose one 45-minute Master Class to participate in. Options include:

- ✚ ***Topology*** - Sometimes called “rubber geometry”, topology is the study of properties of objects that don’t change even when those objects are twisted, stretched, shrunk, and bent. Circles become squares, flat becomes curved, and coffee cups become doughnuts in this amazing branch of math.
- ✚ ***Knot Theory*** - Dating back to prehistoric times, knot theory has been used to record information, create the shelter and transportation methods necessary for survival, and adorn artwork all over the world. In modern life, we encounter knots daily, in more places than just our shoes. Inspired by these everyday knots, mathematical knot theory focuses on knots whose ends are joined together and cannot be undone. Since the 19th century, over six billion knots and links have been classified. Today, knot theory, a branch of topology, is used to help us understand statistical mechanics, quantum computation, pharmaceutical design, and even our own DNA.
- ✚ ***Cryptography*** - By hiding messages in shapes, gibberish, and number codes, cryptography has allowed people, from the time of the ancient Greeks through today, to safely transmit secrets. Court intrigue, star-crossed love, and war have all benefited immensely from this method of communication. These days, cryptographers have traded the cipher disk for the computer screen, but cryptography still influences our life in covert ways. By harnessing statistics, abstract algebra, and other branches of mathematics, cryptography lets us breathe easier when we go to an ATM, create a password for our computer, or send money electronically.
- ✚ ***Graph Theory*** - Graphs can help us study everything from the internet to transportation networks, and from ecological systems to groups of friends. Wherever things are connected or related to each other, graph theory is there. The programs offered in graph theory offer different introductions to the subject, highlighting the intuitive and creative problem solving that makes graph theory so much fun.



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- ✚ **Probability** - Probability is a way to quantify the likelihood of an event occurring. Students explore this concept through guided interactive experiments and challenges. Some prior exposure to basic probability and familiarity with adding fractions is assumed for these programs.

Finally, in the late afternoon we'll head to National Geographic for our last activity.



**National Geographic Encounter: Ocean Odyssey** - Dive into an ocean of fun in the heart of Times Square without getting wet! Nat Geo is a ground-breaking immersive entertainment experience that uses cutting-edge technology to transport you on an incredible underwater journey across the ocean to encounter its greatest wonders and mightiest creatures. Join your friends on this interactive, walk-through experience where National Geographic Encounter's stunning photo-realistic animation gives you access to rarely witnessed moments in nature, including an up-close encounter with a life-sized Humpback whale, a battle between ferocious Humboldt squid, a magnificent bait ball feeding frenzy, and much more.

This evening we will have our farewell dinner in Times Square.

## **Day 7**

Breakfast

Good morning New York! After breakfast in our hotel we will formally check-out and then load our luggage, departing New York. If you have extra time, please allow us to assist you in customizing your day prior to departure. Some areas of interest may include:

[9/11 Memorial & Museum](#)

[Bronx Zoo](#)

[Brooklyn Pizza Tour](#)

[Cathedral Church St. John - Vertical Tour & Art Master Class](#)

[City Sights – Hop On/Off All Around Town Tour](#)

[Graffiti & Street Art Walking Tour](#)

[Museum of Modern Art](#)

[New York Aquarium](#)

[NY Yankees – Baseball \(spring / summer\)](#)

[NYC Historical Society Museum](#)

[NYC Transit Museum & Master Class](#)

[Radio City Music Hall](#)

[Running Subway](#)

[Taste of Harlem – Historical Food Tour](#)

[The Guggenheim](#)

[United Nations Visitor's Center](#)

[American Museum of Natural History & Rose Center](#)

[Brooklyn Chocolate Tour](#)

[Central Park Bicycle Rental](#)

[Chocolate Tour - Brooklyn](#)

[Dave & Busters](#)

[Hike the NYC High Line](#)

[NBC Studio Tour](#)

[NY Mets – Baseball \(spring / summer\)](#)

[NYC Food Tours – Little Italy, Greenwich Village, Chelsea](#)

[NYC Public Library](#)

[One World Observatory](#)

[Ripley's Believe It or Not + Scavenger Hunt](#)

[Spyscape](#)

[Tenement Museum & Workshop](#)

[The Metropolitan Museum of Art](#)

[VR \(Virtual Reality\) World](#)



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After any last excursions, we'll say goodbye to New York, waving to our new friends and hopefully, taking away memories that will last a lifetime!



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# BOSTON & NYC STEM & HISTORY

**Minimum Booking Numbers:**

20 students

**What's Included:**

Roundtrip flights or motorcoach transfers  
6-nights' accommodation: 2-nights Boston, 4-nights Manhattan  
Breakfasts and dinners daily  
Airport transfers and transportation as shown  
Metro Card for transfers while in NYC  
Faneuil Hall & Quincy Market excursion  
MIT Master Class  
MIT Museum  
Boston Tea Party excursion  
Boston Tour: Choose Freedom Trail or Harvard  
Intrepid Sea, Air & Space Museum with Specialty Physics Tour  
Times Square excursion  
Group Photography in Times Square  
Liberty Science Center + 2 Master Classes  
Guided NYC Tour: Wall Street, Financial District & Brooklyn Bridge  
State of Liberty & Ellis Island Museum excursions with Audio Guides  
Empire State Building – evening view  
Columbia University Campus Visit  
National Museum of Mathematics + Master Class  
National Geographic Ocean Odyssey  
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, snacks or beverages other than at mealtimes  
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.



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