NYC and Boston, MA  
**Robotics Trip**  
10 Days 9 Nights hotel  

**Proposal for 2015**  

**Sunday-Day 1:**  

p.m. Arrive in NY – also known at the “Big Apple”.  
An escort will meet you at arrivals at the airport.  

After you retrieve your luggage, you transportation will be ready to take you to New York City and drive past some of the famous NYC buildings and landmarks on the way there.  

**New York** City is the most populous city in the United States and the center of the New York Metropolitan Area, one of the most populous urban agglomerations in the world. A global power city, New York exerts a significant impact upon commerce, finance, media, art, fashion, research, technology, education, and entertainment. The home of the United Nations Headquarters, New York is an important center for international diplomacy and has been described as the cultural capital of the world.  

Time to get off the bus and stretch your legs.  
Get a feel of the city with your escort.  

Dinner at Planet Hollywood or other local restaurant.  

8:00 p.m. Depart for a local hotel in New Jersey.  
Option: Upgrade to a hotel in NYC for an additional cost.  
9:00 p.m. Time to check in and enjoy the hotel facilities.  

**Monday-Day 2:**  

Continental Breakfast at the hotel  
Depart for New York City.  
**THE 5 DAYS ROBOTIC PROGRAM BEGINS TODAY.**  
Students will learn to design, build and program autonomous robots that must pick up and deliver LEGO® packages to locations designated on a challenge board.  

9:00 a.m. Today is Introduction and Robot Construction.  
12:00 p.m. Depart for a visit to Chinatown for Lunch on your own.  
Time for shopping and sightseeing on own.
Chinatown: Located in the lower portion of Manhattan, not far from other famous neighborhoods like Tribeca, Soho, and the Lower East Side, Chinatown is both quirky and charming, boasting all sorts of ethnic delights from authentic Chinese restaurants to unique art and handicrafts to peddlers selling ancient Chinese herbs.

Exploring the area on foot is a must as many of the wonderful places that deserve a visit are merely holes-in-the-wall and easily missed when driving through. Shops sell everything from Asian-inspired clothing and jewelry to martial arts equipment to unique foods you can take home and prepare on your own.

Chinatown attractions:
Chinatown is full of landmarks important to the history of New York and to Chinatown specifically. Head to Chatham Square, where you can view the statue of Lin Ze Xu and the monument to Chinese Soldiers who died in World War II fighting for the U.S.
Visit Columbus Park, the largest green area in Chinatown, where dozens enjoy relaxing tai chi exercises each morning. The park was built in the 1890s and is the site of many Chinese festivals.
The Church of the Transfiguration, the oldest Catholic church building in NYC, was built in 1801 and has been serving the community consistently since that time. This church is now home to New York's growing Chinese Catholic community.
At the Mahayana Buddhist Temple, the largest in New York, you can view the great Golden Buddha, more than 16 feet high.

Note: You can also visit Little Italy.

p.m. Dinner at Applebee's or other local restaurant in NYC.
p.m. Entrance to the Empire State Building Observatory, 350 Fifth Avenue, one of the world's tallest office buildings. Elevators run to the observatory on the 86th floor (1,050 feet) where you can see approximately 50 miles. Another elevator takes visitors to the circular glass-enclosed observation tower on the 102nd floor (1,250 feet).

9:00 p.m. Return to the Hotel in NJ.

Tuesday-Day 3:
Continental Breakfast at the hotel.
Depart for New York City.
9:00 a.m. Today is Introduction to Programming and Navigation.
12:00 p.m. Depart for lunch
1:00 p.m. Lunch at Sbarro's Pizzeria restaurant.
p.m. Time for shopping and sightseeing in Times Square area.
* Visit Toys “R” Us. The 110,000 square-foot, multilevel Toys “R” Us at Times Square boasts a working 60-ft Ferris Wheel, a two-story Barbie doll-house and a 5 ton, 20ft high, 34 ft long animated T-Rex dinosaur.
* Visit the 2 floor Disney Store in Times Square (48th St. and 7th Ave).
* Visit Hershey’s Times Square. Make your day extra sweet by personalizing a giant Hershey Kisses chocolate or your own mix of candy with the original automatic and gravitational chocolate machine.

Other stores in Times Square: Skechers, Sephora, Levi’s, Champs, and Express.

p.m. Dinner on your own this evening.

p.m. Visit Rockefeller Plaza in New York City, an art deco marvel consisting of 19 commercial buildings covering 11 acres from 49th to 52nd Streets, Fifth to Seventh Avenues, named after the multi-millionaire, John D. Rockefeller.

A complete underground city experience, the Concourse at Rockefeller Center is a whole destination unto itself. This vast network of underground pedestrian passageways connects every building in the Center. With an incredible number of stores, quick bites and finer restaurants, you’ll find countless ways to wander and explore.

Visit the NBC Studio Experience Store for souvenir shopping on your own for items from your favorite NBC shows.

8:00 p.m. Depart for the hotel.

Wednesday-Day 4:

Continental Breakfast at the hotel.

Depart for New York City.

9:00 a.m. Today is Building Attachments, Testing and Troubleshooting.

By Today, the Students will also build obstacles that the robot will have to navigate around in order to reach the end goal.

1:00 p.m. Lunch on your own

2:00 p.m. Take the Ferry to the Statue of Liberty which includes a “universal audio” tour to enhance your visit. The 30 minute audio tour explores the history of the Statue of Liberty and its importance as a symbol of freedom. Explore Liberty Island. Option: You can also visit Ellis Island with a 45 minute audio tour which immerses visitors in the immigrant experience through narration and first-hand accounts.

Snacks and beverages are available on all ferries traveling both to and from the Statue of Liberty National Monument and the Ellis Island Immigration Museum. The Statue of Liberty Cafe is open daily and offers both indoor and outdoor seating. The Ellis Island Cafe is open daily and offers appetizing food of both International and American Cuisine. The outdoor deck overlooks Immigrant Wall of Honor and Lower Manhattan.

Take the Ferry back to Battery Park.

Visit the National September 11 Memorial, a tribute of remembrance and honor to the nearly 3,000 people killed in the terror attacks of 9/11/2001 at the World Trade Center site. The Memorial’s twin reflecting pools are each nearly an acre in size and feature the largest manmade waterfalls in North America. The names of every person who died are inscribed into the bronze panels edging the Memorial pools.

Note: The Memorial is an open public plaza and visitors can enter without a ticket or having to go through security. The Memorial will be open during museum hours and groups are invited to visit during these hours.

Daily, 10 a.m. - 8 p.m. Last entry at 7 p.m., subject to change.

Note: There is a suggested / requested donation of $5 per person (pay directly).
p.m. Dinner at the Hard Rock Café, subject to availability.  
Walk around Times Square at night and see all the lights.  
Depart for the hotel.

Thursday -Day 5:
Continental Breakfast at the hotel.  
Depart for New York City.  
9:00 a.m. Today is Add Sensors and Motorized Obstacles.  
1:00 p.m. Lunch at a local restaurant.  
p.m. Campus tour of NYU or Columbia University or other local college/university, subject to schedule and availability.  
The campus tour may be guided or self-guided, subject to guide availability.  
p.m. Visit Central Park. At the 97th Street entrance, the Recreation Center offers Field Day Kits Free on loan with a Photo ID. A visitor can borrow a kit with a variety of Balls, Bats, hula-hoops, frisbees and jump ropes, subject to change. These can be picked up at the recreation center office near the basketball courts.  
Recreation Center Hours April-June Tues.-Fri.: 10am-6pm and Weekends: 10am-5pm. Closed Mondays.  

Option: Entrance to the Central Park Zoo is an additional $10 per person, subject to change. Those wishing to go into the Zoo, can pay directly upon entering the Zoo.  

Visit Strawberry Fields, located in Central Park on the West Side between 71 & 74 Streets, is a living memorial to the world-famous singer, songwriter and peace activist – John Lennon. During his career with the Beatles and in his solo work, Lennon's music gave hope and inspiration to people around the world. His campaign for peace lives on, symbolized at Strawberry Fields.  
p.m. Dinner on your own this evening.  
8:00 p.m. Broadway Show TBD.  
10:30 p.m. Depart for the Hotel.  

Friday -Day 6:  
Continental Breakfast at the hotel.  
Depart for New York City.  
9:00 a.m. Today is Robot Mission Challenge Day and Celebration. Congratulations!!  
At the end of the week, there will be a culminating surprise challenge activity where groups will collaborate and compete. All students will receive certificates for participation as well as a medal honoring their work.  
1:00 p.m. Lunch on your own.
Learning Objectives: By the end of 5 days, students will be able to:

- Identify particular LEGO® pieces by name and correctly measure them
- Explain what a motor does
- Explain what a robot is, including a discussion of the three components of a robot: brain, body and behavior
- Learn the basics of using the EV3 Mindstorms Brick
- Learn how to follow a project blue print and translate from a two dimensional blue print to a three dimensional LEGO project
- Build an autonomous, interactive robot
- Design, build, and affix an attachment to enable a robot to achieve a particular task such as how to hook or push an object
- Learn the basics of the Mindstorms programming environment on a desktop or laptop computer
- Understand how to measure motor rotations and motor degrees
- Program a robot to accurately navigate a pre-determined course
- Explain the difference between an input and an output
- Understand what a touch sensor and an ultrasonic sensor are used for
- Modify a LEGO® robot to include a touch sensor and/or ultrasonic sensor
- Program a LEGO® robot with Mindstorms to make use of its touch sensor or ultrasonic sensor

Time for last minute sightseeing and shopping on own.
Dinner at a local restaurant.
Depart for the hotel.

Saturday-Day 7:
Continental Breakfast at the hotel or boxed breakfast.
9:00 a.m. Depart for Boston. Approx. 4.5 hours driving time.
Highway stop along the way for lunch on own.
2:30 p.m. Arrive at Quincy Market/ Faneuil Hall
Time for sightseeing and shopping on own.
Dinner at a local restaurant.
Depart for a local hotel outside of Boston.

Sunday-Day 8:
Continental Breakfast at the hotel.
9:00 a.m. Depart for MIT.
10:00 a.m. Admission to the MIT Museum Galleries, subject to schedule.
Permanent exhibits at MIT are subject to change.
You must have student ID for admission and the workshop.
“Robots and Beyond shares the results of decades of Artificial Intelligence (AI) innovation at MIT”.
Explore the ideas that shaped the way AI and the birth of robotics are synonymous with research at MIT. The world’s first AI research group began at MIT in 1959. Today, the Computer Science and AI Lab, CSAIL, is the largest laboratory on campus.

Robots and Beyond gives you a behind-the-scenes look at the inventive concepts and processes that lead MIT's AI labs to great contributions in many areas including medicine, underwater exploration, and entertainment. Learn about tele-operated surgical robots, robotic legs, and socially intelligent humanoid robots that interact with their environments in human-like ways. You'll see prototypes and other media that trace the evolution of some of MIT's resident robots, including Kismet, Cog, and RoboTuna!

p.m.  We can provide boxed Lunch.

Choice of one of the following workshops at MIT (approx. 1.5-2 hrs):
Workshops are only available Monday-Friday from 10 am – 3 pm.
1. Make To Move (middle and high school) - NEW!
2. Robotics: Programming Mindstorms (middle and high school)
3. Advanced Robotics (only for middle and high school students with prior programming experience) - NEW!

p.m.  Dinner on your own this evening.

Return to the hotel.

Monday - Day 9:

Continental Breakfast at the hotel.

10:00 a.m.  Campus tour of MIT or Harvard University or other local school, subject to availability.
The campus tour may be guided or self-guided, subject to guide availability.
Lunch on your own.

p.m.  Entrance to the Museum of Science to include the museum’s 700+ interactive exhibits and a presentation in the “Theatre of Electricity”, subject to schedule and availability. The Museum offers a number of live demonstrations daily, subject to presentation times on a given date.

General admission does not include any other special exhibits.

NOTE: If you go in April during Massachusetts school vacation dates, the price would be an additional $10 per person, subject to schedule.

Option: Add an Omnimax film or Planetarium Show for an additional $8 per person with admission to the museum.
Dinner at a local restaurant.

p.m.  90 min. public Sunset Cruise (7-8:30 pm), subject to cruise schedule or 90 min. historical narrated sightseeing cruise at a different time.

p.m.  Depart for the hotel.
**Tuesday-Day 10:**

- **Continental Breakfast at the hotel.**
- **10:00 a.m.** Check out of the hotel. Depart for Woodbury Commons NY. Approx. 3.5 hours driving time.
- **1:30 p.m.** Visit the Woodbury Shopping outlets for last minute sightseeing and lunch on own.
- **p.m.** Depart for the airport, subject to flight schedule. Dinner on your own at the airport.
Intro page:

Robotics:
Robotics is the branch of mechanical engineering, electrical engineering and computer science that deals with the design, construction, operation, and application of robots, as well as computer systems for their control, sensory feedback, and information processing. Students learn to design, build and program autonomous robots during our workshop.

The Tour Includes:
10 days Deluxe Motor coach transportation as per itinerary
6 Nights hotel accommodations in New Jersey
3 nights hotel accommodations in /near Boston
9 continental Breakfasts
3 Lunches
6 Dinners
5 day Robotics Program
2 campus tours to be arranged, subject to availability
Visit the 9/11 Memorial, Chinatown, Rockefeller Center, Times Square, etc.
1 workshop at MIT with admission to the museum galleries
Broadway Theater Ticket
Admission to the Empire State Building Observatory
Ferry to the Statue of Liberty and Ellis Island
Admission to the Boston Museum of Science
Boston Sightseeing Cruise
Escort on day of arrival and departure