Science/Technology/Engineering Programs
for Middle School Students
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SUMMER PROGRAMS:

- Artemis Project
  [http://www.bu.edu/lernet/artemis/](http://www.bu.edu/lernet/artemis/)
  Artemis is a five-week summer program for rising 9th grade girls focused on computer science. Participants learn computer applications such as Microsoft Office and; Photoshop, HTML, CSS, and Robotics. They are also introduced to programming languages (such as Python, Scratch, and AppInventor), cryptography, artificial intelligence, and circuits.

- BU DesignCamp
  [http://www.bu.edu/eng/u-design/](http://www.bu.edu/eng/u-design/)
  It is a fun, exciting science and engineering program for kids who are currently in grades 6 - 9 at time of registration. It is a hands-on laboratory and workshop experience that gives you the opportunity to learn about science and technology by engaging in the real work of scientists and engineers: design, exploration, experimentation, and invention. Here you get to think of your own ideas, and build your own way-cool inventions.

- Boston Leadership Institute
  At Dana Hall School, Wellesley, MA
  Award-winning summer STEM research programs for teens include: Biological Research, Chemistry Research, Neuroscience, Biomedical Research, Marine Biology, Psychology, & Engineering.

- Brandeis 3D Game Design Summer Program
  [http://www.brandeis.edu/highschool/3dgame/index.html](http://www.brandeis.edu/highschool/3dgame/index.html)
  In our 3D Game Design program you will create your own 3D world using the Blender 3D animation suite. We are the only residential summer program in the U.S. offering an immersive Blender course.

- Cambridge NuVu Studio
  [https://cambridge.nuvustudio.com/discover](https://cambridge.nuvustudio.com/discover)
  NuVu is a full-time magnet innovation center for middle and high school students. NuVu’s pedagogy is based on the architectural Studio model and geared around multi-disciplinary, collaborative projects. We basically teach students how to navigate the messiness of the creative process, from inception to completion. Programs include both summer and school-year programs.

- CityLab
  [http://www.bumc.bu.edu/citylab/summerlab/](http://www.bumc.bu.edu/citylab/summerlab/)
  - The CityLab Biotechnology SummerLab provides:
  - An authentic hands-on laboratory experience in biotechnology
  - Freedom to design and plan experiments
  - Support to learn from mistakes
  - Pertinent readings to prepare for the investigations
  - Laboratory time to apply the techniques and concepts of biotechnology in a problem-based, authentic setting
  - An opportunity for students to communicate their findings during a poster session
• Digital Media Academy at Harvard University
  This two-week academy combines two robot-making platforms – LEGO’s MINDSTORMS® EV3 and Arduino™ – into one dynamic experience. Teens get hands-on electrical and robotics engineering experience with Arduino™ kits, and learn C, C++ and Java™ programming languages using Arduino™.

• ID Programming Academy for Teens Held at MIT in Cambridge
  Calling all coders! Gain a competitive edge and learn how programming can become a college degree and even a rewarding career. Pre-college summer programs where ages 13-18 spend 2 weeks immersed in programming, app development, engineering, and robotics. Learn from experienced Academy faculty and collaborate in small classes (max 8:1 student to instructor ratio, guaranteed). Tour an app development studio and work with programs and platforms like Java, C++, Xcode, Objective-C, Minecraft, iOS, Android, and Arduino.

• Khan Academy Discovery Lab
  ○ [Discovery Lab 2013 –Projects (no info for 2014)](http://www.khanacademy.org/)

• MakerCamp (Online):
  The first day of camp is July 7th and materials lists for the first week of camp will be posted on the MAKE Google+ page on June 26th. Each week is themed to appeal to every camper’s unique interests:
  • Makers in Motion
  • Create the Future
  • Health & Science
  • Art and Design
  • DIY Music
  • Make: Believe

• Mass Bay Community College
  [http://www.massbay.edu/uploadedFiles/MiddleSchoolSTEMSummer.pdf](http://www.massbay.edu/uploadedFiles/MiddleSchoolSTEMSummer.pdf)
  "A two-week, Fun, Hands-on STEM Learning Experience!
  July 7-18, 9am - 3:30pm
  MassBay Community College
  50 Oakland Street, Wellesley Hills, MA 02481
  The theme of the summer program this year is “Adventures in Space”. This summer program provides middle school students (entering grades 7 and 8) engaging and hands on STEM learning experiences. Participating students will get to work in our science and technology labs and learn to use Math, Computing and Science concepts to solve challenges in space. This program will provide middle school students an exciting introduction to various STEM careers and allows them to develop new skills."
• **MIT Edgerton Center**
  [http://edgerton.mit.edu/k-12](http://edgerton.mit.edu/k-12)
  The Edgerton Center’s hands-on science and engineering challenges educate and inspire kindergarten through 12th-grade students, aiming to increase their curiosity and desire to pursue these fields in their future.
  **Video:** [http://edgerton.mit.edu/k-12/video](http://edgerton.mit.edu/k-12/video)
  **You Go Girl** [http://edgerton.mit.edu/node/93](http://edgerton.mit.edu/node/93)
  Now in its 16th year, this four-day summer program is an on-campus introductory science and engineering program for girls entering ninth grade in the fall. The camp provides an introductory sampling of hands-on science and engineering activities mixed with high school preparatory sessions. Girls build motorized LEGO® cars, experiment with strobe-light photography, “breed” LEGO fish cells to understand the relationships between genes and traits, and more.

• **MIT STEM Program**
  [http://web.mit.edu/stem/About.html](http://web.mit.edu/stem/About.html)
  Welcome to the STEM Program at MIT! The Science Technology Engineering and Math (STEM) Program is a year-round academic enrichment opportunity provided free of charge to talented middle school students who want to get ahead in math and science. During the summer, STEM offers a five-week Summer Institute on MIT’s campus for students entering sixth, seventh, eighth or ninth grade. Taught by MIT undergraduates, the Summer Institute courses combine lectures, projects and experiments to support learning. Participants learn college-level material, get to play a racquet sport, take field trips to places like the Museum of Science and meet some very interesting people.

• **Northeastern University Summer Programs for Middle School Students**
  [http://www.stem.neu.edu/programs/nussp/](http://www.stem.neu.edu/programs/nussp/)
  The Northeastern University Summer STEM Program (NUSSP) is a free, academic program run by the Center for STEM Education, which takes an active role in shaping education in students entering grade 6, 7 and 8. The two-week academic, day program emphasizes increasing students’ mathematics/science skills, introducing them to college life, and stimulating their interest in science and engineering as a potential career path.

• **Sally Ride Science Camps for Girls**
  Sally Ride Science Camp for Girls at MIT is a day camp for girls entering grades 4 – 9. Major topics include marine science, introduction to engineering, and astronomy

• **Stanford EPGY**
  The Summer Institutes Middle School Program is a customized experience for students who are passionate about learning and want to enrich their academic development. Students participate in one of six intensive courses, each designed to foster creativity, critical thinking, and collaboration. The academic program is enhanced by social, cultural and recreational activities that encourage fun while learning, and learning while having fun with like-minded students from across the United States and around the world.

• **Tufts CEEO**
  [http://ceeo.tufts.edu/outreach/workshopsKids.htm](http://ceeo.tufts.edu/outreach/workshopsKids.htm)
  CEEO usually offers two one-week sessions for kids going into grades 3-7. These full-day sessions will run from 9 to 3 on Monday through Friday and cost $500. This session will help students design, build, and program using the engineering design process. Several open-ended challenges will be posed to the students throughout the week. They will use standard LEGO bricks, programmable LEGO bricks, and other materials to complete these design challenges. The week will start with activities focusing on stability in design and move to other topics, such as,
gearing, weight distribution, and momentum, as the students incorporate programming and motors into their designs.

- **Whitehead Institute- Camp Bio**  
  [http://wi.mit.edu/programs/summercamp](http://wi.mit.edu/programs/summercamp)  
  Inquisitive by nature? Fascinated by living things and how they work? Then join Science from Scientists and Whitehead Institute this summer at CampBio, where curiosity meets real world science, and no question is off-limits. Science from Scientists, the leading in-class science/STEM enrichment program in Massachusetts, is excited to be partnering with Whitehead Institute to bring you this week-long exploration into the amazing world of basic biology. Through immersion in hands-on activities, laboratory demonstrations, and discussions with scientists, rising 6th, 7th, and 8th grade middle school students will learn first-hand how researchers are answering some of biology’s most challenging questions—and have an awful lot of fun doing it!

**SCHOOL YEAR PROGRAMS:**

- **Einstein's WorkShop**  
  We currently offer science project classes, programming classes (Lego NXT, Scratch, etc), engineering classes such as 2D and 3D CAD design, electronics and circuit project classes, 3D printer and laser cutter project classes, math classes, and more. We offer classes to kids from kindergarten through high school and beyond, including training for FLL and JrFLL coaches. Einstein's Workshop also features a drop-in creative/maker space for kids, where kids can build with various construction toys such as Legos, K'Nex, Anchor Blocks, Kapla Blocks, and where qualified kids can access our CAD lab, electronics workstations, Arduino projects, 3D printers, and 80-watt laser cutter.

- **Artisan's Asylum Somerville, MA**  
  [http://artisansasylum.com/](http://artisansasylum.com/)  
  Artisan’s Asylum, Inc. is a non-profit community craft studio located at 10 Tyler Street, in Somerville, Massachusetts, which offers a range of classes in technology and making.

- **Danger Awesome!**  
  [http://dangerawesome.co/](http://dangerawesome.co/)  
  Bring us your digital design, drawing or photo and our technicians will engrave or cut it into almost anything. Have a great idea? Our designers will develop your idea and cut/engrave it for you! Or get in on the action yourself — sign up for a laser-class and use the machines to cut or engrave whenever you want!

- **MIT- STEM Mentoring Program**  
  [http://web.mit.edu/stem/Mentoring_Program.html](http://web.mit.edu/stem/Mentoring_Program.html)  
  We believe that it does take a village to raise a child, so we recruit undergraduate and graduate students at MIT to partner with families, teachers, STEM Program staff and the community to support local students’ personal and educational development. While STEM mentors might major in Mechanical Engineering or Mathematics, be male or female, hail from Boston or Bangladesh, they must share the common belief in setting high expectations for our students' high achievement and advocating for their success.

- **MIT-The Saturday Thing**  
  [http://edgerton.mit.edu/k-12/academic-fieldtrips-mit/saturday-thing](http://edgerton.mit.edu/k-12/academic-fieldtrips-mit/saturday-thing)  
  The Saturday Thing, a school-year program, was initiated in 2006 by Ed Moriarty ’76, an instructor at the Edgerton Center. The program is characterized by unstructured play in a constructive environment. The daylong sessions engage and inspire children, teenagers, and adults in a variety of project-based engineering activities within a community-supported, student-led workshop setting.
MIT Educational Studies Program
https://esp.mit.edu/learn/index.html
The MIT Educational Studies Program (ESP) is a student group at the Massachusetts Institute of Technology that recruits MIT students and community members to teach classes for high school and middle school students from the Boston area and beyond.

- MIT DELVE Program
  https://esp.mit.edu/learn/Delve/index.html
  ESP's Delve program is an intense Sunday program for academically motivated high school students (grades 9-12) aiming to prepare them for a single Advanced Placement exam. It runs for the entire academic year, starting in mid-September and ending in May in time for the AP exams.
  The cost of Delve is $250 for a single class, but as with all our programs, financial aid is available.

- MIT Spark
  https://esp.mit.edu/learn/Spark/index.html
  Spark is a short program designed to give our students the opportunity to explore a wide range of subjects. MIT students and community members teach a variety of classes, from urban orienteering to mathematics to Chinese brush painting and everything in between!
  For more information, please check out our FAQs

- MIT Splash
  https://esp.mit.edu/learn/Splash/index.html
  For one awesome weekend each November, thousands of high schoolers flood MIT's campus to take classes, taught by MIT students, on anything and everything. From music theory to Hungarian history to aircraft analysis, Splash offerings number over 400 every year and span a wide variety of areas. Want to take a class on origami? Lasers? Neuropharmacology? All are open to you.

MIT- KEYS-Society of Women Engineers
http://swe.mit.edu/keys/
KEYS program through the Society of Women Engineers brings 11-13 year old girls together with MIT women students to participate in workshops held periodically throughout the year.

MIT-Friday After Thanksgiving (F.A.T.)
http://web.mit.edu/museum/programs/fat.html
What is the Friday After Thanksgiving Chain Reaction? A grand event that could only happen at MIT! Participants link their chain reaction devices together forming one mega chain reaction – set off at the end as the event's thrilling culmination.
More than 1,500 people attend this fun-for-all-ages "extreme" event!
Making a chain reaction allows people to explore their own creativity and see how their unique contraptions relate to a larger whole. No matter how unique the devices, inevitably, with a little string and duct tape, they all work together beautifully.

ONLINE TECHNOLOGY AND ENGINEERING ACTIVITIES:
- Sparkfun Tutorials and Curriculum :https://learn.sparkfun.com/
  SparkFun's Department of Education uses electronics as a creative medium and hands-on learning tool, with products and curriculum designed to develop foundational skills for students to explore the world of electronics, increase investment and ownership in education, and plant the seeds of inventorship in today's youth.
- Adafruit Industries Tutorials: http://learn.adafruit.com/
- Instructables: http://www.instructables.com/
- Khan Academy- Discoveries and Projects
  http://www.khanacademy.org/science/discoveries-projects
- Super Awesome Sylvia's Maker Show http://sylviashow.com/