

Science Solstice: Dec. 16, 2016

Grades 8

___ **Brain Imaging Lab.** Discover how scientists watch the human brain in action. Visit a ‘wet lab’ where researchers use mice to study how genes control the growth and function of the brain. (McGovern Institute for Brain Research, MIT) (Driscoll parent: Robert Desimond)

___ **Surgery--Yesterday and Today.** Visit the hand-ons museum at Mass General Hospital learn how diagnosing diseases has changed through the centuries. Participate in a simulation of surgery. Tour the place where the first surgery using anesthesia was performed. (Russell Museum of Medical History and Innovation, Ether Dome, Mass General Hospital.)

___ **“Action Lab”** Here you will learn what we know about how the brain controls our movements. Students can experiment with different tasks, such as virtual tetherball, bouncing a ball or balancing a virtual cup of coffee. (The Action Lab, Northeastern University)

___ **Brain Stimulation Lab.** Learn how scientists interact with the brain using magnetic and electrical stimulation. Look at brain activity with a device that records electrical activity in the brain. (Berenson-Allen Center for NonInvasive Brain Stimulation, BIDC, Harvard Medical School, Boston) (Driscoll parent: Giulio Ruffinni)

___ **High Energy Physics.** Fine out how scientist study particles smaller than the atom. Learn how they smash protons together to discover new particles, like the Higgs Boson and learn about the Big Bang! (Physics Department, Boston University). (Driscoll parent Eric Hazen)

___ **Biopharmaceutical company.** Find how a company develops novel drugs to treat pain, inflammation, anxiety, lung and other diseases (Hydra Biosciences, Cambridge MA). Driscoll parents, Magdelene Moran)

Grades 7

___ **Bio-Engineering Company** Visit a company striving to “reinvent the way we observe and treat the human brain.” See a demonstration of a product (a cap with sensors) that senses and stimulates brain activity as a way to study and treat neurological diseases (Neuro-Electrics, Kendall Square). (Driscoll parent Ana Maique)

___ **Drug Development Company.** Learn how a company develops and test medicines, so they can be used to help people fight disease. Find out about the different kinds of jobs in drug development. (Novartis’s Community Exploration and Learning Lab, Kendall Square) (Driscoll parent John Tallarico)

___ **Exercise Physiology Lab.** Learn how exercise and nutrition affect health, disease and athletic performance. Try out some of the “exercise” equipment that measures aerobic functions, muscles strength and much more. (Clinical Exercise Physiology Laboratory, Northeastern University)

___ **Pharmaceutics Lab.** Visit a teaching lab where aspiring pharmacists learn how to make small samples of specialty drugs not normally produced by drug companies. Make your own sample of calamine lotion (for itchy skin). (School of Pharmacy, Northeastern University) (Driscoll teacher, Nora Cullen)

___ **Electronics Shop in Physics Lab.** Visit an electronics shop that builds specialized equipment for physics experiments. Solder together your own blinky light gadget that displays glowing messages in mid-air. (Electronics Design Facility, Physics Department, Boston University) (Driscoll parent Eric Hazen)

___ **Chemistry Lab.** Find out how chemists make molecules as part of the search for new medicines to cure diseases such as cancer or malaria. See how chemists synthesize (put together) molecules and create “chemical libraries.” (Center for Chemical Methodology, Boston University) (Driscoll parent John Porco)

Grade 6

___ **Visualizing Drug Discovery** – “Walk” in an immersive virtual reality ‘cave’ to observe proteins and human brains. Experience how the liver and kidney handle drugs. See how a pharmaceutical company designs and discovers the drugs used to treat human diseases. (Pfizers, Kendall Square) (Driscoll parents: Jennifer Liras and Aditi Saxena)

___ **Development Biology Lab.** Visit a development lab and see how scientists use zebrafish to understand how other animals (like humans!) grow. Take a look under the microscope at zebrafish only one day old. These baby fish are see-through, so we can watch their developing heart and blood, see them practice swimming, and see how their stripes form! (Zon Lab, Children’s Hospital) (Driscoll parent Bette Phimister)

___ **Neuro-genetic Lab.** What is a development neurological disease? Why do some children have abnormal nervous systems? Visit a neuro-genetics lab and find out how scientist study the ways nervous systems--normal and abnormal--develop and grow. Learn how their discoveries help children with neurological diseases. (Sahin Lab, Boston Children’s Hospital, Boston)

___ **Bone Lab.** How does the way bones and muscle move make a difference in disease and healing? Visit a lab that studies the mechanics of bones and muscles. Learn how scientist are helping people with cerebral palsy and arthritis. (Shelfelbine Lab, Northeastern University)

___ **Archeology Lab** How do we learn about the past if we have no written information about it? Ask an archaeologist-- scientists who study dirt (and what’s in it) to discover how people lived, worked, fought and played in ancient times. Visit an archeology lab and learn how to study dirt! (Archeology Department, Boston University)

___ **Lithium Battery Facility.** What are lithium batteries are made of? Why do they last so long? Visit a factory where people research, design, and manufacture safer, longer lasting batteries. (A123 Systems, Waltham (Driscoll parent Lee Johnson)