July

Walk Along Glider Workshop with Phil Rossoni - Thurs. July 23, 2 sessions: for ages 9 - 11, 2:00-3:00 PM and for ages 12 - 15, 3:30-4:30 PM . Build and pilot a tumblewing paper airplane. There will be duration competitions to hone your flying skills. Experiment with wing loading and how an airplane is trimmed for optimum gliding. You will have opportunities to fly gliders of varying size and weight.

Metamorphosis: Pastel Painting with Gregory Maichack For ages 11 to adult. Thurs. July 23, 6 - 8 PM Metamorphosize! Become an artist in this hands-on pastel painting workshop. Greg will incorporate fabulous reference photos of insects from his trip to Montreal's Insectarium. Professional grade pastels, paper, and materials are included.

Rockets Workshop with Jeffrey Walsh For ages 11 to 15. Thurs. July 30, 2:30-5:00 PM. Create your very own chrome rocket that can soar up to 800 feet in the air. Once the rockets have been built, you will take them outside to the field and prepare for take off.

August

Boston Museum of Science STARLAB: One Sky, Many Stories - Thurs. August 6, Time TBD Three sessions: Grades K-2, Grades 3-5, Grades 6-9. People around the world have interpreted the night sky for centuries, creating a rich collection of constellations and star stories. Within a portable planetarium, participants will tour the solar system and beyond while learning useful tips to navigate the evening sky and hearing different cultural explanations for the cosmos.

North Shore Amateur Astronomy Club Star Party For ages 10 to adult. Date TBD. A program inside our meeting room, followed by observation of the night sky through club telescopes on the field behind the library.

To register to attend programs :

- Go to the Library's Reference Desk or call 978-468-5577.

For more STEM program news & information :

- Become a fan on Facebook at: www.facebook.com/HW.Library.YA

- Follow the Library's teen blog: at http://informedteenshwlibrary.blogspot.com

- Follow the Children's Room blog: at http://hwkidsroom.blogspot.com

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STEM Workshops at the Library for Grades 3 – 8

astronomy
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Boston Museum of Science
catapults
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rockets
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January 2015

⚙ **Electronics with Jeffrey Walsh** - For grades 5 - 8. Wednesday, January 7, 3:30-5:00 PM - An introduction to electronics. Using Tronix Lab kits, you will have a hands-on opportunity to learn about resistors, LEDs, simple wiring, switches, & more.

⚙ **Rhode Island Computer Museum: Robots on the Run** - For grades 4 - 8. Saturday, Jan. 24, 1:30-3:30 PM Learn about the interactive "Arduino" software and create a sample "Robot". This workshop explains basic circuits and includes instruction on how to build a simple robot. You will learn programmable electronics; how to make lights blink, motors run, sounds, and a lot more.
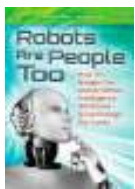
February

⚙ **Making Roller Coasters with Bryan Sheckells** - For grades 3 - 5. Wednesday, February 18, 2:00-3:00 PM What goes up, must come down… Explore potential and kinetic energy along with the creative process as we design and build our own roller coasters.

March

⚙ **CAD 1 with Jeffrey Walsh** - For grades 5 - 8. Wednesday, March 4, 3:30-5:00 PM - An introductory workshop to the world of three-dimensional design using a free program called Tinkercad. Learn how to use Tinkercad and build your first 3-D object. Participants must bring their own laptop for this workshop.

Robots are People, Too - For teens & adults. Wednesday, March 11, 7:00-8:00 PM - Self-driving cars, drones, and artificial intelligence have appeared frequently in the news and in reports about the future of jobs. Boston attorney John Frank Weaver, contributing writer for **Slate**, and the author of **Robots are People, Too**, will discuss the legal challenges these developments introduce, & propose changes to laws and public policies to address them.

⚙ **Rhode Island Computer Museum's Sonic Pi Synthesizer Workshop *for* Pi Day!** - For grades 4 - 9. Saturday, March 14, 1:30-3:00 PM - Build a synthesizer & unmask the mystery of making computer music. Sonic Pi is a programming environment that allows you to make sound with the Raspberry Pi a tiny credit-card-sized computer, developed in the United Kingdom by the Raspberry Pi Foundation.

⚙ **CAD 2 with Jeffrey Walsh** - For grades 5 - 8. Wednesday, March 18, 3:30-5:00 PM - A more advanced 3-D design workshop where you will combine what was learned in CAD1 with new features to create more advanced objects. Objects can be printed on the Library's 3-D printer. Participants must bring their own laptop for this workshop.

April

⚙ **Chemical Reactions with Bryan Sheckells** For grades 3 - 5. Wednesday, April 8, 3:30-4:30 PM Solids, liquids, and gases, oh my! Explore compounds and chemical reactions as we find out how amazing chemistry can be using common household materials.

⚙ **Boston Museum of Science: Super-Cold Science** For grades K and up. Tuesday, April 21, 3:30-4:30 PM Amazing things can happen when matter changes temperature. With the help of a Museum educator and an intensely cold liquid, participants will experience the remarkable changes in size, form, and behavior that occur when a variety of objects and substances are super-cooled.

⚙ **Rocket Launchers Workshop with Bryan Sheckells** For grades 3 - 5. Wednesday, April 22, 2:00-3:00 PM 3,2,1...Rockets! Explore the different types of thrust that can be used to create rockets of various sizes and shapes using materials that can be found around the house.

May

⚙ **Bicycle Mechanics with Jeffrey Walsh** For grades 4 - 9. Saturday, May 2, 10:30 to Noon Learn simple tricks to keep your bicycle in tip top shape. You will learn how to fix a flat tire, & the best ways to avoid a flat tire in the first place. Bring your bike to the workshop.

⚙ **Slimy Polymers Workshop with Bryan Sheckells** For grades 3 - 5. Wednesday, May 13, 3:30-4:30 PM Squelch, splat, flop...polymers! With the right combination of things from around the house, you can create materials with unique properties to amaze your senses. Hands-on chemistry fun!

June

⚙ **CAD 1 with Jeffrey Walsh** - For ages 11 - 15. Saturday, June 20, 10:30 to Noon - An introduction to the world of three-dimensional design using a free program called Tinkercad. Learn how to use Tinkercad and build your first 3-D object. Participants must bring their own laptop for this workshop.

⚙ **Catapults with Jeffrey Walsh** - For ages 11 - 15. Thursday, June 25, 3:30-5:30 PM - Create a mini, wooden catapult. The first half of the workshop will be spent crafting the catapult. In the second half you will be testing your catapult and improving your design.

July

⚙ **Motion Photography with Toni Carolina** - For ages 11 - 16. Thursday, July 9, 3:00-4:00 PM A 2-part workshop. On July 9, bring a camera and a tripod, or 2 bags of beans, to steady the camera shot, and learn how to capture motion in your photographs. Then, come back three weeks later on **Wednesday, July 29 at 3:00 PM**, with prints of your captured motion shots and create an exhibit in the Young Adult area.

⚙ **Airplane Workshop with Jeffrey Walsh** For ages 11 - 15. Thursday, July 16, 3:00-5:00 PM Build an elastic powered airplane from balsa wood and paper. How long you can keep your airplane in the air? Learn how adjusting different parts can change the way it flies, and find out what is actually happening when an airplane takes flight.

⚙ Programs marked with a gear have limited space. To attend you must register in advance at the Reference desk. Winter program sign-up available now.