

# STEMLink

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Session Focus	Session Title /Description
Biology	<p><b>Cow Eye Dissection</b> In this session, students will learn about human eye structure and function through examination and dissection of a cow eye.</p>
Biology	<p><b>Nature Detectives</b> In this session, students will examine feathers through a dissecting microscope to see how they are interlinked. They will also learn about birds of prey and their diet through an owl pellet dissection activity. <b>Note: this session is closed to students who are allergic to pets and/or pet dander.</b></p>
Chemistry	<p><b>Experiments Galore!</b> Disappearing Ink! Mysterious bubbling! Bright color changes! Chemistry is fascinating, as you will discover for yourself in this exciting hands-on session.</p>
Chemistry	<p><b>Water to Gas – What a Blast!</b> On space shuttles, fuel cells combine hydrogen and oxygen to produce electricity. In this session, we will actually split water into its two elements, hydrogen and oxygen, and transform those elements to gas. What will happen? Come learn about water electrolysis, water splitting, chemical reactions and more.</p>
Chemistry	<p><b>Crystallography</b> Have you ever looked at salt with a magnifying glass? What about sugar? What do you see when you look at them? Crystals! In this session on crystallography, students will explore the structure and properties of crystals. You'll learn about the parts of a crystal structure, types of crystals, and patterns created by unit cells. This session provides an introduction to the nanotechnology field.</p>
Civil Engineering	<p><b>Designing, Building &amp; Breaking Bridges</b> Come explore the fun world of engineering! Join us as we design and build bridges out of K'NEX®. We'll then load test the trusses and see which bridges hold up and which ones crumble!</p>
Civil Engineering	<p><b>Bridge UP!</b> Work in teams to build a 6 foot long truss bridge. Each team will have people acting in different roles, just like in a real construction project. You'll build the bridge, test it, crawl through it, and then demolish it! Learn about the different forces engineers must design for, and how they play out in a real bridge that carries traffic (you!).</p>
Civil Engineering	<p><b>Traffic Engineering – Intersections &amp; Interchanges</b> In this session, students will be traffic engineers. Using rope, paperclips and other materials, students will design solutions beginning with basic road intersections and finishing with complex highway interchanges with ramps. It is not as easy as it seems! Teams will demonstrate their final designs and as a group will decide which designs work best and why.</p>
Computer Science <i>Session 3 only</i>	<p><b>CAT: Computer Aided Tessellations</b> In this session, art meets math and computer science in the fabrication lab to produce tessellations out of vinyl. Students will weed and transfer vinyl stickers and leave with something created with their own hands!</p>

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<b>Dental Hygiene</b> <i>Session 1 &amp; 2 only</i>	<b>Toothlink<sup>32</sup></b> A dental hygienist specializes in keeping mouths healthy! You will have the opportunity to practice some of the services a dental hygienist performs in a typical day at work. You will make plaster molds of teeth, process digital x-rays on a manikin, work with dental instruments on a dental simulator head and take intra-oral photos.
<b>Dietetic Technology</b> <i>Sessions 1 &amp; 2 only</i>	<b>Science You Can Taste</b> Investigate several food science principles while participating in a series of fascinating experiments using food.
<b>Engineering Technology</b>	<b>Electromagnetism &amp; Motors</b> Students will learn how electricity and magnetism interact to produce rotary motion. They will each construct a simple DC motor using the following parts: D-cell battery, ceramic magnet, 22-gauge wire, 2 paper clips, electrical tape, and a rubber band.
<b>Environmental Engineering</b>	<b>Oil Spill</b> This lesson provides students with a deeper understanding of the issues that surround an oil spill and highlights methods of environmental clean-up. Using a model of an oil spill in an "ocean", students act as environmental engineers to test different methods for effectively cleaning up the spill, and determine the harmful effects that oil spills and their clean-up have on animals and the environment.
<b>Exercise Science</b> <i>Sessions 2 &amp; 3 only</i>	<b>Exercise Science &amp; Balance</b> Join us in the Exercise Science Lab and discover how we use visual, kinesthetic and vestibular information in our bodies to maintain balance. Students will actively participate in balance activities to strengthen their understanding about balance and improve their kinesthetic awareness.
<b>Health</b> <i>Session 1 &amp; 3 only</i>	<b>CPR Saves Lives!</b> Interested in health-related professions and emergency care? Ready to build your babysitting resume? Come to this session to learn about Hands Only CPR. Learn about the different jobs that use CPR and other life-saving skills. You will not get certified, but you will gain exposure to the skills needed to be a Heart Saver.
<b>Manufacturing Engineering</b>	<b>Tech vs. Tech</b> There are lots of ways to make the products we use every day. In this session, we'll be comparing traditional Injection Molding against 3D Printing as manufacturing methods. It will be a contest to see if we can make more parts by making and using a mold or by "3D Printing" some. We'll also look at a lot of the products you use every day and try and figure out how those were made.
<b>Math</b>	<b>The Secret Side of Math</b> Order and patterns can magically appear from messy chaos. Sometimes you want to hide the pattern (from everyone but a few) to send secret messages. How is math involved with this? Come and explore the secret side of math!
<b>Mechanical Engineering</b>	<b>Intro to Engineering</b> Make it FLY! In this session, students will explore the basic steps of engineering by constructing and flying paper airplanes. Teams of students will be tasked to step through a product development process to identify multiple airplane designs, building and testing each before selecting the winning design. Join the fun!
<b>Nursing</b> <i>Session 2 &amp; 3 only</i>	<b>Exploring Nursing</b> Students attending this session will explore how nurses are at the heart of healthcare. Students will participate in activities to identify the caring aspects of nursing. We will explore actions people take to stay healthy and learn ways we can care for our heart and hands.

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<b>Orthotics &amp; Prosthetics</b>	<b>Limbs Are Us!</b> In this session, students will be given a general overview of the Orthotics and Prosthetics profession. This unique division of the healthcare industry is dedicated to restoring human functional potential and helping others regain as much normal bio-mechanical function as possible. Students will learn the fundamentals of how to design and fabricate a below-knee prosthesis (artificial limb).
<b>Physics</b>	<b>Build a Flashlight!</b> Physicists study electricity and its application to circuits. In this session, students will be introduced to electricity and circuits, after which they'll have a chance to apply the knowledge to the construction of a flashlight using common materials (light bulb, batteries, wire, and a paper clip switch). The flashlight they construct will be theirs to take home.
<b>Renewable Energy</b>	<b>Combustion &amp; Renewable Energy</b> In this session, students will gain a better appreciation for renewable energy generation. Students will watch a demonstration of a "biomass gasifier" that is part of a current research project related to renewable electricity generation. The demonstration will be followed by a hands-on activity requiring students to make decisions about fuels based on mass/volume, CO <sub>2</sub> intensity, and cost. Students will combust biomass in small stoves that heat water to determine the effectiveness of their choices.