

Activity/ Workshop	Description	Prerequisites	Enrollments
Animation (half day)	Animation is the process of making the illusion of motion and change by means of the rapid display of a sequence of static images that differ slightly from each other. In this activity you will explore the world of animation and create two simple animations that you can take with you.	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Animation. 2. Prepare thumbnail sketches or layout drawings for two different animations you would like to prepare (Req 3a) 3. Tour an animation studio or business with in person, via video, or via the internet. Be prepared to discuss your experience. (Req 4) 	24

<p>Astronomy (half day)</p>	<p>In learning about astronomy, you will discover how activities in space affect our own planet and bear witness to the wonders of the night sky. You will explore the nebulae, giant clouds of gas and dust where new stars are born; old stars dying and exploding; meteor showers and shooting stars; the moon, planets, and a dazzling array of stars.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Astronomy. 2. Make two sketches of the Big Dipper. In one sketch, show the Big Dipper's orientation in the early evening sky. In another sketch, show its position several hours later. In both sketches, show the North Star and the horizon. Record the date and time each sketch was made. (Req 4 c) 3. List the names of the five most visible planets. Explain which ones can appear in phases similar to lunar phases and which ones cannot and explain why. (Req 5 a) 4. Find out when each of the five most visible planets that you identified in requirement 5a will be observable in the evening sky during the next 12 months, then compile this information in the form of a chart or table. (Req 5 b) 5. Describe the motion of the planets across the sky. (Req 5 c) Be prepared to discuss. 6. Observe a planet and describe what you saw. (Req 5 d) Be prepared to discuss. 7. Sketch the face of the Moon and indicate at least five seas and five craters. Label these landmarks. (Req 6 a) 8. Sketch the phase and the daily position of the Moon, at the same hour and place, for a week. Include landmarks on the horizon such as hills, trees, and buildings. Explain the changes you observe. (Req 6 b) 9. Identify at least one red star, one blue star, and one yellow star (other than the Sun). Explain the meaning of these colors. (Req 7 c) 10. Do ONE of the following (a, b, c, d, or e) and be prepared to share it with the group. (Req 8) <ol style="list-style-type: none"> a. Visit a planetarium or astronomical observatory. Submit a written report, a scrapbook, or a video presentation afterward to your counselor that includes the following information: <ol style="list-style-type: none"> i. Activities occurring there ii. Exhibits and displays you saw iii. Telescopes and instruments being used iv. Celestial objects you observed. b. Plan and participate in a three-hour observation session that includes using binoculars or a telescope. List the celestial objects you want to observe and find each on a star chart or in a guidebook. Prepare an 	<p style="text-align: center;">24</p>
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		<p>observing log or notebook. Review your log or notebook with your counselor afterward.</p> <ul style="list-style-type: none"> c. Plan and host a star party for your Scout troop or other group such as your class at school. Use binoculars or a telescope to show and explain celestial objects to the group. d. Help an astronomy club in your community hold a star party that is open to the public. e. Personally, take a series of photographs or digital images of the movement of the Moon, a planet, an asteroid or meteoroid, or a comet. In your visual display, label each image and include the date and time it was taken. Show all positions on a star chart or map. Show your display at school or at a troop meeting. Explain the changes you observed. 	
Aviation (full day)	<p>For most of history, people have dreamed of flying, imagining how it would feel to soar through the sky like an eagle or hover in midair like a hummingbird, to float on unseen currents, free of Earth's constant tug, able to travel great distances and to rise above any obstacle. Today, through aviation, we can not only join the birds but also fly farther, faster, and higher than they ever could. In this activity you will explore an airport tower, fly a large plane through a simulator, plot a course, and discover the wonders of flight.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Aviation and Flight. 	30

<p>Chemistry (half day)</p>	<p>Chemistry explores how substances react with each other, how they change, how certain forces connect molecules, and how molecules are made. All are parts of chemistry. Stretch your imagination to envision molecules that cannot be seen - but can be proven to exist - and you become a chemist.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Chemistry and Filtration. 2. Obtain an MSDS for both a paint and an insecticide. Compare the toxicity, disposal, and safe-handling sections for these two common household products. (Req 1 c) Be prepared to discuss with the group. 3. Predict what would happen if you placed an iron nail in a copper sulfate solution. Locate the formula for the reaction that you described. (Req 2 a) 4. Find out how you would separate sand from water, table salt from water, oil from water, and gasoline from motor oil. (Req 2 b) Be prepared to discuss with the group. 5. Cut a round onion into small chunks. Separate the onion chunks into three equal portions. Leave the first portion raw. Cook the second portion of onion chunks until the pieces are translucent. Cook the third portion until the onions are caramelized, or brown in color. Taste each type of onion. Describe the taste of raw onion versus partially cooked onion versus caramelized onion. Explain what happens to molecules in the onion during the cooking process. (Req 4 a) Be prepared to share with the group. 6. Describe the chemical similarities and differences between toothpaste and an abrasive household cleanser. Explain how the end use or purpose of a product affects its chemical formulation. (Req 4 b) Be prepared to discuss with the group. 7. Find a substance that will help water and oil combine, Explain how that substance works to combine the oil and water. (Req 4 c) Be prepared to discuss with the group. 8. Locate two government agencies that are responsible for tracking the use of chemicals for commercial or industrial use. Pick one agency and briefly describe its responsibilities to the public and the environment. (Req 6 a) Be prepared to discuss with the group. 9. Find out what pollution is. Locate the chemical effects of ozone, global warming, and acid rain. Pick a current environmental problem as an example. Briefly describe what people are doing to resolve this hazard and to increase understanding of the problem. (Req 6 b) Be prepared to discuss with the group. 10. Do ONE of the following activities (a, b, c, or d): (Req 7) Be prepared to discuss what you found. 	<p style="text-align: center;">48</p>
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		<ul style="list-style-type: none"> a. Visit a laboratory and talk to a practicing chemist. Ask what the chemist does and what training and education are needed to work as a chemist. b. Using resources found at the library and in periodicals, books, and the Internet (with your parent's permission), learn about two different kinds of work done by chemists, chemical engineers, chemical technicians, or industrial chemists. For each of the four jobs, find out the education and training requirements. c. Visit an industrial plant that makes chemical products or uses chemical processes and describe the processes used. What, if any, pollutants are produced and how are they handled? d. Visit a county farm agency or similar governmental agency and learn how chemistry is used to meet the needs of agriculture in your county. 	

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Composite Materials (half day) (AM only)	<p>Composites can be found just about everywhere: in airplanes and sports cars, golf clubs and guitars, boats and baseball bats, bathtubs and circuit boards, and even bridges. Composites make bicycles and skis lighter, kayaks and canoes stronger, houses warmer, and helmets tougher. In this activity you will learn what composites are and will build two projects using composites materials.</p> <p>WARNING: You will be working with composite materials. These are sticky, gooey, and will generally not come out of your clothes or hair. Bring an old outfit that you don't mind getting yucky. Goggles, gloves, aprons, and simple masks will be provided.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Composite Material. 2. Determine the physical, electrical, mechanical, corrosive, flammability, cost, and other such properties of composites, wood, aluminum, copper, and steel. For each of these raw materials, give one example for how it can be shaped and used for a specific application. (Req 2 b) Be prepared to discuss what you found. 3. Locate three different composite reinforcement materials, their positive and negative characteristics, and their uses. Obtain the MSDS for each one and discuss the toxicity, disposal, and safe-handling sections for these materials. (Req 3 a) Be prepared to discuss what you found. 4. Discuss three different resins used in composites, their positive and negative characteristics, and their uses. Obtain the MSDS for each one and discuss the toxicity, disposal, and safe-handling sections for these materials. Include thermoset resins and thermoplastic resins in your discussion. (Req 3 b) Be prepared to discuss what you found. 5. With your parent's permission and your counselor's approval do ONE of the following (a, or b): (Req 4) Be prepared to discuss what you found. <ol style="list-style-type: none"> a. Visit a company that manufactures, or repairs products made with composites. Discuss what you learn with your counselor. b. Find three composites-related Web sites. Share and discuss what you learn with your counselor. 	8
Dentistry (half day)	<p>Dentistry is the art of removing tooth decay, filling cavities, and repairing fractured teeth. Dentists diagnose and treat problems with patients' teeth, gums, and related parts of the mouth. They provide advice and instruction on taking care of the teeth and gums and on diet choices that affect oral health. You will view x-rays, discuss the causes of tooth decay and gum disease and make a model of a tooth.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Dentistry. 2. Arrange for a visit with a dentist. Request that the visit include both a dental examination and a plaque control demonstration. Be sure to ask any questions about things you want to know during the visit. 	32

<p>Drafting (half day)</p>	<p>Drafting is a highly refined form of drawing used to communicate ideas to engineers, architects, and craftspeople. In this activity, you will learn the importance of accuracy and simplicity in developing a drawing that shows precise details in an understandable format. You will create drawings by hand and with a Computer Aided Drawing program.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Technical Drawing 2. Do ONE of the following (a or b): (Req 6) Be prepared to discuss what you found. <ol style="list-style-type: none"> a. Visit a facility or industry workplace where drafting is part of the business. Ask to see an example of the work that is done there, the different drafting facilities, and the tools used. <ol style="list-style-type: none"> i. Find out how much of the drafting done there is manual, and how much is done using CAD. If CAD is used, find out what software is used and how and why it was chosen. ii. Ask about the drafting services provided. Ask who uses the designs produced and how those designs are used. Discuss how the professionals who perform drafting cooperate with other individuals in the drafting area and other areas of the business. iii. Ask how important the role of drafting is to producing the end product or service that this business supplies. Find out how drafting contributes to the company's end product or service b. Using resources, you find on your own such as at the library and on the Internet (with your parent's permission), learn more about the drafting trade and discuss the following with your counselor. <ol style="list-style-type: none"> i. The drafting tools used in the past - why and how they were used. Explain which tools are still used today and how their use has changed with the advent of new tools. Discuss which tools are being made obsolete by newer tools in the industry. ii. Tell what media types were used in the past and how drawings were used, stored, and reproduced. Tell how the advent of CAD has changed the media used and discuss how these changes affect the storage or reproduction of drawings. 	<p style="text-align: center;">40</p>
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		iii. Discuss whether the types of media have changed such that there are new uses for the drawings, or other outputs, produced by designers. Briefly discuss how new media types are used in the industry today.	
Electricity (half day)	<p>Electricity is a powerful and fascinating force of nature. As early as 600 b.c., observers of the physical world suspected that electricity existed but did not have a name for it. In fact, real progress in unraveling the mystery of electricity has come only within the last 250 years. In this activity you will discover the fascinating world of electricity and how it can be used to help us in the modern world.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Electricity. 2. Complete an electrical home safety inspection of your home, using the checklist you can find on this registration site. (Req 2) Be prepared to discuss what you found. {See checklist on our web site} 3. On a floor plan of a room in your home, make a wiring diagram of the lights, switches, and outlets. Show which fuse or circuit breaker protects each one. (Req 8) Be prepared to discuss what you found 4. Read an electric meter and, using your family's electric bill, determine the energy cost from the meter readings. (Req 9 a) Be prepared to discuss what you found. 5. Look up the following electrical terms: volt, ampere, watt, ohm, resistance, potential difference, rectifier, rheostat, conductor, ground, circuit, and short circuit. (Req 10) Be prepared to discuss what you found. 	20
Electronics (full day)	<p>Electronics is the science that controls the behavior of electrons to produce some useful effect like create or amplify music, capture radio waves, or make something move. Today, electronics is a fast-changing and exciting field. In this activity you will discover the world of electronics, how to install parts on a printed circuit board, and build a circuit that you can take with you.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Electronics 2. Draw a simple schematic diagram. It must show resistors, capacitors, and transistors or integrated circuits. Use the correct symbols. Label all parts. (Req 2 a) Be prepared to discuss. 3. Tell the purpose of each part on your diagram. (Req 2 b) Be prepared to discuss. 4. Find out about three career opportunities in electronics that interest you. Discuss with and explain to your counselor what training and education are needed for each position. (Req 6) Be prepared to discuss. 	12

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Energy (half day)	Saving, producing, and using energy wisely will be critical to America's future. If we are to leave future generations with a world in which they can live as well or better than we have, then we must use energy wisely. In this activity you will explore forms of energy, build a car that harnesses the sun to propel it, and examine how to conserve this precious resource.	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Energy. 2. Find an article on the use or conservation of energy. (Req 1 a) Be prepared to discuss. 3. Conduct an energy audit of your home. You may use the one provided on the registration site or one of your own. (Req 4) Be prepared to discuss. {See Energy Audit on our web site} 4. Keep a 14-day log that records what you and your family did to reduce energy use. (Req 4) Be prepared to discuss. 5. In a notebook, identify and describe five examples of energy waste in your school or community. Suggest in each case possible ways to reduce this waste. (Req 5) Be prepared to discuss. 	24
Engineering (half day)	Engineers take science and build practical machines and structures to make the world easier to live in. These range from a tiny, low-cost battery for your cell phone to a gigantic dam across the mighty Yangtze River in China. In this activity you will explore the world of engineering, design something to make your life easier, and construct mechanical and electrical equipment that perform something useful.	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Engineering and Regulation and licensure in Engineering 2. Select some manufactured item in your home (such as a toy or an appliance) and, under adult supervision, investigate how and why it works as it does. Find out what sort of engineering activities were needed to create it. Be ready to discuss what you learned and how you got the information. (Req 1) 3. Select an engineering achievement that has had a major impact on society. Use the resources available to you to research it. Look for who made it possible, the special obstacles they had to overcome, and how this achievement has influenced the world today. (Req 2) Be prepared to discuss. 	48

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Game Design (full day)	<p>Games come in every shape, size, format, and flavor imaginable. They can be fast-paced, slow, or anything in between. Some are competitive. Some are cooperative. They may be for individuals, small groups, or thousands of players at a time. They might take seconds to complete or last for years. However, you slice it, everyone has played games, and games help make us who we are. In this activity you will explore how the rules of a game determine the play and then use this information to build as a team a game of your own (or one of your team mates) design. You will then observe how well your ideas are by testing this game on a small audience.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Game Design 2. Come prepared to talk about four games you have played in any of the following mediums: Physical Games and Sports (like Basketball), Board Games (like chess), Tile Games (like dominoes), Dice Games (like Yahtzee), Card Games (like poker), Party Games (like charades), Games with Miniatures, Role Playing Games (like Dungeons and Dragons), Electronic Games (like video games) (Req 1 a) 3. Research Intellectual Property and be prepared to discuss it. (Req 3) 4. Think about a game you would like to create. Determine the medium or mediums you would like it created in. Think about the player format, objectives, and theme of the game. Determine the setting, story, and characters if necessary. Be able to talk about its play value. Record some rules for the game and what resources would be needed. Make sketches of the game elements. (Req 5) Be prepared to discuss, negotiate, and share your ideas. 	28

Activity/ Workshop	Description	Prerequisites	Enrollments
Game Design Computer Option (full day) (Min Age 14)	Same program as Game Design except when the class splits to develop a game this activity focuses on computer games. Will also earn Programming Badge	Game Design: 1. Read the Wikipedia page on Game Design 2. Come prepared to talk about four games you have played in any of the following mediums: Physical Games and Sports (like Basketball), Board Games (like chess), Tile Games (like dominoes), Dice Games (like Yahtzee), Card Games (like poker), Party Games (like charades), Games with Miniatures, Role Playing Games (like Dungeons and Dragons), Electronic Games (like video games) (Req 1 a) 3. Research Intellectual Property and be prepared to discuss it. (Req 3) 4. Think about a game you would like to create. Determine the medium or mediums you would like it created in. Think about the player format, objectives, and theme of the game. Determine the setting, story, and characters if necessary. Be able to talk about its play value. Record some rules for the game and what resources would be needed. Make sketches of the game elements. (Req 5) Be prepared to discuss, negotiate, and share your ideas. Programming 5. Read the Wikipedia page on Computer Programming and Web Development. 6. (optional) If you want to take your programs home with you bring a thumb drive. 7. Boy Scout must earn your Cyber Chip and bring your card to SED.	8
Medicine (full day)	Medicine is defined as the science of diagnosing and preventing disease and of maintaining health. You will discuss the Hippocratic Oath, the provider-patient relationship, the different specialties in medicine and the various supporting roles that are critical to the delivery of quality medical care.	1. Visit a physician's office, preferably a Primary Care doctor. Discuss the components of a medical history and physical examination (an official BSA health form may be used to guide this discussion), and become familiar with the instruments used. 2. Serve as a volunteer at a health-related event or facility in your community (e.g. blood drive, "health fair", blood pressure screening, etc.) approved by your counselor.	12

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Model Design and Building (half day)	Model making, the art of creating copies of objects that are either smaller or larger than the objects they represent, is not only an enjoyable and educational hobby: it is widely used in the professional world for such things as creating special effects for movies, developing plans for buildings, and designing automobiles and airplanes. In this activity you will explore the world of model making and build a working plumbing system and a mock-up of space craft cabin.	<ol style="list-style-type: none"> 1. Visit the Wikipedia page on Model Building and select two categories from the page to read. Read the selected Wikipedia pages. Alternatively read the BSA Model Design and Building Merit Badge book. 2. Determine the uses for each of the following types of models: architectural, structural, process, mechanical, and industrial. Do research into the different types of materials that could be used in making these models. (Req 2) Be prepared to discuss what you found 3. Examine the plumbing system of your house paying careful attention to hot and cold-water supplies, waste returns, and vents. (Req 3) 4. Give some thought to building a special-effects model of a fantasy spacecraft. (Req 5) Be prepared to discuss your ideas. 5. In line with No. 4, study aircraft, submarines, and naval ships for ideas for your spacecraft. (Req 5 a) Be prepared to discuss. 6. Prepare a sketch of your fantasy spacecraft. (Req 5 c) 	24
Nuclear Science (half day)	Nuclear science gives us a simple explanation of the natural world. The ultimate goal of nuclear science is to find out if there is one fundamental rule that explains how matter and forces interact. In this activity you will explore this tiny world, build models of molecules, build a cloud chamber and electroscope.	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Nuclear Physics 2. Look up three particle accelerators and describe several experiments that each accelerator performs. (Req 3 b) Be prepared to discuss. 	24

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Oceanography (half day)	The oceans cover more than 70 percent of our planet and are the dominant feature of Earth. Wherever you live, the oceans influence the weather, the soil, the air, and the geography of your community. To study the oceans is to study Earth itself. In this activity you will explore how the oceans work and experiment with a tidal basin.	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Oceanography 2. Investigate underwater topography paying particular attention to continental shelf, continental slope and the abyssal plain. Locate an underwater map and examine seamounts, guyots, rift valley, canyons, trenches, and oceanic ridges. Compare the depths of the ocean to the heights of mountains on land. (Req 4) 3. Do One of the following (a or b or c): (Req 8) <ol style="list-style-type: none"> a. Write a 500-word report on a book about oceanography. b. Visit one of the following: (1) an oceanographic research ship or (2) an oceanographic institute. Write a 500-word report about your visit. c. Prepare a five-minute prepared speech "Why Oceanography Is Important" or describe "Career Opportunities in Oceanography". 	24

Activity/ Workshop	Description	Prerequisites	Enrollments
<p>Programming – Sensor Net</p> <p>(full day)</p> <p>(Minimum Age of 14)</p>	<p>Programming is a process that takes an original idea of a computing problem and transforms it to an executable computer program. In this activity you will explore the world of programming through the building of a sensor network using off-the-shelf microcontrollers.</p> <p>NOTE: This is a half day programming activity in sensor networks. If you want to spend more time getting into programming then register for the full day web programming activity.</p>	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Computer Programming, Wireless Sensor Networks, and Arduino. 2. (optional) If you want to take your programs home with you bring a thumb drive. 3. Write and sign a personalized contract with your parent or guardian that outlines rules for using the computer and mobile devices, including what you can download, what you can post, and consequences for inappropriate use. (Req 1a Cyber Chip Req 2) Present a copy of the contract to the counselor. 4. Discuss with your parents the benefits and potential dangers teenagers might experience when using social media. Give examples of each. (Req 1a Cyber Chip Req 3) Be prepared to discuss. 5. Research internet safety rules, behavior, and “netiquete” and prepare a 1-minute talk about what you learned. (Req 1a Cyber Chip Req 5) Be prepared to teach using your local guidelines. 6. (optional) Find a program that you would like to make changes to and bring it on a thumb drive. If you don’t bring a program we will have some for you to pick from. (Req 5a) 7. (optional) Think about two programs you would like to write and what you would like them to do. Be ready to talk through the ideas 	<p style="text-align: center;">15</p>

Activity/ Workshop	Description	Prerequisites	Enrollments
Programming – Web (full day)	<p>Programming is a process that takes an original idea of a computing problem and transforms it to an executable computer program. In this activity you will explore the world of programming through manipulating web pages and controls on a web page.</p> <p>NOTE: This is a full day programming activity on the web.</p>	<ol style="list-style-type: none"> 8. Read the Wikipedia page on Computer Programming and Web Development. 9. (optional) If you want to take your programs home with you bring a thumb drive. 10. Write and sign a personalized contract with your parent or guardian that outlines rules for using the computer and mobile devices, including what you can download, what you can post, and consequences for inappropriate use. (Req 1a Cyber Chip Req 2) Present a copy of the contract to the counselor. 11. Discuss with your parents the benefits and potential dangers teenagers might experience when using social media. Give examples of each. (Req 1a Cyber Chip Req 3) Be prepared to discuss. 12. Research internet safety rules, behavior, and “netiquete” and prepare a 1-minute talk about what you learned. (Req 1a Cyber Chip Req 5) Be prepared to teach using the BSA EDGE method or GSA guidelines. 13. (optional) Find a program that you would like to make changes to and bring it on a thumb drive. If you don’t bring a program we will have some for you to pick from. (Req 5a) 14. (optional) Think about two programs you would like to write and what you would like them to do. Be ready to talk through the ideas 	15
Robotics (full day)	<p>Robotics is the combination of mechanical engineering, electrical engineering, electronic engineering and computer science that deals with the design, construction, operation, and application of robots. In this activity you will build, program, and work with simple robots to solve a problem that requires sensory feedback, information processing, and mechanical movement.</p> <p>Two Options:</p> <ul style="list-style-type: none"> • Lego • Arduino (Min age 14) 	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Robotics 2. Find pictures depicting one or more of the five major fields of robotics defined in the book (human-robot interface, mobility, manipulation, programming, sensors). Bring to Science and Engineering Day and be prepared to talk about what you have. (Req 3) 3. Learn about three youth robotics competition. Include in your research the type of competition, time commitment, age of participants, and how many teams are involved. (Req 6) Be prepared to discuss these at Science and Engineering Day. 	64 Lego 32 Arduino

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Space Exploration (full day)	Space exploration is the ongoing discovery and exploration of celestial structures in outer space by means of continuously evolving and growing space technology. In this activity you will explore the world of technology used in space. You will build a model rocket, launch a rocket, demonstrate propulsion, and build a trading card of your favorite pioneer	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Space Exploration. 2. Research space pioneers and collect information on your favorite and four others. Collect enough information (and material) to create a trading card. (Req 2) 3. Do ONE of the following (a or b): (Req 5) <ol style="list-style-type: none"> a. Research a space mission, manned or unmanned, and find out about its major discoveries, its importance, and what we learned from it about the planets, moons or regions of space explored. Be prepared to share your results. b. Create a scrapbook about a current planetary mission using magazine photographs, news clippings, and articles from online. Be prepared to share with the group. 4. Do ONE of the following (a or b): (Req 6) <ol style="list-style-type: none"> a. Research the Space shuttle and be prepared to talk about its purpose, operation, and components. b. Research the International Space Station and be prepared to talk about its purpose, operation, and components. 5. Research two possible careers in space exploration that interest you. Find out the qualification, education preparation requires, and the major responsibilities of the career. Be prepared to discuss with the group. (Req 8) Be prepared to discuss. 	12

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Sustainability (half day)	Sustainability is the capacity to endure. If we are to survive on our planet we must learn to harvest and use our resources with a mind-set that thinks towards the future. In this activity you will explore several areas of your life and how your actions can affect the world for many years to come.	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Sustainability. 2. Choose three ways to help reduce water consumption in your house. Implement these from now until the event and observe how they affected your family’s water usage. (Req 2 Water A). Be prepared to discuss. 3. Find two areas of the world that have been affected by drought over the last three years. Research what can be done in these areas to improve the conditions and determine whether it was used or not and whether or not it worked. (Req 2 Water C) Be prepared to discuss. 4. Develop and implement a plan that attempts to reduce your household food waste. Establish as baseline then track and record your results from now until the event. (Req 2 Food A) Be prepared to discuss. 5. For either electrical consumption or transportation fuel examine what your family has done for a three-month period. Choose three ways to reduce consumption and implement these ideas for as long as you can before we meet. (Req 2 Energy B or C) Be prepared to discuss 6. Keep a log of the “stuff” your family purchases (except food) for two weeks. Categorize each purchase as an essential need or a desirable want. (Req 2 Stuff A) Be prepared to discuss 7. Pick one category from the following list and research their impact on the environment. Choose three devices in that area and find out the average lifespan and what happens once they are no longer used. The list is Plastic Waste, Electronic Waste, and Food Waste. (Req 4) Be prepared to discuss. 8. Pick one category from the following list and research the area. Discuss what the problem is, how humans are affecting it, and what can be done to turn it around. The list is Species decline, World Population, and Climate change. (Req 4) Be prepared to discuss. 	48

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Weather (half day)	Meteorology is the study of the Earth's atmosphere and its weather and the ways in which temperature, wind, and moisture act together in the environment. In addition to learning how everyday weather is predicted, you can learn about extreme weather such as thunderstorms, tornadoes, and hurricanes, and how to stay safe.	<ol style="list-style-type: none"> 1. Read the Wikipedia page on Weather. 2. Keep a daily weather log for 1 week using information from an instrument as well as from other sources such as local radio and television stations or NOAA Weather Radio, and Internet sources (with your parent's permission). Record the following information at the same time every day: wind direction and speed, temperature, precipitation, and types of clouds. Be sure to make a note of any morning dew or frost. In the log, also list the weather forecasts from radio or television at the same time each day and show how the weather really turned out. (Req 8) Be prepared to discuss. 3. Prepare a 5-minute talk on one of the following (a or b): (Req 9) <ol style="list-style-type: none"> a. Outdoor safety rules in the event of lightning, flash floods, and tornadoes. b. Acid rain using articles you have found. 4. Find out about a weather-related career opportunity that interests you. Be able to explain to the group what training and education are required for such a position, and the responsibilities required of such a position. (Req 10) Be prepared to discuss. 	24
Youth Robotics (half day) (AM Only) Age limited to 9 and 10 year olds	Robotics deals with the design, construction, operation, and application of robots. In this activity you will build, program, and showcase simple robots.	<ol style="list-style-type: none"> 1. None 2. Come prepared to have fun and learn 	15
Youth Mechanics (half day) (AM Only) Age limited to 9 and 10 year olds	Mechanical Engineering solves problems such as how to design and build airplanes. In this class you will learn how paddle boats work and build one yourself. You will also learn about and build a balloon car and crane.	<ol style="list-style-type: none"> 1. None 2. Come prepared to have fun and learn 	15

Activity/ Workshop	Description	Prerequisites	Enrollments
Youth Cybersecurity (half day) (AM Only) Age limited to 9 and 10 year olds	Learning the importance of keeping information safe is critical in todays society. In this class you learn about how computers gather and distribute information and how to safeguard your personal information from others. Lastly you will learn to be a cybersecurity investigators by learning how to differentiate between real and fake information and how to spot cyber crime.	<ol style="list-style-type: none"> 1. None 2. Come prepared to have fun and learn 	15

Activity/ Workshop	Description	Prerequisites	Enrollments
Starbridge SIMS	<p>What is this all about? Just imagine yourself as part of a starship bridge crew – Captain, Helms, Weapons, Comms, Engineering, or Science – all working together or against other live bridge crews to win in a challenging scenario. Each crew member operates their own console (except Captain) and must effectively work together as a team to win the scenario. We will have 6 full bridge crews!</p> <p>Never done this before? NO PROBLEM! We do this game frequently and will teach everyone how to play.</p> <p>Why do this sim? Our goal is to teach effective team-building skills, and we believe we learn best when we're having fun. We use the bridge simulator as a serious game to teach effective leadership and team performance skills in a fun and engaging way.</p> <p>Watch this YouTube video to get an idea what it's like!</p> <p>https://www.youtube.com/watch?v=dR8-D7AkZMs</p>	Minimum age is 14 years old	36