

Trailblazer District Scout Day Camp



**SCOUTMASTER'S
GUIDEBOOK
June 11-15, 2018**

Middleton Mills Park, Covington KY

WELCOME

Dear Scoutmaster,

Welcome to the Dan Beard Council 2018 Trailblazer District Scout Community Day Camp. This year's camp is being held June 11-15, 2018 at Middleton-Mills Park in Covington, KY. Our primary mission at Scout Day Camp is to provide Scouts with an experience that will leave upon them a lifelong positive impact, while reinforcing the values of the Scout Oath and Law. Your Boy Scouts are being asked to volunteer for the week to share their Scouting knowledge with our Cub Scouts, the same way our adult Scouters have taught them. This will allow your Scouts to develop character through personal challenges and success.

At Scout Day Camp, you will find a friendly and inviting atmosphere, where we take seriously the needs of every Scout. We work hard to assemble a staff of volunteer adults and older Scouts who are trained in Scout skills, teaching methods and all forms of Scouting safety, and are good leaders and mentors, as well. Our adult staff members enjoy working with youth and our youth staff members are Scouts who have or are actively working on earning their Eagle Scout rank or equivalent Venturing Awards.

Our Adult Camp Staff understands that volunteering for an entire week is a lot to ask our older Scouts, so we have created a Volunteer-STEM program for our Youth Volunteer Staff. In addition to working with the Cub Scouts, your Scouts will be offered the opportunity to work on several Merit Badges and NOVA Awards during their time at camp. The program was designed so allow the Youth Staff the chance to get some hands-on activities that are geared towards older Scouts and are more challenging than what the Cub Scouts are working on. For example, Scouts will have the opportunity to make biodiesel fuel, a minnow trap, birdhouses for Kenton County Parks, mineral collection, and a footstool for themselves. They will have the opportunity to work with professors from NKU and Thomas More College, a Cabinetmaker/Carpenter Instructor, Automotive Technicians from Mercedes-Benz, and a Park Ranger from Big Bone Lick State Park.

In this ***Scoutmaster's Guide***, you'll find information to share with your Scouts for Scout Day Camp 2018. We are looking for Boy Scouts, Venturers, Arrowmen, Explorer Scouts, Sea Scouts, and International Scouts to help serve as our Youth Staff. We want to offer our Cub Scouts that opportunity to learn about Scouting opportunities available as they get older and the best way we can do that is give the Cub Scouts the chance to meet and work with our older Scouts. We have taken feedback from previous years' programs and incorporated that into this year's program to enhance the experience for everyone.

If there is anything that we can do to maximize your Scouts' experience, please let us know. In addition, please feel free to contact me (nkn610@gmail.com) or the other members of our District team so we can answer questions or support you in other ways as you prepare for your Scouts' experience at Trailblazer District Community Day Camp.

We look forward to seeing you at Camp!



Nicole Kuzmin-Nichols
Camp Director

OVERVIEW

Location:	Middleton-Mills Park 3415 Mills Rd. Covington, KY 41015
Dates:	June 11-15, 2018
Time:	7:15am – 4:30pm
Required:	BSA Medical Form, Parts A & B (must have for all Scouts & staff)
Daily Required Items:	Water Bottle Sack Lunch (no refrigeration available) Sunscreen Closed toe shoes Camp Staff T-shirt Totin' Chip & Firem'n Chit Blue Cards & Merit Badge Pre-work as needed
Suggested Daily Items:	Bug Spray Hat Small backpack for Scout treasures
Pre Check-In:	June 10 @ Middleton-Mills Park 1-3pm (drop off medical forms & receive camp T-shirt)
Cost:	No cost for Boy Scout or Venturer Youth Staff
Registration:	http://www.danbeard.org/daycamp (Northern Kentucky) Youth Volunteers should register as "Adult"
Training:	Youth Volunteers must complete Youth Protection Training http://www.danbeard.org/pubs/YPT_2_Navigation.pdf

BOY SCOUTS - OVERVIEW

General Overview & Adventure-Award Advancements:

Boy Scouts volunteering at Trailblazers District Scout Day Camp will have the opportunity to earn service hours for both rank advancements and school service hours. In addition, Boy Scouts will have the opportunity to work on requirements for the following Merit Badges and Nova awards. Pre-work requirements will be similar to Merit Badge Challenge or Camp Friedlander Summer Camp. Some of the Merit Badges and Awards listed below will be partials.

- Animal Science
- Archaeology
- Automotive Maintenance
- Bird Study
- Chemistry
- Communications
- Cooking
- Disability Awareness
- Fingerprinting
- Fishing
- Game Design
- Geology
- Robotics
- Soil & Water Conservation
- Woodwork
- NOVA: Let It Grow!
- SUPERNOVA Awards: Requirements and Topics: Mathematics & Science
- Supernova: Bernard Harris Award

MERIT BADGE – ANIMAL SCIENCE

Requirements:

Req. #	Note	Requirement
1	Table or list	Name four breeds of livestock in each of the following classifications: horses, dairy cattle, beef cattle, sheep, hogs. Tell their principal uses and merits. Tell where the breeds originated
2	Table or list	List five diseases that afflict the animals in each of the classifications in requirement 1. Also list five diseases of poultry. Describe the symptoms of each disease and explain how each is contracted and how it could be prevented.
3		Explain the major differences in the digestive systems of ruminants, horses, pigs, and poultry. Explain how the differences in structure and function among these four types of digestive tracts affect the nutritional management of these species.
4		Select one type of animal—beef cow, dairy cow, horse, sheep, goat, or hog, or a poultry flock—and tell how you would properly manage it. Include in your discussion nutritional (feeding) concerns, housing, disease prevention, waste control/removal, breeding programs, and biosecurity as appropriate.
5		Explain the importance of setting clear goals for any animal breeding program. Tell how purebred lines of animals are produced. Explain the practice of crossbreeding and the value of this practice.
6		Complete ONE of the following options: DAIRYING OPTION a. Tell how a cow or a goat converts forage and grain into milk Explain the differences in feeds typically used for dairy cows versus those fed to beef cows. b. Make a chart showing the components in cow's milk or goat's milk. Chart the amount of each component. c. Explain the requirements for producing grade A milk. Tell how and why milk is pasteurized. d. Tell about the kinds of equipment used for milking and the sanitation standards that must be met on dairy farms. e. Define the following terms: bull, cow, steer, heifer, springer; buck, doe, kid. f. Visit a dairy farm or a milk processing plant. Describe what you saw and explain what you learned. If you cannot visit a dairy farm or processing plant, view a video from a breed or dairy association, or research the Internet (with your parent's permission) for information on dairying. Tell about your findings
7		Find out about three career opportunities in animal science. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you

Day Offered: Friday

Time Offered: Morning through lunch program

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the “Note” column is blank, that requirement will be completed at camp.

MERIT BADGE – BIRD STUDY

Requirements:

Req. #	Note	Requirement
1		Explain the need for bird study and why birds are useful indicators of the quality of the environment.
2		Show that you are familiar with the terms used to describe birds by sketching or tracing a perched bird and then labeling 15 different parts of the bird. Sketch or trace an extended wing and label six types of wing feathers.
3		Demonstrate that you know how to properly use and care for binoculars. a. Explain what the specification numbers on the binoculars mean. b. Show how to adjust the eyepiece and how to focus for proper viewing. c. Show how to properly care for and clean the lenses.
4		Demonstrate that you know how to use a bird field guide. Show your counselor that you are able to understand a range map by locating in the book and pointing out the wintering range, the breeding range, and/or the year-round range of one species of each of the following types of birds: a. Seabird, b. Plover, c. Falcon or hawk, d. Warbler or vireo, e. Heron or egret, f. Sparrow, g. Nonnative bird (introduced to North America from a foreign country since 1800).
5	Make an observation log	Observe and be able to identify at least 20 species of wild birds. Prepare a field notebook, making a separate entry for each species, and record the following information from your field observations and other references. a. Note the date and time. b. Note the location and habitat. c. Describe the bird's main feeding habitat and list two types of food that the bird is likely to eat. d. Note whether the bird is a migrant or a summer, winter, or year-round resident of your area.
6	Include on observation log	Explain the function of a bird's song. Be able to identify five of the 20 species in your field notebook by song or call alone. For each of these five species enter a description of the song or call, and note the behavior of the bird making the sound. Note why you think the bird was making the call or song that you heard.
7a		Do ONE of the following: a. Go on a field trip with a local club or with others who are knowledgeable about birds in your area. 1. Keep a list or fill out a checklist of all the birds your group observed during the field trip. 2. Tell your counselor which birds your group saw and why some species were common and some were present in small numbers. 3. Tell your counselor what makes the area you visited good for finding birds.
8a		Do ONE of the following. For the option you choose, describe what birds you hope to attract, and why. a. Build a bird feeder and put it in an appropriate place in your yard or another location.

Day Offered: Friday

Time Offered: Afternoon

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If Pre-work has been listed, that should be brought to camp the day the merit badge will be worked on. If the "Note" column is blank, that requirement will be completed at camp.

Boy Scouts working on this Merit Badge will participate in both portions of the Webelos program and Boy Scout only session with Dr. Lindsey Walters, Professor, Biological Sciences, Northern Kentucky University and Chrisula Stone, NestWatch Chapter Coordinator, Northern Kentucky Bluebird Trail.

MERIT BADGE – ARCHAEOLOGY

Requirements:

Req. #	Note	Requirement
1	Table or List	Tell what archaeology is and explain to your counselor how it differs or relates to other fields of study such as anthropology, geology, paleontology, and history. Explain how archaeology is different than artifact collecting or treasure hunting.
2		Describe each of the following steps of the archaeological process: site location, development of background research and a research design, site survey and fieldwork, artifact identification and examination, interpretation, preservation, and information sharing.
3		Describe at least two ways in which archaeologists determine the age of sites, structures, or artifacts. Explain what absolute dating and relative dating are.
4	Written description (150-200 words each)	Learn about a combined total of five archaeological sites located both within and outside the United States. a. For EACH site you research, point it out on a map and explain how it was discovered. Describe some of the information about the past that has been found at each site. Explain how the information gained from the study of these sites answers questions that archaeologists are asking and how the information may be important to modern people. Compare the relative ages of the sites you research. b. Choose ONE of the sites you picked and give a short presentation about your findings to a Cub Scout pack, your Scout troop, your school class, or another group.
5		Do the following: a. Learn about the federal laws and international conventions that protect archaeological sites. Find out if your state, county, or local government has regulations that apply to archaeological or historic sites. b. Identify a national, international, or local organization that helps to protect archaeological sites.
6		Do the following: a. Explain why it is important to protect archaeological sites. b. Explain what people should do if they think they have found an artifact. c. Describe the ways in which you can be a protector of the past.
7c	Bring list of trash	Do ONE of the following and discuss your findings with your counselor: c. Make a list of the trash your family throws out during one week. Discuss with your counselor what archaeologists might learn about you and your family if they found your trash a thousand years from now.
8b		Do either A or B of the following: b. With your counselor's approval, take part in a simulated archaeological project designed by a qualified archaeologist. The project must include the use of a simulated archaeological site including artifacts and features for the site. Using the steps of archaeological inquiry, analyze the "artifacts and features" and document the spatial relationships of the "artifacts and features" at the simulated site. Explain how the environment and time can affect the interpretation of an artifact and the overall archaeological site. Tell how you would share the results of your analysis with other researchers and the public
9b		Under the supervision of a qualified archaeologist or instructor, do ONE of the following: b. Use the methods of experimental archaeology to re-create an item or to practice a skill from the past. Write a brief report explaining the experiment and its results.
10	Written description (150-200 words)	Research a group of people who lived in your area more than 100 years ago. Find out about their ways of life, including housing, clothing, arts and crafts, tools, trade and markets, rituals and religions, and diets, and their relationships with other groups of people in the area. Describe what you would expect to find at an archaeological site where these people lived. Explain how these people influenced your current community.
11	Written description (150-200 words)	Identify three career opportunities in archaeology. Pick one and explain how to prepare for such a career. Discuss with your counselor what education and training are required, and explain why this profession might interest you.

Day Offered: Tuesday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the “Note” column is blank, that requirement will be completed at camp.

Boy Scouts working on this Merit Badge will participate in the Wolf program with Amelia Hulth, Big Bone Lick State Park Ranger and continue working with her after the Wolf program has ended.

MERIT BADGE—AUTOMOTIVE MAINTENANCE

Requirements:

Req. #	Note	Requirement
1	Written description (150-200 words)	Do the following: a Explain to your counselor the hazards you are most likely to encounter during automotive maintenance activities, and what you should do to anticipate, help prevent, mitigate, or lessen these hazards. b. Discuss with your counselor the safety equipment, tools, and clothing used while checking or repairing a motor vehicle. Use this equipment, tools, and/or clothing (when needed or called for) in meeting the requirements for this merit badge.
2		General Maintenance, Safety, and Registration Do the following: a. Review the maintenance chart in the owner's manual. Explain the requirements and time limits. b. Demonstrate how to check the following: 1. Brake Fluid, 2. Engine Oil, 3. Coolant, 4. Power steering fluid. 5. Windshield washer fluid. 6. Transmission fluid. 7. Battery fluid (if possible) and condition of the battery terminals. c. Locate the fuse boxes; determine the type and size of fuses. Demonstrate the proper replacement of burned-out fuses. d. Demonstrate how to check the condition and tension of belts and hoses. e. Check the vehicle for proper operation of its lights, including the interior overhead lights, instrument lights, warning lights, and exterior bulbs. f. Locate and check the air filter(s). g. Explain the purpose, importance, and limitations of safety belts and passive restraints. h. Find out the requirements for your state's emissions and safety inspections (as applicable), including how often a vehicle needs to be inspected. i. Explain the importance of registering a vehicle and find out the annual registration fee for renewing your family car's registration.
3		Dashboard. Do the following: a. Explain the function of the fuel gauge, speedometer, tachometer, oil pressure, and engine temperature gauge. Point out each one on the instrument cluster. b. Explain the symbols that light up on the dashboard and the difference between the yellow and red symbols. Explain each of the indicators on the dashboard, using the owner's manual, if necessary.
4		Tires. Do the following: a. Explain the difference between tire manufacturer's and vehicle manufacturer's specifications and show where to find them. b. Demonstrate how to check pressure and properly inflate a tire. Check the spare tire and make sure it is ready for use. c. Explain why wheel alignment is important to the life of a tire. Explain camber, caster, and toe-in adjustments on wheel alignment. d. Explain the purpose of the lateral-wear bar indicator. e. Explain how to dispose of old tires in accordance with local laws and regulations.
5		Engine. Do the following: a. Explain how an internal combustion engine operates. Tell the differences between gasoline and diesel engines. Explain how a gasoline-electric hybrid vehicle is powered. b. Explain the purpose of engine oil. Explain the API service code, the SAE number, and the viscosity rating. c. Explain where to find the recommended oil type and the amount of oil to be used in the vehicle's engine.
6		Cooling system. Do the following: a. Explain the need for coolant in the cooling system, and the importance of selecting the correct coolant type for a given vehicle. b. Explain how to flush and change the engine coolant in the vehicle, and how to properly dispose of the used coolant.
7		Fuel system. Do the following: a. Explain how the air and fuel systems work together and why it is necessary to have an air filter and fuel filter. b. Explain how a how a fuel injection system works and how an on-board computer works with the fuel injection system
8		Ignition and electrical systems. Do the following: a. Diagram and explain the parts of the electrical system. b. Explain the engine's firing order. c. Explain the purpose of the spark gap. d. Demonstrate how to safely connect jumper cables to your car battery.
9		Drive Train. Do the following: a. Diagram the drive train and explain the different parts. b. Explain the difference between automatic and standard transmissions. c. Explain the types of automatic transmission fluid. d. Explain the types of lubricants used in a standard transmission and in the differential and transfer case. e. Explain the difference between front-wheel, rear-wheel, and four-wheel drive.
10		Brake System. Do the following; a. Explain the brake system (including anti-lock systems) and how it operates. b. Explain the differences between disc and drum systems. c. Demonstrate how to check the condition of a vehicle's brake system. After checking make recommendations for repairs (if necessary).
11b/c		Do TWO of the following: b. Choose a car cleaner and wax product for a vehicle you want to clean. Explain clear-coat paint and the precautions necessary for care. Clean the vehicle, both inside and out, and wax the exterior. Use a vinyl and rubber protectant (on vinyl tops, rubber door seals, sidewalls, etc.) and explain the importance of the protectant. c. Locate the manufacturer's jack Use the jack to demonstrate how to engage the jack correctly on the vehicle, then change a tire correctly.

12	Written description (150-200 words)	Find out about three career opportunities in the automotive industry. Pick one and find out about the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.
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Day Offered: Wednesday

Time Offered: Afternoon

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the "Note" column is blank, that requirement will be completed at camp.

Fishing is offered on a daily basis. The Merit Badge Counselor will decide one morning and one afternoon during the week to meet with Boy Scouts interested in earning this Merit Badge.

MERIT BADGE – CHEMISTRY

Requirements:

Req. #	Note	Requirement
1		Do EACH of the following activities: a. Describe three examples of safety equipment used in a chemistry laboratory and the reason each one is used. b. Describe what a safety data sheet (SDS) is and tell why it is used. c. Obtain an SDS for both a paint and an insecticide. Compare and discuss the toxicity, disposal, and safe-handling sections for these two common household products. d. Discuss the safe storage of chemicals. How does the safe storage of chemicals apply to your home, your school, your community, and the environment?
2		Do EACH of the following activities: a. Predict what would happen if you placed an iron nail in a copper sulfate solution. Then, put an iron nail in a copper sulfate solution. Describe your observations and make a conclusion based on your observations. Compare your prediction and original conclusion with what actually happened. Write the formula for the reaction that you described. b. Describe how you would separate sand from water, table salt from water, oil from water, and gasoline from motor oil. Name the practical processes that require these kinds of separations. c. Describe the difference between a chemical reaction and a physical change.
3		Construct a Cartesian diver. Describe its function in terms of how gases in general behave under different pressures and different temperatures. Describe how the behavior of gases affects a backpacker at high altitudes and a scuba diver underwater.
4		Do EACH of the following activities: a. 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. b. 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. c. In a clear container, mix a half-cup of water with a tablespoon of oil. Explain why the oil and water do not mix. Find a substance that will help the two combine, and add it to the mixture. Describe what happened, and explain how that substance worked to combine the oil and water.
5	List with definition & description	List the five classical divisions of chemistry. Briefly describe each one, and tell how it applies to your everyday life.
6	Written description for a-d (~150-200 words each)	Do EACH of the following activities: a. Name 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. b. Define pollution. Explain the chemical effects of ozone and global climate change. 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. c. Using reasons from chemistry, describe the effect on the environment of ONE of the following: 1. The production of aluminum cans or plastic milk cartons, 2. Burning fossil fuels, 3. Used motor oil, 4. Newspaper. d. Briefly describe the purpose of phosphates in fertilizer and in laundry detergent. Explain how the use of phosphates in fertilizers affects the environment. Also, explain why phosphates have been removed from laundry detergents.
7	Completed on Thursday @ MSL	Do ONE of the following activities: 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.

Day Offered: Wednesday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor: Nicole Kuzmin-Nichols

Equipment & Supplies Needed:

MERIT BADGE – COMMUNICATIONS

Requirements:

Req. #	Note	Requirement
1		Do ONE of the following: a. For one day, keep a log in which you describe your communication activities. Keep track of the time and different ways you spend communicating, such as talking person-to-person, listening to teachers, the radio, or podcasts, watching television, reading books and other print media, and using any electronic communication device. Discuss with your counselor what your log reveals about the importance of communication in your life. Think of ways to improve your communications skills. b. For three days, keep a journal of your listening experiences. Identify one example of each of the following, and discuss with your counselor when you have listened to: 1. Obtain information. 2. A persuasive argument. 3. Appreciate or enjoy something. 4. Understand someone's feelings. c. In a small-group setting, meet with other scouts or with friends. Have them share personal stories about significant events in their lives that affected them in some way. Take note of how each scout participates in the group discussion and how effectively he communicates his story. Report what you have learned to your counselor about the differences you observed in effective communication. d. List as many ways as you can think of to communicate with others (face-to-face, by telephone, letter, e-mail, text messages, and so on). For each type of communication discuss with your counselor an instance when that method might not be appropriate or effective.
2		Do ONE of the following: a. Think of a creative way to describe yourself, using, for example, a collage, short story or autobiography, drawing or series of photographs, or a <u>song</u> or <u>skit</u> . Using the aid you created, make a presentation to your counselor about yourself. b. Choose a concept, product, or service in which you have great confidence. Build a sales plan based on its good points. Try to persuade the counselor to agree with, use, or buy your concept, product or service. After your sales talk, discuss with your counselor how persuasive you were.
3		Write a five-minute speech. Give it at a meeting of a group.
4		Interview someone you know fairly well, like, or respect because of his or her position, talent, career or life experiences. Listen actively to learn as much as you can about the person. Then prepare and deliver to your counselor an introduction of the person as though this person were to be a guest speaker, and include reasons why the audience would want to hear this person speak. Show how you would call to invite this person to speak.
5		Attend a public meeting (city council, school board, debate) approved by your counselor where several points of view are given on a single issue. Practice active listening skills and take careful notes of each point of view. Prepare an objective report that includes all points of view that were expressed, and share this with your counselor.
6		With your counselor's approval, develop a plan to teach a skill or inform someone about something. Prepare teaching aids for your plan. Carry out your plan. With your counselor, determine whether the person has learned what you intended.
7		Do ONE of the following: a. Write to the editor of a magazine or your local newspaper to express your opinion or share information on any subject you choose. Send your message by fax, email or regular mail. b. Create a web page or blog of special interest to you (for instance, your troop or crew, a hobby, or a sport).. Include at least three articles or entries and one photograph or illustration, and one link to some other Web page or blog that would be helpful to someone who visits the Web page or blog you have created. It is not necessary to post your Web page or blog to the Internet, but if you decide to do so, you must first share it with your parents and counselor and get their permission. c. Use desktop publishing to produce a newsletter, brochure, flier or other printed material for your scout troop, class at school, or other group. Include at least one article and one photograph or illustration.
8		Plan a troop or crew court of honor, campfire program, or an interfaith worship service. Have the patrol leaders' council approve it, then write the script and prepare the program. Serve as master of ceremonies.
9		Find out about three career opportunities in the field of communication. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Day Offered: Wednesday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor: Nicole Kuzmin-Nichols

Equipment & Supplies Needed:

MERIT BADGE – COOKING

Requirements:

Req. #	Note	Requirement
1		<p>Health and safety. Do the following: a. Explain to your counselor the most likely hazards you may encounter while participating in cooking activities and what you should do to anticipate, help prevent, mitigate, and respond to these hazards. b. Show that you know first aid for and how to prevent injuries or illnesses that could occur while preparing meals and eating, including burns and scalds, cuts, choking, and allergic reactions. c. Describe how meat, fish, chicken, eggs, dairy products, and fresh vegetables should be stored, transported, and properly prepared for cooking. Explain how to prevent cross-contamination. d. Discuss with your counselor food allergies, food intolerance, and food-related illnesses and diseases. Explain why someone who handles or prepares food needs to be aware of these concerns. e. Discuss with your counselor why reading food labels is important. Explain how to identify common allergens such as peanuts, tree nuts, milk, eggs, wheat, soy, and shellfish.</p>
2		<p>Nutrition. Do the following: a. Using the MyPlate food guide or the current USDA nutrition model, give five examples for EACH of the following food groups, the recommended number of daily servings, and the recommended serving size: 1. Fruits, 2. Vegetables, 3. Grains, 4. Proteins, 5. Dairy. b. Explain why you should limit your intake of oils and sugars. c. Determine your daily level of activity and your caloric need based on your activity level. Then, based on the MyPlate food guide, discuss with your counselor an appropriate meal plan for yourself for one day. d. Discuss your current eating habits with your counselor and what you can do to eat healthier, based on the MyPlate food guide. e. Discuss the following food label terms: calorie, fat, saturated fat, trans fat, cholesterol, sodium, carbohydrate, dietary fiber, sugar, protein. Explain how to calculate total carbohydrates and nutritional values for two servings, based on the serving size specified on the label.</p>
3		<p>Cooking basics. Do the following: a. Discuss EACH of the following cooking methods. For each one, describe the equipment needed, how temperature control is maintained, and name at least one food that can be cooked using that method: baking, boiling, broiling, pan frying, simmering, steaming, microwaving, grilling, foil cooking, and use of a Dutch oven. b. Discuss the benefits of using a camp stove on an outing vs. a charcoal or wood fire. c. Describe for your counselor how to manage your time when preparing a meal so components for each course are ready to serve at the correct time.</p>
4	Complete @ home	<p>Cooking at home. Using the MyPlate food guide or the current USDA nutrition model, plan menus for three full days of meals (three breakfasts, three lunches, and three dinners) plus one dessert. Your menus should include enough to feed yourself and at least one adult, keeping in mind any special needs (such as food allergies) and how you kept your foods safe and free from cross-contamination. List the equipment and utensils needed to prepare and serve these meals. Then do the following: a. Create a shopping list for your meals showing the amount of food needed to prepare and serve each meal, and the cost for each meal. b. Share and discuss your meal plan and shopping list with your counselor. c. Using at least five of the 10 cooking methods from requirement 3, prepare and serve yourself and at least one adult (parent, family member, guardian, or other responsible adult) one breakfast, one lunch, one dinner, and one dessert from the meals you planned. d. Time your cooking to have each meal ready to serve at the proper time. Have an adult verify the preparation of the meal to your counselor. e. After each meal, ask a person you served to evaluate the meal on presentation and taste, then evaluate your own meal. Discuss what you learned with your counselor, including any adjustments that could have improved or enhanced your meals. Tell how better planning and preparation help ensure a successful meal.</p>
5		<p>Camp cooking. Do the following: a. Using the MyPlate food guide or the current USDA nutrition model, plan five meals for your patrol (or a similar size group of up to eight youth, including you) for a camping trip. Your menus should include enough food for each person, keeping in mind any special needs (such as food allergies) and how you keep your foods safe and free from cross-contamination. These five meals must include at least one breakfast, one lunch, one dinner, AND at least one snack OR one dessert. List the equipment and utensils needed to prepare and serve these meals. b. Create a shopping list for your meals showing the amount of food needed to prepare and serve each meal, and the cost for each meal. c. Share and discuss your meal plan and shopping list with your counselor. d. In the outdoors, using your menu plans for this requirement, cook two of the five meals you planned using either a lightweight stove or a low-impact fire. Use a different cooking method from requirement 3 for each meal. You must also cook a third meal using either a Dutch oven OR a foil pack OR kabobs. Serve all of these meals to your patrol or a group of youth. e. In the outdoors, prepare a dessert OR a snack and serve it to your patrol or a group of youth. f. After each meal, have those you served evaluate the meal on presentation and taste, and then evaluate your own meal. Discuss what you learned with your counselor, including any adjustments that could have improved or enhanced your meals. Tell how planning and preparation help ensure successful outdoor cooking. g. Explain</p>

		to your counselor how you cleaned the equipment, utensils, and the cooking site thoroughly after each meal. Explain how you properly disposed of dishwater and of all garbage. h. Discuss how you followed the Outdoor Code and no-trace principles when preparing your meals.
6		Trail and backpacking meals. Do the following: a. Using the MyPlate food guide or the current USDA nutrition model, plan a menu for trail hiking or backpacking that includes one breakfast, one lunch, one dinner, and one snack. These meals must not require refrigeration and are to be consumed by three to five people (including you). Be sure to keep in mind any special needs (such as food allergies) and how you will keep your foods safe and free from cross-contamination. List the equipment and utensils needed to prepare and serve these meals. b. Create a shopping list for your meals, showing the amount of food needed to prepare and serve each meal, and the cost for each meal. c. Share and discuss your meal plan and shopping list with your counselor. Your plan must include how to repackage foods for your hike or backpacking trip to eliminate as much bulk, weight, and garbage as possible. d. While on a trail hike or backpacking trip, prepare and serve two meals and a snack from the menu planned for this requirement. At least one of those meals must be cooked over a fire, or an approved trail stove (with proper supervision). e. After each meal, have those you served evaluate the meal on presentation and taste, then evaluate your own meal. Discuss what you learned with your counselor, including any adjustments that could have improved or enhanced your meals. Tell how planning and preparation help ensure successful trail hiking or backpacking meals. f. Discuss how you followed the Outdoor Code and no-trace principles during your outing. Explain to your counselor how you cleaned any equipment, utensils, and the cooking site after each meal. Explain how you properly disposed of any dishwater and packed out all garbage.
7		Food-related careers. Find out about three career opportunities in cooking. Select one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Day Offered: Monday

Time Offered: Morning & Afternoon

Location: STEM #

Merit Badge Counselor: Charles Chandler

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If Pre-work has been listed, that should be brought to camp the day the merit badge will be worked on. If the “Note” column is blank, that requirement will be completed at camp.

MERIT BADGE – DISABILITY AWARENESS

Requirements:

Req. #	Note	Requirement
1	Written definitions	Do the following: a. Define and discuss with your counselor the following disabilities awareness terms: disability, accessibility, adaptation, accommodation, invisible disability, and person-first language. b. Explain why proper disability etiquette is important, and how it may differ depending on the specific disability.
2		Visit an agency that works with people with physical, mental, emotional, or educational disabilities. Collect and read information about the agency's activities. Learn about opportunities its members have for training, employment, and education. Discuss what you have learned with your counselor
3		Do TWO of the following: a. Talk with a Scout who has a disability and learn about his experiences taking part in Scouting activities and earning different merit badges. Discuss what you have learned with your counselor. b. Talk with an individual who has a disability and learn about this person's experiences and the activities in which this person likes to participate. Discuss what you have learned with your counselor c. Learn how people with disabilities take part in a particular adaptive sport or recreational activity. Discuss what you have learned with your counselor.
4	Complete either Option A or B. Write ~250 words for each location	Do EITHER option A or option B: Option A. Visit TWO of the following locations and take notes about the accessibility to people with disabilities. In your notes, give examples of five things that could be done to improve upon the site and five things about the site that make it friendly to people with disabilities. Discuss your observations with your counselor. a. Your school. b. Your place of worship. c. A Scouting event or campsite. d. A public exhibit or attraction (such as a theater, museum, or park). Option B. Visit TWO of the following locations and take notes while observing features and methods that are used to accommodate people with invisible disabilities. While there, ask staff members to explain any accommodation features that may not be obvious. Note anything you think could be done to better accommodate people who have invisible disabilities. Discuss your observations with your counselor. a. Your school. b. Your place of worship. c. A Scouting event or campsite. d. A public exhibit or attraction (such as a theater, museum, or park).
5		Explain what advocacy is. Do ONE of the following advocacy activities: a. Present a counselor approved disabilities awareness program to a Cub Scout pack or other group. During your presentation, explain and use person first language.
6		Make a commitment to your merit badge counselor describing what you will do to show a positive attitude about people with disabilities and to encourage positive attitudes among others. Discuss how your awareness has changed as a result of what you have learned.
7	Bring list of professions. Write ~150 words about 1 of them	Name five professions that provide services to people with disabilities. Pick one that interests you and find out the education, training, and experience required for this profession. Discuss what you learn with your counselor, and tell why this profession interests you.

Day Offered: Tuesday

Time Offered: Afternoon

Location: STEM #

Merit Badge Counselor: Nicole Kuzmin-Nichols

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the “Note” column is blank, that requirement will be completed at camp.

MERIT BADGE – FINGERPRINTING

Requirements:

Req. #	Note	Requirement
1		Give a short history of fingerprinting. Tell the difference between civil and criminal identification.
2		Explain the difference between the automated fingerprint identification systems (AFIS) now used by some law enforcement agencies and the biometric fingerprint systems used to control access to places like buildings, airports, and computer rooms.
3		Do the following: a. Name the surfaces of the body where friction or papillary ridges are found. b. Name the two basic principles supporting the science of fingerprints and give a brief explanation of each principle. c. Explain what it takes to positively identify a person using fingerprints.
4		Take a clear set of prints using ONE of the following methods: a. Make both rolled and plain impressions. Make these on an 8-by-8-inch fingerprint identification card available from your local police department or counselor. b. Using clear adhesive tape, a pencil, and plain paper, record your own fingerprints or those of another person.
5		Show your merit badge counselor you can identify the three basic types of fingerprint patterns and their subcategories. Using your own hand, identify the types of patterns you see.

Day Offered: Wednesday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the “Note” column is blank, that requirement will be completed at camp.

MERIT BADGE – FISHING

Requirements:

Req. #	Note	Requirement
1		Do the following: a. Explain to your counselor the most likely hazards you may encounter while participating in fishing activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards. b. Discuss the prevention of and treatment for the following health concerns that could occur while fishing, including cuts and scratches, puncture wounds, insect bites, hypothermia, dehydration, heat exhaustion, heatstroke, and sunburn. c. Explain how to remove a hook that has lodged in your arm. d. Name and explain five safety practices you should always follow while fishing.
2		Discuss the differences between two types of fishing outfits. Point out and identify the parts of several types of rods and reels. Explain how and when each would be used. Review with your counselor how to care for this equipment.
3		Demonstrate the proper use of two different types of fishing equipment.
4		Demonstrate how to tie the following knots: improved clinch knot, Palomar knot, uni knot, uni to uni knot, and arbor knot. Explain how and when each knot is used.
5		Name and identify five basic artificial lures and five natural baits and explain how to fish with them. Explain why bait fish are not to be released.
6		Do the following: a. Explain the importance of practicing Leave No Trace techniques. Discuss the positive effects of Leave No Trace on fishing resources. b. Discuss the meaning and importance of catch and release. Describe how to properly release a fish safely to the water.
7		Obtain and review the regulations affecting game fishing where you live. Explain why they were adopted and what you accomplish by following them.
8		Explain what good outdoor sportsmanlike behavior is and how it relates to anglers. Tell how the Outdoor Code of the Boy Scouts of America relates to a fishing sports enthusiast, including the aspects of littering, trespassing, courteous behavior, and obeying fishing regulations.
9		Catch at least one fish and identify it.
10	Complete @ home	If regulations and health concerns permit, clean and cook a fish you have caught. Otherwise, acquire a fish and cook it. (You do not need to eat your fish.)

Day Offered:

Time Offered:

Location: STEM

Merit Badge Counselor: Paul McMillian

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the “Note” column is blank, that requirement will be completed at camp.

Fishing is offered on a daily basis. The Merit Badge Counselor will decide one morning and one afternoon during the week to meet with Boy Scouts interested in earning this Merit Badge.

MERIT BADGE – GEOLOGY

Requirements:

Req. #	Note	Requirement
1		Define geology. Discuss how geologists learn about rock formations. In geology, explain why the study of the present is important to understanding the past.
2		Pick three resources that can be extracted or mined from Earth for commercial use. Discuss with your counselor how each product is discovered and processed.
3		Review a geologic map of your area or an area selected by your counselor, and discuss the different rock types and estimated ages of rocks represented. Determine whether the rocks are horizontal, folded, or faulted, and explain how you arrived at your conclusion.
4a		Do ONE of the following: a. With your parent's and counselor's approval, visit with a geologist, land use planner, or civil engineer. Discuss this professional's work and the tools required in this line of work. Learn about a project that this person is now working on, and ask to see reports and maps created for this project. Discuss with your counselor what you have learned.
5C		Complete ONE of the options listed below A, B, C, or D. c. Mineral Resources Option. 1. Define rock. Discuss the three classes of rocks including their origin and characteristics. 2. Define mineral. Discuss the origin of minerals and their chemical composition and identification properties, including hardness, specific gravity, color, streak, cleavage, luster, and crystal form. 3. Do ONE of the following: a. Collect 10 different rocks or minerals. Record in a notebook where you obtained (found, bought, traded) each one. Label each specimen, identify its class and origin, determine its chemical composition, and list its physical properties. Share your collection with your counselor. 4. List three of the most common road building materials used in your area. Explain how each material is produced and how each is used in road building. 5. Do ONE of the following activities: b. With your counselor, choose two examples of rocks and two examples of minerals. Discuss the mining of these materials and describe how each is used by society.

Day Offered: Wednesday

Time Offered: Afternoon

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the "Note" column is blank, that requirement will be completed at camp.

MERIT BADGE – GAME DESIGN

Requirements:

Req. #	Note	Requirement
1	Written description (150-200 words)	Do the following: a. Analyze four games you have played, each from a different medium. Identify the medium, player format, objectives, rules, resources, and theme (if relevant). Discuss with your counselor the play experience, what you enjoy in each game, and what you dislike. Make a chart to compare and contrast the games. b. Describe four types of play value and provide an example of a game built around each concept. Discuss with your counselor other reasons people play games.
2		Discuss with your counselor five of the following 17 game design terms. For each term that you pick, describe how it relates to a specific game. Thematic game elements: story, setting, characters. Gameplay elements: play sequence, level design, interface design. Game analysis: difficulty, balance, depth, pace, replay value, age appropriateness. Related terms: single-player vs. multiplayer, cooperative vs. competitive, turn-based vs. real-time, strategy vs. reflex vs. chance, abstract vs. thematic
3		Define the term intellectual property. Describe the types of intellectual property associated with the game design industry. Describe how intellectual property is protected and why protection is necessary. Define and give an example of a licensed property.
4		Do the following: a. Pick a game where the players can change the rules or objectives (examples: basketball, hearts, chess, kickball). Briefly summarize the standard rules and objectives and play through the game normally. b. Propose changes to several rules or objectives. Predict how each change will affect gameplay. c. Play the game with one rule or objective change, observing how the players' actions and emotional experiences are affected by the rule change. Repeat this process with two other changes. d. Explain to your counselor how the changes affected the actions and experience of the players. Discuss the accuracy of your predictions.
5	Written description & sketch	Design a new game. Any game medium or combination of mediums is acceptable. Record your work in a game design notebook. a. Write a vision statement for your game. Identify the medium, player format, objectives, and theme of the game. If suitable, describe the setting, story, and characters. b. Describe the play value. c. Make a preliminary list of the rules of the game. Define the resources. d. Draw the game elements.
6		Do the following: a. Prototype your game from requirement 5. If applicable, demonstrate to your counselor that you have addressed player safety through the rules and equipment. Record your work in your game design notebook. You must have your merit badge counselor's approval of your concept before you begin creating the prototype. b. Test your prototype with as many other people as you need to meet the player format. Compare the play experience to your descriptions from requirement 5b. Correct unclear rules, holes in the rules, dead ends, and obvious rule exploits. Change at least one rule, mechanic, or objective from your first version of the game, and describe why you are making the change. Play the game again. Record in your game design notebook whether or not your change had the expected effect. c. Repeat 6b at least two more times and record the results in your game design notebook.
7		Blind test your game. Do the following: a. Write an instruction sheet that includes all of the information needed to play the game. Clearly describe how to set up the game, play the game, and end the game. List the game objectives. b. Share your prototype from requirement 6a with a group of players that has not played it or witnessed a previous playtest. Provide them with your instruction sheet(s) and any physical components. Watch them play the game, but do not provide them with instruction. Record their feedback in your game design notebook. c. Share your game design notebook with your counselor. Discuss the player reactions to your project and what you learned about the game design process. Based on your testing, determine what you like most about your game and suggest one or more changes.
8b	Written description (150-200 words)	Do ONE of the following: a. With your parent's permission and your counselor's approval, visit with a professional in the game development industry and ask him or her about his or her job and how it fits into the overall development process. Alternately, meet with a professional in game development education and discuss the skills he or she emphasizes in the classroom. b. List three career opportunities in game development. Pick one and find out about the education, training, and experience required for the profession. Discuss this with your counselor. Explain why this profession might interest you.

Day Offered: Tuesday

Time Offered: Afternoon

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the “Note” column is blank, that requirement will be completed at camp.

MERIT BADGE – ROBOTICS

Requirements:

Req. #	Note	Requirement
1	Written description (150-200 words)	Safety. Do each of the following: a. Explain to your counselor the most likely hazards you may encounter while working with robots and what you should do to anticipate, mitigate and prevent, and respond to these hazards. Describe the appropriate safety gear and clothing that should be used when working with robotics. b. Discuss first aid and prevention for the types of injuries that could occur while participating in robotics activities and competitions, including cuts, eye injuries, and burns (chemical or heat).
2	Written description (150-200 words)	Robotics industry. Discuss the following with your counselor: a. The kinds of things robots can do and how robots are best used today. b. The similarities and differences between remote-control vehicles, telerobots, and autonomous robots. c. Three different methods robots can use to move themselves other than wheels or tracks. Describe when it would be appropriate to use each method.
3	Written description (150-200 words)	General knowledge. Discuss with your counselor three of the five major fields of robotics (human-robot interface, mobility, manipulation, programming, sensors) and their importance to robotics development. Discuss either the three fields as they relate to a single robot system OR talk about each field in general. Find pictures or at least one video to aid in your discussion.
4		Design, build, program, test. Do each of the following: a. With your counselor's approval, choose a task for the robot or robotic subsystem that you plan to build. Include sensor feedback and programming in the task. Document this information in your robot engineering notebook. b. Design your robot. The robot design should use sensors and programming and have at least 2 degrees of freedom. Document the design in your robot engineering notebook using drawings and a written description. c. Build a robot or robotic subsystem of your original design to accomplish the task you chose for requirement 4a. d. Discuss with your counselor the programming options available for your robot. Then do either option 1 OR option 2. (1) Option 1. Program your robot to perform the task you chose for your robot in 4a. Include a sample of your program's source code in your robot engineering notebook. e. Test your robot and record the results in your robot engineering notebook. Include suggestions on how you could improve your robot, as well as pictures or sketches of your finished robot.
5		Demonstrate. Do the following: a. Demonstrate for your counselor the robot you built in requirement 4. b. Share your robot engineering notebook with your counselor. Talk about how well your robot accomplished the task, the improvements you would make in your next design, and what you learned about the design process.
6b		Competitions. Do ONE of the following. b. Learn about three youth robotics competitions. Tell your counselor about these, including the type of competition, time commitment, age of the participants, and how many teams are involved.
7	Written description (150-200 words)	Careers. Name three career opportunities in robotics. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Day Offered: Friday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor: Nicole Kuzmin-Nichols

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the "Note" column is blank, that requirement will be completed at camp.

MERIT BADGE – SOIL & WATER CONSERVATION

Requirements:

Req. #	Note	Requirement
1	Written description (150-200 words)	Do the following: a. Tell what soil is. Tell how it is formed. b. Describe three kinds of soil. Tell how they are different. c. Name the three main plant nutrients in fertile soil. Tell how they can be put back when used up.
2	Bring in pictures or drawing for 2d	Do the following: a. Define soil erosion. b. Tell why soil conservation is important. Tell how it affects you. c. Name three kinds of soil erosion. Describe each. d. Take pictures of or draw two kinds of soil erosion.
3	Bring in pictures or drawing for 3c	Do the following: a. Tell what is meant by "conservation practices". b. Describe the effect of three kinds of erosion-control practices. c. Take pictures of or draw three kinds of erosion-control practices.
4		Do the following: a. Explain what a watershed is. b. Outline the smallest watershed that you can find on a contour map. c. Outline, as far as the map will allow, the next larger watershed which also has the smaller one in it. d. Explain what a river basin is. Tell why all people living in a river basin should be concerned about land and water use in the basin. e. Explain what an aquifer is and why it can be important to communities.
5		Do the following: a. Make a drawing to show the hydrologic cycle. b. Demonstrate at least two of the following actions of water in relation to the soil: percolation, capillary action, precipitation, evaporation, transpiration. c. Explain how removal of vegetation will affect the way water runs off a watershed. d. Tell how uses of forest, range, and farmland affect usable water supply. e. Explain how industrial use affects water supply.
6		Do the following: a. Tell what is meant by water pollution. b. Describe common sources of water pollution and explain the effects of each. c. Tell what is meant by "primary water treatment," "secondary waste treatment," and "biochemical oxygen demand." d. Make a drawing showing the principles of complete waste treatment.
7d/e	7e: Written description (150-200 words)	Do TWO of the following: d. Study a soil survey report. Describe the things in it. Using tracing paper and pen, trace over any of the soil maps, and outline an area with three or more different kinds of soil. List each kind of soil by full name and map symbol. e. Make a list of places in your neighborhood, camps, school ground, or park having erosion, sedimentation, or pollution problems. Describe how these could be corrected through individual or group action.

Day Offered: Thursday

Time Offered: Afternoon

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the "Note" column is blank, that requirement will be completed at camp.

MERIT BADGE – WOODWORK

Requirements:

Req. #	Note	Requirement
1	Must have Totin' Chip to participate	Do the following: a. Show that you know first aid for injuries that could occur while woodworking, including splinters, scratches, cuts, severe bleeding, and shock. Tell what precautions must be taken to help prevent loss of eyesight or hearing, and explain why and when it is necessary to use a dust mask. b. Earn the Totin' Chip recognition. c. Tell your counselor what precautions you take to safely use your tools.
2		Do the following: a. Describe how timber is grown, harvested, and milled. Tell how lumber is cured, seasoned, graded, and sized. b. Collect and label blocks of six kinds of wood useful in woodworking. Describe the chief qualities of each. Give the best uses of each.
3	Will assist in set-up & clean-up for Build It Adventure	Do the following: a. Show proper care, use, and storage of all working tools and equipment that you own or use at home or school. b. Sharpen correctly the cutting edges of two different tools.
4		Using a saw, plane, hammer, brace, and bit, make something useful of wood. Cut parts from lumber that you have squared and measured from working drawings.
5		Create your own carpentry project. List the materials you will need to complete your project, and then build your project. Keep track of the time you spend and the cost of the materials.
6c/d		Do any TWO of the following c. Make a cabinet, box or something else with a door or lid fastened with inset hinges. d. Help make and repair wooden toys for underprivileged children; OR help carry out a carpentry service project approved by your counselor for a charitable organization.
7		Talk with a cabinetmaker or carpenter. Find out about the training, apprenticeship, Career opportunities, work conditions, pay rates, and union organization for woodworking experts in your area.

Day Offered: Monday, Friday

Time Offered: Afternoon

Location: STEM #

Merit Badge Counselor: Alexander Kuzmin

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If Pre-work has been listed, that should be brought to camp the day the merit badge will be worked on. If the "Note" column is blank, that requirement will be completed at camp.

Boy Scouts working on this Merit Badge will participate.

NOVA – LET IT GROW!

Requirements:

Req. #	Note	Requirement
1C	Bring Reading or Viewing Log & Questions	Choose A or B or C and complete ALL the requirements. C. Do a combination of reading and watching (about three hours total) about anything related to agriculture or farming. Then do the following: 1. Make a list of at least two questions or ideas from each article or show. 2. Discuss two of the questions or ideas with your counselor. Some examples include—but are not limited to—shows found on PBS ("NOVA"), Discovery Channel, Science Channel, National Geographic Channel, TED Talks (online videos), and the History Channel. You may choose to watch a live performance or movie at a planetarium or science museum instead of watching a media production. You may watch online productions with your counselor's approval and under your parent's supervision; appropriate websites include: http://www.americasheartland.org/ and http://www.neok12.com/Agriculture.htm .
2	Animal Science Fishing Soil & Water Conservation Completed @ camp this week.	Choose ONE merit badge from the following list. (Choose one you have not already used for another Nova award.) After completion, discuss with your counselor how the merit badge you earned uses agriculture.
3B/C		Act like a farmer! Think about crops or animals that are found on a farm, and think about the different kinds of farms. Then choose TWO from A or B or C. B. Define and learn about two of the following, and discuss with your counselor. 2. Conventional, organic, and biotech farming (compare and contrast). 4. Converting biomass into energy. C. Do an "agriscience" experiment and discuss the results with your counselor.
4	Written description of visit (150-200 words)	Visit a farm, botanical garden, grocery store, or any other location where farm produce can be found. If a visit is not possible, you can do a virtual tour online with your parent's permission and counselor's approval. A. During your visit, talk with someone in charge about how the plants are grown or animals are raised, and how the food is processed. Discuss with your counselor the food science involved at the place you visited.
5		Discuss with your counselor how farming affects your everyday life.

Day Offered: Monday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Biodiesel Starter Kit

Safety Goggles

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the "Note" column is blank, that requirement will be completed at camp.

SUPERNOVA – SCIENCE TOPIC

Household Chemistry: Diet Coke & Mentos Explosions

Requirements:

Req. #	Note	Requirement
1	Written description & Reference List for Part #1 (150-200 words)	<p>Part 1: Research and Experiment Design</p> <p>Research this Diet Coke and Mentos phenomenon by doing the following:</p> <ol style="list-style-type: none"> 1. Find out what others have discovered about how and why this experiment works. Note who discovered what about the experiment. Keep track of your references and resources. 2. Formulate a hypothesis that you would like to test. 3. Design an experiment to test your hypothesis. Be sure to get approval from your mentor prior to conducting your experiment. Make sure your plans for the experiment include an outside location, a list of supplies needed (which should be inexpensive, readily available, and safe), adequate safety protocols and equipment (safety goggles, etc.), plans for accurate and precise measurements, a list of step-by- step procedures, number of trials, and plans for recording and analysis of data.
2		<p>Part 2: Experiment and Report</p> <p>Conduct your experiment. You might want to videotape your experimental trials and include some video clips in your final report.</p> <ol style="list-style-type: none"> 1. Discuss the following with your mentor: <ol style="list-style-type: none"> A. What happened during the experiment. B. How the evidence supported or contradicted your hypothesis. C. Whether the experiment raised any new questions for you. D. Whether something unexpected happened during the experiment. Tell how what happened might suggest about a future experiment on this same phenomenon. 2. Create a report that describes your hypothesis, experiment, and conclusions. (For guidance, see “Report Format Options” earlier in this section.)

Day Offered: Friday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the “Note” column is blank, that requirement will be completed at camp.

SUPERNOVA – MATHEMATICS TOPIC

A Paradox of Counting: Voting Methods & Fair Decisions

Requirements:

Req. #	Note	Requirement
1	Written description & Reference List for Part C (150-200 words)	<p>Part 1: Ballot Setup, Gathering, and Tabulating Decide on four superactivities that your unit would genuinely be interested in doing next summer. Aim for four genuine options, none of which is likely to receive a majority of the votes. Discuss these options with your mentor before doing the following:</p> <p>A. Create ballots on which each voter can list his/her first, second, third, and fourth choices from among the four prospective superactivities.</p> <p>B. Find 20 to 30 unit members, prospective guests for the superactivity, unit leaders, parents, and so on, to complete one ballot each. Each voter should vote sincerely, without trying to strategize.</p> <p>C. Do some research and learn how to tabulate winners using each of the following four voting methods:</p> <ol style="list-style-type: none"> 1. Plurality method. 2. Borda count method. 3. Plurality-with-elimination method (sometimes called the instant runoff method). 4. Pair-wise comparison method (sometimes called Copeland's method)
2	Written description & Reference List for Part D (150-200 words)	<p>Part 2: Analysis and Report</p> <p>1. As you tabulate the results using each voting method, evaluate each method and discuss the following with your mentor.</p> <ol style="list-style-type: none"> A. What do you notice? How fair is each method? B. How would the results be affected if two or three voters had cast strategic ballots (instead of sincere ballots), in an effort to "not waste their votes"? C. Which of the four voting methods do you believe is the right voting method for this decision in your unit? Why? D. Consider how we elect the president of the United States of America. <ol style="list-style-type: none"> 1. What voting method do we use? 2. What are its advantages and disadvantages? 3. Do you believe each voting citizen in the United States has an equal say in the vote tabulation? 4. Is it possible for citizens to cast strategic votes and influence the outcome of a presidential election? <p>2. Create a report that summarizes the results from the various voting methods, outlines your analysis, and comments on voting methods for the U.S. presidency. Share your report with your mentor.</p>

Day Offered: Thursday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

Boy Scouts are expected to have read the Merit Badge pamphlet and be prepared to discuss, show, or demonstrate the requirements as indicated in the requirements. If the "Note" column is blank, that requirement will be completed at camp.

SUPERNOVA – BERNARD HARRIS

Requirements:

Req. #	Note	Requirement
1	NOVA-Let It Grow @ camp and must show Applicant's completed STEM Blue Card for other 2	Complete any three of the Boy Scout Nova awards. (Note: These may be done at any time after becoming a Boy Scout.)
2	Please bring Applicant's completed Blue Card	Earn the Scholarship merit badge.
3	Please bring Applicant's completed Blue Cards, unless Merit Badges are completed @ camp this week	Earn four of the Supernova approved merit badges from the list. (Note: These may be earned at any time after becoming a Boy Scout.) Note: One merit badge cannot be used for multiple NOVA Awards. Merit Badges: Animal Science, Archaeology, Architecture, Astronomy, Automotive Maintenance, Aviation, Bird Study, Chemistry, Composite Materials, Computers, Dentistry, Drafting, Electricity, Electronics, Energy, Engineering, Environmental Science, Farm Mechanics, Fish & Wildlife Management, Forestry, Geocaching, Geology, Insect Study, Inventing, Mammal Study, Medicine, Nature, Nuclear Science, Oceanography, Plant Science, Pulp & Paper, Radio, Reptile & Amphibian Study, Robotics, Scuba Diving, Soil & Water Conservation, Space Exploration, Surveying, Veterinary Medicine, Weather, Welding.
4	Science & Math Completed @ camp or must show STEM Blue Card if previously completed	Complete TWO Supernova activity topics , one each in two different STEM areas. A Supernova activity topic is a two-part, hands-on, high-level activity related to one of the STEM fields. Part 1 involves research, preparation, set up, coordination, and/or organization. Part 2 involves analysis and reflection, culminating in the creation of a report in any one of the available format options. See the "Supernova Activity Topics" chapter.
5	Be prepared to provide the name of the competition date, your role, & results	Participate in a local, state, or national science fair or mathematics competition OR in any equally challenging STEM-oriented competition or workshop approved by your mentor. An example of this would be an X-Prize type competition.
6B	May use information from the several STEM researchers visiting during the week	Do ONE of the following: B. Learn about a career that is heavily involved with STEM. Make a presentation to your mentor about what you learned.
7		Working with your mentor, organize and present a Nova award or other STEM-related program to a Cub Scout den or pack meeting. Be sure to receive approval from the appropriate unit leader and agree on a time and place for the presentation. If a Cub Scout den or pack is not available, your presentation may be given to another youth group, such as your troop or at your place of worship.
8	Presentation for Supernova Mentor can be either written or oral. If written, length should be approximately 3-5 typed pages. If oral, presentation talk should be about 10 minutes and slides are encouraged	Review the scientific method (you may know this as the scientific process) and note how scientists establish hypotheses, theories, and laws. Compare how the establishment of "facts" or "rules" using the scientific method differs from the establishment of "facts" or "rules" in other environments, such as legal, cultural, religious, military, mathematical, or social environments. Then do the following: A. Choose a modern scientific subject with at least two competing theories on the subject and learn as much as possible about each theory. B. Analyze the competing theories, decide which one is most convincing to you, and explain why to your mentor. C. Make a presentation to your mentor that describes the controversy, the competing theories, and your conclusions about how the scientific method can or cannot contribute to the resolution of the controversy.
9		Submit a Supernova Award Application to the district or council Nova or advancement committee for approval.

Day Offered: Friday

Time Offered: Morning

Location: STEM #

Merit Badge Counselor:

Equipment & Supplies Needed:

Set-up:

Additional Information & Instructions:

If you thrive on challenge, then earning the Supernova award will be right up your alley. To be eligible, you must be a First Class Scout or higher. As a prerequisite, you must first earn any three of the four Nova awards for Boy Scouts. With your parent's and unit leader's help, you must select a council-approved mentor who is a registered Scouter. You may NOT choose your parent or your unit leader (unless the mentor is working with more than one youth).

The Boy Scout Supernova awards recognize superior achievement by a Boy Scout in the fields of science, technology, engineering, and mathematics (STEM). All experiments or projects should be conducted using the highest level of safety protocol and always under the supervision of a qualified, responsible adult. The Scout should always have a buddy when meeting with his counselor or mentor.

The majority of the work required for this award is not intended to be completed solely at camp. Opportunities will be available at camp to work on portions of this award under the guidance of a Supernova Mentor, who will be available to certify any portion of the award completed at camp. Scouts who have additional requirements completed outside of camp and need to meet with a Supernova Mentor for certification of those requirements, including the Supernova Application, will have the opportunity to meet with a Supernova Mentor.