

■ Handicraft

➤ [American Indian Culture](#)

- No Pre-Reqs

➤ [Animation//Art](#)

- Art #6 - With your parent or guardian's permission and your counselor's approval, visit a museum, art exhibit, art gallery, artists' co-op, or artist's workshop. Find out about the art displayed or created there. Discuss what you learn with your counselor.

➤ [Basketry](#)

- No Pre-Reqs

➤ [Chess](#)

- 1(b) - Research a famous chess player and what accomplishments made him or her famous. Discuss with your counselor.

➤ [Game Design](#)

- 8(a) - With your parent or guardian's permission and your counselor's approval, visit with a professional in the game development industry and ask them about their job and how it fits into the overall development process.

OR

8(b) - Meet with a professional in game development education and discuss the skills they emphasize in the classroom.

➤ [Leatherwork](#)

- No Pre-Reqs

➤ [Model Design & Building](#)

- 6 - Careers. Explore careers related to this merit badge. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. Your research methods may include—with your parent or guardian's permission—an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and what about this profession might make it an interesting career.

➤ [Wood Carving](#)

- 2(a) Earn the Totin' Chip recognition.

We offer this as an Evening Program on Monday night at Scoutcraft for any scouts who do not have it, taking it on Monday night should not cause them to fall behind in the class

■ Eagle's Nest

➤ [Camping](#)

- 4(a) - Make a duty roster showing how your patrol is organized for an actual overnight campout. List assignments for each member.

- 4(b) - Help a Scout patrol or a Webelos Scout unit in your area prepare for an actual campout, including creating the duty roster, menu planning, equipment needs, general planning, and setting up camp.
- 5(e) - Present yourself to your Scoutmaster with your pack for inspection. Be correctly clothed and equipped for an overnight campout.
- 7(a) - Make a checklist of personal and patrol gear that will be needed.
- 7(b) - Pack your own gear and your share of the patrol equipment and food for proper carrying. Show that your pack is right for quickly getting what is needed first, and that it has been assembled properly for comfort, weight, balance, size, and neatness.
- 8(c) - Prepare a camp menu. Explain how the menu would differ from a menu for a backpacking or float trip. Give recipes and make a food list for your patrol. Plan two breakfasts, three lunches, and two suppers. Discuss how to protect your food against bad weather, animals, and contamination.
- 8(d) - While camping in the outdoors, cook at least one breakfast, one lunch, and one dinner for your patrol from the meals you have planned for requirement 8(c). At least one of those meals must be a trail meal requiring the use of a lightweight stove.
- 9(a) - Camp for at least 20 nights at designated Scouting activities or events. One long-term camping experience of up to six consecutive nights may be applied toward this requirement. Two nights may be counted toward the total for each additional long-term camping trip. Each night must be spent either under the sky, in a tent you have pitched yourself (if a tent is provided and already set up, you do not need to pitch your own), in a hammock that is safely strung outdoors, in a lean-to, or other three-sided shelter with an open front. Nights spent in indoor lock-in events, cabin camping, hotel stays, or other covered accommodations do not count toward the 20 nights.
- 9(b) On any of these camping experiences, you must do TWO of the following, only with proper preparation and under qualified supervision.
 - 1 - Hike up a mountain, gaining at least 1,000 vertical feet.
 - 2 - Backpack, snowshoe, or cross-country ski for at least 4 miles.
 - 3 - Take a bike trip of at least 15 miles or at least four hours.
 - 4 - Take a nonmotorized trip on the water of at least four hours or 5 miles.
 - 5 - Plan and carry out an overnight snow camping experience.
 - 6 - Rappel down a rappel route of 30 feet or more.
- 9(c) - On any of these camping experiences, perform a conservation project approved by the landowner or land managing agency. This can be done alone or with others.

➤ [Citizenship in the Nation](#)

- 5 - Watch the national evening news for five days in a row or read the main stories in a national media organization (e.g., a newspaper or news website) for five days in a row. Discuss the national issues that you learned about with your

counselor. Choose one issue and explain how it affects you, your family, and community.

- 7 - Do TWO of the following:
 - a - Visit a place that is listed as a National Historic Landmark or that is on the National Register of Historic Places. Tell your counselor what you learned about the landmark or site and what you found interesting about it.
 - b - Tour your state capitol building or the U.S. Capitol. Tell your counselor what you learned about the capitol, its function, and the history.
 - c - Tour a federal facility. Explain to your counselor what you saw and what you learned about its function in the local community and how it serves this nation.
 - d - Choose a United States national monument that interests you. Using books, brochures, the internet (with your parent or guardian's permission), and other resources, find out more about the monument. Tell your counselor what you learned, and explain why the monument is important to this country's citizens.
- 8 - Name your representatives in the United States Congress. Write to your representative in Congress explaining your views on a national issue. Show your correspondence, along with any response you receive, to your counselor.

➤ Citizenship in the World

- 7 - Do TWO of the following:
 - a - Visit the website of the U.S. State Department. Learn more about an issue you find interesting that is discussed on this website.
 - b - Visit the website of an international news organization or foreign government, OR examine a foreign newspaper available at your local library, bookstore, or newsstand. Find a news story about a human right realized in the United States that is not recognized in another country.
 - c - Visit with a student or Scout from another country and discuss the typical values, holidays, ethnic foods, and traditions practiced or enjoyed there.
 - d - Attend or participate in a World Organization of the Scouting Movement (WOSM) event such as the World Scout Jamboree, World Scout Moot, World Scout Congress, Jamboree Over The Air, or Jamboree Over The Internet. Attendance at a national or regional Jamboree sponsored by a WOSM-National Scout Organization is also allowed.
 - e - Participate in or attend an international event in your area, such as an ethnic festival, concert, or play.

➤ Communication

- 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.
- 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 webpage 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 webpage or blog that would be helpful to someone who visits the webpage or blog you have created. Note: It is not necessary to post your webpage or blog to the internet, but if you decide to do so, you must first share it with your parent or guardian and counselor and get their permission.

c - Use desktop publishing to produce a newsletter, brochure, flyer, or other printed material for your troop or crew, 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.

➤ Cooking

- 2(c) - Track your daily level of activity and your daily caloric need based on your activity for five days. Then, based on the MyPlate food guide, discuss with your counselor an appropriate meal plan for yourself for one day.

- 4 - Cooking at Home - All requirements 4a-f

- 6 - Trail and Backpacking Meals - All requirements 6a-f

- 7 - Do ONE of the following

a - Identify three career opportunities that would use skills and knowledge in cooking. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

b - Identify how you might use the skills and knowledge in cooking to pursue a personal hobby or healthy lifestyle. Research the additional training required, expenses, and affiliation with organizations that would help you maximize the enjoyment and benefit you might gain from it. Discuss what you learned with your counselor and share what short-term and long-term goals you might have if you pursued this.

➤ Emergency Preparedness

- 2(a) - At a family meeting, discuss the situations on the chart you created for requirement 1(b) and make emergency plans for sheltering-in-place and for evacuation of your home. Discuss your family meeting and plans with your counselor.

- 2(b) - Develop and practice a plan of escape for your family in case of fire in your home. Draw a floor plan with escape routes and a map with a safe meeting place. Discuss your family's home escape plan with your counselor.

- 2(c) - Using a checklist in the Emergency Preparedness merit badge pamphlet or one approved by your counselor, prepare or inspect a family disaster kit for sheltering-in-place and for evacuation of your home. Review the needs and uses of the items in a kit with your counselor.
- 8(c) - Using a checklist in the Emergency Preparedness merit badge pamphlet or one approved by your counselor, prepare or inspect a personal emergency service pack for a mobilization call. Explain the needs and uses of the contents to your counselor.
- 9 - **First Aid Merit Badge.** Earn the First Aid merit badge.
- 10 - Do ONE of the following:
 - a - Interview an emergency services coordinator or a civil servant about their work in disaster management. Learn about how they chose this career and about their duties. Discuss what you learned with your counselor and whether you might be interested in this career.
 - b - Identify three career opportunities that would use skills and knowledge in emergency services. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities, and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.
 - c - Identify how you might use the skills and knowledge in the field of emergency preparedness to pursue a personal hobby and/or healthy lifestyle. Research the additional training required, expenses, and affiliation with organizations that would help you maximize the enjoyment and benefit you might gain from it. Discuss what you learned with your counselor and share what short-term and long-term goals you might have if you pursued this.

➤ [First Aid](#)

- 2(b)(1) - Assemble a personal first-aid kit for hiking and backpacking. Demonstrate the proper use of each item in your first-aid kit to your counselor.

➤ [Personal Fitness//Athletics](#)

- ***Camp Powhatan Note:** Requirement 7 is not true a pre-req for Personal Fitness
We recommend this badge be completed after camp, not before.
We will go over Requirements 4, 5, and 6 in the class but 7 will have to be completed after.
If you and your scout choose to have the scout complete requirement 7 as a pre-req before camp 4, 5, and 6 must also be completed before camp as pre-reqs
- Personal Fitness**
- 7(a) - Complete and keep a log, over 12 consecutive weeks, of the physical fitness and nutrition program you have outlined. (If your program is interrupted by illness or unavoidable conflicts for less than two weeks, you may resume where you left off, adding the missed days or weeks at the end).

- 7(b) - During week 4 and week 8 of your program, repeat the assessments you did in requirement 5(a) before you began. Repeat the same tests for a final assessment within two weeks after completing the 12-week program. Show improvement over your pre-assessment results.
- 7(c) - For three days during week 8, and again during week 12, keep a log of what you eat and drink. Show improvement toward the diet and nutrition goals you set in requirement 5(d).
- 7(d) - Discuss your results, improvements, insights, and experiences with your counselor after completing the program and assessments.
- 8 - Do ONE of the following
 - a - Explore three careers related to personal fitness. Research one career area by interviewing an expert in the field, visiting a site, or using other resources. Learn about training, education, expenses, job outlook, salary, and advancement. Discuss your findings and career interest with your counselor.
 - b - Explore how an area of personal fitness could contribute to a hobby or healthy lifestyle. Research education, costs, and organizations related to this activity. Discuss your findings and goals with your counselor.

Athletics

- 3 - Select an athletic activity that interests you, then do the following:
 - 3(a) - With guidance from your counselor, establish a personal training program suited to the activity you have chosen. Follow this training program for three months.
 - 3(b) - Use a chart or other tracking method to monitor your progress during this time.
 - 3(d) - At the end of three months, review your records from requirement 3(b), and discuss with your counselor what progress you have made during training. Tell how your development has affected you mentally and physically.
- 5 - Complete the activities in FOUR of the following options and show improvement over a three-month period:
Options can be found on Merit Badge Website to save space
- 6(b) - With your parent or guardian's and counselor's approval, serve as an official or volunteer at a sports meet to observe officials in action. Tell your counselor about your responsibilities at the meet and discuss what you learned.
- 7 - Do ONE of the following:
 - a - Explore three careers related to athletics. Research one career area by interviewing an expert in the field, visiting a site, or using other resources. Learn about training, education, expenses, job outlook, salary, and advancement. Discuss your findings and career interest with your counselor.
 - b - Explore how an area of athletics could contribute to a hobby or healthy lifestyle. Research education, costs, and organizations related to this activity. Discuss your findings and goals with your counselor.

➤ [Public Health](#)

- 7(a) - Do ONE of the following:

- 1 - Visit your city, county, state or federal public health agency.
 - 2 - Familiarize yourself with your city, county, state, or a federal health agency's website.
- 7(b) After completing 7(a) do the following:
 - 1 - Compare the four leading causes of mortality (death) in your community for any of the past five years with the four leading causes of disease in your community. Explain how the public health agency you visited is trying to reduce the mortality and morbidity rates of these leading causes of illness and death.
 - 2 - Explain the role of your health agency as it relates to the outbreak of diseases.
 - 3 - Discuss the kinds of public assistance the agency is able to provide in case of disasters such as floods, storms, tornadoes, earthquakes, and other acts of destruction. Your discussion can include the cleanup necessary after the disaster.
 - 8 - Pick a profession in the public health sector that interests you. Find out the education, training, and experience required to work in this profession. Discuss what you learn with your counselor.

■ Nature

➤ [Bird Study](#)

- 5 - Observe and be able to identify 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.
- 13 - Do ONE of the following:
 - a - Identify three career opportunities that would use skills and knowledge in Bird Study. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.
 - b - Identify how you might use the skills and knowledge in Bird Study to pursue a personal hobby. Research the additional training required, expenses, and affiliation with organizations that would help you maximize the enjoyment and benefit you might gain from it. Discuss what you learned with your counselor and share what short-term and long-term goals you might have if you pursued this.

➤ [Chemistry](#)

- 8 - Do ONE of the following:
 - a - Visit a research laboratory, and discuss the research performed there with a chemist or chemical technician. Learn what education and training they received.

b - Visit a company or plant that makes chemical products or uses chemical processes. Learn about their products or processes, and talk with someone who works there. Learn what they do, and what education and training they received.

c - Identify three career opportunities that would use skills and knowledge in chemistry. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

➤ Engineering

1 - Select a manufactured item in your home (such as a toy or an appliance) and, under adult supervision and with the approval of your counselor, investigate how and why it works as it does. Find out what sort of engineering activities were needed to create it. Discuss with your counselor what you learned and how you got the information.

2 - Select an engineering achievement that has had a major impact on society. Using resources such as the internet (with your parent or guardian's permission), books, and magazines, find out about the engineers who made this engineering feat possible, the special obstacles they had to overcome, and how this achievement has influenced the world today. Tell your counselor what you learned.

9 - Explore careers related to this merit badge. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. Your research methods may include—with your parent or guardian's permission—an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and what about this profession might make it an interesting career.

➤ Environmental Science

6 - **Rare, Threatened, or Endangered Species.** Do ONE of the following and discuss with your counselor:

a - Do research on one endangered species found in your state. Learn about its natural habitat, why it is endangered, what is being done to preserve it, and how many individual species are left in the wild. Prepare a 100-word report about the species and include a drawing or photo. Present your report to your patrol or troop.

b - Do research on one species that was endangered or threatened but that has now recovered. Learn about how the species recovered, and what its new status is. Prepare a 100-word report on the species and include a drawing or photo. Present your report to your patrol or troop.

c - With your parent or guardian and counselor's approval, work with a natural resource professional to identify a completed project that has been designed to

improve the habitat for a threatened or endangered species in your area. Visit the site and report on what you saw to your patrol or troop.

- 7 - **Pollution Prevention, Resource Recovery, and Conservation.** Do ONE of the following and discuss with your counselor:

- a - Determine five ways to conserve resources or use resources more efficiently in your home, school, or camp. Practice at least two of these methods for at least one week.

- b - Explain Resource Recovery and why it is important to reduce pollution. Collect samples or take photos of ten items that can demonstrate the principle of Reduce, Reuse, Recycle. Explain your collection, how these materials are currently handled, and potential improvements.

- c - Identify five items in your household that will become hazardous waste. Explain how they should be properly stored, what special care is needed for disposal, and proper disposal options available in your area.

- 11 - Identify three career opportunities that would use skills and knowledge in the environmental science field. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

➤ Forestry//Soil & Water Conservation

Forestry

- 5 - With your parent or guardian's and counselor's approval, do ONE of the following:

- 5(a) - Visit a managed public or private forest area with the manager or a forester who is familiar with it. Write a brief report describing the type of forest, the management objectives, and the forestry techniques used to achieve the objectives.

- 5(b) - With a knowledgeable individual, visit a current or past logging operation or wood-using manufacturing plant. Write a brief report describing the following:

- 1 - The species and size of trees harvested or used.

- 2 - The origin of the forest or stands of trees utilized (e.g., planted or natural)

- 3 - The forest's successional stage. What is its future? If it is a past logging operation, note the regeneration that is occurring either planted or natural.

- 4 - Where the trees are coming from (land ownership) or where they are going (type of mill or processing plant).

- 5 - The products that are made from the trees.

- 6 - How the products are made and used.

- 7 - How waste materials from the logging operation or manufacturing plant are or were disposed of or utilized.

5(c) - Take part in a forest-fire prevention campaign in cooperation with your local fire warden, state wildfire agency, forester, or counselor. Write a brief report describing the campaign, how it will help prevent wildfires, and your part in it.

- 8 - Visit one or more local foresters and write a brief report about the person (or persons) OR write about a forester's occupation including the education, qualifications, career opportunities, and duties related to forestry.

Soil & Water Conservation

- No Pre-Reqs

➤ Geology

- 6 - Do ONE of the following:

a - Explore careers related to this merit badge. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. Your research methods may include—with your parent or guardian's permission—an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and what about this profession might make it an interesting career.

b - Explore how you could use knowledge and skills from this merit badge to pursue a hobby or healthy lifestyle. Research any training needed, expenses, and organizations that promote or support it. Discuss with your counselor what short-term and long-term goals you might have if you pursued this.

➤ Nature//Weather

Nature

- 4 - Do all the requirements in FIVE of the following fields:
- ***Camp Powhatan Note: We will complete 4 fields in class so scouts only need to choose one of these to do before camp
- 4(a) - Birds
 - 1 - In the field, identify eight species of birds.
 - 2 - Make and set out a birdhouse OR a feeding station OR a birdbath. List what birds used it during a period of one month.
- 4(b) - Mammals
 - 1 - In the field, identify three species of wild mammals.
 - 2 - Make plaster casts of the tracks of a wild mammal.
- 4(d) - Insects and Spiders
 - 1 - Collect and identify either in the field or through photographs 10 species of insects or spiders. Photos may be taken with your own equipment or gathered from other sources.
 - 2 - Hatch an insect from the pupa or cocoon; OR hatch adults from nymphs; OR keep larvae until they form pupae or cocoons; OR keep a colony of ants or bees through one season.
- 4(f) - Mollusks and Crustaceans
 - 1 - Identify five species of mollusks and crustaceans.
 - 2 - Collect, mount, and label six shells.

- 7 - Do ONE of the following:
 - a - Identify three career opportunities that would use skills and knowledge in Nature. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.
 - b - Identify how you might use the skills and knowledge in Nature to pursue a personal hobby. Research the additional training required, expenses, and affiliation with organizations that would help you maximize the enjoyment and benefit you might gain from it. Discuss what you learned with your counselor and share what short-term and long-term goals you might have if you pursued this.

Weather

- 10 - Do ONE of the following:
 - a - Make one of the following instruments: wind vane, anemometer, rain gauge, hygrometer. Keep a daily weather log for one week using information from this instrument as well as from other sources such as local radio and television stations, NOAA Weather Radio All Hazards, and internet sources (with your parent or guardian'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.
 - b - Visit a National Weather Service office or talk with a local radio or television weathercaster, private meteorologist, local agricultural extension service officer, or university meteorology instructor. Find out what type of weather is most dangerous or damaging to your community. Determine how severe weather and flood warnings reach the homes in your community.
- 12 - Explore careers related to this merit badge. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. Your research methods may include—with your parent or guardian's permission—an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and what about this profession might make it an interesting career.

➤ [Reptile & Amphibian Study](#)

- 8 - Do ONE of the following:
 - a - Take custody of one or more reptiles or amphibians in a manner approved by your counselor. Maintain one or more reptiles or amphibians for at least a month. Record food accepted, eating methods, changes in coloration, shedding of skins, and general habits; or keep the eggs of a reptile from the time of laying until hatching; or keep the eggs of an amphibian from the time of laying until their transformation into tadpoles (frogs) or larvae (salamanders). Whichever you

chose, keep records of and report to your counselor how you cared for your animal/eggs/larvae to include lighting, habitat, temperature and humidity maintenance and any veterinary care requirements. Unless you are the long-term owner, at the conclusion of this study, turn the animal(s) over to another responsible party approved by your counselor.

b - Choose a reptile or amphibian that you can observe or foster at a local zoo, aquarium, nature center, local rescue, or other such exhibit (such as your classroom or school). Study the specimen weekly for a period of three months. At each visit, sketch the specimen in its captive habitat and note any changes in its coloration, shedding of skins, and general habits and behavior. Discuss with your counselor how the animal you observed was cared for to include its housing and habitat, how the lighting, temperature, and humidity were maintained, and any veterinary care requirements.

Find out, either from information you locate on your own or by talking to the caretaker, what this species eats and what are its native habitat and home range, preferred climate, average life expectancy, and natural predators.

Also, identify any human-caused threats to its population and any laws that protect the species and its habitat. After the observation period, share what you have learned with your counselor.

➤ [Space Exploration](#)//[Astronomy](#)

Space Exploration

- 2 - Design a collector's card, with a picture on the front and information on the back, about your favorite space pioneer. Share your card and discuss four other space pioneers with your counselor.
- 8 - Explore careers related to this merit badge. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. Your research methods may include—with your parent or guardian's permission—an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and what about this profession might make it an interesting career.

Astronomy

- 4(a) - Identify in the sky 10 constellations, at least four of which are in the zodiac.
- 4(b) - Identify in the sky eight conspicuous stars, five of which are of magnitude 1 or brighter.
- 4(c) - Make two sketches of the Big Dipper or Cassiopeia from direct observation. In one sketch, show the Big Dipper's or Cassiopeia's orientation in the early evening sky. Make another sketch, showing its position several hours later. In both sketches, show the North Star and the horizon. Record the date and time each sketch was made.
- 5(b) - Using the internet (with your parent or guardian's permission) and other resources, find out when each of the five most visible planets that you identified

in requirement 5(a) will be observable in the evening sky during the next 12 months, then compile this information in the form of a chart or table.

- 6(b) - Sketch the phase and position of the Moon, at the same hour and place, for four nights (or days) within a one-week period by direct observation. Include landmarks on the horizon such as hills, trees, and buildings. Explain the changes you observe.
- 9 - Do ONE of the following:
 - a - Identify three career opportunities that would use skills and knowledge in astronomy. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.
 - b - Identify how you might use the skills and knowledge in astronomy to pursue a personal hobby. Research the additional training required, expenses, and affiliation with organizations that would help you maximize the enjoyment and benefit you might gain from it. Discuss what you learned with your counselor and share what short-term and long-term goals you might have if you pursued this.

■ Range & Target Activities

➤ [Archery](#)

- 1(e) - Tell your counselor about your local and state laws for owning and using archery equipment.

➤ [Rifle Shooting](#)

- 1(g) - Successfully complete a state hunter education course, or obtain a copy of the hunting laws for your state, then do the following:
 - 1 - Explain the main points of hunting laws in your state, and any special laws on the use of guns and ammunition
 - 2 - List the kinds of wildlife that can be legally hunted in your state.

➤ [Shotgun Shooting](#)

- 1(g) - Successfully complete a state hunter education course, or obtain a copy of the hunting laws for your state, then do the following:
 - 1 - Explain the main points of hunting laws in your state, and any special laws on the use of guns and ammunition
 - 2 - List the kinds of wildlife that can be legally hunted in your state.

■ Scoutcraft

➤ [Backpacking](#)

- 6(b) - While on a trek, use a map and compass to establish your position on the ground at three different locations, OR use a GPS receiver to establish your position on a topographic map and on the ground at three different locations.
- 8(c) - Prepare three meals using a stove and fuel you can carry in a backpack.

- 8(d) - Demonstrate that you know how to keep cooking and eating gear clean and sanitary, and that you practice proper methods for food storage while on a backpacking trek.
- 9(a) - Write a plan that includes a schedule for a patrol/crew backpacking hike of at least 2 miles.
- 9(b) - Conduct a prehike inspection of the patrol and its equipment.
- 9(c) - Show that you know how to properly pack your personal gear and your share of the crew's gear and food.
- 9(d) - Show you can properly shoulder your pack and adjust it for proper wear.
- 9(e) - While using the plan you developed for requirement 9(a), carry your fully loaded pack to complete a hike of at least 2 miles.
- 10 - Following the Leave No Trace Seven Principles and the Outdoor Code, participate in at least three backpacking treks of at least three days each and at least 15 miles each, and using at least two different campsites on each trek. Carry everything you will need throughout the trek.
- 11(a) - Write a plan for a backpacking trek of at least five days using at least three different campsites and covering at least 30 miles. Your plan must include a description of and route to the trek area, a schedule (including a daily schedule), a list of food and equipment needs, a safety and emergency plan, and a budget.
- 11(b) - Following the Leave No Trace Seven Principles and the Outdoor Code, take the trek as planned in requirement 11(a) that is at least five full days, covering at least 30 miles and utilizing at least three different campsites. While on trek, complete at least one service project approved by your counselor.
- 11(c) - Keep a daily journal during the trek that includes a day-by-day description of your activities, including notes about what worked well and thoughts about improvements that could be made for the next trek.

➤ [Electronics//Electricity](#)

Electronics

- 6 - Identify three career opportunities that would use skills and knowledge in Electronics. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

Electricity

- No Pre-Reqs

➤ [Fishing//Fish & Wildlife Management](#)

Fishing

- 7 - Obtain and review the regulations affecting gamefishing where you live. Explain why they were adopted and what is accomplished by following them.

- 10 - If regulations and health concerns permit, clean and cook a fish you have caught. If you are unable to catch a fish for eating, acquire a fish, clean the fish you acquired, and cook the fish you acquired.

Note: It is not required that you eat the fish.

- Fish & Wildlife Management**

- 5 - Do ONE of the following:
 - a - Construct, erect, and check regularly at least two artificial nest boxes (wood duck, bluebird, squirrel, etc.) and keep written records for one nesting season.
 - b - Construct, erect, and check regularly bird feeders and keep written records daily over a two-week period of the kinds of birds visiting the feeders.
 - c - Develop and implement a fishery improvement project or a backyard wildlife habitat improvement project. Share the results with your counselor.
 - d - Design and construct a wildlife blind near a game trail, water hole, salt lick, bird feeder, or birdbath and take good photographs or make sketches from the blind of any combination of 10 wild birds, mammals, reptiles, or amphibians.
- 7 - Do ONE of the following:
 - a - Determine the age of five species of fish from scale samples or identify various age classes of one species in a lake and report the results.
 - b - Conduct a creel census on a small lake to estimate catch per unit effort and report the results to your counselor.
 - c - Examine the stomach contents of three fish and record the findings. It is not necessary to catch any fish for this option.
 - d - Make a freshwater aquarium. Include at least four species of native plants and four species of animal life, such as whirligig beetles, freshwater shrimp, tadpoles, water snails, and golden shiners. After 60 days of observation, discuss with your counselor the life cycles, food chains, and management needs you have recognized. Before completing this requirement, check local laws on releasing these organisms back into the wild, and follow your counselor's direction in disposing of these organisms humanely and safely.
- 8 - Identify three career opportunities that would use skills and knowledge by fish and wildlife professionals. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.

➤ [Geocaching//Orienteering](#)

Geocaching

- 7 - With your parent or guardian's permission, go to www.geocaching.com. Type in your city and state to locate public geocaches in your area. Share with your counselor the posted information about three of those geocaches. Then, pick one of the three and find the cache.

Note: To fulfill this requirement, you will need to set up a free user account with www.Geocaching.com. Before doing so, ask your parent for permission and help.

- 8 - Do ONE of the following:
 - a - If a Cache to Eagle® series exists in your council, visit at least three of the locations in the series. Describe the projects that each cache you visit highlights, and explain how the Cache to Eagle® program helps share our Scouting service with the public.
 - b - Create a Scouting-related Travel Bug® that promotes one of the values of Scouting. Release your Travel Bug into a public geocache and, with your parent or guardian's permission, monitor its progress at www.geocaching.com for 30 days. Keep a log, and share this with your counselor at the end of the 30-day period.
 - c - Set up and hide a public geocache, following the guidelines in the Geocaching merit badge pamphlet. Before doing so, share with your counselor a three-month maintenance plan for the geocache where you are personally responsible for those three months. After setting up the geocache, with your parent or guardian's permission, follow the logs online for 30 days and share them with your counselor. You must archive the geocache when you are no longer maintaining it.
 - d - Explain what Cache In Trash Out (CITO) means, and describe how you have practiced CITO at public geocaches or at a CITO event. Then, either create CITO containers to leave at public caches, or host a CITO event for your unit or for the public.
- 9 - Plan a geohunt for a youth group such as your troop or a neighboring pack, at school, or your place of worship. Choose a theme, set up a course with at least four waypoints, teach the players how to use a GPS unit, and play the game. Tell your counselor about your experience, and share the materials you used and developed for this event.

Orienteering

- 7(a) - Take part in three orienteering events. One of these must be a cross-country course.

Note: While orienteering is primarily an individual sport, Scouting America Youth Protection procedures call for using the buddy system. Requirement 7(a) can be completed by pairs or groups of Scouts.
- 7(b) - After each event, write a report with (1) a copy of the master map and control description sheet, (2) a copy of the route you took on the course, (3) a discussion of how you could improve your time between control points, and (4) a list of your major weaknesses on this course. Describe what you could do to improve.
- 8 - Do ONE of the following:
 - a - Set up a cross-country course that is at least 2,000 meters long with at least five control markers. Prepare the master map and control description sheet.
 - b - Set up a score orienteering course with at least 12 control points and a time limit of at least 60 minutes. Set point values for each control. Prepare the master map and control description sheet.

- 9 - Act as an official during an orienteering event. This may be during the running of the course you set up for requirement 8.

➤ [Pioneering](#)

- No Pre-Reqs

➤ [Public Health](#)

- 7(a) - Do ONE of the following:

- 1 - Visit your city, county, state or federal public health agency.
- 2 - Familiarize yourself with your city, county, state, or a federal health agency's website.

- 7(b) - After completing 7(a) do the following:

- 1 - Compare the four leading causes of mortality (death) in your community for any of the past five years with the four leading causes of disease in your community. Explain how the public health agency you visited is trying to reduce the mortality and morbidity rates of these leading causes of illness and death.
- 2 - Explain the role of your health agency as it relates to the outbreak of diseases.
- 3 - Discuss the kinds of public assistance the agency is able to provide in case of disasters such as floods, storms, tornadoes, earthquakes, and other acts of destruction. Your discussion can include the cleanup necessary after the disaster.

- 8 - Pick a profession in the public health sector that interests you. Find out the education, training, and experience required to work in this profession. Discuss what you learn with your counselor.

➤ [Robotics](#)

- 6 - Do ONE of the following:

- a - Attend a robotics competition and report to your counselor what you saw and learned about the competition and how teams are organized and managed.
- 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 - Do ONE of the following:

- a - Identify three career opportunities that would use skills and knowledge in Robotics. Pick one and research the training, education, certification requirements, experience, and expenses associated with entering the field. Research the prospects for employment, starting salary, advancement opportunities and career goals associated with this career. Discuss what you learned with your counselor and whether you might be interested in this career.
- b - Identify how you might use the skills and knowledge in Robotics to pursue a personal hobby. Research the additional training required, expenses, and affiliation with organizations that would help you maximize the enjoyment and benefit you might gain from it. Discuss what you learned with your counselor and share what short-term and long-term goals you might have if you pursued this.

➤ [Signs, Signals, & Codes//Search & Rescue](#)

- Signs, Signals, & Codes**

- 3(a) - Describe what Morse code is and the various means by which it can be sent. Spell your first name using Morse code. Send or receive a message of six to 10 words using Morse code.
- 3(b) - Describe what American Sign Language (ASL) is and how it is used today. Spell your first name using American Sign Language. Send or receive a message of six to 10 words using ASL.
- 5 - Explain the braille reading technique and how it helps individuals with sight impairment to communicate. Then do the following:
 - a - Either by sight or by touch, identify the letters of the braille alphabet that spell your name. By sight or touch, decode a braille message at least six words long.
 - b - Create a message in braille at least six words long, and share this with your counselor.
- 7 - On a Scout outing, lay out a trail for your patrol or troop to follow. Cover at least one mile in distance and use at least six different trail signs and markers. After the Scouts have completed the trail, follow the Leave No Trace Seven Principles and the Outdoor Code by replacing or returning trail markers to their original locations.
- Search & Rescue**
- 7 - Plan and Complete a Search. Do the following with a team of Scouts, friends, or family to execute a practice SAR exercise:
 - 7(a) - Choose a hypothetical SAR scenario, either one presented in the Search and Rescue merit badge pamphlet or one approved by your counselor.
 - 7(b) - Develop an Incident Action Plan (IAP) for a hasty search using the scenario information.
 - 7(c) - Before the search begins, conduct a PAUSE briefing to review hazards, safety concerns, personal and shared Scout Essentials, and other gear.
 - 7(d) - Execute the search.
 - 7(e) - After the search, hold a team debriefing to discuss the search, problems, successful and unsuccessful tactics, and ideas for improvement.
- 8 - Do ONE of the following:
 - a - Explore careers related to Search and Rescue merit badge or emergency management. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. With permission of your parent or guardian, your research methods may include an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and what about this profession might make it an interesting career.
 - b - Explore how you could use knowledge and skills from this merit badge to serve as a volunteer on a disaster relief team, a wilderness rescue team, or a ski patrol. Research any training needed, expenses, and organizations that promote or support it. Discuss with your counselor what short-term and long-term goals you might have if you pursue this.

➤ [Wilderness Survival](#)

- 4 - Put together a personal first aid kit and a personal survival kit. Show how items in the kits are used.
- 10 - Do ONE of the following:
 - a - Explore careers related to this merit badge. Research one career to learn about the training and education needed, costs, job prospects, salary, job duties, and career advancement. With permission of your parent or guardian, your research methods may include an internet or library search, an interview with a professional in the field, or a visit to a location where people in this career work. Discuss with your counselor both your findings and what about this profession might make it an interesting career.
 - b - Explore how you could use knowledge and skills from the Wilderness Survival merit badge to pursue a hobby or to serve as volunteer. Research any training needed, expenses, and organizations that promote or support it. Discuss with your counselor what short-term and long-term goals you might have if you pursue this.

■ **Waterfront**

➤ [Canoeing](#)

- 2 - Before doing the following requirements, successfully complete the Scouting America swimmer test, found in the Swimming merit badge pamphlet.

➤ [Kayaking](#)

- 2 - Before doing requirements 3 through 8, successfully complete the Scouting America swimmer test.

➤ [Lifesaving](#)

- 2(a) - Earn the Swimming merit badge.

➤ [Rowing](#)

- 2 - Before completing requirements 4, 5, 6, and 7, successfully complete the Scouting America swimmer test.

➤ [Swimming](#)

- 2 - Before doing the following requirements, successfully complete the Scouting America swimmer test, found in the Swimming merit badge pamphlet.

■ **Evening Programs**

➤ [American Heritage](#)

- 3(c) - Research your family's history. Find out how various events and situations in American history affected your family. If your family immigrated to America, tell the reasons why. Share what you find with your counselor.
*****Camp Powhatan Note:** Requirement 4 says Do TWO of the following. To get the full experience out of the badge we recommend the scout completes two of these requirements before coming to camp, however we can complete them at camp if they do not do it ahead of time.
- 4 - Do TWO of the following:

a - Explain the National Register of Historic Places and how a property becomes eligible for listing in the National Register of Historic Places. Make a map of your local area, marking the points of historical interest. Tell about any National Register properties in your area. Share the map with your counselor, and describe the historical points you have indicated.

b - Research an event of historical importance that took place in or near your area. If possible, visit the place. Tell your counselor about the event and how it affected local history. Describe how the area looked then and what it now looks like.

c - Find out when, why, and how your town or neighborhood started, and what ethnic, national, or racial groups played a part. Find out how the area has changed over the past 50 years and try to explain why.

d - Take an active part in a program about an event or person in American history. Report to your counselor about the program, the part you took, and the subject.

e - Visit a historic trail or walk in your area. After your visit, share with your counselor what you have learned. Discuss the importance of this location and explain why you think it might qualify for National Register listing.

➤ [Fingerprinting](#)

No Pre-Reqs

➤ [Mammal Study](#)

No Pre-Reqs

➤ [Photography](#)

No Pre-Reqs

Must bring a device capable of taking and editing pictures (any standard smart phone will work)