

Arrowhead District Merit Badge Midway

Pre-Work by Merit Badge

Impress the following upon your Scouts:

1. **READ** the merit badge book
2. **Know and understand** the merit badge requirements
3. Answer **ALL** pre-work questions **COMPLETELY**
4. **ALL** pre-work answers should be **TYPE-WRITTEN**
5. Include your name, troop number, and requirement number **ON EACH PAGE**
6. Complete the pre-work **PRIOR** to attending the session
7. Hand the pre-work in to your counselor at the beginning of the session
8. Be prepared to **DISCUSS ALL** of the requirements in class

To receive the merit badge, the Scout MUST:

1. **READ** the merit badge book,
2. **COMPLETE ALL** Pre-Work,
3. **ATTEND** the Merit Badge Session, **AND**
4. **PARTICIPATE** in the Merit Badge Class Discussion
 - a. **Counselors will keep track of who participates**

Updated: Feb. 7, 2019

American Heritage:

Read the American Heritage merit badge book.

#2 - Do TWO of the following:

- a.** Select two individuals from American history, one a political leader (a president, senator, etc.) and the other a private citizen (a writer, religious leader, etc.). Find out about each person's accomplishments and compare the contributions each has made to America's heritage.
- b.** With your counselor's approval, choose an organization that has promoted some type of positive change in American society. Find out why the organization believed this change was necessary and how it helped to accomplish the change. Discuss how this organization is related to events or situations from America's past.
- c.** With your counselor's approval, interview two veterans of the U.S. military. Find out what their experiences were like. Ask the veterans what they believe they accomplished.
- d.** With your counselor's approval, interview three people in your community of different ages and occupations. Ask these people what America means to them, what they think is special about this country, and what American traditions they feel are important to preserve.

#3a - Select a topic that is currently in the news. Describe to your counselor what is happening. Explain how today's events are related to or affected by the events and values of America's past.

#3c - 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.

#4 - Do TWO of the following:

- a.** Explain what is meant by the National Register of Historic Places. Describe how a property becomes eligible for listing. 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.

#5 - Do ONE of the following:

- a.** Watch two motion pictures (with the approval and permission of your counselor and parent) that are set in some period of American history. Describe to your counselor how accurate each film is with regard to the historical events depicted and also with regard to the way the characters are portrayed.
- b.** Read a biography (with your counselor's approval) of someone who has made a contribution to America's heritage. Tell some things you admire about this individual and some things you do not admire. Explain why you think this person has made a positive or a negative contribution to America's heritage.
- c.** Listen to recordings of popular songs from various periods of American history. Share five of these songs with your counselor, and describe how each song reflects the way people felt about the period in which it was popular. If a recording is not available, have a copy of the lyrics available.

#6 - Discuss with your counselor the career opportunities in American heritage. Pick one that interests you and explain how to prepare for this career. Discuss what education and training are required for this career.

American Labor:

Read the American Heritage merit badge book.

#7 - Choose a labor issue of widespread interest to American workers-an issue in the news currently or known to you from your work on this merit badge. Before your counselor, or in writing, argue both sides of the issue, first taking management's side, then presenting labor's or the employee's point of view. In your presentation, summarize the basic rights and responsibilities of employers and employees, including union members and nonunion members

Automotive Maintenance:

Read the Automotive Maintenance merit badge book.

#1 – Work up the following to discuss in class:

- 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.

#9 Drive Train. Do the following:

- a. Diagram the drive train and explain the different parts.

#12. 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.

Chemistry:

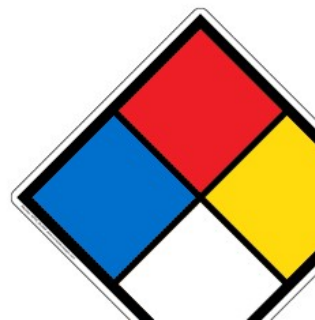
Read the Chemistry merit badge book.

#7 - Do ONE of the following activities:

- a. Visit a laboratory and talk to a practicing chemist. Ask what the chemist does, and what training and education are needed to work as a chemist.
- b. Using resources found at the library and in periodicals, books, and the Internet (with your parent's permission), learn about two different kinds of work done by chemists, chemical engineers, chemical technicians, or industrial chemists. For each of the four jobs, find out the education and training requirements.
- c. Visit an industrial plant that makes chemical products or uses chemical processes and describe the processes used. What, if any, pollutants are produced and how they are handled.
- d. Visit a county farm agency or similar governmental agency and learn how chemistry is used to meet the needs of agriculture in your county.

Be prepared to discuss the following in class:

1. What is the difference between a chemical and physical change? Please give two examples of each.
2. List and define the 5 main branches of chemistry. In addition, name one job in each branch.
3. What are the 3 components that make up an atom? What is the charge of each component?
4. The diamond to the right is used for the National Fire Protection Association Hazard Identification System. Explain what each color represents. Do higher numbers in the diamond indicate a more or less severe hazard?
5. What does pH measure? Would the following household items have a pH higher or lower than 7?
 - a. Coke-a-Cola
 - b. Shampoo
 - c. Milk
 - d. Bleach
 - e. Vinegar
 - f. Dish soap



Citizenship in the Community:

Read the Citizenship in the Community merit badge book.

#2 - Do the following:

- a. On a map of your community or using an electronic device, locate and point out the following:
 1. Chief government buildings such as your city hall, county courthouse, and public works/services facility
 2. Fire station, police station, and hospital nearest your home
 3. Parks, playgrounds, recreation areas, and trails
 4. Historical or other interesting points of interest

#3 - Do the following:

- a. Attend a meeting of your city, town, or county council or school board; OR attend a municipal, county, or state court session.
- b. Choose one of the issues discussed at the meeting where a difference of opinions was expressed, and explain to your counselor why you agree with one opinion more than you do another one.

#4 - Choose an issue that is important to the citizens of your community; then do the following:

- a. Find out which branch of local government is responsible for this issue.
- b. With your counselor's and a parent's approval, interview one person from the branch of government you identified in requirement 4a. Ask what is being done about this issue and how young people can help.
- c. Share what you have learned with your counselor

#5 - With the approval of your counselor and a parent, watch a movie that shows how the actions of one individual or group of individuals can have a positive effect on a community. Discuss with your counselor what you learned from the movie about what it means to be a valuable and concerned member of the community.

#7 - Do the following:

- a. Choose a charitable organization outside of Scouting that interests you and brings people in your community together to work for the good of your community.
- b. Using a variety of resources (including newspapers, fliers and other literature, the Internet, volunteers, and employees of the organization), find out more about this organization.

c. With your counselor's and your parent's approval, contact the organization and find out what young people can do to help. While working on this merit badge, volunteer at least eight hours of your time for the organization. After your volunteer experience is over, discuss what you have learned with your counselor.

#8 - Develop a public presentation (such as a video, slide show, speech, digital presentation, or photo exhibit) about important and unique aspects of your community. Include information about the history, cultures, and ethnic groups of your community; its best features and popular places where people gather; and the challenges it faces. Stage your presentation in front of your merit badge counselor or a group, such as your patrol or a class at school.

Citizenship in the Nation:

Read the Citizenship in the Nation merit badge book.

#2 - 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 there and what you learned about its function in the local community and how it serves this nation.
- d.** Choose a national monument that interests you. Using books, brochures, the Internet (with your parent'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.

#3 - Watch the national evening news five days in a row OR read the front page of a major daily newspaper five days in a row. Discuss the national issues you learned about with your counselor. Choose one of the issues and explain how it affects you and your family.

#8 - Name your two senators and the member of Congress from your congressional district. Write a letter about a national issue and send it to one of these elected officials, sharing your view with him or her. Show your letter and any response you receive to your counselor.

Citizenship in the World:

Read the Citizenship in the World merit badge book.

#3 - Do the following:

- a.** Pick a current world event. In relation to this current event, discuss with your counselor how a country's national interest and its relationship with other countries might affect areas such as its security, its economy, its values, and the health of its citizens.
- b.** Select a foreign country and discuss with your counselor how its geography, natural resources, and climate influence its economy and its global partnerships with other countries.

#7 - Do TWO of the following and share with your counselor what you have learned:

- a.** Visit the Web site (With your parent/guardian's permission) of the U.S. State Department. Learn more about an issue you find interesting that is discussed on this Web site.
- b.** Visit the Web site (With your parent/guardian's permission) 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 a world Scout jamboree.
- e.** Participate in or attend an international event in your area, such as an ethnic festival, concert, or play.

Collections:

Read the Collections merit badge book.

#1 - Prepare a short written report or outline for your counselor, giving a detailed description of your collection,* including a short history. Be sure to include why you chose that particular type of collecting and what you enjoy and have learned from your collection.

#5b - Show your counselor any two groups from your collection. Explain how you organized your collection and why you chose that method. (Note: if your collection is too large to transport and your counselor is unable to view your collection directly, photographs should be available to share.)

Communication:

Read the Communication merit badge book.

#1d - Look up the following: Printing Press, Telegraph, Pony Express, and Internet.

Be ready to discuss these in class.

#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 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.

Crime Prevention:

Read the Crime Prevention merit badge book.

#2 - Prepare a notebook of newspaper and other clippings that addresses crime and crime prevention efforts in your community.

#4 - After doing EACH of the following, discuss with your counselor what you have learned.

- a. Inspect your neighborhood for opportunities that may lead to crime. Learn how to do a crime prevention survey.
- b. Using the checklist in this (the merit badge) pamphlet, conduct a security survey of your home and discuss the results with your family.

#5 - Teach your family or patrol members how to protect themselves from crime at home, at school, in your community, and while traveling.

#6 - Help raise awareness about one school safety issue facing students by doing ONE of the following:

- a. Create a poster for display on a school bulletin board.
- b. With permission from school officials, create a page long public service announcement that could be read over the public address system at school or posted on the school's Web site.
- c. Make a presentation to a group such as a Cub Scout den that addresses the issue.

#7 - Do ONE of the following:

- a. Assist in the planning and organization of a crime prevention program in your community such as Neighborhood Watch, Community Watch, or Crime Stoppers. Explain how this program can benefit your neighborhood.
- b. With your parent's and counselor's approval, visit a jail or detention facility or a criminal court hearing. Discuss your experience with your counselor.

#9 - Discuss the following with your counselor:

- a. The role of a sheriff's or police department in crime prevention.
- b. The purpose and operation of agencies in your community that help law enforcement personnel prevent crime, and how those agencies function during emergency situations.
- c. Explain the role private security plays in crime prevention.
- d. Choose a career in the crime prevention or security industry that interests you. Describe the level of education required and responsibilities of a person in that position. Tell why this position interests you.

Write up each of the above items and turn them in to your counselor.

Digital Technology:

Read the Digital Technology merit badge book.

#1 - Show your counselor your current, up-to-date Cyber Chip.

#2b - Describe what kinds of computers or devices you imagine might be available when you are an adult.

#3c - Describe two digital devices and how they are made more useful by their programming.

#4b - Name four software programs or mobile apps you or your family use, and explain how each one helps you.

#5b - Using an Internet search engine (with your parent's permission), find ideas about how to conduct a troop court of honor or campfire program. Print out a copy of the ideas from at least three different websites. Share what you found with your counselor, and explain how you used the search engine to find this information.

#9 - Do ONE of the following:

a. Investigate three career opportunities that involve digital technology. 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.

b. Visit a business or an industrial facility that uses digital technology. Describe four ways digital technology is being used there. Share what you learned with your counselor.

Note: If you take both digital technology and programming, earning the cyber chip and doing the career research will count for **both** badges.

Dog Care:

Read the Dog Care merit badge book.

#4 - For two months, keep and care for your dog.* Maintain a log of your activities during this period that includes these items: feeding schedule, types of food used, amount fed, exercise periods, training schedule, a weekly body weight record, grooming and bathing schedules, veterinary care, if necessary, and costs. Also include a brief description of the type of housing/shelter arrangements you have for your dog.

- The activities used to fulfill the requirements for the Dog Care merit badge may not be used to help fulfill the requirements for other merit badges.

#8 - Visit a veterinary hospital or an animal shelter and give a report about your visit to your counselor.

Electricity:

Read the Electricity merit badge book.

#2 - Complete an electrical home safety inspection of your home, using the checklist found in this pamphlet or one approved by your counselor. Discuss what you find with your counselor.

#3 - Make a simple electromagnet and use it to show magnetic attraction and repulsion.

#8 - Make a floor plan wiring diagram of the lights, switches, and outlets for a room in your home. Show which fuse or circuit breaker protects each one.

#9 - Do the following:

- a. Read an electric meter and, using your family's electric bill, determine the energy cost from the meter readings.
- b. Discuss with your counselor five ways in which your family can conserve energy.

#11 - Do any TWO of the following:

- a. Connect a buzzer, bell, or light with a battery. Have a key or switch in the line.
- b. Make and run a simple electric motor (not from a kit).
- c. Build a simple rheostat. Show that it works.
- d. Build a single-pole, double-throw switch. Show that it works.
- e. Hook a model electric train layout to a house circuit. Tell how it works.

Electronics:

Read the Electronics merit badge book.

#4 - Do the following:

c. Choose ONE of the following three projects. For your project, find or create a schematic diagram. To the best of your ability, explain to your counselor how the circuit you built operates.

- i. A control device
- ii. A digital circuit
- iii. An audio circuit

Energy:

Read the Energy merit badge book.

#4 - Conduct an energy audit of your home. Keep a 14 day log that records what you and your family did to reduce energy use. Include the following in your report and, after the 14 day period, discuss what you have learned with your counselor.

- a.** List the types of energy used in your home such as electricity, wood, oil, liquid petroleum, and natural gas, and tell how each is delivered and measured, and the current cost; OR record the transportation fuel used, miles driven, miles per gallon, and trips using your family car or another vehicle.
- b.** Describe ways you and your family can use energy resources more wisely. In preparing your discussion, consider the energy required for the things you do and use on a daily basis (cooking, showering, using lights, driving, watching TV, using the computer). Explain what is meant by sustainable energy sources. Explain how you can change your energy use through reuse and recycling.

Engineering:

Read the Engineering merit badge book.

#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'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.

#5 - Do ONE of the following:

- a.** Use the systems engineering approach to make step-by-step plans for your next campout. List alternative ideas for such items as program schedule, campsites, transportation, and costs. Tell why you made the choices you did and what improvements were made.
- b.** Make an original design for a piece of patrol equipment. Use the systems engineering approach to help you decide how it should work and look. Draw plans for it. Show the plans to your counselor, explain why you designed it the way you did, and explain how you would make it.

#9 - Find out about three career opportunities in engineering. Pick one and research the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Family Life:

Read the Family Life merit badge book.

#3 - Prepare a list of your regular home duties or chores (at least five) and do them for 90 days. Keep a record of how often you do each of them. Discuss with your counselor the effect your chores had on your family.

#4 - With the approval of your parents or guardians and your merit badge counselor, decide on and carry out a project that you would do around the home that would benefit your family. Submit a report to your merit badge counselor outlining how the project benefited your family.

#5 - Plan and carry out a project that involves the participation of your family. After completing the project, discuss the following with your merit badge counselor:

- a. The objective or goal of the project
- b. How individual members of your family participated
- c. The results of the project

#6 - Do the following:

- a. Discuss with your merit badge counselor how to plan and carry out a family meeting.
- b. After this discussion, plan and carry out a family meeting* to include the following subjects:
 - 1. Avoiding substance abuse, including tobacco, alcohol, and drugs, all of which negatively affect your health and well-being
 - 2. Understanding the growing-up process and how the body changes, and making responsible decisions dealing with sex
 - 3. How your chores in requirement 3 contributed to your role in the family
 - 4. Personal and family finances
 - 5. A crisis situation within your family
 - 6. The effect of technology on your family
 - 7. Good etiquette and manners

Discussion of each of these subjects will very likely carry over to more than one family meeting.

Note: This conversation may take place with only one or both of your parents or guardians.

Fingerprinting:

Read the Fingerprinting merit badge book.

All requirements will be done in class.

Be prepared and participate in class.

Fire Safety:

Read the Fire Safety merit badge book.

#6 - Conduct a home safety survey with the help of an adult. Then do the following:

- a.** Draw a home fire-escape plan, create a home fire-drill schedule, and conduct a home fire drill.
- b.** Test a smoke alarm and demonstrate regular maintenance of a smoke alarm.

#9 - Do the following:

- a.** Demonstrate the safe way to fuel a lawnmower.
- b.** Demonstrate the safety factors, such as proper ventilation, for auxiliary heating devices and the proper way to fuel those devices.

#10 - Do the following:

- b.** Demonstrate setting up and putting out a cooking fire.
- c.** Demonstrate using a camp stove and lantern.

#11 - Visit a fire station. Identify the types of fire trucks. Find out about the fire prevention activities in your community.

#12 - Choose a fire safety-related career that interests you and describe the level of education required and responsibilities of a person in that position. Tell why this position interests you.

Fishing:

Read the Fishing merit badge book.

#7 - Obtain and review the regulations affecting game fishing where you live. Explain why they were adopted and what you accomplish by following them.

#9 - Catch at least one fish and identify it.

#10 - 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.)

Fly Fishing:

Read the Fly Fishing merit badge book.

#6 - Go to a suitable fishing location and make observations on the types of insects fish may be eating. Look for flying insects and some that may be on or beneath the water's surface. Look under rocks. Explain the importance of matching the hatch.

#8 - Obtain a copy of the regulations affecting game fishing where you live. Explain why they were adopted and what you accomplish by following them.

#10 - Catch at least one fish. If regulations and health concerns permit, clean and cook a fish you have caught. Otherwise, acquire a fish and cook it.

Genealogy:

Read the Genealogy merit badge book.

#3 - With your parent's help, choose a relative or a family acquaintance you can interview in person, by telephone, or by e-mail or letter. Record the information you collect so you do not forget it.

#7 - Complete a family group record form, listing yourself and your brothers and sisters as the children. On another family group record form, show one of your parents and his or her brothers and sisters as the children. This requirement may be completed using the chart provided or the genealogy software program of your choice.

You will be doing research on your relatives at the Karrmann Library, so bring the name of at least one relative (more if possible) who was born PRIOR to 1940.

For each name, know as much of the following information as possible:

- Full name
- Date of Birth
- City, County, and State of birth
- City, County, and State they resided at in 1940

The names of spouses, siblings. and parents are also helpful.

Geology:

Read the Geology merit badge book.

#4b - Find out about three career opportunities available in geology. Pick one and find out the education, training, and experience required for the profession. Discuss this with your counselor, and explain why this profession might interest you.

Know and be prepared to discuss the many terms used in geology.

Indian Lore:

Read the Indian Lore merit badge book.

#2 - Give the history of one American Indian tribe, group or nation that lives or has lived near you. Visit it, if possible. Tell about traditional dwellings, way of life, tribal government, religious beliefs, family and clan relationships, language, clothing styles, arts and crafts, food preparation, means of getting around, games, customs in warfare, where members of the group now live, and how they live.

Law:

Read the Law merit badge book.

#2c - Look up two famous court trials in history. For each of the trials, come prepared with the following information:

- When the trial was held?
- Where the trial was held?
- Who were the parties to the trial?
- What was the result of the trial?
- Why is the trial famous?

#4 - Ask five people (not more than one from your immediate family) about the role of law enforcement officers in our society. Discuss their answers with them. Go to a law enforcement officer in your neighborhood and ask about his or her responsibilities and duties. Report your findings.

#9 - Make a list of 15 jobs that deal with some aspect of law or legal processes. Tell which you prefer. Why?

Medicine:

Read the Medicine merit badge book.

#1 - Discuss with your counselor the influence that **EIGHT** of the following people or events had on the history of medicine:

- a. Hippocrates
- b. William Harvey
- c. Antoine van Leeuwenhoek
- d. Edward Jenner
- e. Florence Nightingale
- f. Louis Pasteur
- g. Gregor Mendel
- h. Joseph Lister
- i. Robert Koch
- j. Daniel Hale Williams
- k. Wilhelm Conrad Roentgen
- l. Marie and Pierre Curie
- m. Walter Reed
- n. Karl Landsteiner
- o. Alexander Fleming
- p. Charles Richard Drew
- q. Helen Taussig
- r. James Watson and Francis Crick
- s. Jonas Salk

#10 - Serve as a volunteer at a health-related event or facility in your community (e.g. blood drive, "health fair", blood pressure screening, etc.) approved by your counselor.

Nuclear Science:

Read the Nuclear Science merit badge book.

#7 - Give an example of each of the following in relation to how energy from an atom can be used: nuclear medicine, environmental applications, industrial applications, space exploration, and radiation therapy. For each example, explain the application and its significance to nuclear science

Painting:

Read the Painting merit badge book.

#3 - Prepare and paint two different surfaces using patching material, caulking, and the proper primers and topcoats. Suggested projects include an interior or exterior wall, a door, a piece of furniture, a concrete wall or floor, a porch rail, or a fence. Take before and after photographs. Include these with your written report.

#4 - Prepare and paint an item using harmonizing colors that you have selected using the color wheel in the painting merit badge book.

Pets:

Read the Pets merit badge book.

#1 - Present evidence that you have cared for a pet for 4 months. Get approval before you start.*

Photography:

Read the Photography merit badge book.

#1b - Show your counselor your current, up-to-date Cyber Chip.

#4 - Do TWO of the following, then share your work with your counselor.

- a. Photograph one subject from two different angles or perspectives.
- b. Photograph one subject from two different light sources—artificial and natural.
- c. Photograph one subject with two different depth of fields.
- d. Photograph one subject with two different compositional techniques.

#5 - Photograph THREE of the following, then share your work your counselor.

- a. Close-up of a person
- b. Two to three people interacting
- c. Action shot
- d. Animal shot
- e. Nature shot
- f. Picture of a person—candid, posed, or camera aware

#6 - Describe how software allows you to enhance your photograph after it is taken. Select a photo you have taken, then do ONE of the following, and share what you have done with your counselor.

- a. Crop your photograph.
- b. Adjust the exposure or make a color correction.
- c. Show another way you could improve your picture for impact.

#7 - Using images other than those created for requirements 4, 5 or 6, produce a visual story to document an event to photograph OR choose a topic that interests you to photograph. Do the following:

- a. Plan the images you need to photograph for your photo story.
- b. Share your plan with your counselor, and get your counselor's input and approval before you proceed.
- c. Select eight to 12 images that best tell your story. Arrange your images in order and mount the prints on a poster board, OR create an electronic presentation. Share your visual story with your counselor.

#8 - Identify three career opportunities in photography. Pick one and explain to your counselor how to prepare for such a career. Discuss what education and training are required, and why this profession might interest you.

Programming:

Read the Programming merit badge book.

#1a - Show your counselor your current, up-to-date Cyber Chip.

#2 - Do the following:

- a. Give a brief history of programming, including at least three milestones related to the advancement or development of programming.
- b. Describe the evolution of programming methods and how they have improved over time.

#3 - Do the following:

- a. Create a list of 10 popular programming languages in use today and describe which industry or industries they are primarily used in and why.
- b. Describe three different programmed devices you rely on every day.

#6 - Careers. Find out about three career opportunities in programming. Pick one and find out the education, training, and experience required. Discuss this with your counselor and explain why this career might be of interest to you.

Know, understand, and be ready to discuss the following terms: program, variable, operand, bit, byte, word, integer, character, float, string, loop, syntax, comment, function, parameter, source code, library, object.

Have some algebra knowledge, namely writing equations with variables.

Note: If you take both digital technology and programming, earning the cyber chip and doing the career research will count for both badges.

Public Speaking:

Read the Public Speaking merit badge book.

#2 - Prepare a three- to five-minute talk on a topic of your choice that incorporates body language and visual aids..

#4 - Select a topic of interest to your audience. Collect and organize information about this topic and prepare an outline. Write an eight- to 10-minute speech, practice it, then deliver it in the conversational way.

#5 - Show you know parliamentary procedure by leading a discussion or meeting according to accepted rules of order; or by answering questions on the rules of order.

Radio:

Read the Radio merit badge book.

#7 - Visit a radio installation (an amateur radio station, broadcast station, or public communications center, for example) approved in advance by your counselor. Discuss what types of equipment you saw in use, how it was used, what types of licenses are required to operate and maintain the equipment, and the purpose of the station.

#8 - Find out about three career opportunities in radio. 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.

Railroading:

Read the Railroading merit badge book.

#2 - Do the following:

- a.** Explain the purpose and formation of Amtrak. Explain, by the use of a timetable, a plan for making a trip by rail between two cities at least 500 miles apart. List the times of departure and arrival at your destination, the train number, and the type of service you want.
- b.** List and explain the various forms of public/mass transit using rail.

#3 - Do ONE of the following:

- a.** Name four departments of a railroad company. Describe what each department does.
- b.** Tell about the opportunities in railroading that interest you most and why.
- c.** Name four rail support industries, Describe the function of each one.
- d.** With your parent's and counselor's approval, interview someone employed in the rail industry. Learn what that person does and how this person became interested in railroading. Find out what type of schooling and training are required for this position.

Reptile and Amphibian Study:

Read the Reptile and Amphibian Study merit badge book.

All requirements will be done in class.

Be prepared and participate in class.

Scholarship:

Read the Scholarship merit badge book.

#1 - Do ONE of the following:

- a.** Show that you have had an average grade of B or higher (80 percent or higher) for one term or semester.
- b.** Show that for one term or semester you have improved your school grades over the previous period.

#3 - Get a note from the principal of your school (or another school official named by the principal) that states that during the past year your behavior, leadership, and service have been satisfactory.

#5 - Do ONE of the following:

- a.** Write a report of 250 to 300 words about how the education you receive in school will be of value to you in the future and how you will continue to educate yourself in the future.
- b.** Write a report of 250 to 300 words about two careers that interest you and how specific classes and good scholarship in general will help you achieve your career goals.

Scouting Heritage:

Read the Scouting Heritage merit badge book.

#4 - Do ONE of the following:

- a. Attend either a BSA [national jamboree](#), OR [world Scout jamboree](#), OR a national BSA high-adventure base. While there, keep a journal documenting your day-to-day experiences. Upon your return, report to your counselor what you did, saw, and learned. You may include photos, brochures, and other documents in your report.
- b. Write or visit the National Scouting Museum in Irving, Texas.* Obtain information about this facility. Give a short report on what you think the role of this museum is in the Scouting program.
- c. Visit an exhibit of Scouting memorabilia or a local museum with a Scouting history gallery, or (with your parent's permission and counselor's approval) visit with someone in your council who is recognized as a dedicated Scouting historian or memorabilia collector. Learn what you can about the history of Boy Scouting. Give a short report to your counselor on what you saw and learned.

Write your report and turn it in

#5 - Learn about the history of your unit or Scouting in your area. Interview at least two people (one from the past and one from the present) associated with your troop. These individuals could be adult unit leaders, Scouts, troop committee members, or representatives of your troop's chartered organization. Find out when your unit was originally chartered. Create a report of your findings on the history of your troop, and present it to your patrol or troop or at a court of honor, and then add it to the troop's library. This presentation could be in the form of an oral/written report, an exhibit, a scrapbook, or a computer presentation such as a slide show.

Write your report and turn it in

#6 - Make a collection of some of your personal patches and other Scouting memorabilia. With their permission, you may include items borrowed from family members or friends who have been in Scouting in the past, or you may include photographs of these items.

Show this collection to your counselor, and share what you have learned about items in the collection. (There is no requirement regarding how large or small this collection must be.)

#7 - Reproduce the equipment for an old-time Scouting game such as those played at Brownsea Island. You may find one on your own (with your counselor's approval), or pick one from the Scouting Heritage merit badge pamphlet.

Teach and play the game with other Scouts.

#8 - Interview at least three people (different from those you interviewed for requirement 5) over the age of 40 who were Scouts. Find out about their Scouting experiences. Ask about the impact that Scouting has had on their lives. Share what you learned with your counselor.

Write your report and turn it in

Space Exploration:

Read the Space Exploration merit badge book.

#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.

5 - Do TWO of the following:

- a.** Discuss with your counselor a robotic space exploration mission and a historic crewed mission. Tell about each mission's major discoveries, its importance, and what was learned from it about the planets, moons, or regions of space explored.
- b.** Using magazine photographs, news clippings, and electronic articles (such as from the Internet), make a scrapbook about a current planetary mission.
- c.** Design a robotic mission to another planet or moon that will return samples of its surface to Earth. Name the planet or moon your spacecraft will visit. Show how your design will cope with the conditions of the planet's or moon's environment.

#6 - Describe the purpose and operation of ONE of the following:

- a.** Space shuttle or any other crewed orbital vehicle, whether government owned (U.S. or foreign) or commercial
- b.** International Space Station

#8 - Discuss with your counselor two possible careers in space exploration that interest you. Find out the qualifications, education, and preparation required and discuss the major responsibilities of those positions.

Stamp Collecting:

Read the Stamp Collecting merit badge book.

#6 - Do the following:

- a. Show a stamp album and how to mount stamps with or without hinges. Show at least ONE page that displays several stamps.
- b. Discuss at least THREE ways you can help to preserve stamps, covers, and albums in first-class condition.

#7 - Do at least TWO of the following:

- a. Design a stamp, cancellation, or cachet.
- b. Visit a post office, stamp club, or stamp show with an experienced collector. Explain what you saw and learned.
- c. Write a review of an interesting article from a stamp newspaper, magazine, book, or Web site (with your parent's permission).
- d. Research and report on a famous stamp-related personality or the history behind a particular stamp.
- e. Describe the steps taken to produce a stamp. Include the methods of printing, types of paper, perforation styles, and how they are gummed.
- f. Prepare a two- to three-page display involving stamps. Using ingenuity, as well as clippings, drawings, etc., tell a story about the stamps and how they relate to history, geography, or a favorite topic of yours.

#8 - Mount and show, in a purchased or homemade album, ONE of the following:

- a. A collection of 250 or more different stamps from at least 15 countries.
- b. A collection of a stamp from each of 50 different countries, mounted on maps to show the location of each.
- c. A collection of 100 or more different stamps from either one country or a group of closely related countries.
- d. A collection of 75 or more different stamps on a single topic. (Some interesting topics are Scouting, birds, insects, the Olympics, sports, flowers, animals, ships, holidays, trains, famous people, space, and medicine). Stamps may be from different countries.
- e. A collection of postal items discovered in your mail by monitoring it over a period of 30 days. Include at least five different types listed in requirement 3.

Surveying:

Read the Surveying merit badge book.

#6 - Get a copy of the deed to your property, or a piece of property assigned by your counselor, from the local courthouse or title agency.

NOTE: Scout must have had 7th grade math

Theater:

Read the Theater merit badge book.

#1 - See or read three full-length plays or scripts. These can be from the stage, movies, television, or video. Write a review of each. Comment on the story, acting, and staging.

#2 - Write a one-act play that will take at least eight minutes to perform. The play must have a main character, conflict, and a climax.

Veterinary Medicine:

Read the Veterinary Medicine merit badge book.

#6a - Visit a veterinary clinic, hospital, or veterinary referral teaching hospital that does work in one of the practices listed in requirement 1.

- **Spend as much time as you can** observing the veterinarians and their staff.
- **Write a report** on what you observed and learned at the facility.
- **Share your report** with your counselor.

Weather:

Read the Weather merit badge book.

#8 - Describe how the tilt of Earth's axis helps determine the climate of a region near the equator, near the poles, and across the area in between.

#9 - 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'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.

#10 - Do ONE of the following:

- a.** Give a talk of at least five minutes to a group (such as your unit or a Cub Scout pack) explaining the outdoor safety rules in the event of lightning, flash floods, and tornadoes. Before your talk, share your outline with your counselor for approval.
- b.** Read several articles about acid rain and give a prepared talk of at least five minutes to a group (such as your unit or a Cub Scout pack) about the articles. Before your talk, share your outline with your counselor for approval.