

- Shooting Sports

- Archery

- PRE. 1(d). Tell about your local and state laws for owning and using archery equipment
- POST. 5B(f)(2). Shooting at an 80-centimeter (32-inch) five-color target using the 10 scoring regions, make a minimum score of 160. Accomplish this in the following manner:  
  
Shoot 15 arrows in five-arrow ends, at a distance of 10 yards  
  
AND  
  
Shoot 15 arrows in five-arrow ends, at a distance of 15 yards.

- Shotgun

- PRE. 1(d). Explain the main points of the laws for owning and using guns in your community and state., 1(f). 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 give any special laws on the use of guns and ammunition, and (2) List the kinds of wildlife that can be legally hunted in your state.
- POST. 2A(k). Shooting score required-Hit at least 12 (48 percent) out of 25 targets in two 25-target groups. The two groups need not be shot in consecutive order. A minimum of 50 shots must be fired.

- Rifle

- PRE. 1(d).Give the main points of the laws for owning and using guns in your community and state , 1(f). 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 give any special laws on the use of guns and ammunition.(2) List the kinds of wildlife that can be legally hunted in your state

- **POST. 2(L).** Using a .22 caliber rimfire rifle and shooting from a bench rest or supported prone position at 50 feet, fire five groups (three shots per group) that can be covered by a quarter. Using these targets, explain how to adjust sights to zero a rifle. & **2(m).** Adjust sights to center the group on the target\* and fire five groups (five shots per group). According to the target used, each shot in the group must meet the following minimum score: (1) A-32 targets - 9; (2) A-17 or TQ-1 targets - 7; (3) A-36 targets - 5.

- **Life Skills**

- **First Aid**

- **PRE. 1.** Demonstrate to your counselor that you have current knowledge of all first-aid requirements for Tenderfoot, Second Class, and First Class ranks, **5(a)**. Prepare a first-aid kit for your home. Display and discuss its contents with your counselor, **5(b)**. With an adult leader, inspect your troop's first-aid kit. Evaluate it for completeness. Report your findings to your counselor and Scout leader., **7(a)**. With an adult leader, inspect your troop's first-aid kit. Evaluate it for completeness. Report your findings to your counselor and Scout leader., **7(b)**. Explain the use of an automated external defibrillator (AED). Identify the location of the AED at your school, place of worship, and troop meeting place, if one is present.

- E-Prep

- **PRE. 1.** Earn the First Aid merit badge, **2(b)**. Using a chart, graph, spreadsheet, or another method approved by your counselor, demonstrate your understanding of each aspect of emergency preparedness listed in requirement 2a (prevention, protection, mitigation, response, and recovery) for 10 emergency situations from the list below. You must use the first five situations listed below in boldface, plus any other five of your choice. Discuss your findings with your counselor.**(1)**  
Home kitchen fire (2) Home basement/storage room/garage fire (3) Explosion in the home (4) Automobile crash (5) Food-borne disease (food poisoning) (6) Fire or explosion in a public place (7) Vehicle stalled in the desert (8) Vehicle trapped in a blizzard (9) Earthquake or tsunami (10) Mountain/backcountry accident (11) Boating or water accident (12) Gas leak in a home or a building (13) Tornado or hurricane (14) Major flooding or a flash flood (15) Toxic chemical spills and releases (16) Nuclear power plant emergency (17) Avalanche (snowslide or rockslide) (18) Violence in a public place, **2(c)**. Meet with and teach your family how to get or build a kit, make a plan, and be informed for the situations on the chart you created for requirement 2b. Complete a family plan. Then meet with your counselor and report on your family meeting, discuss their responses, and share your family plan., **6(c)**. Find out who is your community's emergency management director and learn what this person does to prevent, protect, mitigate, respond to, and recover from emergency situations in your community. Discuss this information with your counselor, utilizing the information you learned from requirement 2b., **7(b)**. Prepare a written plan for mobilizing your troop when needed to do emergency service. If there is already a plan, explain it. Tell your part in making it work., **8(b)**. Prepare a personal emergency service pack for a mobilization call. Prepare a family emergency kit (suitcase or

waterproof box) for use by your family in case an emergency evacuation is needed. Explain the needs and uses of the contents.

- Fire Safety

- PRE. 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.(c) Explain what to do when you smell gas and when you smell smoke.(d) Explain how you would report a fire alarm.(e) Explain what fire safety equipment can be found in public buildings.(f) Explain who should use fire extinguishers and when these devices can be used.(g) Explain how to extinguish a grease pan fire.(h) Explain what fire safety precautions you should take when you are in a public building., 12. Determine if smoke detectors are required in all dwellings within your municipality. If so, explain which specific types are required. Tell your counselor what type of smoke detectors your house has or needs

- Search & Rescue

- PRE. 10. Find out about three career or volunteer opportunities in search and rescue. Pick one and find out the education, training, and experience required for this professional or volunteer position. Discuss this with your counselor, and explain why this position might interest you.

- Nature Lodge

- Bird Study

- PRE. 5. Find out about three career or volunteer opportunities in search and rescue. Pick one and find out the education, training, and experience required for this professional or volunteer position. Discuss this with your counselor, and explain why this position might interest you., 8. Do ONE of the following:

- (a) Go on a field trip with a local club or with others who are knowledgeable about birds in your area.

- (1) Keep a list or fill out a checklist of all the birds your group observed during the field trip.

- (2) Tell your counselor which birds your group saw and why some species were common and some were present in small numbers.

- (3) Tell your counselor what makes the area you visited good for finding birds.

- (b) By using a public library, the Internet, or contacting the National Audubon Society, find the name and location of the Christmas Bird Count nearest your home and obtain the results of a recent count.

- (1) Explain what kinds of information are collected during the annual event.

- (2) Tell your counselor which species are most common, and explain why these birds are abundant.

- (3) Tell your counselor which species are uncommon, and explain why these were present in small numbers. If the number of birds of these species is decreasing, explain why, and what, if anything, could be done to reverse their decline.

- Fishing

- PRE. 7. Obtain and review the regulations affecting game fishing where you live. Explain why they were adopted and what is accomplished by following them,10.

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

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

- Fly Fishing

- PRE. 6. Go to a suitable fishing location and observe what fish may be eating both above and beneath the water's surface. Explain the importance of matching the hatch,8. Obtain and review a copy of the regulations affecting game fishing where you live or where you plan to fish. Explain why they were adopted and what is accomplished by following them,11. 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. (It is not required that you eat the fish.)

- POST. 10. Catch at least one fish using a fly rod and a fly. Identify it and quickly release it live back into the water. Discuss this experience with your counselor.

- Forestry

- PRE. 1. Prepare a field notebook, make a collection, and identify 15 species of trees, wild shrubs, or vines in a local forested area. Write a description in which you identify and discuss the following:(a) The characteristics of leaf, twig, cone, or fruiting bodies (b) The habitat in which these trees, shrubs, or vines are found. (c) The important ways each tree, shrub, or vine is used by humans or wildlife and whether the species is native or was introduced to the area. If it is not native, explain whether it is considered invasive or potentially invasive.,5. With your parent's and counselor's approval, do ONE of the following: (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. (b) With a knowledgeable

individual, visit a logging operation or wood-using manufacturing plant. Write a brief report describing the following:

- The species and size of trees being harvested or used and the location of the harvest area or manufacturer
- The origin of the forest or stands of trees being utilized (e.g., planted or natural)
- The forest's successional stage. What is its future?
- Where the trees are coming from (land ownership) or where they are going (type of mill or processing plant)
- The products that are made from the trees
- How the products are made and used
- How waste materials from the logging operation or manufacturing plant are disposed of or utilized

(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.

○ **Plant Science**

- **PRE. 5.** Tell how to propagate plants by seeds, roots, cuttings, tubers, and grafting. Grow a plant by ONE of these methods.,  
6. List by common name at least 10 native plants and 10 cultivated plants that grow near your home. List five invasive, nonnative plants in your area and tell how they may be harmful. Tell how the spread of invasive plants may be avoided or controlled in ways that are not damaging to humans, wildlife, and the environment.,  
8. Choose ONE of the following options and complete each requirement:

Option 1: Agronomy

A. Describe how to prepare a seedbed.

B. Make and use a seed germination tester to test 50 seeds of four of the following plants: corn, cotton, alfalfa, soybeans, clover, wheat, rice, rye, barley. Determine the percentage of live seeds.

C. Tell about one important insect pest and one important disease that damage each of the following: corn, small grains, cotton. Collect and name five weeds that compete with crops in your locality. Tell how to control these weeds without harming people, wildlife, or useful insects.

D. On a map of the United States, identify the chief regions where corn, cotton, forage crops, small grain crops, and oil crops grow. Tell how climate and location of these regions make them leaders in the production of these crops.

E. Complete ONE of the following alternatives:

(1) Corn

(a) Grow a plot of corn and have your plot inspected by your counselor. Record seed variety or experimental code number.

(b) Tell about modern methods of commercial corn farming and the contributions that corn makes to today's food and fuel supply.

(c) Tell about an insect that can damage corn, and explain how it affects corn production and how it is controlled.

(2) Cotton

(a) Grow a plot of cotton and have your plot inspected by your counselor.

(b) Tell about modern methods of commercial cotton farming, and about the uses of cotton fiber and seed and the economic value of this crop.

(c) Tell about an insect that can damage cotton, and explain how it affects cotton production and how it is controlled.



### (3) Forage Crops

(a) Collect, count, and label samples of each for display: perennial grasses, annual grasses, legumes, and broadleaf weeds. Indicate how each grass and legume is used. Keep a log of the site where you found each sample and share it with your counselor.

(b) Explain how legumes can be used to enrich the soil and how they may deplete it under certain conditions. Explain how livestock may enrich or deplete the soil.

(c) Name five poisonous plants that are dangerous to livestock, and tell the different ways of using forage crops as feed for livestock.

### (4) Small Grains

(a) Give production figures for small grain crops listed in the U.S. Statistical Report or Agricultural Statistics Handbook for the latest year available.

(b) Help in harvesting a crop of grain. Tell how to reduce harvesting losses and about modern methods of growing one small grain crop.

(c) Visit a grain elevator, flour mill, cereal plant, feed or seed company. Talk with the operator. Take notes, and describe the processes used and tell your patrol, troop, or class about your visit.

### (5) Oil Crops

(a) Grow a plot of soybeans and have your plot inspected by your counselor.

(b) Tell about modern methods of growing soybeans on a commercial scale, and discuss the contributions soybeans make to our food supply.

(c) Explain why a killing frost just after emergence is critical for soybeans.

### Option 2: Horticulture

A. Visit one of the following places and tell what you learned about horticulture there: public garden, arboretum, retail nursery, wholesale nursery, production greenhouse, or conservatory greenhouse.

B. Explain the following terms: hardiness zone, shade tolerance, pH, moisture requirement, native habitat, texture, cultivar, ultimate size, disease resistance, habit, evergreen, deciduous, annual, perennial. Find out what hardiness zone you live in and list 10 landscape plants you like that are suitable for your climate, giving the common name and scientific name for each.

C. Do ONE of the following:

(1) Explain the difference between vegetative and sexual propagation methods, and tell some horticultural advantages of each. Grow a plant from a stem or root cutting or graft.

(2) Transplant 12 seedlings or rooted cuttings to larger containers and grow them for at least one month.

(3) Demonstrate good pruning techniques and tell why pruning is important.

(4) After obtaining permission, plant a tree or shrub properly in an appropriate site.

D. Do EACH of the following:

(1) Explain the importance of good landscape design and selection of plants that are suitable for particular sites and conditions.

(2) Tell why it is important to know how big a plant will grow.

(3) Tell why slower-growing landscape plants are sometimes a better choice than faster-growing varieties.

E. Choose ONE of the following alternatives and complete EACH of the requirements:

(1) Bedding Plants

(a) Grow bedding plants appropriate for your area in pots or flats from seed or cuttings in a manufactured soil mix. Explain why you chose the mix and tell what is in it.

(b) Transplant plants to a bed in the landscape and maintain the bed until the end of the growing season. Record your activities, observations, materials used, and costs.

(c) Demonstrate mulching, fertilizing, watering, weeding, and deadheading, and tell how each practice helps your plants.

(d) Tell some differences between gardening with annuals and perennials.

## (2) Fruit, Berry, and Nut Crops

(a) Plant five fruit or nut trees, grapevines, or berry plants that are suited to your area. Take full care of fruit or nut trees, grapevines, or berry plants through one season.

(b) Prune a tree, vine, or shrub properly. Explain why pruning is necessary.

(c) Demonstrate one type of graft and tell why this method is useful.

(d) Describe how one fruit, nut, or berry crop is processed for use.

## (3) Woody Ornamentals

(a) Plant five or more trees or shrubs in a landscape setting. Take full care of the trees or shrubs you have planted for one growing season.

(b) Prune a tree or shrub properly. Explain why pruning is necessary.

(c) List 10 trees (in addition to those listed in general requirement 5 above) and tell your counselor how each is used in the landscape. Give the common and scientific names.

(d) Describe the size, texture, color, flowers, leaves, fruit, hardiness, cultural requirements, and any special characteristics that make each type of tree or shrub attractive or interesting.

(e) Tell five ways trees help improve the quality of our environment.

## (4) Home Gardening

(a) Design and plant a garden or landscape that is at least 10 by 10 feet.

(b) Plant 10 or more different types of plants in your garden. Tell why you selected particular varieties of vegetables and flowers. Take care of the plants in your garden for one season.

(c) Demonstrate soil preparation, staking, watering, weeding, mulching, composting, fertilizing, pest management, and pruning. Tell why each technique is used.

(d) Tell four types of things you could provide to make your home landscape or park a better place for birds and wildlife. List the common and scientific names of 10 kinds of native plants that are beneficial to birds and wildlife in your area.

### Option 3: Field Botany

A. Visit a park, forest, Scout camp, or other natural area near your home. While you are there:

(1) Determine which species of plants are the largest and which are the most abundant. Note whether they cast shade on other plants.

(2) Using information from maps, textbooks, or the internet, describe the environmental factors that may influence the presence of plants on your site, including latitude, climate, air and soil temperature, soil type and pH, geology, hydrology, and topography.

(3) Record any differences in the types of plants you see at the edge of a forest, near water, in burned areas, or near a road or railroad.

B. Select a study site that is at least 100 by 100 feet. Make a list of 10 woody plants (trees and shrubs) and 10 non-woody plants in the study site. Find out which of these are native plants and which are exotic (or nonnative).

C. Tell how an identification key works and use a simple key to identify 10 kinds of plants (in addition to those in general requirement 5 above). Tell the difference

between common and scientific names and tell why scientific names are important.

D. After gaining permission, collect, identify, press, mount, and label 10 different plants that are common in your area. Tell why voucher specimens are important for documentation of a field botanist's discoveries.

E. Obtain a list of rare plants of your state. Tell what is being done to protect rare plants and natural areas in your state. Write a paragraph about one of the rare plants in your state.

F. Choose ONE of the following alternatives and complete EACH of its requirements:

(1) Tree Inventory

(a) Identify the trees of your neighborhood, a park, a section of your town, or a Scout camp.

(b) Collect, press, and label leaves, flowers, or fruits to document your inventory.

(c) List the types of trees by scientific name and give common names. Note the number and size (diameter at 4 feet above ground) of trees observed and determine the largest of each species in your study area.

(d) Show two or more people how to use a leaf or twig key to identify at least five species of trees or shrubs.

(2) Transect Study

(a) Visit two sites, at least one of which is different from the one you visited for Field Botany requirement 1.

(b) Use the transect method to study the two different kinds of plant communities. The transects should be at least 500 feet long.

(c) At each site, record observations about the soil and other influencing factors AND do the following. Then make a graph or chart to show the results of your studies.

(1) Identify each tree within 10 feet of the transect line.

(2) Measure the diameter of each tree at 4 feet above the ground, and map and list each tree.

(3) Nested Plot

(a) Visit two sites, at least one of which is different from the one you visited for Field Botany requirement 1.

(b) Mark off nested plots and inventory two different kinds of plant communities.

(c) At each site, record observations about the soil and other influencing factors AND do the following. Then make a graph or chart to show the results of your studies.

(1) Identify, measure, and map each tree in a 100-by-100-foot plot. (Measure the diameter of each tree larger than 3 inches in diameter at 4 feet above the ground.)

(2) Identify and count all trees and shrubs in a 10-by-10-foot plot within each of the larger areas.

(3) Identify and count all broad-leaved plants (trees, shrubs, vines, and herbaceous plants) all plants (wildflowers, ferns, grasses, mosses, etc.) of a 4-by-4-foot plot within the 10-by-10-foot plot.

(4) Herbarium Visit

(a) Write ahead and arrange to visit an herbarium at a university, park, or botanical garden; OR, visit an herbarium Web site (with your parent's permission).

(b) Tell how the specimens are arranged and how they are used by researchers. If possible, observe voucher specimens of a plant that is rare in your state.

(c) Tell how a voucher specimen is mounted and prepared for permanent storage.

Tell how specimens should be handled so that they will not be damaged.

(d) Tell about the tools and references used by botanists in an herbarium.

(5) Plant Conservation Organization Visit

(a) Write ahead and arrange to visit a private conservation organization or government agency that is concerned with protecting rare plants and natural areas.

(b) Tell about the activities of the organization in studying and protecting rare plants and natural areas.

(c) If possible, visit a nature preserve managed by the organization. Tell about land management activities such as controlled burning, or measures to eradicate invasive (nonnative) plants or other threats to the plants that are native to the area.

○ **Insect Study**

- **PRE. 5(a).** Observe 20 different live species of insects in their habitat. In your observations, include at least four orders of insects, **5(b).** Make a scrapbook of the 20 insects you observe in 4a. Include photographs, sketches, illustrations, and articles. Label each insect with its common and scientific names, where possible. Share your scrapbook with your merit badge counselor, **6(a).** From your scrapbook collection, identify three species of insects helpful to humans and five species of insects harmful to humans, **6(b).** Discuss the use of integrated pest management vs. chemical methods of insect control. What are the advantages and disadvantages of each? **9.** Raise an insect through complete metamorphosis from its larval stage to its adult stage (e.g., raise a butterfly or moth from a caterpillar, **10.** Do ONE of the following:(a) Observe an ant colony in a formicarium (ant farm). Find the queen and worker ants. Explain to your

counselor the different chambers found within an ant colony. (b) Study a hive of bees. Remove the combs and find the queen. Estimate the amount of brood and count the number of queen cells. Explain how to determine the amount of honey in the hive.

- Nature

- PRE. 4(a)(1). In the field, identify eight species of birds, 4(d)(1). Collect and identify either in the field or through photographs 10 species of insects or spiders, 4(d)(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(e)(2). Collect four kinds of animal food eaten by fish in the wild., 4(f)(2). Collect, mount, and label six shells., 4(g)(2). Do ONE of the following options: (a) Collect and label the seeds of six plants OR the leaves of 12 plants. (b) Photograph the seeds of six plants OR the leaves of 12 plants and create a catalog of your photos.
- 4(h)(1). Soils and Rocks 1) Collect and identify three different types of soil that represent soils high in sand, clay and humus.

- Mining in Society

- PRE. 5. Do one of the following: 5(a). With your parent's and counselor's approval, interview a worker in the mining industry. Discuss the work, equipment, and technology used in this individual's position, and learn about a current project. Ask to see reports, drawings, and/or maps made for the project. Find out about the educational and professional requirements for this individual's position. Ask how the individual's mining career began. Discuss with your counselor what you have learned., 5(b). With your parent's permission and counselor's approval, visit a mining or minerals exhibit at a museum. Find out



about the history of the museum's exhibit and the type of mining it represents.

Give three examples of how mineral resources have influenced history., 5(c).

With your parent's permission and counselor's approval, visit an active mine. \*

Find out about the tasks required to explore, plan, permit, mine, and process the resource mined at that site. Take photographs if allowed, and request brochures

from your visit. Share photos, brochures, and what you have learned with your

counselor., 5(d)With your parent's permission and counselor's approval, visit a

mining equipment manufacturer or supplier. \* Discuss the types of equipment produced or supplied there, and in what part of the mining process this equipment

is used. Take photographs if allowed, and request brochures from your visit.

Share photos, brochures, and what you have learned with your counselor.,

5(e)Discuss with your counselor two methods used to reduce rock in size, one of

which uses a chemical process to extract a mineral. Explain the difference

between smelting and refining.,5(f)Learn about the history of a local mine,

including what is or was mined there, how the deposit was found, the mining

techniques and processes used, and how the mined resource is or was used. Find

out from a historian, community leader, or businessperson how mining has

affected your community. Note any social, cultural, or economic consequences of

mining in your area. Share what you have learned with your counselor.,

7(a)Explore the anticipated benefits of interplanetary mining. Learn how NASA

and private investors may search for, extract, and process minerals in outer space,

and the primary reasons for mining the moon, other planets, or near- Earth

asteroids. Find out how exploration and mineral processing in space differ from

exploration on Earth. Share what you have learned with your counselor, and

discuss the difficulties encountered in exploring, collecting, and analyzing

surface or near-surface samples in space., 7(b) Identify three minerals found

dissolved in seawater or found on the ocean floor, and list three places where the ocean is mined today. Share this information with your counselor and discuss the chief incentives for mining the oceans for minerals, the reclamation necessary after mining is over, and any special concerns when mining minerals from the ocean. Find out what sustainability problems arise from mining the oceans.

Discuss what you learn with your counselor., **7(c)** Learn what metals and minerals are recycled after their original use has ended. List four metals and two nonmetals and find out how each can be recycled. Find out how recycling affects the sustainability of natural resources and how this idea is related to mining.

Discuss what you learn with your counselor., **7(d)** With your parent's permission, use the Internet and other resources to determine the current price of gold, copper, aluminum, or other commodities like cement or coal, and find out the five-year price trend for two of these. Report your findings to your counselor., **8:**

**Do one of the following:** **8(a)** With your parent's and counselor's approval, interview a worker in the mining industry. Discuss the work, equipment, and technology used in this individual's position, and learn about a current project. Ask to see reports, drawings, and/or maps made for the project. Find out about the educational and professional requirements for this individual's position. Ask how the individual's mining career began. Discuss with your counselor what you have learned., **8(b)** Find out about three career opportunities in the mining industry. 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., **8(c)** With your parent's permission and counselor's approval, visit a career academy or community college to learn about educational and training requirements for a position in the mining industry that interests you.

Find out why this position is critical to the mining industry and discuss what you learned with your counselor.

- Geology

- PRE. 5. Do ONE of the following (a OR b OR c OR d):

- (a) Surface and Sedimentary Processes Option

- (1) Conduct an experiment approved by your counselor that demonstrates how sediments settle from suspension in water. Explain to your counselor what the exercise shows and why it is important.

- (2) Using topographical maps provided by your counselor, plot the stream gradients (different elevations divided by distance) for four different stream types (straight, meandering, dendritic, trellis). Explain which ones flow fastest and why, and which ones will carry larger grains of sediment and why.

- (3) On a stream diagram, show areas where you will find the following features: cut bank, fill bank, point bar, medial channel bars, lake delta. Describe the relative sediment grain size found in each feature.

- (4) Conduct an experiment approved by your counselor that shows how some sedimentary material carried by water may be too small for you to see without a magnifier.

- (5) Visit a nearby stream. Find clues that show the direction of water flow, even if the water is missing. Record your observations in a notebook, and sketch those clues you observe. Discuss your observations with your counselor.

- (b) Energy Resources Option

- (1) List the top five Earth resources used to generate electricity in the United States.

- (2) Discuss source rock, trap, and reservoir rock - the three components necessary for the occurrence of oil and gas underground.

(3) Explain how each of the following items is used in subsurface exploration to locate oil or gas: reflection seismic, electric well logs, stratigraphic correlation, offshore platform, geologic map, subsurface structure map, subsurface isopach map, and core samples and cutting samples.

(4) Using at least 20 data points provided by your counselor, create a subsurface structure map and use it to explain how subsurface geology maps are used to find oil, gas, or coal resources.

(5) Do ONE of the following activities:

(a) Make a display or presentation showing how oil and gas or coal is found, extracted, and processed. You may use maps, books, articles from periodicals, and research found on the Internet (with your parent's permission). Share the display with your counselor or a small group (such as your class at school) in a five-minute presentation.

(b) With your parent's and counselor's permission and assistance, arrange for a visit to an operating drilling rig. While there, talk with a geologist and ask to see what the geologist does onsite. Ask to see cutting samples taken at the site.

(c) Mineral Resources Option

(1) Define rock. Discuss the three classes of rocks including their origin and characteristics.

(2) Define mineral. Discuss the origin of minerals and their chemical composition and identification properties, including hardness, specific gravity, color, streak, cleavage, luster, and crystal form.

(3) Do ONE of the following:

(a) Collect 10 different rocks or minerals. Record in a notebook where you obtained (found, bought, traded) each one. Label each specimen, identify its class and origin, determine its chemical composition, and list its physical properties. Share your collection with your counselor.

(b) With your counselor's assistance, identify 15 different rocks and minerals. List the name of each specimen, tell whether it is a rock or mineral, and give the name of its class (if it is a rock) or list its identifying physical properties (if it is a mineral).

(4) List three of the most common road building materials used in your area. Explain how each material is produced and how each is used in road building.

(5) Do ONE of the following activities:

(a) With your parent's and counselor's approval, visit an active mining site, quarry, or sand and gravel pit. Tell your counselor what you learned about the resources extracted from this location and how these resources are used by society.

(b) With your counselor, choose two examples of rocks and two examples of minerals. Discuss the mining of these materials and describe how each is used by society.

(c) With your parent's and counselor's approval, visit the office of a civil engineer and learn how geology is used in construction. Discuss what you learned with your counselor.

(d) Earth History Option

(1) Create a chart showing suggested geological eras and periods. Determine which period the rocks in your region might have been formed.

(2) Explain the theory of plate tectonics. Make a chart explaining, or discuss with your counselor, how the processes of plate tectonics work. Discuss how plate tectonics determines the distribution of most of the Earth's volcanoes, earthquakes, and mountain belts.

(3) Explain to your counselor the processes of burial and fossilization, and discuss the concept of extinction.

(4) Explain to your counselor how fossils provide information about ancient life, environment, climate, and geography. Discuss the following terms and explain how animals from each habitat obtain food: benthonic, pelagic, littoral, lacustrine, open marine, brackish, fluvial, eolian, protected reef.

(5) Collect 10 different fossil plants or animals OR (with your counselor's assistance) identify 15 different fossil plants or animals. Record in a notebook where you obtained (found, bought, traded) each one. Classify each specimen to the best of your ability, and explain how each one might have survived and obtained food. Tell what else you can learn from these fossils.

- Weather

- PRE. 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.

- Oceanography

- PRE. 7 Do ONE of the following:

- (a) Make a plankton net.\* Tow the net by a dock, wade with it, hold it in a current, or tow it from a rowboat. Do this for about 20 minutes. Save the sample. Examine it under a microscope or high-power glass. Identify the three most common types of plankton in the sample.
    - (b) Make a series of models (clay or plaster and wood) of a volcanic island. Show the growth of an atoll from a fringing reef through a barrier reef. Describe the Darwinian theory of coral reef formation.
    - (c) Measure the water temperature at the surface, midwater, and bottom of a body of water four times daily for five consecutive days. You may measure depth with a rock tied to a line. Make a Secchi disk to measure turbidity (how much suspended sedimentation is in the water). Measure the air temperature. Note the cloud cover and roughness of the water. Show your findings (air and

water temperature, turbidity) on a graph. Tell how the water temperature changes with air temperature.

(d) Make a model showing the inshore sediment movement by littoral currents, tidal movement, and wave action. Include such formations as high and low waterlines, low-tide terrace, berm, and coastal cliffs. Show how offshore bars are built up and torn down.

(e) Make a wave generator. Show reflection and refraction of waves. Show how groins, jetties, and breakwaters affect these patterns.

(f) Track and monitor satellite images available on the Internet for a specific location for three weeks. Describe what you have learned to your counselor.

- **Reptile & Amphibian**

- **PRE. 8** Do ONE of the following:

- (a) 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).

- (b) Choose a reptile or amphibian that you can observe at a local zoo, aquarium, nature center, 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.

■ **POST. 9** Do TWO of the following:

- (a) Identify at night three kinds of toads or frogs by their voices. Imitate the song of each for your counselor. Stalk each with a flashlight and discover how each sings and from where.
- (b) Identify by sight eight species of reptiles or amphibians.
- (c) Using visual aids, give a brief talk to a small group on three different reptiles and amphibians.

○ **Soil & Water Conservation**

■ **PRE. 2(d)** Take pictures or draw two kinds of soil erosion, **3(c)** Take pictures or draw three kinds of erosion-control practices., **4(b)** Outline the smallest watershed that you can find on a contour map., **7** Do TWO of the following:

(a) Make a trip to TWO of the following places. Write a report of more than 500 words about the soil and water and energy conservation practices you saw.

- (1) An agricultural experiment
- (2) A managed forest or a woodlot, range, or pasture
- (3) A wildlife refuge or a fish or game management area
- (4) A conservation-managed farm or ranch
- (5) A managed watershed
- (6) A waste-treatment plant
- (7) A public drinking water treatment plant
- (8) An industry water use installation
- (9) A desalination plant

(b) Plant 100 trees, bushes and/or vines for a good purpose.

(c) Seed an area of at least one-fifth acre for some worthwhile conservation purposes, using suitable grasses or legumes alone or in a mixture.



(d) Study a soil survey report. Describe the things in it. On tracing paper over any of the soil maps, outline an area with three or more different kinds of soil. List each kind of soil by full name and map symbol.

(e) Make a list of places in your neighborhood, camps, school grounds, or parks that have erosion, sedimentation, or pollution problems. Describe how these could be corrected through individual or group action.

(f) Carry out any other soil and water conservation project approved by your merit badge counselor.

- **Sci-Tech**

- **Digital Technology**

- **PRE. 6** Do **THREE** of the following. For each project you complete, copy the files to a backup device and share the finished projects with your counselor.

(a) Using a spreadsheet or database program, develop a food budget for a patrol weekend campout OR create a troop roster that includes the name, rank, patrol, and telephone number of each Scout. Show your counselor that you can sort the roster by each of the following categories: rank, patrol, and alphabetically by name.

(b) Using a word processor, write a draft letter to the parents of your troop's Scouts, inviting them to a troop event.

(c) Using a graphics program, design and draw a campsite plan for your troop OR create a flier for an upcoming troop event, incorporating text and some type of visual such as a photograph or an illustration.

(d) Using a presentation software program, develop a report about a topic approved by your counselor. For your presentation, create at least five slides, with each one incorporating text and some type of visual such as a photograph or an illustration.

(e) Using a digital device, take a picture of a troop activity. Send or transfer this image to a device where it can be shared with your counselor.

(f) Make a digital recording of your voice, transfer the file to a different device, and have your counselor play back the recording.

(g) Create a blog and use it as an online journal of your Scouting activities, including group discussions and meetings, campouts, and other events. Include at least five entries and two photographs or illustrations. Share your blog with your counselor. You need not post the blog to the internet; however, if you choose to go live with your blog, you must first share it with your parents AND counselor AND get their approval.

(h) Create a webpage for your troop, patrol, school, or place of worship. Include at least three articles and two photographs or illustrations. Include at least one link to a website of interest to your audience. You need not post the page to the internet; however, if you decide to do so, you must first share the webpage with your parents AND counselor AND get their approval.

- Electricity

- **PRE. 2** Complete an electrical home safety inspection of your home, using the checklist found in the Electricity merit badge pamphlet or one approved by your counselor. Discuss what you find with your counselor.,**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(a)** Read an electric meter and, using your family's electric bill, determine the energy cost from the meter readings.

- Handicraft

- Photography

- PRE. 1(a) Show your counselor your current Cyber Chip.

- Journalism

- PRE. 2 Do either A OR B:

(a) Newspaper, magazine, and online journalism

1. All on the same day, read a local newspaper, a national newspaper, a newsmagazine, and (with your parent's permission) an online news source. From each source, clip, read, and compare a story about the same event. Tell your counselor how long each story is and how fair and accurate the stories are in presenting different points of view. Tell how each source handled the story differently, depending on its purpose or audience.

2. Visit the office of a newspaper, magazine, or internet news site. Ask for a tour of the various divisions (editorial, business, and printing). During your tour, talk to an executive from the business side about management's relations with reporters, editors, and photographers and what makes a "good" newspaper, magazine, or internet news site.

(b) Radio and television journalism

1. All on the same day, watch a local and national network newscast, listen to a radio newscast, and (with your parent's permission) view a national broadcast news source online. List the different news items and features presented, the different elements used, and the time in minutes and seconds and the online space devoted to each story. Compare the story lists and discuss whether the stories are fair and accurate. Explain why different news outlets treated the stories differently and/or presented a different point of view.

2. Visit a radio or television station. Ask for a tour of the various departments, concentrating on those related to news broadcasts. During your tour, talk to the station manager or other station management executive about station operations, particularly how management and the news staff

work together, and what makes a "good" station. If possible, go with a reporter to cover a news event.

- Scout Skills

- Camping

- PRE. 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(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(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 8c. At least one of those meals must be a trail meal requiring the use of a lightweight stove., 9(a) Camp a total of 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. Sleep each night under the sky or in a tent you have pitched. If the camp provides a tent that has already been pitched, you need not pitch your own tent., 9(b) On any of these camping experiences, you must do TWO of the following, only with proper preparation and under qualified supervision., 9(c) Perform a conservation project approved by the landowner or land managing agency. This can be done alone or with others.

- Cooking

- **PRE. 4** Cooking at home. Using the MyPlate food guide or the current USDA nutrition model, plan menus for three full days of meals (three breakfasts, three lunches, and three dinners) plus one dessert. Your menus should include enough to feed yourself and at least one adult, keeping in mind any special needs (such as food allergies) and how you keep your foods safe and free from cross-contamination. List the equipment and utensils needed to prepare and serve these meals.

Then do the following:

- (a) Find recipes for each meal. Create a shopping list for your meals showing the amount of food needed to prepare for the number of people you will serve. Determine the cost for each meal.
- (b) Share and discuss your meal plan and shopping list with your counselor.
- (c) Using at least five of the 10 cooking methods from requirement 3, prepare and serve yourself and at least one adult (parent, family member, guardian, or other responsible adult) one breakfast, one lunch, one dinner, and one dessert from the meals you planned.\*

\*The meals for requirement 4 may be prepared on different days, and they need not be prepared consecutively. The requirement calls for Scouts to plan, prepare, and serve one breakfast, one lunch, and one dinner to at least one adult; those served need not be the same for all meals.

- (d) Time your cooking to have each meal ready to serve at the proper time. Have an adult verify the preparation of the meal to your counselor.
- (e) After each meal, ask a person you served to evaluate the meal on presentation and taste, then evaluate your own meal. Discuss what you learned with your counselor, including any adjustments that could have improved or enhanced your meals. Tell how planning and preparation help ensure a successful meal.

■ **6** Trail and backpacking meals. Do the following:

- (a) Using the MyPlate food guide or the current USDA nutrition model, plan a meal for trail hiking or backpacking that includes one breakfast, one lunch, one dinner, and one snack. These meals must consider weight, not require refrigeration and are to be consumed by three to five people (including you). List the equipment and utensils needed to prepare and serve these meals.
- (b) Create a shopping list for your meals, showing the amount of food needed to prepare and serve each meal, and the cost for each meal.
- (c) Share and discuss your meal plan and shopping list with your counselor. Your plan must include how to repackage foods for your hike or backpacking trip to eliminate as much bulk, weight, and garbage as possible.
- (d) While on a trail hike or backpacking trip, prepare and serve two meals and a snack from the menu planned for this requirement. At least one of those meals must be cooked over a fire, or an approved trail stove (with proper supervision).\*\*
- (e) After each meal, have those you served evaluate the meal on presentation and taste, then evaluate your own meal. Discuss what you learned with your counselor, including any adjustments that could have improved or enhanced your meals. Tell how planning and preparation help ensure successful trail hiking or backpacking meals.
- (f) Explain to your counselor how you should divide the food and cooking supplies among the patrol in order to share the load. Discuss how to properly clean the cooking area and store your food to protect it from animals.

- **Signs, Signals, & Codes**

- **PRE. 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 no-trace principles by replacing or returning trail markers to their original locations.

- **Wilderness Survival**

- PRE. 5 Put together a personal survival kit and be able to explain how each item in it could be useful.
- Entrepreneurship
  - PRE. 3 Identify and interview an individual who has started a business. Learn about this person's educational background, early work experiences, where the idea for the business came from, and what was involved in starting the business. Find out how the entrepreneur raised the capital (money) to start the business, examples of successes and challenges faced, and how the business is currently doing (if applicable). Discuss with your counselor what you have learned.
- Geocaching
  - PRE. 7 With your parent's permission\*, go to [www.geocaching.com](http://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., 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
  - POST. 9 Act as an official during an orienteering event. This may be during the running of the course you set up for requirement 8., 10 Teach orienteering techniques to your patrol, troop or crew.
- Backpacking
  - PRE. 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(b) Demonstrate that you know how to operate a backpacking stove safely and to handle liquid fuel safely., 8(c) Prepare at least three meals using a stove and fuel

you can carry in a backpack, 9 Do the following:

(a) Write a plan that includes a schedule for a patrol/crew backpacking hike of at least 2 miles.

(b) Conduct a pre hike inspection of the patrol and its equipment.

(c) Show that you know how to properly pack your personal gear and your share of the crew's gear and food.

(d) Show that you can properly shoulder your pack and adjust it for proper wear.

(e) While using the plan you developed for requirement 9a, carry your fully loaded pack to complete a hike of at least 2 miles. 10 Using Leave No Trace principles, 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 Do the following:

(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.

(b) Using Leave No Trace principles, take the trek you have planned and, while on the trek, complete at least one service project approved by your merit badge counselor.

(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.

- Hiking



- PRE. 4 Take four 10-mile hikes and one 20-mile hike, each on a different day, and each of continuous miles. Prepare a written hike plan before each hike and share it with your merit badge counselor or a designee for approval before starting the hike. Include map routes, a clothing and equipment list, and a list of items for a trail lunch. You may stop for as many short rest periods as needed, as well as one meal, during each hike, but not for an extended period such as overnight.\*

- (a) 10-mile hike #1
- (b) 10-mile hike #2
- (c) 10-mile hike #3
- (d) 10-mile hike #4
- (e) 20-mile hike

5 After each of the hikes (or during each hike if on one continuous "trek") in requirement

- The New Trail

- Scout

- PRE/POST. 2(a) Describe how the Scouts in the troop provide its leadership. , 2(b) Describe the four steps of Scout advancement, 2(c) Describe what the Scouts BSA ranks are and how they are earned, 2(d) Describe what merit badges are and how they are earned, 6 With your parent or guardian, complete the exercises in the pamphlet How to Protect Your Children From Child Abuse: A

Parent's Guide and earn the Cyber Chip Award for your grade or view the Personal Safety Awareness videos (with your parent or guardian's permission), 7 Since joining the troop and while working on the Scout rank, participate in a Scoutmaster conference.

○ Tenderfoot

- PRE/POST. 1(a) Present yourself to your leader, prepared for an overnight camping trip. Show the personal and camping gear you will use. Show the right way to pack and carry it, 1(b) Spend at least one night on a patrol or troop campout. Sleep in a tent you have helped pitch., 4(d) Assemble a personal first-aid kit to carry with you on future campouts and hikes. Tell how each item in the kit would be used. , 5(b) Describe what to do if you become lost on a hike or campout, 6(b) Develop and describe a plan for improvement in each of the activities listed in Tenderfoot requirement 6a. Keep track of your activity for at least 30 days., 6(c) Show improvement (of any degree) in each activity listed in Tenderfoot requirement 6a after practicing for 30 days. (See page 77.) • Pushups (Record the number done correctly in 60 seconds.) (See page 79.) • Situps or curl-ups (Record the number done correctly in 60 seconds.) (See page 80.) • Back-saver sit-and-reach (Record the distance stretched.) (See page 80.) • 1-mile walk/run (Record the time), 7(b) Participate in a total of one hour of service in one or more service projects approved by your Scoutmaster. Explain how your service to others relates to the Scout slogan and Scout motto., 9 Demonstrate Scout spirit by living the Scout Oath and Scout Law. Tell how you have done your duty to God and how you have lived four different points of the Scout Law in your everyday life., 10 While working toward the Tenderfoot rank, and after completing Scout rank requirement 7, participate in a Scoutmaster conference. , 11 Successfully complete your board of review for the Tenderfoot rank.

- Second Class

- PRE/POST. 1(a) Since joining Scouts BSA, participate in five separate troop/patrol activities, at least three of which must be held outdoors. Of the outdoor activities, at least two must include overnight camping. These activities do not include troop or patrol meetings. On campouts, spend the night in a tent that you pitch or other structure that you help erect, such as a lean-to, snow cave, or tepee, 5(c) Tell what precautions must be taken for a safe swim, 5(d) Explain why swimming rescues should not be attempted when a reaching or throwing rescue is possible. Explain why and how a rescue swimmer should avoid contact with the victim, 7(c) Participate in a school, community, or troop program on the dangers of using drugs, alcohol, and tobacco and other practices that could be harmful to your health. Discuss your participation in the program with your family, and explain the dangers of substance addictions. Report to your Scoutmaster or other adult leader in your troop about which parts of the Scout Oath and Scout Law relate to what you learned. , 8(b) Explain what respect is due the flag of the United States, 8(c) With your parents or guardian, decide on an amount of money that you would like to earn, based on the cost of a specific item you would like to purchase. Develop a written plan to earn the amount agreed upon and follow that plan; it is acceptable to make changes to your plan along the way. Discuss any changes made to your original plan and whether you met your goal, 8(d) At a minimum of three locations, compare the cost of the item for which you are saving to determine the best place to purchase it. After completing Second Class requirement 8c, decide if you will use the amount that you earned as originally intended, save all or part of it, or use it for another purpose, 8(e) Participate in two hours of service through one or more service projects approved by your Scoutmaster. Tell how your service to others relates to

the Scout Oath., 10 Demonstrate Scout spirit by living the Scout Oath and Scout Law. Tell how you have done your duty to God and how you have lived four different points of the Scout Law (not to include those used for Tenderfoot requirement 9) in your everyday life, 11 While working toward the Second Class rank, and after completing Tenderfoot requirement 10, participate in a Scoutmaster conference, 12 Successfully complete your board of review for the Second Class rank

- First Class

- PRE/POST. 1(a) Since joining Scouts BSA, participate in 10 separate troop/patrol activities, at least six of which must be held outdoors. Of the outdoor activities, at least three must include overnight camping. These activities do not include troop or patrol meetings. On campouts, spend the night in a tent that you pitch or other structure that you help erect, such as a lean-to, snow cave, or tepee, 1(b) Explain the potential impacts of camping, both on the environment and on other outdoor users. Explain why the Outdoor Code and Leave No Trace principles are important for protecting the outdoors, 2(a) Help plan a menu for one of the above campouts that includes at least one breakfast, one lunch, and one dinner, and that requires cooking at least two of the meals. Tell how the menu includes the foods from MyPlate or the current USDA nutritional model and how it meets nutritional needs for the planned activity or campout, 2(b)Using the menu planned in First Class requirement 2a, make a list showing a budget and the food amounts needed to feed three or more youth. Secure the ingredients, 2(c)Show which pans, utensils, and other gear will be needed to cook and serve these meals, 2(e)On one campout, serve as cook. Supervise your assistant(s) in using a stove or building a cooking fire. Prepare the breakfast, lunch, and dinner planned in First Class requirement 2a. Supervise the cleanup., 3(d)Use lashings

to make a useful camp gadget or structure, 4(a) Using a map and compass, complete an orienteering course that covers at least one mile and requires measuring the height and/or width of designated items (tree, tower, canyon, ditch, etc., 4(b) Demonstrate how to use a handheld GPS unit, GPS app on a smartphone, or other electronic navigation system. Use GPS to find your current location, a destination of your choice, and the route you will take to get there. Follow that route to arrive at your destination., 6(c) Identify the basic parts of a canoe, kayak, or other boat. Identify the parts of a paddle or an oar, 6(d) Describe proper body positioning in a watercraft, depending on the type and size of the vessel. Explain the importance of proper body position in the boat, 7(f) Explain how to obtain potable water in an emergency, 8(a) After completing Second Class requirement 7a, be physically active at least 30 minutes each day for five days a week for four weeks. Keep track of your activities, 8(b) Share your challenges and successes in completing First Class requirement 8a. Set a goal for continuing to include physical activity as part of your daily life, 9(b) Investigate an environmental issue affecting your community. Share what you learned about that issue with your patrol or troop. Tell what, if anything, could be done by you or your community to address the concern, 9(c) On a Scouting or family outing, take note of the trash and garbage you produce. Before your next similar outing, decide how you can reduce, recycle, or repurpose what you take on that outing, and then put those plans into action. Compare your results, 9(d) Participate in three hours of service through one or more service projects approved by your Scoutmaster. The project(s) must not be the same service project(s) used for Tenderfoot requirement 7b and Second Class requirement 8e. Explain how your service to others relates to the Scout Law, 10 Tell someone who is eligible to join Scouts BSA, or an inactive Scout, about your Scouting activities. Invite this

person to an outing, activity, service project, or meeting. Provide information on how to join or encourage the inactive Scout to become active. Share your efforts with your Scoutmaster or other adult leader, 11 Demonstrate Scout spirit by living the Scout Oath and Scout Law. Tell how you have done your duty to God and how you have lived four different points of the Scout Law (different from those points used for previous ranks) in your everyday life, 12. While working toward the First Class rank, and after completing Second Class requirement 11, participate in a Scoutmaster conference., 13. Successfully complete your board of review for the First Class rank

- Citizenship in the Nation

- PRE. 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 there and what you learned about its function in the local community and how it serves this nation.

- Personal Fitness

- PRE. 1(b)Have a dental examination. Get a statement saying that your teeth have been checked and cared for. Tell how to care for your teeth., 6(b)Keep track of what you eat and drink for three days. Identify three healthy eating goals you

want to work on., 7 Outline a comprehensive 12-week physical fitness program using the results of your fitness tests. Be sure your program incorporates the endurance, intensity, and warm-up guidelines discussed in the Personal Fitness merit badge pamphlet. Before beginning your exercises, have the program approved by your counselor and parents., 8 Complete the physical fitness program you outlined in requirement 7. Keep a log of your fitness program activity (how long you exercised; how far you ran, swam, or biked; how many exercise repetitions you completed; your exercise heart rate; etc.). Keep a log of your weekly healthy eating goals. Repeat the aerobic fitness, muscular strength, and flexibility tests every four weeks and record your results. After the 12th week, repeat all of the required activities in each of the three test categories, record your results, and show improvement in each one. Discuss how well you met your healthy eating goals over these 12 weeks. Discuss the meaning and benefit of your experience, and describe your long-term plans regarding your personal fitness.

- **Communications**

- **PRE. 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., 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.