



WWM Scout Merit Badge Program

Wilderness Wildlife Museum Welcomes Scouts



Fly Fishing Merit Badge

Requirements for the Fly Fishing merit badge:

1. Explain to your counselor the injuries that could occur while fly-fishing and the proper treatment, including cuts, scratches, puncture wounds, insect bites, hypothermia, dehydration, and heat reactions. Explain how to remove a hook that has lodged in your arm. Name and explain five safety practices you should always follow while fly-fishing.
2. Discuss how to match a fly rod, line, and leader to get a balanced system. Discuss several types of fly lines, and explain how and when each would be used. Review with your counselor how to care for this equipment.
3. Demonstrate how to tie proper knots to prepare a fly rod for fishing:
 - a. Tie a backing to a fly reel spool using the arbor backing knot.
 - b. Attach backing to fly line using the nail knot.
 - c. Attach a leader to fly line using the needle knot, nail knot, or loop-to-loop connection.
 - d. Add a tippet to a leader using a double surgeon's loop or blood knot.
 - e. Tie a fly onto the terminal end of the leader using the improved clinch knot.
4. Explain how each of the following types of flies are used: dry flies, wet flies, nymphs, streamers, bass bugs, and poppers. What does each imitate? Tie at least two types of the flies mentioned in this requirement.
5. Demonstrate the ability to cast a fly consistently and accurately using overhead and roll cast techniques.
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.
7. Explain the importance of practicing Leave No Trace and how it positively affects fly-fishing resources.
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.
9. Explain what good outdoor sportsmanlike behavior is and how it relates to fishermen. Tell how the Outdoor Code of the Boy Scouts of America relates to a fishing enthusiast, including the aspects of littering, trespassing, courteous behavior, and obeying fishing regulations.
10. Using the fly-fishing techniques you have learned, catch two different kinds of fish and identify them. Release at least one of them unharmed. Clean and cook another fish.



Soil and Water Conservation Merit Badge

Requirements for the Soil and Water Conservation merit badge:

1. Do the following:
 - a. Tell what soil is. Tell how it is formed.
 - b. Describe three kinds of soil. Tell how they are different.
 - c. Describe the three main plant nutrients in fertile soil. Tell how they can be put back when used up.
2. Do the following:
 - a. Define soil erosion.
 - b. Tell why soil conservation is important. Tell how it affects you.
 - c. Name three kinds of soil erosion. Describe each.
 - d. Take pictures of or draw two kinds of soil erosion.
3. Do the following:
 - a. Tell what is meant by conservation practices.
 - b. Describe the effect of three kinds of erosion-control practices.
 - c. Take pictures or draw three kinds of erosion-control practices.
4. Do the following:
 - a. Explain what a watershed is.
 - b. Outline the smallest watershed that you can find on a contour map.
 - c. Outline, as far as the map will allow, the next larger watershed which also has the smaller one in it.
 - d. Explain what a river basin is. Tell why all people living in a river basin should be concerned about land and water use in the basin.
5. Do the following:
 - a. Make a drawing to show the hydrologic cycle.
 - b. Demonstrate at least two of the following actions of water in relation to soil: percolation, capillary action, precipitation, evaporation, transpiration.
 - c. Explain how removal of vegetation will affect the way water runs off a watershed.
 - d. Tell how uses of forest, range, and farmland affect usable water supply.
 - e. Explain how industrial use affects water supply.
6. Do the following:
 - a. Tell what is meant by water pollution.
 - b. Describe common sources of water pollution and explain the effects of each.

- c. Tell what is meant by 'primary water treatment', 'secondary waste treatment', and 'biochemical oxygen demand'.
 - d. Make a drawing showing the principles of complete waste treatment.
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 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. Industry water use installation.
 9. Desalinization 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 purpose, using suitable grasses or legumes alone or in a mixture.
 - d. Study a soil survey report. Describe the things in it. Using tracing paper and pen, trace over any of the soil maps; and outline an area with three or more different kinds of soil. List each kind of soil by full name and map symbol.
 - e. Make a list of places in your neighborhood, camps, school ground, or park having erosion, sedimentation, or pollution problems. Describe how these could be corrected through individual or group action.
 - f. Carry out any other soil and water conservation project approved by your merit badge counselor.



Shotgun Shooting Merit Badge

January, 2007

Requirements for the Shotgun Shooting merit badge:

1. Do the following:
 - a. Explain why BB and pellet air guns must always be treated with the same respect as firearms.
 - b. Describe how you would react if a friend visiting your home asked to see your or your family's firearm(s).
 - c. Explain the need for and use and types of eye and hearing protection.
 - d. Explain the main points of the laws for owning and using guns in your community and state.
 - e. Explain how hunting is related to the wise use of renewable wildlife resources.
 - 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 or ammunition, and
 2. List the kinds of wildlife that can be legally hunted in your state.
 - g. Explain to your counselor the proper hygiene guidelines used in shooting.
 - h. Identify and explain three shotgun sports. Identify places in your community where you could shoot these sports and explain how you can join or be a part of shooting sports activities.
 - i. Give your counselor a list of sources that you could contact for information on firearms and their use.
2. Do ONE of the following options:

OPTION A: SHOTGUN SHOOTING (Modern Shotshell Type)

- a. Identify the principal parts of a shotgun, action types, and how they function.
- b. Identify and demonstrate the rules for safely handling a shotgun.
- c. Demonstrate how to handle shotguns in a safe manner.
- d. Identify the parts of a shotgun shell and their functions.
- e. Identify the various gauges of shotguns. Explain which one you would use and why.
- f. Identify and demonstrate the fundamentals of safely shooting a shotgun. Explain what a misfire, hangfire, and squib fire are, and explain the procedures to follow in response to each.
- g. Identify and explain each rule for safely shooting a shotgun.

- h. Demonstrate the knowledge, skills, and attitude necessary to safely shoot moving targets, using the fundamentals of shotgun shooting.
- i. Identify the materials needed to clean a shotgun.
- j. Demonstrate how to clean a shotgun properly and safely.
- k. Discuss what points you would consider in selecting a shotgun.
- l. Shooting score required. - Hit at least 12 out of 25 targets (48 percent) in two 25-target groups. The two groups need not be shot in consecutive order.

Shooting skill rules:

- Targets may be thrown by a hand trap, manual mechanical trap, or on any trap or skeet field. Note: If using a hand trap or manual mechanical trap, the trap operator should be at least 5 feet to the right and 3 feet to the rear of the shooter. If throwing left-handed with a hand trap the trap operator should be at least 5 feet to the left and 3 feet to the rear of the shooter.
- All targets should be thrown at a reasonable speed and in the same direction.
- Targets should be generally thrown so as to climb in the air after leaving the trap.
- Scores may be fired at any time, either in formal competition or in practice.
- Any gauge shotgun not exceeding 12 gauge may be used.
- Standard clay targets customarily used for trap and skeet are to be used.
- Any ammunition, either factory or hand loaded, may be used.
- Shooters must shoot in rounds of 25. Rounds need not be shot continuously or on the same day (the term 'round' refers to a single series of 25 shots).
- If using a trap field, shoot station 3 with traps set to throw straightaway targets.
- If using a skeet field, shoot station 7 low house.

OPTION B: MUZZLE-LOADING SHOTGUN SHOOTING

- w. Discuss a brief history of the development of the muzzle-loading shotgun.
- x. Identify principal parts of percussion and flintlock shotguns and discuss how they function.
- y. Demonstrate and discuss the safe handling rules of a muzzle-loading shotgun.
- z. Identify the various grades of black powder and their proper and safe use.
- aa. Discuss proper safety procedures pertaining to black powder use and storage.
- bb. Discuss proper components of a load.
- cc. Identify proper procedures and accessories used for safely loading a muzzle-loading shotgun.
- dd. Demonstrate the knowledge, skills, and attitude necessary to safely shoot a muzzle-loading shotgun on a range, including range procedures. Explain what a misfire, hangfire, and squib fire are, and explain the procedures to follow in response to each.
- ee. Shoot a moving target with a muzzle-loading shotgun using the five fundamentals of firing the shot.
- ff. Identify the materials needed to clean a muzzle-loading shotgun properly and safely.

- gg. Demonstrate how to clean a muzzle-loading shotgun safely, and how to clear a muzzle-loading shotgun's failure to fire and explain or demonstrate proper correction procedures.
- hh. Identify the causes of a muzzle-loading shotgun's failure to fire and explain or demonstrate proper preventative procedures.
- ii. Discuss what points you would consider in selecting a muzzle-loading shotgun.
- jj. Shooting score required. : Hit at least 5 out of 15 targets in two 15-target groups. The two groups need not be shot in consecutive order.

Shooting skill rules:

- Targets may be thrown by a hand trap, manual mechanical trap, or on any trap or skeet field. Note: if using a hand trap or manual mechanical trap, the trap operator should be at least 5 feet to the right and 3 feet to the rear of the shooter. If throwing left-handed with a hand trap the trap operator should be at least 5 feet to the left and 3 feet to the rear of the shooter.
- All targets should be thrown at a reasonable speed and in the same direction.
- Targets should be generally thrown so as to climb in the air after leaving trap.
- Scores may be fired at any time, either in formal competition or in practice.
- Any gauge shotgun not exceeding 10 gauge may be used.
- Standard clay targets customarily used for trap and skeet are to be used.
- On a standard trap field, the shooter should be positioned 8 yards behind the trap house. The trap should be set to throw only straightaway targets.
- If using a skeet field, shoot station 7 low house.



First Aid Merit Badge

January, 2008

Requirements for the First Aid merit badge:

1. Satisfy your counselor that you have current knowledge of all first-aid requirements for Tenderfoot, Second Class, and First Class ranks.
2. Do the following:
 - a. Explain how you would obtain emergency medical assistance from your home, on a wilderness camping trip, and during an activity on open water.
 - b. Explain the term triage.
 - c. Explain the standard precautions as applied to bloodborne pathogens.
 - d. Prepare a first aid kit for your home. Display and discuss its contents with your counselor.
3. Do the following:
 - a. Explain what action you should take for someone who shows signals of shock, for someone who shows signals of a heart attack, and for someone who shows signals of stroke.
 - b. Identify the conditions that must exist before performing CPR on a person. Then demonstrate proper technique in performing CPR using a training device approved by your counselor.
 - c. Explain the use of an automated external defibrillator (AED).
 - d. Show the steps that need to be taken for someone suffering from a severe cut on the leg and on the wrist. Tell the dangers in the use of a tourniquet and the conditions under which its use is justified.
 - e. Explain when a bee sting could be life threatening and what action should be taken for prevention and for first aid.
 - f. Explain the symptoms of heat stroke and what action needs to be taken for first aid and for prevention.
4. Do the following:
 - a. Describe the signs of a broken bone. Show first-aid procedures for handling fractures (broken bones), including open (compound) fractures of the forearm, wrist, upper leg, and lower leg using improvised materials.
 - b. Describe the symptoms and possible complications and demonstrate proper procedures for treating suspected injuries to the head, neck, and back. Explain what measures can be taken to reduce the possibility of further complicating these injuries.
5. Describe the symptoms, proper first-aid procedures, and possible prevention measures for the following conditions:

- a. Hypothermia
 - b. Convulsions/seizures
 - c. Frostbite
 - d. Dehydration
 - e. Bruises, strains, sprains
 - f. Burns
 - g. Abdominal pain
 - h. Broken, chipped, or loosened tooth
 - i. Knocked-out tooth
 - j. Muscle cramps
6. Do TWO of the following:
- a. If a sick or injured person must be moved, tell how you would determine the best method. Demonstrate this method.
 - b. With helpers under your supervision, improvise a stretcher and move a presumably unconscious person.
 - c. With your counselor's approval, arrange a visit with your patrol or troop to an emergency medical facility or through an American Red Cross chapter for a demonstration of how an AED is used.
7. Teach another Scout a first-aid skill selected by your counselor



Camping Merit Badge

January, 2007

Requirements for the Camping merit badge:

1. Show that you know first aid for and how to prevent injuries or illnesses that could occur while camping, including hypothermia, frostbite, heat reactions, dehydration, altitude sickness, insect stings, tick bites, snakebites, blisters, and hyperventilation.
2. Learn the Leave No Trace principles and the Outdoor Code and explain what they mean. Write a personal plan for implementing these principles on your next outing.
3. Make a written plan for an overnight trek and show how to get to your camping spot using a topographical map and compass, or a topographical map and a GPS receiver.
4. Do the following:
 - a. Make a duty roster showing how your patrol is organized for an actual overnight campout. List assignments for each member.
 - 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. Do the following:
 - a. Prepare a list of clothing you would need for overnight campouts in both warm and cold weather. Explain the term 'layering'.
 - b. Discuss footwear for different kinds of weather and how the right footwear is important for protecting your feet.
 - c. Explain the proper care and storage of camping equipment (clothing, footwear, bedding).
 - d. List the outdoor essentials necessary for any campout, and explain why each item is needed.
 - e. Present yourself to your Scoutmaster with your pack for inspection. Be correctly clothed and equipped for an overnight campout.
6. Do the following:
 - a. Describe the features of four types of tents, when and where they could be used, and how to care for tents. Working with another Scout, pitch a tent.
 - b. Discuss the importance of camp sanitation and tell why water treatment is essential. Then demonstrate two ways to treat water.
 - c. Describe the factors to be considered in deciding where to pitch your tent.
 - d. Tell the difference between internal- and external-frame packs. Discuss the advantages and disadvantages of each.

- e. Discuss the types of sleeping bags and what kind would be suitable for different conditions. Explain the proper care of your sleeping bag and how to keep it dry. Make a comfortable ground bed.
7. Prepare for an overnight campout with your patrol by doing the following:
 - a. Make a checklist of personal and patrol gear that will be needed.
 - 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. Do the following:
 - a. Explain the safety procedures for:
 1. Using a propane or butane/propane stove
 2. Using a liquid fuel stove
 3. Proper storage of extra fuel
 - b. Discuss the advantages and disadvantages of different types of lightweight cooking stoves.
 - c. Prepare a camp menu. Explain how the menu would differ from a menu for a backpacking or float trip. Give recipes and make a food list for your patrol. Plan two breakfasts, three lunches, and two suppers. Discuss how to protect your food against bad weather, animals, and contamination.
 - d. 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. Show experience in camping by doing the following:
 - a. Camp out a total of at least 20 days and 20 nights. The 20 days and 20 nights must be at a designated Scouting activity or event. Sleep each night under the sky or in a tent you have pitched. You may use a week of long-term camp toward this requirement. If the camp provides a tent that has already been pitched, you need not pitch your own tent.
 - b. On any of these camping experiences, you must do TWO of the following, only with proper preparation and under qualified supervision:
 1. Hike up a mountain, gaining at least 1,000 vertical feet.
 2. Backpack, snowshoe, or cross-country ski for at least four miles.
 3. Take a bike trip of at least 15 miles or at least four hours.
 4. Plan and carry out a float trip of at least four hours.
 5. Plan and carry out an overnight snow camping experience.
 6. Rappel down a rappel route of 30 feet or more.
 - c. Perform a conservation project approved by the landowner or land managing agency.
10. Discuss how the things you did to earn this badge have taught you about personal health and safety, survival, public health, conservation, and good citizenship. In your discussion, tell how Scout spirit and the Scout Oath and Law apply to camping and outdoor ethics.



Fish and Wildlife Management Merit Badge

Requirements for the Fish and Wildlife Management merit badge:

1. Describe the meaning and purposes of fish and wildlife conservation and management.
2. List and discuss at least three major problems that continue to threaten your state's fish and wildlife resources.
3. Describe some practical ways in which everyone can help with the fish and wildlife effort.
4. List and describe five major fish and wildlife management practices used by managers in your state.
5. Do ONE of the following:
 - a. Construct, erect, and check regularly at least two artificial nest boxes (wood duck, bluebird, squirrel, etc.) and keep written records for one nesting season.
 - b. Construct, erect, and check regularly bird feeders and keep written records of the kinds of birds visiting the feeders in the winter.
 - c. Design and implement a backyard wildlife habitat improvement project and report the results.
 - d. Design and construct a wildlife blind near a game trail, water hole, salt lick, bird feeder, or birdbath and take good photographs or make sketches from the blind of any combination of 10 wild birds, mammals, reptiles, or amphibians.
6. Do ONE of the following:
 - a. Observe and record 25 species of wildlife. Your list may include mammals, birds, reptiles, amphibians, and fish. Write down when and where each animal was seen.
 - b. List the wildlife species in your state that are classified as endangered, threatened, exotic, game species, furbearers, or migratory game birds.
 - c. Start a scrapbook of North American wildlife. Insert markers to divide the book into separate parts for mammals, birds, reptiles, amphibians, and fish. Collect articles on such subjects as life histories, habitat, behavior, and feeding habits on all of the five categories and place them in your notebook accordingly. Articles and pictures may be taken from newspapers or science, nature and outdoor magazines; or from other sources including the Internet (with your parent's permission). Enter at least five articles on mammals, five on birds, five on reptiles, five on amphibians, and five on fish. Put each animal in alphabetical order. Include pictures whenever possible.

7. Do ONE of the following:
 - a. Determine the age of five species of fish from scale samples or identify various age classes of one species in a lake and report the results.
 - b. Conduct a creel census on a small lake to estimate catch per unit effort.
 - c. Examine the stomach contents of three species of fish and record the findings. It is not necessary to catch any fish for this option. You may visit a cleaning station set up for fishermen or find another, similar alternative.
 - d. Make a freshwater aquarium. Include at least four species of native plants and four species of animal life, such as whirligig beetles, freshwater shrimp, tadpoles, water snails, and golden shiners. After 60 days of observation, discuss with your counselor the life cycles, food chains, and management needs you have recognized. After completing requirement 7d to your counselor's satisfaction, with your counselor's assistance, check local laws to determine what you should do with the specimens you have collected.
8. Using resources found at the library and in periodicals, books, and the Internet (with your parent's permission), learn about three different kinds of work done by fish and wildlife managers. Find out the education and training requirements for each position.



Truck Transportation Merit Badge

Requirements for the Truck Transportation merit badge:

1. List the major truck lines serving your town.
2. Do the following:
 - a. Describe the role of truck transportation within commerce (the movement of goods, funds, and information).
 - b. Describe how trucks fit into a company's supply chain. This could be a manufacturer, importer, wholesaler, or retailer.
 - c. On paper, map out how goods that are manufactured overseas are transported to a retailer in this country.
3. Describe the difference between the gasoline engine and the diesel engine that power trucks. List the advantages of each.
4. Visit a truck terminal and complete items 4a through 4e. After your visit, share what you have learned with your counselor.
 - a. Find out what kind of maintenance program the company follows to help keep its fleet, drivers, and the roadway safe.
 - b. Find out how dispatchers maintain communication with drivers on the road.
 - c. Talk with a professional truck driver about safety. Learn about the truck driver's rules of the road for safe driving. List five safe-driving rules every professional truck driver must follow.
 - d. Review the driver's log and find out what kind of information the log contains.
 - e. Learn about important federal regulations that help ensure public safety.
5. Do the following:
 - a. Outline the general organization of a trucking company. Describe what each department does.
 - b. List five positions with trucking companies and describe each one.
6. Name five government agencies that work closely with the trucking industry. Describe their role.
7. List five different kinds of trucks. Tell the service each provides.
8. Assume that you are going to ship by truck 500 pounds of goods (freight class 65) from your town to another town 500 miles away. Your shipment must arrive within three days. Explain in writing:
 - a. How to prepare the shipment
 - b. How to compare at least three carriers for time in transit and rates
 - c. How to choose which carrier to use
 - d. How to insure the shipment for damages

9. Define the following terms: bill of lading, ETA, logbook, intermodal, containers, tariff, shippers, carrier, consignee, drayage, cartage.
10. Learn about opportunities in the field of truck transportation. Choose one career in which you are interested and discuss with your counselor the major responsibilities of that position and the qualifications, education, and training such a position requires



Wilderness Survival Merit Badge

January, 2008

Requirements for the Wilderness Survival merit badge:

1. Show that you know first aid for and how to prevent injuries or illnesses likely to occur in backcountry settings, including hypothermia, heat reactions, frostbite, dehydration, blisters, insect stings, tick bites, and snakebites.
2. From memory, list the seven priorities for survival in a backcountry or wilderness location. Explain the importance of each one with your counselor.
3. Describe ways to avoid panic and maintain a high level of morale when lost, and explain why this is important.
4. Describe the steps you would take to survive in the following conditions:
 - a. Cold and snowy
 - b. Wet (forest)
 - c. Hot and dry (desert)
 - d. Windy (mountains or plains)
 - e. Water (ocean, lake, or river)
5. Put together a personal survival kit and be able to explain how each item in it could be useful. ([Sample Kit](#))
6. Using three different methods (other than matches), build and light three fires.
7. Do the following:
 - a. Show five different ways to attract attention when lost.
 - b. Demonstrate how to use a signal mirror.
 - c. Describe from memory five ground-to-air signals and tell what they mean.
8. Improvise a natural shelter. For the purpose of this demonstration, use techniques that have little negative impact on the environment. Spend a night in your shelter.
9. Explain how to protect yourself from insects, reptiles, and bears.
10. Demonstrate three ways to treat water found in the outdoors to prepare it for drinking.
11. Show that you know the proper clothing to wear in your area on an overnight in extremely hot weather and in extremely cold weather.
12. Explain why it usually is not wise to eat edible wild plants or wildlife in a wilderness survival situation.



Rifle Shooting Merit Badge

Requirements for the Rifle Shooting merit badge:

1. Do the following:
 - a. Explain why BB and pellet air guns must always be treated with the same respect as firearms.
 - b. Describe how you would react if a friend visiting your home asked to see your or your family's firearm(s).
 - c. Explain the need for, and use and types of, eye and hearing protection.
 - d. Give the main points of the laws for owning and using guns in your community and state.
 - e. Explain how hunting is related to the wise use of renewable wildlife resources.
 - f. Obtain a copy of the hunting laws for your state. Explain the main points of hunting laws in your state and give any special laws on the use of guns and ammunition.
 - g. Identify and explain how you can join or be a part of shooting sports activities.
 - h. Explain to your counselor the proper hygienic guidelines used in shooting.
 - i. Give to your counselor a list of sources that you could contact for information on firearms and their uses.
2. Do ONE of the following options:
 - Option A - Rifle Shooting (Modern Cartridge Type)**
 - a. Identify the three main parts of a rifle, and tell how they function.
 - b. Identify and demonstrate the three fundamental rules for safe gun handling.
 - c. Identify the two types of cartridges, their parts, and how they function.
 - d. Explain to your counselor what a misfire, hangfire, and squib fire are, and explain the procedures to follow in response to each.
 - e. Identify and demonstrate the five fundamentals of shooting a rifle safely.
 - f. Identify and explain each rule for safe shooting.
 - g. Demonstrate the knowledge, skills, and attitude necessary to safely shoot a rifle from the benchrest position or supported prone position while using the five fundamentals of rifle shooting.
 - h. Identify the basic safety rules for cleaning a rifle, and identify the materials needed.
 - i. Demonstrate how to clean a rifle properly and safely.
 - j. Discuss what points you would consider in selecting a rifle.

- k. Using a .22 caliber rimfire rifle and shooting from a benchrest 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.
- l. 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.
 - Note: It is not always practical to adjust the sights (i.e.' when using a borrowed fixed-sight rifle). For requirement 2l, you may demonstrate your ability to use the shooting fundamentals by shooting five shot groups (five shots per group) in which all shots can be covered by a quarter and then explain how to adjust the sights to zero the rifle.

Option B - Air Rifle Shooting (BB or Pellet)

- m. Identify the three main parts of an air rifle, and tell how they function.
- n. Identify and demonstrate the three fundamental rules for safe gun handling.
- o. Identify the two most common types of air rifle ammunition.
- p. Identify and demonstrate the five fundamentals of shooting a rifle safely.
- q. Identify and explain each rule for shooting an air rifle safely.
- r. Demonstrate the knowledge, skills, and attitude necessary to safely shoot a target from the benchrest position or supported prone position while using the five fundamentals of rifle shooting.
- s. Identify the basic safety rules for cleaning an air rifle, and identify the materials needed.
- t. Demonstrate how to clean an air rifle safely.
- u. Discuss what points you would consider in selecting an air rifle.
- v. Using a BB gun or pellet air rifle and shooting from a bench rest or supported prone position at 15 feet for BB guns or 33 feet for air rifles, fire five groups (three shots per group) that can be covered by a quarter.
- w. 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. BB rifle at 15 feet or 5 meters using TQ-5 targets : 8;
 - 2. pellet air rifle at 25 feet using TQ-5 target : 8, at 33 feet or 10 meters using AR-1 targets : 6.

Option C - Muzzleloading Rifle Shooting

- x. Discuss a brief history of the development of muzzleloading rifles.
- y. Identify principal parts of percussion and flintlock rifles and discuss how they function.
- z. Demonstrate and discuss the safe handling rules of muzzleloading rifles.

- aa. Identify the various grades of black powder and their proper use.
- bb. Discuss proper safety procedures pertaining to black powder use and storage.
- cc. Discuss proper components of a load.
- dd. Identify proper procedures and accessories used for loading a muzzleloading rifle.
- ee. Demonstrate the knowledge, skills, and attitude necessary to safely shoot a muzzleloading rifle on a range, including range procedures.
- ff. Shoot a target with a muzzleloading rifle using the five fundamentals of firing a shot.
- gg. Identify the materials needed to clean a muzzleloading rifle safely. Using these materials, demonstrate how to clean a muzzleloading rifle safely.
- hh. Identify the causes of a muzzleloading rifle's failure to fire and explain or demonstrate proper correction procedures.
- ii. Discuss what points you would consider in selecting a muzzleloading rifle.
- jj. Using a muzzleloading rifle of .45 or .50 caliber and shooting from a bench rest or supported prone position, fire three groups (three shots per group) at 50 feet that can be covered by the base of a standard-size soft drink can.
- kk. Center the group on the target and fire three groups (five shots per group). According to the target used, each shot in the group must meet the following minimum score:
 - 1. at 25 yards using NRA A-23 or NMLRA 50-yard targets : 7;
 - 2. at 50 yards using NRA A-25 or NMLRA 100-yard targets : 7.



Nature Merit Badge

Requirements for the Nature merit badge:

1. Name three ways in which plants are important to animals. Name a plant that is protected in your state or region, and explain why it is at risk.
2. Name three ways in which animals are important to plants. Name an animal that is protected in your state or region, and explain why it is at risk.
3. Explain the term "food chain." Give an example of a four-step land food chain and a four-step water food chain.
4. Do all of the requirements in FIVE of the following fields:
 - a. Birds
 1. In the field, identify eight species of birds.
 2. Make and set out a birdhouse OR a feeding station OR a birdbath. List what birds used it during a period of one month.
 - b. Mammals
 1. In the field, identify three species of wild animals.
 2. Make plaster casts of the tracks of a wild mammal.
 - c. Reptiles and Amphibians
 1. Show that you can recognize the poisonous snakes in your area.
 2. In the field, identify three species of reptiles or amphibians.
 3. Recognize one species of toad or frog by voice; OR identify one reptile or amphibian by eggs, den, burrow, or other signs.
 - d. Insects and Spiders
 1. Collect, mount, and label 10 species of insects or spiders.
 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.
 - e. Fish
 1. Catch and identify two species of fish.
 2. Collect four kinds of animal food eaten by fish in the wild.
 - f. Mollusks and Crustaceans
 1. Identify five species of mollusks and crustaceans.
 2. Collect, mount, and label six shells.
 - g. Plants
 1. In the field, identify 15 species of wild plants.
 2. Collect and label seeds of six plants OR the leaves of 12 plants.
 - h. Soils and Rocks

1. Collect and identify soils found in different layers of a soil profile.
2. Collect and identify five different types of rocks from your area.

NOTE: In most cases all specimens should be returned to the wild at the location of original capture after the requirements have been met. Check with your merit badge counselor for those instances where the return of these specimens would not be appropriate.

Under the Endangered Species Act of 1973, some plants and animals are or may be protected by federal law. The same ones and/or others may be protected by state law. Be sure that you do not collect protected species.

Your state may require that you purchase and carry a license to collect certain species. Check with the wildlife and fish and game officials in your state regarding species regulations before you begin to collect.



Insect Study Merit Badge

Requirements for the Insect Study merit badge:

1. Tell how insects are different from all other animals. Show the differences between insects, centipedes, and spiders.
2. Point out and name the main parts of an insect.
3. Describe the characteristics that distinguish the principal families and orders of insects.
4. Do the following:
 - a. Observe 20 different live species of insects in their habitat. In your observations, include at least four orders of insects.
 - 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.
5. Do the following:
 - a. From your scrapbook collection, identify three species of insects helpful to humans and five species of insects harmful to humans.
 - b. Describe some general methods of insect control.
6. Compare the life histories of a butterfly and a grasshopper. Tell how they are different.
7. Raise an insect through complete metamorphosis from its larval stage to its adult stage (eg, raise a butterfly or moth from a caterpillar)*.
8. Observe an ant colony or a beehive. Tell what you saw.
9. Tell the things that make social insects different from solitary insects.
10. Tell how insects fit in the food chains of other insects, fish, birds, and mammals.
11. Find out about three career opportunities in insect study. 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.

* Some insects are endangered species and are protected by federal or state law. Every species is found only in its own special type of habitat. Be sure to check natural resources authorities in advance to be sure that you will not be collecting any species that is known to be protected or endangered, or in any habitat where collecting is prohibited. In most cases, all specimens should be returned at the location of capture after the requirement is met. Check with your merit badge counselor for those instances where the return of these specimens would not be appropriate.



Hiking Merit Badge

January, 2008

Requirements for the Hiking merit badge:

1. Show that you know first aid for injuries or illnesses that could occur while hiking, including hypothermia, heatstroke, heat exhaustion, frostbite, dehydration, sunburn, sprained ankle, insect stings, tick bites, snakebite, blisters, hyperventilation, and altitude sickness.
2. Explain and, where possible, show the points of good hiking practices including the principles of Leave No Trace, hiking safety in the daytime and at night, courtesy to others, choice of footwear, and proper care of feet and footwear.
3. Explain how hiking is an aerobic activity. Develop a plan for conditioning yourself for 10-mile hikes, and describe how you will increase your fitness for longer hikes.
4. Make a written plan for a 10-mile hike. Include map routes, a clothing and equipment list, and a list of items for a trail lunch.
5. Take five hikes, each on a different day, and each of 10 continuous miles. Prepare a hike plan for each hike. *
6. Take a hike of 20 continuous miles in one day following a hike plan you have prepared. *
7. After each of the hikes (or during each hike if on one continuous "trek") in requirements 5 and 6, write a short report of your experience. Give dates and descriptions of routes covered, the weather, and any interesting things you saw. Share this report with your merit badge counselor.

* The hikes in requirements 5 and 6 can be used in fulfilling Second Class (2a) and First Class (3) rank requirements, but only if Hiking merit badge requirements 1, 2, 3, and 4 have been completed to the satisfaction of your counselor. The hikes of requirements 5 and 6 *cannot* be used to fulfill requirements of other merit badges



Fishing Merit Badge

Requirements for the Fishing merit badge:

1. Explain to your counselor the injuries that could occur while fishing and the proper treatment, including cuts, scratches, puncture wounds, insect bites, hypothermia, dehydration, and heat reactions. Explain how to remove a hook that has lodged in your arm. Name and explain five safety practices you should always follow while fishing.
2. Learn and explain the differences between two types of fishing outfits. Point out and identify the parts of several types of rods and reels. Explain how and when each would be used. Review with your counselor how to care for this equipment.
3. Demonstrate the proper use of two different types of fishing equipment.
4. Demonstrate how to tie the following knots: clinch, palomar, turle, blood loop (barrel knot), and surgeon's loop. Explain how each knot is used and when to use it.
5. Name and identify five basic artificial lures and five natural baits and explain how to fish with them. Explain why bait fish are not to be released.
6. Explain the importance of practicing Leave No Trace and how it positively affects fishing resources.
7. Give the regulations affecting game fishing where you live. Explain why they were adopted and what you accomplish by following those regulations.
8. Explain what good outdoor sportsmanlike behavior is and how it relates to fishermen. Tell how the Outdoor Code of the Boy Scouts of America relates to a fishing sports enthusiast, including the aspects of littering, trespassing, courteous behavior, and obeying fishing regulations.
9. Catch two different kinds of fish and identify them. Release at least one of them unharmed. Clean and cook another fish.



Bird Study Merit Badge

Requirements for the Bird Study merit badge:

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



Rowing Merit Badge

January, 2007

Requirements for the Rowing merit badge:

1. Show that you know first aid for and how to prevent injuries or illnesses that could occur while rowing, including cold and heat reactions, dehydration, contusions, lacerations, and blisters.
2. Do the following:
 - a. Identify the conditions that must exist before performing CPR on a person. Explain how such conditions are recognized.
 - b. Demonstrate proper technique for performing CPR using a training device approved by your counselor.
3. Before doing the following requirements, successfully complete the BSA swimmer test. Jump feetfirst into water over your head in depth. Level off and swim 75 yards in a strong manner using one or more of the following strokes: sidestroke, breaststroke, trudgen, or crawl; then swim 25 yards using an easy resting backstroke. The 100 yards must be completed in one swim without stops and must include at least one sharp turn. After completing the swim, rest by floating.
4. Review and discuss Safety Afloat and demonstrate the proper fit and use of personal flotation devices (PFDs).
5. Do ONE of the following:
 - a. Alone or with a passenger, do the following correctly in either a fixed-seat or sliding-seat rowboat:
 1. Launch
 2. Row in a straight line for a quarter mile. Stop, make a pivot turn, and return to the starting point.
 3. Backwater in a straight line for 50 yards. Make a turn under way and return to the starting point.
 4. Land and moor or rack your craft.
 5. Tie the following mooring knots: clove hitch, roundturn with two half hitches, bowline, Wellman's knot, and mooring hitch.
 - b. Participate as a rowing team member in a competitive rowing meet. The team may be sponsored by a school, club, or Scout unit. The meet must include competition between two or more teams with different sponsors. Complete at least 10 hours of team practice prior to the meet.
6. Do ONE of the following:
 - a. In a fixed-seat rowboat, come alongside a dock and help a passenger into the boat. Pull away from the dock, change position with your passenger, and scull in good

- form over the stern for 10 yards, including at least one 180-degree turn. Resume your rowing position, return along side the pier, and help your passenger out of the boat.
- b. In a sliding-seat rowboat, come alongside a pier and, with your buddy assisting you, get out onto the pier. Help your buddy into the boat. Reverse roles with your buddy and repeat the procedure.
7. Participate in a swamped boat drill, including righting and stabilizing the craft, reboarding in deep water, and making headway. Tell why you should stay with a swamped boat.
 8. Alone in a rowboat, push off from the shore or a dock. Row 10 yards to a swimmer. While giving instructions to the swimmer, turn the boat so that the swimmer can hold onto the stern. Tow him to shore.
 9. Show or explain the proper use of anchors for rowboats.
 10. Describe the following:
 - a. Types of craft used in commercial, competitive, and recreational rowing.
 - b. Four common boatbuilding materials. Give some positive and negative points of each.
 - c. Types of oarlocks used in competitive and recreational rowing.
 11. Discuss the following:
 - a. The advantage of feathering oars while rowing
 - b. Precautions regarding strong winds and heavy waves, and boat-handling procedures in rough water and windstorms
 - c. How to properly fit out and maintain a boat in season, and how to prepare and store a boat for winter
 - d. How to calculate the weight a boat can carry under normal conditions
 - e. The differences between fixed-seat and sliding-seat rowing
 - f. The different meaning of the term *sculling* in fixed- and sliding-seat rowing.
 - g. The health benefits from rowing for exercise

Information on the Boy Scout merit badges has been obtained with the help of local scouts, troop leaders and scout parents. Further information has been obtained through the following sources: Boy Scout Handbook and <http://www.boyscouttrail.com/boy-scouts/merit-badges.asp> .