



[AdvancementAsk Andy](#)
[Awards](#)
[Baloo's Bugle](#)
[Camps](#)
[Clipart](#)
[Cubmasters](#)
[E-mail Lists](#)
[Forums](#)
[Jamborees](#)
[International](#)
[MacScouter](#)
[Merit Badges](#)
[NetCommishScouts-L](#)
[Scout Leader](#)
[Scoutmasters](#)
[USScouts.org](#)
[USSSP Blog](#)
[Venturing](#)

Boy Scout Advancement Requirements Changes

Effective January 1, 2013
(with updates through August 24, 2013)

When there is a conflict between two published lists of requirements, such as *Boy Scout Requirements* (BSA Publication No. 33216) and a Merit Badge Pamphlet or the *Boy Scout Handbook*, the requirements book should be considered to be the controlling document, until a newer edition of *Boy Scout Requirements* is issued.

A new edition of Boy Scout Requirements (#33216 - SKU#616334) was released in mid January, 2013. The new Boy Scout Requirements booklet has changes to the Second Class, First Class, Star, Life, and Eagle rank requirements, a very minor change to the wording of Joining (Scout) requirement 7, and changes to 21 merit badges, plus the requirements for the 2 new merit badges which were released in 2012 (Kayaking and Search and Rescue). In addition, the Alternate Requirements for Eagle Scout rank were rewritten. The booklet also contains announcements regarding the new Sustainability merit badge, which became available on July 15, 2013, and the upcoming (January 1, 2014) change to require Cooking merit badge for the Eagle Scout rank. Although not identified on the Inside Front Cover, the Special Opportunities section includes new information on the Morse Code Interpreter Strip, the Cyber Chip, the Nova Awards, and the Supernova Awards, and some revisions in the Religious Emblems listing.

On July 11, 2013, BSA released a new edition of the *Guide to Advancement*, BSA Publication 33088 (SKU 618673), which replaced the 2011 edition, which had superseded the former publication 33088 which was entitled *Advancement Committee Policies and Procedures*. The *Guide to Advancement - 2013* is the official Boy Scouts of America source on advancement procedures.

BSA issued new editions of ALL of the merit badge pamphlets on August 1, 2008. The primary change to most of the pamphlets was the introduction of color photographs and diagrams, and new covers. The actual text and requirements, in most cases did not change from the previous editions. In some cases, however, the

new editions do contain new information, and new requirements. ***If the copyright date in the new pamphlet is not 2008 or later, the text in the pamphlet, including the requirements, did not change, only the cover and illustrations.*** In addition, two of the old pamphlets, for the **Architecture and Landscape Architecture** Merit Badges were combined into a single pamphlet, although the Merit Badges remain separate and distinct from each other. Also, one Merit Badge, **Auto Mechanics**, was renamed to **Automotive Maintenance**, (and the emblem on the badge was changed). Although a new edition of the **Lifesaving** merit badge pamphlet was issued, the requirements did not change. However, the footnote relative to alternative requirements for the Second Class and First Class rank swimming requirements was deleted.

The table on the inside back cover lists 6 merit badge pamphlets (Automotive Maintenance, Dog Care, Emergency Preparedness, Kayaking, Search and Rescue, and Welding) with a copyright date of 2012, and 4 (Astronomy, Gardening, Photography, and Public Speaking) with a copyright date of 2013.

The new Kayaking badge and pamphlet was released by BSA, and Scouts could begin earning the badge on June 13, 2012.

The new Search and Rescue badge and pamphlet was released by BSA, and Scouts could begin earning the badge on August 20 2012.

The new Game Design badge and pamphlet was released by BSA, and Scouts could begin earning the badge on March 6, 2013.

The new Sustainability badge and pamphlet was released by BSA, and Scouts could begin earning the badge on July 15, 2013.

The new Programming badge and pamphlet was released by BSA, and Scouts could begin earning the badge on July 15, 2013.

A new Cycling pamphlet, including requirements changes was released by BSA, and Scouts could begin earning the badge on July 15, 2013.

In addition to the new merit badges listed above, BSA has announced plans to release a new merit badge for Digital Technology (which is to replace the Computers merit badge) later in 2013, and a number more in 2014 or 2015 (Animation, Mining in Society, Signs, Signals and Codes, Multi-Media, Computer Aided Design, and Advanced Computing). In addition to the announced major revisions to the Cooking merit badge, there will also be a few revised merit badge pamphlets issued during the year, some of which will also include minor updates to the requirements.

RANK CHANGES

Joining (Scout)
Second Class
First Class

Star
Life
Eagle
Alternative Requirements for Eagle

Notices about upcoming Merit Badge and Eagle rank changes

Cooking
Sustainability

NEW Merit Badges

Game Design
Kayaking
Programming
Search and Rescue
Sustainability

REVISED Merit Badges

Archery
Art
Astronomy
Automotive Maintenance
Bird Study
Chess
Citizenship in the Community
Communication
Composite Materials
Cycling
Dog Care
Emergency Preparedness
Fire Safety
Fishing
Gardening
Hiking
Home Repair
Law
Oceanography
Orienteering

Photography
Safety
Wilderness Survival
Wood Carving

SPECIAL OPPORTUNITIES

Morse Code Interpreter Strip
Cyber Chip
Nova and Supernova Awards
Religious Awards



Joining (Scout)

A minor wording change was made to requirement 7. The new wording reads as follows:

7. Understand and agree to live by the Scout Oath, Scout Law, motto, and slogan, and the Outdoor Code.



Second Class

Requirements 3e, 3f, and 3g were revised. The new wording reads as follows:

3.
 - e. ~~Discuss when it is appropriate to use a cooking fire and a lightweight stove. Discuss the safety procedures for using both.~~
Explain when it is appropriate to use a cooking fire. At an approved outdoor location and at an approved time, and using the tinder, kindling, and fuel wood from requirement 3d, demonstrate how to build a fire; light the fire, unless prohibited by local fire restrictions. After allowing the flames to burn safely for at least two minutes, safely extinguish the flames with minimal impact to the fire site.
 - f. ~~In an approved place and at an approved time, demonstrate how to build a fire and set~~ Explain when it is appropriate to use a lightweight stove or propane stove. Set up a lightweight stove or propane stove; light the stove, unless prohibited by local fire restrictions. Describe the safety procedures for using these types of stoves. Note: Lighting the fire is not required.
 - g. On one campout, plan and cook one hot breakfast or lunch, selecting foods from

the MyPlate food guide ~~pyramid~~ or the current USDA nutrition model. Explain the importance of good nutrition. Tell how to transport, store, and prepare the foods you selected.



First Class

A change was made to requirement 4a. The new wording reads as follows:

4. a. Help plan a patrol menu for one campout 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 the MyPlate food ~~pyramid~~ guide or the current USDA nutrition model and meets nutritional needs.
-



Star

A change was made to the footnote to requirement 3 (as of July 15, 2013), and to the introduction to requirement 5. (The list of positions was not changed.) The new wording reads as follows:

- * Choose any of the ~~15~~ 16 required merit badges in the 12 categories to fulfill requirement 3.
5. While a First Class Scout, serve actively in your unit for four months in one or more of the following positions of responsibility (or carry out a ~~Scoutmaster~~ unit leader-assigned leadership project to help ~~the troop~~ your unit):
-



Life

A change was made the footnote to requirement 3 (as of July 15, 2013) and to requirement 5. The new wording reads as follows:

- * Choose any of the ~~15~~ 16 required merit badges in the 12 categories to fulfill requirement 3.
5. While a Star Scout, serve actively in your unit for 6 months in one or more of the positions of responsibility listed in requirement 5 for Star Scout (or carry out a ~~Scoutmaster~~ unit leader-assigned leadership project to help ~~the troop~~ your unit).
-



Eagle

Changes were made to requirements 3h (as of July 15, 2013), 4 and 7. The new wording reads as follows:

3. h. **Environmental Science OR Sustainability**
4. While a Life Scout, serve actively **in your unit** for a period of 6 months in one or more of the following positions of responsibility:

Boy Scout troop.

- Patrol leader,
- assistant senior patrol leader,
- senior patrol leader,
- Venture patrol leader,
- troop guide,
- Order of the Arrow troop representative,
- den chief,
- scribe,
- librarian,
- historian,
- quartermaster,
- junior assistant Scoutmaster,
- chaplain aide,
- instructor,
- Webmaster, or
- Leave No Trace trainer

Varsity Scout team.

- Captain,
- cocaptain,
- program manager,
- squad leader,
- team secretary,
- Order of the Arrow team representative,
- librarian,
- historian
- quartermaster,
- chaplain aide,
- instructor, or
- den chief.
- Webmaster, or
- Leave No Trace trainer

Venturing crew / Sea Scout ship.

- President,
- vice president,
- secretary,
- treasurer,
- quartermaster
- historian
- den chief,
- guide
- boatswain,
- boatswain's mate,
- yeoman,
- purser,
- storekeeper
- Webmaster, or
- Leave No Trace trainer

7. Successfully complete an Eagle Scout board of review. **In preparation for your board of review, prepare and attach to your Eagle Scout Rank Application a statement of your ambitions and life purpose and a listing of positions held in your religious institution, school, camp, community, or other organizations, during which you demonstrated leadership skills. Include honors and awards received during this service. (This requirement may be met after age 18; see below.)**

Eagle Scout Rank - Alternative Requirements

The requirements were substantially rewritten, and now read as follows:

The Eagle Scout rank may be achieved by a Boy Scout, Varsity Scout, or qualified* Venturer or Sea Scout who has a physical or mental disability by completing the Application for Alternative Eagle Scout Rank Merit Badges, No. 512-730, and by qualifying for alternative merit badges. This does not apply to individual requirements for merit badges as described. Merit badges are awarded only when all requirements are met as stated. See the *Guide to Advancement*, topic 10.2.2.3, for details.

The physical or mental disability must be of a permanent rather than of a temporary nature (or a disability expected to last more than two years or beyond the 18th birthday). The application must include a written statement from a qualified health-care professional related to the nature of the disability. This person may be a physician, neurologist, psychiatrist, psychologist, etc., or an educational administrator as appropriate.

Before applying, he must earn as many of the Eagle-required merit badges as possible. Any alternatives must present the same challenge and learning level as those they replace. Unless the Scout has been approved for registration beyond the age of eligibility, all merit badges must be completed by the 18th birthday (reference *Guide to Advancement*, topic 10.1.0.1–10.1.0.2).

1. Obtain a clear and concise statement related to the nature of the disability from a qualified health-care professional.
2. The unit leader meets with the candidate and his parent or guardian to determine the alternative merit badges to replace those impeding his progression.
3. The unit leader, parent or guardian, and the Scout (if possible) prepare supporting letters to accompany the application.
4. The district and council advancement committees, in turn, review the proposed alternative merit badges. They may choose to speak with the Scout, his parent or guardian, or unit leader. If the council advancement committee approves, then the candidate may start work on the merit badges.

Note: In approving the application, the district and council advancement committees must utilize the expertise of a health-care professional involved with youth who have disabilities.

5. Upon completion of the Eagle Scout rank requirements, using the alternative merit badges, the candidate appears before a board of review. This approved application must be attached to the Eagle Scout Rank Application.
6. Following a successful board of review, the council processes both applications and forwards them to the national Advancement Team. Local council action on alternative merit badges does not require national approval.

* In order for a Venturer or Sea Scout to be an Eagle candidate, he must have achieved the First Class rank as a Boy Scout or Varsity Scout.

Cooking Merit Badge to Be Required for Eagle Starting Jan. 1, 2014

Effective Jan. 1, 2014, the Cooking merit badge will be required to obtain the Eagle Scout rank. Regardless of when a Scout earned the Life rank or began working toward Eagle, unless he fulfills all the rank requirements—with the exception of his board of review— before Jan. 1, 2014, he must earn the Cooking merit badge to become an Eagle Scout.

Note: This means that as of January 1, 2014, the number of "Eagle required" merit badges will be 13, instead of 12, and the number of "Optional" badges will drop to 8. In addition, this change to the Eagle required list will result in another change to the footnote to requirement 3 for the Star and Life ranks. Once the Cooking merit badge becomes required, the footnote will be changed as follows: "* Choose any of the ~~16~~ 17 required merit badges in the ~~12~~ 13 categories to fulfill requirement 3."

New Sustainability Merit Badge to Be an Eagle-Required Option

Starting in summer 2013, when the Sustainability merit badge becomes available, those working toward the Eagle Scout rank may choose to earn either the Sustainability merit badge OR the Environmental Science merit badge. Earning one or the other merit badge will be required. Scouts who have already earned Environmental Science may also earn Sustainability, but only one of the two merit badges will count as "Eagle-required." The other may count as an elective merit badge necessary to reach the total of 21 required merit badges.

Note that this change to the Eagle required list will also result in a change to the footnote to requirement 3 for the Star and Life ranks. Once the Sustainability merit badge becomes available, that footnote will be changed as follows: "* Choose any of the ~~15~~ 16 required merit badges in the 12 categories to fulfill requirement 3."



Game Design

This is a NEW Merit Badge.

The requirements, pamphlet, and badge were released on the official "Earn Date", when Scouts had authorization to begin earning the badge, on March 6, 2013.

The requirements are as follows:

1. Do the following:
 - a. Analyze four games you have played, each from a different medium. Identify the medium, player format, objectives, rules, resources, and theme (if relevant). Discuss with your counselor the play experience, what you enjoy in each game, and what you dislike. Make a chart to compare and contrast the games.
 - b. Describe four types of play value and provide an example of a game built around each concept. Discuss other reasons people play games.
2. Discuss with your counselor five of the following 17 game design terms. For each term

that you pick, describe how it relates to a specific game.

- Thematic game elements:
 - *story*,
 - *setting*,
 - *characters*
 - Gameplay elements:
 - *play sequence*,
 - *level design*,
 - *interface design*
 - Game analysis:
 - *difficulty*,
 - *balance*,
 - *depth*,
 - *pace*,
 - *replay value*,
 - *age appropriateness*
 - Related terms:
 - *single-player vs. multiplayer*,
 - *cooperative vs. competitive*,
 - *turn-based vs. real-time*,
 - *strategy vs. reflex vs. chance*,
 - *abstract vs. thematic*
3. Define the term *intellectual property*. Describe the types of intellectual property associated with the game design industry. Describe how intellectual property is protected and why protection is necessary. Define and give an example of a licensed property.
 4. Do the following:
 - a. Pick a game where the players can change the rules or objectives (examples: basketball, hearts, chess, kickball). Briefly summarize the standard rules and objectives and play through the game normally.
 - b. Propose changes to several rules or objectives. Predict how each change will affect gameplay.
 - c. Play the game with one rule or objective change, observing how the players' actions and emotional experiences are affected by the rule change. Repeat this process with two other changes.
 - d. Explain to your counselor how the changes affected the actions and experience of the players. Discuss the accuracy of your predictions.
 5. Design a new game. Any game medium or combination of mediums is acceptable. Record your work in a game design notebook.
 - a. Write a vision statement for your game. Identify the medium, player format, objectives, and theme of the game. If suitable, describe the setting, story, and characters.
 - b. Describe the play value.
 - c. Make a preliminary list of the rules of the game. Define the resources.
 - d. Draw the game elements.
 6. Do the following:
 - a. Prototype your game from requirement 5. If applicable, demonstrate to your counselor that you have addressed player safety through the rules and equipment.

You must have your merit badge counselor's approval of your concept before you begin creating the prototype.

- b. Test your prototype with as many other people as you need to meet the player format. Compare the play experience to your descriptions from requirement 5b. Correct unclear rules, holes in the rules, dead ends, and obvious rule exploits. Change at least one rule, mechanic, or objective from your first version of the game, and describe why you are making the change. Play the game again. Record whether or not your change had the expected effect.
 - c. Repeat 6b at least two more times.
7. Blind test your game. Do the following:
- a. Write an instruction sheet that includes all of the information needed to play the game. Clearly describe how to set up the game, play the game, and end the game. List the game objectives.
 - b. Share your prototype from requirement 6a with a group of players that has not played it or witnessed a previous playtest. Provide them with your instruction sheet(s) and any physical components. Watch them play the game, but do not provide them with instruction. Record their feedback in your game design notebook.
 - c. Share your game design notebook with your counselor. Discuss the player reactions to your project and what you learned about the game design process. Based on your testing, determine what you like most about your game and suggest one or more changes.
8. Do ONE of the following:
- a. With your parent's permission and your counselor's approval, visit with a professional in the game development industry and ask him or her about his or her job and how it fits into the overall development process. Alternately, meet with a professional in game development education and discuss the skills he or she emphasizes in the classroom.
 - b. List three career opportunities in game development. Pick one and find out about the education, training, and experience required for the profession. Discuss this with your counselor. Explain why this profession might interest you.



Kayaking

This is a NEW Merit Badge.

The requirements, pamphlet, and badge were released on the official "Earn Date", when Scouts had authorization to begin earning the badge, on June 13, 2012.

Note that the first printing of the merit badge pamphlet has a typo in requirement 2, which incorrectly reads, "Before doing requirements 3 through 9 ..." instead of "3 through 8".

The requirements are as follows:

1. Do the following:
 - a. Explain to your counselor the most likely hazards you may encounter while participating in kayaking activities, including weather and water-related hazards, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
 - b. Review prevention, symptoms, and first-aid treatment for the following injuries or illnesses that can occur while kayaking: blisters, cold-water shock and hypothermia, heat-related illnesses, dehydration, sunburn, sprains, and strains.
 - c. Review the BSA Safety Afloat policy. Explain to your counselor how this applies to kayaking activities.
2. Before doing requirements 3 through 8, successfully complete the BSA swimmer test: Jump feetfirst into water over the 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.
3. Do the following:
 - a. Review the characteristics of life jackets most appropriate for kayaking and why one must always be worn while paddling. Then demonstrate how to select and fit a life jacket for kayaking.
 - b. Review the importance of safety equipment such as a signal device, air flotation bags, extra paddle, sponge, bilge pump, rescue sling, and throw bag.
4. Do the following:
 - a. Name and point out the major parts of a kayak.
 - b. Review the differences in the design between recreational, whitewater, and sea or touring kayaks. Include how length, width, stability, and rocker are involved in the design of each type.
 - c. Review the advantages and disadvantages of the materials most commonly used to make kayaks. Explain the care, maintenance, and storage of a kayak.
 - d. Using the trucker's hitch and bowline, demonstrate how to secure a kayak to a rack on a vehicle or a trailer, or to a rack on land.
5. Discuss the following:
 - a. How to choose a kayak paddle
 - b. The different materials from which paddles are made, parts of a paddle, and the care and maintenance of a paddle
6. Using a properly equipped kayak with an open cockpit, a sit-on-top, or an inflatable kayak, do the following:
 - a. Safely capsize and perform a wet exit.
 - b. Reenter the kayak with assistance from a buddy boat.
 - c. Demonstrate a kayak-over-kayak rescue.
 - d. Demonstrate the HELP position.
 - e. Capsize the kayak, swim it, and then paddle to shore, and empty water from the kayak with assistance if needed.
7. As a solo paddler, use a properly equipped kayak to demonstrate the following:
 - a. Forward stroke
 - b. Backstroke
 - c. Forward sweep

- d. Reverse sweep
 - e. Draw stroke
 - f. Stern draw
8. As a solo paddler, use a properly equipped kayak to demonstrate the following:
- a. Paddle a straight line for 25 yards, make a sharp turn, and return 25 yards in a straight line.
 - b. Spin or pivot 360 degrees to the right and 360 degrees to the left.
 - c. Move abeam to the right 10 feet and to the left 10 feet.
 - d. Stop the boat in one boat length.
 - e. Paddle a buoyed course of a length determined by your counselor that includes two right and two left turns performed while underway.



Programming

This is a NEW Merit Badge.

The requirements, pamphlet, and badge were released on the official "Earn Date", when Scouts had authorization to begin earning the badge, on July 15, 2013.

The requirements are as follows:

1. Safety.

Do the following:

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

Earn the Cyber Chip

Earning the Cyber Chip can help you learn how to stay safe while you are online and using social networks or the latest electronic gadgets. Topics include cell phone use, texting, blogging, gaming, cyberbullying, and identity theft. Find out more about the Cyber Chip at www.scouting.org/cyberchip.

Discuss first aid and prevention for the types of injuries or illnesses that could occur during programming activities, including repetitive stress injuries and eyestrain.

2. History.

Do the following:

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

3. General knowledge.

Do the following:

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

4. Intellectual property.**Do the following:**

- a. Explain how software patents and copyrights protect a programmer.
- b. Describe the difference between licensing and owning software.
- c. Describe the differences between freeware, open source, and commercial software, and why it is important to respect the terms of use of each.

5. Projects.**Do the following:**

- a. With your counselor's approval, choose a sample program. Then, as a minimum, modify the code or add a function or subprogram to it. Debug and demonstrate the modified program to your counselor.

The Programming merit badge website, <http://www.boyslife.org/programming>, has a number of sample programs that you could use for requirement 5a. However, you have the option of finding a program on your own. It's a good idea to seek your merit badge counselor's guidance.

- b. With your counselor's approval, choose a second programming language and development environment, different from those used for requirement 5a and in a different industry from 5a. Then write, debug, and demonstrate a functioning program to your counselor, using that language and environment.
- c. With your counselor's approval, choose a third programming language and development environment, different from those used for requirements 5a and 5b and in a different industry from 5a or 5b. Then write, debug, and demonstrate a functioning program to your counselor, using that language and environment.
- d. Explain how the programs you wrote for requirements 5a, 5b, and 5c process inputs, how they make decisions based on those inputs, and how they provide outputs based on the decision making.

6. Careers.

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



Search and Rescue

This is a NEW Merit Badge.

The requirements, pamphlet, and badge were released on the official "Earn Date", when Scouts had authorization to begin earning the badge, on August 20, 2012.

The requirements are as follows:

1. Do the following:

- a. Explain to your counselor the hazards you are most likely to encounter while participating in search and rescue (SAR) activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
 - b. Discuss first aid and prevention for the types of injuries or illnesses that could occur while participating in SAR activities, including: snakebites, dehydration, shock, environmental emergencies such as hypothermia or heatstroke, blisters, and ankle and knee sprains.
2. Demonstrate knowledge to stay found and prevent yourself from becoming the subject of a SAR mission.
 - a. How does the buddy system help in staying found and safe?
 - b. How can knowledge of the area and its seasonal weather changes affect your plans?
 - c. Explain how the Ten Essentials are similar to a 'ready pack.'
3. Discuss the following with your counselor:
 - a. The difference between search and rescue
 - b. The difference between PLS (place last seen) and LKP (last known point)
 - c. The meaning of these terms:
 1. AFRCC (Air Force Rescue Coordination Center)
 2. IAP (Incident Action Plan)
 3. ICS (Incident Command System)
 4. Evaluating search urgency
 5. Establishing confinement
 6. Scent item
 7. Area air scent dog
 8. Briefing and debriefing
4. Find out who in your area has authority for search and rescue and what their responsibilities are. Discuss this with your counselor, and explain the official duties of a search and rescue team.
5. Complete the training for ICS-100, Introduction to Incident Command System. Print out the certificate of completion and show it to your counselor. Discuss with your counselor how the ICS compares with Scouting's patrol method.
6. Identify four types of search and rescue teams and discuss their use or role with your counselor. Then do the following:
 - a. Interview a member of one of the teams you have identified above, and learn how this team contributes to a search and rescue operation. Discuss what you learned with your counselor.
 - b. Describe the process and safety methods of working around at least two of the specialized SAR teams you identified above.
 - c. Explain the differences between wilderness, urban, and water SARs.
7. Discuss the Universal Transverse Mercator (UTM) system, latitude, and longitude. Then do the following: (add map)
 - a. Using a 1:24,000 scale USGS topographic map, show that you can identify a location of your choice using UTM coordinates.
 - b. Using a 1:24,000 scale map, ask your counselor to give you a UTM coordinate on the map, then identify that location.
 - c. Show that you can identify your current location using the UTM coordinates on your Global Positioning System unit and verify it on a 1:24,000 scale map.

- d. Determine a hypothetical place last seen, and point out an area on your map that could be used for containment using natural or human-made boundaries.
8. Choose a hypothetical scenario, either one presented in this merit badge pamphlet or one created by your counselor. Then do the following:
 - a. Complete an incident objectives form for this scenario.
 - b. Complete an Incident Action Plan (IAP) to address this scenario.
 - c. Discuss with your counselor the behavior of a lost person and how that would impact your incident action plan (for example, the differences between searching for a young child versus a teen).
 - d. After completing 8a–8c, discuss the hypothetical scenario with your counselor.
9. Discuss with your counselor the terms hasty team and hasty search. Then do the following:
 - a. Plan and carry out a practice hasty search—either urban or wilderness—for your patrol or troop. Include the following elements in the search: clue awareness, evidence preservation, tracking the subject, and locating the subject using attraction or trail sweep.
 - b. When it's over, hold a team debriefing to discuss the hasty search. Discuss problems encountered, successful and unsuccessful tactics, and ideas for improvement.
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.



Sustainability

This is a NEW Merit Badge.

The requirements, pamphlet, and badge were released on the official "Earn Date", when Scouts had authorization to begin earning the badge, on July 15, 2013.

The requirements are as follows:

- 1. Before starting work on any other requirements for this merit badge, write in your own words the meaning of sustainability. Explain how you think conservation and stewardship of our natural resources relate to sustainability. Have a family meeting, and ask family members to write down what they think sustainability means. Be sure to take notes. You will need this information again for requirement 5.**
- 2. Do the following:**
 - Water. Do A AND either B OR C.**
 - A. Develop and implement a plan that attempts to reduce your family's water usage. Examine your family's water bills reflecting usage for three months (past or current). As a family, choose three ways to help reduce consumption. Implement those ideas for one month.**

Share what you learn with your counselor, and tell how your plan affected your family's water usage.

- B. Using a diagram you have created, explain to your counselor how your household gets its clean water from a natural source and what happens with the water after you use it. Include water that goes down the kitchen, bathroom, and laundry drains, and any runoff from watering the yard or washing the car. Tell two ways to preserve your family's access to clean water in the future.**
- C. Discuss with your counselor two areas in the world that have been affected by drought over the last three years. For each area, identify a water conservation practice (successful or unsuccessful) that has been used. Tell whether the practice was effective and why. Discuss what water conservation practice you would have tried and why.**

Food. Do A AND either B OR C.

- A. Develop and implement a plan that attempts to reduce your household food waste. Establish a baseline and then track and record your results for two weeks. Report your results to your family and counselor.**
- B. Discuss with your counselor the ways individuals, families, and communities can create their own food sources (potted plants, family garden, rooftop garden, neighborhood or community garden). Tell how this plan might contribute to a more sustainable way of life if practiced globally.**
- C. Discuss with your counselor factors that limit the availability of food and food production in different regions of the world. Tell three ways these factors influence the sustainability of worldwide food supplies.**

Community. Do A AND either B OR C.

- A. Draw a rough sketch depicting how you would design a sustainable community. Share your sketch with your counselor, and explain how the housing, work locations, shops, schools, and transportation systems affect energy, pollution, natural resources, and the economy of the community.**
- B. With your parent's permission and your counselor's approval, interview a local architect, engineer, contractor, or building materials supplier. Find out the factors that are considered when using sustainable materials in renovating or building a home. Share what you learn with your counselor.**
- C. Review a current housing needs assessment for your town, city, county, or state. Discuss with your counselor how birth and death rates affect sufficient housing, and how a lack of housing—or too much housing— can influence the sustainability of a local or global area.**

Energy. Do A AND either B OR C.

- A. Learn about the sustainability of different energy sources, including fossil fuels, solar, wind, nuclear, hydropower, and geothermal. Find out how the production and consumption of each of these energy sources affects the environment and what the term "carbon**

footprint” means. Discuss what you learn with your counselor, and explain how you think your family can reduce its carbon footprint.

- B. Develop and implement a plan that attempts to reduce consumption for one of your family’s household utilities. Examine your family’s bills for that utility reflecting usage for three months (past or current). As a family, choose three ways to help reduce consumption and be a better steward of this resource. Implement those ideas for one month. Share what you learn with your counselor, and tell how your plan affected your family’s usage.**
- C. Evaluate your family’s fuel and transportation usage. Review your family’s transportation-related bills (gasoline, diesel, electric, public transportation, etc.) reflecting usage for three months (past or current). As a family, choose three ways to help reduce consumption and be a better steward of this resource. Implement those ideas for one month. Share what you learn with your counselor, and tell how your plan affected your family’s transportation habits.**

Stuff. Do A AND either B OR C.

- A. Keep a log of the “stuff” your family purchases (excluding food items) for two weeks. In your log, categorize each purchase as an essential need (such as soap) or a desirable want (such as a DVD). Share what you learn with your counselor.**
- B. Plan a project that involves the participation of your family to identify the “stuff” your family no longer needs. Complete your project by donating, repurposing, or recycling these items.**
- C. Discuss with your counselor how having too much “stuff” affects you, your family, and your community. Include the following: the financial impact, time spent, maintenance, health, storage, and waste. Include in your discussion the practices that can be used to avoid accumulating too much “stuff.”**

3. Do the following:

- a. Explain to your counselor how the planetary life-support systems (soil, climate, freshwater, atmospheric, nutrient, oceanic, ecosystems, and species) support life on Earth and interact with one another.**
- b. Tell how the harvesting or production of raw materials (by extraction or recycling), along with distribution of the resulting products, consumption, and disposal/repurposing, influences current and future sustainability thinking and planning.**

4. Explore TWO of the following categories. Have a discussion with your family about the two you select. In your discussion, include your observations, and best and worst practices. Share what you learn with your counselor.

- a. Plastic waste. Discuss the impact plastic waste has on the environment (land, water, air). Learn about the number system for plastic recyclables, and determine which plastics are more commonly recycled. Find out what the trash vortex is and how it was formed.**
- b. Electronic waste. Choose three electronic devices in your household. Find out the average lifespan of each, what happens to these devices once they pass their useful life, and whether they can be recycled in whole or part.**

- Discuss the impact of electronic waste on the environment.**
- c. **Food waste.** Learn about the value of composting and how to start a compost pile. Start a compost pile appropriate for your living situation. Tell what can be done with the compost when it is ready for use.
 - d. **Species decline.** Explain the term species (plant or animal) decline. Discuss the human activities that contribute to species decline, what can be done to help reverse the decline, and its impact on a sustainable environment.
 - e. **World population.** Learn how the world's population affects the sustainability of Earth. Discuss three human activities that may contribute to putting Earth at risk, now and in the future.
 - f. **Climate change.** Find a world map that shows the pattern of temperature change for a period of at least 100 years. Share this map with your counselor, and discuss three factors that scientists believe affect the global weather and temperature.
5. **Do the following:**
 - a. After completing requirements 1 through 4, have a family meeting. Discuss what your family has learned about what it means to be a sustainable citizen. Talk about the behavioral changes and life choices your family can make to live more sustainably. Share what you learn with your counselor.
 - b. Discuss with your counselor how living by the Scout Oath and Scout Law in your daily life helps promote sustainability and good stewardship.
 6. Learn about career opportunities in the sustainability field. Pick one and find out the education, training, and experience required. Discuss what you have learned with your counselor and explain why this career might interest you.

On July 16, 2013, (the day after the requirements were released), the following update was posted on the Scouting Magazine Blog at

<http://blog.scoutingmagazine.org/2013/07/15/sustainability-merit-badge-requirements-released/>

Absent of a monthly water bill or statement, a Scout could arrive at his best guess or estimate on the amount of water usage in his home to satisfy the requirement. For example, if a meter is attached to the well, the Scout could estimate his family's daily water usage by tracking gallons used per day.

Also, the Internet is a great source for finding information on conducting a household water audit. By searching Google, one might discover the state of Maryland, for example, offers a way to accurately estimate water use without a meter by measuring water flow from each fixture in the home. Other states' websites offer water audit spreadsheets, charts, or checklists to help individuals evaluate water use.



Archery

Numerous changes were made to requirements 2-5, including replacing all instances of "National Archery Association" or "NAA" with "USA Archery". The revisions are shown below:

1. Do the following:
 - a. State and explain the Range Safety Rules.
 1. Three safety rules when on the shooting line.
 2. Three safety rules when retrieving arrows.
 3. The four whistle commands used on a range and their related verbal commands.
 - b. State and explain the general safety rules for archery. Demonstrate how to safely carry arrows in your hands.
 - c. Tell about your local and state laws for owning and using archery tackle.
2. Do the following:
 - a. Name and point out the parts of an arrow.
 - b. Describe three or more different types of arrows.
 - c. Name the four principle materials for making arrow shafts.
 - d. **Do ONE of the following**
 1. Make a complete arrow from a bare shaft **using appropriate equipment available to you.**
OR
 2. **To demonstrate arrow repair, inspect the shafts and prepare and replace at least three vanes, one point, and one nock. You may use as many arrows as necessary to accomplish this. The repairs can be done on wood, fiberglass, or aluminum arrows.**
 - e. Explain how to properly care for and store arrows.
3. Do the following:
 - a. Explain ~~how to properly care for and store~~ **the proper use, care, and storage of, as well as the reasons for using,** tabs, arm guards, shooting gloves, and quivers.
 - b. Explain the following terms: cast, draw weight, string height (fistmele), aiming, spine, mechanical release, freestyle, and barebow.
 - c. Make a bowstring **using appropriate materials.**
4. Explain the following:
 - a. The importance of obedience to a range officer or other person in charge of a range.
 - b. The difference between an end and a round.
 - c. The differences among field, target, and 3-D archery.
 - d. How the five-color ~~National Archery Association (NAA)~~ or Federation Internationale de Tir à l'Arc (FITA) target is scored.
 - e. How the National Field Archery Association (NFAA) black-and-white field targets and blue indoor targets are scored.
 - f. The elimination system used in Olympic archery competition.
5. Do ONE of the following options:
 - o Option A - Using a Recurve Bow or Longbow
 - a. Name and Point to the parts of the recurve **bow** or longbow you are shooting.
 - b. Explain how to properly care for and store recurve bows and longbows.

- c. Show the ~~nine~~ **10** steps of good shooting for the ~~recurve~~ bow ~~or longbow~~ you are shooting.
- d. Demonstrate the proper way to string a recurve bow or longbow.
- e. ~~Locate~~ **Using a bow square, locate** and mark with dental floss, crimp-on, or other method, the nocking point on the bowstring of the bow you are using.
- f. Do ONE of the following:
 1. Using a recurve **bow** or longbow and arrows with a finger release, shoot a single round of ONE of the following BSA, ~~NAA~~ **USA Archery**, or NFAA rounds:
 - a. An NFAA field round of 14 targets and make a score of 60 points.
 - b. A BSA Scout field round of 14 targets and make a score of 80 points.
 - c. A Junior 900 round and make a score of 180 points.
 - d. ~~A~~ **An** FITA/~~NAA~~ **USA Archery** indoor* round I and make a score of 80 points.
 - e. An NFAA indoor* round and make a score of 50 points.

(The indoor rounds may be shot outdoors if this is more convenient.)

OR

 - 2. Shooting 30 arrows in five-arrow ends at an 80-centimeter (32-inch) five-color target at 15 yards and using the 10 scoring regions, make a score of 150.

OR

 - 3. As a member of the ~~NAA's~~ **USA Archery** Junior Olympic Development Program (JOAD), qualify as a Yeoman, Junior Bowman, and Bowman.

OR

 - 4. As a member of the NFAA's Junior Division, earn a Cub or Youth 100-score Progression patch.
- o Option B - Using a Compound Bow
 - a. Name and point to the parts of the compound bow you are shooting.
 - b. Explain how to properly care for and store compound bows.
 - c. Show the ~~nine~~ **10** steps of good shooting for the compound bow you are shooting.
 - d. Explain why it is necessary to have the string **or cable** on a compound bow replaced at an archery shop.
 - e. Locate and mark with dental floss, crimp-on, or other method, the nocking point on the bowstring of the bow you are using.
 - f. Do ONE of the following:
 1. Using a compound bow and arrows with a finger release, shoot a single round of ONE of the following BSA, ~~NAA~~ **USA Archery**, or NFAA rounds:
 - a. An NFAA field round of 14 targets and make a score of 70

- points.
- b. A BSA Scout field round of 14 targets and make a score of 90 points.
 - c. A Junior 900 round and make a score of 200 points.
 - d. ~~A~~ **An** FITA/~~NAA~~ **USA Archery** indoor* round I and make a score of 90 points.
 - e. An NFAA indoor* round and make a score of 60 points.

(The indoor rounds may be shot outdoors if this is more convenient.)

OR

2. Shooting ~~30 arrows in five-arrow ends~~ at an 80-centimeter (32-inch) five-color target at 15 yards and 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.

OR

3. As a member of the ~~NAA's~~ **USA Archery** Junior Olympic Development Program (JOAD), qualify as a Yeoman, Junior Bowman, and Bowman.

OR

4. As a member of the NFAA's Junior Division, earn a Cub or Youth 100-score Progression patch.

**The indoor rounds may be shot outdoors if this is more convenient.*



Art

New requirements 1-3 were added. Old requirements 1 & 2 were revised and rearranged and became requirement 5, and requirements 3, 4, and 5 were renumbered as 4, 6, and 7. The revisions are shown below:

1. **Discuss the following with your counselor:**
 - a. **What art is and what some of the different forms of art are**
 - b. **The importance of art to humankind**
 - c. **What art means to you and how art can make you feel**

Tell a story with a picture or pictures or using a 3-D rendering.
2. **Discuss with your counselor the following terms and elements of art: line, value, shape, form, space, color, and texture. Show**

examples of each element.

~~Do ONE of the following:~~

- a. ~~Design something useful. Make a sketch or model of your design and get your counselor's approval before you proceed. Then create a promotional piece for the item using a picture or pictures.~~
 - b. ~~Design a logo. Share your design with your counselor and explain the significance of your logo. Then, with your parent's permission and your counselor's approval, put your logo on Scout equipment, furniture, ceramics, or fabric.~~
3. **Discuss with your counselor the six principles of design: rhythm, balance, proportion, variety, emphasis, and unity.**
4. ~~3-~~ Render a subject of your choice in FOUR of these ways:
- a. Pen and ink,
 - b. Watercolors,
 - c. Pencil,
 - d. Pastels,
 - e. Oil paints,
 - f. Tempera,
 - g. Acrylics,
 - h. Charcoal
 - i. Computer drawing or painting
5. **Do ONE of the following:**
- a. **Design something useful. Make a sketch or model of your design. With your counselor's approval, create a promotional piece for the item using a picture or pictures.**
 - b. **Tell a story with a picture or pictures or using a 3-D rendering.**
 - c. **Design a logo. Share your design with your counselor and explain the significance of your logo. Then, with your parent's permission and your counselor's approval, put your logo on Scout equipment, furniture, ceramics, or fabric.**
6. ~~4-~~ With your parent's permission and your counselor's approval, visit a museum, art exhibit, art gallery, artists' co-op, or artist's workshop. Find out about the art displayed or created there. Discuss what you learn with your counselor.
7. ~~5-~~ Find out about three career opportunities in art. 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.



Astronomy

Requirements 3b and 9 were revised. The 2011 and 2012 editions of Boy Scout Requirements had different text for requirement 9 than the new merit badge pamphlet. That discrepancy has now been

corrected. The revisions are shown below:

3. b. Describe the similarities and differences of several types of astronomical telescopes, **including at least one that observes light beyond the visible part of the spectrum (i.e., radio, X-ray, ultraviolet, or infrared).**
 9. ~~List at least three different~~ **Find out about three** career opportunities in astronomy. Pick ~~the one in which you are most interested and explain how to prepare for such a career~~ **one and find out the education, training, and experience required for this profession.** Discuss **this** with your counselor ~~what courses might be useful for such a career~~ **, and explain why this profession might interest you.**
-



Automotive Maintenance

Requirement 1 was changed by adding a new item a and labeling the original text as item b. Item 8d was deleted and 8e renumbered as 8d. The wording is as shown below.

1. **Do the following**
 - a. **Explain to your counselor the hazards you are most likely to encounter during automotive maintenance activities, and what you should do to anticipate, help prevent, mitigate, or lessen these hazards.**
 - b.** Discuss with your counselor the safety equipment, tools, and clothing used while checking or repairing a motor vehicle. Use this equipment, tools, and/or clothing (when needed or called for) in meeting the requirements for this merit badge.
 8. d. ~~Demonstrate how to change the spark plugs in any internal combustion engine (lawn mower, dirt bike, motorcycle).~~
 - e. Demonstrate how to safely connect jumper cables to your car battery.
-



Bird Study

Requirement 7b was revised, as shown below:

7. 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.



Chess

Requirement 3 was revised, and a footnote was added. The changes are as shown below.

3. Demonstrate to your counselor that you know each of the following. Then, using Scouting's Teaching EDGE*, teach ~~the following to a~~ **someone (preferably another Scout)** who does not know how to play chess:
 - a. The name of each chess piece
 - b. How to set up a chessboard
 - c. How each chess piece moves, including castling and en passant captures

*** You may learn about Scouting's Teaching EDGE from your unit leader, another Scout, or by attending training.**



Citizenship in the Community

Requirement 3a was revised as shown below.

3. a. Attend a **meeting of your** city, ~~or~~ town, **or county** council or school board ~~meeting, or~~; **OR attend** a municipal, county, or state court session.
-



Communication

Requirements 1a, 1b2, and 8 were revised as shown below.

1. Do ONE of the following:
 - a. For one day, keep a log in which you describe your communication activities. Keep track of the time and different ways you spend communicating, such as talking person-to-person, listening to teachers or the radio, watching television, **using social media**, reading books and other print media, and using any electronic communication device. Discuss with your counselor what your log reveals about the importance of communication in your life. Think of ways to improve your communications skills.
 - b. 2. ~~A persuasive argument~~ **Be persuaded**
8. Plan a troop 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.



Composite Materials

Requirements 1 and 5 were revised by adding a new item a. Old items 1a and 1b were renumbered as items 1b and 1c. The revised requirement is shown below.

1. Do the following:
 - a. Explain to your counselor the most likely hazards you may encounter while working with composite materials and what you should do to anticipate, mitigate and prevent, and respond to these hazards. Describe the appropriate safety gear and clothing that should be used when working with composite materials.
 - b. ~~a.~~ Explain the precautions that must be taken when handling, storing, and disposing of resins, reinforcements, and other materials used in composites. Include in your discussion the importance of health, safety, and environmental responsibility and awareness.
 - c. ~~b.~~ Describe what a material safety data sheet (MSDS) is and tell why it is used.



Cycling

A new note was added before the requirements, replacing a footnote. Requirements 1 and 5 were revised, and old requirements 6-9 were replaced with new requirements 6-7, and now feature options for either road biking or mountain biking. The revised requirements are shown below.

Note: The bicycle used for fulfilling these requirements must have all required safety features and must be registered as required by your local traffic laws.

1. ~~Show that you know first aid for injuries or illnesses that could occur while cycling, including hypothermia, heat reactions, frostbite, dehydration, insect stings, tick bites, snakebites, blisters, and hyperventilation.~~
Do the following:
 - a. Explain to your counselor the most likely hazards you may encounter while participating in cycling activities and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
 - b. Show that you know first aid for injuries or illnesses that could occur while cycling, including cuts, scratches, blisters, sunburn, heat exhaustion, heatstroke, hypothermia, dehydration, insect stings, tick bites, and snakebite. Explain

to your counselor why you should be able to identify the poisonous plants and poisonous animals that are found in your area.

c. Explain the importance of wearing a properly sized and fitted helmet while cycling, and of wearing the right clothing for the weather. Know the BSA Bike Safety Guidelines.

5. Show how to repair a flat by removing the tire, replacing or patching the tube, and remounting the tire. Use an old bicycle tire.
6. Describe your state's traffic laws for bicycles. Compare them with motor-vehicle laws.

Take a road test with your counselor and demonstrate the following:

- a. *Properly mount, pedal, and brake including emergency stops.*
- b. *On an urban street with light traffic, properly execute a left turn from the center of the street; also demonstrate an alternate left turn technique used during periods of heavy traffic.*
- c. *Properly execute a right turn.*
- d. *Demonstrate appropriate actions at a right-turn-only lane when you are continuing straight.*
- e. *Show proper curbside and road-edge riding. Show how to safely ride along a row of parked cars.*
- f. *Cross railroad tracks properly.*

~~7. Describe your state's traffic laws for bicycles. Compare them with motor-vehicle laws. Know the bicycle safety guidelines.~~

~~8. Avoiding main highways, take two rides of 10 miles each, two rides of 15 miles each, and two rides of 25 miles each. You must make a report of the rides taken. List dates, routes traveled, and interesting things seen.*~~

~~9. After fulfilling requirement 8, lay out on a road map a 50-mile trip. Stay away from main highways. Using your map, make this ride in eight hours.~~

7. Using the BSA buddy system, complete all of the requirements for ONE of the following options: road biking OR mountain biking.

a. Road Biking

1. Take a road test with your counselor and demonstrate the following:

- a. Properly mount, pedal, and brake, including emergency stops.
- b. On an urban street with light traffic, properly execute a left turn from the center of the street; also demonstrate an alternate left-turn technique used during periods of heavy traffic.
- c. Properly execute a right turn.
- d. Demonstrate appropriate actions at a right-turn-only lane when you are continuing straight.
- e. Show proper curbside and road-edge riding. Show

Using your map, make this ride in six hours.

**The bicycle must have all required safety features. It must be registered as required by your local traffic laws.*



Dog Care

A new requirement 10 was added, which is shown below.

10. Learn about three career opportunities for working with dogs. Pick one and find out about the education, training, and experience required for this career, and discuss this with your counselor. Tell why this profession interests you.
-



Emergency Preparedness

Requirement 2b was revised as shown below.

2.
 - b. Make a chart that demonstrates your understanding of each of the aspects of emergency preparedness in requirement 2a (prepare, respond, recover, mitigate, and prevent) with regard to 10 of the situations listed below. **You must use situations 1, 2, 3, 4, and 5 below in boldface** but you may choose any other five listed here for a total of 10 situations. Discuss this chart with your counselor.
-



Fire Safety

Requirement 7c was revised as shown below.

7.
 - c. Demonstrate ~~the safe way to melt wax.~~ how to safely light a candle.
Discuss with your counselor how to safely use candles.
-



Fishing

Requirement 1 was revised by adding a new item a. Old items 1a-1c were renumbered as items 1b-1d, as shown below.

1. Do the following:

- a. Explain to your counselor the most likely hazards you may encounter while participating in fishing activities, and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
 - b. ~~a~~ Discuss the prevention of and treatment for the following health concerns that could occur while fishing, including cuts, scratches, puncture wounds, insect bites, hypothermia, dehydration, heat exhaustion, heatstroke, and sunburn.
 - c. ~~b~~ Explain how to remove a hook that has lodged in your arm.
 - d. ~~c~~ Name and explain five safety practices you should always follow while fishing.
-



Gardening

New requirements 1 and 6 were added, old requirements 1-4 were renumbered as 2-5 and old requirements 5-6 were renumbered as 7-8. Also, a change was made to the wording of (new) requirement 3, and a new item 8e was added. The revised requirements are shown below.

1. Do the following:
 - a. Explain to your counselor the most likely hazards associated with gardening and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
 - b. Discuss the prevention of and treatment for health concerns that could occur while gardening, including cuts, scratches, puncture wounds, insect bites, anaphylactic shock, heat reactions, and reactions from exposure to pesticides and fertilizers.
2. ~~1~~ Do the following:
 - a. Grow six vegetables, three from seeds and three from seedlings, through harvesting.
 - b. Grow six flowers, three from seeds and three from seedlings, through flowering.
3. ~~2~~ Give the ~~food~~ **nutritional** value of the following:
 - a. Three root or tuber crops.
 - b. Three vegetables that bear above the ground.
 - c. Three fruits.
4. ~~3~~ Test 100 garden seeds for germination. Determine the percentage of seeds that germinate. Explain why you think some did not germinate.
5. ~~4~~ Visit your county extension agent's office, local university agricultural college, nursery, or a botanical garden or arboretum. Report on what you learned.
6. Explain to your counselor how and why honeybees are used in pollinating food crops and the problems that face the bee population today. Discuss what the impact to humanity would be if there were no pollinators.
7. ~~5~~ Identify five garden pests (insects, diseased plants). Recommend two solutions for each

pest. At least one of the two solutions must be an organic method.

8. ~~6~~. Do ONE of the following:
 - a. Build a compost bin and maintain it for 90 days.
 - b. Build a vermipost bin (worm compost bin) and maintain it for 90 days.
 - c. Build a hydroponic garden containing three vegetables or herbs, or three ornamental plants. Maintain this garden through harvest or flowering, or for 90 days.
 - d. Build one water garden, either in a container (at least 12 by 6 inches and 6 inches deep), or in the ground as a small, decorative pond no larger than 6 by 3 feet and 24 inches deep. Maintain the water garden for 90 days.
 - e. **Prepare a honey super for use on a hive or colony. Remove a filled honey super from the hive or colony and prepare the honey for sale.**
-



Hiking

Changes were made to requirements 5 and 6, as shown below.

5. Take five hikes, each on a different day, and each of at least ten continuous miles. **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 (example: overnight).** 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. **You may stop for as many short rest periods as needed, as well as one meal, but not for an extended period (example: overnight)** *
-



Home Repairs

Changes were made to requirements 1 and 6b, as shown below.

1. **Do the following:**
 - a. **Explain to your counselor the most likely hazards you may encounter while working on home repairs and what you should do to anticipate, mitigate and prevent, and respond to these hazards. Describe the appropriate safety gear and clothing that should be used when working on home repairs.**
 - b. Discuss general precautions related to home repairs. Name at least 10 safe practices that every home repairer should exercise.
 6. 2. Repair or replace damaged tile, ~~or~~ linoleum, **or vinyl flooring.**
-



Law

Changes were made to requirement 11, including new items e, f, g, and h, as shown below.

11. Discuss with your counselor the importance of TWO of the following areas of **the** law *that have recently emerged and are still developing*:
- Environmental law
 - Computers and the Internet
 - Copyright and the Internet
 - Space travel and satellites orbiting the earth
 - Patents**
 - Biotechnology**
 - Privacy law**
 - International law**
-



Oceanography

Changes were made to requirement 7a and 8b2, as shown below.

- 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.
 2. Visit one of the following: (1) an oceanographic research ship, or (2) an oceanographic institute, **marine laboratory, or marine aquarium**. Write a 500-word report about your visit.
-



Orienteering

A change was made to requirement 6c, as shown below.

- Explain the following terms and tell when you would use them: attack point, collecting feature, **catching feature**, aiming off, contouring, reading ahead, handrail, relocation, rough versus fine orienteering.
-



Photography

Changes were made to requirement 3, as shown below.

3. Discuss with your counselor the differences between a film camera and a digital camera. ~~List at least five advantages and five disadvantages of using a digital camera versus using a film camera.~~ **Describe how computer software allows you to make adjustments to a digital photograph after it is taken.**
-



Safety

Changes were made to requirement 6, a new requirement 7 was added, and old requirement 7 was renumbered as 8. The revisions are as shown below.

6. Plan and complete a safety project approved by your counselor for your home, school, place of worship, place of employment, or community. ~~Include in your plan an explanation of the U.S. Department of Homeland Security's Advisory System and appropriate actions to take for each threat level.~~
 7. **Explain what the National Terrorism Advisory System is and how you would respond to each threat level.**
 8. ~~7.~~ Learn about three career opportunities in the field of safety. Pick one career and find out the education, training, and experience required for this profession. Discuss this choice with your counselor, and explain why this profession might interest you.
-



Wilderness Survival

Changes were made to requirement 1, as shown below.

1. **Do the following:**
 - a. **Explain to your counselor the hazards you are most likely to encounter while participating in wilderness survival activities, and what you should do to anticipate, help prevent, mitigate, or lessen these hazards**
 - b. 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.
-



Wood Carving

Changes were made to requirement 1, as shown below.

1. **Do the following:**
 - a. **Explain to your counselor the hazards you are most likely to**

encounter while wood carving, and what you should do to anticipate, help prevent, mitigate, or lessen these hazards.

- b. Show that you know first aid for injuries or illnesses that could occur while wood carving, including minor cuts and scratches and splinters.

 **Morse Code Interpreter Strip**

The requirements for the Morse Code Interpreter Strip was added, as shown below.

Youth and adults may wear this strip if they show their knowledge of Morse Code by:

1. Carrying on a five-minute conversation in Morse Code at a speed of at least five words per minute.
2. Copying correctly a two-minute message sent in Morse Code at a minimum of five words per minute. Copying means writing the message down as it is received.
3. Sending a 25-word written document in Morse Code at a minimum of five words per minute.



Cyber Chip

The Boy Scout level requirements for the Cyber Chip program were added, as shown below.

Requirements for Grades 6-8

1. **Read and sign the Level II Internet Safety Pledge from NetSmartz. (BSA Cyber Chip green card)**
2. **Write and sign a personalized contract with your parent or guardian that outlines rules for using the computer and mobile devices, including what you can download, what you can post, and consequences for inappropriate use.**
3. **Watch the video “Tracking Teresa,” along with two additional videos of your choosing, to see how friends can help each other to stay safe online. (www.netsmartz.org/scouting)**
4. **As an individual or with your patrol, use the EDGE method and mini lessons to teach Internet safety rules, behavior, and “netiquette” to your troop or another patrol. You are encouraged to use any additional material and information you have researched. Each member of the patrol must have a role and present part of the lesson. (www.netsmartz.org/scouting)**
5. **Discuss with your unit leader the acceptable standards and practices for using allowed electronic devices, such as phones and games, at your meetings and other Scouting events.**

Requirements for Grades 9-12

1. **Read and sign the Level II Internet Safety Pledge. (BSA Cyber Chip green card)**
2. **Write and sign a personalized contract with your parent or guardian that outlines rules for using the computer and mobile devices, including what you can download, what you can post, and consequences for inappropriate use.**
3. **With your parent’s permission, “like” the Boy Scouts of America page on Facebook.**
4. **Watch three “Real-Life Story” videos to learn the impact on teens. (www.netsmartz.org/scouting)**
5. **As an individual or patrol, use the EDGE method and the Teen Volunteer Kit to teach Internet safety rules, behavior, and “netiquette” to your troop or another patrol. You are encouraged to use any additional material and information you have researched. Each member of the patrol must have a role and present part of the lesson. (www.netsmartz.org/scouting)**
6. **Discuss with your unit leader the acceptable standards and practices for using allowed electronic devices such as phones and games at your meetings and other Scouting events.**

Note: All Cyber Chips will expire annually. Each Scout will need to “recharge” the chip by going back to the NetSmartz Recharge area. This space will hold new information, news, and a place for the Scout to recommit to net safety and netiquette. Then, with the unit leader, the Scout can add the new date to the Cyber Chip card or certificate.



Nova and Supernova Awards for Boy Scouts

Information about the Nova and Supernova Awards program was added, as shown below.

Nova Awards for Boy Scouts

The Nova awards are available to all Boy Scouts and are optional. Requirements must be completed while registered as a Boy Scout and before turning age 18. There are four Boy Scout Nova awards (Shoot!, Start Your Engines!, Whoosh!, Designed to Crunch)—one for each STEM area—and a Scout can earn all four. Completion of any Nova award earns a Boy Scout the right to wear the Nova award patch. Completion of each additional STEM Nova award is recognized by a pi (π) pin placed on the patch. Each award builds on the STEM-related topic, involves hands-on activities, and often includes a field trip.

Supernova Awards

The Supernova awards recognize superior achievement in the STEM fields and require significantly more effort by the Boy Scout than the Nova awards. The two Supernova awards are available to all Boy Scouts who have achieved the rank of First Class.

The Dr. Bernard Harris Supernova Bronze Award requires the Scout to have earned any three of the four Boy Scout Nova awards. The Thomas Edison Supernova Silver Award requires completion of the fourth Boy Scout Nova award in addition to the Harris Award as a prerequisite. *For the Supernova awards, a mentor, who serves much like a merit badge counselor, is required.*

For complete requirements and more information about the Nova and Supernova awards, refer to the Boy Scout Nova Awards Guidebook, or go to www.scouting.org/stem.aspx.



Religious Emblems

Changes were made to the list of religious emblems available to Boy Scouts and to the contact information for some of those emblems. Note that some of these awards are also available to Varsity Scouts, Venturers, and Sea Scouts.

Rather than list the changes here, see the Religious Emblems listing for Boy Scouts (and Varsity Scouts, Venturers, and Sea Scouts) on this site for the current lists of emblems and contact information.

Boy Scouts, Varsity Scouts, Venturers, and Sea Scouts

This analysis was prepared as a service to Scouts and Scouters nationwide

Paul S. Wolf

Secretary

US Scouting Service Project, Inc.

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