



Revisions to the Sea Scout Manual

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Page(s) Errata

49	Advancement – Apprentice Swimming
53	Advancement – Able Leadership
54	Advancement – Able Safety (f)
55	Advancement – Able Piloting and Navigation (a)
56a	Advancement – Quartermaster Leadership (c)
58	Advancement – Electives – Leadership, Paddlecraft
59	Advancement – Electives – SCUBA, Vessels
61	Advancement – Electives – America’s Boating Club

Sea Scout Advancement

Reference materials such as U.S. Coast Guard navigation rules, International Sailing Federation Rules, OSHA requirements, International Code of Signals, and others change frequently. They should be available in your ship's library. They are not reprinted in this manual.

Apprentice

1. Ideals

- a. Qualify as a member of your Sea Scout ship by taking part in the ship's admission ceremony.
- b. Repeat from memory and discuss with an adult leader, an Able Scout, or a Quartermaster Scout the Scout Oath and Law and the Sea Promise, and agree to carry out the provisions of your ship's code and bylaws.
- c. Demonstrate acceptable courtesies used aboard a Sea Scout vessel.
- d. Demonstrate the proper procedure for boarding a Sea Scout vessel and landship.

2. Active Membership

- a. Provide evidence that you are fulfilling your financial obligations to your ship, including helping with fundraisers.
- b. Obtain a Sea Scout uniform. Describe the Sea Scout uniform. Tell how and when to wear the uniform.
- c. Meet your ship's bylaws requirement for active participation in your ship's meetings and activities for three months.

3. Leadership

- a. Describe your ship's organization, including the youth and adult leadership positions.
- b. Demonstrate your ability to identify insignia of youth and adult leadership positions. Explain the chain of command in your ship.

4. Swimming

- a. Demonstrate your ability to swim by doing one of the following:

Jump feet first into water over your head, swim 75 yards/meters in a strong manner using one or more of the following strokes: sidestroke, breaststroke, trudgen, or crawl; then swim 25 yards/meters using the elementary backstroke.

The 100 yards/meters must be swum continuously and include at least one sharp turn. After completing the swim, rest by floating on your back, remaining as motionless as possible.

or

Pass a NAUI, PADI, SDI, or any other Recreational Scuba Training Council Certification Agency's swim test.

- b. Discuss the BSA Safe Swim Defense plan and explain how it is used to protect Sea Scouts and other groups during swimming activities.



5. Safety

- Explain the uses, advantages, and disadvantages of the various types of Coast Guard–approved life jackets. Demonstrate the proper use and care of life jackets used by your ship. Discuss your state's boating laws as they relate to life jacket wear.
- Identify visual day and night marine distress signals, and know their location and the proper use for your ship's vessel(s).
- Use the Distress Communications Form to demonstrate the procedure to send the following VHF emergency messages: Mayday, Pan Pan, and Security.
- Know the safety rules that apply to vessels and equipment used by your ship, and safety standards in the use of power tools, machinery, lifting heavy objects, and other safety devices used by your ship.

6. Marlinespike Seamanship

Using both large and small lines, tie and explain the use of the following knots: overhand, square, figure eight, bowline, two half hitches, clove hitch, sheet bend, and cleat hitch.

7. Boat Handling

- Name the principal parts of a typical sailboat and a runabout.
- Describe the identifying characteristics of a sloop, ketch, yawl, cutter, and schooner.
- Demonstrate the ability to use a heaving line.

8. Service

- Log at least eight hours of work on ship equipment, projects, or activities other than regular ship meetings, parties, dances, or fun events.
- Participate with your ship for at least eight hours in community service projects.
Note: Arrange for this work through the ship's officers.

Ordinary

1. Ideals

- Explain the symbolism of the Sea Scout emblem.
- Give a brief oral history of the U.S. flag.
- Demonstrate how to fly, hoist, lower, fold, display and salute the U.S. flag. Explain flag etiquette and protocols for both land and sea.
- Discuss with an adult leader how you live the Scout Oath and Law in your daily life.

2. Active Membership

- Meet your ship's bylaws requirement for active participation in your ship's meetings and activities for three months.
- Do one of the following. Recruit a new member for your ship and follow through until the new member is registered and formally admitted with an admissions ceremony, or assist in planning and carrying out a ship recruiting activity, such as an open house or joint activity with a youth group or organization (another Sea Scout ship will not count).

3. Leadership

- Participate in the BSA's Introduction to Leadership Skills for Ships (ILSS) course.
- Complete quarterdeck training, either as an officer or as a prospective officer.
- Serve as an activity chair for a major ship event. Responsibilities should include planning, directing, and evaluating the event.



4. **Swimming**

Pass all requirements for the BSA's Swimming merit badge.

5. **Safety**

- a. Discuss BSA Safety Afloat with an adult leader or a Quartermaster candidate.
- b. Describe the safety equipment required by law for your ship's primary vessel.
- c. Develop a ship's station bill for your ship and review it with an adult leader.
- d. Plan and practice the following drills: man overboard, fire, and abandon ship.
- e. Describe three types of equipment used in marine communications.
- f. Demonstrate your knowledge of correct maritime radio telephone communications procedures by making at least three calls to other vessels, marinas, bridges, or locks.
- g. Galley
 - i) Before an activity, submit a menu that uses cooked and uncooked dishes, a list of provisions, and estimated costs for a day's meal (breakfast, lunch, and dinner). Once the provision list is approved, help obtain the items on the list.
 - ii) Explain the use of charcoal, pressurized alcohol, and propane. Include safety precautions for each.
 - iii) Prepare breakfast, lunch, and dinner while on the activity. Demonstrate your ability to properly use the galley equipment or personal cooking gear generally used by your ship.
 - iv) Demonstrate appropriate sanitation techniques for food preparation and meal cleanup.

6. **Marlinspike Seamanship**

- a. Name the various materials used to manufacture rope, the advantages and disadvantages of each, and the characteristics of laid and braided rope. Discuss the meaning of lay, thread, strand, and hawser. Explain how rope is sized and measured.
- b. Using both large and small lines, tie and explain the use of the following knots: stevedore's knot, French (double) bowline, bowline on a bight, timber hitch, rolling hitch, marline hitch, midshipman's (taut-line) hitch, and trucker's hitch.
- c. Demonstrate your ability to secure a line to pilings, cleats, and rings, and to coil, flake, and flemish a line.
- d. Demonstrate how to cut and heat-seal a synthetic line and whip the end of plain-laid line using waxed cord or similar material.

7. **Boat Handling**

- a. Name the principal parts of the masts, booms, spars, standing and running rigging, and sails of a gaff- or Marconi-rigged sloop, schooner, and ketch or yawl.
- b. Demonstrate your ability to handle a vessel with paddles or oars by doing one of the following:

Safely board a rowboat and row in a straight line for 200 yards/meters, stop, make a pivot turn, return to the starting point, and backwater in a straight line for 50 yards/meters. Make a turn and return to the starting point.

or

Safely board a canoe, kayak, or paddleboard and paddle a straight line for 200 yards/meters. Make a turn and return to the starting point. Demonstrate a draw stroke to move the boat sideways both right and left, and forward and reverse sweeps to spin the boat both clockwise and counterclockwise.

8. Ground Tackle

- a. Name the parts of a stock anchor and a stockless anchor.
- b. Describe five types of anchors. Describe how each type holds the bottom, the kind of bottom in which it holds best, and the advantages or disadvantages of each type.
- c. Calculate the amount of anchor rode necessary for your ship's primary vessel in the following depths: 10, 20, and 30 feet in normal and storm conditions.
- d. Demonstrate the ability to set and weigh anchor.

9. Navigation Rules

- a. Explain the purpose of *Navigation Rules, International and Inland*.
- b. Know the general "Rule of Responsibility."
- c. Define stand-on and give-way vessels for the following situations: meeting, crossing, and overtaking for both power and sailing vessels.
- d. Explain "Responsibility Between Vessels" (vessel priority).
- e. Explain the navigation lights required for power-driven and sailing vessels underway. Explain what is required for a vessel under oars. Describe the lighting requirements for paddlecraft. Explain why carrying a sound-producing device, such as a whistle, is important when operating a paddlecraft.
- f. Describe the sound signals for maneuvering, warning, and restricted visibility.

10. Piloting and Navigation

- a. Demonstrate your understanding of latitude and longitude. Using a chart, demonstrate that you can locate your position from given coordinates and determine the coordinates of at least five aids to navigation.
- b. Explain the degree system of compass direction. Explain variation and deviation and how they are used to convert between true headings and bearings to compass headings and bearings.
- c. Describe three kinds of devices used aboard ship for measuring speed and/or distance traveled and, if possible, demonstrate their use.
- d. Explain the 24-hour time system and demonstrate that you can convert between 12- and 24-hour time.
- e. Understand Coordinated Universal Time (Greenwich Mean Time or Zulu Time) and zone time. Demonstrate your ability to convert from one to the other for your local area.
- f. Make a dead reckoning table of compass and distances (minimum three legs) between two points, plot these on a chart, and determine the final position. **Note:** Ideally this requirement should be met while underway. If this is not possible, it may be simulated using charts.
- g. Discuss how a GPS unit works. Explain possible uses and functions including different screen views. Use a GPS unit to set a waypoint and navigate to the waypoint you have set.

11. Practical Deck Seamanship

- a. Name the seven watches and explain bell time.
- b. Explain the duties of a lookout and demonstrate how to report objects in view and wind directions with respect to the vessel.
- c. Name relative bearings expressed in degrees.
- d. While underway, serve as a lookout for two hours total. When boating in a manually propelled craft, boating alone or as a bow paddler for a tandem craft will meet this requirement.
- e. Demonstrate the use of wheel or helm commands found in the *Sea Scout Manual*.

- f. Describe the deck log kept aboard your ship's principal craft. Contribute to a cruise log for three days of cruising (one cruise or a combination of day cruises). Submit the logs to your Skipper.

12. Environment

- a. Discuss with an adult leader the Federal Water Pollution Control Act as related to oil discharges. Explain what a "Discharge of Oil Prohibited" placard is and if applicable find it aboard your ship's vessels.
- b. Explain what aquatic nuisance species are and how you can help stop their spread.

13. Weather

Read and understand a local weather bulletin. Know how to obtain current marine and weather reports from the National Weather Service in your area by telephone or radio, or online.

14. Cruising

- a. Plan and participate in an overnight cruise.
- b. While on the cruise, perform the duties of a helmsman for at least 30 minutes. If underway in a paddlecraft, paddling independently or as a stern paddler/steersman will meet this requirement.

15. Boating Safety Course

Successfully complete a boating safety course approved by the National Association of State Boating Law Administrators (NASBLA) offered by one of the following agencies: a state boating agency, the United States Power Squadrons, the United States Coast Guard Auxiliary, or other private or military education courses.

16. Service

- a. Log at least eight hours of work on ship equipment, projects, or activities other than ship meetings, parties, dances, or fun events.
- b. Participate with your ship for at least eight hours in community service projects.

17. Electives

Choose any three electives from the options listed following the Quartermaster rank requirements.

Able

1. Ideals

- a. Organize and conduct two impressive opening and closing ceremonies for your ship.
- b. Explain how our nation's maritime history has contributed to our way of life. **Note:** "Explain" means to convey information to one or more people using any of the following methods (or something similar approved by your Skipper): video, computer slide show (PowerPoint presentation), storyboard (project board display), diorama, model, annotated photo album, verbal report, or written report. For comparison purposes, a written report of 500 to 1,000 words would form an appropriate explanation.



2. Active Membership

- a. Meet your ship's bylaws requirement for active participation in your ship's meetings and activities for six months.
- b. Prepare and present a program on Sea Scouts for a Boy Scout troop, Venturing crew, Venturing Officers' Association meeting, school class, or other youth group. Your presentation should last a minimum of 15 minutes and describe the activities of your ship and Sea Scouts.

3. Leadership

Either serve and fulfill the responsibilities of a crew leader or an elected officer of your ship, or serve as an activity chair for two major ship events. Responsibilities should include planning, directing, and evaluating the event. (These events are in addition to the Ordinary requirement.)

or

With a boat operator plan a boat dive trip and include all equipment, provisions and location. Using navigation charts to determine course to the location and topographical charts of the sea floor create a dive plan for the participants making the dive.

4. Swimming

Pass all requirements for the BSA's Lifesaving merit badge.

5. Safety

- a. Develop and use a customized vessel safety checklist for a boat used by your ship.
- b. Demonstrate your understanding of fire prevention on vessels.
- c. Know the classes of fires and the substances that will extinguish each type of fire.
- d. In a safe place, under adult supervision, demonstrate your ability to successfully extinguish a class A and a class B fire with an approved fire extinguisher. If required, see that the fire extinguisher used is properly recharged or replaced.
- e. Conduct a fire safety inspection of the vessel normally used by your ship or of your ship's meeting place. Note any fire hazards and report them to your ship's adult leaders.
- f. Complete the certification for standard first aid through the American Red Cross, the American Heart Association, or other approved organization's standard first-aid course.

or

Obtain certification from DAN®'s Professional Diver first aid course or an equivalent USCG approved course.

- g. Complete the certification for CPR through the American Red Cross, the American Heart Association, or other approved organization's course.

6. Marlinspike Seamanship

- a. Complete a back splice, eye splice, short splice, long splice, and a palm-and-needle whipping.
- b. Sew a flat seam, round seam, and grommet eye in canvas or sail material. Describe how each is used in construction of and the care of sails.
- c. Describe the parts of a block and explain how blocks are sized. Describe the following types of tackle: luff, gun, double purchase, single whip, and runner. With the help of another shipmate, reeve a double purchase tackle.

or

Establish a 2-point load-distributing anchor point and a 3:1 mechanical advantage system (e.g., Z-drag) used to unpin paddlecraft. Use the system to haul a weight at least 5 feet across the ground. The system must include a progress capture system and a damper.

7. Boat Handling

- a. Demonstrate your ability to properly operate a small boat equipped with a motor. Included should be fueling, starting, leaving a dock, maneuvering, docking, and coming alongside.
- b. Know the names and functions of lines used to secure a vessel to a wharf or pier. Understand and execute docking commands used in handling lines on your ship's primary vessel.

8. Ground Tackle

- a. Describe the various kinds of anchor rode and the advantages and disadvantages of each type.
- b. Identify the parts of the anchor cable starting with the anchor and ending at the vessel.
- c. Describe the methods of marking chain or rode and demonstrate that you know the chain or rode markings on your ship's vessel.
- d. While on a cruise assist in the construction of an anchor watch schedule and stand one watch.
- e. Identify a capstan or windlass and explain its use in handling line, wire rope, or chain.

9. Navigation Rules

- a. Demonstrate a working knowledge of *Navigation Rules, International and Inland*.
- b. Explain vessel lights and day shapes for the following: towing (astern, alongside, pushing ahead, and cannot deviate), fishing, trawling, restricted maneuverability, not under command, underwater operations, constrained by draft, dredging, aground, and sailing vessels under power.
- c. Understand the system of aids to navigation employed in your area. Include buoys, lights, and daymarks, and their significance and corresponding chart symbols.
- d. Read in detail a National Ocean Service (NOS) chart, preferably for the area normally cruised by your ship, identifying all marks on it.

10. Piloting and Navigation

- a. Supervise the proper keeping of a complete deck log for three days of cruising (one cruise or a combination of day cruises). Submit the cruise logs to your Skipper.

or

Keep a journal of paddling trips that includes names of participants, access points, waterway description, and notable events. Record at least three trips in the journal and submit to your Skipper.

or

Make a scuba dive, navigating three legs underwater using a compass, measuring distance and time, and logging all information. Use a chart to plan depth and topography.

- b. Lay a course of at least three legs and execute it using dead reckoning.
- c. Demonstrate your ability to fix your position by the following methods: taking bearings from two known objects, running fix, and estimated position.
- d. Establish distance from a known object using “double the angle on the bow” and explain how to set a danger bearing.
- e. Enter three waypoints into an electronic navigation device (i.e., GPS, chart-plotter) and navigate your vessel to each point. Demonstrate the use of the MOB function on your electronic navigation device.
- f. Discuss how radar is used in situational awareness and the method of taking a radar fix.
- g. Explain the use of tide tables, current tables, and light lists, and how to update a chart using the Notice to Mariners.

11. Practical Deck Seamanship

- a. Demonstrate your knowledge of personal safety equipment needed while cleaning, maintaining, or repairing your vessel.
- b. Know the names, uses, sizes, and proper care of the common hand tools used by your ship.
- c. Identify and explain the use of the following: thimble, shackle, turnbuckle, pelican hook, and other ship’s hardware and fittings commonly used aboard your ship’s vessels.
- d. Demonstrate proper surface and coating preparation, coating techniques, care of stored coatings, and cleaning of brushes and tools used to maintain surfaces on your ship’s vessel.
- e. Explain techniques used for the maintenance, protection, and repair of hulls and decks on your ship’s vessel.

12. Environment

- a. Demonstrate your knowledge of local environmental laws related to the proper storage, disposal, and cleanup of maritime coating materials, fuels, and other environmentally sensitive materials.
- b. Discuss with an adult leader the dumping of garbage in the marine environment. Review the contents of the MARPOL placard and locate it aboard your ship’s vessels.
- c. Explain the importance of protecting marine endangered species using a representative species as an example (mammal, bird, fish, or reptile). As a minimum, include a description of the species; its habitat, history, and current population numbers; and current steps being employed to help its recovery. **Note:** Refer to the definition and expectation for “explain” in Able 1b.

13. Weather

Demonstrate your ability to read a barometer, thermometer, anemometer, and weather vane. Be familiar with the Beaufort Wind Force Scale.

14. Cruising

Earn the Long Cruise badge.

15. Electives

Choose any four level 2 or higher electives.



Quartermaster

1. Ideals

- a. Initiate a discussion on the ideals stated in the Sea Promise.
- b. Prepare a written analysis, offering recommendations for improvements regarding one of the following ship's programs: bylaws and code, training programs, ceremonies, quarterdeck meetings, recruiting programs, or fundraising.

2. Active Membership

- a. Meet your ship's bylaws requirement for active participation in your ship's meetings and activities for six months.
- b. Present a talk or program at least 15 minutes long on Sea Scouts to a service club, religious organization, PTA, or other adult organization.

3. Leadership

- a. **Quartermaster Project:** While an Able Sea Scout, plan, develop, and demonstrate leadership to others in a service project that is helpful to any religious institution, school, or your community. The project plan must be approved by your Skipper and ship committee and approved by the council or district advancement committee before you start. This service project should involve your ship and at least one other group. You must use the *Quartermaster Leadership Service Project Workbook*, No. 420-011, to document your work. **Note:** The Quartermaster project is separate and distinct from a youth's Eagle Scout service project.
- b. **Officer:** Serve as a ship officer for at least six months.
- c. **Quartermaster Cruise:** Take command of a vessel with a crew of not less than four Sea Scouts for at least 40 consecutive hours, including two nights. You must delegate and supervise all duties. During the cruise complete the following: File a float plan; inspect the vessel for required equipment; supervise all menu preparation; prepare the boat to get underway with a proper checklist approved by the adult leaders; anchor, dock, and maintain course by commands to the helmsman; remain underway for an extended period during darkness; and discuss appropriate nighttime running procedures. While underway, perform the following drills: man overboard, damage control, abandon ship, fire, collision, and any other drills used by your ship. During this cruise no substantial errors may be committed.

or

Plan and lead a paddlecraft cruise with at least four paddlecraft for at least two days. You must delegate and supervise all duties. During the cruise complete the following: Inspect the vessels and members of the group for required equipment; plan for provisions; supervise all menu preparation; prepare the boats to get underway with a proper checklist approved by the adult leaders; and file a float plan. If on open water, prepare a navigation chart including at least three legs and/or course corrections. If on inland rivers, identify river access points and coordinate transportation at both ends of the trip. With an adult leader, inspect all vessels and evaluate whether they are adequately secured for transportation. During this cruise no substantial errors may be committed.

or

Plan and serve as coordinator on a "live-aboard" dive trip of at least three days with all dive plans, equipment, food, surface and underwater charts on dive sites, specific training including all financial, safety information and emergency protocols.

12. Environment

- a. Discuss the three types of marine sanitation devices and the laws governing sewage discharge.
- b. Explain what gray water is and how it should be handled in your boating area.
- c. Write a 500-word report on an aquatic environment (freshwater, coastal, estuary, or sanctuary). Include in the report the location, habitat, history, animals and plants that inhabit the area, its importance to man, current regulations, and what boaters can do to help preserve it for future generations.

13. Electives

Choose any four level 3 or higher electives from the following options.

Sea Scout Advancement Electives

Ordinary: Choose any three electives.

Able: Choose any four additional electives, level 2 or higher.

Quartermaster: Choose any four additional electives, level 3 only.

Leadership

1. Attend National Youth Leadership Training (NYLT).
2. Attend National Advanced Youth Leadership Experience (NAYLE).
3. Attend Wood Badge (youth 18 and over).
3. Attend Seabadge (youth 18 and over).

Duty to God

1. Participate in two appropriate interfaith religious services during ship outings.
2. Plan and conduct two appropriate interfaith religious services during ship outings.
3. Complete the requirements for the religious emblem of your faith. (Refer to the Duty to God brochure, No. 512-879.)

Sailing

1. In a cat-rigged or similar small vessel, demonstrate your ability to sail single-handedly a triangular course (leeward, windward, and reaching marks). Demonstrate beating, reaching, and running. A qualified sailing instructor should observe this requirement.
2. While leading a crew of not less than two other persons, demonstrate your ability to sail a sloop or another suitable vessel correctly and safely over a triangular course (leeward, windward, and reaching marks), demonstrating beating, reaching, running, and the proper commands.
3. Know the principles of handling a schooner, ketch, yawl, or other suitable sailing vessel. Under competent oversight, take charge of a crew and demonstrate your ability to handle a suitable sailing vessel in all points of sail.

Paddlecraft

1. Join the American Canoe Association (ACA) or an ACA Paddle America Club.
2. Complete the requirements for one of the following: Boardsailing BSA, Kayaking BSA, or Stand Up Paddling BSA award, or the Kayaking, Whitewater, or Canoeing merit badge. (**Note:** This must be a different activity from the one chosen under level 2 electives—Specialty Proficiency.)
2. Take a course from an ACA certified instructor or an equivalent, ie: State-certified paddling instructor.
2. Compete in a freestyle, downriver, flatwater, or slalom paddling race in a canoe, kayak, or stand up paddleboard (SUP) using nationally accepted rules.

2. Successfully complete an ACA level 1 or higher assessment in canoe, kayak, or SUP.
2. Complete an ACA level 3 or higher swiftwater rescue course.
2. Earn ACA instructor certification in canoe, kayak, or SUP at any level.
3. Complete the SmartStart for Paddlers course. Conduct a watercraft safety class for your ship using Paddle Smart America materials. Identify sources of safety brochures and other materials that could be used by your ship and distribute to troops in your area or your chartered organization.

SCUBA

2. Complete an Open Water Diver course from NAUI, PADI, or any other Recreational Scuba Training Council Certification Agency.
2. Plan and coordinate a public service event such as underwater trash cleanup, coral reforestation project, or invasive species reduction project.
2. Complete an Advanced Diver course from any RSTC agency.
2. Complete a DAN® Oxygen Administration Course.
3. Maintain a dive logbook (either electronic with backup or paper) to record a minimum of 25 dives after receiving basic Open Water Diving Certification.
3. Take an additional certification course such as VIP process, tank filler/compressor operations, night diving, underwater navigation, underwater archaeology, underwater photography. Each course may be counted as an elective.
3. Complete a Rescue Course from any RSTC agency.
3. Become a certified Dive Master, Assistant Instructor or Instructor. Each certification may be counted as an elective. (Must be over 18 and log at least 50 dives.)

Vessels

1. Teach and lead a crew under oar using a boat pulling at least four oars single- or double-banked. Perform the following maneuvers: get underway, maneuver ahead and back, turn the boat in its own length, dock, and secure.
3. Under competent oversight, assume the duties of navigator of your ship's vessel. Plot its projected course between two ports at least two hours apart and cruise that course mooring to mooring handling all piloting duties. The cruise should be made in daylight hours with good visibility.
3. Obtain a US Coast Guard OUPV (Operator of Uninspected Passenger Vessels) boat operator license. (Must be over 18 to take test but can collect Sea Service time before 18.)

Racing

1. Describe the procedures used in yacht racing and the signals used by the race committee to start a race. Serve as a crew member in a race sailed under current International Sailing Federation rules.
2.
 - i) Demonstrate your understanding of the shapes, flag hoists, gun, and horn signals used in yacht racing as well as a working knowledge of the racing rules of the International Sailing Federation (ISAF).
 - ii) Serve as helmsman, with one or more additional crew members, of a sloop-rigged or other suitable boat with a spinnaker in a race sailed under ISAF racing rules.
3. Take charge of a crew in a race using current ISAF racing rules.

Engines

1. Perform routine maintenance on your ship's propulsion system, including filter, spark plug, oil changes, proper fueling procedures, and other routine maintenance tasks. Refer to operations manuals or your ship's adult leaders for correct procedures and guidance.
2.
 - i) Understand the safe and proper procedures for the use of gasoline and diesel inboard engines, including fueling, pre-start checks, ventilation, starting, running, periodic checks while running, securing, postoperative checks, and keeping an engine log.
 - ii) Using the type of engine aboard the vessel you most frequently use, demonstrate your understanding of basic troubleshooting and the preventive maintenance schedule recommended by the manufacturer.
3.
 - i) Explain the principal features of steam turbine, turboelectric, direct reversing diesel, diesel-electric, gas turbine, nuclear, gasoline, and diesel engines and the relative advantages of each type.
 - ii) Explain the operation of spark ignition and compression ignition for internal combustion engines used aboard small vessels.
 - iii) Demonstrate your familiarity with the engine aboard the vessel used by your ship, including its principles of operation, fuel, lubrication, cooling and electrical systems, and their component parts.
 - iv) Demonstrate your ability to locate and correct minor engine troubles according to the engine manufacturer's troubleshooting guide.

Vessel Maintenance

2. Demonstrate your proficiency and knowledge of fiberglass repair and gel coating while working on your ship's vessel or other similar vessel.
2. Demonstrate your knowledge of small paddlecraft construction by building your own or assisting in building a canoe or kayak from wood, fiberglass, or other suitable materials. Kits may be used.
3. Take charge of reconditioning or overhauling at least one of your ship's vessels, or take charge of hauling out the principal vessel used by your ship. In either case, lay out a plan of the work to be done in advance, including an estimate of the materials, tools, cost, and time involved.
3. Take charge of building a paddlecraft. Lay out the plan of work to be done; identify suitable building plans; and estimate materials, tools, cost, and time involved. Launch the craft.

3. **Electricity:**

- i) Know and demonstrate the correct method of rescuing a person in contact with a live wire.
- ii) Understand the construction of simple battery cells. Demonstrate the proper care of storage batteries.
- iii) Explain the difference between direct current and alternating current and the best uses for each.
- iv) Demonstrate that you know how to replace fuses, reset circuit breakers, and properly splice shipboard electric cable.
- v) Submit a diagram of the electrical system aboard the vessel used by your ship.
- vi) Explain wire tables, the current-carrying capacity of circuits, and the hazards and prevention of electrical overloading.
- vii) Explain electrolysis as applied to the deterioration of a boat's underwater fittings by galvanic action and its prevention.

3. **Rigging:** Demonstrate your ability to splice and handle wire rope, attach wire rope fittings, and complete a safety and tuning inspection of a vessel.

Specialty Proficiency

2. Complete the requirements for one of the following: Boardsailing BSA, Kayaking BSA, or Stand Up Paddleboarding BSA award, Mile Swim BSA, Whitewater Rafting BSA, SCUBA BSA, or Snorkeling BSA award or the Kayaking, Whitewater, or Canoeing merit badge. (**Note:** This must be a different activity from the one chosen under level 2 electives–Paddlecraft.)
3. Become proficient in boardsailing, surfing, kayaking, or whitewater rafting/canoeing.
3. Teach another Sea Scout the information needed to complete the Kayaking, Canoeing, or Whitewater merit badge, or the Kayaking BSA, Stand Up Paddleboarding BSA, or Boardsailing BSA award.

Ornamental Ropework

1. Make a three-strand Turk's head and a three-strand monkey's fist. Using either ornamental knot, make up a heaving line.
2. Demonstrate your ability to fashion the following items of ornamental ropework: four-strand Turk's head, coach whipping, cockscombing, round braid, flat sennit braid, wall knot, and crown knot. Make a useful item such as a boatswain's lanyard, rigging knife lanyard, bell rope, etc., or decorate a portion of your ship's equipment such as a stanchion, rail, lifeline, tiller, etc.

Maritime Tradition

1. **Boatswain Call:** Demonstrate your ability to use a boatswain's pipe by making the following calls—word to be passed, boat call, veer, all hands, pipe down, and piping the side.
1. **Drill:** Demonstrate your ability to execute commands in close-order drill.
2. **Maritime History:** Describe the highlights of maritime history from the earliest times to the present. Include the evolution of vessel construction and propulsion, important voyages of exploration and development, the origin of maritime traditions, and the achievements of notable maritime leaders in U.S. sea history.
2. **Drill:** Demonstrate your ability to give and execute commands in close-order drill.
3. **Celestial Navigation:**
 - i) Explain how the sextant works. Show how to use it and demonstrate measuring horizontal angles and altitudes.
 - ii) Find latitude by the altitude of Polaris or by the sun's altitude at local apparent noon. Demonstrate how longitude is determined.
 - iii) Demonstrate finding error in the boat's compass by the sun's azimuth.
3. **Drill:** Demonstrate your ability to handle the ship's company in close-order drill. Do all required maneuvers.
3. **Communication:** Draw the International Code flags and pennants from memory and give the single-letter meanings of the flags (for example, Alfa = Have diver down, keep clear). Show how to use the book *International Code of Signals*.

United States Coast Guard Auxiliary

1. Be inducted as a Basic Qualified member of a United States Coast Guard Auxilliary flotilla.
2. Successfully complete the Coast Guard Auxiliary Boating Skills and Seamanship course. All core sessions, as well as at least three elective sessions, must be completed to fulfill this requirement.
3. Successfully complete the Coast Guard Auxiliary Weekend Navigator course.
4. Join a local Coast Guard Auxiliary flotilla as a Basic Qualified member and qualify for any Operational Auxiliary Program (AUXOP) or any Trident Marine Safety specialty rating.

America's Boating Club (formerly United States Power Squadrons)

1. Be inducted as a member of your local USPS squadron.
2. As a member of America's Boating Club, complete the Seamanship and Piloting courses.
3. As a member of America's Boating Club, complete the Advanced Piloting course.

Awards

2. Complete any Nova Award. (Each award completed counts as a Level 2 Elective)

Reference materials such as U.S. Coast Guard navigation rules, International Sailing Federation rules, OSHA requirements, *International Code of Signals*, and some others change frequently. They should be available in your ship's library. They are not reprinted in this manual.