



Meriden Amateur Radio Club, Inc

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W1NRG

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Motivating Amateur Radio Clubs to Open New Initiatives (MARCONI)

Program 14: Promoting the Involvement of Scouting America, Girls Scouts, and Similar Youth Groups With Local Amateur Radio Clubs

Training Program Director: David KC1PEN

Operational Guidelines

Statement of Program Purpose:

Scouting is an umbrella term for worldwide youth programs aimed at ensuring that today's young people are ready for the future, are armed with practical skills, possess an understanding of leadership qualities, and know how one can prepare to deal with unanticipated events. Scouting teaches youth to be ready in the event of an emergency, a theme held in common with amateur radio. Scouting also shares with amateur radio, an emphasis on communication and community service. The key purposes of this MARCONI Program are to 1) increase radio club membership and club activity, 2) promote scouting and 3) promote and expose young people to the radio hobby.

Many members of amateur radio clubs are active in scouting, as unit leaders, merit badge counselors, or as parents of scouts. These members host scouts at the Club's shack, teach badges, run JOTA stations, as well as support local Jamborees, foxhunts, and Camporee stations. They use these activities to expand the scout's skillsets, and foster their interest in amateur radio with the hope that they will continue along the path to obtain their amateur radio license.

The MARCONI program outlined here is designed to help amateur radio clubs recruit additional Club members, increase Club radio-related activities, and increase Club community service. Simultaneously this offers the club opportunities to become involved in family-friendly activities and helps to reduce the public's perception of the radio hobby as just being old technology.

Scope of a Scout Program:

There are multiple aspects of amateur radio which can be pursued through scout programs including:

Badge Programs – assisting scouts in learning for and earning their Radio badge

Get on the Air (GOTA) stations - exposing scouts to the joy of On-Air radio activities

Radiosport – Facilitating foxhunting (radio direction finding)

Radio-adjacent STEM Badges (fostering knowledge of electronics, electricity, inventing, engineering, etc.)

Getting Started:

If no radio club members are active in scouting, it is advised that a club volunteer be designated as the Scouting Outreach member, and be assigned to reach out to the local scout council to (1) notify the council that there is a desire from the local radio club to help, (2) identify training and background check requirements, and (3) identify any other information/paperwork required by the scout council. Once approved by the scout council, coordinate with the council to identify events where they will accept a GOTA station or an on-foot foxhunting activity (an example is provided in the attachments). Additionally, reach out to radio club members to see who would like to apply to become a badge counselor or help out in other ways.

If any radio club members have a tie to a local scouting unit, see if they need assistance with approaching unit leadership with examples of activities that can be run at the unit level. See the examples attached to the end of this document for activities which include options that could be suitable for scouts subject to “mic fright”. Once a club member is able to successfully integrate radio activities at the scout unit level, provide them with support, if needed, to bring further activities to the council level.

If you do not already have such an arrangement, your radio club should offer free, low-cost youth, or family memberships. This can encourage scouts and their families to join the radio club in order to continue learning, and to having ongoing access to club activities. This program has the potential to expand a radio club's membership, suite of activities, and visibility in the local community.

If you are interacting with a scout unit that does not have a licensed radio operator, encourage any of their leaders who participate in activities to consider pursuing their license and joining the club. Remind them about the access to the resources that this affords.

Many scout units have an adult who works in education. If so, inform them about the ARRL Educator programs. These programs train teachers in the art and science of radio, work with them to help them obtain their FCC license, and can even provide graduates of the program with an equipment package to bring radio activities to the classroom or other youth venues.

Equipment Needed:

Scout activities are best served with task-focused kits of equipment (so as to not overwhelm the scout or overcomplicate setup of activity stations), and can be approached from a 'show-and-tell' perspective. They also make use of demonstrations, and provide hands-on activities for scouts to try. This is in line with the time-proven EDGE (Explain, Demonstrate, Guide, and Enable) method used in scouting. A list of some activities is provided below:

Get on the Air:

1. HT programmed with local repeaters and weather radio station (Digital mode with bridge is ideal to give the scouts the concept of DX, even in bad band conditions)
2. Printout and explain the US Amateur Radio Band Plan
3. HF radio (even if the club member is a technician license holder they can do the shortwave listening requirement with the scouts)
4. Antenna for HF radio, portable/free standing (not all sites allow antennas in trees or ground-spiked) is ideal. If not at a regular shack, this also allows for demonstrating how to assemble a station.

Badge Program:

1. HT programmed with local repeaters and weather radio station (Digital mode with bridge is ideal to give the scouts the concept of DX, even in bad band conditions)
2. Printout and explain the US Amateur Radio Band Plan
3. HF radio (even if the club member is a technician license holder they can do the shortwave listening requirement with the scouts)
4. Antenna for HF radio, free standing if not at a regular shack
5. It is best if you can show SOTA/POTA-capable gear that could be used during the scout's outdoors adventures

Radiosport/Foxhunting:

1. Directional antenna (Yagi Uda is preferred as the most common directional used in foxhunting), be prepared to explain how it works
 - a. If possible, have a directional antenna that the scouts may assemble, as that is part of the foxhunting portion of the Scouting America radio badge.
2. Receiving radio with S-meter, describe and explain how a receiving radio works, explain the s-meter is used in the activity
3. One or more fox beacons (a regular HT or FRS for live fox style hunts also works), explain what it is and how it works

Conducting Scout Sessions:

First and foremost is the need to ensure the safety of the scouts. This usually necessitates having at least a second adult present to be compliant with scouting safety guidelines. The second adult may be a parent or leader of the scouts or another club member. Prior to the session, review the station to ensure it is safe to operate and safe for scouts to be present (such as turning off soldering irons and checking for trip, shock, or other hazards). At the beginning of the session discuss shack and antenna safety with the scouts. It should go without saying, at no time should scouts be allowed to climb an antenna tower. Before letting scouts use any kind of antenna launcher, permission must be obtained from the scout

unit and council as launching devices may be age-limited similarly to various shooting sports devices in the Scouting America Guide to Safe Scouting.

Scouts come in a wide variety of age and maturity levels and it can be a challenge to keep their attention. It is recommended to alternate teaching and hands-on activities. Scouts also work best in buddy pairs/groups. It is recommended that you keep your session small - no more than 4 scouts per adult. This ensures that their questions can be addressed in a timely manner and that any equipment can be properly demonstrated.

Radio badge information is available from Scouting America as a free PDF download and should be consulted prior to conducting a Scouting America radio badge session. The ARRL offers a similar free download for their Girl Scout radio badge. If the Girl Scout radio badge program is being conducted, have the information for how to order the ARRL radio badge available for the Girl Scout leaders.

Much of scouting is flexible in terms of pace; do as little or as much as the scouts themselves are capable of doing. Some will be capable of only handling a learning activity for an hour, some perhaps two hours. It is ok to realize that a follow-up session may be needed. It is best to stop early before the scout loses interest, even when the instructor has a lot of great knowledge and insight to share.

Additional insight as to Scouting radio sessions may be obtained by visiting www.k2bsa.net.

Challenges:

Longer didactic sessions without hands on activity breaks may be suitable for adults, but not for youth; plan on activity breaks regularly or you will lose attention and interest.

There are a wide range of “mic fright” issues. Some scouts are ready to get on the air, others just want to listen. That’s expected and is ok. When planning badge sessions there are options for talking on the air and other activities, be ready with multiple options.

Often you can’t bring the scout to your home shack to work on the radio badge. Accordingly, bringing a portable shack (POTA/SOTA) to a scout event is a better way, plus it allows more scouts to see what’s going on and ask questions. Highly portable equipment (lightweight SOTA kits) also show that radio is viable as a backcountry (in the field) communication option.

Band conditions can make HF communication unreliable at times, so be prepared to demonstrate via repeaters/digipeaters (DMR/DSTAR/WIRES-X/Echolink) so that scouts can make worldwide contacts. Remember, some scouts may find it rewarding enough, just to hear people from around the globe.

Experienced foxhunters should bear in mind that due to the scout's lack of experience, the amateur radio member's desire to make a fox hunt challenging, may go beyond the scout's ability to find it. Signal blocking and directionality should be avoided. The fox should not be so hard to find that the scouts will quit the hunt and lose interest.

Costs:

GOTA stations – one usually can utilize existing personal or club equipment. However, you may need to add a battery and/or a tripod mounted (or other non-staked) whip antenna to bring the station to the scout camp or other location. It is possible to obtain this gear for under \$300

Foxhunting –

Receiver – an HT with an S-Meter is all that's needed, these can be found for \$25 and up. A Quansheng UV-K5 with the free Egzumer firmware has an S-Meter that can go above +50 and when paired with a yagi does not need an attenuator (additional cost/complexity), even when hunting 1W foxes.

Antenna – a Yagi is the traditional antenna for foxhunting, it is recommended to prepare parts for the scouts to assemble a tape measure yagi, with the soldering pre-done to add quick disconnect wiring (this avoids having to solder at a campsite or risk scouts burning themselves). This type of antenna can be constructed for about \$20 or less

Beacon – a basic beacon can be constructed for as low as \$25 from a Quansheng UV-K5 paired with one of the free open-source custom firmware packages, whereas a ready-built beacon from Byonics can be as high as \$160 per unit. If the owner of a fox is the one deploying it, it doesn't matter which route, but if it is a borrowed fox or a for-scouting-use quick deploy kit, the Byonics route is recommended for the ease of a turnkey setup (once initial programming is performed).

Scouting Rewards:

There are multiple awards available to scouts, depending on the type of unit. Scouting America units are eligible to earn the Radio Merit Badge, Amateur Radio Operator strip (may be worn by scouts and leaders who get their radio license), and Morse Code Interpreter strip. Girl Scouts may earn the ARRL's own Radio Badge. In addition to these badges, scouts may

earn partial credit towards other STEM related badges, and be better prepared in case of emergency. Scouts who feel welcomed by your club are more likely to enter the radio hobby.

The reward to the club is many-fold:

1. The scouts, their leaders, and family may continue in the radio hobby and join their local club as members
2. The amount of club activity will grow as there are often many scout units in the town (and its neighbors) where the club is focused.
3. The amount of community service the club is performing grows.
4. The club will gain visibility in the community.
5. The scouts may recommend that their school's curriculum include radio topics (fox hunts, ARISS contacts, etc) and if they are asked to help, they likely in turn, will ask "their new club" for help.

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ATTACHMENT 1:

SCOUTING ACTIVITY EXAMPLE

Knot Your Average Scavenger Hunt

Materials:

Radio Direction Finding Antenna and Receiver (1 per patrol/ group)

Radio Direction Finding Beacon, 1 per station (the Fox Transmitter)

Rope /cord, 3-5 ft per person + 3-5 ft per station

Assignment chart (for game master to use in running game)

1 knot card with sample knot and instructions per station

Goals:

- 1) Reinforce scout knot skills
- 2) Learn and use radio direction finding
- 3) Foster healthy competition between patrols
- 4) Encourage outdoor activity and fitness

Game:

The Game Master (may be a leader, a senior non-playing scout, or the licensed control operator) will place a knot card and Beacon at each station. There should be at least 1 or 2 more stations than there are patrols. Stations should not be visible by each other if at all possible.

Each patrol will be provided a length of rope/cord per person and 1 radio direction finding antenna and receiver. Each patrol will be given instruction on how to set and read the receiver. Each patrol will be given their first frequency to hunt in a sealed envelope.

At the start, the Game Master will announce start and each patrol will open their envelope, set their assigned frequency, and begin the hunt.

At each station, scouts will review the knot card, practice the knot until the patrol leader is confident that all can do the knot, then all ropes shall be untied and the patrol returns to the game master. Each member of the patrol must demonstrate the knot to the Game Master to receive their next frequency.

Once a patrol has completed all knots, they will receive an assignment card with a task that uses many if not all the knots. First to complete wins! Suggested prizes:

- 1) Patrol does not have to lug water from pump to campsite on the campout
- 2) Patrol gets to be first in line for food
- 3) Patrol does not have to cut/chop wood
- 4) Patrol gets to pick the hike
- 5) Adult leaders have to do the dishes

Game Master Assignment card: (sample – Ham frequencies shown, FRS or MURS possible for troops without licensed individual to act as control operator)

Frequency	Knot	Patrol A	Patrol B	Patrol C
145.300	Square	1	3	5
147.455	Bowline	2	4	1
145.605	Clove Hitch	3	5	2
145.700	Tautline	4	1	3
146.565	Sheet Bend	5	2	4

Final task: at the tree/post designated by the game master (all patrols use same tree/post), piece together all the patrol ropes using sheet bend and square knots (must have both). Attach one end to the tree/post with a tautline hitch. Create a bowline at the free end big enough for everyone in the patrol to grab the loop. Everyone in the patrol must grab the loop with one hand and shout the patrol name, first patrol complete wins.

ATTACHMENT 2:

SCOUTING ACTIVITY EXAMPLE

Shortwave Listening Bingo

Materials:

HF Radio with Antenna or

Digital HT with bridge or repeater connection to DMR/D-STAR/WIRES-X or

Echolink App or

Droidstar App

An assortment of “Bingo” cards with country names laid out in a 5x5 grid with the center square “FREE”

Optional: list of country call sign prefixes

How to play:

Tune in to a DX capable means (HF radio, digital radio -DMR/WIRES-X/Echolink/D-STAR, Web SDR, etc)

Listen to the conversations and:

each time a country is said as a “QTH” look on the card for it and mark off on the card

each time a callsign is given, identify the country and mark off the corresponding country on the card

shout bingo if any row, column or diagonal of 5 marked off countries is achieved

BONUS:

Mark off countries on a map of the globe, the scouts keep the map and add on at additional games

Shortwave Listening Bingo

Example playing card

CANADA	BURKINA FASO	QATAR	SOUTH KOREA	OMAN
ISRAEL	ARGENTINA	BRAZIL	ITALY	ENGLAND
NEW ZEALAND	CHINA	FREE	BELARUS	FRANCE
CHILE	BOSNIA	PERU	THAILAND	JAPAN
SOUTH AFRICA	IRAN	RUSSIA	UAE	MEXICO

ATTACHMENT 3:

SCOUTING ACTIVITY EXAMPLE

PHONETIC FUN

A variation of the “telephone” game

Materials:

Chart of NATO standard phonetics

What to do:

Have each scout first practice spelling their name or nickname phonetically.

Have the scouts form a semi-circle and space 4-6 feet apart

At one end of the semi circle, give the first scout a word (short) spelled phonetically, they need to then pass that to the next scout phonetically, and so on

The final scout says the word normally, a correct answer is one point.

The scouts then move one spot counter clockwise and the game repeats until all scouts have been both first and last in the chain

If the group is large (or multiple patrols are present), consider splitting the group into two or more approximately even size groups and do a head to head competition.

ATTACHMENT 4:

Becoming a Merit Badge Counselor

- Scouting America -

The path to becoming a merit badge counselor is fairly straightforward, but does take an investment of your time. The high level path is outlined below, which includes a link to the Connecticut Yankee Council's instructions as an example, it is recommended to check your local scout council's web site for any additional requirements they may have as well as to locate the Merit Badge Dean/Coordinator that you will need to provide your paperwork to.

Link with info:

<https://www.ctyankee.org/wp-content/uploads/2023/12/2023-11-21-HowtobeMBC.pdf>

Basic process:

- 1) signup for a <http://my.scouting.org> account
- 2) go to "my training"
- 3) take "safeguarding youth training", save the completion certificate as a pdf
- 4) take merit badge counselor training under the Scouts BSA list of training, save the completion certificate as a pdf
- 5) fill out a volunteer application (position code 42 / merit badge counselor) and a merit badge counselor application (which will list the badges you will be teaching)
- 6) provide the pdfs and applications to the council Merit Badge Dean/Coordinator

Once you apply, the council may charge a fee for processing (namely due to the background check), it is advised that clubs establish a policy to support reimbursement of a few such applications for their members to encourage them to take part in becoming a counselor as it will engage the club member and the youth they will impact (and their families) will be more likely to join the club.