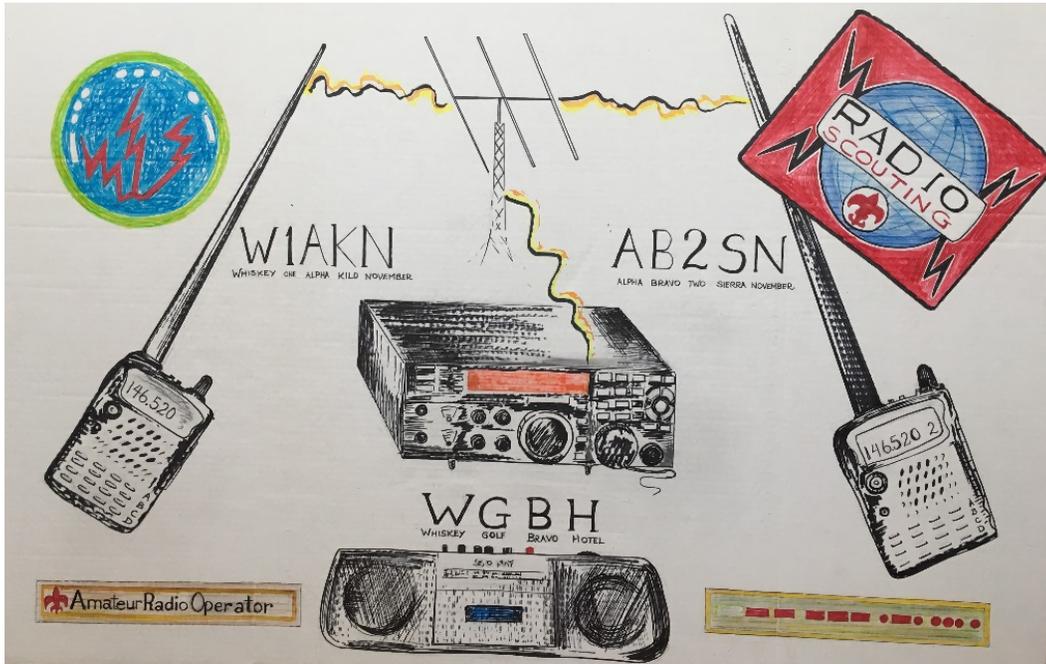




PROGRAM FEATURE: RADIO



Getting and Giving Information

Every human is constantly communicating through speech, reading, body language, even a raised eyebrow. We have many other means of sending and receiving messages, too—the telephone, television, radio, photographs and drawings, computers, recorded tapes, and compact discs. Besides amateur radio, your Scouts can explore some of the older means of communication such as Morse code, flags, and sign language. Each patrol might want to become proficient in one means of communication and teach it to the others. The main event will be a send-the-word campout. Besides having contests in communications skills, the troop can also work on other outdoor and nature skills. To top off your activities, you will want to have a troop campfire that provides an opportunity to use various means of communication.

Communication is an essential life skill—a critical skill—that all people need. The activities in this program feature will help your Scouts use a variety of radio communication techniques. It will also put Scouts on the road toward earning the Radio merit badge or other badges and awards related to radio.

TROOP LEADER RESOURCE LINKS

[Advancement Resources](#)[Awards Central](#)[Boy Scouts](#)[Guide to Safe Scouting](#)[SCOUTBOOK](#)[ScoutCast](#)[Scouting Forms](#)[Scouting Magazine](#)[Scouting Newsroom](#)[ScoutingWire](#)[ScoutShop.org \(Retail Site\)](#)[Sign in to My.Scouting.org](#)[The Adventure Planning Guide](#)[Troop Leader Guidebook Appendix](#)[Youth Protection](#)[Uniforms](#)[K2BSA](#)[Communication](#)[Information](#)[Troop Meetings](#)[Main Event](#)



INFORMATION: RADIO

Related Advancement and Awards

- Rank advancements (summoning help)
 - Tenderfoot 5b
 - Second Class 6d 6e
 - First Class 7d 7e
- Radio Merit Badge
- Aviation merit badge 2e and 4b
- Citizenship In the World merit badge 7e (JOTA)
- Communications merit badge (many requirements)
- Electronics merit badge 4c (a radio circuit should qualify)
- Citizenship In the World merit badge 7a (Amateur Radio Field Day) and 8a(2)
- Engineering merit badge 6c
- Signs, Signals, and Codes merit badge 2 and 3a
- Space Exploration merit badge 4d
- [Morse Code interpreter strip](#)
- [Amateur Radio Operator rating strip](#)

Advance Planning – Because the participation of amateur radio operators and their equipment will be needed for many of the associated activities, dates that they are available may dictate when some of the events can take place. It would be especially appropriate if the merit badge weekend or visits to amateur radio stations were to match the JOTA (Jamboree on the Air) weekend, the third full weekend in October (refer K2BSA).

Radio Communication: Another Key to Opening Doors – Communication is important to your life and radio communication is a special form of it. Being able to communicate effectively is key to achieving success. It is the way you get people to understand your values, interests, talents, abilities, needs, and wants.

- Atmospheric conditions during transmitting and receiving may be far from ideal so that both you and the person you are talking to may need to listen especially carefully to understand what is being said
- You and the person you are talking to may not normally speak the same language; one or both of you may need to communicate in a foreign language
- If you are using Morse code, this is a foreign language too!

Good radio communication means more than just expressing yourself. It also involves listening carefully to others, knowing when it is your turn to speak and then saying what you want to say clearly and perhaps concisely. If you can communicate well, you will be better at just about everything you do, from Scouting to schoolwork to being a good friend.

TROOP LEADER RESOURCE LINKS

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There is no minimum age to getting an amateur radio license, the only requirement is being able to pass the exam. You do not need a license to use an FRS radio, a low-power handheld, unless you operate on GMRS frequencies. No license is needed for marine radios in pleasure boats operating on marine channels.

Why Study Radio Communication? If we learn to communicate naturally, why do we study radio communication? The answer is that we all can improve our communication skills if we practice them. That improvement means learning to be a better listener and a more confident speaker. According to the National Communication Association, “Communication is a learned skill. Most people are born with the physical ability to talk, but we learn over time to speak well and communicate effectively.”

Parent/Guardian Participation – The troop leadership can involve parents in the program feature this month by:

- Asking qualified parents to assist with instruction for radio and signaling skills
- Inviting parents on the campout
- Asking parents to provide transportation to the starting point for the backpacking trek into camp, if necessary
- Getting help in arranging to visit radio communications businesses such as an amateur radio station, broadcast station, or public service communications center



MEETING PLANS & IDEAS: RADIO

OBJECTIVES

This month's patrol and troop activities should:

- Give Scouts the knowledge and skills to be comfortable in a variety of radio communication methods
- Help Scouts to become radio communicators and listeners.
- Introduce Scouts to a variety of radio communication methods.
- Help Scouts understand and overcome radio communication barriers.
- Encourage Scouts to pursue radio-related awards.
- Introduce Scouts to careers in the radio communication field.
- Build self-confidence by learning and demonstrating skills.

LEADERSHIP PLANNING

During your planning meetings, you and your leadership team may want to discuss the following items when choosing radio as your program feature:

What do we want our main event to be?

- Which merit badges would we like to focus on this month?
- What adults in our unit have radio expertise?
- Who else do we know who could serve as a radio instructor?
- Are there areas in our unit where we struggle to communicate?
- How can we involve parents?
- How do we involve outside amateur radio operators?
- To meet our needs, what should we change in the sample meeting plans?

Meeting Plan: Week ___ Date _____			
ACTIVITY	DESCRIPTION	RUN BY	TIME*
Preparating <small>minutes before meeting</small>			
Opening Ceremony <small>minutes</small>	Flag presentation Oath and Law Uniform inspection		
Group Instruction <small>minutes</small>	* * * * *		
Skills Instruction <small>minutes</small>	* * * * *		
	* * * * *		
	* * * * *		
Breakout Groups <small>minutes</small>			
Game <small>minutes</small>			
Closing <small>minutes</small>	Announcements Leader's minute Closing		
Total 60 minutes of meeting			
After the Meeting <small>minutes</small>	Leadership team review plans for the next meeting and for the main event.		

Click above for fillable troop meeting planning form.

TROOP LEADER RESOURCE LINKS

[Advancement Resources](#)

[Awards Central](#)

[Boy Scouts](#)

[Guide to Safe Scouting](#)

[SCOUTBOOK](#)

[ScoutCast](#)

[Scouting Forms](#)

[Scouting Magazine](#)

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PREOPENING IDEAS

Preopening Ideas on Troop Program Resources

- Invite a ham radio operator to set up at your meeting place so Scouts can experience amateur radio as they arrive. Introduce Scouts to the [Morse Code interpreter strip](#) and [Amateur Radio Operator rating strip](#).
- Although it is no longer necessary to know "CW" or Morse Code, it is still popular among ham radio operators. Have some practice buzzers available for scouts to try when they arrive. Some flashlights can also easily be used to send Morse by "lamp". Enlist the services of local amateur radio operators to assist.
- Have some practice buzzers available again for Morse code when they arrive. Try to send a message to another scout. Look at and use any Morse code oscillators built by scouts. Find out about any electronic kits built by scouts.
- Practice saying something to another scout using the phonetic alphabet.

OPENING IDEAS

Opening Ideas on Troop Program Resources

GROUP INSTRUCTION IDEAS

Communicating Online and Over the Air

Explain how a radio contact is made and the procedure to do so. Introduce proper call signs, Q signals, and abbreviations as used during radio contacts. Practice simulated radio contacts in preparation for JOTA. Design special QSL cards with Scouting themes for the JOTA weekend. QSL cards are exchanged with the other stations and Scouts you contact during JOTA.

Careers in Radio

Find out about three career opportunities in radio. Pick one and find out the education, training, and experience required for this profession.

Introduction to marine band radios:

This is the tool most boaters use to communicate with other boaters, the Coast Guard, barges, drawbridge tenders, etc. There are also marine weather channels, one of which may cover your area. Marine band radios are used on rivers, lakes, canals and the coastal waters of the USA and abroad.



Electrical Safety:

Learn about electrical safety and precautions to be taken against contact with overhead and underground wires. Learn about lightning strikes to antennas, homes and metal tent poles. Learn about what to do during thunderstorms while hiking and camping.

SKILLS INSTRUCTION IDEAS

ESSENTIAL

CHALLENGING

ADVANCED

Communicating Effectively

Have the Scouts list as many ways as they can think of to communicate by radio with others (by telephone; by email; by texting; ham radio voice, Morse and slow-scan TV; walkie-talkie GMRS; etc.). For each type of communication, have them name instances when that method would or would not be appropriate or effective.

	<p>Learn and practice the EDGE method.</p> <ul style="list-style-type: none"> • Work on Tenderfoot, Second Class, and First Class requirements as needed. • Practice talking to another Scout without interruption and say “over” when the other Scout may start his reply.
	<p>Review the EDGE method.</p> <ul style="list-style-type: none"> • Learn how you would make an emergency call on voice or using Morse code: <ul style="list-style-type: none"> – When emergency messages should be sent – How and by what methods to make distress calls
	<p>Review the EDGE method.</p> <ul style="list-style-type: none"> • Discuss what role computers play in amateur radio • Discuss why emergency communications might be important and who provides it • Discuss SKYWARN and who can become involved

The EDGE Method: Explain, Demonstrate, Guide, and Enable the Scout to be successful

Non-Verbal Communication

	<p>Discuss the following and when they might be used:</p> <ul style="list-style-type: none"> • Morse code and how it might be sent • Semaphore
	<p>Review the history of Morse code and when it might be appropriate to use it. Why is it used today?</p> <ul style="list-style-type: none"> • Introduce Scouts to the Morse Code interpreter strip.



	<p>Introduce:</p> <ul style="list-style-type: none"> Signs, Signals and Codes merit badge <p>Begin planning a campfire program or interfaith worship service to be conducted during the main event.</p>
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Communicating Online and Over the Air

	<p>Discuss (preferably by patrols):</p> <ul style="list-style-type: none"> What radio and amateur radio are How amateur radio can help during emergencies The phonetic alphabet When scouts might need amateur radio How radio waves travel Ham radio communications
	<p>Prepare lists by patrols of questions to ask over the air of scouts contacted during JOTA, perhaps from other countries.</p> <ul style="list-style-type: none"> Decide what is special about your local area to tell Scouts in other countries and other parts of the U.S. Discuss these items with the other patrols and draw up a master list for all scouts to become familiar with them. Share the lists prepared of items of local interest and questions to ask of other scouts when talking by radio.
	<p>Introduce:</p> <ul style="list-style-type: none"> Signs, Signals and Codes merit badge <p>Continue plans for the main event campfire program or interfaith service</p>

Careers in Radio

	<p>Review the list of radio-related merit badges. Encourage each Scout to pick one to work on in the months to come.</p>
	<p>Review the list of radio-related merit badges. Encourage each Scout to pick one to work on in the months to come.</p>
	<p>Introduce:</p> <ul style="list-style-type: none"> Amateur Radio Operator Rating Strip <p>Finalize plans for the main event campfire program or interfaith service.</p>



BREAKOUT GROUP IDEAS

Getting Ready for the Main Event

- Menu Planning (if applicable)
- Duty Roster Planning (if applicable)
- Patrols discuss what special items they will need for the main event.
- Plan the group's portion of the campfire program or interfaith service.

Preparation for the meeting's game or challenge

By patrols, visit an amateur radio operator's station to see how it works.

- Learn about radio waves and their propagation.

GAME AND CHALLENGE IDEAS

Team Building Activities on Troop Program Resources

- **Concentration**

Scouts pair up with someone from another patrol. Choose a topic. Both scouts talk simultaneously face-to-face at close range for say 60 seconds. Loser is first to hesitate, pause, look away or make any break other than quick breaths. Patrol with least losers wins.

- **Signaling**

- *Materials:* for each patrol: Two [Morse code references](#), paper and pencil. The sending method can be by buzzer or alternatively either with a small flag used as a signal flag or using a mirror; in the dark a flashlight could be used.
- *Method:* Two Scouts from each patrol, serving as the sender and dictator, are stationed away from the rest of the patrol and effectively out of ear shot. The senders are given a short message to send. If it is a written message, it can be either in Morse code or in letters of the alphabet along with a *Morse code reference*. The receivers have a blank paper, a pencil, and their own *Morse code reference* for recording the message when it is sent.
- When all are in position and ready, one sender dictates each letter of the message to the other one who sends it in Morse code using the buzzer or



alternatively by one of the above methods. They obviously need to communicate and cooperate with one another. When a flag is used to send each letter of the message in Morse code, it should be by wig-wagging:

- The flag held up straight and tall = the start of a letter.
- A swipe to the right = a dot.
- A swipe to the left = a dash.
- The flag swished downward = the end of the word.

– The receiving patrol needs record on their papers the dots and dashes being sent. Afterwards, they can refer to their reference sheet to decipher the message.

– *Scoring*: Correct letters received by all patrol members are added together, then divided by the number of receivers to get the patrol average. The patrol with the highest average wins.

- **Find out about Commercial radio and television**
 - How are programs made and transmitted?
 - When can a television or radio station be visited?
- **Find out how a radio receiver works.**
 - Some scouts might like to build a radio receiver as a patrol project or alone.
- **Learn and practice using Morse code.**
- **Build a Morse code practice oscillator or other simple electronic kit.**
 - Bring it to the next scout meeting.

CLOSING IDEAS

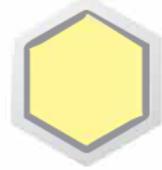
- [Leader's Minutes](#)
- [Ceremony](#)



TROOP MEETING PLAN – RADIO

Meeting Plan: _____

Week¹ Date _____



ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening ____ minutes	Although it is no longer necessary to know “CW” or Morse Code, it is still popular among ham radio operators. Have some practice buzzers available for scouts to try when they arrive. Some flashlights can also easily be used to send Morse by “lamp”. Enlist the services of local amateur radio operators to assist. Introduce Scouts to the Morse Code interpreter strip .		
Opening Ceremony ____ minutes			
Skills Instruction ____ minutes	Discuss (preferably by patrols): <ul style="list-style-type: none"> • What radio and amateur radio are • How amateur radio can help during emergencies • The phonetic alphabet • When scouts might need amateur radio • How radio waves travel • Ham radio communications Introduce: <ul style="list-style-type: none"> • Signs, Signals and Codes merit badge • Radio merit badge • Amateur Radio Operator Rating Strip 		
Patrol Meetings ____ minutes			
Patrol Activity ____ minutes	By patrols, visit an amateur radio operator’s station to see how it works. Learn about radio waves and their propagation.		
Closing ____ minutes		SM	
After the Meeting ____ minutes	Find out about Commercial radio and television. <ul style="list-style-type: none"> • How are programs made and transmitted? • When can a television or radio station be visited? Find out how a radio receiver works. Some scouts might like to build a radio receiver as a patrol project or alone.		



TROOP MEETING PLAN - RADIO

Meeting Plan: _____

Week2__ Date_____



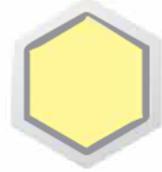
ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening ____ minutes	Practice saying something to another scout using the phonetic alphabet.		
Opening Ceremony ____ minutes			
Skills Instruction ____ minutes	Introduction to marine band radios: The tool most boaters use to communicate with other boaters, the Coast Guard, barges, drawbridge tenders, etc. There are also marine weather channels, one of which may cover your area. Marine band radios are used on rivers, lakes, canals and the coastal waters of the USA and abroad.		
Patrol Meetings ____ minutes			
Interpatrol Activity ____ minutes	Prepare lists by patrols of questions to ask over the air of scouts contacted during JOTA, perhaps from other countries. Decide what is special about your local area to tell Scouts in other countries and other parts of the U.S. Discuss these items with the other patrols and draw up a master list for all scouts to become familiar with them.		
Closing ____ minutes		SM	
After the Meeting ____ minutes	Learn and practice using Morse code. Build a Morse code practice oscillator or other simple electronic kit. Bring them to the next scout meeting.		



TROOP MEETING PLAN - RADIO

Meeting Plan: _____

Week 3 Date _____



ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening ____ minutes	Have some practice buzzers available again for Morse code when they arrive. Try to send a message to another scout. Look at and use any Morse code oscillators built by scouts. Find out about any electronic kits built by scouts.		
Opening Ceremony ____ minutes			
Skills Instruction ____ minutes	Learn how you would make an emergency call on voice or Morse code: <ul style="list-style-type: none"> • When emergency messages should be sent • How and by what methods to make distress calls Introduce Scouts to the Morse Code interpreter strip . Learn about electrical safety and precautions to be taken against contact with overhead and underground wires. Learn about lightning strikes to antennas, homes and metal tent poles. Learn about what to do during thunderstorms while hiking and camping.		
Patrol Meetings ____ minutes			
Interpatrol Activity ____ minutes			
Closing ____ minutes		SM	
After the Meeting ____ minutes			



	TROOP MEETING PLAN - RADIO	
	Meeting Plan: _____ Week4 _ Date _____	

ACTIVITY	DESCRIPTION	RUN BY	TIME
Preopening ____ minutes	Invite a ham radio operator to set up at your meeting place so Scouts can experience amateur radio as they arrive.		
Opening Ceremony ____ minutes			
Skills Instruction ____ minutes	Explain how a radio contact is made and the procedure to do so. Introduce proper call signs, Q signals, and abbreviations as used during radio contacts. Practice simulated radio contacts in preparation for JOTA. Design special QSL cards with Scouting themes for the JOTA weekend. QSL cards are exchanged with the other stations and Scouts you contact during JOTA.		
Patrol Meetings ____ minutes			
Interpatrol Activity ____ minutes	Game: Scouts pair up with someone from another patrol. Choose a topic. Both scouts talk simultaneously face-to-face at close range for say 60 seconds. Loser is first to hesitate, pause, look away or make any break other than quick breaths. Patrol with least losers wins.		
Closing ____ minutes		SM	
After the Meeting ____ minutes	Share the lists prepared earlier of items of local interest and questions to ask of other scouts when talking by radio.		

AMATEUR RADIO STATIONS AND OPERATORS AT CAMP SITE

MAIN EVENT: RADIO

TROOP LEADER RESOURCE LINKS

SOME MAIN EVENT IDEAS		
● ESSENTIAL	■ CHALLENGING	◆ ADVANCED
Day Activity	Day Activity	Overnight Activity
Radio field trip – Visit a radio installation (an amateur radio station, broadcast station, or public service communications center, for example).	Radio hike – Arrange with a local radio club to learn about direction finding and ask them to set up a foxhunt (hunting for a hidden transmitter). While waiting to take part in the foxhunt, practice sending and receiving Morse code on radio club equipment.	Merit badge weekend – Camp in a favorite spot and use part of the time to work on the Radio merit badge. Arrange for licensed radio operators to be present with their radio equipment operational; JOTA weekend would be ideal. Schedule operating times for scouts so that all have an opportunity to use the radio equipment under supervision of the licensed operators.

The following three sample outing outlines can serve troop leaders as a point of reference, or as an actual framework, for the monthly main event relating to the radio program feature.

NOTE: If camping and radio operators cannot be combined on JOTA weekend, plan a visit to one or more amateur radio stations on JOTA weekend so that all scouts have the opportunity to make a scout contact by radio. Pick an unusual location for the JOTA station you visit, working closely with your amateur radio partner. On days other than JOTA weekend, it is still possible to make a radio contact, but it is unlikely to be with a scout. Try also to find out where local radio clubs will be holding their Field Day (fourth weekend in June) and plan a visit to see how radio stations can be set up at “emergency” locations. Many operators use field day as a competition to make as many contacts as possible, so use of a radio might be difficult during the annual Field Day.

[Advancement Resources](#)

[Awards Central](#)

[Boy Scouts](#)

[Guide to Safe Scouting](#)

[SCOUTBOOK](#)

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[Youth Protection](#)

[Uniforms](#)

[K2BSA](#)

RADIO	
Main Event: Radio Field Trip	
Date _____	
Logistics Location: _____ Departure time: _____ Return time: _____ Duration of activity: 3 to 4 hours Budget: Complete _____ Approved _____ Camping: Day only _____ None _____ Transportation: Group _____ Staff _____ Tour and activity plan: Complete _____ Submitted _____	Essential (Tier I) Visit a radio installation (an amateur radio station, broadcast station, or public service communications center, for example).
Equipment List <ul style="list-style-type: none"> • Food • Water • Scout Basic Essentials (Review the list and take what you need) 	
Activity <ul style="list-style-type: none"> • Identify a local communication facility your unit can visit. If it is not local, the field trip coordinator will coordinate with a contact. • Make arrangements to visit and try to get permission to use a hands-on activity rather than just a field trip. • Review the requirements for related merit badges to see if any requirements could be completed during the visit. • Share these requirements ahead of time with the contact person at the site to see if he or she can tailor the visit to accommodate these requirements. 	
Safety Use the buddy system; cell phones are a good idea as appropriate. Have a first-aid kit handy.	Notes _____ _____

Sample Essential Radio Main Event

RADIO	
Main Event: Radio Hike & "Foxhunt"	
Date _____	
Logistics Location: _____ Departure time: _____ Return time: _____ Duration of activity: 4 to 6 hours Budget: Complete _____ Approved _____ Camping: Day only _____ None _____ Transportation: Group _____ Staff _____ Tour and activity plan: Complete _____ Submitted _____	Challenging (Tier II) Arrange with a local radio club to learn about direction finding and ask them to set up a foxhunt (hunting for a hidden transmitter). While waiting to take part in this radio activity, practice sending and receiving Morse code on radio club equipment.
Equipment List <ul style="list-style-type: none"> • Hand-held paper • Food • Water • Scout Basic Essentials (Review the list and take what you need) 	
Activity <ul style="list-style-type: none"> • Plan a day hike in your area. • Travel to radio station to the hike. Meet up with a local radio club at a location suitable for a fox hunt and learn about direction finding. • Take part in a foxhunt, while waiting to take part, practice sending and receiving Morse code on radio club equipment. • Try sending and receiving messages in wilderness. 	
Safety Use the buddy system; cell phones are a good idea as appropriate. Have a first-aid kit handy.	Notes _____ _____

Sample Challenging Radio Main Event

RADIO	
Main Event: Merit Badge Weekend	
Date _____	
Logistics Location: _____ Departure time: _____ Return time: _____ Duration of activity: Weekend Budget: Complete _____ Approved _____ Camping: Day only _____ None _____ Transportation: Group _____ Staff _____ Tour and activity plan: Complete _____ Submitted _____	Advanced (Tier III) Camp in a favorite spot and use part of the time to work on the Radio merit badge. Arrange for licensed radio operators to be present with their radio equipment operational; JOTA weekend would be ideal. Schedule operating times for scouts so that all have an opportunity to use the radio equipment under supervision of the licensed operators.
Equipment List <ul style="list-style-type: none"> • Paper and pens • Supplies for the Radio merit badge, such as workbook (optional), flashlight, blue ink, sign, pen (ballpoint), compass, pencil, sharpener, eraser, pencil sharpener, pencil sharpener, pencil sharpener • Food • Water • Scout Basic Essentials (Review the list and take what you need) 	
Activity <ul style="list-style-type: none"> • Find and reserve a location. Look for a place with a shelter for lodging before you work. • Choose the Radio merit badge requirements that can be done during the weekend. • Identify adults who can teach those requirements, including the work and complete all merit badge requirements radio format. • Set up a reward table (such as biscuits) for scouts who work on each of those requirements during the weekend. • Take time during the day for hiking or other activities. 	
Safety Use the buddy system; cell phones are a good idea as appropriate. Have a first-aid kit handy.	Notes _____ _____

Sample Advanced Radio Main Event

Fillable Main Event Planning Sheet

Communication	Information	Troop Meetings	Main Event
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AMATEUR RADIO STATIONS AND OPERATORS AT CAMP SITE

<u>Communication</u>	<u>Information</u>	<u>Troop Meetings</u>	<u>Main Event</u>
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AMATEUR RADIO STATIONS AND OPERATORS AT CAMP SITE

	<h2 style="margin: 0;">RADIO</h2> <h3 style="margin: 0;">Main Event: Radio Field Trip</h3>	
Date _____		
Logistics Location: _____ _____ Departure time: _____ Return time: _____ Duration of activity: 3 to 4 hours Budget: Completed _____ Approved _____ Camping: Duty roster _____ Menu _____ Transportation: Group _____ Self _____ Tour and activity plan: Completed _____ Submitted _____	<div style="display: flex; align-items: center;"> <div style="background-color: #4caf50; border-radius: 50%; width: 20px; height: 20px; margin-right: 10px;"></div> <div> <p>Essential (Tier I)</p> <p>Visit a radio installation (an amateur radio station, broadcast station, or public service communications center, for example).</p> </div> </div>	
Equipment List	<ul style="list-style-type: none"> Food Water Scout Basic Essentials (Review the list and take what you need.) 	
Activity	<ul style="list-style-type: none"> Identify a local communication facility your unit can visit. (If it's not local, the field trip could easily be combined with a campout.) Make arrangements to visit and try to get permission to do a hands-on activity rather than just a passive tour. Review the requirements for related merit badges to see if any requirements could be completed during the visit. Share those requirements ahead of time with the contact person at the site to see if he or she can tailor the visit to accommodate those requirements. 	
Safety	Use the buddy system; cell phones are a good idea as appropriate. Have a first-aid kit handy.	
Notes		

AMATEUR RADIO STATIONS AND OPERATORS AT CAMP SITE

	<h2 style="margin: 0;">RADIO</h2> <h3 style="margin: 0;">Main Event: Radio Hike & “Foxhunt”</h3>	
Date _____		
Logistics Location: _____ _____ Departure time: _____ Return time: _____ Duration of activity: 4 to 6 hours Budget: Completed _____ Approved _____ Camping: Duty roster _____ Menu _____ Transportation: Group _____ Self _____ Tour and activity plan: Completed _____ Submitted _____	<div style="background-color: #0070c0; color: white; padding: 5px; margin-bottom: 10px;">Challenging (Tier II)</div> Arrange with a local radio club to learn about direction finding and ask them to set up a foxhunt (hunting for a hidden transmitter). While waiting to take part in the foxhunt, practice sending and receiving Morse code on radio club equipment.	
Equipment List	<ul style="list-style-type: none"> Pencil and paper Food Water Scout Basic Essentials (Review the list and take what you need.) 	
Activity	<ul style="list-style-type: none"> Plan a day hike in your area. To add a radio element to the hike, Meet up with a local radio club at a location suitable for a fox hunt and learn about direction finding. Take part in a foxhunt; while waiting to take part, practice sending and receiving Morse code either with buzzers, flags (wig-wag) or flashlights. Try sending and receiving messages in semaphore. 	
Safety	Use the buddy system; cell phones are a good idea as appropriate. Have a first-aid kit handy.	
Notes		

AMATEUR RADIO STATIONS AND OPERATORS AT CAMP SITE

	<h2 style="margin: 0;">RADIO</h2> <h3 style="margin: 0;">Main Event: Merit Badge Weekend</h3>		Date _____
Logistics Location: _____ _____ Departure time: _____ Return time: _____ Duration of activity: Weekend Budget: Completed _____ Approved _____ Camping: Duty roster _____ Menu _____ Transportation: Group _____ Self _____ Tour and activity plan: Completed _____ Submitted _____	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">  </div> <div> Advanced (Tier III) <p>Camp in a favorite spot and use part of the time to work on the Radio merit badge. Arrange for licensed radio operators to be present with their radio equipment operational; JOTA weekend would be ideal. Schedule operating times for scouts so that all have an opportunity to use the radio equipment under supervision of the licensed operators.</p> </div> </div>		
Equipment List	<ul style="list-style-type: none"> Paper and pens Supplies for the Radio merit badge, such as workbook (optional), flashlight, flags for wig-wag (improvise), buzzer Camping gear (individual and group) Food Water Scout Basic Essentials (review the list and take what you need) 		
Activity	<ul style="list-style-type: none"> Find and reserve a campsite. Look for a place with a shelter for building where you can work. Choose the Radio merit badge requirements that can be done during the campout. Identify adults who can teach those requirements, facilitate the work and people of any age who hold amateur radio licenses. Set up a round-robin schedule so Scouts can work on each of those requirements during the campout. Take time during the day for hiking or other activities. 		
Safety	Use the buddy system; cell phones are a good idea as appropriate. Have a first-aid kit handy.		
Notes			

AMATEUR RADIO STATIONS AND OPERATORS AT CAMP SITE

	<h1 style="margin: 0;">RADIO</h1> <h2 style="margin: 0;">Main Event: Merit Badge Weekend</h2>	
Date _____		

TIME	ACTIVITY	RUN BY
Friday Evening	Load gear at meeting location, leave for campsite. Plan a light meal en route.	SPL
	Arrive at campsite; off-load equipment. Set up patrol sites. Stow gear & set up camp.	SPL
Saturday 6:30 am	Cooks and assistants up. Prepare breakfast. (Cooks should be working on First and Second Class requirements.)	Cooks, assistants
7:00 am	Everyone else up. Take care of personal hygiene, air tents, hang out sleeping bags.	
7:30 am	Breakfast.	
8:00 am	Clean up.	Cooks
	Patrols put up the gear for morning activities in parallel with radio activities, clean up patrol site.	
8:30–11:30 am	Schedule operating times for scouts so that all have an opportunity to use the radio equipment under supervision of the licensed operators. Scouts not using radios to take part in parallel activities.	SPL
11:30 am	Cooks prepare lunch.	Cooks
Noon	Lunch.	
12:30 pm	Clean up.	Cooks
1:30 pm	Continue competitions and operating radios under supervision. Game: Learn about direction finding and ask a local radio club to set up a foxhunt (hunting for a hidden transmitter).	
4:30 pm	Start dinner preparation.	Cooks
5:30 pm	Dinner.	SPL
6:00 pm	Clean up.	Cooks
8:00 pm	Nighttime activity.	
9:00 pm	Campfire program planned by experienced Scouts.	SPL
10:00 pm	Cracker barrel.	
11:00 pm	Lights out.	
Sunday 7:00 am	Cooks and assistants up. Prepare breakfast. (Cooks should be working on First and Second Class requirements.)	Cooks, assistants
7:30 am	Everyone else up. Take care of personal hygiene, air tents, hang out sleeping bags.	
8:00 am	Breakfast.	
8:30 am	Clean up.	Cooks
	Patrols put up the gear for morning activities, clean up patrol site.	
9:00 am	Worship service	
9:30–11:00 am	Patrol games. Perhaps older Scouts run an orienteering course. Younger Scouts play four games from Games section of the <i>Troop Program Resources</i> .	
11:00 am	Break camp.	
Special equipment needed		

AMATEUR RADIO STATIONS AND OPERATORS AT CAMP SITE

NOTE: If camping and radio operators cannot be combined on JOTA weekend, plan a visit to one or more amateur radio stations on JOTA weekend so that all scouts have the opportunity to make a scout contact by radio. Pick an unusual location for the JOTA station you visit, working closely with your amateur radio partner. On days other than JOTA weekend, it is still possible to make a radio contact, but it is unlikely to be with a scout. Try also to find out where local radio clubs will be holding their Field Day (fourth weekend in June) and plan a visit to see how radio stations can be set up at “emergency” locations. Many operators use field day as a competition to make as many contacts as possible, so use of a radio might be difficult during the annual Field Day.

<u>Communication</u>	<u>Information</u>	<u>Troop Meetings</u>	<u>Main Event</u>
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MARINE BAND: RADIO

Use of a Marine Band radio: Careful discipline is required. “Handles,” “10 codes,” CB jargon, and idle chitchat have no place in marine radiotelephone communication. The Federal Communications Commission monitors transmissions and will issue citations for repeated violations of the rules. A marine radiotelephone is not a plaything. It can—and has—saved many lives. Each vessel is required by law to monitor the emergency and calling channel unless actively speaking on another channel designated for the type of transmission being sent. Scouts are most likely to encounter VHF radios with

06	Safety messages, ship to ship
09	Primary hail (call), and monitor (listen)
13	Hail commercial vessels and drawbridge tenders on low power
16.....	Emergency (Mayday) hail; hail Coast Guard
22	Coast Guard working channel
24, 25, 26, 27, 28	Hail marine operator; phone calls
68, 69, 71, 72, 78	Pleasure boat working channels

VHF Marine Radio Channels for pleasure boaters

channels 06 to 88. Just a few channels are for pleasure boaters:

Use Channel 16 for calling, distress, urgency, or safety only. Coast stations and commercial vessels no longer monitor this channel but pleasure yachts do, so you should ask for the coast guard to be notified in cases of emergency. Marine radiotelephone conversations are terse, efficient, and to the point. Each transmission may last no more than five minutes. Each station spends as little time as possible on channel 16, clearing it for emergency and other use. The phonetic alphabet is used for radiotelephone call signs. For example, WLB 4321 would be “Whiskey Lima Bravo 4321”. For numbers 0 and 9 use “zero” (never naught nor oh) and “niner” (instead of nine). “Sierra, Charlie, Oscar, Uniform, Tango” would be how to spell “Scout”.

Prowords: A number of procedure words, or “prowords,” have become common usage. The most misused prowords are “over” and “out.” “Over” means, “It’s your turn to talk.” “Out” means, “I’ve finished this transmission.” If you say “Over and out,” you’re saying, “It’s your turn to talk, but I’m not listening.” There are other prowords, but the

Over. It is your turn to talk.
Out. I have finished talking and no reply is expected.
Roger. I understand.
Wilco. I will comply.
Say again. Please repeat your last transmission.
I spell. I am spelling in phonetic words.

Common Prowords

following are the most common:

TROOP LEADER RESOURCE LINKS

[Advancement Resources](#)

[Awards Central](#)

[Boy Scouts](#)

[Guide to Safe Scouting](#)

[SCOUTBOOK](#)

[ScoutCast](#)

[Scouting Forms](#)

[Scouting Magazine](#)

[Scouting Newsroom](#)

[ScoutingWire](#)

[ScoutShop.org \(Retail Site\)](#)

[Sign in to My.Scouting.org](#)

[The Adventure Planning Guide](#)

[Troop Leader Guidebook Appendix](#)

[Youth Protection](#)

[Uniforms](#)

[K2BSA](#)

How to make a call: Listen before you speak. There is a prescribed format used to begin a call on a marine radiotelephone. All calls are made on channel 16 when VHF is used, 2182 kHz for SSB. Once contact is established, both stations shift to a working frequency to transact their business. Here's an example of the procedure where radio callsign KL5502 on "Invincible" is calling "Scout" (callsign KD1996 is onboard):

- Check to be sure that the calling and desired working channels are free of traffic.
- Place the call, being sure to identify who you are calling and who is making the call:
 - **"Scout, Scout, Scout. This is Invincible, Kilo Mike 5502. Over."**
- If not immediately answered, the call may be repeated. If there is no answer within 30 seconds, two minutes must elapse before calling again.
- The vessel being called answers:
 - **"Invincible, this is Scout, Kilo Delta 1996. Over."**
- The two stations agree on the working channel:
 - **"Scout, Invincible; shift and answer six eight."**
 - **"Six eight; wilco."**
- Both stations now shift to channel 68.
- The called station speaks next:
 - **"Invincible. Scout, Kilo Delta 1996. Over."**
- This identifies the stations now on channel 68. The vessel that originated the call now identifies itself and the conversation proceeds:
 - **"Scout. Invincible, Kilo Mike 5502." (The message now follows.)**
- Each vessel's radio operator takes turn speaking. Each message ends with "over" to let the other party know that a reply is desired.
- When the business has been concluded, both stations sign off and shift back to channel 16:
 - **"Scout, Kilo Delta 1996, out."**
 - **"Invincible, Kilo Mike 5502, out."**

Emergency Messages (near the coast): The principal purpose of the marine radiotelephone is to handle emergencies. Three types of emergency messages are used and all are voice transmissions on channel 16 or on 2182 kHz (Morse on 500 kHz) :

- **Mayday:** Distress—Loss of life, serious illness or injury, or loss of the vessel is possible.
- **Pan Pan** (pronounced pahn): Urgent—Safety of the vessel or person is in jeopardy. Loss of life or property is not likely, but help is needed.
- **Security** (pronounced say-curitay): Safety message—Used to report hazard to navigation, buoy off station, extreme weather, etc.

If your vessel is in distress, place a Mayday or Pan Pan call. Remember, these messages must be used only in the event of a real emergency. If a situation is spotted, boaters are usually advised to report it to the Coast Guard and let them evaluate the situation and issue the Security message. Their taller antenna will give better coverage. As soon as a Mayday, Pan Pan, or Security message is heard, all other traffic on channel 16 must stop. If someone tries to transmit on any other subject, the command "Seelonce" (silence) may be given. Normally the entire Mayday or Pan Pan situation is handled on channel 16. If another channel is to be used, this will be ordered by the search and rescue authority, usually the Coast Guard. Since Security messages do not involve a

1. Make sure your radiotelephone is on.
2. Select either VHF channel 16 (156.8 MHz) or 2182 kHz.
3. Press microphone button and *SPEAK SLOWLY–CLEARLY–CALMLY*. Say:
 - "MAYDAY–MAYDAY–MAYDAY."
 - "THIS IS _____ [Your call sign/boat name repeated three times]"
 - "MAYDAY _____ [Your boat name]"
 - *Describe where you are (What navigational aids or landmarks are near?).*
 - *State the nature of your distress.*
 - *Give number of persons aboard and conditions of any injured.*
 - *Estimate present seaworthiness of your boat.*
 - *Briefly describe your boat: _ _____ feet: _____; _____ hull;*
 - *Type Color*
 - _____ trim; _ _____ masts; _____
 - *Color Number, sail number, and anything else you think will help rescuers find you*
 - "I WILL BE LISTENING ON CHANNEL 16/2182."
4. End message by saying:
 - THIS IS _____ OVER." [Your boat name and call sign]
5. Release microphone button and listen; someone should answer.

Example of Emergency Message

threat to life or property, all traffic beyond the initial call shifts to a working channel.

Emergency Messages (far from the coast): Although beyond what a scout might encounter or be able to use, there is an internationally recognized distress and radio communication safety system for ships known as GMDSS (Global Maritime Distress and Safety System). It is complex, automated and requires special equipment, mandatory training and licensing. It is not compulsory for pleasure yachts. The system includes special equipment using Digital Selective Calling (DSC), e.g. using Ch 70 on VHF, which is now used by coast stations and commercial vessels for the watch of the distress, safety and calling. Watch by them on channels (Ch 16 VHF and 2182 kHz MF) has been discontinued.

[Communication](#)

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MISCELLANEOUS: RADIO

A	•—	N	—••	1	•—•—•—
B	•••—	O	—•—•—	2	••—•—•—
C	•—•—•—	P	•—•—•—	3	•••—•—
D	•—••	Q	—•—•—•—	4	••••—
E	•	R	•—••	5	•••••
F	••—••	S	•••	6	—•••••
G	—•—••	T	—	7	—•—•••
H	••••	U	••—	8	—•—•—••
I	••	V	•••—•	9	—•—•—•—
J	•—•—•—	W	—•—	0	—•—•—•—
K	—•—•	X	•—••—•		
L	•—•••	Y	•—•—•—		
M	—•—•	Z	—•—••		

Morse Code can be sent using sound, lamp (light), wigwag, etc.

0 MEANS ZERO, AND IS WRITTEN IN THIS WAY TO DISTINGUISH IT FROM THE LETTER "O" IT OFTEN IS TRANSMITTED INSTEAD AS ONE LONG DASH (EQUIVALENT TO 5 DOTS)

PERIOD (.)	•••—•—•—	WAIT SIGN (AS)	•••••
COMMA (,)	•—•—•—•—	DOUBLE DASH (BREAK)	—•—•—•—
INTERROGATION (?)	••—•—•—•—	ERROR (ERASE SIGN)	••••••••
QUOTATION MARK (")	•—•—•—•—	FRACTION BAR (/)	—•—•—•—
COLON (:)	—•—•—•—•—	END OF MESSAGE (AR)	•—•—•—•—
SEMICOLON (;)	•—•—•—•—	END OF TRANSMISSION (SK)	•••••••
PARENTHESIS ()	••—•—•—•—	INTERNAT. DISTRESS SIG. (SOS)	•••—•—•—•—•—

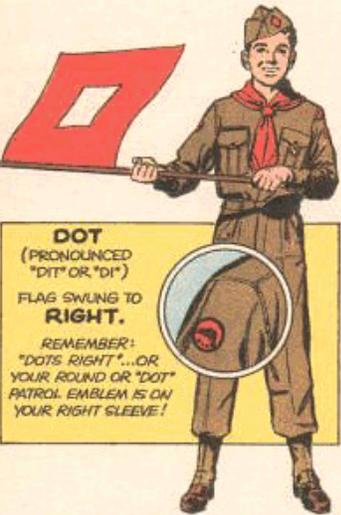
Figure 1

The Continental (or International Morse) Code is used for substantially all non-automatic radio communication. DO NOT memorize from the printed page; code is a language of SOUND, and must not be learned visually; learn by listening as explained in the text.

FLAG TALK

ONCE YOU HAVE MASTERED THE MORSE CODE YOU CAN SEND AND RECEIVE MESSAGES OVER DISTANCES AS EASILY AS TALKING TO YOUR BUDDY BESIDE YOU. HERE ARE THE BASIC MOTIONS IN SIGNALING WITH ONE-FLAG, CALLED WIGWAG.





DOT
(PRONOUNCED "DIT" OR "DI")
FLAG SWUNG TO RIGHT.
REMEMBER: "DOTS RIGHT"...OR YOUR ROUND OR "DOT" PATROL EMBLEM IS ON YOUR RIGHT SLEEVE!



DASH
(PRONOUNCED "DAH")
FLAG SWUNG TO LEFT.
REMEMBER: THE COMMUNITY STRIP ON YOUR LEFT SLEEVE IS A LONG STRIP.



END OF LETTER: FLAG HELD UPRIGHT.



END OF WORD: FLAG DROPPED DOWN IN FRONT.

LETTERS WITH SEVERAL DITS AND DAHS MUST BE MADE WITHOUT STOPPING BETWEEN WIGWAGS OR RECEIVER WILL GET A WRONG LETTER.

FOR MORE SEE BOY SCOUT HANDBOOK, PAGES 296-303

From Cranbury Scouts Home page

Alfa (AL FAH)

Bravo (BRA VOH)

Charlie (CHAR LEE)

Delta (DELL TAH)

Echo (ECK OH)

Foxtrot (FOKS TROT)

Golf (GOLF)

Hotel (HOH TELL)

India (IN DEE AH)

Juliette (JEW LEE ETT)

Kilo (KEY LOH)

Lima (LEE MAH)

Mike (MIKE)

November (NO VEM BER)

Oscar (OSS CAH)

Papa (PAH PAH)

Quebec (KEH BECK)

Romeo (ROW ME OH)

Sierra (SEE AIR RAH)

Tango (TANG OH)

Uniform (YOU NEE FORM
or OO NEE FORM)

Victor (VIK TAH)

Whiskey (WISS KEY)

X-ray (ECKS RAY)

Yankee (YANG KEY)

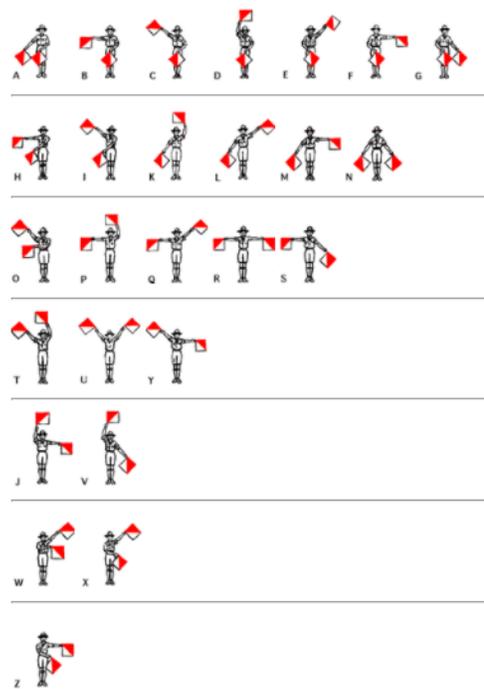
Zulu (ZOO LOO)

QRM	Interference (“Your radio signal is being interfered with.”)
QRM?	“Is my radio signal being interfered with by man-made noise?”
QRN	Static (“Your radio signal is being interfered with by static.”)
QRN?	“Is my radio signal being interfered with by atmospheric noise, static?”
QRP	Low power radio operation
QRS	“Send your Morse code more slowly.”
QRT	Leaving the air (“I’m stopping my radio activity.”)
QRX	“Wait a few minutes.”
QSB	“Your signals are fading.”
QSL	A card sent to indicate you’ve talked to or heard a radio station; also, as a Q signal that means (“Received OK”)
QSO	A conversation.
QSY	“I am moving to another radio frequency. . .”
QTH	“My location is. . .”
QTH?	“What is your location?”

As a fun activity to try, the semaphore alphabet is included here. It is not often used today.

The semaphore alphabet shown on the right here is organized in such a way that every horizontal row contains letters with the first (usually left) hand in the same position. Unfortunately for those trying to learn this signaling system, the letters are not exactly in alphabetical order.

Source: <http://inter.scoutnet.org/semaphore/semaphore.html>





WHO ASSISTED YOU?	DATE	TIME	M
CALL SIGN	NAME	HIS RST	M
QTH	RIG	ANTENNA	PI

DESCRIBE YOUR CONTACT:



WHO ASSISTED YOU?	DATE	TIME	M
CALL SIGN	NAME	HIS RST	M
QTH	RIG	ANTENNA	PI

DESCRIBE YOUR CONTACT:
