Guide for the operation of
JOTA 2017 Activities

JOTA 2017 OPERATIONAL PLAN

Jamboree-on-the-Air (60th Year)

LEWIS AND CLARK DISTRICT

TUNNEL MILL SCOUT RESERVATION
3913 TUNNEL MILL ROAD
CHARLESTOWN, IN 47111

Table of Contents

Event Chairman and HAM Chair - Any Questions?

For all question about JOTA, please contact the event chairman. Steven Driver via email: steven.driver@gmail.com or by phone at 502-876-5498 (cell)

For HAM question in the co-chair from CCARC, John Shean (N9TV) - n9tv@arrl.net

Map and Directions to Camp

Although it's located just 30 minutes from downtown Louisville, Tunnel Mill Scout Reservation is far removed from the hustle and bustle of the city.

The camp, built on the site of one of the earliest mills in southern Indiana, has a 70-year heritage of Boy Scout camping.

Tunnel Mill Reservation

Tunnel Mill Reservation is located 4 miles east of Charlestown, Indiana.

From 65
65N, take 6A to merge onto IN-265 E/IN-62 toward Port of Indiana
Take exit 10B for Indiana 62E toward Charlestown
Turn left onto Monroe St.
Take the 2nd right onto Tunnel Mill Rd.
Destination will be on the left (3.6 miles)

From 64
64, take exit 121 to merge onto 265 E toward 65.
Take exit 10B for Indiana 62E toward Charlestown
Turn left onto Monroe St.
Take the 2nd right onto Tunnel Mill Rd.
Destination will be on the left (3.6 miles)

Program Overview

This event is not like a regular camp-o-ree for your scouts. This event is designed to provide maximum flexibility for scouts and unit leaders. How can you participate? Scouting unit can come as a whole unit, a patrol or den.

You can come for the whole weekend and camp at wonderful tunnel mill scout camp. Or come out for Saturday only. Don't have the whole day available, that is okay with us. You can come out and visit JOTA for a few hours if that is all the time you can allocate. Just remember, the more time you attend, the more activates you can participate in.

When you arrive, please check-in with the camp master is you are camping. If you a day visitor please check-in at the JOTA registration table near the admin building. Just follow the signs.

We will have a number of fun activities for scouts of all ages.

- Merit badges for Boy Scouts
- Arrow of Light Adventure: Building a Better World requirements
- Ham operations – JOTA event
- Foxhunting – Radio direction finding
- High altitude balloon launch – STEM activity

Human resource needs for JOTA - Saturday

Program Area	Resource needs AM	Resource needs PM	Troop 1	CC ARC
Registration	2	2	4	
Food Service	3		3	
Ham Operations (2 per station - 3 stations)	6	6	2	14 – shifts and rotations of people
Fox hunting	3	3	4	2
HAB Launch	5	5	5	
Radio Merit Badge	2	2		4
Cit in World MB	2	2	4	
AofL : Building a better world	2	2	4	

Resource allocations:

Registration: Two to Four Troop 1 adults

Food service: Three adults to Prep and Sell food

Ham Operations: Two CCARC people per station – Looking to have three stations? - Type Troop 1 scouts or adults to assist – John (N9TV) to coordinate

Foxhunting: Two troop 1 scouts to manage and run foxhunting – one adult from CCARC or Troop to supervise

Radio MB: Two instructor per session from CCARC – Teaching Radio MB – high level not even at the technician license level.

Cit in the World MB: two instructors per session from Troop 1

AofL : Building a better world: two instructors per session from Troop 1

Onsite Registrations Duties

- Sign in the scout and adults
- Collect the $5.00 for the event
- Give out the JOTA patch to all paid participant
- Map of the activities

- Awards and Advancement Tracking sheet
    - MB worksheets
    - AoL Worksheet
- Question
- Lost and found location

Setup of JOTA

Thursday evening and Friday will be available for antenna and system setup. We will be installing the two tents for the operation.

Food for JOTA:

Troop 1 of Jeffersonville is planning on selling hamburgers and hotdogs, chips and drinks during lunch on Saturday to defray the cost of the event.

Schedule

Friday October 20:

Friday Evening	Times
Setup Event • Campers checking • Setup Program area	6:00 – 8:00 PM
Ham Radio Operation – Evening QSOs	8:00 – 10:00 PM

Saturday, October 21:

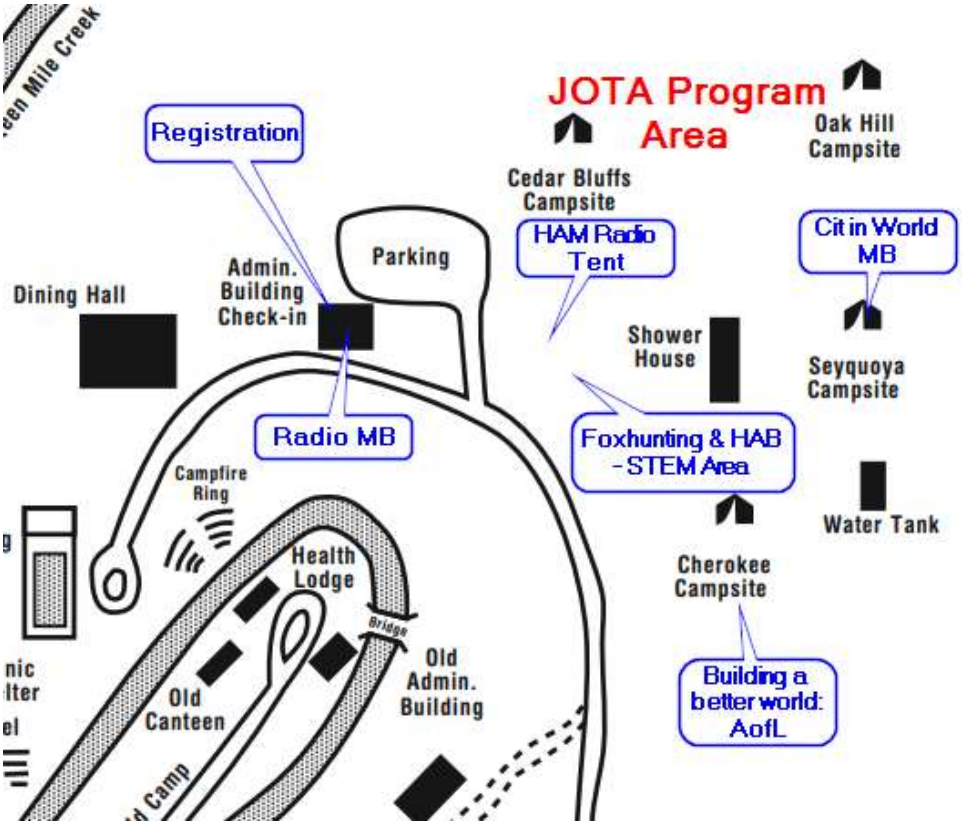
Start Times	JOTA (Ham Radio Contacts)	Radio MB	Cit. in World MB	Building a Better World (AofL)	STEM – Fox Hunting	STEM - High Altitude Balloon
Checking Opens At 7:30 AM						
8:00 – 9:00 AM	JOTA	Session 1	Session 1			
9:00 – 10:00 AM	JOTA	Session 1	Session 1		Fox Hunting	
10:00 – 11:00 AM	JOTA	Session 1	Session 1	Session 1	Fox Hunting	Demo/Launch

11:00 – 12:00 PM	JOTA	Session 1	Session 1	Session 1	Fox Hunting	Demo/Launch
12:00 – 1:00 PM	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
1:00 – 2:00 PM	JOTA	Session 2	Session 2		Fox Hunting	
2:00 – 3:00 PM	JOTA	Session 2	Session 2	Session 2	Fox Hunting	
3:00 – 4:00 PM	JOTA	Session 2	Session 2	Session 2	Fox Hunting	
4:00 – 5:00PM	JOTA	Session 2	Session 2			
6:00 – 7:00 PM	JOTA					
8:00 – 10:00 PM	Movie in the HAM Tent	Movie in the HAM Tent	Movie in the HAM Tent	Movie in the HAM Tent	Movie in the HAM Tent	Movie in the HAM Tent

Sunday, October 22

Time	Activity
9:00 – 10:00 AM	Scouts Own Service for campers
10:00 – 11:00 AM	Camping Units depart
11:00 – 12:00 PM	Close up Camp

Program locations:



Dress for the weather – most activities are outside.

Activities - Operational Details

Jamboree on the Air – Operational Information on Ham Radios

Equipment Needs:

- 4 – 6-foot tables
- 24 chairs
- Power cords
- Power strips
- 20 x 20 (or 20x40) tent with side panels

- LCD Projector
- Sound system
- 2 laptop computers
    - Logging of contacts – map?
    - Record Keeping

Ham Equipment needs:

- TBD – Work for CCARC and John S (N9TV) on equipment list

Staffing Needs and Positions:

1. Radio Operators
2. Coordinator
3. Log and Contact Keeper

General guideline:

- Jamboree-on-the Air is about getting young people to talk to each other using amateur radio.
- Arrange for the use of a club call sign, or apply for a special-event call sign in plenty of time.
- Prepare some simple diagrams and explanations showing how radio works and how signals can be transmitted around the world as well as to the nearest repeater.
- Arrange with the Scout leaders regarding venue, QSL cards, patches, participation certificates, other activities, physical arrangements, publicity, and details required for the JOTA report form on this website.
- Notify the national JOTA organizer of your event using the details on the registration form on this site.
- Go to Scout meetings beforehand to introduce the subject.
- Organize activities such as kit building, soldering practice, SSTV, FSTV, packet radio, and weather satellite reception. The simplest of things, such as a closed-circuit RTTY station, can generate a great deal of excitement.
- Offer to train Scouts for the Radio merit badge.
- Offer a Technician license preparation course for those interested in learning and doing more with ham radio.
- Ensure that no more than three Scouts are watching one Scout on the air. Keep Scouts involved and active or they will quickly grow bored.
- Ensure that the station is safe for young visitors.
- Observe your license conditions, especially regarding third-party traffic.
- Involve the Scouts in the contact. The goal is to involve as many Scouts as possible in making a contact. It is not to maximize the number of contacts or the distance of the contacts; it's about the experience for the Scouts.
- Try to use plain, understandable English where possible. When you do use Q-signals and other ham radio terms, take time to explain them to the Scouts.
- Don't try to work weak stations from remote locations. Go for stronger, more local stations that unpracticed ears can hear easily and understand. Local FM repeaters can be just as exciting for Scouts.
- Don't feel you have to keep the station on the air with no Scouts present.

Licensing Regulations

As a licensed amateur radio operator, you must, of course, comply with FCC regulations regarding frequencies, power, quality of signal, etc. Third-party traffic is approved by the FCC. Therefore, Scouts can talk with other Scouts when both stations are licensed by the FCC. When the station you are in contact with is outside U.S. jurisdiction, a third-party agreement must exist between the U.S. and that country's telecommunications authority. If an agreement exists, then Scouts in the U.S. may talk directly to the Scouts in that country. If not, then the licensed ham radio operator must talk for the Scouts. The full list of countries with a designation of

which countries have third-party agreements with the U.S. is at this link: www.arrl.org/third-party-operating-agreements .

JOTA Station Reports – Best Practices

One of the housekeeping items around activating a Jamboree on the Air station is to first register for the weekend and then to follow-up with a report of your operation. This helps the BSA gauge and report activity levels as well as publicize the fun, technology, and magic of amateur radio. For background, you can review the JOTA Reports and JOTA Videos on this website.

Capture Numbers

The big key is to capture some numbers for your report. These include:

- Number of Scouts (and Girl Scouts)
- Number of Visitors (non-Scouts)
- Number of Stations on the Air (transmitters)
- Number of Amateur Radio Operators
- Number of Contacts/QSOs
- States Contacted
- Countries Contacted

The last few items can be determined from your logbook. The others will need a reasonable assessment of the traffic through your station. One of the best practices is to appoint someone to take care of the count.

Scout Frequencies

Here's detailed information on frequencies suggested as Scout amateur radio frequencies. These were initially suggested by the World Organization of the Scout Movement and their Jamboree on the Air organizer. As with all amateur radio frequencies they are a shared resource. If someone else is already on that frequency, move up or down to find a clear frequency for calling.

- All frequencies are shown as megahertz.
- Primary HF recommendations are for General Class licensees. Technicians may take advantage of 10 meters and VHF/UHF for voice communications.
- After contact is made on a Calling Channel or frequency, move to another channel or frequency for your QSO.
- Experiment with modes prior to JOTA or Radio Scouting demo. 'Murphy's Law' prevails!
- Use web search tools to find lots of helpful information about any of the modes commonly used for JOTA and Radio Scouting.
- WOSM (World Organization of the Scouting Movement) calling frequencies are shown to indicate center of international activity.

HF SSB Voice

Band	WOSM Calling Frequencies	Suggested Band Segment for US Stations	Notes
80 m	3.940 & 3.690(1)	3.920 – 3.940 3.670 – 3.690 (1)	(1) Extra segment
40 m	7.190 & 7.090 (2)	7.180 – 7.200 7.270 – 7.290	(2) 7.090 not available in Region 2
20 m	14.290	14.270 – 14.290 14.320 – 14.340	
17 m	18.140	18.140 – 18.150	
15 m	21.360	21.360 – 21.400	
12 m	24.960	24.960 – 24.980	

10 m	28.390 (3)	28.350 – 28.400 (3)	(3) Includes Novices & Techs
6 m	50.160	50.160 – 50.200	

HF CW

Band	WOSM Calling Frequencies	Suggested Band Segment for US Stations	Notes
80 m	3.570 (3)	3.560 – 3.570 (3)	(3) Includes Novices & Techs
40 m	7.030 (3)	7.030 – 7.040 (3)	(3) Includes Novices & Techs
20 m	14.060	14.050 – 14.060	
17 m	18.080	18.070 – 18.080	
15 m	21.140 (3)	21.130 – 21.140 (3)	(3) Includes Novices & Techs
12 m	24.910	24.900 – 24.910	
10 m	28.180 (3)	28.170 – 28.180 (3)	(3) Includes Novices & Techs
6 m	50.160	50.150 – 50.160	

HF PSK-31

http://bpsk31.com

Call CQ JOTA. The chart below shows the commonly used frequencies for PSK-31.

Band	Frequency	Notes
80 m	3.580	
40 m	7.080 (4)	(4) Region 2 (USA). 7.040 to 7.060 for Regions 1 & 3
30 m	10.142	
20 m	14.070 (5)	(5) Most activity for JOTA will be on 20 m
17 m	18.100	
15 m	21.080 (6)	(6) Most activity can be found at 21.070
12 m	24.920	
10 m	28.120	

2 Meter FM Simplex

147.450, 147.480, 147.510, 147.540* * Use 147.540 as Calling Channel. Always listen first to avoid interfering with another QSO or auxiliary or control link. Avoid 146.520, the National FM Simplex Calling Frequency, as well as 146.550, which is commonly used by mobiles and RVers.

70 CM FM Simplex

446.000*, 445.950, 446.050, 446.100, 446.150 * Use 446.000 as Calling Channel. Always listen first to avoid interfering with another QSO or auxiliary or control link.

D-STAR

http://www.dstarinfo.com

REF033A has been allocated as a full-time JOTA/Radio Scouting D-STAR Reflector. After contact is established, stations should disconnect from REF033A and connect to one or other repeater or migrate to an unused Reflector.

SIMPLEX Channels: 145.670*, 145.640, 145.610, 438.010. * 145.670 and 438.010 are commonly used as the National D-STAR Simplex Channels and should be used only as Calling Channels for JOTA. Always listen first to avoid interfering with another QSO.

DMR

DMR-BRANDMEISTER

The 907 Talk Group has been established so youth can talk worldwide with each other under the correct supervision as outlined in each country's amateur radio rules for Digital Networks and letting non Amateurs use your equipment on air. (Each Country does differ so do read your rules). The Talk Group is for Scouting, Girl Guides, Youth Groups, Schools and related youth activities.

BrandMeister DMR has set up a World Wide Talk group called 907 JOTA. TG 907 & Reflector 4907 (Open 365 days a year) 907 is only one talk group. Under your Amateur License you can use all Talk groups on BrandMeister. You might wish to talk to regions/countries away from 907.

What you will need to access TG 907 on Brandmeister-DMR: You will need a DMR radio. 907 added to you radio as a channel 907 or assess via reflector 4907. You will also need a Repeater or DV device linked to the Brandmeister network

https://wiki.brandmeister.network/index.php/TalkGroup/907

Ham radio rules apply for making iniDal contact. It's a good idea to establish contact and move your QSO off to another Talk Group. If TG 907 isn't busy, it's OK to stay there.

The two links below cover all Talk Groups & Reflectors world wide.

Talk Groups https://brandmeister.network/?page=talkgroups

Reflectors http://registry.dstar.su/dmr/reflector.db

Facebook Group — BrandMeister 907 https://www.facebook.com/groups/1644270179235342/

* Please note that currently three unique DMR systems exist world-wide: DMR+, DMR-MARC and Brandmeister.

EchoLink

http://www.echolink.org

Software or apps available for Windows, Mac, iPhone/iPad, and Android. Dedicated Conference Nodes are *JOTA-365* (node 480809) and *JAMBO* (node 832996). When contact is made on a Conference Node, it is recommended the two parties establish direct contact with each other to free up the Conference Node.

Scout Camps on the Air

W1W Jamboree on the Air 2016

Have you activated an amateur radio station at a Scout camp? It could have been for summer camp, a camporee, a troop camp, or perhaps for Jamboree on the Air.

With Scout Camps on the Air you can not only register your own station but you can also find others to arrange contacts.

You can learn more at Scout Camps on the Air (SCOTA). While you're there, check out the calendar of camp activations and register your own camp. We also look forward to your feedback on how we can improve the website, database, and the overall program.

More information:
https://www.k2bsa.net

Fox hunting

ARDF – Foxhunting ARDF stands for Amateur Radio Direction Finding. Foxhunting refers to using ARDF to find hidden transmitters. This activity is ideal for the adventure focus of the JOTA Event and TMR Scout camp. It gets Scouts on a trail using amateur radio and direction-finding techniques, expanding their orienteering skills, and involving them in yet another aspect of amateur radio and technology.

Provide introductory training on the use of standard, simple, ARDF equipment and antennas to find hidden transmitters.

Equipment Needs

- 2 tables
- 4 chairs
- Located in the 20x20 tent
- Two Foxhunt Sniffers http://www.foxhunt.com.au/2m_sniffer/manual.htm
- Two Byonics transmitters – Micro- Fox 15 - https://www.byonics.com/mf
- Two antennas for the sniffer – like **TAPE MEASURE BEAM OPTIMIZED FOR RADIO DIRECTION FINDING -** http://theleggios.net/wb2hol/projects/rdf/tape_bm.htm **or a two element version:** http://theleggios.net/wb2hol/projects/rdf/snif_bm.htm
- Fox Hunt Frequency is TBD

Staffing Needs and Positions:

1. Two scouts for FH operations
2. Adult for supervision

The course will be a 2-meter VHF ARDF course. It will use transmitters and Foxhunt Sniffers (see http://www.foxhunt.com.au/2m_sniffer/manual.htm for more info) as provided by Steve Driver N9BWT We will also have two Byonics transmitters.

High Altitude Balloon Launch (pending weather)

During JOTA and pending weather conditions, Troop 1 will be launching a high attitude balloon from TMR. This STEM event is a great way to for scouts to explore near-space and learn about team building and STEM in scouting.

What is a High-Altitude balloon?

High-altitude balloons are unmanned balloons, usually filled with helium that are released into the stratosphere, generally attaining between 18,000 to 37,000 meters (59,000 to 121,000 ft; 11 to 23 mi

The most common type of high-altitude balloons are weather balloons. Other purposes include use as a platform for experiments in the upper atmosphere. Modern balloons generally contain electronic equipment such as radio transmitters, cameras, or satellite navigation systems, such as GPS receivers.

These balloons are launched into what is termed "near space"—- the area of Earth's atmosphere where there is very little air, but where the remaining amount generates too much drag for satellites to remain in orbit.

Due to the low cost of GPS and communications equipment, high-altitude ballooning is a popular hobby, with organizations such as UKHAS assisting the development of payloads

Equipment Needs

- 1 table for assembly
- Troop 1 HAB Kit
    - Tracker
    - Cameras
    - Payload frame
    - Fill hose
    - SPOT tracker
    - APRS Antenna
    - Batteries
- 190/200 cubic ft Helium Tank
- Projected flight path web site
- File the FAA NOTAM
- APRS Tracking application
- APRS HT radio
- Laptop with internet connection
- SPOT findme web site

Merit Badge

Radio MB

Equipment Needs:

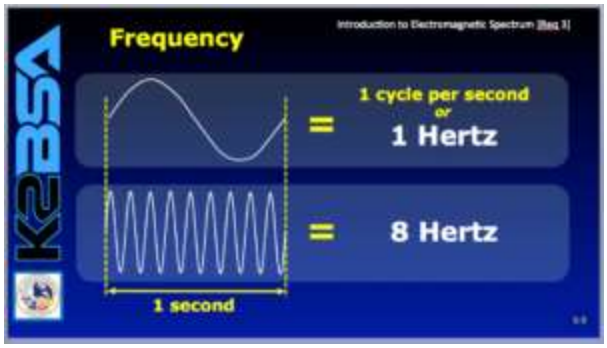
- 3 – 6-foot tables
- 12 chairs
- Power cords
- Power strips
- Radio MB will be in the admin office main room
- LCD Projector
- Sound system
- 2 laptop computers
    - For PowerPoint slides
    - Record Keeping

Staffing Needs and Positions:

- Two Radio MB Instructors
- Coordinator

PowerPoint Slide for MB:

Radio Merit Badge



These are the slide decks that will be used during the 2017 National Scout Jamboree when teaching the Radio Merit Badge. Check out the slides and the fabulous animations, courtesy of Phil Westover, WA7URV. Thanks, Phil.

Version 2.0 PowerPoint Slide Decks in pptx file format:

- REQ 1 PP 24JUN2017
- REQ 2 PP 24JUNE2017
- REQ 3 PP 24JUN2017
- REQ 4 PP 24JUN2017
- REQ 5 PP 24JUN2017
- REQ 6 PP 24JUN2017
- REQ 7 PP 24JUN2017
- REQ 8 PP 24JUN2017
- REQ 9 PP 24JUN2017

The Radio Merit Badge requirements have been updated for 2017. Here's a quick preview of the changes:

A new option for the Radio Merit Badge is Amateur Radio Direction Finding. This combines orienteering and foxhunting and opens a new interactive component to this program.

In addition, cellular telephone topics have been added along with different types of radio modulation. Key requirement changes were dropping open, closed, and short circuits as well as schematic symbols and components as these are covered in the Electricity and Electronics merit badges.

Other revisions include: minor edits and reordering of requirements in the Amateur Radio option; Radio Broadcasting option now includes Internet streaming, regulations, and power levels; Medium Wave and Shortwave Listening option includes both types of listening as well as listening via streaming services on your smart phone.

1. Explain what radio is. Then discuss the following:
   a. The differences between broadcast radio and hobby radio.
   b. The differences between broadcasting and two-way communications.
   c. Radio call signs and how they are used in broadcast radio and amateur radio
   d. The phonetic alphabet and how it is used to communicate clearly.
2. Do the following:
   a. Sketch a diagram showing how radio waves travel locally and around the world.
   b. Explain how the broadcast radio stations, WWV and WWVH can be used to help determine what you will hear when you listen to a shortwave radio?
   c. Explain the difference between a distant (DX) and a local station.
   d. Discuss what the Federal Communications Commission (FCC) does and how it is different from the International Telecommunication Union.
3. Do the following:
   a. Draw a chart of the electromagnetic spectrum covering 300 kilohertz (kHz) to 3000 megahertz (MHz).
   b. Label the MF, HF, VHF, UHF, and microwave portions of the spectrum on your diagram.
   c. Locate on your chart at least eight radio services such as AM and FM commercial broadcast, citizens band (CB), television, amateur radio (at least four amateur radio bands), and public service (police and fire).
4. Explain how radio waves carry information. Include in your explanation: transceiver, transmitter, receiver, amplifier, and antenna.
5. Do the following:
   a. Explain the differences between a block diagram and a schematic diagram.
   b. Draw a block diagram for a radio station that includes a transceiver, amplifier, microphone, antenna, and feed line.
   c. Discuss how information is sent when using amplitude modulation AM), frequency modulation (FM), continuous wave (CW) Morse Code transmission, single sideband (SSB) transmission, and digital transmission.
   d. Explain how NOAA Weather Radio (NWR) can alert you to danger.
   e. Explain how cellular telephones work. Identify their benefits and limitations in an emergency.
6. Explain the safety precautions for working with radio gear, including the concept of grounding for direct current circuits, power outlets, and antenna systems.
7. Visit a radio installation (an amateur radio station, broadcast station, or public communications center, for example) approved in advance by your counselor. Discuss what types of equipment you saw in use, how it was used, what types of licenses are required to operate and maintain the equipment, and the purpose of the station.

8. Find out about three career opportunities in radio. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

9. Do ONE of the following: (a OR b OR c OR d)

a. Amateur Radio

1. Tell why the FCC has an amateur radio service. Describe some of the activities that amateur radio operators can do on the air, once they have earned an amateur radio license.
2. Explain differences between the Technician, General, and Extra Class license requirements and privileges. Explain who administers amateur radio exams.
3. Explain at least five Q signals or amateur radio terms.
4. Explain how you would make an emergency call on voice or Morse code.
5. Explain the differences between handheld transceivers and home "base" transceivers. Explain the uses of mobile amateur radio transceivers and amateur radio repeaters.
6. Using proper call signs, Q signals, and abbreviations, carry on a 10-minute real or simulated amateur radio contact using voice, Morse code, or digital mode. (Licensed amateur radio operators may substitute five QSL cards as evidence of contacts with five amateur radio operators. Properly log the real or simulated ham radio contact, and record the signal report.)

b. Radio Broadcasting

1. Discuss with your counselor FCC broadcast regulations. Include power levels, frequencies, and the regulations for low-power stations.
2. Prepare a program schedule for radio station "KBSA" of exactly one-half hour, including music, news, commercials, and proper station identification. Record your program on audiotape or in a digital audio format using proper techniques.
3. Listen to and properly log 15 broadcast stations Determine the program format and target audience for five of these stations.
4. Explain to your counselor at least eight terms used in commercial broadcasting, such as segue, cut, fade, continuity, remote, Emergency Alert System, network, cue, dead air, PSA, and play list.
5. Discuss with your counselor alternative radio platforms such as internet streaming, satellite radio, and podcasts.

c. Shortwave and Medium-Wave Listening

1. Listen across several shortwave bands for four one-hour periods - at least one period during daylight hours and at least one period at night. Log the stations properly and locate them geographically on a globemap, globe, or web-based mapping service.
2. Listen to several medium-wave stations for two one-hour periods, one period during daylight hours and one period at night. Log the stations properly and locate them on a map, globe, or web-based mapping service.
3. Compare your daytime and nighttime shortwave logs; note the frequencies on which your selected stations were loudest during each session. Explain the differences in the signal strength from one period to the next.
4. Compare your medium-wave broadcast station logs and explain why some distant stations are heard at your location only during the night.
5. Demonstrate listening to a radio broadcast using a smartphone/cell phone. Include international broadcasts in your demonstration.

d. Amateur Radio Direction Finding

1. Describe amateur radio direction finding and explain why direction finding is important as both an activity and in competition.
2. Describe what frequencies and equipment are used for ARDF or fox hunting.
3. Build a simple directional antenna for either of the two frequencies used in ARDF.

4. Participate in a simple fox hunt using your antenna along with a provided receiver.
5. Using your receiver, show on a map how you located the "fox".

Radio Merit Badge Requirements – Schedule

Req. No.	2017 Slide Deck	Requirement Description	Time Allotted Min.	1 Min.	2 Min.	3 Min.
1	1	Explain what radio is. Then discuss the following:	3	3		
1.a.	2	The difference between broadcast radio and hobby radio.	1	1		
1.a.	3		2	2		
1.b.	4	The difference between broadcasting and two-way communication.	1	1		
1.c.	5	Radio station call signs and how they are used in broadcast radio and amateur radio.	2	2		
1.c.	6		2	2		
1.c.	7		2	2		
1.d.	8	The phonetic alphabet and how it is used to communicate clearly.	3	3		
1	9	**Optional:** Radio Merit Badge emblem	2	2		
2		Do the following:				
2.a.	1	Sketch a diagram showing how radio waves travel locally and around the world. (They build their diagram during presentation)	2	2		
2.a.	2		2	2		
2.a.	3		1	1		
2.a.	4		4	4		
2.a.	5		4	4		
2.a.	6		1	1		

2.a.		Time allotted for sketching (beyond what they did in slides 1-6	**7**	**7**		
2.b.	**7**	Explain how the broadcast radio stations WWV and WWVH can be used to help determine what you will hear when you listen to a shortwave radio.	**3**	**3**		
2.b.	**8**	WWV Audio	**2**	**2**		
2.c.	**9**	Explain the difference between a DX and a local station.	**2**	**2**		
2.d.	**10**	Discuss what the Federal Communications Commission (FCC) does and how it is different from the International Telecommunication Union.	**4**	**4**		
		Quick discussion regarding station visit.				**4**
3	**1**	Frequency	**3**			**3**
3	**2**	Wavelength	**3**			**3**
3		Do the following:				
3.a.	**3**	Draw a chart of the electromagnetic spectrum covering 300 kilohertz (kHz) to 3 gigahertz (GHz). (They draw as the presentation is given)	**4**			**4**
3.b.	**4**	Label the MF, HF, VHF, UHF and microwave portions of the spectrum on your diagram.	**2**			**2**
3.c.	**5**	Locate on your chart at least eight radio services, such as AM and FM commercial broadcast, citizens band (CB), television, amateur radio (at least four amateur radio bands), and public service	**2**			**2**

		(police and fire).				
3.c.	6		2			2
3.c.	7		2			2
3.c.	8		2			2
3.c.	9		1			1
3.c.	10		1			1
3.c.		Time Allocated for drawing electromagnetic spectrum (They don't start here; they finish what they were building during slides 1-10)	7			7
4	1	Explain how radio waves carry information. Include in your explanation: transceiver, transmitter, receiver, amplifier, and antenna.	2			2
4	2		5			5
5		Do the following:				
5.a.	1	Explain the difference between a block diagram and a schematic diagram.	3	3		
5.a.	2		2	2		
5.b.		Time allocated for drawing a block diagram for a radio station that includes a transceiver, amplifier, microphone, antenna, and feed line.	8	8		
5.c.	5	Discuss how information is sent when using Amplitude Modulation (AM), Frequency Modulation (FM), Continuous Wave (CW) Morse Code Transmission, Single	5			5

		Sideband (SSB) Transmission, and Digital Transmissions.				
5.c.	4		3			3
5.c.	5		1			1
5.c.	6		1			1
5.c.	7		2			2
5.c.	8		2			2
5.c.	9		2			2
5.d.	10	Explain how NOAA Weather Radio (NWR) can alert you to danger when camping	2			2
5.e.	11	Explain how Cellular Telephones work, their limitations in an emergency, and how to best use them.	3			3
5.e.	12		3			3
5.e.	13		2			2
6	1	Explain the safety precautions for working with radio gear, including the concept of grounding for direct current circuits, power outlets, and antenna systems.	2	2		
6	2		2	2		
6	3		3	3		
6	4		3	3		
6	5		1	1		
6	6		2	2		
6	7		3	3		
6	8		3	3		
6	9		2	2		

7	No Power point	Visit a radio installation (an amateur radio station, broadcast station, or public service communications center, for example) approved in advance by your counselor. Discuss what types of equipment you saw in use, how it was used, what types of licenses are required to operate and maintain the equipment, and the purpose of the station.	**7**			**7**
8	1	Find out about three career opportunities in radio. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.	**4**			**4**
8	2		**2**			**2**
8	3		**2**			**2**
8	4		**2**			**2**
9		Do One of the following (a OR b OR c OR d):				
9.a.		**AMATEUR RADIO**				
9.a.(1)	1	Tell why the FCC has an amateur radio service. Describe some of the activities that amateur radio operators can do on the air, once they have earned an amateur radio license.	**5**	**5**		
9.a.(2)	2	Explain some of the differences between the Technician, General, and Extra Class license requirements and privileges. Explain who administers amateur radio exams.	**5**			**5**

9.a.(3)	3	Explain at least five Q signals or amateur radio terms.	4			4
9.a.(4)	4	Explain how you would make an emergency call on voice or Morse code.	2			2
9.a.(5)	5	Explain the difference between handheld transceivers and home "base" transceivers. Explain the uses of mobile amateur radio transceivers and amateur repeaters.	3	3		
9.a.(6)	6	(Prep for Station)	3	3		
9.a.(6)		Using proper call signs, Q signals, and abbreviations, carry on a 10-minute real or simulated amateur radio contact using voice, Morse code, or digital mode. (Licensed amateur radio operators may substitute five QSL cards as evidence of contacts with amateur radio operators from at least three different call districts.) Properly log the real or simulated ham radio contact and record the signal report. **(Timing includes moving to and from stations)**	30		30	
		FLEX TIME	25			
		TOTAL TIME	240	95	30	94

Citizenship in the World

1. Explain what citizenship in the world means to you and what you think it takes to be a good world citizen.
2. Explain how one becomes a citizen in the United States, and explain the rights, duties, and obligations of U.S. citizenship. Discuss the similarities and differences between the rights, duties, and obligations of U.S. citizens and the citizens of two other countries.
3. Do the following:
   a. Pick a current world event. In relation to this current event, discuss with your counselor how a country's national interest and its relationship with other countries might affect areas such as its security, its economy, its values, and the health of its citizens.
   b. Select a foreign country and discuss with your counselor how its geography, natural resources, and climate influence its economy and its global partnerships with other countries.
4. Do TWO of the following:
   a. Explain international law and how it differs from national law. Explain the role of international law and how international law can be used as a tool for conflict resolution.
   b. Using resources such as major daily newspapers, the Internet (with your parent's permission), and news magazines, observe a current issue that involves international trade, foreign exchange, balance of payments, tariffs, and free trade. Explain what you have learned. Include in your discussion an explanation of why countries must cooperate in order for world trade and global competition to thrive.
   c. Select TWO of the following organizations and describe their role in the world.
      1. The United Nations and UNICEF
      2. The World Court
      3. Interpol
      4. World Organization of the Scout Movement
      5. The World Health Organization
      6. Amnesty International
      7. The International Committee of the Red Cross
      8. CARE (Cooperative for American Relief Everywhere)
      9. European Union
      5. Do the following:
      a. Discuss the differences between constitutional and nonconstitutional governments.
      b. Name at least five different types of governments currently in power in the world.
      c. Show on a world map countries that use each of these five different forms of government.
6. Do the following:
   a. Explain how a government is represented abroad and how the United States government is accredited to international organizations.
   b. Describe the roles of the following in the conduct of foreign relations.
      1. Ambassador
      2. Consul
      3. Bureau of International Information Programs
      4. Agency for International Development
      5. United States and Foreign Commercial Service
   c. Explain the purpose of a passport and visa for international travel.
7. Do TWO of the following and share with your counselor what you have learned:

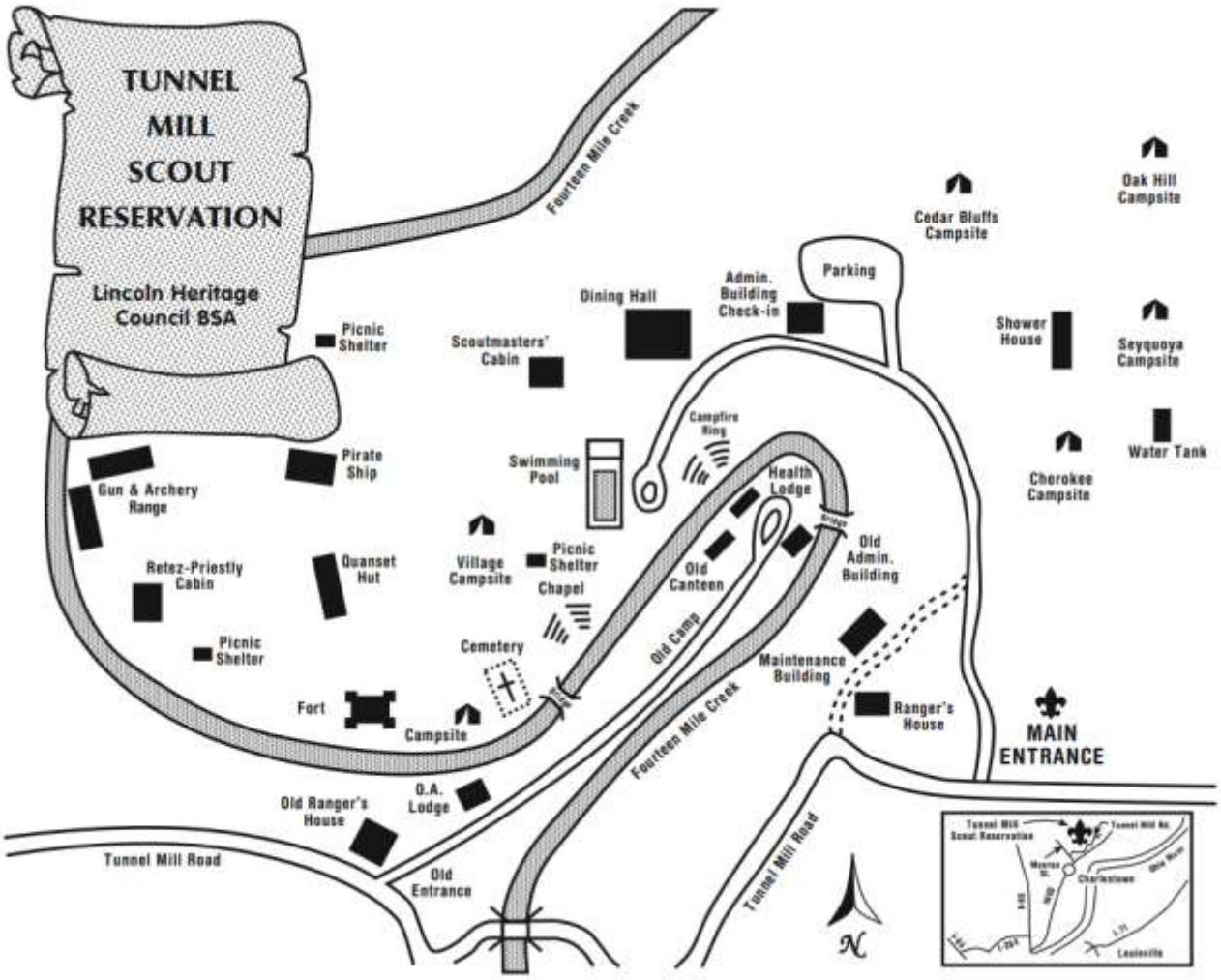
a. Visit the Web site (With your parent/guardian's permission) of the U.S. State Department. Learn more about an issue you find interesting that is discussed on this Web site.
b. Visit the Web site (With your parent/guardian's permission) of an international news organization or foreign government, OR examine a foreign newspaper available at your local library, bookstore, or newsstand. Find a news story about a human right realized in the United States that is not recognized in another country.
c. Visit with a student or Scout from another country and discuss the typical values, holidays, ethnic foods, and traditions practiced or enjoyed there.
d. Attend a world Scout jamboree.
e. Participate in or attend an international event in your area, such as an ethnic festival, concert, or play.

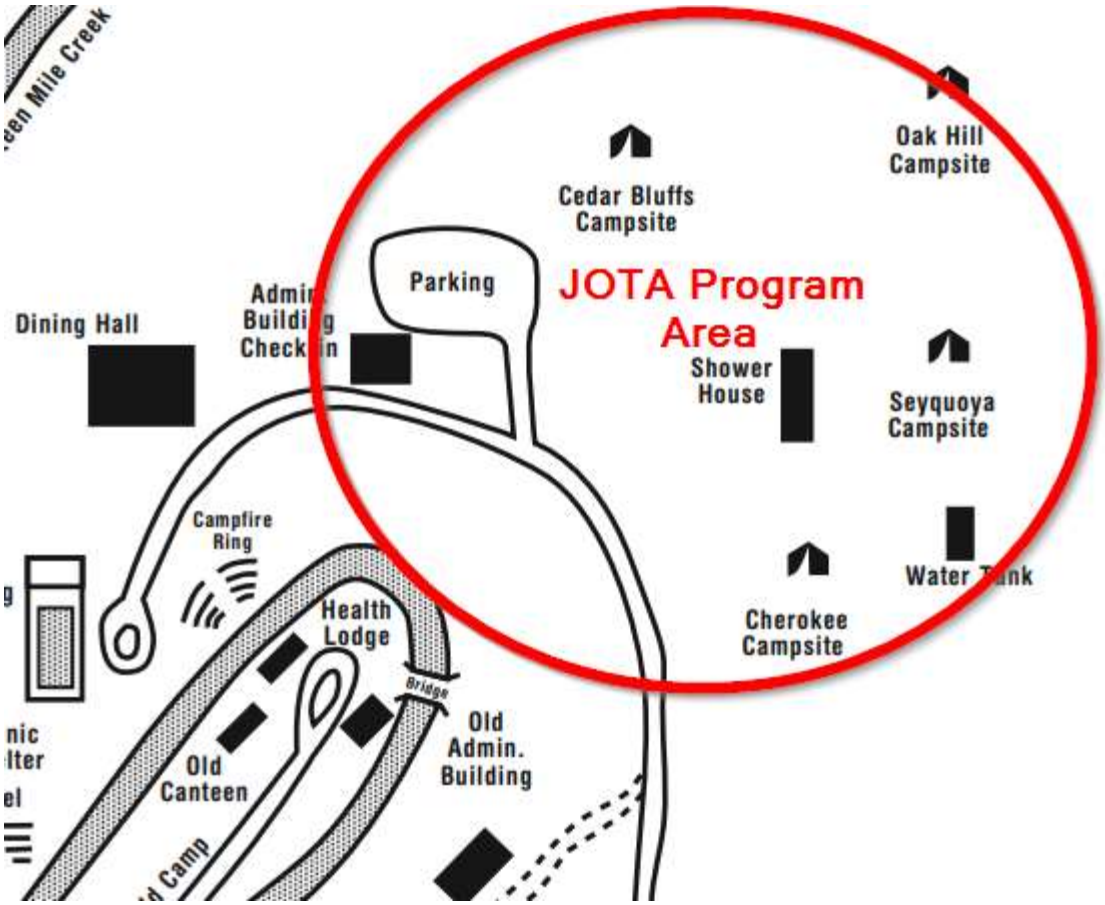
Arrow of Light

Arrow of Light Adventure: Building a Better World requirements

1. Explain the history of the United States flag. Show how to properly display the flag in public, and help lead a flag ceremony.
2. Learn about and describe your rights and duties as a citizen, and explain what it means to be loyal to your country.
3. Discuss in your Webelos den the term “rule of law,” and talk about how it applies to you in your everyday life.
4. Meet with a government leader, and learn about his or her role in your community. Discuss with the leader an important issue facing your community.
5. Learn about your family’s expenses, and help brainstorm ways to save money. Plan and manage a budget.
6. Learn about energy use in your community and in other parts of our world.
7. Identify one energy problem in your community, and find out what has caused it.
8. With the assistance of your den leader or parent, participate in an event that would help lead others in recycling and conserving resources.
9. Show that you are an active leader by planning an activity without your den leader’s help.
10. Do one of these:
    ~~a. Learn about Scouting in another part of the world. With the help of your parent or your den leader, pick one country where Scouting exists, and research its Scouting program.~~
    ~~b. Set up an exhibit at a pack meeting to share information about the World Friendship Fund.~~
    ~~c. Find a brother Scout unit in another country.~~
    d. Under the supervision of your parent, guardian, or den leader, connect with a Scout in another country during an event such as Jamboree on the Air or Jamboree on the Internet or by other means.

Camp Map


TUNNEL MILL SCOUT RESERVATION
Lincoln Heritage Council BSA
Fourteen Mile Creek
Cedar Bluffs Campsite
Oak Hill Campsite
Parking
Admin. Building Check-in
Dining Hall
Picnic Shelter
Scoutmasters' Cabin
Shower House
Seyquoya Campsite
Campfire Ring
Swimming Pool
Water Tank
Pirate Ship
Gun & Archery Range
Health Lodge
Cherokee Campsite
Retez-Priestly Cabin
Quanset Hut
Village Campsite
Picnic Shelter
Old Canteen
Old Admin. Building
Chapel
Old Camp
Cemetery
Maintenance Building
Picnic Shelter
Fort
Campsite
Ranger's House
MAIN ENTRANCE
Old Ranger's House
O.A. Lodge
Tunnel Mill Road
Old Entrance
N



Sponsored By

Lewis and Clark JOTA Event is sponsored by Troop 1 – Jeffersonville and by Clark County Amateur Radio Club.

https://www.facebook.com/BSATroop1/ -- Troop 1 Jeffersonville, Indiana

http://www.clarkcountyarc.org/ - W9WWI - Clark County Amateur Radio Club - Jeffersonville, Indiana