

## Radio Class C

### Here we are supposed to discuss section 7 and section 9a of the Radio Merit Badge Workbook.

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.

Equipment::	<b>Equipment at the Garland Amateur Radio Club's Communications Center includes antennas on towers outside, and coax cables connecting the outside antennas to the radios inside, plus High Frequency radios and Very High Frequency radios on the inside.</b>
Licenses:	<b>You need a General or Extra amateur license to transmit on the High Frequency radios. Any amateur license, including the Technician license is needed to transmit on the Very High Frequency radios.</b>
Purpose:	<b>We gather here to socialize, for training, for community activities and for emergency operations.</b>

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.

**The Federal Communications Commission (FCC) authorizes the Amateur Radio Service. One of the reasons for the Amateur Radio Service is because it is a hobby where people help others learn about amateur radio and have fun. It's called Amateur Radio because the frequencies can't be used for commercial or money-making purposes. The Amateur Radio Service is also called "Ham Radio."**

Describe some of the activities that amateur radio operators can do on the air, once they have earned an amateur radio license.

**Some of the activities that amateur radio operators can do on the air are:**

**Scouts Jamboree On The Air (JOTA) is the third weekend every October when scouts from all over the world talk to each other on ham radio.**

**Long Distance Radio Reception otherwise known as DX allows hams to talk to other hams around the world and collect postcards called QSL cards to prove that they did make the contact. It's a great way to have fun and learn about geography.**

**Contests are held many weekends. Contests are when you try to contact as many people from a certain place or in a certain way. For example, to get a Worked All States Award you need to contact another ham in each of the fifty states.**

**Public Service at parades and special events is one place where Hams excel. Ham radio operators are often the best people to help with communication at large community events, from small Rodeos and Stock Shows all the way up to the Dallas Marathon. Last December we had eighty Hams assisting at the Dallas Marathon with Ham radios at water stops and aid stations.**

**Disasters like fires, floods and earthquakes are times when Hams are often called on to help by providing communications assistance. At these times, telephone lines and cell phone sites are often damaged or overloaded, and ham radio is the only reliable communications. During emergencies cell phone towers can be restricted to emergency use only.**

## Radio Class C

**Skywarn** training classes are provided by the National Weather Service around the nation in the months of January and February. The National Weather Service uses Hams to report severe weather conditions directly to a weather center via Ham radio. Listen to the Weather Radio (162.440 MHz for Dallas) and they will tell you if Spotter Activation is currently required.

**Digital Communications** are when communications are sent by digital means as ones and zeros instead of by voice. Some hams hook their computers to their radios so they can send digital messages. One example is wireless e-mail. We have two radios right here in the GARCC that are used for e-mail over the radio, no internet is required. When the real internet is down Hams still have their own internet over the radio. Our internet antenna is on top of the utility pole outside and it is pointing to Richardson. This internet operates over Ham frequencies so only Hams can access it.

**Camping** communications with Ham radio are easy even in the backcountry. Use Ham radio when you need to get help or just let the folks back home know how things are going.

**Hobbies** include operating model planes, trains, boats, and airplanes via amateur radio frequencies with an amateur radio license. Sometimes operating the video equipment on drones requires an amateur radio license.

2. Explain differences between the Technician, General, and Extra Class license requirements and privileges..

Technician:	<b>The Technician Class license is the entry level Amateur Radio license. This license gives use of Very High Frequency bands and above so you can communicate around town and it gives you the use of repeaters.</b>
General:	<b>The General Class license is the mid level Amateur Radio license. This license adds most High Frequency band privileges used for world-wide communications to the Very High Frequency privileges previously earned by the Technician license.</b>
Extra Class:	<b>The Extra Class license is the highest level Amateur Radio license. This license adds all privileges on all amateur bands.</b>

Explain who administers amateur radio exams.

**The exams are given by local Volunteer Examiners know as VEs. These VEs are hams with a General or Extra class amateur licenses.**

3. Explain at least five Q signals or amateur radio terms.

**See the attachment. (Popular: QRZ, QSL, QSO, QSY, QTH)**

**(Who is calling me, Acknowledge, Conservation, Change Frequency, Location)**

4. Explain how you would make an emergency call on voice or Morse code.

**If you see a true emergency you are allowed to report that emergency by any means available. A true emergency is things like a boat overturned in the lake, a house on fire, a tornado on the ground. During a true emergency and if your cell phone and/or land lines are not functioning or available then you are allowed to transmit over any radio available. Say that you are a Boy Scout with at true emergency. Then when asked, give any details required. Most radio dispatchers know that you are allowed to use any radio available in a true emergency.**

## Radio Class C

### **IF YOU OBSERVE A TRUE EMERGENCY:**

If you observe a true emergency and you want to report that emergency on the Ham bands wait for an opening in the conversation if a conversation is in progress. Of course, if there is silence, that means there is an opening. Say the word Emergency. Repeat the word Emergency if necessary. When asked, say that you are a Boy Scout with a true emergency. Then when asked, give any details required.

### **IF YOU ARE INVOLVED WITH A TRUE EMERGENCY:**

Of course, protect life and limb first.

You make an emergency call using voice by saying:

- The word "Mayday" three times
- Your call-sign
- Your location
- A message explaining what help you need
- The word "Over"

You make an emergency call using Morse Code by sending:

- The letters "SOS" three times
- Your call-sign
- Your location
- A message explaining what help you need

5. Explain the differences between handheld transceivers and home "base" transceivers. Explain the uses of mobile amateur radio transceivers and amateur radio repeaters.

Transceivers:	<b>Handheld Transceivers are complete units that are small enough to be held by one hand. A mobile station in a vehicle or a permanent station in your home is generally larger than a Handheld Transceiver and it has more transmitter power and more features.</b>
Repeaters:	<b>Repeaters are automatically controlled transceivers that relay signals. Repeaters are located on high points like mountains, tall buildings, satellites, and the International Space Station. International governments help amateurs launch their own satellites. See <a href="http://amsat.org">amsat.org</a> if you are interested.</b>

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.)