Class outline for "Get On The Air"

Note 1*: Notify the repeater's trustee that you wish to use the repeater for the week 3+ 4 class exercise.*

Note 2: The class instruction will use the YAESU FT-60 as the teaching example.

Week 1

- Discuss the class goals
    - o To learn to communicate using a 2 Meter HT Transceiver
    - o To feel comfortable programming your HT
    - o To operate appropriately point-to-point communication (simplex).
    - o To operate appropriately using a repeater.
    - o To operate appropriately in a radio net
- Basic requirements for the class: The student must have:
    - o A valid FCC Amateur Radio License.
    - o A 144/440 MHz HT transceiver type accepted for the Amateur Radio Service (preferably the Yaesu FT-60, but others will be accommodated).
    - o Recommended but not required items.
        - ▪ A copy of a Repeater Handbook (preferably the current ARRL version)
        - ▪ A battery pack for Alkaline cells. *(highly recommended)*
        - ▪ Software and cable for programming the radio from a computer.
        - ▪ Speaker microphone.
        - ▪ Mag-Mount antenna with antenna connection adapter.
- Divide up the class.
    - o Divide up the class into HT Radio models. (Kenwood, ICOM, Yaesu, etc. if needed)
    - o Divide class into geographical areas so that they can use Simplex to practice with each other.
    - o The instructors will collect the names and locations of the students and will prepare a partner contact sheet to be passed out on Week 2.

Week 1 (continued)

- Discuss the general process of using the radio
  - o Use the example of programming a cell phone as a comparison to programming an HT.
    - Making a call directly from the key pad is equivalent to the HT VFO mode
    - Dialing from the cell phone contact list is similar to recalling settings from the HT memory.
  - o Discuss the purpose and operation of the various buttons and knobs on the radio. *(Warning: know what each button does before pressing it or you will wind up with a temporarily unusable radio).*
    - The display screen
      - What mode is the radio in?
      - What is the radio's frequency?
      - What is the status of the battery?
    - On/Off switch, Volume Control
    - Dial knob
    - Squelch control knob
    - PTT – Push to Talk button
      - Normal use – talk on the radio.
      - Setup use – cancel or terminate some but not all setup functions.
    - Setting the internal parameters of the radio.
      - Keypad functions
        - o Number keys
          - to set a frequency
          - To choose a setup function
        - o V/M Key
          - VFO mode
          - Memory mode
        - o F/W key
          - Alternate key functions
          - Set (Menu) functions

- Discuss the setting of the power level
  - Set Power Level to LOW (0.5 W) for in-class operation
  - Set Power Level to MEDIUM (2 W)
  - Set Power Level to HIGH (5 W) for most simplex contacts
- Selecting VFO mode.
- Setting a 2 Meter frequency
  - Learn how to turn off the WIRES function (Yaesu tar pit!).
- Learn to reset the radio to presets *(The test of the comfort level of the student is whether s/he is able to perform this function with comfort.)*
- Discuss the general rules for operating on a Net.
  - Pass out "How to Listen to a Net"
  - Play a pre-recorded portion of a net and discuss the procedure
- Discuss the homework
  - Listen to various nets during the first week. *(Note to instructor: Distribute the schedule of local nets).*
    - Bring the log of the radio nets to class next week.
    - Record the time and frequency of the start of the net
    - Keep track of as many call signs as you are able.

Week 2 –

- Review of information in week 1.
- Discuss Simplex operation
    - Distribute copies of the regional band plan
        - Identify simplex frequencies
        - Highlight frequency assignments for other uses in the band
- Class Simplex Exercise (*This practice will take up the majority of the class time*)
    - Instruct the students to operate in the exercises as if they were on a net.
    - The instructor will give a frequency for the exercise
        - The instructor will act as net control for the first exercise
        - The exercise consists of each person entering the exercise frequency and calling the net control to prove that they did it properly.
        - Use another frequency as time permits.
        - Instructor will pass out examples of Emergency, Priority and Routine messages to be used on the class net.
- Assign the week's homework (Simplex operation only)
    - Choose a person or two to work with during the week
    - Use a set of simplex frequencies given by the instructor
    - Set up a time to communicate and do so
    - Exchange phone numbers to enable the planning of the homework time.
    - Practice talking on the radio with a member of the class (required)
    - Practice talking on the radio with a stranger (optional but highly recommended)

Week 3

- Review the homework progress
- Repeater basics
    - o What does a repeater do?
    - o Outline repeater basics
        - ▪ Input and output frequencies
        - ▪ Access using PL tones
- The programming steps needed to use a repeater
    - o Set the repeater's output frequency
    - o Enable the repeater offset and direction (usually automatic)
    - o Set the repeater's PL tone frequency
    - o Enable the PL
- Discuss operations using a Repeater
    - o Calling when the repeater is silent
    - o Breaking into a conversation (QSO) in progress
    - o Answering a person's call on a repeater
    - o Responding to a "Radio Check" call
    - o Ending a conversation
- Class repeater exercise
    - o Similar to the simplex exercise except there is s repeater in the communication path.
- Assign the week's homework
    - o Similar to the simplex exercise except a repeater is used. The students will program a repeater into their HT and have a conversation with a classmate.
    - o Repeat at least twice.
    - o Listen to and participate in a repeater membership net.

Week 4

- Review the homework progress

- Review organization of the ARRL Repeater Handbook

- Provide link to on NARCC web site for online information

- Provide a list of simplex and repeater frequencies for the area and an example programming list for the featured HT.

- Outline the process of saving into memory from the HT keypad

- Discuss the use of groups or banks to create convenient subsets of frequencies.

- Class exercise is to program the HT with the simplex and repeater frequencies from the list provided.

- Discuss use of PC to program (clone) an HT

- Battery Management
  - Types of battery
    - Secondary vs primary batteries
    - Advantages / disadvantages of both types
  - Charging
    - Do not attempt to charge Alkaline cells!
    - Take care not to overcharge rechargeable batteries
    - Periodically check charge on standby rechargeable batteries
  - Power consumption management
    - Power save mode (receive)
    - Using the lowest TX power necessary
    - Automatic Power Off

- Discuss pitfalls and troubleshooting tips

- Review other uses for an HT
  - Crossband Repeaters
  - APRS
  - EchoLink and IRLP
  - SSTV

- Answer questions

- Pass out student questionnaire