9. Becoming a Ham Radio Operator

It's easy to do! You can obtain the basic entry-level license, called the "Technician" class, by passing a 35 question multiple-choice test.

You can study on line for this examination, or you can buy textbooks for preparation.

Hams themselves conduct the exams, and these exams are given in various locations on most weekends, and sometimes during the week, too. Other than a small fee for administering the test, obtaining a license is free.

Once you've received your Technician license, you can progress to the next level, the "General" license, and beyond that to the "Extra" license, the highest class Amateur Radio license issued in the United States. With each level of license you pass, you receive more operating privileges.

Where to Go from Here

The Internet offers a wide range of help, and here are some QR codes that will take you to some sites that will assist (see next page):

For more information about the topics discussed in this handout:

www.qsl.net/21st_ham

The American Radio Relay League (ARRL) is the national association for Amateur Radio (TM) in the USA. Their website offers a great deal of information for both new and seasoned hams:

www.arrl.org

This handout has been created by the Office of Public Information of the North Carolina Section of the ARRL.

Additional copies of this handout can be downloaded at:

www.qsl.net/21st_ham/handout.pdf

Twenty-First Century Ham Radio?

It's Out of This World!

...because with Amateur Radio, the sky's not the limit.

Here are some of the "out of this world" activities hams can do with today's Amateur Radio:

1. Talk to Astronauts

Many of the astronauts aboard the International Space Station are licensed ham radio operators, and they use Amateur Radio equipment aboard the Space Station to make contacts with individual ham radio operators and schools here on Earth.

The ham equipment has been essential for keeping in contact with Mission Control at times when the primary communications equipment has been unavailable!

2. Send a Balloon to the Edge of Space

Individual ham radio operators, ham clubs and schools, including universities all over the world, use Amateur Radio to track the progress of stratospheric balloons that reach the very edge of space.

These balloons carry cameras that can take both still and motion video images and transmit them back to Earth. In addition, beacon transmitters send signals that help the ground crews recover the balloon payloads once they have landed.

3. Communicate via an Amateur Satellite

Since the early 1960s, Amateur Radio organizations have been building and operating their own fleet of Earth-orbiting satellites. Hams use these satellites to send voice and data communications to other hams in countries all over the world.

Even the most basic Amateur Radio license allows you to make use of these satellites. Some of these satellites can be accessed with the cheapest commercial radios and easily built antennas, pointed by hand!

4. Communicate by Reflecting Radio Signals from the Surface of the Moon

Ham radio operators have been using the Moon as a mirror for radio communications since the late 1950s. In the beginning, successful "moonbounce" communication required huge antennas and the highest transmit power allowed. Recently, thanks to improvements in receiver signal processing, small antennas and modest power outputs are sufficient for making contacts this way.

5. Communicate by Reflecting Radio Signals from Meteor Trails

Meteors passing through Earth's atmosphere create trails of ionized matter, and these "ion trails" can reflect radio waves back to Earth to create a communications pathway.

Hams make use of these ionizations to make radio contacts. Many hams look forward to the several meteor showers that recur with regularity.

Even a meteor trail which lasts for only a few seconds can be enough for a pair of experienced hams to get a message through!

6. Amateur Radio Astronomy

Amateur Radio operators were among the first to recognize that some of the static they were receiving was originating from sources in outer space. One of the easiest and most fascinating space objects to observe is our own Sun. The eleven year sunspot cycle greatly affects radio propagation, and solar flares are major events that have a major influence over aurora displays here on Earth.

Even a basic receiver and a modest wire antenna can be enough to detect the radio noise generated by the planet Jupiter.

7. Amateur Rocketry Radio Telemetry

Amateur rocketry has come a ways since the days of the small model rockets sold in hobby shops. "High power" rockets are often quite large, and they can reach altitudes so high that special permission from the FAA is needed to launch them.

Amateur Television cameras inside these rockets, with the video signals relayed back to the ground, can provide a very impressive display of the flight.

8. The Search for Extraterrestrial Intelligence

Is there other intelligent life in the Universe? That is one of the most important questions we can ask!

For several years, a government-funded program searched for radio signals sent from distant star systems.

When funding was eliminated, groups of private individuals, many of them ham radio operators, continued this search.

Today, you can assist by donating surplus computer processing time to an organization that will use it to analyze data it receives from space.

Who knows, maybe your involvement will be the factor that finally detects a signal from some distant civilization somewhere among the stars!