What is Ham Radio?

by John Cunningham, W1AI

Amateur radio, or *ham radio*, is a fun and exciting hobby including a vast array of activities:

- Talking around the world without wires.
- Talking locally through repeaters.
- Emergency communications.
- Public service communications.
- Contests and awards.
- Legacy communication modes like Morse code and Radioteletype (RTTY).
- New communication modes like digital packet, Automatic Position Reporting System (APRS), and spread spectrum.
- Amateur radio satellites in space.
- Foxhunting (using “radio direction finding” techniques to find a hidden transmitter).
- Moonbounce (talking by bouncing radio waves off the moon).
- And much, much more...

Ham radio is not CB

Ham radio is different from *Citizens Band (CB)*, *Family Radio Service (FRS)*, and the *General Mobile Radio Service (GMRS)*, which only allow local communications using strictly limited modes and frequencies (although some CB operators do manage to talk fairly long distances using *illegal* linear amplifiers).

By comparison ham radio operators are allowed to use to every mode of communication: AM, FM, CW, SSB, RTTY, SSTV, ATV, Packet, and a

hundred others you've probably never heard of. We have privileges all across the radio spectrum, from shortwave to microwave. We routinely talk to other hams across the globe, from Antarctica to Greenland, from Afghanistan to Zimbabwe, all *without breaking a single law*.

Ham radio is also polite radio, without the crude and foul language of CB, probably due in large part to its licensing requirements.

Licensing requirements

To use ham radio, you must pass a written examination and be assigned a call sign from the FCC. For example, my call sign is "W1AI". I'm the only licensed radio operator in the world with that unique call sign. Until recently you also had to pass a Morse code exam to get a ham license. However, the FCC did away with that requirement a couple of years ago. There are no more Morse code tests!

The FCC currently issues three different classes of amateur radio license: Technician, General, and Extra. The examination for the entry-level Technician license is fairly easy, covering basic ham radio regulations, safety, operating practices, and simple electronics. The exam has 35 questions, and you need 75% (26 questions) correct to pass. The questions are selected from a published pool of about 400 standard questions. It only takes about 10 hours of study, more or less depending on your background and memory, to prepare for the Technician exam using our online course. And while you're preparing for the exam, you'll also learn a lot about your new hobby!

The Technician license is primarily useful for talking around town using repeaters, although it also allows all modes of communications in the VHF, UHF, microwave, and higher frequencies. Unfortunately, it only gives very limited privileges in the HF bands, the ones primarily used for long-distance communications.

Each subsequent license

exam is more challenging, but also conveys additional operating privileges. The General class license gives you extensive privileges in the HF frequencies, enough to talk to every country in the world. The Extra exam is quite difficult, with a pool of over 700 questions. It is considered to be the “crown jewel” of amateur radio licenses.

What can I do with it?

Ham radio is basically a social hobby — whether you’re talking around town, around the world, at club meetings or conventions, you’ll be getting to know some pretty darn nice people!

Some hams enjoy collecting QSL cards, postcards from other hams confirming contacts around the world. Some go for awards, like the DX Century Club (DXCC), which means you have confirmed contacts with hams in 100 different countries. (DX is the abbreviation for distance, but we use it to mean contacting someone outside of our own country.)

Some go on DXpeditions, traveling and operating in obscure and remote locations, helping other hams get contacts with rare locations like Clipperton Island and Scarborough Reef. There’s nothing like the excitement of being on the “pointy end” of a pileup!

Some hams like to experiment, designing their own radios, or building them from a kit. Some experiment with radical new designs for antennas.

I personally enjoy public service, providing communications support for events like the Boston Marathon and the Jimmy Fund Walk. When large

crowds of people try to use their cell phones all at the same time, the cellular systems are swamped and unreliable, but ham radio gets the message through.

And most important of all, emergency communications: from 9/11 to Katrina, when the primary communications networks go out, amateur radio operators are trained, equipped, ready, and able to provide emergency communications. When all else fails, there's amateur radio!