

Debra Johnson K1DMJ, Editor

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Resources for Teachers

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[Teachers Institute on Wireless Technology:](#)

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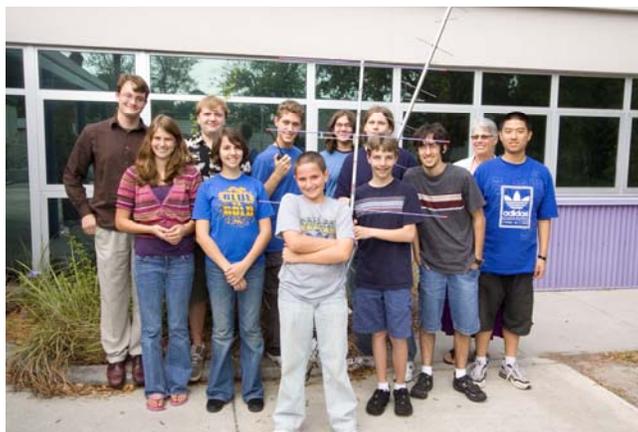
Successful Outreach to a Local School: Ham Radio is "Cool" at Pine View School

Editor's note: We are frequently asked how to go about getting ham radio introduced into a local school. Jon Hamlet W4ZW tells the story of how he went about it.

"I have licensed 17 new hams in our local school since December 2008 and have 24 more scheduled for my next class. I am also scheduling the first General Class licensing class for several of the first Technician class who wish to upgrade. I have now been asked to set up additional classes in three more of the local high schools."

By Jon Hamlet W4ZW

I've been trying to get a ham radio club organized at Pine View School for the Gifted for over five years. I would teach the physics classes or general science classes every year and give a demo of ham radio as the practical application of propagation or Maxwell's theories, etc, depending on the grade level. I always had a large group of kids who would sign up for licensing classes. Most came back with the same story, "My parents say I can't have an antenna because of HOA, etc..." So I devised a system of providing remote operation (Kenwood TS-2000, ECHOLINK, and other remote software) so the kids didn't need an antenna.



Members of the Pine View School ARC.

The biggest hurdle was finding a school faculty member to serve as the official sponsor and a place to put the station. Both were difficult since this school has a rather furious pace and very limited space. The breakthrough came with a new biology teacher who was once licensed and agreed to serve as faculty sponsor and let us use her classroom/lab as the radio site. I immediately started the first licensing class this past December and had 100% pass, including the biology teacher. I condensed the Technician classes into five one hour classes, one hour of review, followed by the exam. Remember, this is a school for gifted kids. I licensed nine in the first group. I also gave each new ham a HT so they

ARISS Program

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could get on the air immediately. I also organized the school club, chartered it, secured a club call, W4PVC, and scheduled club activity from school for several contests so the kids could get the feel of HF operating.

I put together several mobile rigs that the kids could "check out", take home, and get on the air. I provided a TS-2000, TS-50, TS-140, a ICOM 746PRO, two ICOM 706's, and a group of hamsticks, BuddiPole, two Arrow II SAT handheld antennas, etc as the "library" of equipment and antennas the kids could "check out." I showed them how to put together a temporary antenna using the hamsticks with an inexpensive telescoping painters handle stuck in the ground to get on the air. We actually used these at school to make contacts so they gained the confidence of being able to quickly put together a station at home with a "disappearing" antenna.

With the students' enthusiasm and a little lobbying with the school administration, I was asked to schedule more class presentations. In March, I took all the physics classes for the day and I had 24 students sign up for the next licensing class. Since we were well into the FCAT sessions, I offered to schedule two weekend sessions of three hours each, followed by the testing in the second week for those who wanted to do it now rather than wait for the six week plan. I had seven kids sign up for these, and all seven passed their test two weeks ago. I'm now scheduling the third Technician class and the first General class since many of the first set of Techs now want to upgrade. The current group ranges from 8th grade through 12th grade (1), so I have almost all of them returning next year. We've put together a SAT system for the school consisting of M2 long yagis, Yaesu G-5500 AZ-EL rotor with the computer interface, and expect this to be a center of attention for future plans. We've also installed a 31' fiberglass vertical with SGC-230 auto-tuner on the roof of the science building for HF. Jim has been great in helping with the antenna installation. We've had a snag with the SAT install. I bought a G-800 to use with the EL Yaesu we already had only to discover that the two are not compatible. So I bought the G5500 and interface and they are ready to go up now. We have the Kenwood TS-2000 and the ICOM 746PRO installed as the "fixed" school station equipment. All of the other equipment is in the lending library. I put together an IP plan for the county IP staff so we could do remote operation. We just received approval and a routable IP outside the school firewall last week for this phase.

I now have two more teachers planning for the next Technician classes, and two have applied for the ARRL Teachers Institute this summer. I've talked with the remaining science teachers about doing a few of their classes next year and have received very positive responses. I've even had several parents ask about coming to the licensing classes. So far, the students seem to be fairly divided between girls and guys. Of the 16 licensed, five are girls but of the total signed up for classes, it's about 50-50.

The net result of this endeavor is that it is now "cool" to have a ham license and carry around your own HT! Most of the HT's I've provided are the very small ones, many duo-banders with extended receive. We're planning on a big Field Day session, and some summer activity. I'm discussing a "Summer Camp Session" with the school.

The magic of ham radio is still alive and well just as I found it as a teenager!!

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“Choosing a Radio” Guide Now Available

As I reported earlier, A *Choosing a Radio* guide initiated at the urging of licensing instructors generally and with special impetus from David Haycock KI6AWR and Greg Widin KOGW. The guide was recently finalized to be included as a supplement in the next printing of the 1st edition of the *Ham Radio License Manual* which has just recently gone to press. It also has been posted on its own Web page at www.arrl.org/choosingaradio where it is accessible to any member. Check it out!

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Education Outreach Impact!

Recently there has been an abundance of great stories about the impact of amateur radio educational outreach activities. Here are a few I'd like to call to your attention in case you missed them.

Hams Mentor Challenger Center Students for Garriott Contact

An Elmer and his pupil work together to help Challenger Learning Center students contact the International Space Station. [Full story](#).

California Montessori School Wins Big with Ham Radio

Resources from the Education & Technology Program have made a big impact at Granite Bay Montessori School in the very capable hands of teacher Brian Lloyd WB6RQN. The local River City ARCS has also provided support and encouragement. Here's the most recent story of the successes of the students at a local science fair. [Full story](#).



Michael Binon (KI6QOC) holding his silver medal and the \$125 prize money he received.

Since that story was published we learned that Michael Binon KI6QOC took 2nd place in the Electronics and Electromagnetics category at the California State Science Fair. His was the project comparing different wire antennas for backpacking and emergency communications.

Wilson High School Amateur Radio Club Grads Win College Scholarships

Ham radio is making a difference in the lives of high school students at

Wilson Classical High School and in their career direction and preparation. Their teacher, Devon Day KF6KEE tells the story of their college admission triumphs.

Long Beach Emergency Radio Team Reaps Huge Results

By Devon Day KF6KEE

Wilson High School's Amateur Radio Emergency Communications team presented a history of the student team and plans for continuing to practice amateur radio skills beyond graduation this past Friday.

Captain Dean LaBarba, KI6CUX and three of the four other team members, Sammy Abushousheh, KI6HCM, David Strachan-Olsen, KI6UXJ, and Ahir Reddy told an audience of Wilson administrators, LBUSD Science Curriculum Leader, Eric Brundin, ARRL director of



Pictured L to R: Dean LaBarba, KI6CUX, Saheem Abushousheh, KI6HCM, David Strachan-Olsen, KI6UXJ, Ahir Reddy (ready to take test), and Joe Provenza W6UPN, local ARES director.

technology and education, Mark Spencer, WA8SME, ARES District Director, Joe Provenza, W6UPN, John Rogers, KF6TTR, CERT radio trainer, Sibyl Keirns KA6RXX, Mary Holtzgang, Shoreline Yacht Club radio operator, KF6OHU, Professor Rod Goodman, Cal Tech, K3ROD, Councilmember Gerrie Schipske, LBUSD Emergency Director, Tom Hickman, Casey Chel, KD6DOV, Long Beach Disaster Manager and

interested Wilson students about how the team has trained and collaborated with Long Beach amateur radio operators. These radio operators are skilled in emergency communications. They have advised this team over the years so that they will be confident to provide emergency communication to the Long Beach Red Cross and to the city's emergency communication center in the event of a city wide disaster.

Amateur Radio is a last resort means of communication in an emergency. The professional responders for the city of Long Beach are trained and are always the first responders. However, it is worth the effort and the training to have a back up plan and that is where this team has put its resources and training. It is just like planning for an earthquake. Having the plan and resources on hand at any large facility just makes good sense. The more tools available, the impact of a disaster becomes less. For these four seniors and one junior, it is now time to look to the future. For these team members, that means college. The fifth member of the team, Charles Seamount, KI6YDE, missed this presentation to do just that, visit a prospective university for next fall.

It came as a surprise to all of the team, including teacher advisor, Devon Day, KF6KEE, that universities would be so interested in accepting these radio operators into their school as result of their radio experience. Both Dean LaBarba and Charles have been told that their radio service to their school and to their community helped them being accepted into the

universities of their choice. LaBarba recently was unanimously selected by the scholarship committee for ARRL as this year's recipient of the William Goldfarb scholarship which is worth over \$40,000 over the next four years. LaBarba is the only senior in the United States to be selected for this award and it was awarded specifically because of his amateur radio service through the Amateur Radio Relay League. His goal after college is to enter medical school and become a surgeon.

In addition to many Advanced Placement classes, the practical application of these students' mathematics and understanding of science has been a life changing experience. For example, LaBarba was invited to participate in a full scale emergency drill at Long Beach Airport this past Friday. Working side by side with emergency communicator Mercedes Prado, K6MMP, Dean learned how triage is managed in a disaster and observed the city's trained responders evacuate two airplanes' passengers in the simulated emergency. By bringing the community into the classroom, opportunities for these Wilson students have been flooding in.

Devon Day, AREC team, advisor can be reached at Wilson High School at dday@lbusd.k12.ca.us

Read ARRL's announcement about Dean LaBarba's selection as the 2009 winner of the William R. Goldfarb Memorial Scholarship. [Full story.](#)

For more information about ARRL Foundation scholarship grants [click here.](#)

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Getting New Licensees on the Air

We all know that getting folks licensed is not enough to make licensees into hams. There is much more to learn to get on the air and start feeling comfortable with operating procedures and to make decisions about equipment and antennas. The reality is that some students are just not going to be able to absorb theory or much of the license exam content without some hands-on experience. With this in mind, some instructors integrate hands-on radio activities within the syllabus of their license preparation instruction, or in some cases, following the exam.

There is a growing demand for materials to instruct "How to" classes for new hams, and it's a very important area for us to focus on since we are getting a wave of new licensees who have little or no experience through previous exposure to ham radio with friends and family members.

Here are some ideas on "How to" classroom instruction from instructors who have shared their approach.

It's the follow up that counts!

Extracted from Yahoo! [Ham Radio Instructor's Group](#) discussion with permission from Norm Goodkin, K6YXH

Norm Goodkin K6YXH shared some advice about the follow on instruction

he conducts after getting new hams licensed. Norm's approach is to focus the hands-on instruction after the license hurdle is overcome. Taking a practical approach, Norm's licensing instruction focuses on short-term memory rather than content integration, but it's more than a "cram" session approach. He emphasizes review of the short answer Q&A version of the question pool right before the exam as the secret to a high pass rate on the exam. He incorporates some short lectures in his one day exam prep sessions on a few selected topics such as Ohm's Law, power, frequency vs. wavelength, and repeater fundamentals. In addition he refers students who want to dig deeper to [his web page](#) where he demonstrates how the formula calculations are solved.

Norm is being challenged to license CERT volunteers in a short time period and this strategy is working well. Though this instruction strategy is not for everyone and every circumstance, paired with the follow up instruction he's built into his curriculum, he's getting a lot of new hams licensed--and on the air! Here's an excerpt from the advice he recently posted on the Yahoo! instructors group site.

"We follow up our 1-day Tech class with two 2.5 hour sessions. The first covers essential information that the question pool does not: What is ham radio really about? What radios are available? What are the must-have accessories? What are the features to look for, given a particular use? What's available for \$100, \$150, \$200, etc. Why do I need to know this stuff? What's Dual Receive, and why would I want it? Why wouldn't I want it? Can't I just wait until there's an emergency and then take the radio out of the box? This is the class where we have time to answer all the questions. It's in this first class that we explain 1/2 duplex, that you need to keep the PTT button pushed while talking, and answer questions like, "So, what's a band?" and "What bands do I need?"

The second class is on programming the new ham's radios and actually getting them on the air. We do this 2 weeks after the first class, so everyone has time to get a radio. We tell them to read enough of the manual to install the battery and charge it up before the class.

We get everyone to turn on the radios, pick VFO Mode, and enter a simplex frequency; then we do a quick directed net to let everyone actually transmit, and to show them how efficient a shared frequency can be. We get them to program a repeater and actually get them on the air, talking to local hams. This is a big effort, with lots of hams helping out, and



Radio operating class with new licensees from Santa Rosa Valley CERT

we are always rushing to finish in 2.5 hours. Along the way, we usually have to address setting the "Step" and automatic offset modes.

At the end of the second class, we send everyone home with schedules and frequencies for local nets and then make them most welcome when they do check in. We send e-mail reminders and contact the ones who don't show up on the nets. We pull them into the community and keep pulling.

I think our results are every bit as good as eight 2.5 hour classes using a text book, in terms of the quality of operator and the percentage who become active. It's the follow-up, and not the initial instruction that makes the difference. I get a lot more people licensed using the 1-day approach than I ever did using the 8 week approach, and we get a lot more of them on the air too.

Example: the Ojai Valley Amateur Radio Club sent 22 CERT members to our 1-day class in January. All 22 passed. Of those, 20 joined OVARC; the club took responsibility for training them as ham operators, and Ojai CERT took responsibility for getting them to use their radios.

We had a follow-on class and VE session organized by OVARC just two months later, and got another 30+ licensed and started down the same follow-up path. In the past year, a typical club meeting had 5 attending (and 2 new members the previous year); the club meetings now have 30. Other clubs in the area have picked up on this approach and are increasing their membership and activity.

There's a lot more to say about 1-day vs. 8-day classes in terms of effectiveness and pass rates, but regardless of how the examinees study and the instructors teach, it's the follow-up that determines whether or not they get on the air and the quality of their operation skills; that's where we need to put our maximum effort."

Norm's classes are sponsored by the City of Calabasas, the Malibu/Lost Hills Sheriff's Station's Disaster Communications Service (DCS 10/22), and staffed with volunteers from the PAPA System, a Southern California repeater group.

An outline for a ham radio operating practicum

David Haycock KI6AWR has developed a curriculum that is focused on practical skills to get new licensees comfortable with getting on the air. He has agreed to share his [course outline](#) with us.

"We realized that even though we tried hard to include some practical information in getting on the air, we were still falling short. Not only that, but we also realized that most new Tech's get their license through "ham crams" (in the Bay area at least), and as a consequence know almost nothing about radio, theory or practice." The class walks through the topic of simplex and repeaters, programming radios and simplex and repeater protocols. Students are also required to participate in a weekly net.

Most recently David reports, "Since we gave that class I have developed another one entitled "Getting the most out of your HT" which is a little more advanced. We have monthly meetings on a Saturday morning, so I



KI6AWR giving an "antenna talk" about building a 6m 2 element Yagi

have been holding a workshop following the meeting which worked out well—it was pleasantly surprising to see who stayed behind for that."

David is president of the Amateur Radio Club of Alameda (ARCA), and also the Coordinator for Education and Training at the Oakland Radio Communication Association (ORCA). The Alameda Club (ARCA), the Oakland Club (ORCA) and the East Bay Amateur Radio Club (EBARC), jointly participate in hosting VE Sessions and license classes. Together ARCA, ORCA and EBARC have become known as the "East Bay Elmers."

Your Call Here!

Ever have a member of your club come up and ask you how you did that or tell you "That was a great talk you gave"? Ever conducted a training session explaining a ham radio topic to kids or adults? Ever had an article published in your club newsletter? Ever wanted to see your name in print?

Well, fire up the PC and start writing!

If you have experience in a particular area of ham radio and can explain your ideas in a simple, straightforward way, we'd like to see your work. In the "News and Features" section, we typically publish practical articles that provide *QST* readers with useful information on how they can get more from their favorite pastime. If you're involved in DXing, APRS, an unusual type of portable operating or virtually any other type of Amateur Radio-related pursuit, help your fellow hams enjoy their time on the air and earn \$65 per published page by putting your experiences into words.



Articles should be between 900 and 2500 words in length (more or less). You don't have to be a professional writer to write for *QST*...in fact, very few *QST* authors fit that category. E-mail your manuscript and graphics to qst@arrl.org or send them to *QST*, 225 Main St, Newington, CT 06111. Before you get started, have a look at our Authors Guide at www.arrl.org/qst/aguide. We can mail you a copy if you send a self-addressed, stamped envelope to *QST* Authors Guide, c/o ARRL HQ. — Steve Sant Andrea, AG1YK

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Wanted: Instructional Media

The best way to teach ham radio has traditionally been through personal mentoring. But today more and more new hams get licensed without the benefit of a personal mentor and with little prior exposure to ham radio operation. Consequently we need to provide some of that mentoring through whatever vehicles we have at our disposal, including the Internet! As part of our website redesign project, ARRL has plans to develop a web page collecting ideas and curriculum to provide “Elmering” support for new hams. We welcome any top notch instructional materials, including video demos that you are willing to share.

One aspect of the “how to” that I think is important to emphasize and is sometimes overlooked is a respect for the traditions of amateur radio, it’s rules, it’s professionalism, and its responsibility for self-governance. We want to make sure amateur radio remains a community that folks aspire to join! That’s best reinforced through modeling on the air, but a video/or audio demo on do’s and don’ts and radio etiquette would also serve as a valuable training tool.

New Resource for Code Practice

Jack Purdum W9NMT wrote to share with us a code practice program he developed to brush up on his CW skills. Recently retired from Purdue University’s College of Technology, he now has the time to become more active in ham radio. A special inspiration for this effort was Bill Packard’s article in the January 2009 issue of *QST*. You may want to share this code practice tool with any students interested in learning CW, or use it to improve your own skills!



You can read about Jack’s program and download it at <http://www.arrl.org/FandES/ead/learncw/RustyCW.pdf> . I’ve also posted Jack’s resource on our [“Learn CW” resource page](#).

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Recent Statistics on Licensing Classes and Exams

As of the end of March 7,686 new hams were licensed by all VECs. There were 183 classes listed on our website that began during the first quarter. If you haven’t previously listed your classes on our website, please contact us for instructions. This is a great way for people who

come to ARRL for information about classes to find the opportunity you are providing.

Here's the breakdown of exam activity during the first quarter by license level.

ALL VEC ACTIVITY	Jan 1 to Mar 31, 2006	Jan 1 to Mar 31, 2007	Jan 1 to Mar 31, 2008
LICENSE TYPE	LICENSE COUNT	LICENSE COUNT	LICENSE COUNT
EXTRA	935	2180	1423
GENERAL	1135	8125	2893
TECHNICIAN	5285	7030	6948
TOTAL	7355	17335	11264

*Effective February 23, 2007 the FCC changes the Amateur Radio Service Rules and no longer requires applicants to pass a Morse code exam. This creates a spike in the number of individuals seeking an upgrade to General.

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