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Resources for Licensing Instructors

www.arrl.org/resources-for-license-instruction

Resources for Teachers

www.arrl.org/amateur-radio-in-the-classroom

Education & Technology Program:

www.arrl.org/education-technology-program

Teachers Institute on Wireless Technology:

www.arrl.org/teachers-

New Website Presents New Face to the World



Anyone who has visited our website recently cannot have helped but notice the transformation. Many hours have been spent by staff transitioning and updating content to build out the new site into a new, updated architecture. As with any project of this size and scope there have been some problems but they are being addressed. New functionalities such as forums and other relational tools are planned for the future.

I'd like to help you acclimate to the new site and highlight some pages that you'll want to know about. You can bookmark any pages that you'll want to refer to frequently under your "favorites" in your personal member profile.

License instructors can find information targeted to your needs in the "Licensing, Education & Training" menu, under "Volunteer Instructors/Mentors" at: www.arrl.org/volunteer-instructors-mentors. Here you'll find the link to list your license classes on our website and a resource page for instructional materials. (More detailed information on using the license class listing link is provided below.)

Classroom teachers can find a greatly expanded site with information about ARRL's Education & Technology Program and the Teachers Institute on Wireless Technology. You'll also find resources and current information about what other teachers and schools are doing to employ amateur radio in teaching and learning, and read about how students are exploring wireless technology in their classrooms. In the "Licensing, Education & Training" menu look for "Amateur Radio in the Classroom."

institute-on-wireless-technology

ARISS Program

www.arrl.org/amateur-radio-on-the-international-space-station

Continuing Education Program
<http://www.arrl.org/courses-training>

Contact Us

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Here are some of the key links you'll want to investigate:

www.arrl.org/amateur-radio-in-the-classroom
www.arrl.org/education-technology-program
www.arrl.org/teachers-institute-on-wireless-technology
www.arrl.org/etp-grants
www.arrl.org/etp-classroom-resources
www.arrl.org/curriculum-connections-and-benchmarks
www.arrl.org/classroom-activities

We've also expanded the information provided about the ARISS program. Now you'll find links to listen to or watch ARISS contacts, along with stories about recent contacts as well as information about how to apply and plan for an amateur radio contact with the International Space Station. Visit: www.arrl.org/amateur-radio-on-the-international-space-station

Using the "List a License Class" database on our website

You'll find the page to enter the information about your license class into our database in the "Volunteer Instructors/Mentors" menu at www.arrl.org/list-a-license-class. Please note: You must be logged into our website in order to access the form to submit information.

In addition to the details of date, time, location and contact person, you'll note that a field to supply additional information about your class is now provided. You can use this field to add information about preparing for the first class, purchasing a study manual prior to the class, indicate what materials will be supplied, additional information about the class etc. Listings submitted are reviewed every few days and then released for publication to our website by Jennifer Knapp in our Education Services Department.

Should you need to change some of the details of your listing after it is published you can find your listing in the class search at www.arrl.org/find-a-license-class and, when you are logged in to our website you can click on the link to "change" the listing. You'll be able to change the information in your listing and submit the changes directly. As the creator of the listing you are the listing owner and you are the only one who will be able to edit the listing through the website.

Developing "Radioactive" Kids

"The future of amateur radio requires a constant flow of new operators. Where will these new members come from?"

Pete Kemp, KZ1Z has a plan. He shares his ideas on how to bring amateur radio to kids in a school setting and through other youth programs by emphasizing public service, education and fun. In



Students love to be outside the confines of a classroom. Fox hunting is a favorite activity.

"Developing Radioactive Kids" Pete provides a bounty of ideas and suggestions to help clubs get started and be successful recruiting tomorrow's hams. If recruiting the next generation of hams is your passion, you'll find Pete's guidance valuable. You'll find Pete's article in the "Get Involved" menu of our new website under "Recruiting & Outreach: Outreach to Youth" at: www.arrrl.org/outreach-to-youth.

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Education Outreach Impact!

We love to share stories about the impact of amateur radio educational outreach activities. Here are a few more.



The Wireless Technology Class at Granite Bay Montessori School proudly show off their accomplishments.

Granite Bay Montessori School benefit from making Amateur Radio a part of their curriculum

Science teacher Brian Lloyd, WB6RQN, introduced the benefits of ARRL education resources by applying for a grant to fund a station for the Granite Bay Montessori School as well as attending

the Teachers Institute on Wireless Technology. Both experiences gave him the tools to

introduce fresh ideas and activities in creating a hands-on science class for 4th to 8th graders. Students took part in building everything from robots, to a crystal set to an Elecraft K2 transceiver, as well as gaining experience on the air at their new station K6GBM. [Read the full story](#) (also published in the January 2010 issue of *QST*).

Nelson County Area Technology Center teacher encourages attending Teachers Institute on Wireless Technology

Instructor, Charlie Cantrill KI4RDT recently shared how attending the Teachers Institute on Wireless Technology introduced new ways for him to teach core subjects using Amateur radio. Here is what he said:

"There are so many ways amateur radio can be used in the classroom. Amateur radio encompasses so many disciplines it is difficult to list them all. Everything from teaching space science about planetary orbits and radio propagation to the study of electronic circuits and wave forms can be integrated into course



Charlie Cantrill works with a student in his classroom at Nelson County Area Technology.

materials. My favorite new toy is the oscilloscope. In the past I have explained frequency, wavelength, square waves, and sine waves by drawing them on the board. Better is to use an oscilloscope and a signal generator to show and play frequencies demonstrating the relationship between wavelength and frequency thereby making connections in the brain much easier and faster than with a drawing board. To see the look on kids faces when you do this and to see the revelation expressed is priceless. That is what is missing from education.

...If you know a teacher interested in amateur radio, or simply looking for a new method to teach difficult concepts, encourage them to apply for a grant to attend the Teacher's Institute. It is well worth their time. But don't go looking for a vacation, the TI is the real deal with more information in a week than you could believe possible. My thanks to ARRL and the Education Foundation for a worthy and effective program, we need more workshops of this caliber for our nation's teachers!"

*Charlie Cantrill
KI4RDT
Information Technology Instructor
Nelson County Area Technology Center*

Samsula Radio Panthers have a great school year using Amateur Radio in the classroom

Barbara Vola from Samsula Academy reports to Mark Spencer, WA8SME, Education & Technology Program Coordinator of the ARRL, on what the Radio Panthers have been doing during this school year.



Samsula Radio Panthers pose for the camera.

"We have done some wonderful things with the Radio Panthers this year. A volunteer from our local lighthouse (who is also a Ham) came out and taught the kids about wireless

communication over the years, and then we built our own Morse Code oscillators. He made up kits and we walked the kids through them. Then they practiced coding messages and sending them to each other. They then had to decode the messages they received. What a ball that was! Anyway, I would like to make that a yearly event, so I have included them on the wish list.

The Radio Shack Electronics Learning Lab is probably the best of all the kits we acquired this year. The kids are learning about resistors and are using them in that kit. The kits from Ramsey don't have separate resistors so the kids have to look at their bands and figure out how many ohms of resistance they are. They have really been doing well with this this year. Thank you for your generosity to our program!"

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New Instructor Manual in Development

As we transition to the new pool of questions for the Technician FCC license on July 1, those of you providing instruction for Technician exam preparation will want to accommodate changes in the question pool. We are in process of revising our Instructor Manual to provide lessons and power points that will include new content addressed by the new pool of questions and which will coordinate with ARRL's study manual, the 2nd edition of the *Ham Radio License Manual*. We expect to release the updated Instructor Manual by the end of 2010. Those of you planning classes before then can refer to the spreadsheet Ward Silver N0AX, our manual author, has shared which shows the relationship between the current question pool and the new one that will be effective next month. It indicates questions that have been revised and retained and new ones that have been added. This should help you identify new material that you will need to address in your instruction. This "Tech 2010 Question Pool Cross Reference" is posted on the ARRL website on the Instructor Resource page at: www.arrl.org/resources-for-license-instruction.



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Now's Your Chance to Influence the Next General Class Question Pool



As part of its scheduled review of the General Class question pool, the Question Pool Committee of the National Conference of

Volunteer Examiner Coordinators (NCVEC) is accepting suggestions for changes or deletions to the current pool of questions used for the FCC amateur radio General License Class exam. New questions are also being entertained. Members of the QPC shape the pool of questions to fit some basic objectives of preparing licensees to operate within the rules, safely and appropriately for the license class. They also view the 3 levels of amateur radio licensing as an opportunity to prepare licensees with an underpinning in electronics and radio science that starts with a very basic foundation at the Technician level and increases in complexity with each level of license achievement. Each question pool is reviewed on a regular cycle to include any changes in FCC rules and operating privileges and also to align question pool content with current operating activities and technologies. Roland Anders K3RA, QPC Chairman, requests that any changes or new questions be submitted to the QPC mailbox at qpcinput@ncvec.org before October 1 to allow time for consideration. Please be sure to include an explanation of the reason the change/addition is being requested.

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Two Teachers Institutes Complete, Five More on the Horizon this Summer

ETP Instructor Miguel Enriquez KD7RPP led a Teachers Institute workshop with 21 teachers in the Tucson Unified School District this past February. Mark Spencer WA8SME just completed a second session of the TI in Roswell, NM with 13 teachers. Take a look at the videos and photos capturing some of the activity at: www.arrl.org/teachers-institute-on-wireless-technology



Roswell TI participants learn through hands-on activities.

All remaining 2010 sessions are filled. We're adding names to a list to receive announcements for sessions planned for 2011. Contact Jennifer at jknapp@arrl.org if you would like us to add yours!

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Resources to Illustrate Concepts in Radio Science

From time to time I receive comments from instructors about resources they employ in their instruction. Here are a few you might also find useful.

From Harvey Howard, N7SIF:

Harvey refers his students to the *Mechanical Universe* series of video instruction produced by California Institute of Technology and Intelcom. Here is the link: <http://www.learner.org/resources/series42.html>

"I refer to episodes 27 through 39 (excepting 36) as I come to them (i.e. when I teach about capacitors I will refer them to episode 30.) As I have recorded all the episodes, I will, time permitting show a short extract of the program to illustrate the subject. Since all the episodes are available for viewing online, I leave much of the further learning in their hands. I do emphasize that the students do not have to comprehend the mathematics involved since that is not necessary to pass the amateur test. I do point out that if they want a good introduction to calculus, they can get it by looking at episodes 3, 5, & 7. A lot of our students come from the University of Idaho or Washington State University so online access is not a problem. I also tell students that I am available to answer any question about the episodes.

My primary purpose in providing this information is to allow the student the opportunity to deepen his knowledge of the electronics requirements to pass the exam. It also gives the student a little bit of history of how

our field developed and just how short a time we have been around. I feel the more connections I can make to the subject (history, graphics, sea stories (ret. navy ET), etc.) the better the chances that the student will remember and understand the concepts. The more handles we give the student to lock the information into their memory banks the better.

From Mark Spencer, WA8SME:

A great introductory electronics course published by the Naval Education And Training Professional Development and Technology Center includes modules on direct and alternating current, wave modulation, propagation, transmission lines and antennas, among many others. You'll find it at: <http://www.tech-systems-labs.com/navy.htm>

From Diana Eng, KC2UHB at *Make*:

Diana is a young radio amateur who is sharing her exploration of amateur radio through video demonstrations. Here's her very creative demonstration of directivity with a Yagi antenna:

http://blog.makezine.com/archive/2010/02/seeing_radio_waves_with_a_light_bulb.html

Look for her instructional videos on setting up an HF radio and making a satellite contact as well.

http://blog.makezine.com/archive/2009/10/how_to_set_up_an_hf_portable_radio.html

http://blog.makezine.com/archive/2009/07/catching_satellites_on_ham_radio.html

Other Resources

Teachers you may want to take advantage of this offer from NASA: "It's immersive, it's explosive, and best of all it's free. On June 7th, NASA will begin sending complimentary DVDs of the smash-hit planetarium show "Journey to the Stars" to teachers and students around the country. Science@NASA reviews the show and tells educators how to request their copies. FULL STORY at http://science.nasa.gov/science-news/science-at-nasa/2010/07jun_journeytothestars/

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Recent Statistics on Licensing Classes and Exams

You're probably aware that more than 30,000 new hams were licensed in 2009, 30,144 to be exact. Thanks to all the efforts of volunteers who provided instructor and conducted exam sessions! This year license activity has matched last year's level so we appear to be on track for another blockbuster year. As of the end of May 14,853 new hams were licensed by all VECs. This tops the 13,833 new licenses issued through May of last year!

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

ALL VEC ACTIVITY	Jan 1 to Mar 31, 2008	Jan 1 to Mar 31, 2009	Jan 1 to Mar 31, 2010
LICENSE TYPE	LICENSE COUNT	LICENSE COUNT	LICENSE COUNT
EXTRA	1423	949	789
GENERAL	2893	2609	3202
TECHNICIAN	6948	7057	7364
TOTAL	11264	10615	11355

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