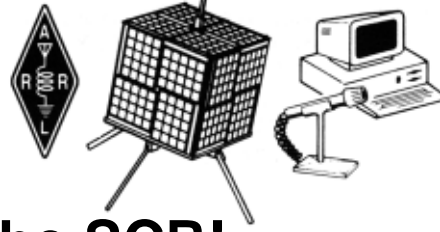


Amateur Radio

in the Classroom



JANUARY 1999

Your Students Will Love the SCR!

Here's what you could have said last year after the School Club Roundup (SCR): "We signed up 17 youths for our kid-contest team for the 1998 School Club Roundup. Students with little interest in school argued over whose turn it was to operate the radio, and raced each other to my world map to circle the QTHs. These 13- and 14-year olds think the Internet chat rooms are ho hum, but lit up with delight over a call from Hawaii, Mexico or Puerto Rico." Those comments came from Tim Ruzin, KI0IJ, of Palisade, Colorado. Others of last year's participants reported that the SCR was a great way to improve students' communications skills while they had a good time.

Don't have a radio station in your room? Teachers can set up a station in the school library, lunchroom, lobby, or parking lot. They often enlist help from the local ham club. (Contact ARRL EAD at ead@arrl.org to find a club in your area.)

The SCR has a low-pressure format — experienced SCR operators are encouraged to be patient and take time to chat beyond the contest exchange. The set contest exchange dispels the fear new operators have with not knowing what to do or say on the air.

Separate award certificates will be issued for elementary, middle school, high school and college/university levels. School Club Roundup (SCR) is sponsored by the Council for the Advancement of Amateur Radio in the New York City Schools (CAAR/NYCS), the ARRL and its Hudson Division Education Task Force to foster contacts with and among school radio clubs.

Rules:

1. **Object:** All stations to talk with as many stations as possible, especially school clubs.

2. **Contest Period: 1300 UTC on Monday, February 8, to 0100 UTC on Saturday, February 13.**

Operate no more than 24 of the 108 hours, with a maximum of 6 hours in any 24 hour period. Logs must show on and off dates and times; off periods must be at least 30 minutes.

3. **Classes:** Single transmitter only:

(I) Individual or Single Operator (non-club)

(C) Club or Multioperator Group (non-school) Multioperator Group stations must use only one call sign during the contest.

(S) School Club or Group (grades K-12, college or university). This includes any station operated at school for the contest, and those formed for the sole pur-

CW	Phone
1800-1810	1855-1865
3530-3580	3850-3880
7030-7080	7225-7255
14,030-14,060	14,250-14,280
21,050-21,080	21,300-21,330
28,050-28,080	28,550-28,580

Novice/Technician CW	Phone
3685-3705	28,350-28,400
7110-7130	
21,110-21,130	
28,110-28,130	

pose of operating the SCR.

4. **Exchange:** Your call sign, RS(T), class (I, C or S), US state or DX country. For example, W2CXN answers N2RQ's call by sending **N2RQ DE W2CXN 57(9) S NY.**

5. **Scoring:** Stations may be worked once each on phone and CW (digital modes count as CW). No repeater contacts except satellite and "real time" packet. Score 1 point for each phone QSO and 2 points for each CW QSO.

Multiplier: [Number of states plus number of DXCC countries] plus [2×number of class-C QSOs] plus [5×class-S QSOs]. QSOs with school stations earn a multiplier of 5, making them the most desirable stations to work. QSOs with Marty, KA2NRR, count as a 5× multiplier. (He was the founding chairman of the CAAR/NYCS and creator of the contest that became the SCR.)

Final Score: Multiply QSO points by multiplier. PLEASE use the SCR summary form to avoid errors, especially for your first time in the SCR. (See 6 below.)

HF Frequencies (kHz): All amateur bands except 30, 17 and 12 meters are permitted. Do not use VHF or UHF repeaters, or the national calling frequency of 146.52 MHz; only recognized simplex frequencies such as 144.90-145.00;

146.49, .55, 58; and 147.42, .45, .48, .51, .54 and .57 MHz may be used.

6. **Reporting:** Obtain sample log and entry forms by sending a large self-addressed stamped envelope (SASE) or a label and postage to Lew Malchick, N2RQ, Brooklyn Technical HS, 29 Fort Greene Pl, Brooklyn NY 11217. SCR-LOG V4.x written by AD8B for IBM and compatible PCs is included as an attached file with email requests to: **caarnycs@aol.com**. Logs must include exchange information, bands and signature of all operators and club officials or trustee. Indicate the number of hours and operators/loggers, and type of school and entry class. Dupe check sheets are required for entries over 100 QSOs. Computer entries on disk are appreciated (use SCR-LOG or follow the ARRL Suggested Standard File Format. Send a printed summary sheet, and include the name and format of the disk file. If you are not sure Lew can handle your files, write to ask.) Entries must be post-marked to Lew, N2RQ (see address above) by March 15, 1999 (30 days after end of SCR).

8. **Awards:** Certificates for the top three entries in each class. The school club class will be divided into elementary, middle, high school and college/university. DX will be listed separately at the end of US entries in each category. Any station contacting 10 or more school clubs will earn a special certificate. Send a large (9×12-inch) SASE or a mailing label and postage (or IRCs) to Lew Malchick, N2RQ (see address above) for complete results. Certificates have always been sent for each entry, but because of increased participation and associated workload, those entrants who don't send postage, envelope and mailing label may not get a certificate.



Six students of the Waco Amateur Radio Club, Waco Jr-Sr HS, Wayland, IA, enjoyed the SCR — (l-r) N0ZNI, N0XJY, KB0NPT, KB0WGY, sponsor N0VSY, KB0WHB, and N0YDY.

SBE

If any of your high school students are interested in careers in broadcast radio, they might consider becoming a member of the Society of Broadcast Engineers (SBE). SBE dues are \$10 per year, and members receive three newsletters per year. Send a note to transdell@sbe.org for more details.

Your Students On-the-Air

Do your students love to talk to students at other schools? ARRL EAD has a new youth networking page on the Web, where youth groups register that they are interested in making skeds with other youths. Check out www.arrl.org/ead/youthskeds—it's even "gone DX," with a school from Australia registering.

News From the FCC

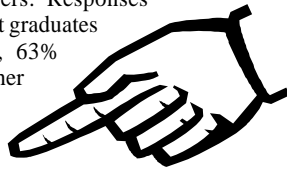
The FCC announced that the 1999 maximum Amateur Radio examination reimbursement fee will be \$6.49. The ARRL/VEC will charge \$6.45. Note: Elements 1(A) and 2 are always free of charge at ARRL/VEC exam sessions.

In October, the FCC issued a Report and Order on the Universal Licensing System, which affects all Wireless Telecommunications Bureau licensees. The new rules become official near the end of 1998; the FCC expects to have the ULS fully operational by April. The Form 610 series will be replaced by the ULS' Form 605 (the Quick-Form Application for Authorization in the Ship, Aircraft, Amateur, Restricted and Commercial Operator, and General Mobile Radio Services for all purposes). Using the ULS (at <http://www.fcc.gov/wtb/uls/>), applicants and licensees can file, modify and renew electronically, although electronic filing isn't yet mandatory for individual amateurs. Applicants may continue to use old Form 610 for six months after the new rules go into effect. The FCC will require the submission of a Taxpayer Identification Number by applicants using ULS, "consistent with the requirements of the Debt Collection Improvement Act of 1996." The FCC said its security measures will limit access to TIN data both online and to FCC staff.



All About You

Last spring we sent our annual questionnaire to all ARRL registered schoolteachers. Responses showed that 37% of your student graduates earned their Novice licenses, 63% earned the Tech, and 5,614 other students were introduced to ham radio. Questionnaires also reported that 91% of you are ARRL members, and 92% of your students use ARRL study texts. Here are your questionnaire comments.

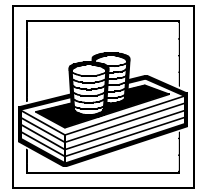


Soapbox

I have been licensed for 35 years, since age 13, and I am giving back to the students what my Elmers gave me when I was in junior high and high school. I currently have 14 students that are working to get their tickets, and I teach a weekly class during "advisement" class. The students don't think that once a week is enough, so they are always coming by after school or for a few minutes in the morning. The School Club Roundup was the key to getting these kids going.—**Mike Furrey, WA5POK, Kingwood, TX.** Problem: Motivating students to study for license exams.—**Jerry Stiles, KB1BKK, Fiskdale, MA.** Thanks for producing this newsletter! It's provided lots of good ideas.—**John Koza, N1XLQ, Beverly, MA.** A no-code Novice license is needed for elementary schools! Kids would get a call sign for Element 2 and operate 222 and 1270 MHz.—**John Abbott, K6YB, Hollywood, CA.** I use the radio to bring Spanish-speaking hams to my Advanced Placement Spanish classroom.—**Arthur N. Edwards, WA6GRT, Canyon Country, CA.** This year four students passed Tech exams!—**Steve Knight, WB7VFB, Dayton, NV.** In two years, our school produced 17 licensees with call signs, and now 16 are awaiting call signs.—**R. Ramesh, VU2RMS, Bangalore, India.** We again have an HF and packet station at school, and make contacts on an occasional basis, especially as it relates to earth science topics. We meet many people and learn about their interesting occupations—many that are related to science and technology. We use *Understanding Basic Electronics* as a supplement text in our electricity-electronics course.—**Virgil Arns, N0ANK, Waverly, IA.** Problem: Inspiring students to learn CW since there is no commercial use of it.—**Bill Clark, N0MAM, Columbia, MO.** A few students, every year, study independently with my assistance, after school.—**Robert Gregory, KD7H, Omak, WA.** Amateur Radio is offered as an elective in our enrichment program. Approximately 15 took part; 9 were licensed in 1997-1998.—**Barbara Edwards, KC4PBB, Decatur, GA.**

Amateur Radio and Grants

Sarah Cowan isn't yet a ham, but she's received a \$1,500 grant to set up an Amateur Radio station at the Pajaro Middle School in Santa Cruz. The grant, awarded by the US Department of Energy's Teacher Opportunities to Promote Science program, will be used to allow students to learn about radio waves, study for their ham licenses



and take field trips to see scientists at work. The project is tied into scientific work at the Los Alamos (NM) National Laboratory, via **Don Casperson, AA5PA**, who volunteered his technical expertise. The Santa Cruz Amateur Radio Club is also assisting. Cowan says parents will be invited to visit the station, and that the community will benefit with having more youthful ham operators to help with emergency communications—Pajaro is near a quake zone.

Older Students

Does your college club have trouble getting a lot of students to meetings? Everyone's busy, it's true. But if you do an interest survey, it could determine what club members would like to be a part of. Ask members if they enjoy being competitive, learning something new, going places or building things, etc. The survey could ask if they'd like to:

- see a demo of APRS
- build a project that would be useful in their EE classes
- have an alumni talk about his or her career, and how ham radio helped
- take part in a comparison of the ergonomics of old ham equipment versus new equipment
- set up a club-wide competition among themselves or with a sister university for highest number of QSOs made in a month or during phone Sweepstakes (VHF or HF)
- invite a high school to visit the station, and help the students operate School Club Roundup (see earlier article) or other event
- do a field trip to the local airport control tower or area technology firm.

The Voyage of the *Illa Tiki*

If you get your newsletter from us in electronic format, you've received an email note about how your students can make a ham radio schedule with sailors on a 50-foot balsa log raft. The *Illa Tiki* raft is a replica of an old sailing vessel, and its crew has been duplicating an age-old sailing voyage. Amateur Radio was onboard for the 5,000 mile sailing trip when the raft launched in October, from Ecuador. Depending on weather, sailors hoped to get to Hawaii around January—so if you're interested, check their Web page soon! Photos of the beautiful raft and the plans for the journey are on www.balsaraft.com along with how to set up a radio sked. Once at the Web site, click on "Latest News Here." Then click on "arrange to speak to them via shortwave radio." Call sign onboard the raft is KC5KHA/MM, and skeds are for 20 meters. —*Dick Hoff, AA5NT*

Kids in QST

The Kernan Elementary School Amateur Radio Club, in Utica, NY, debuted in May *QST* after receiving a grant from the ARRL Victor C. Clark Youth Incentive Program. The club now owns a Cushcraft R-7000 vertical antenna, and teacher **Don Rankins, N2ZWO**, will begin helping the kids learn the ropes of HF. Don says: "Kernan Elementary is an inner-city school... the addition of the radio club two years ago has provided opportunities for club members to improve skills in communications, map reading, computers, English language and awareness of space communications systems."

Helper JHS in Price, UT, was highlighted in July *QST*. Math Instructor **John DeSandre, KC7UVN**; **Alan Orton, KA7LEG**; **John McCurdy, K7JHM**, and members of the Sinbad Desert Amateur Radio Club conducted a licensing class for Helper JHS students. The school purchased a 2-meter/70-cm radio with a \$500 grant from the ARRL Foundation to match a MESA Funding grant, so that students could contact other schools' students.

Are you interested in the details of grants available from the ARRL Foundation? Write to Mary Robertson, N7IAL, at ARRL Headquarters, or call 860-594-0230, or email mrobertson@arrl.org.



Members of the Nichols Elementary School Ham Club, call sign K6LSR, like building straight keys for their "secret" code. Trustee is N6ZW of Lodi, CA.

Funding for Students



The Foundation for Amateur Radio (FAR) reminds seniors, nationwide, about the 67 scholarships that it administers to licensed radio amateurs who meet the qualifications and residence requirements of the various sponsors. FAR is a non-profit organization made up of 75 clubs. Request details on scholarships by writing to: FAR Scholarships, P O Box 831, Riverdale, MD 20738.

PIOs and Your School

Do you need help with getting publicity for your ham club? Contact Jennifer Gagne, N1TDY, at ARRL HQ (email at jgagne@arrl.org or telephone at 860-594-0328) to get the name of your area ARRL Public Information Officer (PIO). A PIO can write stories about your students' ham activities, and knows ways to get the stories into print. Once you're "in print," you can show the newspaper clippings to local industry when you ask them for support for your projects, whether it be financial support, or getting technicians or engineers to visit your classroom. Being in the news helps you gain exposure with the school administration, parents and the community. A PIO knows how to get radio interviews, too.

Parallel Resistance

ARRL instructor **Alan Mills, KA7GKH**, of Brigham City, Utah, submitted a lesson plan for parallel resistance that we published in the 1998 *Proceedings of the ARRL National Educational Workshop*. (For you budding writers, authors receive a complimentary copy.) Alan knows that the absolute best way to get people to understand a new concept is to introduce it using something the students already understand. He saw that students had no trouble understanding that the total resistance, when in series, is the sum of all the resistors. He also saw that students are baffled to hear that the total resistance when resistors are in parallel, is less than the value of the smallest resistor. Alan came up with a hands-on demonstration—the best kind—and all that's needed is eight drinking straws from your favorite food joint.

First, ask four students to each put a straw in their mouths and blow vigorously, but not enough to hurt themselves! Then ask a fifth student to put four straws side by side in her or his mouth, while you explain that the straws are now in parallel to each other. Have the student blow vigorously. Students will easily conclude that placing straws in parallel results in less wind than in any one straw alone. Meantime, you should help students make the connection between straws and resistors—that resistors in parallel offer less resistance to current than any one of the resistors alone. To reinforce the lesson, you could bring eight more straws, and have five more students try it.

Richard Davidson, W9RAD, of Lake Forest, IL, sent an email saying he uses an example for parallel resistance that older students can relate to. He asks students to picture driving on a highway, and going from a two-lane road to an eight-lane road. He points out to students that without increasing the number of cars, the "resistance" to the flow of traffic decreases when you have more parallel paths that cars can travel on. Richard says: "This concept makes instant sense to the students—and is an empirical way to explain why resistors in parallel decrease the total resistance of the path."

For more classroom ideas, pick up the 1998 *Proceedings* book at \$12 plus \$4 shipping and handling—or take advantage of our three-for-one offer, where you get three previous years' issues at that same \$16 price.



ARRL Training Materials

As always, here's the list you request of the current editions of ARRL training material. The edition number and printing number are listed in the first pages of each book—look for the copyright box. If the book is a new printing, it has minor updates. If the book is a new edition, it has gone through major revisions. Abbreviations are as follows: Now You're Talking! (NYT), ARRL's Tech Q & A (ATQA), General Class License Manual (GCLM), Advanced Class License Manual (ACLM), Extra Class License Manual (ECLM), FCC Rule Book (FRB), ARRL Novice/Technician Instructor's Guide (NTIG) and ARRL General Class Instructor's Guide (GIG).

- NYT 3rd edition: All printings (good through June 30, 2001)
- ATQA 2nd edition: (good through June 30, 2001)
- GCLM 3rd edition: (good through June 30, 2001)
- ACLM 4th edition: All printings
- ECLM 6th edition: All printings
- FRB 11th edition: All printings
- NTIG 3rd edition: Use with 3rd edition of NYT (good through June 30, 2001)
- GIG 4th edition: Use with 3rd edition of GCLM

Note: The VEC Question Pool Committee has suspended its revision of the Advanced Class Question Pool until the FCC releases its restructuring plans.



From Anton Ninno, N2RUD

Anton, N2RUD, teaches in Syracuse, NY, and in the last issue of *ARIC*, we told about his lesson plan on the Web for listening skills using radios. Trouble is, we gave you a bad address for viewing his lesson plan.

The correct address is: <http://ericir.syr.edu/Virtual/Lessons/Interdisciplinary/INT0093.html>. Anton also mentions this address: <http://interact.uoregon.edu/MediaLit/FA/MLRadiochildren.html> as a resource for other lessons having to do with listening to radio shows. He found this article, "Eratosthenes via Ham Radio," in the September 1975 issue of *Science Teacher*. The article tells how a geology class used Eratosthenes' method for measuring the circumference of the earth by comparing their measurements of the shadow of a vertical rod to the measurements made by another person contacted by ham radio. Anton says: "Gee (slap forehead), why didn't I think of that!"

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Amateur Radio in the Classroom is an idea exchange and information newsletter for Amateur Radio instructors. Please contribute photos, stories and instructional ideas by sending them to the Educational Activities Department in care of the address above.