# Developing Radioactive Kids

By Peter W. Kemp, KZ1Z

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

Recruiting younger operators requires a strategy for success. Students have their lives highly structured with school, play dates, religious obligations and traditional peer activities. Unless younger people are exposed to amateur radio, they may pass this opportunity by.

School and youth groups are a perfect setting for building awareness of amateur radio. *To be successful you need a plan.*

## Starting Out

In today's world of heightened security, access to schools and youth facilities, such as Boys and Girls Clubs, YMCA-YWCA locations, or latch key programs are limited. To develop a program there are levels to work through. The longest journey starts with the first step. To begin you must access the proper person to share your amateur radio club concept. Also consider Home Schoolers http://www.americanhomeschoolassociation.org/ These students are looking for opportunities for increased social interaction and co-curricular activities. Amateur radio is an ideal solution.

The best way to start a program is to know a teacher already in the system, maybe a spouse. A professional on the inside is in a better position to approach the administration for approval to go forward. An alternative approach is via a student with an interest. They take the initiative to approach teachers looking for someone willing to serve as an advisor. Many schools have club and activity periods during the school day or before and after school. Some schools may even be fortunate enough to have had an amateur radio club in the past, that is currently is inactive. You may sometimes get a hint by exploring the FCC database or other sources. Look to see if there is a club call and trustee already existing. If the internal approaches aren't successful, schedule an appointment with an administrator. Think of this meeting as a sales call, be prepared. The same process may be used with community youth organizations, by contacting the Program Director or other administrator.

In most public schools, if an adult is working with students, they must have a certified staff member present. This is one reason why having a contact on the inside is so valuable. In some school districts and youth organizations, there may be a security processing procedure to follow. Safety is a primary consideration.

Three key words will provide you with a solid base, **Public Service, Education** and **FUN**. The focus of a school or youth club should be **awareness**. The licensing aspect of the club should be provided as the interest level develops.


A smile says it all.

Once you have established a location, creativity comes into the picture. To run a successful school or youth club program, you must understand the importance of **peer acceptance** and **motivation.**

Motivation is a valuable tool. Club advisors must be welcoming and positive at all times. Make the students feel like they are important and you are glad to have them there. Peer pressure is a force to be reckoned with at this age. Always think in terms of team building. Have the students develop a team mentality. This will prove to be an important element to a program's success.

**Recruitment** - While recruiting members be sure to open the opportunities up to all individuals. Don't seek just the talented and gifted students or science wizards. Go out of your way to encourage diversity. This aspect will prove to be especially important in the long run. Students with special needs, such as speech, vision or auditory challenges will find this to be an excellent opportunity to build relationships with others that they may not have during the school day or in routine social situations. To meet any special needs, consult Handi-Hams http://www.handiham.org/ Encourage family members to participate.

Having students with challenges offers many benefits. For example, a student with a speech impediment or hearing loss may prefer data or CW modes. Students with other needs will gravitate toward that aspect of the hobby they feel most comfortable. The social interaction developed places everyone on a more equal footing.

**Follow the Money** - Students understand money. They want it! While children are developing their interpersonal relationships, interaction with their parents is stage one. Children easily understand that parents have the money. Successfully developing parental involved in the activity, a student will have a better chance of acquiring equipment, or be allowed to put up an antenna.

**What types of activities will encourage students to participate and remain active?**

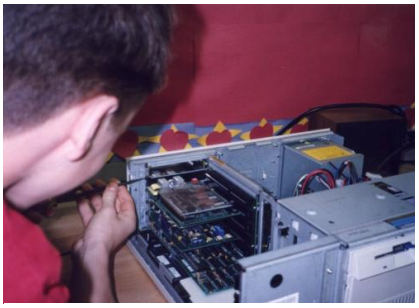
Planning activities to develop a student's interest takes creativity. The advisor must take advantage of whatever resources there are available in the community, such as locations, materials and the assistance of fellow adults. The following suggestions will help to get you started.

**APRS/GPS** – APRS, http://www.aprs.net/ offers a variety of opportunities for students to apply ham radio theory. Areas such as transceivers, FM, digi- repeaters, message handling, data processing, computers, globe and map skills and more may be addressed. Ask the students where they are right now. Using APRS prove it. Interactivity is the key to all presentations. Have a team of student determine the height of a hill, for a potential antenna location, or have them locate their home on an APRS map to see if there is any activity nearby.

**Antenna Parties** - Often, when a student is licensed, they need assistance with putting up an antenna. Provide opportunities for students to team up to assist after school or on a weekend. It may help to have a dipole antenna sheet with a parts list and diagram, as a reference. Frequently snacks and soda is provided as a thank you.

**Club ID cards** – Club ID cards give the students a sense of belonging. You may work out some additional benefits of membership, such as a discount at a local electronics store, or free admission to an area ham flea market.

**Computer Applications** – Computer applications are many and varied, networking, digital modes, VoIP, D-Star, satellite tracking, create a simple club webpage, http://people.mags.net/boem/bears.htm. Younger people are very well aware of web pages, so let them assist in the design process. Logging, graphics software and printing QSL cards are just some a practical applications available. Basic computer repair may also garner some interest.



Take advantage of related electronics opportunities.

**Contacts via e-Mail** - The new technology requires new ways of staying in contact among students, club members and advisors. E-mail may be used for mentoring and informational purposes, such as sharing activity schedules or meeting reminders. Consider setting up a listserv. Be mindful to conceal names and make the list available to subscribers only. You may also implement additional security by moderating all posts.

Data communication sis familiar to students, take advantage of the link, but do it with RF.

**Contesting** - Contests heighten participation. One team always wishes to best another in a friendly manner. Contests may be internal, how many call areas can you work in an hour? Who made the farthest contact? Contests may be external, such as the School Club Round-up, Kid's Day and The Jamboree-On-The-Air, JOTA.

**Field Day** - Field Day, is a major amateur radio activity. In many parts of the country this event takes place after the end of the school year. Due to the full time nature of this weekend event, extra planning is essential to ensure compliance with school or organizational policies, as well as legal responsibilities. It is essential to have as many adults as possible present. A

bonus would be to have an adult with medical training, possibly a nurse or EMT present in the event of an emergency. Depending on your group's site, you may wish to advise the local law enforcement agency of your presence. If appropriate, request they keep a watch on the area during their routine travels. In conjunction with Field Day, schedule an ongoing picnic, inviting family and friends to attend. This may be a bring-your-own food event, with your group providing the location. Food and amateur radio have a long tradition together. This auxiliary event allows parents and others to see for themselves the activity in which their child is participating. Remember, it is the youth that does the work and the operating, with adults supervising and filling in as needed.

Kid's Day, JOTA and the School Club Round-up are but a few youth oriented on-air activities.

Many students have commented favorably as to how much they enjoyed being in charge, instead of being perceived of as radio slaves at a primarily adult operation. Having the students plan this event, helps to develop their organizational skills, as well as building anticipation.

**Fox Hunts** - Students love to be outside of the confines of a classroom... Many students participate in scouting activities or involved with computer games. Fox Hunts, http://www.ardf-r2.org/en/ are not just a technical achievement, they are interactive. Constructing a simple fox hunting antenna should also be considered. Fox Hunts are walking events, as students don't usually drive. As a bonus, the students will receive needed physical activity without knowing it. Prepare maps of the area, along with rules and informational material. Have defined physical limits where the students may go. Always use teams of students. Depending on the scale of this event, have another transceiver monitoring a pre-arranged simplex frequency, so in the event of a problem, an immediate response may be available. Give certificates to all participants and to the top place finishers.

Understanding your place in the world through direction finding.

**Licensing** - Students should be offered the opportunity to participate in license classes. Recent changes in the FCC Rules will allow more students to get on the air more quickly. Changes to the Volunteer Examination program will allow for testing when the students are ready, instead of cramming for a local session. Consider creating a club Volunteer Examiner Team. Information on organizing and teaching classes, with specific suggestions, is available in the ARRL's Instructor's Manual.

One very important aspect of licensing classes is to ensure success. Let it be completely understood that you are there to help them earn their licenses. You will be there to help for as a long as it takes to be successful. If the students understand you are willing to

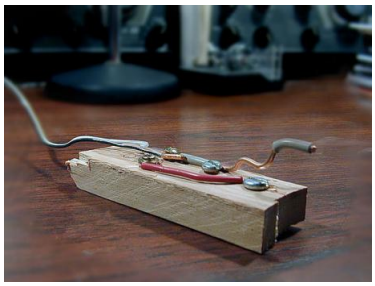
expend the extra energy to assist them, they will become more motivated to master the material required.

**Make noise** - If possible, when making any presentation use as many senses as you can, as students have different learning styles.. Make noise, use flashing lights or anything you can do to attract attention. The one thing a student dislikes is to be left out of anything. If there is something going on, they want to be a part of it. This is especially true if their peers demonstrate an interest.

In one school a RTTY machine set-up in the corner of the classroom. This unit would sit quietly in the corner for days. One day, with the auto start on, the unit came to life, lights flashing, bells dinging and the type head clicking away. Immediately the students ran to the machine to see what the message was, guessing the words as they started to appear. To students this is a game, unaware of the co-curricular implications. You could use a computer, with a somewhat lesser dramatic effect.

**Morse Code** – Morse Code is still a viable transmission mode. Although no longer tested for, awareness is important. Don't teach a code course initially. Offer Morse code instruction for those interested at another time. The primary focus of this activity is awareness. Give the students a code sheet, with blanks so they can spell out their name, or their favorite pet or anything relevant to them. Give them the opportunity to send code with a key and Code Practice Oscillator. Don't be concerned with their form; they will adapt immediately by watching you. Explain how code may be used in different ways. Using a flash light have them send a secret message. The secretive aspect will get the participants revved up. On one occasion some students were sending Morse Code to each other via their touch tone telephones. This was done to prevent their parents from knowing what they were saying. Similar to process followed when parents spelled out a word at the dinner table when you were a child. Again, remember students are exploring amateur radio, focus on interactivity to build an interest. A code key is just a switch. How can you make a key from random parts in a box?

Give students the chance to send code, as often as possible.


Be creative. Try making a code key as a MacGuyver-type experience.

**On-the-Air demonstrations**- Not all facilities will have the luxury of a club station. Often you will have to set up a temporary station for use during specific sessions. A few tricks to help out. Ascertain the possibility of having a simple antenna permanently installed at your site. This way all you have to do is show up with a rig and power supply. As a side benefit, often schools and community centers are used for sheltering.

The dual purpose of a pre-erected antenna may be useful in support of your request. An alternative may be to use an antenna on your mobile, running a lead-in wire through a window. Depending on the size of the group, you may be able to arrange a field trip to a local amateur radio club's station or to a ham shack. An advisor could also simulate an amateur radio QSO using an FRS radio, with students practicing their procedures.

The secret to a good on-air contact is simple … prepare the students. Have them write out their names in phonetics or a question they would like to ask. Some students get silly, others will get mic fright, just be prepared to pass the mic quickly to save time. Explain to the students that there are a wide variety of people on the air, not just old people. This is partially a student's perception, as during the day that is home? Retired people or shift workers are on the air, for the most part. Amateur radio also has more male ops than YLs, a condition that is changing. Remind the students of appropriate topics and personal security issues. As an experiment, have a male student call CQ, then another. Then place a YL on the mic to call CQ . Are the odds of a response better? They will be dramatically improved. A young lady's voice will draw other operators out of woodwork, as their voice characteristics are not as common. We call this the amateur radio's version of a bait and switch. Always complete the QSO having all the students sign a QSL card or a QSL letter. They will look forward to receiving a response. This will reinforce the presentation.

YL students are very effective calling CQ.

**Peer teaching** - Students love to share. If they master a skill, they want to share it. After a program has been running for a while you may wish to use "graduates" to assist other students. As the program gains longevity, a wider age range of students will develop. On one occasion a "graduate" student taught a complete Morse Code class to the other students.

Communities are made up of many people with diverse backgrounds. Some students have English as a second language. On the radio there are often opportunities to converse in a foreign language. Students respect others who demonstrate mastery in any area. Have a student conduct part of a QSO in a foreign language. This will expand the world of all students.

**Public Service** – Public Service is an important component of amateur radio, developing good citizenship. There are many local events when youngsters may be used for assistance. For example, if a shelter needs communicators, the club could provide a licensed student with an HT, with proper supervision. There is nothing preventing unlicensed people from using FRS radios to conduct similar communications. As the pool of trained students increases, maintain a contact with the local ARES leadership or Emergency Management Center.

**Satellites** – Students are well aware of cable TV and direct satellite services. Included in this topic should be the International Space Station. http://spaceflight.nasa.gov/station/reference/radio/ Connect with the ISS via packet, or by voice, when available are thrilling for students. Also consider using a simple dual band handheld unit and a proper antenna for making a contact through amateur radio satellites http://www.amsat.org .

Satellite tracking is a perfect activity for developing short and long term goals.

**SSTV – ATV**. - Students can be natural hams, in the artistic sense of the word. Put them on camera and guaranteed they want to see themselves in a monitor. Place a camera in another location and send back a picture. Stress the fact that this process is wireless and NOT via the Internet. Artistic students may wish to create visuals or take pictures with a digital camera

**Personal Safety Is Important**

Youthful hams are at risk, as their communicative skills and thought processes are not fully developed. VHF/UHF operations are of particular concern due to the proximity of other individuals. Younger hams want to be accepted by the amateur community. This is part of our culture and should be encouraged. Sadly, there are those in the world who would use such a relationship in an improper manner.

When preparing a youngster amateur for the airwaves discuss personal safety issues with them. This may also be applied to Internet safety. Some areas of concern include:

When asked where you are located, just give a town name or an area of the community. "I live in the west side of town." Do not give your specific address. No one needs to know that information.

You need not enter a person's vehicle to view their mobile set-up or look for a puppy.

Questions such as "are you operating by yourself?" or "are you home alone?" are red flags.

Younger hams should keep a log. While not required by the regulations, this will provide a journal from which patterns may be established. As a side benefit a log provides children with reinforcement of organizational skills needed for school and in life.

"It sounds like you could use some assistance with your antenna. I'll drive over and help." Amateurs are well known for their ELMER spirit, Always use common sense when dealing with underage operators. As a rule, ALWAYS deal with a parent directly, ahead of time. Request that a parent be present.

Adults in the world have a responsibility to our youth, and others, to guard against potential situations that could cause harm. One's personal safety is a primary concern at any age.

Adult amateurs must go the extra mile dealing with youngsters to make sure that there can be no hint of impropriety. There are legal liabilities when under aged individuals are participating in club activities. The problem potential goes up when a child is unaccompanied by a parent. Who is responsible for an under age operator at a Field Day or Public Service Event? Should a kindly amateur offer a young hobbyist a ride to a club meeting or activity? How can this be done without undo concern?

Now that the date of birth field no longer available via the F.C.C.'s database, one's personal information is a little better protected. Despite this change, it may be a good practice for amateur radio clubs to allow younger or YL operators the option on using their post office box, as a mail drop for QSLing and for F.C.C. contact purposes..

This issue is a serious one, not to be treated lightly. These concerns should not deter anyone from taking on the challenges of developing more on-air activity and training for young hams. After the process is clearly understood, this will be a rewarding experience for all.

## Odds 'n Ends

There are a number of additional factors to consider pulling the program elements together. Remember it takes a plan to succeed. *He who fails to prepare, prepares to fail.* A youth club advisor wants to create an environment for success.

**Alumni students -** Once the program has been up and running, students will be coming through the program continually. Encourage alumni students to return as advisors for the younger hams. Many alumni students may participate in a variety of ways. They may be used to form a club Volunteer Examination team http://www.arrl.org/arrlvec/ Some alumni may be employed in local business that may support your activities in some manner. Past students often assist with instruction, providing ELMER assistance.

Proper adult supervision is essential.

**Elmers -** Trying to be a one man band is most taxing. ELMERS (advisors) are important to the overall success of the program. They provide additional resources and may provide targeted assistance to students. Develop a list of ELMERS, be aware of their availability and location. Use radio amateurs you know personally, so can vouch for their competency and character. In time others may express an interest, check them out as best as you can.

**Encourage family members to participate.** – Always promote participation by family members. Sometimes a student has to watch a younger sibling after school, invite them both. Often parents may have an interest. Multiple family members all receiving licenses is not uncommon, we call them Hamilies. The major benefit of a Hamily is having a better chance of establishing a home station. In addition, participation in other club events is improved.

Family learning offers bonding time as well as an exploratory experience.

**Equipment / Loan Program** - Students often have difficulty obtaining equipment, thus a long term loan program was developed.. After the program has been active a while, the local adults radio clubs will become aware of your activities. Donations will sometimes be made. Initially all donations should be recognized with letters of appreciation on letterhead. Amateur radio operators are funny in some ways. They will stand and argue the price of a piece of equipment at the flea market, and then turn around and sell the equipment for a $1 to a new ham. Generosity must be properly acknowledged. The equipment is logged in and either used in the station or put on hold for future use. While the equipment is being held, if it could be used by a member, then a long term loan is made. The only requirement is that the equipment must be used and never be sold. When the member has completed the use of the equipment, it must be returned or given to another young radio student under the same conditions. This way the equipment becomes a gift that will keep on giving. Donated equipment may be bartered for equipment to be used in the club station. Under no circumstances should donated equipment ever be sold for a profit or personal gain.

Sometimes area hams will contact a youth club with an estate or personal equipment to sell. The club should not become involved with any transaction. You may make members aware of the equipment's availability but do not become directly involved. Students under the age of 18 may not enter into a transaction legally, in most states. Have a parent take charge of the transaction. A parent or student may ask you for your input. Offer general suggestions, but never say it's a good deal, or words to that effect. To do otherwise places you in moral limbo. If the equipment fails to meet its expectations you will feel obligated to become involved. This could diminish your status in the community. Hams know hams by their reputation at flea markets and other events. If a seller is known to not be on the up and up, then be sure to make those who wish to make a transaction aware.

**Field Trips** - Field trips may be a welcomed change in routine. Field trips provide the students with opportunities they may not otherwise experience. Consider trips to a local broadcast station, the police/fire/dispatch center, a trip to a commercial satellite or cable facility, a weather station or other places where communications are important. Consider having the local police department demonstrate a radar system. When organizing field trips, the students are responsible to provide their own transportation. The advisor may set-up the time and place, but need not assume the liability for transportation. Encourage

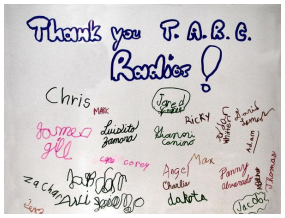
students to car pool. The ultimate field trip for one of our alumni students was to join the Peace Corps and operate for Kiribati with club donated equipment.

Alumni students travel the world. Here is Eric Griffin T30ES (N1JSY) during his time with the Peace Corps on Kiribati.

**Food** - "An Army travels on its stomach", the same is true for students. Parents know this fact by viewing their weekly grocery bills. Food provides the basis for a friendly informal atmosphere. While food is not an activity in itself, it may be a proper addition to other club activities, such as Field Days, JOTA, after a fox hunt or to celebrate the passing of their license examinations. This activity may consist of something simple such a chips and soda up to a pizza party or a full blown picnic/BBQ. An advisor need not foot the bill; students will contribute, as well as donations from parents.

Students, all hams, enjoy food.

**Letters** - It never hurts to say thank you. When others assist, ALWAYS send a letter of appreciation. School and youth clubs usually run on a zero budget. It costs nothing to show your appreciation. This simple act will go a long way in the future when support is needed. Be sure to thank the administrators for allowing access, thank the VE's for generously donated their time and thank any adults who assisted with your activities.




Being polite never hurts. This also reinforces positive social skills.

**Mentoring** - If you are mentoring a student, always meet in a public place, such as the community library. Never invite an individual student to your home or any isolated location. If a field trip to your shack is appropriate for Kid's Day, Jamboree on the Air, or other activity, always make sure that another adult is present.

**Public Relations** - Take pictures; send out releases to the local media. Invite the local media to attend an activity, such as Field Day. If students receive their licenses, put their names in a press release. The more names the better. Always be sure to give credit to all people and groups that assisted. Share the wealth. Be aware of any applicable local policies concerning these releases.

**Affiliation** - Becoming affiliated with the ARRL, as a youth club, offers many benefits. This will provide some legitimacy to the club when dealing with others. In addition, this process will open up a conduit for recruitment, educational programs and materials.

If your group is just starting, and will be long term program, consider a name for your group that will reflect your activities. Most clubs end in ARA, ARS or ARC. From these suffixes many names may be selected, such as BEARS or GEARS. You may also consider the initial's sound when pronounced, like BARC or CARA. Let the students select the final name, with supervision, so they have ownership of the group. This assists

as an introductory team building activity.  Stress that they are selecting name that will go on forever. Their input is important and valued.  This makes them special.

## The Challenge

Developing amateur radio operators for the future is a most rewarding experience. This personal challenge is well worth the effort to pursue.  Dealing with schools and youth groups takes energy.  Guaranteed, once the radio club ball is rolling, you will have to run to keep up with it.  Just like a business plan, the process takes time to grow.  Don't become discouraged. The initial goal is awareness, developing a positive attitude toward amateur radio.  To be successful remember the key elements of Public Service, Education and Fun.  Place the emphasis is on fun.  The other two elements will concurrently work their way into the program, with potential licensing in the future.

Good Luck.

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| Adv<br><br>Proper adult supervision is essential. |  |
| BVFD<br><br>Public service is an important aspect of amateur radio. |  |
| Comp<br><br>Take advantage of related electronics opportunities. |  |
| Fam<br><br>Family learning offers many bonding time as well as a exploratory experience. |  |

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| Fox<br><br>Understanding your place in the world through direction finding. |  |
| Fun<br><br>A smile says it all. |  |
| Instr<br><br>Give students the chance to send code, as often as possible. |  |

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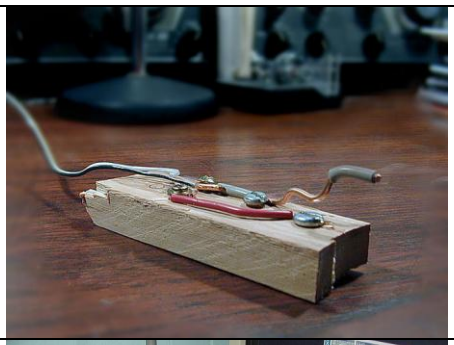
| Key<br><br>Be creative. Try making a code key as a MacGuyver-type experience. |  | |
| Key2<br><br>Don't worry about form, concentrate on the interactive nature of the process. |  | |
| Kidsday<br><br>Kid's Day, JOTA and the School Club Round-up are but a few youth oriented on-air activities. |  | |
| Log<br><br>Students welcome the opportunity to be creative with a computer. Have them develop a logging program. |  | |
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