Radio Amateurs of Canada
Youth Education Program

NEWSLETTER #14

September 8, 2005

Welcome back to the new school year!

I have been calling the project schools to 'touch base' with them and from their input, write an opening NewsLetter for the 2005-2006 school year. In the middle of this undertaking, I received a detailed report from Neil Carleton (VE3NCE) about his activities from last school year. Neil's report is excellent, providing a look at what can be done using radio and boundless enthusiasm in the classroom. I think that it will be very valuable to all and I have made it the sole content of this NewsLetter. Thank you, Neil.
I will still be calling everyone and will put together a subsequent NewsLetter outlining what everyone in the program is doing.

Radio In The Classroom

2004 - 2005 Report
R. Tait McKenzie Public School, Almonte, Ontario

Neil Carleton
September 7, 2005

CONTENTS

INTRODUCTION

The new school year started yesterday and my grade 6 classroom is full of lively students. If you could visit today after classes, you'd see donated microscopes and telescopes, posters of space and pond life on the wall, along with minerals, fossils, and other nature treasures for students to investigate. Here in room 22, you'd also discover shortwave listening receivers and amateur radio stations.

Radio has always been an important part of my teaching program since my first classroom assignment in the fall of 1993. Each year, I use shortwave listening and amateur radio as great ways to reach out and bring the world into my classroom. With the twist of a dial or the push of a button, my students have traveled by shortwave listening across time zones and continents to hear the voices and music of the world. They've also spoken by amateur radio with contacts close to home, across the country, around the world, and out in space.

Last year, I was a participating teacher in two national programs where amateur radio at school made it possible each week for unique learning opportunities.

Radio Amateurs of Canada (RAC) Youth Education Program (YEP): The purpose of the national YEP is to encourage amateur radio as an innovative way of learning in schools across Canada, and a good way to make connections across the curriculum. Information about the YEP and participating schools, as well as newsletters with classroom activities, is available at <http://www.rac.ca/YEP/index.htm>. At this web site, you can also read about the support of Canadian astronaut Dr. Robert Thirsk for the national YEP.

The Green Group ECO-PALS Program: ECO-PALS is a national pen-pal program with an environmental theme. Up to 500 classes are matched each September across the country. Each class exchanges information through the mail three times a year with their assigned pals about their local community and environmental issues. Participating classes receive letters, audio or video tapes, artwork, and much more from their pals. Program details and registration information are available on line at <http://green-group.com/ecopalsprogram.cfm>.

SHORTWAVE LISTENING AND AMATEUR RADIO CLUB

In the fall of 1993, in my first year of teaching, I set up a shortwave listening center with donated equipment as part of my grade 5 language program. At the official opening, we received special greetings on shortwave all the way from Radio New Zealand International on the other side of the world. It was a great event to launch the use of radio in my classroom. In my second year of teaching, I started a Shortwave Listening Club. I've had an after school radio club every year since then.

In the spring of 2001, to support my school's application for a special radio contact with the International Space Station, I studied for and obtained my basic amateur radio qualifications. With the addition of a VHF (very high frequency) ham station in my classroom, it soon became the Shortwave Listening and Amateur Radio Club. A UHF (ultra high frequency) station was added not long after and, just the other year, I passed the morse code requirements for HF (high frequency) privileges. Through the generous financial support of the RAC YEP, I now have an HF transceiver in my classroom. Last year seemed to roar by before I knew it, so one of my goals for the upcoming school year is to build and install an HF antenna at school.

This past year, 19 students from grades 4 to 6 signed up to join the 2004-2005 Club. With such a large group, we met after school in room 22 each week from 3:45 to about 4:45 p.m. as a Monday and a separate Tuesday group.

PERMISSION AND CONSENT FORMS

Each year I have the Club members hand in a completed permission form, signed by a parent or guardian, before they can attend any of the weekly Club meetings. The simple information sheet and permission form explains when and where the Club is meeting, who is taking part, and what in general terms the students will be doing at Club time. A parent or guardian signs at the bottom of the page giving permission for the student to join and participate in the activities of the Club.

I also send home a media consent form from our school board. It explains that we, at the Upper Canada District School Board, are proud of our students and their achievements. We like to recognize their success in a variety of ways. This may include photos, displays of their work, special awards, web site stories, media interviews and photos, and so on. In order to do this, we require the consent of a parent or guardian. This consent is required to comply with the provisions of the Ontario Municipal Freedom of Information and Protection of Privacy Act .

Over the years, Club members and their activities have been featured in local papers, provincial magazines, and international publications. They've also been featured on radio programs that were broadcast locally, across the country, and around the world. Parents, principals, school board staff and trustees have always been supporters of the Club and the media coverage the students and I have received.

WEEKLY MEETINGS

This past year only girls joined the Club. The year before there were several boys, and the year before that it was mostly boys. Three years ago or so it was all boys. Many students come back for a second or third year. Although it's not unusual to have grade 7 students in the Club, few students in grade 8 join.

The Club has always attracted a wide cross section of students. This ranges each year from the popular students, often with the highest marks, to more socially challenged students, sometimes with lower academic success. Radio, somehow, is a great equalizer. At Club time everyone gets along, shares, takes turns, joins in, helps out, participates, uses good manners, and is really enthused about shortwave listening and amateur radio.

The weekly meetings of the Club are always lively sessions. There's a lot of talking, laughing and good natured fun. The only time it's really quiet at Club time is when the students take turns at the VHF or UHF microphone.

Although some of the students have to leave early for baby sitting or other home commitments, most of them stay as long as they possibly can each week. The Club meetings sometimes run late until I realize the time and send everyone home. Anyone at school knows by the bubbling chatter going down the hall that the radio club meeting is over. Parents who come to pick up their children are always invited to come in and see what we're doing. Sometimes, but not often, I can convince one of them to pick up the microphone too at the VHF or UHF amateur radio station.

During the year at Club time, the students learn and practice a wide range of skills, including:

- operating an amateur radio transceiver and a shortwave receiver;
- reading frequency and time schedules for international broadcasting stations;
- determining world time and calculating local time in different time zones;
- using correct protocol when speaking on-air;
- finding radio related information in a variety of reference publications;
- following directions to create an electronic circuit.

Some of the favourite activities of the Club members this year were:

VE3JW, Canada Science and Technology Museum: This was a Saturday visit with Club members and their families to amateur radio station VE3JW at the Canada Museum of Science and Technology, in Ottawa. VE3JW is operated by volunteers of the Ottawa Valley Mobile Radio Club. Maurice Andre Vigneault, VE3VIG, our host for the afternoon, soon had Club members and their families speaking with contacts across the continent through several orbiting amateur radio satellites. They also had a chance to use PSK31, a unique mode of amateur radio communications from computer to computer, to communicate with radio amateurs in England and Italy too. Wow! Information about the OVMRC and VE3JW is available on line at <http://www.ovmrc.on.ca>.

Radio Amateur Survey: Each week the students took turns interviewing radio amateurs on air close to home and across the country. Using a form I created with five prepared questions and spaces for answers, they took turns asking a question while everyone recorded the replies. They thought it was a lot of fun to be the interviewer on-air instead of answering questions from contacts like they usually do. Everyone they interviewed, from Victoria to Halifax, was very happy to answer their questions.

1. How long have you been an amateur radio operator?
2. What was the hardest part of studying for your amateur radio licence?
3. How long do you usually talk on the radio each day?
4. What is the farthest place you've talked to by amateur radio?
5. What advice would you give a student about studying for an amateur radio licence?

Electronic Circuits: While one group would be conducting an on-air interview with a radio amateur in another province, the second group might be working hard at building an electronic circuit with a commercial kit. The two donated, solderless kits were a big hit last year. The most popular circuits with the Club members, of course, were designed to create sound effects. After a working circuit was created and tested in room 22, I sent the students to the office to show our Principal and Office Administrator.

Postage Stamps and QSL Cards: As well as traveling the world by shortwave listening and amateur radio, the students had a chance to travel the world at Club time this year with donated postage stamps and amateur radio QSL cards from many countries. Through kindly donations, I now have a small collection of used stamps and unwanted QSL cards to share with the Club members. I gave each student a zip lock bag of stamps on paper to sort through with the challenge of figuring out what countries the stamps are from. At other times, I gave each student a stack of QSL cards with the same challenge. With a stamp catalogue, or a callsign map, along with a world atlas and globe, they soon matched stamps and QSL cards with countries around the globe. Along the way they had a wonderful adventure with world geography and languages.

International Broadcasting Stations: Over the school year, with donated receivers, we were able to hear many different international broadcasting stations on shortwave. These included stations on at least four continents, such as Radio Netherlands, Radio Japan, Voice of Nigeria and the Voice of America. The students were

excited to hear new languages from distant lands, and music they'd never heard before on their favourite FM stations. They also tuned to news reports in English from stations in other countries to compare the headlines there with the top news stories here.

TAKE HOME A RADIO

This year the Club members could sign out and take home overnight, or over a weekend, one of 6 shortwave listening kits. Each kit was a small plastic bin with lid that contained a portable shortwave receiver, operating instructions, and a variety of shortwave listening and amateur radio publications. These included Passport To World Band Radio and the Archie comic book with an amateur radio adventure. Each kit had a different donated receiver so, over the school year, the students could take home and share with their parents a variety of digital and analog models: Emerson PSW-4010, Grundig Traveller III, Realistic DX-375, Sangean MS 103, Sony ICF-SW33, Sony ICF-7600A.

ECO-PALS PROGRAM

Last year, Brian Jackson, VE6JBJ, and his grade 6 class at Chestermere Lake Middle School, Chestermere, Alberta, teamed up as partners with my grade 6 class for the national ECO-PALS Program. This unique pen-pal program with an environmental theme is available to grade K-9 classes across Canada. Up to 500 classes are matched each September across the country. All participating classes exchange information through the mail with their assigned pals about their local community and environmental issues. Each class communicates with a matched class somewhere in Canada at least three times during the school year, with specific assignments and deadlines on environmental themes. Participating classes receive letters, audio or video tapes, artwork, creative writing, and much more from their pals. Further details about Eco-Pals are available on The Green Group's web site, at <http://green-group.com/ecopalsprogram.cfm>.

As participating teachers in the RAC YEP, Brian and I used amateur radio at school to extend our involvement in the ECO-PALS Program. As well as exchanging information through the mail last year, the grade 6 students in our classes talked to each other every week by amateur radio on a range of topics, including environmental issues in our communities.

IRLP LAUNCH

We launched our participation in this national program with a class-to-class amateur radio contact through the Internet Radio Linking Project (IRLP). The IRLP is a unique Canadian invention. It uses a worldwide network of dedicated servers and nodes, with Voice-Over-IP (VoIP) custom software and hardware, to link local amateur radio repeaters through the internet. Details about the IRLP, including an updated list of operating nodes around the world, are available at <http://www.irlp.net/>.

During our launch event on October 20, the student voices in Almonte were transmitted as local amateur radio signals across the Mississippi Valley to the UHF amateur radio repeater and internet node of the Almonte Radio Repeater League. At the Almonte club's IRLP node, the amateur radio signals of the students were changed to internet signals and specially directed to Calgary, Alberta. At the Calgary IRLP node, the internet signals from Almonte were changed to VHF amateur radio transmissions. In Chestermere, east of Calgary, the students and staff in room 1009 received our voices loud and clear through the wonders of amateur radio.

Our special school-to-school IRLP contact on October 20 was a great success to launch the participation of both schools in the ECO-PALS Program. It was also featured in our local newspaper with a story and photo. Once we had established radio contact, Brian and I turned the microphones over to our Principals. Speaking from Almonte, in eastern Ontario, was Joanne Clayton, Principal at R. Tait McKenzie Public School. In Chestermere, Alberta, Kim McKenzie, Principal, Chestermere Lake Middle School, was at the microphone.

This special IRLP contact between schools in Almonte and Chestermere was a first in Canada. It was a first for school Principals to exchange greetings across the country by amateur radio from classrooms in their schools. It was also the first time that two participating schools in the national ECO-PALS Program have used amateur radio to launch their partnership.

CLASS-TO-CLASS

After the Principals exchanged greetings from their schools, two students from each grade spoke about the large Class-To-Class parcel that had arrived in the mail a few days before from the other school. Students at both schools worked in September and early October on the Class-To-Class assignment as their first ECO-PALS exchange project.

I created the Class-To-Class project so students at each school could introduce their pals, two time zones away, to their class, school and community. The students in each school worked on the same 28 topics to send in the mail.

1. introductory letter
2. class picture
3. classroom sounds
4. school picture
5. weather forecast
6. local map
7. non edible vegetation
8. tree, leaves and bark
9. local food product
10. local manufactured product
11. typical clothing - girl
12. typical clothing - boy
13. telephone book page
14. local rock or mineral
15. local sand sample
16. typical home
17. typical lunch
18. local recipe
19. local bird
20. local animal
21. historical landmark
22. famous person
23. local newspaper
24. favourite radio station
25. favourite TV program
26. sports and recreation
27. books and movies
28. provincial map

Following the excitement of the special IRLP contact, the students and teachers devoted a good portion of their morning schedule that day to opening the exchange parcel and studying the treasures within. Inside were maps, photos, artwork and other creative projects the students made and assembled to showcase their class, school and community. The study of the parcel projects continued over the next weeks as the students learned about the similarities and differences of another community and grade 6 class in Canada. At both schools, large bulletin board displays were created to showcase the creative work in class or in the hallway.

INTRODUCTIONS

Once Brian and I had a chance to compare our class timetables, nutrition breaks, and yard duties, we set up a schedule during the week for additional school-to-school amateur radio contacts. We also had to take into

account the two hour difference between the Eastern and Mountain time zones. Over the school year, the students in our classes talked to their pals by amateur radio several times most weeks. The first series of contacts were introductions, of course, so all the students could talk to their pals and get to know them a little better.

Each student also exchanged an introductory letter with his or her pal through the mail as part of the writing program for our two classes. This was followed by other letters through the mail with more news or details about class activities, school events, etc. It was an exciting day when a package of letters arrived from the other school. Before long, we really felt a close connection with our pals in another part of Canada.

ENVIRONMENTAL ISSUES

The second phase of the program gave each class an opportunity to study, and tell their pals about, local environmental concerns or issues. Here in Almonte, the Chair of the local municipal Environmental Advisory Committee came to class and talked with the students about the major issues in our community. This led to a class study of how environmental problems could be solved at a community level by local governments and citizens.

To summarize the major environmental concerns in our community, along with some possible solutions, each student in room 22 created a large, illustrated poster. This assignment included lessons on principles of design, use of colour, techniques of illustration, etc. All the posters were displayed in the school hallway so each junior and intermediate class could see them. Later, at the invitation of the Environmental Advisory Committee, all the posters were displayed at our municipal hall for meetings of the Town Council. Then, for Earth Week, the posters were put on display in the windows of downtown stores and community services. When they finally came back to school, we mailed the posters to our pals in Alberta.

In the meantime, the students in each class exchanged letters about environmental concerns and solutions in their communities. They also talked by amateur radio with their pals about what they had studied and learned.

ECOLOGICAL FOOTPRINT

The final component of the program looked at the ecological footprint we each create. The basic idea is that our personal lifestyles have an impact on the global environment. In social studies we examined target marketing and the different ways that products are promoted. Using the methods of promotion they studied in class, each student designed and created an advertisement for a product that was aimed at a grade 6 student. In our weekly amateur radio contacts with our pals in Alberta, the students talked about the different projects that were underway in each class.

WEEKLY SURVEYS

In the meantime, each class would take turns every week asking a survey question. Both classes would conduct the survey, then compile and graph the results. Sometimes the survey was conducted just in class, and other times it involved many other classes up and the down the hallway. At the end of the week, the classes would share and compare their results by amateur radio.

ACROSS THE CURRICULUM

This environmental connection between schools two time zones away was a good working example of how amateur radio in the classroom can be an innovative way of learning, and a great way to make connections across the curriculum. During the year, through our participation in the ECO-PALS program, the student activities included reading, writing and oral communications in language; science; social studies; number sense and numeration, and data management in mathematics; visual arts; and media communications.

I highly recommend the ECO-PALS Program to teachers across Canada.

GRADE 6 SPACE STUDIES

As a grade 6 teacher, I know that amateur radio is a great way to reach out and bring the world, and space, into my classroom. Each year I use radio at school with my class, and as an after school club, to make connections across the curriculum. Last December, I used amateur radio to launch our grade 6 science studies of space.

On December 9, as part of a national pilot project, my grade 6 class and I were invited to monitor the amateur radio contact between the International Space Station (ISS) and students at a school in Ottawa. This exciting project was part of the Amateur Radio on the International Space Station (ARISS) program. Information, about how students at schools in Canada can talk with an astronaut on the ISS, is available at <http://www.rac.ca/ariss>.

Just after recess in the afternoon, we connected by VHF amateur radio to the IRLP and listened to the live ARISS contact through the IRLP reflector in Saskatoon, Saskatchewan. Students and teachers at four other Canadian schools were monitoring too:

- New Germany High School, New Germany, Nova Scotia;
- Walter Murray Collegiate Institute, Saskatoon, Saskatchewan;
- Chestermere Lake Middle School, Chestermere, Alberta;
- Central Middle School, Victoria, British Columbia.

As we listened through a repeater in our area, my students carefully followed each question from the students in Ottawa. We all listened closely to the answers provided from space as the ISS orbited high above the Earth. In preparation for the contact, we read and talked about the ISS in class, learning as much as we could about the activities of the expedition 10 crew. We also studied a large poster of the ISS on the blackboard, figuring out what each component was used for.

Amateur radio was one of three space projects at our school that week. We had a display, complete with thank-you banners in front of the school office, of three telescopes that had been generously donated to our class by community residents. Also in the front lobby of the school that week was a large exhibit about comets from our regional conservation authority.

During the year there were other school contacts with the ISS too that could be monitored in classrooms across Canada by amateur radio through the IRLP. Although we weren't able to listen to them all, it was a special event each time we could tune in and follow the conversations between an astronaut in space and students at a schools around the globe. When I was able to find the student questions ahead of time, I prepared an activity guide for my class that included each question along with space on the pages for them to record the astronaut answers they heard. We also figured out on what continent, in what country and

community the school and the students were located. If we had the tracking software, it would have been great to figure out where in orbit the ISS was during each contact.

On November 23, 2001, before most people are even awake, our school was the second in Canada to have students speak by amateur radio with an astronaut in orbit on the ISS. Details of our successful ARISS contact, including a digital recording of the event, can be found at the web site of the Almonte Radio Repeater League, at <http://igs.net/~va3aar/>. Dr. Marc Garneau, Canada's first astronaut in space, and President of the Canadian Space Agency (CSA), invited each of the participating students at our school to write an essay about their experience. The student essays, and the transcript of our school's 2001 ARISS contact, are available at <http://www.space.gc.ca/asc/eng/youth_educators/kidspace/creations/text/iss.asp>.

The students in my class last year also sent their artwork into space. When we learned that a Russian space suit with a CD of student art was going to be deployed from the International Space Station in the fall of 2005, it didn't take long for the students in room 22 to join the project. As a class, we created a quilt design with each student contributing a square with a personal design. Our goal was to reflect the personality of each student through a group project with a distinctive Canadian perspective. Before it was mailed off, the class creation was also featured in our local paper with a photo and story.

Using amateur radio in class, to listen to a live contact with students at another school and an astronaut on the ISS, is a rich learning opportunity. It was also a springboard to other creative space projects. Many thanks to all the amateur radio volunteers who help to make such a valuable educational activity possible.

MOUNT EVEREST CONTACT

Amateur radio made it possible in April 2005 to link students at participating RAC YEP schools across the country with the Kanatek Expedition at Mount Everest base camp. Students at schools from coast to coast had their mountain climbing questions answered by Professor Sean Egan, of the University of Ottawa, as he stood outside his tent in the early morning light on Mount Everest.

Dr. Egan of Almonte was a friend with a passion and zest for life. As a kinetics researcher, he investigated fitness and aging. With boundless energy and enthusiasm, he used every opportunity with students to promote the life long benefits of fitness.

Sean agreed that speaking with schools from Mount Everest would be a great way to connect with students by amateur radio. He also thought it was important to promote wellness, fitness, setting a goal, making a plan, and working as a team - the same values teachers promote in classrooms across the country. What started as an idea for students at R. Tait McKenzie Public School developed into a national project. With the approval of Industry Canada, and the support of participating schools in the RAC YEP, a unique opportunity was created to connect students from coast to coast by amateur radio with Professor Egan on Mount Everest.

On Monday night, April 11, at 8:15 p.m. EDST, students, parents and community guests at 6 schools from coast to coast were listening by amateur radio for a signal from Mount Everest. It was 6:00 a.m. Nepal, Tuesday morning April 12. At Mount Everest base camp the sun still wasn't up yet. Here in Almonte, an audience of more than 250 people whispered and stirred in our school gym as the T.V. crew set up and the clock approached contact time. Then, before we knew it, there was Professor Egan's voice all the way from Mount Everest. Contact time!

One at a time, 10 students at R. Tait McKenzie, from kindergarten to grade 8, took turns stepping up to the microphone and asking Dr. Egan a question about his climbing adventure. Everyone listened intently to hear his answers as the mountain winds whirled through base camp. Before we let him go, I had the audience give a dramatic cheer to let him know that everyone here in his home town of Almonte was very proud of him.

After the R. Tait questions, students at each of the other participating schools took turns asking Professor Egan questions. It was so exciting to follow the conversations from the Atlantic coast to the Pacific. An audio recording of the whole cross-country contact, along with a T.V. clip of the Almonte event, is available at the web site of Almonte Radio Repeater League, at <http://igs.net/~va3aar/>.

This was a first in Canada to have students from coast to coast connected by amateur radio with an expedition on Mount Everest. Thank you so much for your help to the many volunteers and supporters across the country, and on Mount Everest!

We were all shocked to learn on April 29 that Professor Egan died on his way to Kathmandu. Sean was an inspiration to everyone he met. He died pursuing a lifelong goal and doing something he loved. Thank you Sean for sharing your zest for life.

THANK YOU RADIO AMATEURS

A big thanks goes to the many radio amateurs close to home, across the country, and around the world, who helped last year to make the use of amateur radio at school such a success with valuable advice, equipment, materials, inspiration, repeater and IRLP expertise, volunteer time at school, and on air experience for the students. Your support was appreciated very much!

PHOTO CAPTIONS

1. October 20, 2004 (Eco-Pal13): Grade 6 teacher Neil Carleton (VE3NCE), Principal Joanne Clayton, and grade 6 students Kristen and Jordan, at the amateur radio station in room 22 during the school-to-school amateur radio contact between R. Tait McKenzie Public School, in Almonte, Ontario, and Chestermere Lake Middle School, in Chestermere, Alberta, to launch the participation of the two schools in the national ECO-PALS Program.

2. October 20, 2004 (Eco-Pal11): Principal Joanne Clayton (center) at the microphone exchanging greetings by amateur radio with Principal Kim McKenzie two time zones away at Chestermere Lake Middle School, in Chestermere, Alberta.

3. November 17, 2004 (EcoPalNov17C): Grade 6 teacher Neil Carleton (VE3NCE) with grade 6 student Erin talking to grade 6 teacher Brian Jackson (VE6JBJ) and his class in Alberta.

4. March 2005 (Enviro Posters6): The environmental issues posters crated by room 22 students were on display in our municipal hall for Town Council meetings.

5. April 11, 2005 All students on stage): The kindergarten to grade 8 students at R. Tait McKenzie who spoke by amateur radio with Dr. Egan, on Mount Everest, joined teacher Neil Carleton (VE3NCE) on stage after the contact.

6. May 2005 (Spacewalk): Grade 6 students Jessie, Mackenzie, Kristen and Naomi display a poster of the International Space Station with the class art project that will be sent into orbit on a space walk this fall.

Neil Carleton

Grade 6 Classroom Teacher
Participating Teacher, Radio Amateurs of Canada Youth Education Program

Participating Teacher, The Green Group ECO-PALS Program
Supervising Teacher, Shortwave Listening and Amateur Radio Club
Coordinator, School Recycle Program
Coordinator, School Milk Program
Coordinator, Schoolyard Greening
Coordinator, Cable In The Classroom Project
Coach, Junior Boys Soccer Team
School Contact, Global Education

Radio Amateur VE3NCE
Member, Radio Amateurs of Canada Youth Education Program Committee
Treasurer, Almonte Radio Repeater League

Bj. Madsen - VE5FX
RAC MidWest Regional Director
Chairman - RAC Youth Education Program
Box 2860 - Tisdale, SK - S0E 1T0
306-873-4346
E-mail: ve5fx@rac.ca