

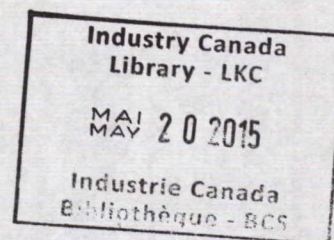
Explorations in Science Culture 1993



Industry Canada Industrie Canada

Canada

Explorations in
Science Culture
1993



Science Promotion and Academic Affairs Branch
Industry and Science Policy Sector
Industry Canada
December 1993

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This document can also be prepared upon request in alternative format
for the visually impaired.



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Introduction

Explorations in Science Culture 1993 describes and provides contacts for organizations and projects funded under the Science Culture Canada program. Science Culture Canada provides over \$2 million a year for projects that bring the excitement and potential of science and technology to Canadians, especially young people.

A committee of independent, non-government experts in science and technology promotion from across Canada reviews applications. Competitions are held twice a year, with application deadlines of April 15 and October 15.

Explorations in Science Culture 1993 includes projects such as:

- events — the *Canada-Wide Science Fair*
- magazines — *Les Débrouillards*, *OWL* and *Chickadee*
- television programs — *The Adventures of Dudley the Dragon* and *Paul et les jumeaux*
- summer camps — *Kids in Science*, *Sci-Fi*, *Math Camp* and *Med Quest*
- books — science writer and broadcaster Jay Ingram's *The Science of Everyday Life*
- educational resources — Super Science with MacGyver and the Backyard Acid Rain Kit
- exhibits — *Vetavision* and *Science at the Malls*
- educational films — *Energy: The Pulse of Life* featuring musical group Moxy Früvous.

Some of the listed projects are still in development. Others, such as exhibits, have already been completed.

For More Information

Science Culture Canada is one of many science and technology promotion activities undertaken by Industry Canada, including Canada Scholarships, Innovators in the Schools, SchoolNet, Computers for Schools, National Science and Technology Week, and the Prime Minister's Awards for Teaching Excellence in Science, Technology and Mathematics. Information on these activities and copies of *Explorations in Science Culture 1993* are available from the following address:

Science Promotion and Academic Affairs Branch
Industry and Science Policy Sector
Industry Canada
8th Floor, West Tower
235 Queen Street
OTTAWA, Ont.
K1A 0H5

Electronic Access

Explorations in Science Culture 1993 and information on other Industry Canada science promotion programs are also available electronically on the Internet computer network. Anyone with Gopher or file transfer protocol (FTP) access can obtain *Explorations* electronically.

Gopher Users

Users with Gopher access can use this method. At the prompt, enter "gopher ernest.ccs.carleton.ca 419." From the main menu, select "Resources and References," then "Explorations in Science Culture 1993."

For information on other federal science promotion programs, select "Government Program Information" from the main menu, then "Industry Canada."

The Gopher listed above can be accessed via other Gophers. By accessing the University of Michigan's Gopher, users can connect to any other Gopher, including the one listed above.

FTP Users

At the prompt, enter "FTP alfred.ccs.carleton.ca." Log on as "anonymous," using your full E-mail address as a password. Under the "Pub" directory, select the "SchoolNet" directory, then "Explorations in Science Culture 1993."

Information on other federal science promotion programs may be accessed from the same list used to select *Explorations*.

Agence de recherche et de développement de l'aérospatiale amateur

To create an interest in young people for aerospace adventure! Since 1985, that has been the mission of Agence de recherche et de développement de l'aérospatiale amateur (ARDAA). Through games, imagination and practical experiments, children learn to work together to solve problems associated with the conquest of air and space.

ARDAA offers four seasonal activities and educational programs to stimulate the interest of elementary and secondary school students. Children can experiment with space simulations through two programs: Mission spatiale simulée internationale and Mission spatiale simulée régionale. In the spring, Kermesse des airs consists of a minirocket competition and demonstrations of miniature flying aircraft. Both rockets and aircraft are built by participants in ARDAA's program. Finally, the camp *S.T.A.G.E. Aérospatial* welcomes young people between the ages of nine and 17 from across Canada, the United States and even Europe. Campers undergo simulated space flights as well as create and build their own flying models.

In 1992, ARDAA launched the Cosmodrome, a travelling space simulation centre that visits distant schools.

Contact:

Agence de recherche et de développement de l'aérospatiale amateur
535 Lefrançois Street
ROSEMÈRE, Que.
J7E 4H4
Tel.: (514) 965-9119
Fax: (514) 965-9119

Agence Science-Pressé

Scientific information for the general public should be present in all media. Agence Science-Pressé has been meeting this challenge since 1978. Through various publications, the agency keeps Canada's Francophones on top of new discoveries in science.

Each week, stories from the magazines *Hebdo-Science/Médias écrits* and *Hebdo-Science/Radio* reach the public through 160 media outlets, mainly regional weeklies, association journals and newsletters, as well as radio stations. These magazines are filled with articles on current science issues in Canada and a dozen national and international news capsules. The agency also produces *Science Express*, a bimonthly newsletter aimed at science teachers and their students.

Les Débrouillards is a lively and colourful monthly magazine that stimulates interest in science for thousands of young people between the ages seven and 14. Characters from the magazine are also featured in many of the agency's other products: a series of 15 books, activity folders, cartoon strips, newspaper columns and a television series broadcast on Radio-Canada since September 1990.

Contact:

Agence Science-Pressé
3995 Sainte-Catherine Street East
MONTREAL, Que.
H1W 2G7
Tel.: (514) 522-1304
Fax: (514) 522-1761

Association canadienne- française pour l'avancement des sciences

The Association canadienne-française pour l'avancement des sciences (ACFAS) has encouraged advances in science and diffusion of science information in Canada since 1923.

Francophone scientists founded ACFAS to pool their knowledge in the best way possible. ACFAS is widely recognized for its accomplishments, especially for the promotion of higher education, research and scientific information.

Besides distributing research documents, the association participates in colloquiums and many other activities. Congrès de l'ACFAS is well known throughout Canada and represents the greatest assembly of French-speaking scientists in the world. It provides scientists and the general public with information on the most recent scientific discoveries made by universities and research centres. In addition, multidisciplinary scientific discussions and Canadian discoveries are publicized six times each year in *Interface*, a journal written in simple, everyday language. In order to promote scientists and their role in our society and to encourage young people to follow this path, ACFAS has also developed programs for youth and the general public.

Contact:

Association canadienne-française pour l'avancement
des sciences
425 de la Gauchetière Street East
MONTREAL, Que.
H2L 2M7
Tel.: (514) 849-0045
Fax: (514) 849-5558

Association for the Promotion and Advancement of Science Education

Since 1984, the Association for the Promotion and Advancement of Science Education (APASE) has provided programs to help adults teach children about science and technology. Programs are aimed primarily at improving science education in elementary schools. APASE reaches children through teachers, parents and other community innovators.

APASE runs workshops such as *Engineering for Children* and *Inventions*. Both workshops teach problem solving and simple scientific principles related to engineering and inventing. Gender equity education, a third workshop, opens doors to young women in science. The information presented is always straightforward, relevant and easy to understand.

APASE is currently offering the *Inventions* workshop through interactive television. Using fibre optic and TV technology, workshops take place at various sites throughout British Columbia simultaneously.

The newsletter *Diverse* is a key tool for communicating with APASE's audience. It provides its readers with updates on APASE projects, as well as other interesting science activities. In discussing Canadian science and technology, the newsletter shows its relevance to daily life and portrays scientists and engineers as interesting and approachable people.

Contact:

Association for the Promotion and Advancement
of Science Education
Suite 305, 1140 Homer Street
VANCOUVER, B.C.
V6B 2X6
Tel.: (604) 687-8712
Fax: (604) 687-8715

Atlantic Provinces Council on the Sciences

The Atlantic Provinces Council on the Sciences (APICS) offers a variety of activities to stimulate interest in science. Its 10 standing committees cover a great spectrum of science topics from physics to aquaculture. Committees hold annual events such as conferences and lectures by scientists and undertake other special projects. Several scientists give one or more lectures each year in more remote areas of Atlantic Canada, discussing their research interests or other topical scientific issues.

In addition, the APICS Education Committee runs a science education conference for secondary school science teachers. This major conference, held every three to four years, updates teachers on exciting areas opening in science, presents current and future directions in science education, and promotes better communication among science teachers at all levels. The next conference is slated for St. John's, Newfoundland, in 1994. A special colloquium held in May 1991 on the problems of scientific literacy in the region has spawned another annual conference for business and journalism students as well as science students.

APICS administers the APICS/Power Utilities Science Teacher Award for outstanding science teaching at both the secondary school and university levels. On an annual basis, APICS also presents medals and certificates to over 150 students for projects receiving honourable mention at regional science fairs.

APICS has produced a directory of scientific expertise in the Atlantic region. It also reaches a wide audience with its newsletter, *Atlantic Science*.

Contact:

Atlantic Provinces Council on the Sciences
Memorial University of Newfoundland
P.O. Box 4200
ST. JOHN'S, Nfld.
A1C 5S7
Tel.: (709) 737-8918
Fax: (709) 737-4569

Canadian Centre for Creative Technology

The Canadian Centre for Creative Technology has earned widespread recognition for the Shad Valley summer program, its unique business-education partnership. The award-winning program offers secondary school students valuable insight into science and its relationship to the business world.

Top grade 11 and 12 science students and first-year CÉGEP students, selected jointly by the centre and sponsoring businesses and government agencies, spend four weeks during the summer at one of eight university campuses. This is followed by one month working for the sponsoring firm. In total, 400 students from across Canada are selected.

Students live on campus, spending seven days a week listening to lectures, participating in seminars, working in laboratories and taking field trips. They also complete an innovative science project, which is judged at an open house at the end of the on-campus session. Plans to bring the project to market are reviewed by business and science professors, as well as local entrepreneurs.

The Canadian Centre for Creative Technology administers two other programs: The National Institute, on behalf of Northern Telecom; and the Prime Minister's Awards for Teaching Excellence in Science, Technology and Mathematics, on behalf of Industry Canada. The National Institute program offers innovative teams of educators an opportunity to learn about promoting changes in their teaching and learning environments and new applications of information management and communication technologies as teaching tools. The teaching awards recognize those who are having a major, proven impact on student performance and interest in science and technology.

Contact:

Canadian Centre for Creative Technology
8 Young Street East
WATERLOO, Ont.
N2J 2L3
Tel.: (519) 884-8844
Fax: (519) 884-8191

Canadian Society for Chemistry

The Canadian Society for Chemistry aims to create a positive image of chemistry by publishing the bilingual secondary school newsmagazine *Discover Canadian Chemistry* and by holding National Chemistry Week. By covering chemical success stories, exciting new chemical discoveries and contributions made by Canadian chemists, chemical engineers and chemical technologists, *Discover Canadian Chemistry* highlights the rewards and benefits that chemistry gives to the world. It portrays the human side of science and illustrates the various applications of chemistry and the diversity of chemical fields. A four-member committee, with representatives from universities, industry and secondary schools, ensures that the newsmagazine is current and suitable for the audience. This eight- to 12-page newsmagazine is sent to every English and French secondary school in Canada.

National Chemistry Week was launched in 1989 and since then has been organized and sponsored by the Canadian Society for Chemistry. This promotional week works in conjunction with National Science and Technology Week.

Contact:

Canadian Society for Chemistry
Suite 550, 130 Slater Street
OTTAWA, Ont.
K1P 6E2
Tel.: (613) 232-6252
Fax: (613) 232-5862

Conseil de développement du loisir scientifique

Dedicated to promoting science as a leisure activity, the Conseil de développement du loisir scientifique runs various programs awakening the minds of young Francophone Canadians to the wonder and opportunity of science. Through its 20 years of experience, the conseil has learned the best methods of reaching children with the message of science.

Each year, the *Expo-sciences panquébécoise* is the culmination of 12 theme-based regional science fairs across the province, in which over 1 200 participants between the ages of 12 and 20 display their projects for public viewing. The exhibition brings together some 150 of these participants and serves as a springboard to the *Canada-Wide Science Fair* and *Expo-sciences internationale*, events that enable young people to discover new cultural and scientific horizons.

In addition, the Club des Débrouillards reaches thousands of young people through its monthly magazine *Les Débrouillards*, as well as through meetings, day camps and appearances by personalities well known to club members. Working in affiliation with Agence Science-Pressé, the conseil is also involved in the *Les Débrouillards* television program and la Journée nationale des Débrouillards.

With these programs, the conseil encourages the creation of ingenious and amusing projects, makes science accessible and promotes the development of a new generation of scientists.

Contact:

Conseil de développement du loisir scientifique
4545 Pierre-de-Coubertin Avenue
P.O. Box 1000, Station M
MONTREAL, Que.
H1V 3R2
Tel.: (514) 252-3027
Fax: (514) 252-3152

Discovery Centre

Visitors to Nova Scotia's only science centre use all their senses to explore the role of science and technology in everyday life. Activities at the Discovery Centre are in constant motion, as displays change, with some travelling to schools, museums, malls, public libraries and community centres across Nova Scotia. Past exhibits have covered the topics of electricity, soap films and bubbles, marine biology, chemistry, invention, remote sensing and sensory perception. In addition, the centre has hosted visiting exhibits on superconductivity, earthquakes, and light and sound waves.

Presentations, exhibitions and hands-on workshops by local scientists and volunteers encourage a fun atmosphere. For example, *A Question of Chemistry*, a 14-piece exhibition, explores how chemistry touches our everyday life, and *Bubbleworks*, a four-piece exhibition, helps people learn about surface tension, shape and some of the properties of light. The centre also features a science news bulletin board, a newsletter titled *Discovery* published four times a year and special events such as a *Black Tie and Lab Coat Dinner* that brings together the business and scientific communities.

Local businesses and community groups occasionally sponsor days when admission fees are waived. Family nights and discounts for community and religious groups also attract a broader audience.

Contact:

Discovery Centre
Scotia Square, Upper Mall
5201 Duke Street
HALIFAX, N.S.
B3J 1N9
Tel.: (902) 492-4422
Fax: (902) 492-3170

Excellent Agri-Foods Team (EAT) Institute

Everyone must eat, but few of us know the scientific, technological, environmental and socio-economic achievements behind the food we eat. The Excellent Agri-Foods Team (EAT) Institute increases public awareness about food production, its environmental repercussions and the industries required to feed animals and people.

The institute offers its public education program with distinct sites devoted to topics ranging from crops, grains and poultry to telecommunications. Each of these areas is a "living lab" where interpreters help small groups of visitors engage in hands-on, problem-solving activities.

The soil formation site has experimental areas for composting, manure management, crop residue, earthworms, fungus and nitrates so participants can develop soil theories. At the pork site, growth measurements and market weights for market hogs are compared to genetically different pet Vietnamese potbellied pigs, which involves group participation in animal genetics problem-solving activities.

The institute clears up misconceptions held by adults and children regarding the agri-food industry.

Contact:

Excellent Agri-Foods Team (EAT) Institute
Box 7, Site 17, R.R. 7
CALGARY, Alta.
T2P 2G7
Tel.: (403) 272-4100

The Nomad Scientists

The Nomad Scientists are a national group of educators dedicated to spreading the wonders of science and nature. True to their name, they travel the country, exciting imaginations and helping to make science fun for children, especially those between the ages of four and 10.

The environment is the major focus of most Nomad activities. The group was recognized by Montreal's newspaper *The Gazette* at the *50 Plus Conference of the Environment* where they received an award for their innovative approach to promoting environmental awareness among children. The Nomad approach to science is discovery — learning through personal involvement and sharing, learning together.

Services are offered in both English and French.

Contact:

The Nomad Scientists
Suite WG-204, 2480 West Broadway Street
MONTREAL, Que.
H4B 2A5
Tel.: (514) 848-4955
Fax: (514) 848-3492

PARTNERS

PARTNERS is an integrated community participation program of the Ottawa Carleton Research Institute and the Ottawa-Carleton Learning Foundation established in 1990. Its mission is the development of new relationships, driven by business-education partnerships, to foster a superior, cost-effective educational system and an internationally successful business community. PARTNERS encourages interaction among the science, engineering, technology and business communities, the postsecondary education community, and elementary and secondary schools.

PARTNERS activities include four programs. *Destiny 2000* is a week-long, industry-initiated, science and technology exposition demonstrating the excitement of math and science to the region's grade 9 students.

The Science-Fun Program incorporates a summer and winter session. The *Science Camp* held during the last week of August is a professional development program for teachers of grades 4 to 6. These teachers and science professionals team up each summer to develop and deliver a total of 10 half-day workshops for children between the ages of nine and 10. The Science-Fun Program, held from January to March and developed from the summer *Science Camp*, is a series of three Saturday half-day sessions held in partnership with the National Museum of Science and Technology.

The Teacher Summer Internship Program has volunteer teachers placed with area businesses for a period of two to five weeks during the summer doing professional assignments and learning about skills needed by the business community.

Finally, Partners-in-Education promotes partnership programs among local educational institutions, businesses and community organizations. An annual fall workshop and awards banquet in the spring are held and coordinated by people from both the business and education communities.

Contact:

PARTNERS
Ottawa-Carleton Learning Foundation/
Ottawa Carleton Research Institute
Suites 400 & 401, 340 March Road
KANATA, Ont.
K2K 2E4
Tel.: (613) 591-1285
(613) 592-8160
Fax: (613) 591-1609
(613) 592-8136

Quidi Vidi Rennie's River Development Foundation

Nestled in the heart of St. John's, Newfoundland, the Quidi Vidi Rennie's River system is truly a unique urban resource. A trail system providing access to an abundance of wildlife extends from headwaters in Pippy Park around Quidi Vidi Lake to the ocean. City dwellers can see trout spawning in the fall or waterfowl nesting in the spring.

Since 1984, the Quidi Vidi Rennie's River Development Foundation has created programs to conserve and enhance these open spaces and freshwater resources. In 1986, the foundation launched a 10-year master plan to restore and enhance the river.

The Newfoundland Freshwater Resource Centre has become a major project of the foundation. This resource centre features North America's only public fluvarium, a series of viewing windows into a natural stream. The goal of the centre is to develop a stronger awareness of natural systems, improve the management of them and encourage everyone to get involved. The centre's mission is "to promote responsible stewardship of freshwater systems." This is accomplished with exhibits and interpretation programs. The centre has just begun the design and development of a curriculum for interpretation programs. It will provide 45 program modules based on nine seasonal themes to be offered over a three-year cycle to the general public and specific school groups.

As well as interpretation programs, a series of interactive exhibits takes visitors on a river journey from headwaters to the open sea. Whenever possible, the flora and fauna of the surrounding rivers, marsh and lake are incorporated into the program. On request, guided walks along Rennie's River can form part of the interpretation program at the centre.

Open year-round and offering a variety of programs and exhibits, the Newfoundland Freshwater Resource Centre appeals to visitors of all ages. Programs are normally offered in English, however, with advanced reservations, assistance is available in French. Groups of 10 or more require a reservation.

Contact:

Quidi Vidi Rennie's River Development Foundation
P.O. Box 5, Nagle's Place
Pippy Park
ST. JOHN'S, Nfld.
A1B 2Z2
Tel.: (709) 754-3474
Fax: (709) 754-5947

Saskatchewan Science Centre

An IMAX™ theatre is just one of many attractions that make the Saskatchewan Science Centre an exciting place for students, teachers and the general public. Six workshops reach school groups from kindergarten to grade 12. The *Hands-On Habitats* workshop covers the importance of different creatures to our world. With *Planets at Play*, students dress up as planets and stars to learn about the solar system. In the *Reduce, Reuse, Recycle* workshop, students make paper and learn about acid rain and pollution. With *Microscope Magic*, children view micro-organisms through a microscope and learn how they play a part in the food chain. *Cool Conductors* teaches students about the electricity of superconductivity and how to build their own circuit. The last workshop, *Cardiac Cut-Up*, has students dissect a pig heart as well as test blood pressure and lung capacity.

The centre also has a *Science in the Classroom* workshop, which gives teachers an opportunity to participate in hands-on activities. Four 90-minute workshops plus a learning guide help teachers to plan lessons covering simple machines, lights, environment and electricity.

Community outreach programs include visits to schools, summer programs for students at local libraries and Saskatchewan Science at Work. Bringing activities and workshops to a classroom allows students to experience some of the wonders of the science centre in their own school. Library presentations on air, animals, sound and bubbles have been conducted by science centre staff. Saskatchewan Science at Work kits provide students with project ideas and tools to recreate real-life activities related to provincial industries such as agriculture, mining and forestry.

Contact:

Saskatchewan Science Centre
P.O. Box 5071
REGINA, Sask.
S4P 3M3
Tel.: (306) 791-7930
Fax: (306) 525-0194

Société pour la promotion des sciences et de la technologie

The promotion of science culture is an affair of passion and reason! A real pioneer for promotion of science culture in Canada, the Société pour la promotion des sciences et de la technologie has organized high-profile public awareness activities such as Semaine des sciences, now the Quinzaine des sciences, since the early 1980s. The society represents educational institutions, research organizations, industry and government.

In 1992, the rich and varied programming of Quinzaine des sciences allowed some 340 000 people from all over Quebec to become more familiar with science and technology. Quinzaine des sciences is made up of more than 350 special activities organized with the help of a number of partners and covered by both print and electronic media.

Parrainage scientifique works together with Industry Canada's Innovators in the Schools program to pair secondary school students with science and technology professionals. *Omni Science* is a series of pamphlets that complements the television program of the same name. The society is also involved in organizing science fairs and other activities that make science and technology come alive.

Through its many activities, the society wishes to develop a favourable climate for the entire population to learn about and better understand the importance of science and technology.

Contact:

Société pour la promotion des sciences
et de la technologie
5th Floor, 454 Jacques-Cartier Place
MONTREAL, Que.
H2Y 3B3
Tel.: (514) 873-1544
Fax: (514) 873-4204

Society for Canadian Women in Science and Technology

The Society for Canadian Women in Science and Technology has opened a Resource Centre to facilitate their activities in promoting science and technology to women. From their location at the Simon Fraser University Harbour Centre Campus in downtown Vancouver, the society provides information to students, educators, career counsellors, community associations, parents, scientists and others so that young women may realize their potential for a career in science and technology.

Ms Infinity is a math and science career conference for young women in grades 9 and 10 in small communities throughout the province. A conference manual provides information and guidelines to groups interested in presenting a *Ms Infinity* conference in their community. *Project Tomorrow* provides presentations to parents of elementary school children to help them encourage their daughters in math and science. *Ms-Ing Science* is a publication for secondary school teachers to help them create female-friendly science classrooms. *Imagine the Possibilities* is a guidebook for groups planning to sponsor *Girls in Science* workshops. The book includes 11 teaching units of workshop activities for nine to 12 year-old girls.

Contact:

Society for Canadian Women in Science
and Technology
Room 140, 515 West Hastings Street
VANCOUVER, B.C.
V6B 5K3
Tel.: (604) 291-5163
Fax: (604) 291-5112

Women Inventors Project

What do Scotchguard™, the Melitta™ drip coffee maker, Jolly Jumper™ and the board game Balderdash™ have in common? They were all invented by women. Bringing a good idea to light is not an easy task. It takes confidence, persistence and a firm belief in personal abilities. Over the past 200 years, only 1.5 percent of all patents have been issued to women.

The Women Inventors Project strives to knock down the barriers to inventing while dispelling gender stereotypes. The project offers information, advice and encouragement to women and men as they endeavour to market their creations.

Since 1986, The Women Inventors Project has provided services to innovators of all ages. Achievements include workshops for teachers and students, a video entitled *What If? Women Inventors and Entrepreneurs*, and a newsletter titled *Focus*, which contains information for and advice from women inventors. The Women Inventors Project has also produced educational publications such as *The Book for Women Who Invent or Want to, From Idea to Invention, Inventors Want to Know...*, and *Inventing Women: Profiles of Women Inventors*. An interactive poster kit contains a poster, a digest listing nearly 160 Canadian women inventors, entrepreneurs, social innovators and scientists, as well as a database/computer game. The Women Inventors Project is also responsible for the first exhibit of inventions by women, which travels across Canada under the sponsorship of the National Museum of Science and Technology.

The Women Inventors Project has developed hands-on activities to demonstrate the invention process and its relationship to science and technology for voluntary organizations such as Girl Guides, 4-H clubs and the YWCA. It has given presentations throughout North America and has received international recognition for its achievements, including a gold medal from the United Nations' World Intellectual Property Organization.

The Women Inventors Project provides beneficial information for all creative minds, regardless of age or gender.

Contact:

Women Inventors Project
Suite 302, 1 Greensboro Drive
ETOBICOKE, Ont.
M9W 1C8
Tel.: (416) 243-0668
Fax: (416) 243-0688

The Young Naturalist Foundation

The Young Naturalist Foundation captures the excitement of science and nature and brings it home to children. Everything the foundation produces encourages children to explore, to be creative and to care about the world around them. It makes learning fun and challenging.

Better known as OWL, the foundation was established in Toronto in 1975. It reaches children through a variety of venues including magazines, books and television. *OWL*, the nature and science discovery magazine for children ages nine and up, and *Chickadee*, for younger children, are multi-award-winners read by 500 000 children around the world. *Tree House*, OWL's new magazine for families, is inserted quarterly in Canadian copies of *OWL* and *Chickadee*.

Books from OWL, published under licence by Greey de Pencier Books, include many bestsellers, and in Canada alone over 250 000 are sold annually. Canadian and U.S. book clubs choose many books from OWL, and the majority are also published in foreign editions.

OWL/TV, the wildly successful nature and science series launched in 1985, has completed 60 episodes. It is broadcast on the YTV network in Canada, Showtime in the United States and Thames in the United Kingdom, as well as being licensed in 22 other international markets. *F.R.O.G. (Friends of Research and Odd Gadgets)* is a hands-on science series featuring four curious pre-teens broadcast on educational networks across Canada. *Spirit Rider* is OWL's first made-for-TV movie. It was broadcast on CBC in Canada, PBS in the United States and BBC in the United Kingdom in the fall of 1993.

OWL is internationally recognized for its dedication to high quality and entertaining materials for children and families.

Contact:

The Young Naturalist Foundation
Suite 302, 56 The Esplanade
TORONTO, Ont.
M5E 1A7
Tel.: (416) 868-6001
Fax: (416) 868-6009

Youth Science Foundation

The Youth Science Foundation has a mission to stimulate an interest in science and technology among young Canadians. Recently, the foundation has focused greater attention on improving science literacy among young people and attracting them, especially women, into science and technology careers. Its activities also enable participants to strengthen their communication skills as they learn about science.

The foundation has been the guiding force behind the science fair movement in Canada since its incorporation in 1966 when it became the successor to the Canadian Science Fairs Council. Science fairs now involve over 500 000 students and over 8 000 volunteers as organizers and judges. In 1993, 399 students with 299 projects attended the annual *Canada-Wide Science Fair*, which was held in Rivière-du-Loup, Quebec.

A National Youth Science Awards program provides over \$100 000 annually to winners at the regional and Canada-wide science fairs. Divided into three age groups: junior (10-15), high school (16-18) and university (19-24), the Young Scientists of Canada program supports the formation of school and community science clubs.

The foundation also runs national student exchanges. For example, every year, two students are sent to the *Stockholm International Youth Science Seminar* held in conjunction with the Nobel Prize festivities. In addition, the foundation distributes publications for teachers, students and parents, as well as promotional items such as buttons, stickers and science fair certificates.

Through its many programs and activities, the foundation strives to reach young Canadians from ages three to 24. All services are available in both English and French.

Contact:

Youth Science Foundation
Suite 904, 151 Slater Street
OTTAWA, Ont.
K1P 5H3
Tel.: (613) 238-1671
Fax: (613) 238-1677

Yukon Science Institute

The Yukon Science Institute, formed in 1985, is a non-profit organization dedicated to promoting scientific activity in the Yukon. Through a variety of programs, the institute seeks to expand interest in science among Yukoners and to foster scientific awareness and education.

The public awareness program of the Yukon Science Institute has four components. Once a month during the winter, the *Major Lecture Series* brings a scientist from outside the Yukon to give a public lecture. In addition to speaking in Whitehorse, the lecturer is often asked to give additional presentations at schools and neighbouring communities. In 1992-93, these public lectures attracted audiences as large as 250 people to hear about the seal ban and its impact on northern communities, the undersea exploration of the Titanic wreck, airborne environmental contaminants in the Arctic and other topics.

The *Lunch-time Seminar Series* invites local scientists to speak at an informal public lecture with lively discussions between the speaker and the audience. In conjunction with the *Major Lecture Series* and the *Lunch-time Seminar Series*, interviews are recorded at the local CBC station for broadcast on the *Something Scientific* radio series. *Something Scientific* airs at least twice a week in a lunch-time slot. The institute also produces a biannual newsletter, which is distributed to institute members, media outlets and other interested parties. The newsletter discusses the activities of the Yukon Science Institute and announces upcoming scientific conferences and events.

The Yukon Science Institute also sponsors the annual *Yukon Regional Science Fair* in Whitehorse. Interest in the event is steadily increasing across northern British Columbia and the Yukon. In 1995, the institute will host the *Canada-Wide Science Fair*, bringing students from across the country to Whitehorse.

Contact:

Yukon Science Institute
211 Main Street
P.O. Box 31137
WHITEHORSE, Y.T.
Y1A 5P7
Tel.: (403) 667-2979
Fax: (403) 633-6965

The Adventures of Dudley the Dragon

If our environment is to have a future, young people, who will soon be the keepers of the earth, must understand how to help out. In this television series, Dudley the Dragon and his two young counterparts present environmental science mysteries that teach children between the ages of four and eight how to protect the earth we share with plants and animals. In an episode titled *Dudley and the Giant*, children observe how composting can keep a garden healthy and reduce waste, as well as how to encourage certain animals and insects to enrich gardens. Another episode, *Dudley's Tea Party*, focuses on the importance of water in sustaining life, human activities that threaten clean water sources and water conservation.

Children learn basic science concepts of observation, experimentation, prediction, interpretation and hypothesis. *The Adventures of Dudley the Dragon* is broadcast across Canada on educational networks in both English and French. A teacher's guide ensures that schools can benefit fully from Dudley's adventures.

Contact:

Breakthrough Films and Television Inc.
179 Mavety Street
TORONTO, Ont.
M6P 2M1
Tel.: (416) 766-6588
Fax: (416) 769-1436

Armand Frappier: Rendez-vous aux frontières du connu

The late Armand Frappier is famous for his research on tuberculosis and for the creation of an important vaccine in the treatment of leukemia. This 20-minute video focuses on Armand Frappier, a Canadian pioneer in microbiology, immunology and virology. The film addresses his life and important contributions to these fields. The video is also accompanied by an outline of activities that can be completed in or out of the classroom.

Contact:

Les Productions NOVA
Suite 1100, 1200 McGill College Avenue
MONTREAL, Que.
H3B 4G7
Tel.: (514) 393-7211
Fax: (514) 393-9069

Le Cadeau d'Isaac

This 65-minute play about a girl and her scientist friend provides an astronomy lesson for elementary school children and their families. Katou, a young girl, learns about the stars and the celestial bodies with the help of her friend Isaac. Isaac is an astronomer who explains the history of human understanding of the stars and planets and progresses to current discoveries. One of the many concepts that Katou learns is how the stars we see in the night sky look different because of their mass, colour and dimension. She also discovers that each star has its own family of planets much like the earth is part of our sun's family, along with planets such as Jupiter, Pluto and Saturn. At the end of the play, Isaac explains that his gift to her is everything he has taught Katou and her new inspiration to learn and understand.

This play is accompanied by a colourful learning guide for teachers and their classes. It is full of games, puzzles, comic strips and articles that explain concepts covered in the presentation of *Le Cadeau d'Isaac*.

Contact:

Théâtre le Petit Chaplin
6560 Chambord Street
MONTREAL, Que.
H2G 3B9
Tel.: (514) 278-4809

Dinosaurs Unearthed

Philip Currie is a Canadian paleontologist whose boyhood interest in dinosaurs was sparked by a plastic dinosaur-like toy from a cereal box. Later in life, he developed new theories about dinosaurs through his findings in the badlands region of Alberta. This region has one of the world's best collections of remains from prehistoric times.

In addition to studying dinosaur bones, Philip Currie examines the sites of his findings to put together revolutionary theories. At a site where other scientists had focused on collecting complete skeletons, Philip Currie's observations of bone litter supported his belief that dinosaurs travelled in herds for safety like some modern mammals. The video production *Dinosaurs Unearthed*, which was made for television broadcast and educational use, outlines his life and discoveries.

There is a 24-minute version for broadcast and a 12-minute counterpart with special narration and soundtrack for elementary school children.

Contact:

Through the Lens Inc.
Suite 205, 3884 Bathurst Street
DOWNSVIEW, Ont.
M3H 3N5
Tel.: (416) 638-6961

Energy: The Pulse of Life

Many Canadians recognize the musical group Moxy Frúvous as the creators of popular songs such as *The King of Spain* and *Green Eggs and Ham*. Now they can be seen in *Energy: The Pulse of Life*, a 28-minute video about the science of energy. Covering both the physics and biology of energy, the film addresses topics such as the scientific history of energy, the first and second laws of thermodynamics, photosynthesis and cellular energy metabolism. Moxy Frúvous adds their humour and a cappella musical abilities to high quality animation, special effects wizardry and live action footage. The film is designed to capture the interest of students from grades 7 to 12 across Canada.

A French version of the video with subtitles and dubbing will also be available. A teacher's guide accompanies each copy of the video.

Contact:

Medicinema Ltd.
131 Albany Avenue
TORONTO, Ont.
M5R 3C5
Tel.: (416) 977-0569
Fax: (416) 977-0569

For the Birds

For the Birds is a three-part film series intended to enlighten Canadians about issues related to migratory birds and their habitat protection. These films show how individual Canadians can help, portraying volunteers working with scientists. The first episode, *Singing in the Rainforest*, features Canadian and Costa Rican scientists in their struggle to discover more about the threatened wood warbler. The second episode, *For the Birds*, studies Canada's urban peregrine falcons, showing how scientific techniques can help re-introduce endangered species. The final episode, *Birders of a Feather*, discusses ecotourists who invade natural areas to see exotic birds, thereby threatening the birds' environment.

These films were developed for broadcast on educational channels and for videocassette sales, along with curriculum guides, to junior high schools, high schools, libraries, environmental groups, nature stores, etc.

Contact:

Missing Link Productions Incorporated
455 - 12 Street N.W.
CALGARY, Alta.
T2N 1Y9
Tel.: (403) 283-6201
Fax: (403) 283-6214

Kidzone

Kidzone is a lively educational television series hosted by and aimed at children aged seven to 12 that incorporates science and technology stories into a magazine-style format of five six-minute segments in each half-hour program. The active participation of hosts in the science segments creates positive role models for young viewers. Shows are broadcast three times a week during two 13-week runs on British Columbia's Knowledge Network and other television stations across Canada.

A *Kidzone* newspaper supplement features articles and activities related to the specific topics covered by the television series. Children are encouraged to write in with their own perspectives and ideas. As many letters as possible are included in the newspaper. For school use, the science and technology segments are collected on videotape along with a teacher's guide.

Contact:

Open Learning Agency
4355 Mathissi Place
BURNABY, B.C.
V5G 4S8
Tel.: (604) 431-3000
Fax: (604) 431-3333

Lobster Fishery Management in Atlantic Canada

In an era when ocean resources are rapidly being depleted, lobster fishery management is a pertinent topic. *Lobster Fishery Management in Atlantic Canada* is a 20-minute narrated slide show, which demonstrates the nature, extent and successes of the federal government's commitment to lobster fishery management. In a non-technical manner, it covers the process of fishery management, historical information, who is involved and where it takes place. The goal is to show the importance of protecting and preserving our commercial marine resources. Eye-catching photographs and graphics are used to teach about lobsters.

In order to make this information more accessible, the presentation is available for loan on videocassette. The presentation is aimed primarily at secondary school students, but would appeal to any audience.

Contact:

Huntsman Marine Science Centre
Brandy Cove Road
ST. ANDREWS, N.B.
E0G 2X0
Tel.: (506) 529-1202
Fax: (506) 529-1212

La Mycolade

Many of the mushroom and fungi species that blanket the forest floor often go unnoticed. *La Mycolade* is a 55-minute film on mycology, the study of mushrooms and other fungi. It focuses on René Pomerleau, a renowned Quebec scientist known for his work on forest diseases in general and Dutch elm disease in particular. *La Mycolade* features a mushroom expedition and feast with René Pomerleau, two other mycologists and a group of amateurs. The film hopes to expand the awareness of the world of mycology and mycogastronomy (i.e. mushroom tasting) and promote mycology as a scientific leisure activity.

Contact:

Les Films du Verger
235 St-Jacques Road
SAINT-PIE, Que.
J0H 1W0
Tel.: (514) 778-2996

One Green Leaf: The Story of Grey Owl

This multimedia theatre production tells the story of Grey Owl, who was known throughout the world in the 1930s as Canada's leading spokesperson on the importance of preserving the natural environment. Grey Owl was a strong advocate for North American native people and the wildlife they protect. He wrote four books, and created three films on the wilderness of northeastern Ontario. When he died in 1938, it was discovered that this celebrated native person was in fact an Englishman by the name of Archibald Belaney. The objective of *One Green Leaf: The Story of Grey Owl* is to develop public awareness of issues concerning northern Ontario's wildlife. The show also draws parallels between historical and current environmental protection issues.

It is presented in both English and French.

Contact:

Science North
100 Ramsey Lake Road
SUDBURY, Ont.
P3E 5S9
Tel.: (705) 522-3701
Fax: (705) 522-4954

One-Minute Science Radio Capsules

Humour, drama and education are all important parts of these one-minute science radio capsules broadcast across Canada. Covering science disciplines such as astronomy, physics, geography, space, technology and meteorology, the capsules answer such questions as: Why is the sky blue? Announcers imitate the voices of well-known characters such as Mr. Spock, Batman and Princess Diana to make their sketches interesting for those who do not normally understand or take an interest in science and technology.

There are 80 capsules broadcast to English Canadians and 200 shows aimed at French Canadians. The goal is to reach the larger public with definitions of difficult terms used regularly by the media, such as nuclear reactors, magnetic clouds, ozone and cold fusion.

Contact:

Service d'information et de relations publiques
Université du Québec à Montréal
P.O. Box 8888, Station A
MONTREAL, Que.
H3C 3P8
Tel.: (514) 987-3000
Fax: (514) 987-7906

Paul et les jumeaux

Paul et les jumeaux is a half-hour educational series featuring Tom and Annie Edison, teenaged twins who, along with their younger brother Paul, share an enthusiasm for science, problem solving and adventure. Aimed at eight to 14 year-olds, the show's purpose is to teach viewers about scientific principles, responsibility and peer relationships. It illustrates through adventure and realistic situations how you can solve any problem if you use your head.

The twins draw on their basic scientific insights to help solve the problems and obstacles at hand. As their adventures evolve, they discover clues which they try to piece together to solve the mystery or puzzle. Their solution centres around at least one scientific principle. The challenge to the viewer is to analyze the pieces of the puzzle and see if they can find the solution before Tom and Annie. Short animated segments are used at the end of each episode to illustrate the scientific principles involved.

An English version of the show titled *The Edison Twins* is also available.

Contact:

Nelvana Limited (Distributor)
32 Atlantic Avenue
TORONTO, Ont.
M6K 1X8
Tel.: (416) 588-5571
Fax: (416) 588-5735

The Plant Gods

Canada is a world leader in the genetic engineering of plants. Some say that advances in plant genetics have enormous potential for feeding the world's rapidly growing population, reducing the cost of producing high-quality crops, and even opening new doors for reforestation. Critics see it leading to fewer plant species, cross-pollination problems, patent-control problems with multinational companies and ethical nightmares. *The Plant Gods* is a one-hour documentary that looks at the technology and the controversy involved in genetic engineering. Scientists, farmers, environmentalists and other experts present their views. *The Plant Gods* aims to increase awareness of the applications of genetic engineering among the general public age 13 and older.

Contact:

Minds Eye Pictures
1212A Winnipeg Street
REGINA, Sask.
S4R 1J6
Tel.: (306) 359-7618
Fax: (306) 359-3466

River Reborn

The Don River faces a situation common to many other urban rivers. It travels through the downtown core of Toronto picking up countless pollutants en route to Lake Ontario, harming migratory birds, rare wildflowers and fish. *River Reborn* is a documentary film presenting the Don Watershed as an exploratory model for restoring degraded urban rivers. The film addresses topical issues such as health and environmental preservation, urban planning, the role of citizen groups, political processes, pollution management and access to the river itself. Using striking aerial and nature cinematography, this fast-paced film portrays a river in transition.

Contact:

The River Production Company Inc.
Suite 1107, 131 Bloor Street West
TORONTO, Ont.
M5S 1R1
Tel.: (416) 961-3001
Fax: (416) 961-3895

Rooster's Hamlet — Fossils and Dinosaurs

What did Canada look like when dinosaurs were the masters of the land? A gang of four children called the Roosters discover a fossil and become curious about the world of dinosaurs in this animated children's film titled *Rooster's Hamlet — Fossils and Dinosaurs*. Their friend Herm explains how fossils are formed and takes them back in time to see what these giants were like.

Their first stop in history is the Precambrian period, over 500 million years ago, when oceans covered the earth. Here the Roosters watch the trilobites they had found fossilized in the rock. Next, they journey to 120 million years ago when dinosaurs such as Centrosaurus, Styrosaurus and Triceratops inhabited the earth. Their last stops are in the 19th and 20th centuries where they witness fossil, skeleton and dinosaur egg discoveries by scientists like Jean L'Heureux, Barnum Brown and Thomas Weston.

After watching this wonderful adventure, children have a much better understanding of paleontology, archeology, Canadian contributions to these fields and how fossils help scientists learn about the evolution of the planet. Available in English only.

Contact:

KLA Visual Productions
1829 Bank Street
OTTAWA, Ont.
K1V 7Z6
Tel.: (613) 737-2908
Fax: (613) 737-2908

Science Is Fun!

Science Is Fun! is a multidisciplinary theatrical production composed of highlights from six musical science plays. In a scene from *The Buds and the Bees*, a character is dressed up as a western wood lily for a lesson on flower anatomy. From a scene in *Bye, Bye, Birdie*, Ma Cowbind and the Warblers explain about flight and survival. In a scene from *Everything Under the Sun*, two disgruntled photosynthesis factory workers named Chlori and Phil go on strike, causing their plant to go into a dormant state in winter. A scene from *Forest Revue* teaches the audience about the trees, forests and the forest ecosystem. In *StarBiz*, Madam Sun, Galileo and the Aurora Borealis are the main attractions in a tribute to the stars. And the audience takes a trip in a scene from *Thunderstruck* to find out who is responsible for the weather. This fast-paced musical adventure can entertain elementary and secondary school groups as well as the general public.

By the end of 1993, the Evergreen Co-op will also have a series of activities manuals and four audio tapes of their original songs to support their programs.

Training workshops are also available to help science educators incorporate music and theatre into their programs to make science more accessible.

Contact:

Evergreen Co-op
3919 Richmond Road S.W.
P.O. Box 33036
CALGARY, Alta.
T3E 7E2
Tel.: (403) 949-3649
Fax: (403) 949-3042

Scientific and Technological Innovation in Canada

Three half-hour videos created by the Open Learning Agency and Simon Fraser University for educational television portray the formative influences on and major patterns of Canadian scientific activity. A basic theme of the three video programs is how scientific methods and scientific support mechanisms evolve over time as needs change. The first program, *Science in a New Land*, deals with minerals, soil, energy and climate, including the development of kerosene and new cereal grains such as Marquis wheat. The second program, *Science and Industrialization*, discusses how economic growth and industrialization in Canada were aided by scientific advancements such as the CANDU reactor and electronic communications. The third program, *Choices for the Future*, explores the role of science today and its potential. Various models for allocating resources in a national and global context are highlighted using examples such as the Canadarm, the Kaon factory and the ownership of pharmaceutical research facilities.

Contact:

Centre for Distance Education
Simon Fraser University
BURNABY, B.C.
V5A 1S6
Tel.: (604) 291-4566
Fax: (604) 291-4964

Think Twice

Think Twice is a play, with adventurous characters like the Energy Entity (EE) and the Destroyer, designed to help children realize the importance of energy conservation. The Destroyer chases EE and almost succeeds in catching him when suddenly EE changes form and slips away. EE and his many friends, Here-boy Dog, Grandmother Tree and Rawkster the tricky crow outwit the Destroyer together. These characters demonstrate that listening and learning about technology is a key way to help protect our natural environment and energy resources.

By watching these friendly characters, children in grades 1 to 3 begin to understand energy transformations, alternative energy sources and energy efficiency. The play is supplemented by a curriculum-related activity book that includes demonstrations, experiments and games that help children grasp these serious concepts.

Contact:

Theatre Prince Edward Island
550 University Avenue
CHARLOTTETOWN, P.E.I.
C1A 4P3
Tel.: (902) 566-0321
Fax: (902) 566-0420

Tomorrow, Today

Tomorrow, Today consists of two-minute reports during the week and a half-hour weekend show on current science and technology achievements, with an emphasis on Canadian research and applications. It also gives special attention to women in science, such as Roxanne Deslauriers and Judy Irwin of the National Research Council of Canada. Fisheries science at the Bedford Institute of Oceanography in Dartmouth and the CL-215, the only water bomber in the world designed to fight forest fires, are just two examples of the types of stories covered.

Airing twice daily on CFTO-TV in Toronto and on CTV across Canada, each story targets those people who do not normally watch science programs. The reports are also broadcast to Latin America and Asia on the Discovery Channel and to Europe through Euronews.

Contact:

AirTime Multimedia Corporation
P.O. Box 876, Station A
TORONTO, Ont.
M5W 1G3
Tel.: (416) 366-2200
Fax: (416) 366-2311

Up from the Ooze

Up from the Ooze is an interdisciplinary show and exhibit at the H.R. MacMillan Planetarium that covers the celestial and terrestrial conditions that enabled life to evolve. The planetarium show encompasses the creation of the elements necessary for the formation of life; the formation of the earth and the power sources that modified initially inorganic compounds; and the evolution of life forms from the first blue-green algae to humans. This is accomplished using special effects, cinematography, photography, music and narration. A small display in the lobby on early life forms complements the planetarium show.

Contact:

British Columbia Space Sciences Society
1100 Chestnut Street
VANCOUVER, B.C.
V6J 3J9
Tel.: (604) 736-4431
Fax: (604) 736-5665

Video Library of Science Films

The best science and technology movies created in Europe and North America are available in this video library. The heart of the collection is films shown at the annual *Festival international du film scientifique du Québec*, which screened 160 films from 18 different countries in 1992. Other important science and technology films are acquired from additional sources. Each year, approximately 200 new films, available for sale or loan, will be added to the video library from the film festival and listed in a catalogue outlining subject, language and length.

Two films from the 1992 festival provide some idea of the wide range of subject matter in the collection:

- a Spanish film, *Aral, a Sea without Water*, probes the dramatic decline in water level at one of the world's largest bodies of inland water and discusses grave consequences for fisheries (available in English)
- a Canadian film, *Secret Lives of Wolves*, examines the wolf and its highly sophisticated senses of sight and smell (available in both English and French).

Contact:

Festival international du film scientifique du Québec
15 de la Commune Street West
MONTREAL, Que.
H2Y 2C6
Tel.: (514) 849-1612
Fax: (514) 982-0064

Whisper in the Air

Many who link Marconi with radio may not know his Canadian connection. Guglielmo Marconi first constructed a working wireless connection in 1895 while working in Newfoundland and Nova Scotia, supported by Canadian funding. *Whisper in the Air* is a one-hour documentary film that chronicles Marconi's progress in the early 20th century, linking it to current innovations in communications technology. The production explores Marconi's life and career through rare archival footage, interviews with members of Marconi's family and historians, as well as live action shooting at Signal Hill in St. John's, and on the only remaining site of a Marconi station in Glace Bay.

The film opens with a dramatization of sending the first trans-Atlantic signal. Viewers then witness the problems Marconi encountered over seven years of trial and error, his progress from a weak Morse message to radio, the social impact of his wireless for fishermen and his eventual exploitation of short wave instead of the more costly and less effective long wave.

Contact:

Arc Films Limited
108 Barton Avenue
TORONTO, Ont.
M6G 1P9
Tel.: (416) 536-6254
Fax: (416) 538-1188

Women in Science

There are many barriers to Canadian women pursuing careers in science and technology. Many years ago, one woman was admitted to medical school on the condition that she wear a veil and have no contact with other students. The *Women in Science* video is hosted by an actress portraying this student as she journeys through time, introducing unsung heroines and issues related to women in science. Afterwards, she presents a group of current leading Canadian female scientists, including astronaut Roberta Bondar. To conclude the video, the medical student opens the door to the future by discovering a group of modern students who relate their experiences and concerns about women in science professions.

This half-hour video poses some interesting questions: Do women in science really think differently than their male counterparts? Does the under-representation of women make a difference in the direction science takes?

Contact:

Frameline Productions
517 Melita Crescent
TORONTO, Ont.
M6G 3X9
Tel.: (416) 533-1554
Fax: (416) 861-9505



Algonquin Space Campus

People have always been fascinated by the mystery of the stars. At the Algonquin Space Campus, secondary school students learn about the science behind space technology and Canadian contributions to this field. Students participate in discovery labs in the northern wilderness environment of Algonquin Park: remote sensing, solar and terrestrial physics, space robotics, space propulsion and rocketry, optical and radio astronomy, space medicine and satellite telecommunications. The main feature of the site is a 46-metre diameter radio telescope (Canada's largest), which is used for international space-based geodetic surveys, monitoring continental drift and predicting earthquakes.

The *Earth and Sun Lab* is concerned with remote sensing and solar-terrestrial physics. Here students receive American, Russian and Chinese weather satellite transmissions, print them out and examine photos to see weather systems in motion. In the *Space Lab*, students learn to program robotic arms and learn how humans adapt to space travel. *Star Lab* focuses on astronomy, cosmology and telescopes.

Outdoor activities such as canoeing, swimming and volleyball supplement the educational activities.

Contact:

Institute for Space and Terrestrial Science
4850 Keele Street
NORTH YORK, Ont.
M3J 3K1
Tel.: (416) 665-3311
Space Campus: (416) 665-5463
Fax: (416) 665-2032

Biotechnology Residential Camp

Approximately 35 eastern and central Canadian Francophone students from the ages of 13 to 17 attend this two-week-long residential camp and engage in various scientific and sociocultural activities. Courses cover a wide variety of scientific notions such as cells, nucleic acids, protein synthesis and basic biotechnology.

Students perform experiments in biotechnology on in-vitro cultures of plant cells, isolating DNA and studying enzymes. One experiment of the student's choice is presented to fellow participants in a competition at the end of the session. Another important aspect of the camp is its link to the real world through visits to scientific organizations and labs such as a soil research centre, a seed-bed centre and an observatory.

Contact:

Collège de Rivière-du-Loup
80 Frontenac Street
RIVIÈRE-DU-LOUP, Que.
G5R 1R1
Tel.: (418) 862-6903, ext. 240
Fax: (418) 862-4959

The Deep River Science Academy

A unique experience in research and development is available to bright students between the ages of 15 and 18 from across Canada at The Deep River Science Academy. At the Deep River campus, 42 students are involved in real research projects at the Chalk River Laboratories and the Petawawa National Forestry Institute. Another campus in Whiteshell, Manitoba, uses the Atomic Energy of Canada Limited Whiteshell laboratories, which include an underground research laboratory where studies address groundwater flow. University students and professionals in science, engineering and the environment contribute their skills as tutors and lab supervisors.

Working in pairs, students at the Deep River campus have joined in projects such as establishing the best condition for nitrogen-fixing bacteria in Canadian forests and studying human DNA (deoxyribonucleic acid). At the Whiteshell campus, research includes the use of high-energy electrons to improve the quality of substances, as well as the use of computers in understanding nuclear reactor accidents.

Contact:

The Deep River Science Academy
P.O. Box 600
DEEP RIVER, Ont.
K0J 1P0
Tel.: (613) 584-4541
Fax: (613) 584-4541

Discover Engineering: A Summer Camp for Women

Discover Engineering: A Summer Camp for Women, designed for female high school students, devotes each day of the five-day session to one of the following disciplines: aeronautical, chemical, civil, electrical and mechanical engineering.

The participants begin the program by meeting female engineering students from Ryerson Polytechnic University who discuss their lives as engineering students and talk about careers available for engineers. Many of the learning experiences during the week involve hands-on activities such as building and testing a self-erected tower made from straws and paper, building and testing aerodynamic models using computer-aided design, designing and producing holograms, and assembling an electrical circuit board. Other activities include touring the Hugh MacMillan Rehabilitation Centre, to see how biomedical engineering is used to develop aids for disabled people, the water purification plant or the wastewater treatment plant. The week finishes on Friday afternoon with a panel discussion featuring working female engineers and a career-oriented board game.

Contact:

Women in Engineering Committee
Ryerson Polytechnic University
350 Victoria Street
TORONTO, Ont.
M5B 2K3
Tel.: (416) 979-5313
Fax: (416) 979-5044

Discovery Western

Discovery Western consists of seven one-week camps held during the summer. Each day at the science camp is packed with activities for children in grades 5 to 8 that involve both individual and group work. Participants work on projects such as building model rockets and making polymers. Each day they also work on their main design project in which they use mechanical and electrical energy to perform a simple task. Children are given daily "thinker questions" to puzzle over at home. Tours of engineering laboratories gives students the opportunity to test structures (e.g. bridges) made of spaghetti in a wind tunnel, witness the creation of industrial diamonds and sink in quicksand. Parents are invited at the end of the week to see what their children have done in the hope that they too will encourage further studies in science and technology.

Workshops that travel to schools in May and June involve similar hands-on activities, with two presenters and a maximum of 30 students. The staff focus on activities that can be continued at the school after the visit. Staff consists of an equal number of males and females.

Contact:

Discovery Western
Room 40, Engineering Science Building
University of Western Ontario
LONDON, Ont.
N6A 5B9
Tel.: (519) 679-2111, ext. 8826
Fax: (519) 661-3808

Folie technique

To open children's minds, science must be presented in an interesting and non-conventional way. *Folie technique* promotes science and technology in Quebec, primarily to young people between the ages of 10 and 14 with a summer camp; a post-camp newsletter, *Le scientitrucs*; workshops in schools; and a conference for elementary and secondary school teachers. Camp sessions, which are one week long, involve equal numbers of girls and boys. Each day at camp, the students have time set aside for projects such as building a flying saucer to learn about aerodynamics or experimenting with household materials to understand acids and bases.

A series of presentations given at teacher's symposiums, *Folie conférencier*, features hands-on activities that teachers can use. A collection of experiments is provided that they can take back to their classrooms.

Contact:

Folie technique
École Polytechnique
Université de Montréal
P.O. Box 6079, Station A
MONTREAL, Que.
H3C 3A7
Tel.: (514) 340-5856
Fax: (514) 340-4986

Kids in Science

Children between the ages of eight and 12 discover the life and wonder behind science at this one-week day camp. An emphasis is placed on environmental concerns, but the camp also touches on biology, chemistry, physics and earth sciences. In small groups, hands-on experiments create a strong understanding of the scientific method, problem solving and decision making. The children also participate in a question and answer game that tests their knowledge about science. An evening excursion to look at the constellations expands their knowledge of the solar system. Many activities are geared toward helping each student create something, such as an ant farm or a miniature composter, that they can take home and explore further.

Contact:

Cypress Hills Regional College
129 - 2nd Avenue Northeast
SWIFT CURRENT, Sask.
S9H 2C6
Tel.: (306) 773-1531
Fax: (306) 773-2384

Math Camp

Math Camp targets 12 to 14 year-old black students from across Nova Scotia who are strong in math and science. This week-long residential camp emphasizes boosting enthusiasm and confidence, not the amount of mathematics the students learn. This increases the likelihood that participants will maintain their interest in math and science throughout high school and serve as role models for their peers. Follow-up contact with the students through mentors also helps in this regard. The camp was developed by Dalhousie University in response to the very few black students enrolled in math, science and related disciplines.

Contact:

Department of Mathematics, Statistics
and Computer Science
Dalhousie University
HALIFAX, N.S.
B3H 3J5
Tel.: (902) 494-2572
Fax: (902) 494-5130

Med Quest

Med Quest consists of six one-week residential programs during the summer that introduce secondary school students to rewarding health science careers, including researcher, technician, nurse, pharmacist and radiologist. It also heightens awareness of the importance of high school science courses to pursuing such careers. Students learn from tours of facilities such as laboratories, universities and hospitals, as well as from lectures, demonstrations, experiments, guest speakers, role playing and small group sessions. The program brings together students of varying abilities and interests from rural areas.

Contact:

Health Sciences Centre
Office of Rural Medicine
Faculty of Medicine
Memorial University of Newfoundland
ST. JOHN'S, Nfld.
A1B 3V6
Tel.: (709) 737-5193
Fax: (709) 737-6746

Reach

"I hear and I forget. I see and I remember. I do and I understand!" The *Reach* summer science camp and *Reach-out*, a travelling science show, teach children from the ages of nine to 12 about science and technology using this principle. Seven one-week day camp sessions offer lab tours and hands-on activities at McGill and Concordia Universities. Lab tours often involve demonstrations related to current Canadian research by the professors in charge of the labs. Since 1989, the camp has offered hands-on activities such as arc welding, machining, metal extrusion, structural design and hologram creation. Children can often bring home their finished projects and a daily puzzle to solve on their own.

The *Reach-out* show travels to elementary schools in the greater Montreal area. The goal of both the camp and the show is to establish a personal, friendly relationship between scientists and students.

Contact:

Reach
Iron Ring Room
McDonald Engineering Building
817 Sherbrooke Street West
MONTREAL, Que.
H3A 2K6
Tel.: (514) 398-8484
Fax: (514) 398-5004

Sci-Fi

At this week-long engineering day camp held during the summer, students from grades 5 to 8 can expect activities such as tours of engineering or science facilities, creating/constructing a Rube Goldberg machine and making holograms. In conjunction with the Federation of Saskatchewan Indian Nations, the camp holds one session specifically for First Nations students.

In workshops, projects such as making bridges made of pasta and testing newspaper beam structures get students working together on civil engineering projects. In other fields of science and engineering, children learn about acids and bases, sound and the environmental effects of an oil spill. Workshops are presented in May and June to elementary schools within a 200-kilometre radius of Saskatoon, including Native Reserve schools.

Contact:

Sci-Fi
Room 1C02
College of Engineering
University of Saskatchewan
SASKATOON, Sask.
S7N 0W0
Tel.: (306) 966-7755
Fax: (306) 966-7753

Science et contes

Science et contes is a program of eight one-week summer day camps and workshops at Laval University for Francophone children in Quebec City between the ages of 10 and 14. At camp, each student prepares a project for the end of the week exhibition for their parents and participates in discussions with university students on topics such as energy, telecommunications, robotics, outer space, water and agro-environment. An important goal of the summer camp is to increase the awareness of science and technology among young girls. For this reason, the camp's objective is to have equal numbers of girls and boys.

Workshops cover specific topics from various scientific disciplines ranging from engineering to agriculture to forestry. For example a workshop on earth sciences deals with geology, minerals and land formation.

Contact:

Faculté des sciences et du génie
Local 1044
Alexandre-Vachon Pavilion
Laval University
SAINTE-FOY, Que.
G1K 7P4
Tel.: (418) 656-3407
Fax: (418) 656-5902

Science, Naturally!

Science, Naturally! is a core element of the *Summer Academy*, a week-long multidisciplinary residential camp for academically inclined grade 8 graduates. It emphasizes the importance of balancing resource development with responsible management. The following pure and applied sciences are among those touched upon in field trips and workshops: geology, biology, chemistry, nursing, math, computer science, nutrition and consumer studies. A session with the Coady International Institute, which offers an international development program to students from the Third World, demonstrates how advances in science and technology can help Third World societies. Collecting and analyzing common plastics teaches about the problems of chemical diversity that hamper recycling efforts. The university has made a commitment to integrate students from visible minorities into the *Summer Academy*.

Contact:

Office of the Academic Vice-President
St. Francis Xavier University
P.O. Box 77
ANTIGONISH, N.S.
B2G 1C0
Tel.: (902) 867-2443
Fax: (902) 867-2177

Science Outreach

Science Outreach consists of a summer science, engineering and forestry day camp; classroom workshops for children; and a teacher's workshop.

The camp is led by science and engineering students who aim to excite children about science, emphasizing its role in our everyday lives. Days at camp are filled with designing projects, demonstrations and lab tours. Directed at students in grades 5 to 10, the camp consists of eight one-week sessions held during July and August. The goal is for the student to gain a better understanding of the life of a scientist.

On-campus workshops run from December to April, introducing grades 4 to 10 students to the diversity and potential applications of science. Children have the opportunity to see a university campus, labs and students in action. In-classroom workshops also run through May and June. Bursaries are available.

Science Outreach for Teachers consists of two one-day workshops designed to provide elementary school teachers in the Toronto area with innovative, exciting methods to teach science to students.

Contact:

Science Outreach
Room B670
Sandford Fleming Building
10 King's College Road
TORONTO, Ont.
M5S 1A1
Tel.: (416) 340-0883
Fax: (416) 978-4859

Science Quest

Science Quest offers four programs to promote science and engineering among students in grades 5 through 8 and their teachers.

In May and June, *Science Quest* travels to area schools presenting classroom workshops with hands-on activities and demonstrations relating everyday items to science. Activities include discovering one's centre of mass to learn about this concept's relationship to structural design and building floating devices and testing their buoyancy. In 1993, workshops reached over 120 schools, including First Nations and northern Ontario schools.

A summer day camp is offered on the Queen's University campus in July and August. Making a crystal radio, designing and testing a large-scale spider web and visiting the Queen's observatory are a few of the activities for participants. A scholarship fund is available to enable less fortunate families to send their children to participate in this program.

A Saturday morning program for parents and their children is offered in July to give families the opportunity to explore science together, making a chemical-powered car and designing newspaper structures.

In August, a three-day teachers' conference provides hands-on techniques of teaching science and technology in innovative ways.

Contact:

Science Quest
Clark Hall
Queen's University
KINGSTON, Ont.
K7L 3N6
Tel.: (613) 545-6870
Fax: (613) 545-6678

Science Venture

At *Science Venture*, a one-week day camp held during July and August, students between grades 5 and 8 learn about scientific principles by investigating everyday objects. Activities have included igniting a sugar cube; building rockets, electromagnets and solar-powered cars; touring science labs; meeting scientists and engineers; and constructing a device to do a simple task in the most complicated way. Hands-on fun is the focus of the camp, which is run entirely by university students. *Science Venture* also offers workshops with similar activities in elementary schools during May and June, as well as a one-week day camp that tours throughout British Columbia during July and August.

Contact:

Science Venture
University of Victoria
P.O. Box 3055
VICTORIA, B.C.
V8W 3P6
Tel.: (604) 721-8661
Fax: (604) 721-8676

Summer Work for the Awareness and Promotion of Science (SWAPS)

Summer Work for the Awareness and Promotion of Science (SWAPS) brings talented secondary school students in grades 10 or 11 to work at a university computer science department for one month of hands-on training and projects. Participants plan and implement projects that will be used to increase awareness of science and technology among their peers, learning a great deal about computers in the process. Computer-based hypermedia/multimedia projects combine music, video and animation to explore topics such as possible methods of producing electricity, sports technology and science, and the science behind different medical devices.

Students receive \$200 for expenses and an \$800 scholarship for their month's work. This allows bright students to participate, regardless of socio-economic factors. *SWAPS* also encourages participation from minorities, Aborigines, disabled people and women. Available at the University of Saskatchewan and the University of Regina, the program is expanding to include other science departments.

Contact:

Department of Computational Science
University of Saskatchewan
SASKATOON, Sask.
S7N 0W0
Tel.: (306) 966-4818
Fax: (306) 966-4884

Venture Engineering and Science Camp

Venture Engineering and Science Camp is coordinated by McMaster engineering students and the Faculty of Engineering. The program is engineering oriented — based on creative thinking, hands-on problem solving and designing — in other words, learning what engineering is all about in a stimulating and fun-filled environment.

This program consists of summer day camp sessions operating during July and August on the McMaster University campus, engineering and science workshops available to area schools during May and June, and class sessions at the university. *Venture Engineering and Science Camp* is available for girls and boys that are entering grades 5 to 8 the following autumn. Venture fosters a stimulating environment with a 50:50 ratio of girls to boys in each class.

The camp has theme days designated to a specific area of engineering (civil, chemical, mechanical, electrical and computer, materials science and engineering, and engineering physics). The children are involved in a wide variety of hands-on activities, tours and projects such as designing and testing bridges made of pasta or making polymer "slime" in the chemistry lab.

Contact:

Office of External Relations
Room JHE-212
Faculty of Engineering
McMaster University
HAMILTON, Ont.
L8S 4L7
Tel.: (905) 525-9140, ext. 24906
Fax: (905) 546-5492

Backyard Acid Rain Kit (BARK)

Do you want to learn more about the effects of acid rain and help monitor their levels in your area? Children between grades 4 and 10 can with the Backyard Acid Rain Kit (BARK), an acid rain and weather conditions monitoring kit.

Participants are equipped with all the necessary tools to create a monitoring station, including pH-sensitive paper, a reusable precipitation collector and a step-by-step instruction manual. By comparing seasonal levels, participants can learn how weather conditions affect acid rain levels. In addition, schools, families or community groups can be twinned with a group in a different region of North America to compare information. At the end of each season, each user of the kit records results on a computer data sheet and sends it to BARK headquarters at Queen's University. Headquarters then returns easy-to-read maps that depict pH levels across North America, illustrating danger zones and neutral areas. Research articles, reference materials, experiments, games and activities also help to explain current acid rain issues.

Contact:

Public Focus
2315A Yonge Street
TORONTO, Ont.
M4P 2C6
Tel.: (416) 484-8339
Fax: (416) 484-8339

Char Habitat Enhancement Education Project

A fish enhancement project in the small community of Clyde River on Baffin Island that integrates traditional and scientific knowledge was presented to residents of two other small communities, Iqaluit and Rankin Inlet. A case history of the Clyde River experiences serves as an example of how scientific information can be linked with the goals of a community. The presentations, in the form of public lectures, left participants very receptive to learning scientific principles and resource management planning, as well as more conservation-minded. Meetings were conducted in English and Inuktitut to ensure complete understanding and participation.

Contact:

Science Institute of the Northwest Territories
P.O. Box 1617
YELLOWKNIFE, N.W.T.
X1A 2P2
Tel.: (403) 873-7592
Fax: (403) 873-0227

Class Sets of Science Kits on a Shoe-String

Class Sets of Science Kits on a Shoe-String provide a practical way of helping students build simple, inexpensive science equipment. Students discover how they can put theory into practice using common materials from everyday life. Using readily available materials means that one can get an apparatus into the hands of students fast. Materials are also easy to modify. A conductivity meter, for example, can be built from a popsicle stick, paper clips, tape, an elastic band, a small battery and a buzzer or flashing light-emitting diode (LED) from an electronics store. The project includes workshops for teachers and students, as well as written support materials.

Contact:

W.S. Babbitt
Education/Training Consultant
R.R. 1
BELLEVILLE, Ont.
K8N 4Z1
Tel.: (613) 962-6225
Fax: (613) 966-8038

Coastal Science Education Project

The Coastal Science Education Project gives students from grades 4 to 12 the opportunity to experience first-hand the science and technology associated with understanding and interpreting the coastal environment in their own "backyard." Education staff from the Huntsman Marine Science Centre travel to schools that are too far away to visit the centre's facilities. Students are taken on field trips to local coastal sites where they locate, identify and study plants, animals and the physical processes working to create and maintain these environments. Pre- and post-visit classroom lessons are included to link the experience with the curriculum.

Information from these field trips is collected and kept in a "coastal environment database," which is soon expected to be available on NEWBED, the New Brunswick Department of Education's computer network. Data can be used as a teaching tool for classrooms. In addition, the project has been tied in with the development and piloting of an electronic atlas.

The project is publicized through *SEAWORDS*, the education newsletter of the centre, and various teacher and educational magazines in Canada. *SEAWORDS* and the computer network files contain activities to use with the data.

Contact:

Public Education Department
Huntsman Marine Science Centre
ST. ANDREWS, N.B.
E0G 2X0
Tel.: (506) 529-1200
Fax: (506) 529-1212

Exercises in Conservation: The Role of Science

Elementary and secondary school students explore conservation and genetics, the role of toxicology in conservation, as well as the connection between conservation and wildlife through 34 classroom science exercises. Activities linked to specific age groups cover topics such as bats, population, predators and prey, oil spills and food webs. One wildlife and conservation exercise has students estimate the population size of one animal and plant species (e.g. grey squirrels and sugar maples) within a one-kilometre radius of their school.

These activities involve classroom, library, laboratory and field studies. Students collect and analyze data, discuss the results and possible conservation strategies, as well as emphasize the connection between science and society. Exercises illustrate the scientific process for students and train teachers to project the conservation ethic behind science.

Contact:

Department of Biology
York University
4700 Keele Street
NORTH YORK, Ont.
M3J 1P3
Tel: (416) 736-5243
Fax: (416) 736-5698

Field Trip Guidebook Project

Newfoundland is not called "The Rock" for nothing. Students in grades 7 to 12 and teachers participate in field trips to learn first-hand about geology at some of the world's most amazing sites. With four field trips to different parts of the province, students see Precambrian rocks, clastic and carbonate rocks, and remnants of the ancient ocean crust and upper mantle. A typical one-day field trip leads a class to discover rock formations such as trilobite fossils in the Middle Cambrian shales, fluorspar in the St. Lawrence granite, as well as green and red sandstones of Eocambrian age. These trips teach about earth sciences as well as scientific methods of research and discovery.

Guidebooks are sent in advance to link the field trip to the curriculum. Three guidebooks containing overviews of local geology as well as brief descriptions and diagrams of the stops on the field trip have been prepared for the Burin, the Baie Verte and the Avalon Peninsulas. Another guidebook containing detailed exercises has been prepared on the Conception Bay area.

Contact:

Geological Association of Canada
c/o Department of Mines and Energy
95 Bonaventure Avenue
P.O. Box 8700
ST. JOHN'S, Nfld.
A1B 4J6
Tel.: (709) 737-8368
Fax: (709) 737-4706

FishNET: Fisheries Indicators of Stock Health Network

Youth and adult participants in the FishNET project collect and analyze biological and physical oceanographic data such as wind speed, cloud cover, water temperature and tide levels. They work with university and government scientists, using networking computer technology to share information. The data is useful in developing fishery management strategies to improve North Atlantic fish stocks.

Most importantly, FishNET increases public awareness of the role science plays in fishery management. This message can be passed quickly by word of mouth through a small community and will improve communication between local residents and scientists.

Contact:

Quebec-Labrador Foundation
Suite 680, 1253 McGill College Avenue
MONTREAL, Que.
H3B 2Y5
Tel.: (514) 395-6020
Fax: (514) 395-4505

Hands, Minds TECHSPO

This hands-on, problem-solving challenge provides children from kindergarten to grade 8 with an idea of practical applications of science and technology. Local companies create project themes and problems for the students to solve in class. Their projects are exhibited in the school and at regional or provincial exhibits. Past topics have ranged from building models of systems that helped medieval society function to constructing a model transportation system for a city of the future.

Classes have the option of completing interconnecting projects supporting one main theme or working on several different themes. Cooperating in groups of two to four students, participants learn how to work together to achieve their goal. Support systems are available to help teachers organize Hands, Minds TECHSPO in their area. Each school selects exemplary projects for the various theme-based categories that advance to board-wide, provincial and national showcases. All participants receive recognition and an insight into the fun and exciting world of science.

Contact:

Skills Canada Corporation
Unit D, 4 Cedar Pointe Drive
BARRIE, Ont.
L4N 5R7
Tel.: (705) 734-9170
Fax: (705) 734-1448

KIDSNET: Environment Watch

Children must learn to use new technology in order to benefit from the rapid advances affecting all areas of our lives. KIDSNET uses an educational telecommunications network called MINET (Manitoba Information NETWORK) with a modem link for students to communicate with different schools, as well as with experts in the scientific and economic communities. Students, with their teachers' help, will develop a database of environmental facts for each local school site. The network will allow students to compare their site with others in the province and around the world. Teachers will develop guiding questions to allow students to parallel the work of scientists through scientific investigations. In addition, students and teachers will create a videobase combining computer and video technology for sharing with other students.

After this project has been pilot-tested in the Fort Garry School Division, other schools in the province will have the opportunity to be linked to the existing network.

Contact:

Assistant Superintendent Programs and French Personnel
Fort Garry School Division No. 5
181 Henlow Bay
WINNIPEG, Man.
R3Y 1M7
Tel.: (204) 488-1757
Fax: (204) 488-2095

Lost Chords and Missing Links

Mariposa in the Schools (MITS) is a Toronto-based cooperative of musicians, storytellers, dramatists and other artists who, for more than 25 years, have been providing curriculum support to students and teachers across Ontario. In an attempt to broaden their base of expertise and repertoire, they have developed Lost Chords and Missing Links, a body of work that will be useful in the science classroom.

The project links the needs of Ontario science teachers and the talents of MITS artists. Taking up where the song *Ode to the Skeleton* leaves off (The head bone's connected to the neck bone...), MITS artists will develop a body of didactic material using mnemonic devices, everyday science applications and role modeling. In 1994, Lost Chords and Missing Links will produce a series of concerts and workshops in conjunction with the Ontario Science Centre as well as learning kits.

Contact:

Mariposa in the Schools
Suite 401, 68 Broadview Avenue
TORONTO, Ont.
M4M 2E6
Tel.: (416) 462-9400
Fax: (416) 462-0871

Math Trails in the Niagara Peninsula

Mathise Phun, Geo Metry, their dog Trig and his statistically minded fleas are characters featured in math activities around landmarks on walking tours. Students and the general public solve math challenges as they explore sites in the Niagara Falls and Welland Canal regions. Concepts explored include estimates and measurement (distance, height, area and volume), geometry (patterns and shapes) and chance (statistics).

Along the Niagara Falls trail, participants learn about the elevation of the Great Lakes, the height of the falls and the speed at which the water falls. In addition to important historical figures such as Lord Kelvin, walkers are introduced to colourful characters who crossed the falls on tightropes or went over them in barrels. Along the Welland Canal trail, participants learn about advances in lock technology and size, learn about bridges that cross the canal and explore different types of ships and cargoes.

The *Math Trail* booklets are distributed free of charge by Conference Services at Brock University, the Niagara Parks Commission and the Welland Canal Tourist Bureau.

Contact:

Mathematics Department
Brock University
500 Glenridge Avenue
ST. CATHARINES, Ont.
L2S 3A1
Tel.: (905) 688-5550
Fax: (905) 682-9020

The Ocean News Integrated Learning Package

At a remote fishing village on the west coast of Vancouver Island is the Bamfield Marine Station, a university research and teaching facility. The station operates a public education field trip program from September to May where visiting students or adults engage in hands-on marine science study.

The *Ocean News* is a three-part learning resource for children in grades 6 to 10. It includes a newsletter with information on ocean science and technology; a teacher's guide with background information and activities; and a computer disk with activities for the Macintosh™. Four issues of the Ocean News package are planned for the 1993-94 school year on such themes as using technology to investigate the ocean and how to use science and technology to study whales.

The package teaches about new developments in marine studies and the basic concepts behind them.

Contact:

Bamfield Marine Station
BAMFIELD, B.C.
V0R 1B0
Tel.: (604) 728-3301
Fax: (604) 728-3452

The Pandora Project

What career options will be available in the future? The Pandora Project outlines various careers in science and technology using two easy-to-understand interactive videodisc systems. By defining occupational functions and required skill levels, as well as profiling someone in each job, the Pandora Project gives a good overview of many different careers. The first videodisc system, *Dare to Dream*, provides an overview of career paths in the computing, environment, health, materials and processes, and telecommunications sectors. The second, *Working Hand, Caring Heart*, focuses exclusively on environmental career paths.

Designed for schools, career centres and exhibitions, these videodisc systems are user-friendly.

Contact:

Centre for Career Development Innovation
Concordia College
9359 - 67A Street N.W.
EDMONTON, Alta.
T6B 1R7
Tel.: (403) 466-6633
Fax: (403) 466-9394

Public Education Program

One of the best locations in the world to study neutrinos, tiny particles emitted from the sun, is two kilometres **below** the earth's surface at the Sudbury Neutrino Observatory (SNO). Once it is completed, this observatory will include an acrylic tank containing 1 000 tonnes of Canada's heavy water and a unique neutrino detector. Scientists believe that neutrinos, which are produced in the sun's core and travel to earth within minutes, can give valuable information about the sun and other stars.

The observatory's *Public Education Program* includes visits to schools to explain the basic science behind the observatory (e.g. underground science and pure water properties). Some students also visit the Laurentian University planetarium and laboratories for presentations on stars and their neutrino connection. Support materials prepared by the office include a chart, an excavation poster, a brochure, an interactive computer display and a 15-minute video.

Contact:

Sudbury Neutrino Observatory Office
Department of Physics
Laurentian University
Ramsey Lake Road
SUDBURY, Ont.
P3E 2C6
Tel.: (705) 675-1151, ext. 2231 or 2222
Fax: (705) 675-4868

Science is Alive and Well in Our Community

The Perth Foundation for the Enrichment of Education provides opportunities for teachers and students to learn from local science and technology professionals. A directory is being compiled for the schools to offer contact names for interviews, classroom presentations and job shadowing.

Sci-Tech Encounters is a one-day annual symposium that includes interactive displays by local and national companies, and Science Olympics competitions. The *Arts-in-Science* workshop series uses drama techniques to help students learn about soil, properties of matter, energy and solutions.

To increase the comfort level of girls with technical activities, a week-long annual *Summer Tech* camp provides opportunities for participants to work with computerized drafting and design technology, to use power and hand tools, and to interact with women in science and technology careers.

Contact:

Perth Foundation for the Enrichment of Education
210 Water Street
STRATFORD, Ont.
N5A 3C5
Tel.: (519) 271-9136
Fax: (519) 271-2324

Science, on tourne!

The Federation of CÉGEPs organizes a province-wide competition where students build working machines to perform a specified task. The purpose of the competition is to demonstrate each candidate's skills in science and technology. In 1993, participants were all required to build a machine that holds and drops pencils.

Winners from each college, approximately 20 students, go to the final competition at the provincial level. This gives students from all over Quebec the opportunity to show their abilities and accomplishments to the general public, the press and scientific experts.

Contact:

Federation of CÉGEPs
500 Crémazie Boulevard East
MONTREAL, Que.
H2P 1E7
Tel.: (514) 381-8631
Fax: (514) 381-2263

Scientists, Technologists and Engineers Placed in Schools (STEPS)

Who better to talk about science to students and teachers than a professional in a science-related career? *Scientists, Technologists and Engineers Placed in Schools (STEPS)* places volunteer resource people in classrooms in western Newfoundland for up to three days. Professionals represent a variety of disciplines and careers ranging from chemistry to health sciences to physics. All provide some information on their particular field and on the importance of science in general. These visits help students understand the link between their studies and the professional world.

STEPS enriches the regular curriculum for students from primary levels to the senior high school grades. Volunteers work according to the students' and teachers' needs, conducting large-group assemblies or labs, working on specific projects, presenting new research, training students and teachers on the use of equipment, or conducting field trips. *STEPS* is publicized through a coordinator and a catalogue that gives a brief biography of each volunteer.

Contact:

Sir Wilfred Grenfell College
University Drive
CORNER BROOK, Nfld.
A2H 6P9
Tel.: (709) 637-6200
Fax: (709) 637-6390

Scientists in School

Many elementary school teachers have limited experience with science. This is particularly unfortunate when you consider that elementary students are often at their peak in curiosity about the world around them. The Ajax-Pickering Branch of the Canadian Federation of University Women looks to science and technology professionals with imagination, enthusiasm and an interest in children to address this challenge.

Insects, seeds, water, colour and printing technology are among the many topics addressed in presentations to Durham region elementary schools. Presentations favour active participation by students through experiments, field work, games, drawing, graphing and brainstorming. To increase the number of teachers exposed to their innovative approaches to science instruction, the organization offers teacher workshops on professional development days. An information package on these activities is available to organizations considering similar initiatives.

Contact:

Ajax-Pickering Branch of the Canadian Federation
of University Women
1976 Southview Drive
PICKERING, Ont.
L1V 1Y7
Tel.: (416) 287-7547
Fax: (416) 287-7423

Scientists in the Schools

Scientists and engineers are among the best sources to discover the realities of a career in science and technology. *Scientists in the Schools* uses those who are currently involved in these disciplines to speak to a class or help with a science fair. In elementary schools, where the experience and resources of the teacher may be limited, visits can help to fill a gap. High school students considering career choices may find the presence of a working scientist extremely valuable.

Volunteers and participating school boards are listed in a data bank. To ensure the smooth operation of this program, speaker training materials are available for new volunteers. Future goals include holding informal meetings and seminars, where female scientists and graduate students discuss career options with girls, and the publication of a regular newsletter.

The Scientists in the Schools Association is linked to the Innovators in the Schools network, which provides similar services. Innovators is coordinated on a national basis by Industry Canada.

Contact:

Scientists in the Schools Association
c/o Centre for Marine Geology
Dalhousie University
HALIFAX, N.S.
B3H 3J5
Tel.: (902) 494-6461
Fax: (902) 494-3877

Space Simulation

Students at two Ottawa high schools (Lisgar Collegiate Institute and Ridgemont High School) join schools across North America to simulate a 72-hour space mission and to perform various experiments relevant to the space environment. Past missions have included building a mock lunar habitat, a robotic arm, camera mounts and space suits. Each mission is run simultaneously in all participating schools, with regular communication between students using computers, amateur radio, slow scan TV, fax and teleconferences. Teleconferences are exciting for students because of the involvement of experts such as Robert Thirsk, a Canadian astronaut.

Some students have participated in exchanges that took them to South Carolina, as well as to the Johnson Space Centre in Houston, Texas. Since the habitat can be moved, missions are conducted in other elementary and secondary schools.

Contact:

Curriculum Services Department
Ottawa Board of Education
330 Gilmour Street
OTTAWA, Ont.
K2P 0P9
Tel.: (613) 239-5900
Fax: (613) 239-5940

Stormont, Dundas & Glengarry Science Index

The *Stormont, Dundas & Glengarry Science Index* lists volunteers that bring science concepts taught in school to life by highlighting their application in local businesses and, in some cases, having them presented by employees. Teachers have easy access, either on diskette or in print, to information on volunteer members of the local science and technology community. The index, available in English and French, also links the curriculum to the work of each volunteer.

A hard copy of the index is being given to every high school science and math teacher in the region. The Stormont, Dundas & Glengarry Industry-Education Council is planning a second phase of the project, which will make it relevant to elementary schools and community colleges.

Contact:

Stormont, Dundas & Glengarry
Industry-Education Council
138 Pitt Street
CORNWALL, Ont.
K6J 3P5
Tel.: (613) 932-5140
Fax: (613) 933-9689

Super Science with MacGyver

How often do children get to watch television for homework? *Super Science with MacGyver* is a series of science-oriented lesson plans that link the show *MacGyver* with science concepts. MacGyver is famous for his amazing escapes and quick thinking. However, the tricks he performs are accomplished using a blend of basic science concepts and ingenuity.

Each episode is linked to a study sheet that students complete while watching the show. After the study sheet has been completed, there are discussion questions about the issues raised in the episode that children can review with their parents. There are also experiments and activities teachers can use to better explain the science that MacGyver used in the show. For example, in one episode, MacGyver uses a pulley system to change the direction and amount of force; in class, teachers show their students how to build and use pulleys.

In addition to learning science concepts, critical thinking skills and problem-solving strategies, these modules also touch upon subjects such as language arts and social studies.

Although *MacGyver* is no longer shown on prime-time television, its reruns can still be seen through syndication. Also, two new *MacGyver* movies are being shown during the 1993-94 television season.

Contact:

Science Plus
4532 - 205A Street
LANGLEY, B.C.
V3A 5X4
Tel.: (604) 530-9849

Career Mentoring for Women in Science

Career mentoring allows young women in grades 11 and 12 to experience first-hand the opportunities afforded by an education in science or math by visiting a lab or observing field work. Female students are matched with a female science or technology professional for a minimum of one day. Last year, over 100 female high school students in Saskatoon were matched with mentors from 25 private, university, federal and provincial agencies.

In order to strengthen this program, the club is publishing a book entitled *Science Career Profiles* that describes over 50 science careers. The aim of the book is to inform high school students of the wide variety of science careers that are open to them and provide them with the needed information for setting educational paths to get there.

Contact:

Saskatoon Business and Professional Women's Club
243 Nesslin Terrace
SASKATOON, Sask.
S7J 4S2
Tel.: (306) 975-5592
Fax: (306) 975-5143

Operation Minerva

Operation Minerva encourages young girls to take an interest in their math and science studies, builds their confidence in these areas and provides them with first-hand information about related careers. Job shadowing is available for junior high school girls (grade 8) to spend a day with a female scientist, engineer or technologist. The following day, the girls attend a one-day conference at the University of Calgary. Events at the conference include applied science and technology workshops presented by science and technology professionals, panel discussions and a keynote address by a female scientist about her experience in the sciences.

Operation Minerva's conference handbook, an organizer's guide, helps other groups to stage similar events. The organization also provides consulting services to conference organizing committees. Along with programs aimed at young girls, there are presentations to adult groups, such as parents and teachers.

Contact:

Operation Minerva
2728 Crawford Road N.W.
CALGARY, Alta.
T2L 1E1
Tel.: (403) 282-6431
Fax: (403) 284-4750

PEI Women Do Math and Science

Many young girls benefit from the opportunity to meet and work with successful women in careers related to math, science and technology. It gives them a better appreciation of the options open to them, especially as they begin to choose their subjects for junior and senior high school. That is the *raison d'être* behind this promotional event held for grade 8 girls on Prince Edward Island.

Since 1991, the Steering Committee for PEI Women Do Math and Science has organized a one-day conference attended by the girls; their parents; women working in math, science and technology-related professions in the province; and female postsecondary students serving as volunteers. The day-long conference involves a fun, competitive icebreaker event, a keynote address by a nationally renowned speaker, hands-on workshops for the students and parents, and an awards presentation for various categories of achievement.

Plans for 1994 activities broaden the audience to include boys in a keynote event in Charlottetown. A six-month mentoring project matches grade 8 girls with female workers in math, science and technology-related jobs.

Contact:

Steering Committee for PEI Women Do Math
and Science
P.O. Box 2000
CHARLOTTETOWN, P.E.I.
C1A 7N8
Tel.: (902) 368-4510
Fax: (902) 368-4516

Scientifically Yours

Targeting bright young women in grade 11 from the Niagara, Hamilton and Halton regions, this three-day workshop consists of hands-on science activities and seminars about women in science. The event begins with a seminar on gender stereotyping, led by a female scientist. Activities such as a multiple-choice quiz about the presenter's personal lifestyle and drawing a picture of a stereotypical female scientist are used as starting points in fighting common misconceptions and assumptions about scientists.

Over the three-day period, each girl participates in four of 12 different group projects, with topics such as Rates of Apparent Photosynthesis and Dark Respiration, R Plasmids in Bacteria, Polymers, DNA and Slime, Plate Tectonics, and Electrical Conduction at Low Temperatures. The last completed project is presented by the group so that participants can learn from each other. Social events, such as a dinner with female scientists, allow for contact and mentorship in an informal setting. In addition, lab tours, a career counselling session and recreational activities create an atmosphere of learning and fun that will increase awareness of the wide variety of careers that exist in the sciences and will encourage the girls to continue their studies in science and technology.

Contact:

Status of Women in Science Committee
Faculty of Mathematics and Science
Brock University
ST. CATHARINES, Ont.
L2S 3A1
Tel.: (905) 688-5550, ext. 3421
Fax: (905) 641-0406

University to the People

University to the People is a noon-hour science presentation for Saskatoon adults at the Midtown Plaza shopping mall. The mall is an ideal setting to reach people who would not normally go out of their way to learn about science. A moderator introduces a guest speaker from the University of Saskatchewan who gives a 30-minute presentation on a topical science issue. Examples include global warming and its effect on Saskatchewan, dangerous chemicals in food, birth defects and nuclear energy. The audience and the presenter then debate the topic. After 20 minutes, the moderator sums up the viewpoints, and the session ends with a question and answer period.

Contact:

Extension Division
University of Saskatchewan
SASKATOON, Sask.
S7N 0W0
Tel.: (306) 966-5552
Fax: (306) 966-5567

Career Connections Series

Many students are not fully aware of the numerous careers available to them in science and technology. This series of six highly visual, full-colour, user-friendly books for young Canadians, 11 to 16 years of age, will help steer them in the right direction. Titles are:

- *Great Careers for People Interested in Math and Computers*
- *Great Careers for People Interested in the Human Body*
- *Great Careers for People Interested in Living Things*
- *Great Careers for People Concerned About the Environment*
- *Great Careers for People Interested in How Things Work*
- *Great Careers for People Who Like Being Outdoors*

Each book highlights the careers of 10 Canadians, based on personal interviews. For example, readers meet Karen Goodrowe, zoo biologist, and learn about her interests and personal characteristics, what a zoo biologist does, what it took for Karen to reach her goals, why and how she chose her profession, and what her typical day is like. Another section helps readers assess whether a particular job is right for them. The text is supplemented by photos of each person, subject-related activities, career planning and exploration activities, special interest features, forecast demand for the featured professions, and information on related careers.

Contact:

Trifolium Books Inc.
Suite 28, 238 Davenport Road
TORONTO, Ont.
M5R 1J6
Tel.: (416) 925-0765
Fax: (416) 485-5563

EnvisioN

Puzzles, poems, articles and science challenges are all included in this science magazine, produced by and for secondary school students. Typical items from past issues include a cell theory rap poem, physics puzzles and a column about women in science. Challenges include solving a problem as part of a competition (e.g. construction of a miniature car propelled by a single elastic band). Student interest in challenges, which are fun and educational, is growing. In the first challenge, only 15 students took part; the second challenge had 80 participants.

EnvisioN began at one school, expanded to other schools in Regina and is now province-wide. The staff would like to see it encompass the entire country. Computers are used in every facet of the production, providing students with valuable experience.

Contact:

Science Department
Martin Collegiate
1100 McIntosh Street
REGINA, Sask.
S4T 5B7
Tel.: (306) 791-8360
Fax: (306) 791-8659

Experiment Cards for Children

The Association en didactique des sciences de la nature et de la technologie (ADISNAT) is a non-profit organization that offers elementary school teachers educational material on natural science.

Experiment cards make children aware of the nature that surrounds them. The cards are intended for Francophone and immersion students from the ages of five to 12, as well as their teachers and monitors. They are aimed at developing children's interest in scientific experiments as well as teaching them scientific concepts. Their content is drawn from objects and phenomena in children's everyday life.

The material, which includes more than 1 000 experiment cards and related documents, is offered free of charge to schools.

Contact:

ADISNAT
University of Quebec at Chicoutimi
555 University Boulevard
CHICOUTIMI, Que.
G7H 2B1
Tel.: (418) 545-5359
Fax: (418) 545-5012

Great Canadian Scientists

This book and multimedia computer display will profile 50 Canadian scientists and their amazing discoveries. To portray the scientists as role models and show the human side of science, the text will explore the scientists' feelings about their work. Each scientist will be portrayed in a colourful two-page spread, including graphics and experiments readers can do. The computer display will mirror the book, with the advantage of video and sound clips. Scientists to be included reflect a balance of disciplines, regions and gender.

Great Canadian Scientists is aimed primarily at children between the ages of nine and 14.

Contact:

Softshell Small Systems Software Design Inc.
4692 Quebec Street
VANCOUVER, B.C.
V5V 3M1
Tel.: (604) 876-5790
Fax: (604) 291-4424

Omni Science

Omni Science uncovers the mysteries behind the brain, the ocean, space and many other vast concepts in science. This world-renowned television series is complemented by a series of 78 colourful and informative brochures in both English and French. The brochures introduce the general public to scientific phenomena and the interrelations that influence them. These brochures use plain language and photos to cover topics such as aeronautics, aging, nuclear energy, genetic engineering, telecommunications, vision and math in nature.

Contact:

Le Groupe Coscient
Suite 2400, 300 Léo-Parizeau Street
P.O. Box 1145
MONTREAL, Que.
H2W 2P4
Tel.: (514) 284-2525
Fax: (514) 284-0640

Product Innovations: From the Lab to the Marketplace

Science teaching can come alive when it shows how ideas move from the laboratory to the marketplace. The 40-page resource booklet *Product Innovations: From the Lab to the Marketplace* links concepts in high school chemistry to the development of the aluminum-air battery, a successful Canadian innovation. The booklet presents a series of experiments suitable for Ontario Academic Course (OAC) level chemistry that introduces the student to the concepts necessary to build a functioning, useful battery — in this case, one designed to power a personal portable stereo. The booklet also covers a range of issues surrounding how ideas move from basic science through to real products, all in the context of the student developing their own battery product.

The booklet is based on a workshop presented by the scientists who actually developed the aluminum-air battery. It is available to all Ontario secondary schools and to any school board across Canada that requests it.

Contact:

Ontario Centre for Materials Research
University of Toronto
Mining Building
Room 332, 170 College Street
TORONTO, Ont.
M5S 1A1
Tel.: (416) 978-4314
Fax: (416) 978-1462

Quatre-temps

A world of beauty, science and nature is waiting to be discovered inside a botanical garden. Les Amis du Jardin botanique de Montréal have published the magazine *Quatre-temps* four times annually since 1977, featuring botanical gardens, new developments in horticulture and botany, and the wonders of natural science. Detailed articles address subjects such as gardens, plants and medicine, Montreal's Biodome, and the nutritional functioning of the tree.

This magazine teaches the members of Les Amis du Jardin botanique de Montréal and the general public in a colourful and interesting way about the science found in gardens. *Quatre-temps* has expanded its audience by translating its special Biodome issue into English for distribution in Canada and abroad. In addition to individual subscribers, the magazine also reaches libraries, universities and other organizations in Quebec and across Canada.

Contact:

Les Amis du Jardin botanique de Montréal
Suite 125, 4101 Sherbrooke Street East
MONTREAL, Que.
H1X 2B2
Tel.: (514) 872-1493
Fax: (514) 872-3765

The Science Book for Girls and Other Intelligent Beings

Why does your biological clock wake you up? How does a microwave work? These are some of the weird and wonderful questions that the colourful, hands-on activity book *The Science Book for Girls and Other Intelligent Beings* asks. Girls between eight and 12 follow the adventures of Nora (Natural Observation Research Activator), a tiny research scientist. Nora presents activities such as creating string soup with the protein strands in eggs, constructing a simple flashlight and mixing cabbage juice with other liquids to change its colour.

Activities are intended to make girls more comfortable with science and to help them understand that science applies to everyday life.

Contact:

Kids Can Press Ltd.
29 Birch Avenue
TORONTO, Ont.
M4V 1E2
Tel.: (416) 925-5437
Fax: (416) 960-5437

La science du quotidien

Have you ever wondered why you get less wet when you run instead of walk in the rain or why yawning is contagious? Jay Ingram's *La science du quotidien* looks at these and many other questions about daily life that science can answer. This book explains science in an easy-to-understand fashion that is humorous and fun to read. With chapter titles such as "When the Moon Hits Your Eye Like a Big-a Pizza Pie...", "Sights and Sounds in a Cup of Coffee" and "Two Good Reasons for Having a Bath," the book is ideal reading for people who think science is difficult or dull.

Contact:

Editions Multimondes
845 Marie-Victorin Street
P.O. Box 2010
SAINT-NICOLAS-EST, Que.
G0S 3L0
Tel.: (418) 831-0790
Fax: (418) 831-0009

Science, Technology and Society Yearbook

The *Science, Technology and Society Yearbook*, designed for secondary school students, consists of 40 articles written by Canadian academics or researchers and edited by a science teacher. These articles are supplemented with a vocabulary list, follow-up questions, a reading list, teaching strategies and suggested links to curriculum outlines in each province. The yearbook is produced in a binder format so it is easy to update or photocopy.

Articles address topical issues to help students become aware of their link to science. Some articles from the past are "Toxic Chemicals and Diseases in Marine Mammals," "Vegetarianism" and "Soil Erosion: Nature Provides Key to Solution." The article "Laser Beams Clear Arteries" provides information about techniques used in the past to cure arteriosclerosis, current advancements in this field, as well as their success and problems.

Contact:

Canadian Student Pugwash
P.O. Box 135, Station B
OTTAWA, Ont.
K1P 6C3
Tel.: (613) 230-5208
Fax: (613) 230-5208

Automated Office Workstation

For some people with physical disabilities, regular office tasks such as keyboarding are difficult if not impossible; however, new technology is facilitating the use of office equipment. The Neil Squire Foundation's Automated Office Workstation toured across Canada during the summer of 1992. It stopped in shopping malls, universities and conferences in major cities across the country. The tour demonstrated to as many Canadians as possible what "accommodation through automation" can do for people with physical disabilities.

The workstation was designed by taking standard pieces of office equipment, such as a computer, modem, laser printer, voice synthesizer, computer-controlled fax machine and office furniture that is customized to meet the needs of the individual, and combining them with the latest in adaptive technology. The adaptive technology included various ways of accessing the computer for people who cannot use a keyboard, such as a morse code input system and a 30 000-word voice recognition system. It also included a robotic arm, which can be used to perform tasks such as handling paper and file folders, repositioning the screen, turning pages in a book, changing computer disks and even pouring a cup of coffee.

Contact:

Neil Squire Foundation
1046 Deep Cove Road
NORTH VANCOUVER, B.C.
V7G 1S3
Tel.: (604) 929-2414
Fax: (604) 929-3316

Big Worlds, Small Worlds

The Ocean Sciences Centre offers public education programs to expand awareness of sea animals and their environment. A satellite plankton display called *Big Worlds, Small Worlds* includes a microscope for examining marine micro-organisms. Another popular feature at the centre is the touch tank, a shallow "table-top" aquarium where visitors are encouraged to touch, pick up and examine any one of a number of sea creatures such as lobsters, crabs, starfish and anemones. The centre also features seal tanks, where visitors learn about the behaviour and adaptations of five different seal species. Other attractions include a video presentation, sea trek posters and public lectures.

Contact:

Ocean Sciences Centre
Memorial University of Newfoundland
ST. JOHN'S, Nfld.
A1B 3A6
Tel.: (709) 737-8833
Fax: (709) 737-3121

Canada in Space

Watching the stars holds a certain fascination, whether for navigation or merely an evening pastime. In 1992, the *Canada in Space* travelling exhibit used humour and theatre to teach about the stars, planets, aurora borealis and many other wonders. Other workshop/shows available are *Earth, Moon and Sun*; *Space Flights*; *The Universe*; and *La lumière : du Soleil au laser*.

Special effects create the illusion of phenomena such as the starry sky, the moon, the aurora borealis and meteorites. Evening presentations during the summer include the constellations and the mysteries of the universe. Afterwards, the audience is invited for a first-hand view of the moon and Saturn through a telescope. Most services are available in both English and French and are aimed at elementary and secondary school children.

Contact:

Atelier mobile d'initiation à l'astronomie inc.
P.O. Box 863
BROWNSBURG, Que.
J0V 1A0
Tel.: (514) 562-7437

Comprendre notre monde

Comprendre notre monde is a travelling workshop, featuring a planetarium, that brings science to life for elementary and secondary school children from the ages of six to 15. The workshop addresses topics ranging from the infinitely large to the very small. It explains the workings of planets and atoms, forces of attraction, stars and comets. Games and demonstrations help students to have fun while learning about the evolution of the universe and celestial machinery. Presentations are tailored to the age of the audience. The travelling workshop covers eastern Quebec and northern New Brunswick.

Contact:

Station scientifique du Bas Saint-Laurent (ASTER)
59 Bellevue Road
SAINT-LOUIS-DU-HA! HA!, Que.
G0L 3S0
Tel.: (418) 854-2172
Fax: (418) 854-2172

Discover the Universe

Nobody can predict what surprises in outer space await us in the coming years. For now, we have to be satisfied with *Discover the Universe*, which presents the leading edge of science as revealed by the most modern techniques of observation. This exhibition is presented in four rooms, using a variety of media.

The exhibit opens in the first room with *Big Bang II*, a three-minute multimedia presentation about the cosmos. The second room contains an enormous mural of the celestial bodies as well as recent colour images of the planets and the sun presented on 10 television screens. It also contains informative and eye-catching displays such as a giant star chart, a computer system describing the celestial bodies, 30 photographs and a big screen television presentation on a French astrophysicist. In the third room, another big screen television shows the history of space travel and the wonders of the planets. The fourth room houses a film produced by NASA and 30 more photographs.

Contact:

La Cité des arts et des nouvelles technologies
de Montréal
Suite 101, 15 de la Commune Street West
MONTREAL, Que.
H2Y 2C6
Tel.: (514) 849-1612
Fax: (514) 982-0064

Flow-Through System

The *Flow-Through System* is a 30-centimetre wide by 12-metre long artificial water system that displays water current features such as rapids and pools, aspects of pollution like siltation and nutrient enrichment, and living organisms such as algae, plants, insects and fish. This new display complements the fluvarium, a natural underwater stream viewing area, particularly in winter when little is visible. By applying innovative science and technology tools to a natural system, the goal of the Newfoundland Freshwater Resource Centre is to instil environmental awareness and concern.

Contact:

Newfoundland Freshwater Resource Centre
P.O. Box 5, Nagle's Place
Pippy Park
ST. JOHN'S, Nfld.
A1B 2Z2
Tel.: (709) 754-3474
Fax: (709) 754-5947

Flurry of Feathers

Bird watchers and the general public can learn about the adaptations and unique qualities of Canadian bird species from this bilingual travelling exhibition. Exhibits cover three separate themes: the ingenuity of nature; a survey of research on birds; and managing and protecting bird populations. Some of the wide variety of topics that these themes encompass are the adaptations of aquatic birds, the origins of colourful plumage, bird songs and calls, the evolution of birds, technology for the protection of bird species, and the importance of protecting bird habitats.

Through interactive, colourful displays that use sounds and three-dimensional representation, the display will interest audiences of all ages. With the advantage of the museum's impressive bird collection, people can see actual birds instead of a two-dimensional picture. It is critical for people to understand the necessity of protecting birds — from the tiny hummingbird to the enormous ostrich — and, more importantly, their significance to the Earth's interwoven ecosystem.

Contact:

Musée du Séminaire de Sherbrooke
222 Frontenac Street
SHERBROOKE, Que.
J1H 1J9
Tel.: (819) 564-3200
Fax: (819) 564-7388

J'utilise les chemins de la science

J'utilise les chemins de la science is an elementary school science exhibition of projects created by 10 to 12 year-old students. The exhibition, which began in the region of Grande-Rivière in Gaspésie, is now being expanded to the entire Grande-Vallée area, involving more than 300 young people.

Contact:

Exposition scientifique du primaire Fernand-Séguin
134 Grande-Allée East
GRANDE-RIVIÈRE, Que.
G0C 1V0
Tel.: (418) 385-2320
Fax: (418) 385-4446

Pour faire le plein d'énergie

Energy makes the world go round. It is an integral part of life, but the way that we use it has had a profound effect on our environment. *Pour faire le plein d'énergie* is an interactive exhibition hosted by the Musée d'histoire naturelle Georges-Préfontaine that teaches children and the general public about the social, environmental and economic aspects of energy. Games such as a giant version of Scrabble™ make it easy for students to understand and remember difficult concepts. Children learn about energy sources such as wind power, solar energy and hydro-electric power as well as energy used by the human body. Guides ask and answer questions to get visitors thinking: What happens to the energy produced by a light bulb? Does the perfect form of energy exist? The exhibition aims at getting participants to ask questions and participate in discussions about energy and the way it is used in our society.

Contact:

Société de biologie de Montréal
P.O. Box 39, Outremont Station
OUTREMONT, Que.
H2V 4M6
Tel.: (514) 277-9864

Rig, Earth Resource Park

The exploration and development of petroleum products is an important part of Alberta's economy. The Rig, Earth Resource Park, scheduled to open in 1994, will teach the general public, as well as elementary and secondary school students, about the exploration and recovery of petroleum resources. The main feature will be an actual triple drilling rig 45-metres high, which is approximately as high as a 15-storey building. An interpretive centre will contain displays on hydrocarbon development, petroleum products, local geology, seismic and related search technology, drilling technology and hydrocarbon recovery. The park will focus on such important messages as environmental protection procedures and responsible development.

Contact:

Fox Creek Heritage and Tourism Foundation
P.O. Box 774
FOX CREEK, Alta.
T0H 1P0
Tel.: (403) 622-2000
Fax: (403) 622-2878

Science as Art: Botanical Illustration of New Canadian Tree Fruit Varieties

There are few vehicles available to Canada's scientific plant breeding community to showcase their contributions. This travelling exhibit features artwork that portrays Canadian contributions in the breeding of 10 commercial tree fruit species, ranging from the Spartan Apple to the Sierra Pear to the Lapin Cherry. Each work of art is accompanied by a text and graphics panel explaining the characteristics of the new species and illustrating its lineage.

Following a tour of museums, art galleries and science centres, the exhibit will remain permanently at the Kelowna Centennial Museum.

Contact:

Kelowna Centennial Museum Association
470 Queensway Avenue
KELOWNA, B.C.
V1Y 6S7
Tel.: (604) 763-2417
Fax: (604) 763-5722

Science at the Malls

Many people who live outside Canada's largest cities do not have access to science centres and museums. That is the rationale behind *Science at the Malls*, a travelling exhibit developed by the Manitoba Museum of Man and Nature that covers rural and urban regions of Manitoba. Its objective is to promote public awareness of, and stimulate interest in, science and technology in a dynamic, non-traditional manner. The project is designed to show that learning about science can be fun, and that science is an everyday aspect of our lives.

Throughout the summer, fall and winter of 1993-94, shopping malls across southern Manitoba will host this science show consisting of a science demonstration stage, a series of interactive science exhibits, experiment stations for "scientists-in-the-making," and special appearances by Manitoba scientists who will describe their research and/or inventions. Topics from all science disciplines include bats, cryogenics, forces of flight, spadefoot toads and mechanics.

The exhibit's main target audience is young people as well as parents and elderly people who cannot be touched directly in schools. Reaching the public in malls is effective because of the informal setting and relaxed atmosphere.

Contact:

Manitoba Museum of Man and Nature
190 Rupert Avenue
WINNIPEG, Man.
R3B 0N2
Tel.: (204) 956-2830
Fax: (204) 942-3679

Space Camp Canada

An adventure in space is waiting to be discovered at Space Camp Canada, where a space education complex is scheduled to open in 1994. Three theme-based pavilions are being created. The *Conquest of Space* pavilion will highlight historical events in space exploration, such as the first space walk and the first flight. The *Space and Technology* pavilion features the universe and research into phenomena such as the big bang theory, quasars and novas. The *Telecommunications and Information* pavilion allows visitors to discover how activities in space led to incredible progress in communications here on earth. It covers progress from primitive means of communications like the tom-tom to high-tech communication such as modems and cordless phones. Visitors can use interactive equipment to design a spaceship or to simulate piloting one.

Children from the ages of 10 to 16 who take part in camp programs will participate in a simulated space mission, study the technology and communications associated with space travel, visit the pavilions and learn about Canadian contributions in space.

Contact:

Space Camp Canada
Suite 405, 3090 le Carrefour Boulevard
LAVAL, Que.
H7T 2J7
Tel.: 1-800-565-2267
Fax: (514) 682-5464

This Day in Science

This Day in Science is an interactive multimedia exhibit that uses satellite and computer links to display up-to-date scientific information from British Columbia and around the world. The intent is to create the atmosphere and excitement of a television newsroom or mission control centre at the entrance to Science World British Columbia. The following list provides an idea of the information displayed:

- population levels
- animal species extinction
- Pacific time to four decimal places
- NASA's Earthwatch channel.

The exhibit also features newswire stories, a CD-ROM science encyclopedia and a Hypercard™ calendar highlighting significant events in science that have occurred throughout history.

Contact:

Science World British Columbia
1455 Quebec Street
VANCOUVER, B.C.
V6A 3Z7
Tel.: (604) 687-8414
Fax: (604) 682-2923

Tous parents, tous différents

This exhibit shows the origin of the human race, geographical and cultural differences. On loan from the Musée de l'Homme in Paris, this display has been modified to include the different ethnic origins of Canadians. It demonstrates how sciences like biology, chemistry and physics as well as carbon dating can be used to expose racial prejudice.

The bilingual exhibit travels to different regions in Canada, including Quebec, Toronto and Vancouver.

Contact:

Cité des arts et des nouvelles technologies de Montréal
Suite 101, 15 de la Commune Street West
MONTREAL, Que.
H2Y 2C6
Tel.: (514) 849-1612
Fax: (514) 982-0064

Travelling Science Lab

What elements in our environment do we need to survive? Water, air and earth. This travelling science lab (*Muséobus*) teaches children about these inert elements, their scientific properties and why we need them to survive. Two other exhibits on the bus include *Commiquer en tous sens*, which is about communications, and *Atelier-météo*, which explains the weather. While touring the lab, students are free to look at what interests them and perform the experiments in the order that they prefer. Afterwards, an instructor provides a short summary of what they have seen and manipulated to integrate all of the new information.

Besides specific facts, participants learn important general principles, such as the scientific method of experimentation, and gain an understanding of science in their environment. Aimed at students between the ages of six and 14, the travelling lab will reach schools, libraries and museums in the regions of Montérégie, Montreal, Ottawa and Lanaudière.

Contact:

Muséobus (Radis inc.)
760 des Patriotes Road
OTTERBURN PARK, Que.
J3H 1Z5
Tel.: (514) 464-0201
Fax: (514) 446-4644

Vetavision

People attending *Vetavision* have many unique opportunities such as witnessing live animal surgery and feeling the inside of a living cow's stomach. *Vetavision* is an exhibition of veterinary medicine put on every three years by the students at the Western College of Veterinary Medicine. By offering tours, films, seminars, posters, models, demonstrations, petting zoos and many hands-on activities at the veterinary college, *Vetavision* lets school groups and the general public get acquainted with the scope of modern veterinary medicine. This exhibition teaches people about the important role veterinarians play in such areas as food animal production, meat inspection, wildlife and companion animal health, biomedical research, and many other areas that have a huge impact on our society. Approximately 30 exhibits are prepared and staffed by students.

Contact:

Vetavision
Western College of Veterinary Medicine
University of Saskatchewan
SASKATOON, Sask.
S7N 0W0
Tel.: (306) 966-7447
Fax: (306) 966-8747

