



MAKING AN INTERNET PROJECT WORK*



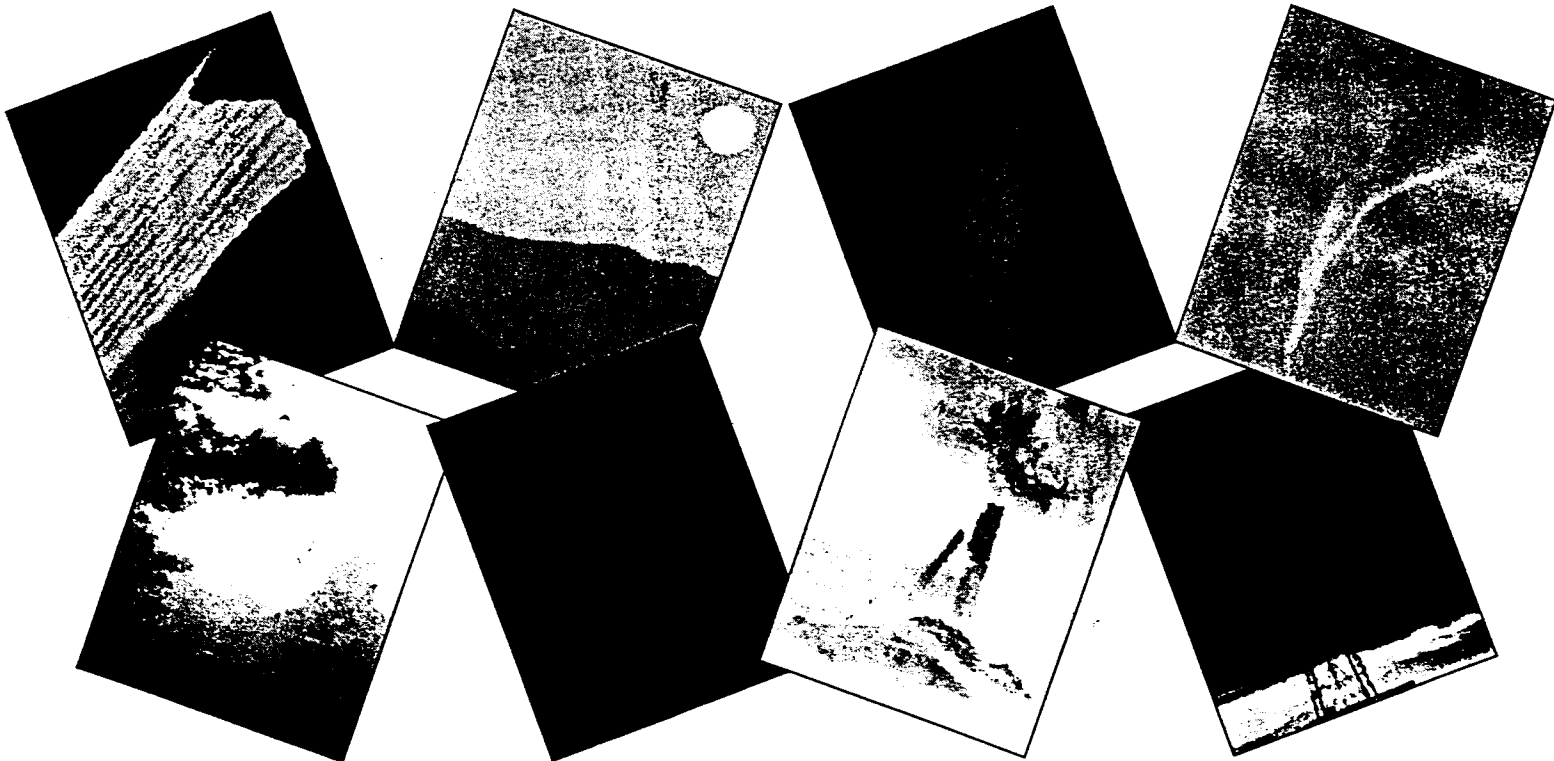
by Doug Walker
6th Grade Classroom Teacher
Rideau Valley Middle School
Ottawa, Ontario

* Reprinted from the January/February 1995 issue of *Multimedia Schools* by permission of Pemberton Press.

If your school is interested in riding the Information Highway, but is wondering how to begin, information in this article can help you. Recently, I developed and coordinated a six-week weather project, using Internet resources on Canada's SchoolNet. The project's goals were to engage the students in scientific inquiry, to teach them how to use the Internet as a tool to facilitate this inquiry, and to introduce the students to a wider community. We found

the weather project improved our teaching effectiveness and got our students excited about learning. The real world became part of the classroom learning environment. Outcome-based, the project was built upon our school's existing curriculum. Aided by exciting Internet resources, students did hands-on science, gathered data, and analyzed its significance. Best of all, the project's interdisciplinary design adapted easily to primary, middle, and high school settings.

To help you create and launch your own Internet project, this article distills some of our experience into ten tips and techniques. Keep these in mind as you work on your own project (which, of course, doesn't have to be about weather). First, you will need to be sure you are set up to access the Internet, and then you will need to become familiar with the vast array of Internet resources.



10 KEY TIPS

1 Start Small If Necessary

To connect to the Internet, you need a computer, a modem, good communications software, and access through an outside phone line to an Internet provider. With school budgets being so tight these days, it's best to start small. It is not necessary to spend a lot of money to bring the Internet to a school. For example, since most of what now comes over the Internet is text rather than pictures, even a very inexpensive 2400 baud modem could do for a start. Since high speed data transmission isn't essential for small quantities of text, one of your school's older, slower computers could be recycled to become your Internet computer. (Of course, if you're interested in receiving real-time graphic images, you *cannot* cut corners on equipment or the type of Internet connection you use.)

Next, find out if you'll need to install a separate phone line. As this can be expensive, see if there is a way you can operate your modem

over the school's regular phone lines. Often, it's possible to get an outside line by dialing 9 first. While we could not do this in our school, we learned that the phone company (for about \$100) could install a switch to enable us to use one line as a voice line when the modem wasn't in use. You'll also need a communications program. We opted for shareware. We selected Z-Term (Mac). It is an excellent program, costs about \$50, and has served us well.

Finally, you'll need a dial-up service to connect you with the Internet. If your community has a Free-net like Ottawa, then you can dial the local Free-net number and access the Internet without incurring base utility access charges. If not, you'll need to shop around for a commercial Internet provider. Usually these providers charge you by the hour, but some charge you by the number of characters. Schools only interested in using e-mail will find the latter a more

reasonable choice, since the first downloaded megabyte is usually free. Hourly rates make more sense for schools doing many high volume data transfers.

Bear in mind, however, that a school does not need many Internet connections. Most student work on an Internet project is done offline using existing school resources. Material developed on word processors can quickly be uploaded or downloaded. In our school, only one of our computers connects to the Internet. While two or three more would have made things easier, we've managed the complexities of our Internet projects without difficulty. If you have only one or two computers that connect to the Internet, you should think about where to put these machines. Our school finally decided upon the library. That way, the Internet computer could be available to everyone in the school.

2 Keep Your Teacher's Eyes Open

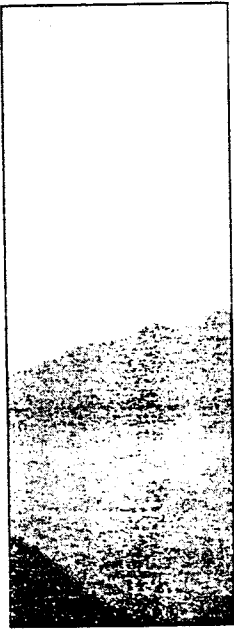
Explore the Internet with your teacher's eyes wide open. Take me, for instance. I'm always on the lookout for ideas to use in the classroom. In my Internet travels, I enjoy exploring the nooks and crannies of the Internet. I like to build a project with the Internet resources I discover. I've

come across thousands of Usenet newsgroups on every imaginable subject, with their remarkable FAQs ("Frequently Asked Questions"). Besides the monthly dozen or so huge NASA FAQs on recent developments in space science, you'll discover FAQs on lots of things students are already interested in: pets, Star Trek, sports, hobbies, genealogy.

Take a serious look at FAQs. Appearing at frequent intervals, not only do FAQs contain up-to-date information, bibliographies, and answers to readers' questions, but they also list where to get resources on the Internet — articles, software, pictures, and sound files.

For our weather project, we used NCAR/UCAR's monthly FAQ on meteorological data. (The National Center for Atmospheric Research is operated by the University Corporation for Atmospheric Research, sponsored by the National Science Foundation.) This report deals with Internet weather resources in many ways, from using FTP for downloading satellite images, and getting weather maps, to finding radar soundings, research data, and software by gopher, WAIS, and World-Wide Web. FAQs like this can easily be turned into resources for class projects.

While wandering the Internet, you'll also discover fascinating and helpful e-mail discussion lists (listservs). Some listservs are general; others are very specific. For example, during our weather project, we regularly followed WX-TALK to keep ourselves meteorologically up-to-date. Did you know that many top scientists are on the Internet, eager to help teachers and students? Through Canada's SchoolNet's "Electronic Innovators" program, classes can freely link up with practicing scientists in mentoring arrangements. While your classes participate in Internet projects, alert yourself to useful spinoff ideas for creating your own projects to share with other Internet schools.



Set Clear Goals

Once you have the equipment, the Internet connection, and are familiar with some Internet resources, you are ready to begin planning your project. We structured the project around Grade 6 meteorology. Above all, we wanted our 6th grade students to engage in scientific inquiry. We also wanted our students to use the Internet as a tool to develop their information literacy skills, and to empower them to learn about the world by communicating with students in other countries and cultures. That the whole school should feel part of our project, that everyone would perceive themselves as part of a community of knowledge discovery was another important project goal.

We banned the word "about" from our project. Since this was to be a science project, we were careful to make sure it wasn't "about" science —

no theatrical magic trick style "science experiments," no laboriously reproduced canned "experiments" where everything is known beforehand, making originality and thinking for oneself irrelevant. Students will learn if they can see that they are involved in doing something real. To learn science, let them really be scientists. They had specific tasks to perform and data to analyze.

We also banned "about" from learning the Internet. We were not too keen on hauling classes into the library to tell them "about" the Internet, have them take copious notes, and test them on a bunch of definitions. Having students passively learn about something as alive and changing as the Internet would be counterproductive. Why should students have to be content with passive learning, when they could learn by doing?



Brainstorm Your Project

Transform the goals of your project into concrete plans by brainstorming with staff. For example, at a staff meeting for the RVMS project, I asked for volunteers. Seven educators immediately expressed interest, but there was understandable uneasiness at the outset. Some were uncomfortable with computers, and only our librarian had experience using the Internet. The problem disappeared when we encouraged everyone on the team to choose an area in which he or she was most comfortable.

We orchestrated the project's phases and tasks according to the strengths of the team members. Since weather is studied in Grade 6, those teachers would look after the data gathering and instrument making. Our computer teacher would supervise students setting up spreadsheets to analyze and graph the weather data. Our librarian would help students break their research problems into manageable sub tasks. Our vice principal would help his class research topics on the Internet and set up an ongoing database of articles for the school library. We decided to train students to be our school's Internet researchers and resource people, continuously passing on to others what they learned. We developed investigative

teams of student journalists. Finally, wanting the whole school to "own" the project, we dreamed up a vast "Weather Wall" for the library, where beautiful artwork, displays, maps and constantly updated bulletins would keep everyone informed about our project and the world of weather.



Be Realistic

In planning an effective Internet project, it's important to keep your feet on the ground. Many projects do not succeed because practical matters are ignored. That is why we chose Grade 6 meteorology as the basis for our project. It offered the potential to do real hands-on field scientific observation. Yet, it did not require expensive instruments. A barometer, thermometer, and rain and wind gauges were not difficult for students to read and use. If need be, students could always make their own weather instruments.



Be Organized

In most projects, many things have to come together. Make a flow chart so students can see how the parts relate to the whole and so they can understand how their contributions fit in. For example, in our weather project, students took daily instrument readings. Then, using spreadsheets, they created forecasts to produce long range studies. Simultaneously, they could research how their region's weather tied in with global weather, by using many in-depth weather and climate resources, some available locally, some globally on the Internet. Once they got some basic understanding of what weather study was all about, they could productively interact with meteorologists and atmospheric scientists. Finally, they could share their results, published on the Internet, with other schools.

Using library visit times and moments from planning periods, we showed small groups of students the basics of using Ottawa's Free-net, Usenet newsgroups, and resources retrievable by gopher. A morning group would watch like hawks as the demonstration unfolded. By the afternoon, the new group already knew what to do, mysteriously having learned — during recess — from students in the earlier group.

7 Show, Don't Tell, Your Students

Students were enchanted with traveling the world electronically. Finding articles on Australian plants from an Australian computer on the Internet felt fascinatingly real to them "because they had gone there [Australia] to find out the information."

Students were enchanted with traveling the world electronically. Finding articles on Australian plants from an Australian computer on the Internet felt fascinatingly real to them "because they had gone there [Australia] to find out the information."

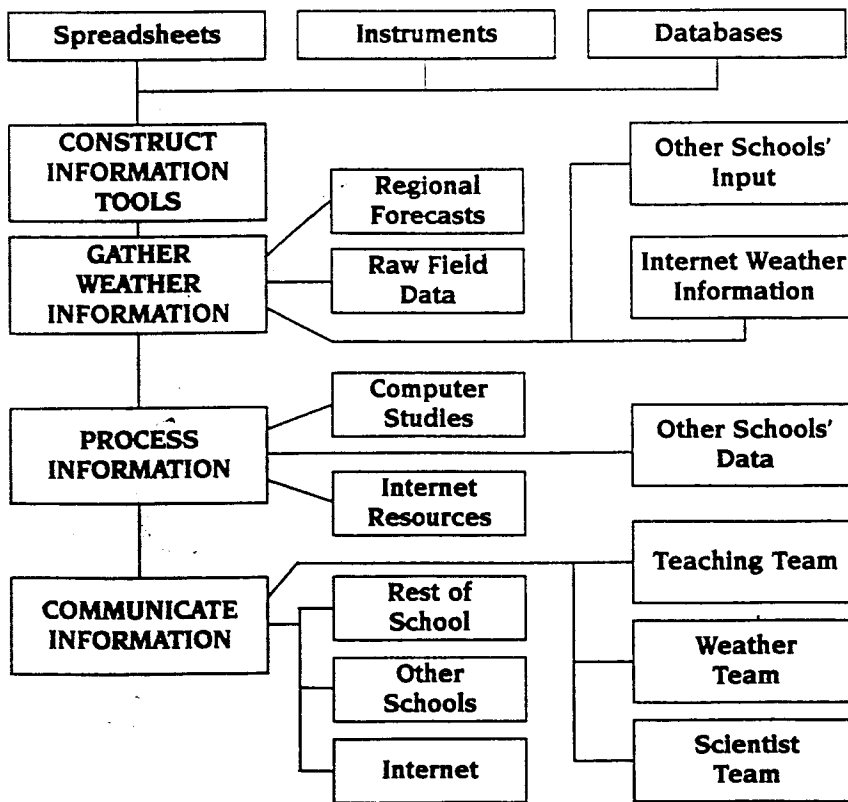


Look At Problems Positively

Don't get discouraged. In the course of any project, there are bound to be obstacles. Think positively. Let me share two of the problems we encountered:

Problem #1: The project had to be carried out so as not to interfere with our already heavy teaching loads and curriculum demands. Nor could we take time and emphasis away from the students' regular program. **Solution:** We ran the weather project parallel to the regular program, fitting it in across grades, and delegating various tiny parts of the project to many students. These students would miss at most 15 minutes from their regular classes.

Problem #2: We had insufficient money to buy a modem and install an adapter switch for a second phone line. This could have been discouraging, but we took advantage of its learning potential. **Solution:** A class sold popcorn for several months to save up for these items. In the process, students learned a lot about running a profitable business. Their impromptu popcorn enterprise involved budgeting, ordering, and marketing, etc. Students found working for a student boss required responsibility, perseverance, and punctuality. As for the modem, in the end, our principal scrounged an old one from a friend in the telecommunications business.



9

Involve Other Schools

How other schools participate in your project is not within your direct control. They can simultaneously duplicate it, if they wish, or they can share doing your school's research. If you do wish to involve other schools in your project, advertising is essential. You must send out a "Call to Participate" outlining your project, with goals, materials, and a detailed timeline. It ought to be issued several weeks before the projects starts, so other schools will have time to get ready for the project. For example, information about the RVMS weather project was posted on high traffic Internet discussion lists: Kidsphere, SchoolNet, IECC, FrEdMail, and Academy One.

We were quite successful in attracting participation from other schools. As of this writing, 24 schools in Australia, Canada, and the U.S. are participating. More schools have expressed interest this year. Canada has adopted our project as the Internet part of their contribution to National Science and Technology Week, and Finland is using it as well in another context.

Encourage students and teachers to post messages about current happenings as your project progresses. Frequently post your most interesting letters, one per class. Too many messages of dubious clarity obscure the goals of the project. Only send out your best stuff. We used the journalism wing of our project to encourage good writing talent. Articles should be about what students are learning and discovering. These should be posted in appropriate Internet locations, such as Canada's SchoolNet's subject newsgroups, where they will be read by an appreciative audience.

10

Evaluate The Project As It Unfolds

Finally, keep your project well-tuned. Keep your eyes open. Listen to your feelings. Find creative ways to bring out the best in one another.

- Be alert to encourage independent thinking as it cautiously emerges. Real talent must not be wasted.

- Be brave. Let your students astonish you with the depth of their insight, with the beauty of their artwork, with the intensity of their writing.

- Don't neglect your Internet partners as you delight in your school's love of learning. Heighten their participation by advertising, by increasing interaction.

You know, if you're careful to design your Internet project to make a real difference in how teachers teach and how students learn, it will.

By day, Doug Walker is a Grade 6 French immersion teacher; by night, a McGill University distance education instructor on the classroom use of the Internet. In his spare time, he composes classical music, designs Internet projects, and is a moderator for the Ottawa National Capital Free-net, the Ontario Teachers' Federation's Electronic Village, and Canada's SchoolNet. Communications to the author should be addressed to Doug Walker, Teacher, Rideau Valley Middle School, Box 100, Kars, ON K0A 2E0, Canada; (613) 489-2024; Fax (613) 489-4254; Internet — ab704@freenet.carleton.ca

Internet Resources-in-Brief

SchoolNet links Canadian schools to the Internet, features an education gopher, newsgroups, and the INCLASS list.

Access: schoolnet.carleton.ca. E-mail to listproc@schoolnet.carleton.ca. In body of message, write SUBSCRIBE INCLASS <first><last name>.

WX-TALK is a list for the discussion of weather in all its forms.

Send an e-mail message to listserv@vmd.cso.uiuc.edu. Leave the subject line blank, and in the body of the message type SUBSCRIBE WX-TALK <first name><last name>.

Weather FAQ is a vast guide to Internet sources of meteorological, oceanographic, and geophysical data.

Access: Send e-mail to mail-server@rtfm.mit.edu with send/pub/usenet/news.answers/weather/data/part1 as the only text in the message. Leave the subject line blank.