DOCUMENT RESUME

ED 400 784 IR 018 130

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TITLE Internet Jones: An Educator's Guide to Traveling on the Information Superhighway!
INSTITUTION Mid-Atlantic Eisenhower Consortium for Mathematics and Science Education, Philadelphia, PA.; Research for Better Schools, Inc., Philadelphia, Pa.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, D.C.
PUB DATE [96]
CONTRACT R168R50012
NOTE 21p.
PUB TYPE Creative Works (Literature,Drama,Fine Arts) (030) -- Guides - Non-Classroom Use (055)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Access to Information; Comics (Publications); *Computer Uses in Education; Educational Resources; *Educational Technology; Elementary Secondary Education; Equal Education; Information Retrieval; *Internet; Mathematics Education; Science Education; World Wide Web
IDENTIFIERS Connectivity; Telnet

ABSTRACT

The purpose of this publication is to: (1) offer an overview of the Internet and its educational applications; (2) provide teachers and students with a guide for a hands-on experience with the Internet; (3) show how educational resources from around the world can be brought into the classroom; and (4) show how some educators have used the Internet. Dedicated to improving mathematics and science education for students everywhere, teacher Juanetta Jones stands for educational equity, making learning available to all. This document tells her story in comic book form--a journey of discovering educational resources on the Information Superhighway. Also included is a description of the Internet; getting connected to the Internet; Internet operations and applications, including e-mail and news, Telnet, information retrieval applications, and the World Wide Web; and online sources for further information. Addresses are provided for the National Network of Eisenhower Mathematics and Science Regional Consortia and National Clearinghouse. (AEF)

RBS RESEARCH FOR BETTER SCHOOLS

THE MID-ATLANTIC EISENHOWER CONSORTIUM FOR MATHEMATICS AND SCIENCE EDUCATION

PRESENTS

INTERNET JONES

AN EDUCATOR'S GUIDE TO TRAVELING ON THE INFORMATION SUPERHIGHWAY!

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The purpose of this publication is to:

- Offer an overview of the Internet and its educational applications.
- Provide teachers and students with a guide for a hands-on experience with the Internet.
- Show how educational resources from around the world can be brought into the classroom.
- Show how some educators have used the Internet.

The Story of Internet Jones

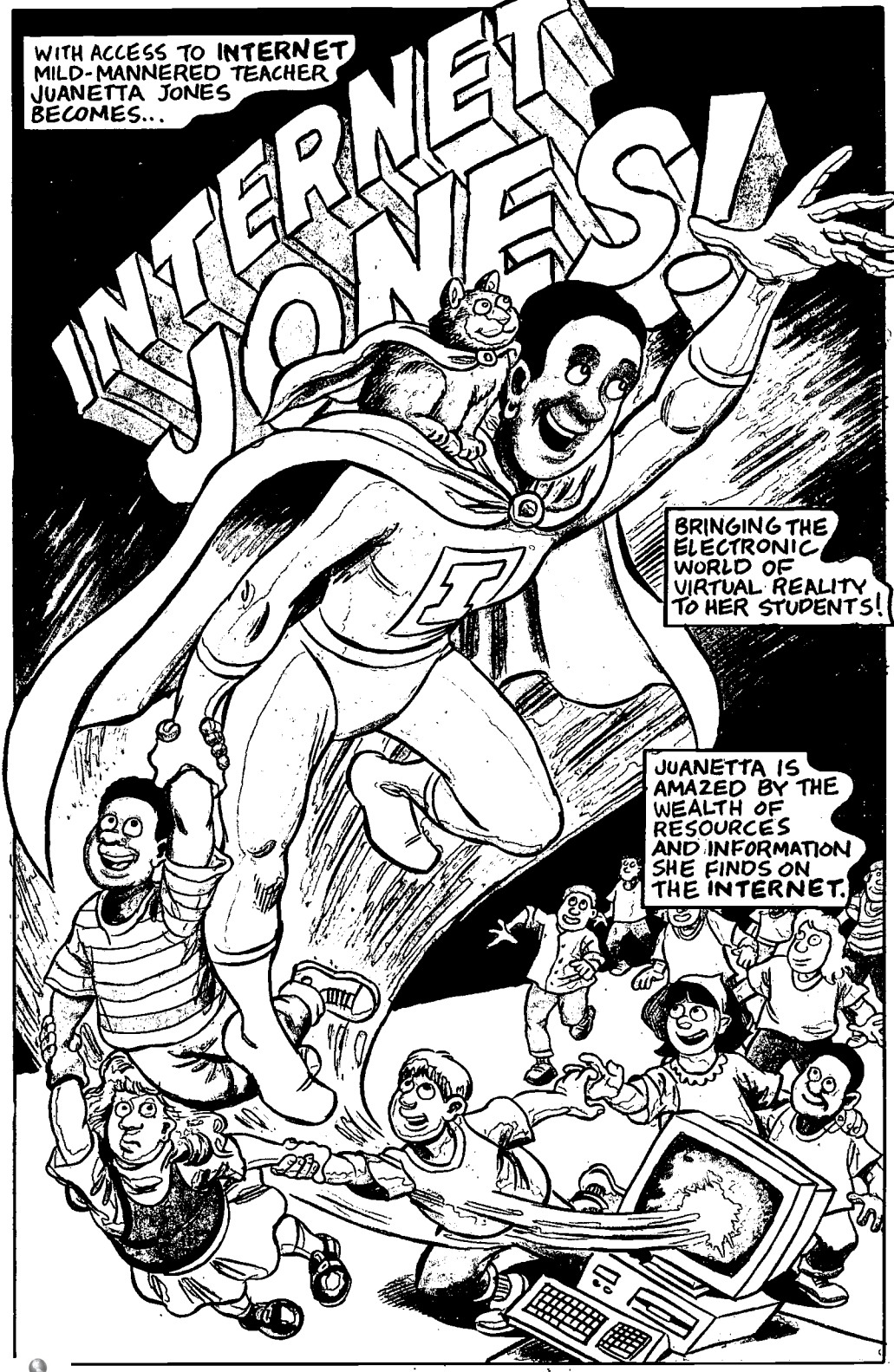
Teacher Juanetta Jones embodies the goals and vision of the Mid-Atlantic Eisenhower Consortium for Mathematics and Science Education. Dedicated to improving mathematics and science education for students everywhere, she stands for educational equity, making learning available to all. This is her story—a journey of discovery, finding treasure troves of educational resources on the "Information Superhighway."

Contents

Concept/Story: John Kinslow **Illustration:** Gideon Kendall
Editor: Keith Kershner **Design/Production:** Stephen Bouikidis
Technical Advisor: Ronnen Miller

The information provided by this guide is as up-to-date as possible. Check online resources for breaking information (see pages 18 and 19 for additional resources).

This publication is based on work sponsored wholly or in part by the Office of Educational Research and Improvement (OERI), U.S. Department of Education under grant number R168R50012 and does not necessarily reflect the views of the Department of Education or any agency of the U.S. government. The character of Juanetta Jones, although fictitious, is meant to exemplify the qualities of a hero as well as the attributes of many good teachers who selflessly, and sometimes heroically, serve children in classrooms across the coun-



What is the Internet?

The Internet is a global computer network allowing communication with millions of computer users and access to resources from around the world. No matter what type of computer is used for connection to the Internet, a virtually limitless wealth of resources is available for everyday use.

Teachers and students gain access to the world's largest archives, the NASA Space Center, the Dow-Jones Report, satellite weather stations, and thousands of other educational and research sources.

Use of the Internet can provide opportunities for inquiry-based learning. Students and teachers can network, study, and collaborate with others around the world. Teaching strategies can be shared through communication with other educators and may be integrated across the curriculum. Instructional materials can be downloaded (copied) to classroom computers almost anywhere.

There are also opportunities for professional development through ongoing online dialog and support. Members of the educational community may become connected to enriched resources and increased communication.

Getting Connected to the Internet

■ Basic Equipment

Generally, you'll need a computer, a modem (a device which connects your computer to other computers using the public telephone system), and some communication software (a program that allows your computer to access the modem and dial other computers). For more information, ask someone who is already using the Internet, your local computer store, or an Internet Service Provider (ISP). You can also look for additional resources at your local book store.

■ What Does It Mean To Connect?

Connecting to the Internet means that you are ready to use the tools mentioned in the last section to dial a special telephone number. When you dial that number, a modem attached to specialized networking equipment will answer, establishing a dialogue with your modem. The networking equipment (often the combination of a "terminal server" and a "router") is responsible for transfering data to and from your computer to the Internet. To access the Internet in this way, you need the aforementioned telephone "dialup" number and an "account" (the networking

equipment identifies you by a name and password -- information which is set up ahead of time; see next section).

■ How to Connect

There is no central address or entity such as "Internet Inc." from which you can purchase an account. Although the "InterNIC" (Internet Network Information Center) does manage all Internet addresses, it does not provide connections. Rather, accounts are available to individuals and organizations through Internet Service Providers. The most popular ways of connecting to the Internet are through:

- **Dial-up Service Providers**– Accounts start as low as $15-$20/month. This is often a flat fee and may include a place to put up your own "Web" page (see page 15).
- **Dedicated Service**– This service (e.g., 56K, T1) is often used by organizations and costs approximately $200/month and up. Recipients get faster connection to the Internet for multiple users on a local area network (LAN).
- **Online Service Providers**– You've probably heard of America Online and CompuServe. These services often start at $10 per month for a limited number of hours per month and offer proprietary information, with access to the Internet as an option. Typically, Internet access is slower and the service, in general, more expensive.

Places to look for initial connectivity include local colleges/universities that sometimes offer courtesy accounts to enrolled students, alumni, or school districts in their area; state education computer networks; regional service providers; and community organizations.

It's a good idea for new users to form relationships with helpful sources: school district technology people, Internet service providers, other experienced users, and the Mid-Atlantic Telecommunications Alliance (MATA) (see back page for contact information).

Internet Operations & Applications

■ E-mail & News

Short for electronic mail, this application is probably the most widely used of all Internet operations. E-mail can include the sending of personal messages, as well as journals, reports, entire books, graphics, and sound files. Discussion groups based on shared interests are formed using e-mail and an Internet service called a "list server." Similarly, Internet "news groups" allow users with a "newsreader" software program to read and/or post news on large, topic-oriented electronic bulletin boards.

■ Telnet

Telnet allows a user to access a computer system at a different location, however distant, as if he or she were sitting right in front of that machine. Information can be made available in a matter of seconds from databanks, libraries, and research centers the world over. Students can gain access to the latest information on space shuttle launches or satellitë deployment from NASA, and moments later, log into the "Weather Underground" at the University of Michigan for detailed information about the weather in cities throughout the United States.

■ Information Retrieval Applications

Although learning how to glean information from the Internet can be rewarding and fun, it still takes time. A number of applications have been made available to make the process of searching for information on or about the Internet less of a chore. These include:

- Archie (from "archive" search) is a tool that allows specific searches through millions of files from over a thousand anonymous (open to the public) File Transfer Protocol (FTP) sites and notes their location. If you can telnet or ftp, you can use Archie.
- FTP allows Internet users to transfer large files from one computer to another. Files can include text documents, sounds, and images, as well as computer programs. FTP servers are computers set up on the Internet which host archives of files which one can download using FTP.
- Gopher (to "go for") is a way of finding information in menu form almost anywhere on the Internet. It also offers some search capability.

■ World Wide Web

WWW or World Wide Web is an information browse and search system that can link related documents (many incorporating graphics, video, and sound) at sites across the world. WWW browsing software incorporates not only the WWW method of retrieving information, but also "speaks" the FTP, Gopher, and e-mail languages, turning it into the "Swiss Army knife" of the Internet. Browser software is usually available through Internet service providers, online (for free), and in local software stores.

JUANETTA USES E-MAIL TO COMMUNICATE ON THE INTERNET

WRITING A PERSONAL MESSAGE:

TO: VICEPRESIDENT@WHITEHOUSE.GOV
DEAR VICE PRESIDENT GORE,

I UNDERSTAND THAT YOU WANT TO GET TEACHERS INVOLVED IN USING THE INTERNET... JUST WANTED TO LET YOU KNOW THAT I'M ONLINE!

SINCERELY,
JUANETTA (INTERNET) JONES

RECEIVING MAIL:

DEAR MS. JONES,

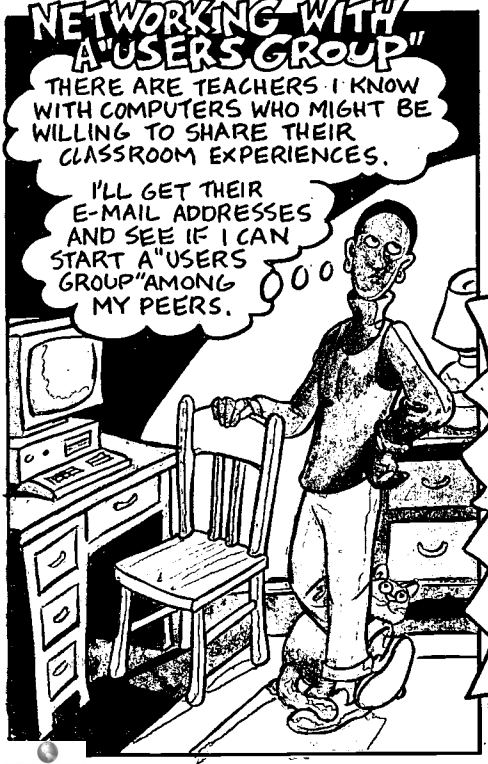
WELCOME TO THE INFORMATION HIGHWAY! I'M GLAD TO HEAR THAT YOU ARE ABLE TO ACCESS THIS EXCELLENT RESOURCE. PLEASE KEEP ME UPDATED ABOUT HOW YOU ARE ABLE TO USE THE NETWORK IN YOUR CLASSROOM.
THANKS FOR THE INTEREST IN THE WELFARE OF OUR NATION'S CHILDREN AND YOUR EFFORTS IN THE AREA OF EDUCATIONAL TECHNOLOGY.

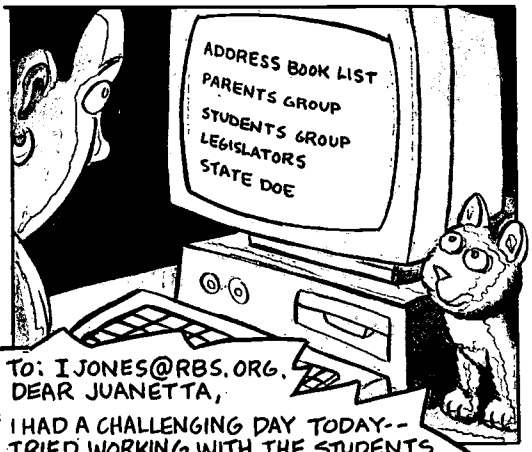
REGARDS,
AL GORE

NETWORKING WITH A "USERS GROUP"

THERE ARE TEACHERS I KNOW WITH COMPUTERS WHO MIGHT BE WILLING TO SHARE THEIR CLASSROOM EXPERIENCES.

I'LL GET THEIR E-MAIL ADDRESSES AND SEE IF I CAN START A "USERS GROUP" AMONG MY PEERS.

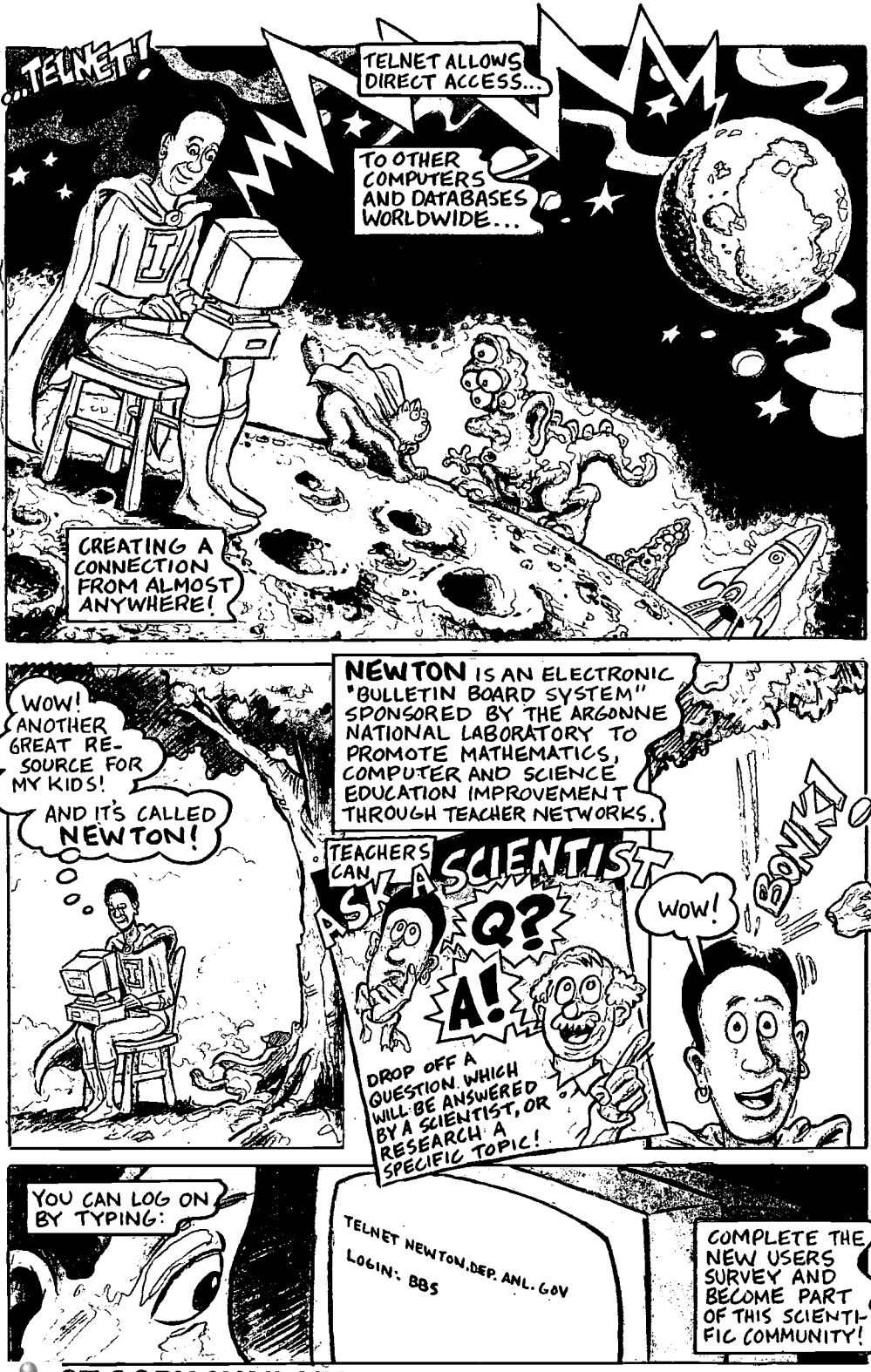




TO: IJONES@RBS.ORG.
DEAR JUANETTA,

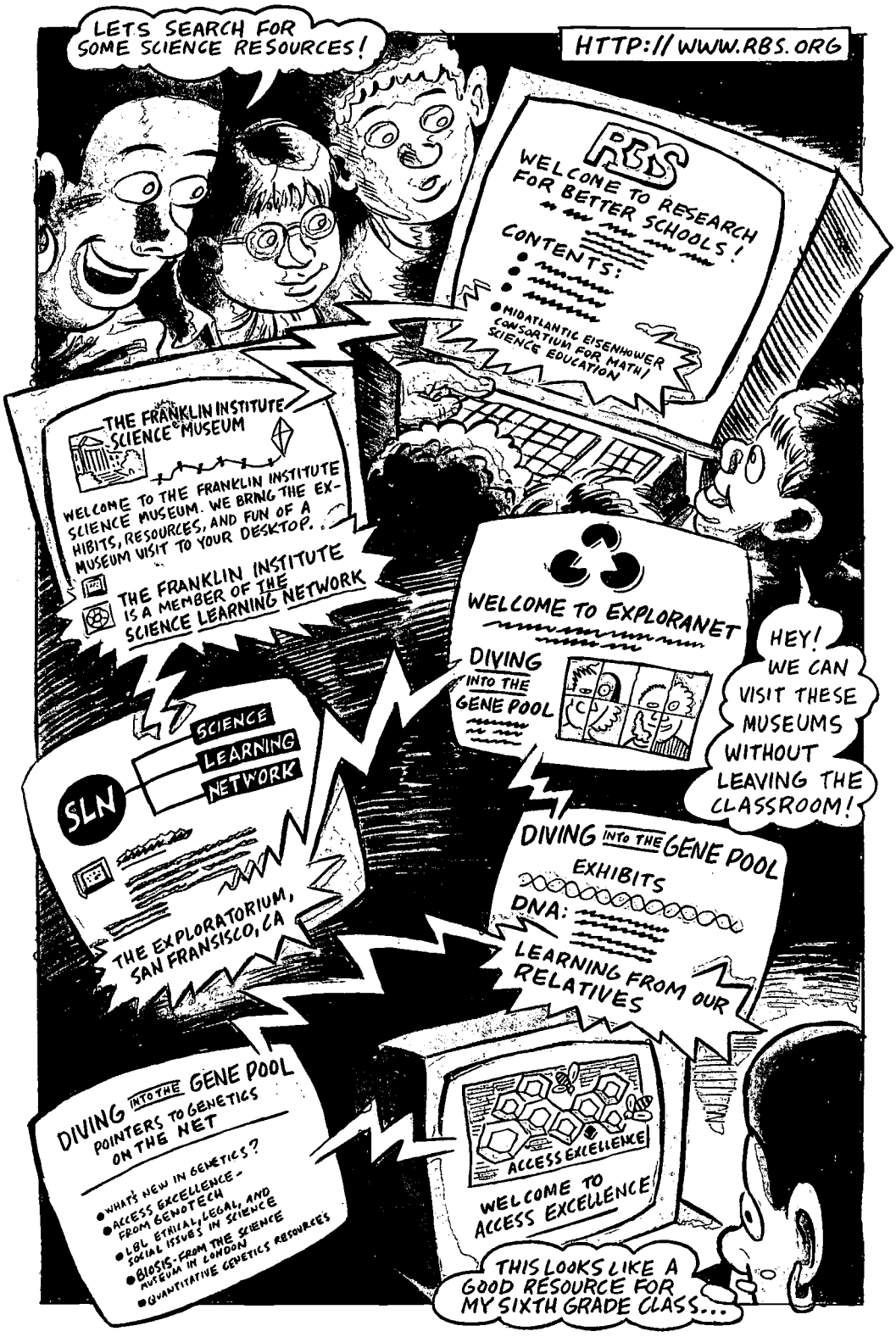
I HAD A CHALLENGING DAY TODAY-- TRIED WORKING WITH THE STUDENTS IN GROUPS-- WAS CHAOTIC, BUT SOME GOOD THINGS HAPPENED. COOPERATIVE LEARNING TAKES LOTS OF ENERGY RIGHT NOW BUT I'M HOPING THAT IT WILL PAY OFF FOR THE KIDS DOWN THE LINE. YOU'VE BEEN USING THIS METHOD IN YOUR CLASSROOM FOR YEARS, JUANETTA. DO YOU HAVE ANY IDEAS ON HOW I CAN BETTER ORGANIZE CLASS AND CURRICULUM THIS WAY?

SINCERELY,
PAT



BEST COPY AVAILABLE

THE WORLDWIDE WEB IS THE NAME FOR THE MULTIMEDIA SERVICE ON THE INTERNET. THE "WEB" ALLOWS ACCESS TO DOCUMENTS COMBINING SOUND, GRAPHICS, AND VIDEO WITH TEXT. DOCUMENTS CAN ALSO INCLUDE "LINKS" (ALSO KNOWN AS "HYPERTEXT") WHICH, WHEN CLICKED ON, CONNECT USERS TO OTHER DOCUMENTS ON THE INTERNET--ANYWHERE IN THE WORLD!



More Places to Go

■ E-mail (Listservs)

• **List of Lists** (about 30 pages of more than 3000 lists)	E-mail: listserv@bitnic.educom.edu Type: list global
• **Gutenberg Project**	E-mail: hart@vmd.cso.uiuc.edu Type: "send info" in the body of the message
• **K-12 Kidsphere** networking students K-12	E-mail: joinkids@vms.cis.pitt.edu Type: subscribe kidsphere "your full name"
• **Network Resource Mailing List** Merit Network's list of "Latest finds on the Internet"	E-mail: nris-request@merit.edu Type: subscribe nris "your name"
• **Big Computer Pals** College students who communicate as Big Brothers or Big Sisters	E-mail: drz@sjuvm.stjohns.edu
• **Yanoff List** List of "Special Internet Connections"	E-mail: yanoff@csd4.csd.uwm.edu

■ Gopher

• **ENC**- Eisenhower National Clearinghouse for Mathematics and Science Education	gopher.enc.org
• **KidLINK** K-12 telecomputing projects	gopher.kids.duq.edu
• **ERIC** Education Research and Information Clearinghouse	ericir.syr.edu
• **OERI** Office of Educational Research and Improvement (U.S. Department of Education)	gopher.inet.ed.gov

■ Telnet

• **ERIC** Education Research and Information Clearinghouse	telnet ericir.syr.edu login: gopher
• **Academy One**	telnet yfn2.ysu.edu login: visitor
• **Library of Congress**	telnet dra.com
• **NASA**	telnet spacelink.msfc.nasa.gov

■ World Wide Web

• **Internet Jones' top picks!** (sites to visit and Internet news)	http://www.rbs.org/ijones
• **U.S. Department of Education**	http://www.ed.gov
• **The Science Learning Network**	http://sln.fi.edu/tfi/sln/sln.html
• **National Council of Teachers of Mathematics Standards**	http://www.enc.org/online NCTM/280dtocl.html
• **National Science Teachers Assoc.**	http://www.nsta.org
• **Mid-Atlantic Telecommuincations Alliance**	http://www.rbs.org/mata
• **ENC**- Eisenhower National Clearinghouse for Mathematics and Science Education	http://www.enc.org/
• **Classroom Connect** (Internet ideas for educators)	http://www.classroom.net
• **The Math Forum**	http://forum.swarthmore.edu/index.html
• **Pathways to School Improvement** (research-based school improvement information)	http://www.ncrel.org/ncrel/
• **Athena** (lessons, supplementary materials)	http://athena.wednet.edu/index.html

National Network of Eisenhower Mathematics and Science Regional Consortia and National Clearinghouse

Eisenhower Regional Consortium for Mathematics & Science Education at AEL
P.O. Box 1348
Charleston, WV 25325-1348

Pacific Mathematics and Science Regional Consortium
Pacific Region Educational Laboratory
828 Fort Street Mall, Suite 500
Honolulu, HI 96813

SERVE Eisenhower Consortium for Mathematics and Science Education
345 S. Magnolia Drive, E-22
Tallahassee, FL 32301

Eisenhower Southwest Consortium for the Improvement of Mathematics and Science Teaching
SEDL
211 E. Seventh Street
Austin, TX 78701

Eisenhower Regional Alliance for Mathematics and Science Education Reform
TERC
2067 Massachusetts Avenue
Cambridge, MA 02140

Mid-Atlantic Eisenhower Consortium for Mathematics & Science Education
Research for Better Schools
444 North Third Street
Philadelphia, PA 19123-4107

Eisenhower National Clearinghouse for Mathematics and Science Education
The Ohio State University
1929 Kenny Road
Columbus, OH 43210-1079

Science and Mathematics Consortium for North West Schools (SMCNWS)
Columbia Education Center
11325 SE Lexington
Portland, OR 97266-5927

Far West Eisenhower Regional Consortium for Science and Mathematics Education
WestEd
730 Harrison Street
San Francisco, CA 94107-1242

High Plains Consortium for Mathematics and Science
McREL
2550 South Parker Road, Suite 500
Aurora, CO 80014

Midwest Consortium for Mathematics and Science Education
NCREL
1900 Spring Road, Suite 300
Oak Brook, IL 60521-1480

Eisenhower Federal Activities Program
OERI
555 New Jersey Avenue, NW
Washington, DC 20208-5645

The Mid-Atlantic Eisenhower Consortium for Mathematics and Science Education is a partnership which brings together Research for Better Schools (RBS), a non-profit educational research laboratory, with other key agencies in the region to reform mathematics and science education. The consortium is an integral part of a larger national effort to improve mathematics and science education: the Eisenhower Federal Activities Program, administered by the Office of Educational Research and Improvement (OERI) of the U.S. Department of Education.

Join MATA to learn about cost-effective ways to connect to the Internet.

For more information: Mid-Atlantic Eisenhower Consortium for Mathematics and Science Education and Mid-Atlantic Telecommunications Alliance (MATA), Research for Better Schools, 444 North Third St., Philadelphia, PA 19123; or call [illegible] 574-9300 ext. 280. You may also e-mail: mathsci@rbs.org.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)

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