FOSS Educators Experience Synergy

Each year FOSS staff and consultants conduct a dozen or more two-day institutes. Most of them are pitched at an introductory level, providing basic information for educators who are in the process of selecting or implementing a new science curriculum. At these institutes we spend a lot of time doing FOSS activities, gathering data, organizing results—in short,

Continued on page 2

FOSS Thread
Woven Into the World
Wide Web

About 25 years before FOSS became a hands-on science curriculum in K-6 classrooms, the idea of the Internet was conceived. The Internet had a somewhat pessimistic beginning when in 1962 the RAND Corporation, the cold war think-tank, tackled the problem of maintaining communications between U.S. authorities after a nuclear attack. The Internet was designed to circumvent point-to-point communications that had been cut off. Internet communications existed in a structure similar to a fishnet that allowed “messages” to find

Continued on page 2
FOSS Synergy continued

experiencing science from the student’s perspective. There is no finer way to get to know FOSS than to spend a couple of days living with the program. By doing so, educators quickly discover its philosophy, design, intellectual integrity, and quality.

Last year we started receiving requests to conduct an institute designed for a more experienced audience. By now we have acquired a significant family of early adopters who have been implementing FOSS for up to four years. A new set of issues emerge once teachers are comfortable with the methods of hands-on science and have mastered the necessary classroom management techniques of time, space, materials, and students. These educators wanted guidance with issues related to:

• sustaining staff development, including FOSSilizing new teachers;
• integrating other disciplines with science;
• using science to motivate reading and writing;
• assessment in the classroom and at the district level; and
• systems for maintaining FOSS kits at the site and district levels.

On leap-year day, February 29, 1996, we hosted the Synergy Conference at the Lawrence Hall of Science. We liked the word synergy because synergy is what we hoped (expected?) to achieve when we concentrated all that FOSS energy in one location. Eighty of our most experienced FOSS leadership educators from around the country participated. The conference had three main goals.

3. To provide the opportunity for Synergy participants to meet each other to establish communication links.

The program was headlined by three panels of experts. Panel I: Staff Development

Sberman Kutzena,
Folsom Cordova USD, CA
Bruce Mitchell,
Rio Linda SD, CA
Jerry Pine,
Caltech Precollege Science Initiative
Sharyn Chesser,
Tucson USD

Panel II: Educational Issues

Joseph Jesusathadas,
Cal State University at San Bernardino
Scott Stowell,
Spokane USD
Joe Premo,
Minneapolis Schools (consultant)
Arthur Camins,
New York City Urban Systemic Initiative
Phil Tennison,
Wayzata (MN) Schools
John Delmonico,
Boulder Schools
Susan Sprague,
Mesa (AZ) Public Schools

After each of the panel presentations, the participants broke into discussion groups to share and delve further into the issues raised by the panelists. The panel discussions were recorded on video, and the discussions were audiotaped.

Between panel sessions we sneaked in a couple of questions of our own. We asked each participant to describe his or her FOSS implementation as carefully as possible. We want to document the implementation experiences of a number of districts and organize them into a collection of case histories. In the future these may prove to be very instructive to new districts just starting along the path of FOSS implementation.

We also asked the Synergy participants to share the most pressing questions about FOSS that have come up in their districts. We asked them to share questions and concerns raised by parents, teachers, district administrators, and site administrators. We were well rewarded by this exercise, and we are still working to answer all the questions. A preliminary document with some of our answers is available. Just write or e-mail, and we will happily send out a copy of “Most Frequently Asked FOSS Questions.”

One hot issue back in February was the just released National Science Education Standards. There was a background hum the whole time that, when turned up to audible, pressed the issue of FOSS correlation with the new standards. Larry Lowery led a discussion at Synergy on just that subject, based on his article, Benchmarks and Standards: An Historical Perspective from the Spring 1996 FOSS Newsletter. Lowery announced that he and a committee of his peers from the National Science Teachers Association were just completing a document called NSTA Pathways to the Science Standards. Pathways is a support document to help educators interpret the Standards and apply them to their professional activities.

The Synergy Conference was a grand success. Synergy moved everyone to push a little harder and reach a little higher. Certainly, the FOSS staff learned a lot. Some of the resources and information we acquired at Synergy were put to good use the following month and in July when we hosted FOSS Implementation/Leadership Institutes in Berkeley and Chicago. If you would like to attend the next Implementation/Leadership Institute, drop us a note or e-mail and we will make sure you are notified of future Institutes.

To summarize, we offer two kinds of institutes on a regular basis: FOSS Introductory Institutes and FOSS Implementation/Leadership Institutes. We offer about a dozen Introductory Institutes each year. Before each of the NSTA conventions in the convention city there are two-day institutes, and we also arrange others when state science associations, school districts, or reform projects request them.

Twice each year we offer Implementation/Leadership Institutes, one in Berkeley at the Lawrence Hall of Science and one in Chicago at the EBEC offices.

And Synergy II? We don’t have a plan for another Synergy Conference at this time, but the need will doubtlessly arise again. We will know when it is time, and hopefully you will answer the call and help FOSS make another giant stride forward.

World Wide Web continued

their destinations via a number of pathways and nodes (computers) along a huge network-of-networks. If some of the paths are nonfunctional, the communication finds another.

Today the Internet covers the entire globe and is more likely to be a place for researching information about the Space Shuttle, insect populations, and family vacations. The Internet environment provides opportunities for sending and receiving electronic mail; downloading (saving to your own computer) text and graphics from FTP (file transfer protocol) sites; sharing information via a listserver or newsgroup; viewing text, video, and graphics; and even hearing real-time audio on the World
Wide Web (abbreviated WWW, or simply the Web). And for teachers, students, and administrators involved in the FOSS curriculum, there is now a source for up-to-date information about FOSS, its philosophy, resources, and more. All of this is available through the FOSS Web site.

What Can I Find on the FOSS Web Site?

One question we often hear is, “Have you updated the FACTs in the FOSS Teacher Guide for each module?” The answer is “yes,” and we do that through the FOSS Web site. Twice a year we will update the student and teacher reading resources and audiovisual and multimedia resources, adding new ones that we feel are of high quality and appropriate to the module and grade level. We will also provide other kinds of updates to each module such as suggestions for student projects and home extensions or answers to questions posed by FOSS students or teachers.

In addition to updates and new information on each module, you will find other documents relating to the FOSS program as a whole. The FOSS correlation to the National Science Education Standards will be in a file along with the software needed to view and print it. Those resource teachers who teach a FOSS module to more than one class a day can refer to the modified materials lists to help them prepare lessons and order materials.

All these FOSS documents are available in hard copy at FOSS workshops or by sending a written request to the FOSS staff at the Lawrence Hall of Science. But, with the Internet and the FOSS Web site, you need only travel to your computer and let the documents find their way through the information superhighway to your monitor and printer.

FOSS Newsletter Links

Each time a FOSS newsletter is published (such as the one you’re reading right now), it will also be added to the FOSS Web site. Just about anything included on the FOSS Web site can be printed, so you will be able to make copies of individual FOSS articles to distribute to your colleagues.

Each FOSS newsletter includes an article describing other Web sites we have discovered that contain ideas to extend the activities in the FOSS modules. When the article is put on the FOSS Web site, we create a “link” or pathway to each of the Web sites discussed. The link is a connection between two Web documents which, when activated by a click of your cursor, opens the linked site. In this way, the FOSS Web site connects you with all the other Web sites related to FOSS, including schools and school districts using FOSS.

In addition to links with Web sites related to specific FOSS modules, you will also find links to other general science education resources. By clicking on the links on the FOSS Web site, you can continue your journey to find out more about the Lawrence Hall of Science and its programs, visit the Encyclopaedia Britannica Educational Corporation Web site, and even access the National Science Foundation, just to name a few.

Future Plans for the FOSS Web Site

As technologies and resources become accessible, we will make changes and additions to the FOSS pages. The FOSS staff has many ideas of what they would like to include on the site. Video field trips to places like the Grand Canyon could enhance students’ experiences with a module. Students could become involved with each other on the Web, sharing results of investigations that have carried out in a FOSS activity and extending the activities worldwide. Bulletin boards could be added where FOSS users could post questions and FOSS staff could post answers for all readers to view.

At this time, we are discussing mechanisms for real-time person-to-person activity via the Internet with staff from SRI International in Menlo Park, CA. In the future, it may be possible to host FOSS video conferences and discussion groups via the Internet. Other programming languages, such as JavaScript, will soon provide opportunities to make Web sites even more interactive. It might also be possible to participate in online FOSS activities in which you supply responses or follow your own path through an investigation. There doesn’t appear to be a possibility for which someone somewhere won’t invent a procedure.

How Do I Access the FOSS Web site?

You enter a Web site by going to its Home Page. The Home Page is an introduction to the site and contains a menu of the information available there. Each of the different articles, charts, or other bits of information appears on a Web page linked to the Home Page. For instance, from the FOSS Home Page you can click on the FOSS Newsletter page, modules page, and so on.

Now that you know there’s a FOSS Web site on the World Wide Web, and the FOSS Home Page is the place to start, your next question might be, “How do I get there?” Here’s how:

a. You need a computer with a modem (or some other communication connection). The modem allows you to connect your computer to a telephone line.

b. Subscribe to one of the online services such as America Online, CompuServe, Telis, or Prodigy, just to name a few. The service will provide a browser, a kind of software that allows you to navigate, or “surf”, the Web. Some popular browsers are Netscape Navigator, Internet Explorer, and NCSA Mosaic. Every Home Page has an address. To reach the FOSS Home Page, you need to type the address in the space that says something like “open,” “go to,” or “location.” The FOSS Home Page address is http://www.lhs.berkeley.edu/FOSS.html.

The first part, http://, stands for HyperText Transfer Protocol. This is the communications language that the Uniform Resource Locator (URL) uses to start tracking down the page, in this case, a Web page. www.lhs.berkeley.edu/ is the name of the server on which
The FOSS Home Page is your gateway to the resources related to the FOSS curriculum located at the FOSS Web site. When you open the FOSS Home Page, you will view a page that is similar to the graphic displayed above, complete with a short introduction to the FOSS Program.

The National Science Teacher's Association (NSTA) has compiled an extensive list of resources on creating Web pages and on Web terminology. You can find this page at [http://www.nsta.org/w3source.htm](http://www.nsta.org/w3source.htm).

Life Begins with FOSS—A Retrospective

*by Don McKenney*

It seems like the distant past, but I can still remember six years ago hearing an announcement calling for anyone interested in attending a science training to meet in the library after school. Four or five of us showed up and learned that two people from our school would be chosen to join a three-year training project at the Lawrence Hall of Science (LHS). We drew straws. I lost. However, the kindergarten teacher among us insisted (luckily for me) that I should go and talked my friend out of his lucky straw. She must have understood far more than I did at the time. Shortly thereafter my friend moved to Sweden, and I embarked on a journey that would redefine my involvement in education forever.

A few weeks into our initial “Science Update” training at LHS, I remember Larry and Linda asking our group to reflect on what we hoped to get out of this training. I know it sounds melodramatic, but I couldn’t help gushing out how we should dream big and work toward a vision of every student and every teacher in every class in our school district being involved in the FOSS inquiry-based hands-on curriculum from kindergarten through 6th grade. Having begun my first module with my own class, I could see that teaching and learning would not be the same once a class became involved with FOSS.

About 70 percent of the kids I teach are learning English as a second language. In the past, science was taught out of the textbook. When I started using a hands-on approach, interest and achievement shot up. It was revolutionary. I soon began linking FOSS modules to literature, history, math, art, poetry, drama, and geography. This more open-ended, project-based teaching and learning approach transformed my classroom. My students and I became engaged in whatever we were studying to a degree that made our experience memorable. It reminded me of my own experience learning foreign languages. I studied French for six years in high school and college, learning little, living in a perpetual state of dread. Contrast that with my Peace Corps experience in India. In two years I learned Hindi, and I am still able to speak and understand that language 25 years later.

Drawing straws that day in the school library led to a second transformation in my life. After teaching the FOSS curriculum in my own classroom for several years, a group of us began to work toward a district-wide FOSS adoption. We went through a long
needed to develop a more personal approach that spoke to the realities of an individual working in near isolation all day in a 20 by 30-foot room with 32 children and their diverse and constant needs.

It didn’t take a rocket scientist to figure out that if we wanted to promote educational change in the classroom, then we should operate there. In all my years of teaching, no one had ever done more than poke his or her head through my door to deliver a message, never mind observe a lesson or offer support to improve materials or pedagogy. (I have, in 12 years, been officially observed twice with a checklist form.)

About a year and a half ago, I took these basic ideas to the director of the BASTEC project. Within ten minutes, she was outlining a plan on the dry erase board in her office. This meeting gave birth to the BASTEC Science Action Team. Last year two of us were released from the classroom to work full time with four elementary schools (Oakland has 65 elementary schools). We spent four mornings a week (never Fridays) in the classrooms with teachers and their students introducing the FOSS hands-on curriculum, extension projects, and ways to integrate science with other curricular areas. We worked with every teacher in each of those schools over a period of several weeks, depending on an individual’s needs and experience, to support the process of becoming comfortable and confident with inquiry-based integrated science teaching and learning. In the afternoons we traveled to any teacher at any elementary school that requested us.

The experience of working with another teacher as a colleague—with time for thinking, brainstorming solutions to problems, and reflection—was especially powerful. Equally important, we have established a Science Materials Resource Center to serve classrooms throughout the district. (This was one of several special projects we focused on during our “Fridays at the office” time.)

The experience of working with another teacher as a colleague—with time for thinking, brainstorming solutions to problems, and reflection—was especially powerful. Equally important, we have established a Science Materials Resource Center to serve classrooms throughout the district. (This was one of several special projects we focused on during our “Fridays at the office” time.)

Just recently we put together a group, including the Assistant Superintendent for Curriculum in our district, and spent a week at the National Science Resources Center (NSRC) Leadership Institute in Washington DC. It seemed strange that we had to travel three thousand miles so we could sit down together and talk, but we came away with some exciting ideas and a shared vision of what we could accomplish working together. We are now busy sharing these ideas with our colleagues back at home. The time is ripe to involve all the key players.

Continued on page 6
Life Begins continued

The journey just described seemed slow and frustrating much of the time. Yet, looking back, I am truly amazed at how far we’ve come. As I write, we are in meetings with the Superintendent and Assistant Superintendent for Curriculum and Instruction to refine the series of ideas we developed at the NSRC Leadership Institute.

We have identified three basic strategies for future development. First, we will plan and conduct a mini-NSRC Conference for board of education members, central office administrators, school site teams of administrators and teachers, and community and business partnerships. We hope to introduce all these key players to the essential elements of science education reform and give them a taste of hands-on science activities that will convince them to support our project.

Second, we propose to gradually create a team of curriculum support teachers in language arts, math, social studies, and science. They will explore ways to integrate all these areas and will also act as classroom mentors to implement the resources and pedagogy that will support an inquiry-based literacy learning program in all elementary classrooms. Over time we hope to train a growing cadre of full-time and part-time curriculum support teachers dedicated to helping teachers and students follow through with these ideas.

And third, we want to expand the Materials Resource Center so teachers will have the right materials in the right place at the right time.

These plans are just a bit ambitious. I am both excited and daunted by the challenge of involving all these people in the process of science reform, and I know it will be a long haul. Yet, working as a team, we can move mountains.

Don McKenney is a teacher on special assignment, released from his 6th-grade classroom to assist with the implementation of K-6 science in the Oakland Unified School District in California.

The Isopod Challenge

by Vincent Reis

I must admit, when I learned that I might have to deal with isopods, I was more than a little apprehensive. I never did like “bugs.” The names we had for them seem gentle enough: potato bugs, roly-polys, pill bugs, etc. Still, as a child I always stepped on them and never, ever touched them. Thankfully, my FOSS manual came to the rescue when I read that the little critters would not bite off my fingers or hide in my desk. And, to my surprise, my students have taught me to know and love these little guys. I’ve actually discovered that they make great classroom pets.

I knew I could get them from the supply house, but because there was a small woods on the edge of the playground, we figured there was a good probability that we would find them under rocks, leaf litter, and decaying logs. We made a short visit to the woods to look for likely habitat. We talked about the importance of returning the logs and rocks to their original positions to limit our interference with the forest floor environment. Once we had established a search strategy, I proposed, “Now kids, go home and look around. I’ll give you extra credit for each isopod you bring in.”

Not one isopod showed up in class the next day. Unwilling to admit defeat, back to the woods we went. Soon the kids had isopods crawling all over them. That night at home they gathered hundreds more.

We placed our isopods and their wood, leaf litter, or soil into six of the basins from the Measurement kit. Each basin was labeled and assigned to a collaborative group. A plant sprayer worked great to keep them moist, and a piece of damp newspaper on each basin also helped to keep their environment moist and dark.

At the conclusion of our FOSS activities with the isopods (part of the Environments Module), we decided to establish a class terrarium. This was accomplished by simply dumping the contents of the six basins into a large aquarium. Potato slices were added (which later sprouted into plants). We kept our terrarium moist with the plant sprayer and covered it with aluminum foil. We didn’t even have to add any food.

The activities described here added significantly to our FOSS Environments Module. We saved some money, we had the isopods just when we needed them, and the isopod terrarium became a year-long extension and enrichment activity.

Vincent Reis is a 5th-grade teacher in the North Canton City Schools in Ohio.
**Roots (Not Spuds) in Idaho**

by Linda Gendall

First-grade students at Brick Elementary in Emmett, Idaho, had a big surprise as they finished the FOSS New Plants Module. They had pulled fresh carrots from the garden for their investigation of roots. The carrots were cut into four parts as described in the activity folio, and each team planted the four parts in a cup of vermiculite. Three weeks later the students removed the carrot parts from the vermiculite and found that all four of the carrot parts had rooted. The students were very pleased, and the teacher was totally amazed! Each of the rooted carrot parts was replaced in soil and continued to grow very nicely.

(Editor’s note: I am amazed, too! The roots on the leaf are totally unexpected. Perhaps the leaf was cut very close to the orange root so that a tiny morsel of the stem was included with the leaf. That’s life science for you—you never know what may happen until it does.)

Linda Gendall is a first-grade teacher at Brick School in District 221, Emmett, ID. Linda can be contacted at EAPeterson@aol.com

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**Pebbles, Sand, and Silt**

I met Anne Dutton two years ago at a FOSS workshop in Boise. She seemed a bit passionate about her teaching, but otherwise was a fairly normal kind of person. Anne took a shine to the Pebbles, Sand, and Silt Module, particularly the sand part. She became fascinated by the stories hidden in a sample of sand and soon discovered that no two samples of sand are the same. She shared her enthusiasm for sand with her second-grade students and anyone else who showed any inclination. People accepted her weakness and even contributed to her sand pile. Anne now has a collection of 40-50 samples (she hasn’t counted lately) from all over this country and beyond, including Russia, Israel, Colombia, Mexico, and Canada. Like any person with an obsession, she wants more. Whole continents are absent from her collection. Anne is accepting contributions.

I asked Anne what she does with her students and her sand. She gave me an impressive list. Following is a sampling.

1. Samples are in small labeled zip bags. Select a few and sort them based on a property—color, particle size, texture, or creative attribute—for a partner to determine.

2. Anne has large samples of some kinds of sand. Use three different sieves to compare two samples. Which sand has the most fine sand? Which has the most medium sand, and so on?

3. Look at a sample under a microscope and draw what you see.

4. Go to the map and find the sources of the sand. Mark the map with code letters to indicate color and texture of the sand found there.

5. Investigate water and wind erosion of sand from different locations.

Do you have any favorite sand activities? Anne would like to hear from you. And I just know her students would be delighted to send you samples of Emmett Creek sand in return for some Palm Beach or Rio Grande sand (or whatever specialty sand you have in your neighborhood). Photo exchanges of sand sources would be nice, too. If you are interested in sand studies of any kind for students of any age, Anne is also interested. You can contact her at: Anne Dutton, Butte View Elementary, 400 South Pine, Emmett ID 83617, e-mail: adutton@micron.net.
Integrating the Curriculum? Start with FOSS!

by Kathy Daiker

Integrating the curriculum is easy when you start with a FOSS module. Elementary teachers know all the reasons for integrating the curriculum: putting learning into context, making connections between curriculum areas, saving time, etc. How you put it all together, however, is always the question that goes unaddressed. Here are some ideas that may help you get started.

General Planning
Look through the FOSS Teacher Guide. If you are teaching this module for the first time, you should quickly read through the entire guide or watch the Teacher Preparation Video so you know what to expect throughout the module. If you have taught the module before, you can simply refer to the matrix found near the back of the Overview folio. The matrix summarizes all of the activities, including extensions and activities that integrate other curriculum areas. Also be sure to check the FACTS (they are found after the student sheets in the Teacher Guide) for books and other resources that you may want to include. You’ll also probably want to check your school and local libraries for additional books.

Plan to spend about two weeks on each activity folio. To plan each week, look through the purpose section, choose what you think are the most important concepts, and turn them into guiding questions for the week. For example, the model shown here is from the grade 1-2, Balance and Motion Module. The guiding question for the first week for Activity 1, Balance, is “How do we get things to balance in a stable position?” (The second week focuses on building mobiles and dynamic balance.) This will be the question the students will come back to and time and time again as they continue new activities and discuss what they have discovered. It’s just as important to follow through on the extension activities and give children time to create some investigations on their own as it is to complete the program activities.

Once you have all of your resources pulled together and have determined guiding questions for the module, you’re ready to begin outlining each week’s activities. The model shown here suggests beginning each day with a FOSS activity, but you may start some days with a math problem, a read-aloud story, or even centers. The choice you make will depend on the nature of the activities and how they best fit together. For example, on Day 2 you might want to start out with the math problem because it is directly related to how much equipment you will need for the class before they get started.

Planning Specific Activities
Whole-class activities are taken directly from the FOSS Teacher Guides. They include the main activities in each folio as well as extension activities that require the students to use what they have learned in a new situation. The extensions are also intended to give the students some time to explore the many questions that arise during the more directed activities on their own. (Days 3 and 5 are examples of extensions used in this model.)

Math Problems.
These math problems are inspired by the teaching strategies suggested in Young Children Reinvent Arithmetic books written by Constance Kamii. Dr. Kamii emphasizes the importance of giving children mathematical problems within the context of what is already happening in their lives. You will notice that the problems presented in the model include all of the traditional mathematical operations—addition, subtraction, multiplication, and division. But the point is not for the students to simply identify which process they are using, but rather to use their own thinking to solve the problems and to have time to share their thinking and reflect upon it with the other students in the class. So, if the students are solving the problem of how many feet there are when three children are playing on a balance beam, you would not necessarily expect first graders to write 3 X 2 = 6. Instead you might expect them to draw a beam with three children, each with two feet, or perhaps make tally marks, or even write 2 + 2 + 2. Although the problems given in the model all focus on arithmetic, over the course of the science module you will also want to include problems involving the other mathematical strands.

Read Aloud.
The purpose of reading aloud is not only to incorporate literature into the program, but also to help children see science in the context of everyday life. These books may also provide inspiration as writing models. For example, The Important Book by Margaret Wise Brown provides a model of a simple literary style children could copy to describe the important factors to remember when attempting to achieve a stable position in balancing various objects.

You’ll notice that two days of the week are identified as times for students to share their own writing and research. The purpose for scheduling this time is so students can read drafts of their writing to their peers and receive comments to help them rewrite the next draft. It
also provides time for students to share what they have learned as they research the subject on their own.

**Activity Centers.**

The reading and writing centers are permanent centers throughout the year. The purpose of the reading center is to provide many books and resource materials on the subject the students are studying so they can research on a continuous basis the questions that arise throughout the module. Materials are available at the center for students to take notes and record what they learn. The nature of the recording materials you make available will vary with the age and writing efficiency of the students. There may be anything from large chart paper that the teacher or an older student helper may use to record findings to individual journals the students keep for themselves.

The writing center is stocked with all the materials the students need to create their own poetry and prose. Students may choose to write creatively or to provide information to others. Many of the pieces can be incorporated into a newsletter to send home at the end of the module. The intention is that all students spend time at the writing center during each day and continue to work on projects on a long-term basis. Some of the projects can then be published.

The other activity centers are temporary centers introduced after the related whole-class activities have been completed. For example, you would not introduce the “Balance–Your–Own–Creation” center until after the students had completed that activity on Day 3. The centers can also remain up and available beyond the week for which they are designed. Centers continually come and go on a flexible rotating basis throughout the module. The important thing is to keep the center available as long as the students are interested in the investigation.

**Project.**

The project is intended to integrate social studies and also to promote long-term planning and learning. Therefore, the same project should continue through the entire module. A project that seems appropriate for the **Balance and Motion Module** is studying circuses because balance and motion are certainly an important part of what happens in a circus. Another project that was certainly appropriate this past summer for this module was the Olympics. In either case, after much historical and practical research, the final project would be to set up a classroom Olympics or circus, which might even include performing feats of balance and motion for other classes or parents.

**Assessment.**

Although assessment is not directly indicated on the model matrix shown for **Balance and Motion**, it should be mentioned. Assessment is easily embedded in the activities that are suggested throughout the week. For example, you can use the Stable Positions student sheet to see how your students are doing with their understanding of balance. You will have lots of work samples to collect if you want to make portfolios. You will have many opportunities to keep observational records of what students are doing or take pictures to include in portfolios.

If you are interested in integrating the curriculum, you will find that FOSS modules are the perfect starting point. Students love to do FOSS activities, and their enthusiasm is easily carried over into other subject areas. By integrating the curriculum, you will find you save time for yourself, and you will be providing students with experiences they will long remember, both from an academic standpoint as well as from the fun in learning.

**Kathy Daiker** was the lead developer for the FOSS early childhood modules and is currently a doctoral student in early childhood education at the University of Alabama at Birmingham.

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**Lost Data**

The article by Larry Lowery in the last issue of the FOSS Newsletter (Spring 1996) on the Benchmarks and National Standards had an omission. Chart 1 on page 11 showing FOSS/Benchmarks correlation got truncated during the mysterious process of electronic information transfer. Here is the chart reproduced in its entirety for your scrutiny and enjoyment.

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**EARTH SCIENCE COMPATIBILITY COMPARISON: BENCHMARKS AND FOSS (direct quotes)**

<table>
<thead>
<tr>
<th><strong>BENCHMARKS FOR SCIENCE LITERACY</strong></th>
<th><strong>FOSS FOR SCIENCE LITERACY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grades 1 through Grade 2</strong></td>
<td></td>
</tr>
<tr>
<td>Pebbles, Sand, and Silt Module:</td>
<td></td>
</tr>
<tr>
<td>Rocks can be sorted into groupings by their properties; rock sizes can be separated by screens and by settling in water; rocks of all sizes are found in nature and in our built environment.</td>
<td></td>
</tr>
<tr>
<td>Students study the properties of rocks and soil. They group and arrange rocks on the basis of single, observable properties, learning simple ways by which earth materials can be organized. They take a field trip to discover pebbles, sand, and gravel in the environment.</td>
<td></td>
</tr>
<tr>
<td><strong>Grades 3 through 5</strong></td>
<td></td>
</tr>
<tr>
<td>Rocks are composed of different combinations of minerals.</td>
<td></td>
</tr>
<tr>
<td>Students should become adept at using magnifiers to inspect a variety of rocks.</td>
<td></td>
</tr>
<tr>
<td><strong>Grades 5 through 6</strong></td>
<td></td>
</tr>
<tr>
<td>Landforms Module:</td>
<td></td>
</tr>
<tr>
<td>Landforms that result from running water include canyons, deltas, and alluvium fans; the slope over which a river flows has an influence on the landforming processes; topographic maps are two-dimensional representations of three-dimensional surfaces.</td>
<td></td>
</tr>
<tr>
<td>Students test relationships (amount of water, steepness of slope) between flowing water and earth materials and determine the effects of erosion and deposition in the creation of landforms; topographic maps are created and used as a means for representing landforms.</td>
<td></td>
</tr>
</tbody>
</table>

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**Kathy Daiker** was the lead developer for the FOSS early childhood modules and is currently a doctoral student in early childhood education at the University of Alabama at Birmingham.
Comparing Animals Two by Two
by Celeste Canham

(Editor’s note: In May, we received a letter from Celeste Canham, a Speech and Language Specialist in Encinitas, CA, with a proposition. She had written a song about animals that was perfect for inclusion in the FOSS Animals Two by Two Teacher Guide. Were we interested [for a modest compensation]? For a variety of reasons it wasn’t possible to do so, but we offered fame (a newsletter article) in place of wealth. Celeste responded with the following letter.)

Dear FOSS Newsletter:

Thank you for your prompt response to my letter. I am opting for the “famous” choice! I formally give you and FOSS permission to publish my song in the fall newsletter and acknowledge me as the lyricist.

I am a Speech and Language Specialist who works at the Paul Ecke Central/Pacific View School. In addition to my responsibilities for remediation of communicative difficulties, I study classroom themes and units to proactively team with teachers at all grade levels to enhance language stimulation. It was this pursuit which involved me with Julie Hinze, an enthusiastic teacher at my school who had piloted the FOSS Animals Two by Two unit the previous year.

Our school is organized as one school on two sites located in historic Encinitas, CA. The Paul Ecke Central site serves students in grades K-4. The Pacific View site houses grades 5-6 and the Independent Study for Home Education Program for students in grades K-6. There are about 680 students in the school, of whom 70% are white and 30% Hispanic. Our school mission is to provide a nurturing, interactive, learning environment for all students where staff, students, and families collaborate in an academically challenging, yet caring and safe community.

The focus of the FOSS science unit coordinates well with our vision. This year the students in the kindergarten program used the FOSS Animals Two by Two Module to improve their observational skills with sight, hearing, and touch, develop curiosity and questioning skills, and become systematic in noting, recording, and comparing different species. The three-and-one-half classes of kindergarten students study the unit in the spring when many animals are emerging from their winter rests. The students, under the guidance of their classroom teachers as well as the site science consultant, have explored targeted pairs of animals and carried their new excitement and knowledge into drawing, writing, movement, counting, and singing activities. In addition to the song that I wrote, “Comparing Animals Two by Two,” the teachers have enhanced the unit by including other familiar songs such as “Inchworm” and “Down in the Meadow.”

Thank you for the opportunity to share this information with you and our fellow teachers around the country through the newsletter.

Comparing Animals Two by Two
words by Celeste Canham

(Sung to “Here we go ‘Round the Mulberry Bush”)

(Guitar chords shown in parentheses)

(D)
Let’s look at the animals with our eyes,
(A)
Notice the shape, the color, the size.
(D)
Look at the ways that they are the same,
(A) (D)
And the ways that they are different.

Let’s listen closely with our ears,
Do they make sounds that we can hear?
Tell me the ways that they are the same,
And the ways that they are different.

Let’s look at how the animals move,
Where they go, and what they do.
Draw the ways that they are the same,
And the ways that they are different.

Celeste Canham is a Speech and Language Specialist (and science song lyricist) at Paul Ecke Central/Pacific View School in Encinitas, CA.
I Am Wood

And another chart guaranteed to break into the top ten (for kindergarten science songs), provided for your playing and listening pleasure by Nina Steinberg from Bancroft Elementary School in Walnut Creek, CA. It goes something like this . . . a one-a and a two-a and a . . .

Verse 1

I can be a floor, I can be a door, I can be a table or chair
I can be a big stick, I can be a tooth-pick, you can find me everywhere
Uh-huh that's right you can find me everywhere

Chorus

I am wood (clap, clap) I am wood (clap, clap) I come from a tree
I am wood (clap, clap) I am wood (clap, clap) Come and look for me

Verse 2

I can be rough,
I can be tough,
I can be hammered or cut.
I can give you splinters,
Keep you warm in winters,
Replant me or you'll use me up.
Uh-huh. That's right.
Replant me or you'll use me up.

(Repeat chorus)
InFOSStations Reported!

The FOSS general policy is that we do not include money, living organisms, or food in the kits. Each of these commodities presents a potential nuisance greater than the inconvenience of having to get the items yourself. In a handful of places in the FOSS program, we bend this general policy. Most notably we include seeds in four of the life science modules and the Solids and Liquids Module.

Seeds energize the food chain. If FOSS modules containing seeds (food) are stored with the kit drawer open even a crack, little rodents may move in and take up housekeeping. (A tightly closed kit resists the invasion of mice very well.) A FOSS module can create even more than the usual amount of student excitement if a family of mice springs out when the kit is opened in the classroom. And often the enthusiasm with which such an event is received by the students is not reflected on the face of the teacher. It is a wonderful moment to be avoided.

More often the interlopers will be clandestine. Insects may invade the seeds. Usually the mess is much smaller, but the seeds can be reduced to dust. The offending critters (usually small moths, beetles, or weevils) may find their way into a kit or, more likely, the eggs of an insect are inadvertently included with the seeds at the time of packaging.

One extreme instance centered on the Insects Module refill kits. A school district in California had judiciously invested in refill kits for the FOSS modules at a time when funds were available. They anticipated what would be needed and ordered accordingly. Several months later when the refurbishers went to the refill kits they were dismayed to discover that the boxes had been transformed into a gummy, sticky mess. Insects of unknown pedigree had hatched out in the bird seed (used as cricket food) and eaten out of their plastic vial and into the plastic bottles of glycerin, releasing an ooze of disaster.

What to do? We recommend storing seeds, package and all, in glass jars with metal lids if they are to be stored for any extended length of time (more than six months). In this way you isolate a potential problem from the rest of the world—outsiders stay out and insiders stay in. Glass is a potential problem in the classroom, so the jar should be handled by the teacher ONLY. A little precaution and periodic inspection (what are those little black specks in the cornmeal?) will maintain a wholesome and inviting environment inside the FOSS boxes.

Teacher to Teacher for Staff Development

One of the most effective ways to learn about good hands-on science experiences is to spend several days in the classroom of an exemplary elementary teacher, observing the dynamics, and reflecting on the experience with the teacher. We encourage principals to make these interactions possible by providing opportunities for teachers to work together in the classroom. First-hand experience is best.

Second best is to view an exemplary classroom on videotape. A new resource makes this possible: Teacher to Teacher with Mr. Wizard. This series of video programs, originally produced for television on Nickelodeon, provides extended visits to the classrooms of exemplary teachers, including FOSS teachers. These videotapes may be purchased from the Mr. Wizard Foundation (see information at the end of this article).

Each 13-minute video is introduced by Mr. Wizard himself, Don Herbert. The camera then goes into the classroom to observe the teacher working with students doing science. The teacher provides commentary and interpretation (voice-over), providing additional insight into the instructional methods and strategies at work.

There are currently 50 tapes organized into 10 series. The series that feature FOSS are listed here.

Series 8: Air and Weather (Programs 35-39)
Teacher: Jean Lagrone, Grade 2
Omaha, Nebraska
Jean overviews the purpose of the entire module and then we see students engaged in Activity 2, Air Explorations, as they discover what air can do and investigate air pressure. We see and hear Jean interacting with pairs of students, asking questions, listening, and recording their responses for later use during the
Connections
CD-ROM for Windows® and Macintosh®
Models and Designs Module, Ideas and Inventions Module
You find yourself in a fractured universe. Chaos has won the battle over order. The connections between people, events, and ideas throughout history have broken apart. Science writer James Burke challenges you to re-establish these links and restore order to the universe. Lose yourself in a mind-twisting world that you cannot leave without finding the answers!
Based on the critically acclaimed television show of the same name, players are plunked into one of five worlds, such as a medieval castle, and then search for answers by unravelling puzzles concerning inventions that link to one another, like carbon paper to dynamite.
Check this site on the World Wide Web for more information and a special “hints” page: http://multimedia.discovery.com/productpages/connect.html

The Incredible Toon Machine
CD-ROM for Windows® and Macintosh®
Give life to cartoons. Inspired by Rube Goldberg, it’s a world where elephants and dynamite, fish and cheese, levers and pulleys, and even gravity and air pressure can be manipulated to create fiendishly fun puzzles. Includes over 130 fun-filled and brain-stimulating puzzles. A challenging interlude for students who have figured out how to create a hum dinger.
For more information, visit Sierra Online at http://www.sierra.com/originals/toons

Inventor Labs
CD-ROM for Windows® and Macintosh®
Physical Science Strand
Embark on a journey through time. Your destination—the laboratories of three of the world’s most celebrated inventors: Thomas Alva Edison, Alexander Graham Bell, and James Watt. Their laboratories are furnished with historically accurate tools and materials and filled with the inventors’ own notes, sketches, and mementos. Meet the scientists and examine their intriguing inventions from every angle and perspective through interactive 3-D. Then test your wits by reenacting experiments involving electricity, optics, sound, and light with hundreds of possible outcomes.

Tell Me Why: Volume V, Insects video
This video answers questions children might have about insects, including questions on the following subjects: How many kinds of insects are there? Do insects have blood? How does a caterpillar spin a cocoon? Why do mosquito bites itch? What does a butterfly eat?

Your Body: Muscular and Skeletal Systems video
This program follows a science teacher as he explains the muscular and skeletal systems to his students. Using a model skeleton, the teacher demonstrates the action of hinge, pivot, and ball-and-socket joints. Students learn where various bones are by “trying them on.” They discover the practical importance of joints when they attempt a game of soccer with splinted elbows and knees. Live action, X-rays, and medical footage help illustrate the relationships between bones, ligaments, joints, and tendons.
General Resources

The following links to the World Wide Web might be useful for extending several FOSS modules. Let us know how you use them!

Dragonfly
http://miavx1.muohio.edu/~dragonfly/index.html

Project Dragonfly is a joint venture of the School of Interdisciplinary Studies at Miami University (Oxford, Ohio) and the National Science Teachers Association (NSTA), funded by the National Science Foundation, with assistance from the Center for Human Development, Learning, and Teaching. Their primary mission is to provide a national voice for young investigators and the opportunity for them to interact with experienced researchers. Project Dragonfly includes the magazine *Dragonfly*, the Dragonfly Teacher’s Companion, the Dragonfly Home Companion, and DragonflyNet, a family of computer services including an electronic mail list with which children can share their questions and observations with scientists and other children, and these Dragonfly World Wide Web pages. The most recent Web pages focused on the subject of trees and included activities and interactive games dealing with such things as the shape of trees. Future issues will concentrate on flight, skeletons, ice, and snow.

Classroom Connect
http://www.classroom.net/classroom/

Classroom Connect is a resource for teachers that will help you locate some of the interesting and useful information available to K–12 educators online. You will find such useful links as New Links and GRADES, both of which house an educational link archive. The Tools link provides the chance to search for the Internet software to download. Educational Newsgroups is a source for up-to-date educational discussions. You can access projects like ClassroomWeb, an archive of schools on the Web, and ConferenceWeb, a constantly updated list of educational conferences, by clicking on their icons located on the home page. And there’s a lot more. This site is a cooperative effort between the staff of Classroom Connect (CRC) and educators around the globe.
The Science Learning Network (SLN) is an online community of educators, students, schools, science museums, and other institutions demonstrating a new model for inquiry science education. The project incorporates inquiry-based teaching approaches, collaboration among geographically dispersed teachers and classrooms, and Internet/World Wide Web content resources. When you access SLN, you have the opportunity to explore the resources of several well-known science centers from all over the United States. Some of the activities posted at this site focus on the subjects of air, water, a cow eye dissection, and the wind. Most of the activity sites include hands-on activity ideas, graphics, video, and background information just for the teacher. (Sound familiar?) If you are able to join the network, you can collaborate and share information with other educators.

**Life Science Strand**

There’s a lot of good information concerning topics in the *Life Science Strand*. Most of the information would be best used with older students, but younger students might enjoy the graphics and video clips, especially if you can download them and display them for class viewing.

**The Yuckiest Site on the Internet**

*New Jersey Online*
http://www.nj.com/yucky/

From this site you can access what may be some of the yuckiest sites on the Internet, the homes of Worm World and Cockroach World. Developed by staff at the Liberty Science Center in New Jersey in cooperation with New Jersey Online, these two links lead you into some of the more interesting details about worms and cockroaches. Wendell the Worm Reporter will provide you with all the dirt on worms in a special audio interview. You even get the chance to view the birth of a baby worm. Rodney the Roach takes you on an audio behind-the-wall tour of his world. The sites include glossaries, fact files, and video and graphics archives. Enjoy!

**Botanical Gardens on the Web**

*University of Delaware Botanic Gardens*
http://bluehen.aghs.udel.edu/udgarden.html

*Brooklyn Botanic Garden*
http://www.gardenweb.com/bbg/

*MBGnet Missouri Botanical Garden*
http://cissus.mobot.org/MBGnet/

A number of botanical gardens across the United States have created Web sites that provide virtual tours of their facilities, information about the plants that grow in their gardens, and activities for students. The University of Delaware site has a nice collection of tree photographs and facts that could enhance the FOSS *Trees Module*. You could download some of the tree and leaf images for your students for comparison to the ones used in the module. The Brooklyn Botanic Garden has an interesting article to download called “Designing Gardens for Butterflies”. This might be of particular interest to students involved in the *Insects Module* and the *Environments Module*.

MBGnet is a world-wide learning community for kids and classrooms created by the Missouri Botanical Garden. It includes a number of activities for students to do at home and school and resources for parents and teachers. There are several pages that include photo-filled field notebooks created by students who visited different biomes, such as the tundra lands of Alaska or the rainforest in Washington State. The site also includes six Virtual Gardens, displaying six different biomes from around the world plus maps and image galleries.

**Wood Module**

*American Wood Products*
http://srrc.blue.net/awp/old/tour.html

You just never know what you are going to find when you do a search on the World Wide Web. This site was a surprise! It includes a virtual tour of their facility where wood is processed and put together to create furniture. Using a control panel that allows you to rotate around the room and move forward and back, you can view some of the different machinery and tools used to mold the wood into things that can be used to sit on, sit next to, or put things on. Descriptions of what you are looking at stream across the bottom of the image. It’s a bit primitive and somewhat funky, but also a lot of fun. If you have older students helping out in a kindergarten classroom, they might enjoy visiting this site with their younger charges.
**Fabric Module**

Computer Network Laboratory for Microscopy Education (CNLME), University of Arizona  
http://aluminum.sem.arizona.edu:8001/image/dirs/fabrics.html  

So your students have had the opportunity to look at fabrics close-up in the **Fabric Module** and even pull some of the threads apart and weave other threads together. You might now check out their response to this Web site where microscope images of a variety of fabrics are displayed. Students could compare natural and synthetic fabrics. The images include corduroy, wool, rayon, velcro, felt, denim, and even a cotton sock.

**Earth Science Strand**

Access USGS  
http://sfbay.wr.usgs.gov/access/  

Although this site focuses on the San Francisco Bay Area, there is some valuable information that might inspire searching the USGS for similar information for your area. The site includes a tour of the USGS Web site, real time information about winds and earthquakes, data about water flow and water quality in California, geologic hazards, wetland information, links to sources of digital elevation maps, and access to other links. Students might find some inspiration for projects to extend several activities in the FOSS **Earth Science Strand**.

**Landforms Module**

RiverResource  
http://www.highlands.com/RiverResource/  

RiverResource is a place where students studying rivers can explore valuable river resources and enter a gateway to further Internet exploration. There are no facts at the RiverResource, but rather connections to facts, books, and people studying rivers. Classrooms can also share the information they are gathering about rivers. RiverResource encourages the study of all aspects of rivers: their present, past, and future; their social and natural history; their ecology, folklore, and legends; their music, literature, and art; and lots more. The site includes links to other river pages and a bibliography of river books.

**WANTED: WEB SITES**  
We’re waiting to hear from you about which Web sites worked for you and what activities and/or projects you or your students were inspired to begin by browsing these sites. What new sites have you discovered for extending the FOSS experience? We’re particularly interested in links you’ve made to modules in the Physical Science Strand and Scientific Reasoning Strand. Please send your ideas to Sue Jagoda at: skjagoda@uclink4.berkeley.edu
Here are some of our latest bookstore “finds” that help extend the FOSS hands-on experience into reading. The books included in this list are all non-fiction. We are always on the lookout, however, for books that carry the students to fictional worlds where the concepts they have grasped in the FOSS activities are demonstrated. We’re looking forward to hearing from you about the books you have incorporated into your FOSS curriculum.

Grades K–2

The Science Book of Motion

Simple experiments demonstrate the laws of motion. Experiments include building slides, swinging records, looping the loop, and a variation on zoomers.

From Sand to Glass

Describes the process of glassmaking from the melting of sand in a furnace with soda, lime, and recycled glass to the molten glass that is blown into bottles and jars and rolled into window panes.

From Swamp to Coal

Describes how coal is formed by the earth and the methods used to mine it. Also discusses some of the uses of this mineral. Students involved in the Earth Materials Module may also enjoy this book.

Grades 3–4

Discover Bones: Explore the Science of Skeletons

A wide-ranging look at bones, covering their structure and function, as well as such topics as growth, animal skeletons, archaeology, and fortune telling, with related activities. Illustrated by Tina Holdcroft.

Rubber Stamp Bones & Book

A book all about the human skeleton and one waiting to be completed with the aid of 28 rubber stamps included in the kit. Includes many facts about the human skeleton and its structure and function. This could be a good center extension activity for the Bones or Joints activities. Illustrated by Kathryn Mitter and Harriet Phillips.

Skeletons: An Inside Look at Animals

Find out the secrets beneath the skin! In this collection of skeletons you can take a look at some of nature’s most delicate and amazing structures. Discover how the pit viper can open its jaws to swallow animals larger than itself. Spot the differences between the flying macaw and the flightless penguin. Understand the secret of the human skeleton and how it enables one to stand upright. Illustrated by Elizabeth Gray.

Mirrors: Finding Out about the Properties of Light

Suggested activities explore how mirrors work and how they demonstrate the properties of light. Illustrated by Roy Doty.

Grades 5–6

Dictionary of the Earth

A good resource dictionary that presents the principles of earth science. A simple cross-referencing system guides the reader through the dictionary’s thematic structure which groups more than 2,000 words and concepts into key subject areas, including “The Changing Landscape.” A good resource for 5th- and 6th-grade students involved in the Landforms Module and also for teachers using any of the modules in the FOSS Earth Science Strand.

The Great Midwest Flood

Chronicles the “slow-motion disaster” of the floods along the Midwest’s rivers in the summer of 1993. Describes the effects of the flooding and the human efforts to contain the floods through the use of levees, reservoirs, and sandbags. Includes full-color photographs, maps, and diagrams.
**Dictionary of Science**

A good resource dictionary that presents the fundamentals of science, including magnetism and electricity, force, motion, and machines. A simple cross-referencing system guides the reader through the dictionary’s thematic structure which groups more than 2,000 words and concepts into topic areas. A good “look-up” resource for 5th- and 6th-graders and their teachers involved in the Scientific Reasoning Strand and Physical Science Strand. Includes over 150 biographies of pioneering scientists, from Archimedes to Marie Curie.

**Clocks: Building and Experimenting with Model Timepieces**

Instructions for using readily available materials to make working models of different kinds of clocks with suggested experiments to discover how they work.

**Teacher to Teacher continued**

class discussion. She reveals her intellectual preparation for each activity and describes how she modifies the action based on her goals and the interests of the students. Any teacher who has taught the FOSS Air and Weather Module at least once will find this series filled with ideas to consider for the second level of instruction.

**Series 9: Wood (Programs 43-47)**
Teacher: Pam Patrick, Kindergarten Huntsville, Alabama

Pam invites us into her classroom and takes us through much of the FOSS Wood Module. Along the way she demonstrates the development of language and mathematics in the context of science with her five-year olds; the development of self confidence and intellectual risk taking in young students; and how a teacher can maintain control and yet give very young students an opportunity to guide their own learning experiences.

How do these videos differ from the FOSS Teacher Preparation Videos included in each FOSS Module? The FOSS Teacher Preparation Videos are intended to introduce the module to the teacher leading the activities for the very first time. On the FOSS video, an experienced teacher sits down with you and systematically as well as visually takes you through the Teacher Guide, through the materials preparation, and through each step of every activity. The prep videos provide glimpses into the FOSS classroom through vignettes. The Teacher to Teacher videos are not meant to introduce the module. Rather, they use the FOSS activities as a vehicle to illustrate particular instructional methods of inquiry-based science. The classroom is the main focus of these videos. Teacher to Teacher videos are more appropriate for educators who have some experience with the FOSS modules and are ready for the second level experience.

Thanks to Mr. Wizard Foundation, the National Science Foundation, and Nickelodeon for making this resource available to FOSS educators. For more information, contact: Mr. Wizard Foundation, 44800 Helm Street, Plymouth, MI 48170, 1-800-258-2344.
Britannica will host four 2-day Informational Institutes this academic year in conjunction with the NSTA Area and National Conventions. These institutes are designed for all educators—lead teachers; administrators; curriculum coordinators; university methods instructors; and science committee members who are interested in finding out what FOSS is, who developed it, what philosophy of education it supports, and networking with other FOSS users. A lot of time at these institutes is spent with the program materials doing activities and engaging in inquiry.

During the year, Britannica hosts Implementation/Leadership Institutes. These meetings are designed for educators who have adopted FOSS and are into their implementation process. Some time will be spent working with the FOSS materials, but a greater proportion of time will be spent delving into issues of management, teacher preparation, materials maintenance, and a host of other subjects.

Most institutes are led by FOSS development staff. There is no charge, but participants must register in advance to attend. Times and locations are listed in the calendar. To secure your spot at the institute of your choice, call, write, or FAX.

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Yes! I'm interested in attending a FOSS Informational Institute.
Yes! I'm interested in attending a FOSS Implementation/Leadership Institute.

Please send me registration information for the ____________________________ institute.
(Date and Location)

Name ____________________________
School ____________________________ District ____________________________
Title ____________________________
Address ____________________________
City ____________________________ State ____________________________ Zip ____________________________ Daytime Phone ____________________________

I did not receive this FOSS newsletter in the mail. Please add my name to the mailing list.
A very special THANK YOU . . . to all the local and national trial teachers who have helped make FOSS such a great success!

About This Newsletter . . .

The intent of the FOSS Newsletter is to help FOSS users develop a network of support across the country. EBEC and LHS will work together to bring you news two times per year, including articles regarding the latest development of modules, tips about management from teachers and administrators, ways to make connections with other teachers and districts, extensions and reading materials to add to modules you are already using, and informative articles about good educational practices.

So, we need your help. If you have a tip that enhances the teaching of FOSS or would like to submit an article (with photos) about exciting activities or school programs, management, implementation projects, etc., please send them to FOSS Newsletter, Lawrence Hall of Science, University of California, Berkeley, CA 94720. We’ll be waiting to hear from you.