It’s a monumental task: Determine what your school district needs for curriculum, professional development, and classroom support in science and math over the next five years.

Teams of teachers and administrators from Ferguson-Florissant, Maplewood-Richmond Heights, Riverview Gardens, University City, and Webster Groves grappled with these issues during an intensive planning meeting at the St. Louis Science Center in February.

The meeting included brainstorming, small group discussion, and district-based planning. Victoria May, science outreach director; Carol Valenta, senior vice president at the Science Center; Ann McMahon, science coordinator for Riverview Gardens; Phyllis Balcerzak, associate in education; Jim Jordan, associate curator for education at the Saint Louis Zoo; Cathy Fueglein, math coordinator for Webster Groves; Jack Wiegers, instructor; and Joylynn Wilson, associate superintendent at University City, led various sessions.

District teams drafted their five-year plans during the meeting. Washington University, the St. Louis Science Center, and the Saint Louis Zoo will identify possible areas of collaboration based on the districts’ needs.

The organizations involved are all partners in the St. Louis Math and Science Partnership (MSP), supported by the National Science Foundation. The project is designed to improve student achievement in math and science through coordinated efforts in professional development, teacher support, and community programs.

**St. Louis Earth Day: Passport to a Healthy Planet Festival, April 27**

St. Louis Earth Day will host various events around town in April. Mark your calendar for one or more of these:

**Earth Day Symposium**
Tuesday, April 22, Missouri Botanical Garden
“Clean Water, Livable Cities: Models that Work” features effective watershed management solutions.

**Earth Day Teachers’ Guide**
To request your free Earth Day 2003 Teacher’s Guide featuring new watershed education activities, contact info@stlouisearthday.org, www.stlouisearthday.org, or call (314) 962-5838.
Edu 6010 Mathematics Concepts for teachers of grades K-8

This problem solving and lecture course is designed to give teachers a theoretical background in basic mathematics. Concepts include fraction manipulations, ratio and proportion, decimal expansions and operations, percents, compound interest, repeating decimals, infinite nonrepeating decimals, exponents and scientific notation. Course will cover application of concepts to geometry, graphs, probability, statistics, commerce, and elementary science. Problem sets for classroom use will be given. Instructor Gary R. Jensen, professor of mathematics, will provide students with copies of his book.

**Dates:** June 16-27, 9 a.m.-noon
**Location:** Washington University Hilltop Campus, 199 Cupples I
**Credit:** Three graduate credits in education
**Cost:** Registration $200

**Register:** Call (314) 935-6846, e-mail obrien@biology2.wustl.edu, or return form on page 7.

Supported by the Howard Hughes Medical Institute

Microbes in Action for teachers of grades 9-12

Use microorganisms to teach important biological concepts in the classroom. This workshop uses teacher and scientist-developed curriculum, and includes information on using microorganisms in the classroom, seminars by industry microbiologists, and instructions on various microbiology techniques.

**Instructors:** Teresa Thiel, microbiologist, UM-St. Louis; Patricia Laird, biology teacher, Brentwood High School; Jennifer Cosgrove, biology teacher, Francis Howell

**Dates:** June 23-27, 8:30 a.m.-3:30 p.m.
**Location:** University of Missouri-St. Louis
**Credit:** Two optional graduate credits are available for $75
**Cost:** $25 registration fee

**Register:** Contact Teresa Thiel, (314) 516-6208, thiel@umsl.edu, or www.umsl.edu/~microbes.

Deadline is May 15.

Supported by the National Science Foundation, the Foundation for Microbiology, and the Pfizer Foundation

The Modern Genetics for All Students program provides hands-on genetics investigations for high school biology. More than 20 area high schools are partners: University City, Jennings, Washington, Parkway Central, Webster Groves, all St. Louis Public high schools, Pacific, Riverview Gardens, Crystal City, Hazelwood East, Maplewood-Richmond Heights, and Wellston. Four new schools will be added in summer 2003.

Teachers in current partner schools who have not taken the course and teachers in new partner schools are eligible to attend either of the two classes offered. Limited spaces for teachers from non-partner schools may be available.

For more information, contact Susan Flowers, (314) 935-8271, or e-mail flowers@biology2.wustl.edu.

**Dates:** Choice of two sessions, June 16-20 or June 23-27, 8:30 a.m.-5 p.m.
**Location:** Washington University Hilltop Campus
**Credit:** Two graduate credits in biology
**Cost:** For teachers from partner schools (new and listed), the registration and credit fee is $350.

**Register:** Return form on page 7, call (314) 935-8271, or visit www.so.wustl.edu.

Supported by the Monsanto Fund, the Dana Brown Charitable Trust, and the Howard Hughes Medical Institute
Human Impact Ecology for teachers of grades 9-12

"Human Impact Ecology" is a high school biology curriculum that shows the importance of a healthy ecosystem for human life, and the ways in which humans affect their environment. Topics include water cycle, land use, and water quality issues. Activities include macroinvertebrate studies, duckweed experiments, chemical abiotic testing, and an oil digesting bacteria lab. Teachers who complete the course and pilot the curriculum receive free curriculum sets, including classroom plants and supplies, and an expense-paid field trip to Tyson Research Center. Instructors Phyllis Balcerzak, director of Tyson Field Science Program; Mark Kalk, program coordinator; and Michelle Dodds, Pattonville Heights Middle will share their experiences developing the curriculum.

Dates: June 16-20, 8 a.m.-2:30 p.m.
Location: Washington University
Tyson Research Center, I-44 and Beaumont Antire Road
Credit: Optional three graduate credits in education for $75.
Implementation research project and one follow up meeting required to receive credit.
Cost: Registration without credit is free.
Register: Call (314) 935-6846, e-mail obrien@biology2.wustl.edu, or return form on page 7.

This workshop is part of the Outreach Partnership, supported by a Science Education Partnership Award from the National Institutes of Health. Also supported by the Missouri Coordinating Board for Higher Education.

Animal Behavior for teachers of grades 5-8

"Animal Behavior: In your classroom and at the zoo" is a curriculum for grades 5-8 that begins with video, CD-ROM and classroom observations of animals, then brings your students to the Saint Louis Zoo to answer a research question. The curriculum develops observation and analytical thinking skills, and builds connections between science and language arts. Instructors Stan Braude, lecturer in biology; Carol Stephenson, Saint Louis Zoo educator; and Janet Crews, teacher at Wydown Middle will share their experiences in developing the curriculum, and discuss their backgrounds in research and education. Teachers who complete the course and pilot the curriculum receive free curriculum sets, including videos, CDs and DVDs, plus access to loaner classroom animals, and an expenses-paid field trip for their class to visit the Zoo.

Dates: Fridays, June 27, July 11, July 18, 8 a.m.-2:30 p.m.
Location: Saint Louis Zoo Primate House
Credit: Optional three graduate credits in education for $75.
Implementation research project required to receive credit.
Cost: Registration without credit is free.
Register: Call (314) 935-6846, e-mail obrien@biology2.wustl.edu, or return form on page 7.

This workshop is part of the Outreach Partnership, supported by a Science Education Partnership Award from the National Institutes of Health.
Edu 6001 Hands-On Science K-8

Electricity and Magnetism

Electricity and Magnetism covers properties of magnets, basic wiring and lighting problems, electromagnets and spinning coil motors, and the basic principles of electricity.

Instructors: Patrick Gibbons, professor of physics; Jack Wiegers, instructor

Dates: Tuesdays 4:30-7 p.m., Sept. 2-Dec. 16

Location: Washington University Hilltop Campus

Credit: Three graduate credits in education

Cost: Registration fee $200

Register: Contact Amy O’Brien, (314) 935-6846, obrien@biology2.wustl.edu, or return form on page 7.

Supported by the Howard Hughes Medical Institute

Edu 6009

Hands-On Science K-8

Matter and Energy

The Hands-On Science K-8 series links standards-based activities with science content. Education 6009 Matter and Energy covers the properties of matter and basic chemistry. Activities include classification, determining states of matter, kitchen chemistry, basic nanoscience, and lessons from the American Chemical Society’s “Chemistry for Kids” series.

Instructors: Karen Wooley, professor of chemistry, and guest lecturers Jacob Schaefer, professor of chemistry; Jill Pasteris, professor of earth and planetary sciences; Craig Hawker, IBM Almaden Research Center; Michael Mackay, Michigan State; Darrin Pochan, University of Delaware; and Tomasz Kowalewski, Carnegie Mellon

Dates: Thursdays 4:30-7 p.m., August 28-Dec. 18

Location: Washington University Hilltop Campus

Credit: Three graduate credits in education

Cost: Registration fee $200

Register: Contact Amy O’Brien, (314) 935-6846, obrien@biology2.wustl.edu, or return form on page 7.

Supported by the National Science Foundation
DNA Science Days at Washington University for high school biology students

Attention biology teachers: Are your students ready for a college-level laboratory experience? Beginning in fall 2003, Science Outreach will coordinate one-day campus visits to Washington University for high school biology classes. The day includes an advanced lab investigation in molecular genetics, a campus tour, and lunch with undergraduate science majors. The DNA Science Days are available to classes of up to 24 students, and are particularly well suited to those who have used the Modern Genetics curriculum. Science Outreach will provide bus transportation, lunch and substitute teacher stipends. Dates are limited. Contact Susan Flowers, (314) 935-8271 or flowers@biology2.wustl.edu, for more information.

Supported by the Howard Hughes Medical Institute

Teaching Teams classroom visits for fall

Thanks to all who requested the Teaching Teams this past year. We want to encourage anyone who wasn’t able to schedule a team visit to try again next year. Contact Kristin Sobotka, (314) 935-7170, kristin@biology2.wustl.edu, or visit www.so.wustl.edu.

Supported by the Howard Hughes Medical Institute

A student at St. Louis Charter School spools DNA and observes the matrix during a Teaching Team visit.

Earn a Graduate Certificate in Science Education

A first step toward a master’s degree for many teachers is the graduate certificate in science education, offered through Science Outreach and Education. This 15-credit hour certificate may be completed with courses in the Education 6000 series, and/or through independent study.

This selective program accepts teachers on the basis of grades in their first Education 6000 Hands-On Science K-8 classes and an application. Support by the Howard Hughes Medical Institute provides a reduction in registration fees, allowing those accepted to take courses for only $75. Teachers who earn the certificate may apply the 15 credits toward a master of arts in education at Washington University. Deadlines for admission are Nov. 15 for spring semester acceptance and April 15 for fall semester acceptance.

To learn more, contact Amy O’Brien, (314) 935-6846, or e-mail obrien@biology2.wustl.edu.
Outreach at professional meetings

Science Outreach staff and teachers will present from our projects at these upcoming conferences. Mark your calendars:

**Biotech 2003 Conference**
July 16-19, Virginia Tech, Blacksburg, Va., www.biotech.vt.edu

The conference gives an overview of the latest developments in biotechnology for educators. Elmer Kellmann, biology teacher at Parkway Central, will present the Modern Genetics for All Students curriculum.

**National Association of Biology Teachers**
Oct. 8-11, Portland, Oregon, www.nabt.org

Mike Grupe, Lutheran North; and Valerie Mertz, Marquette (Rockwood), will present the Food Forensics curriculum in a special workshop.

Susan Flowers, genetics director, and Victoria May, outreach director, will present “Nature versus Nurture: How Genes and the Environment Influence Our Health,” from chapter 3 of Modern Genetics, in a special workshop.

**Interface 2003**
Thank you to all who attended Science Outreach sessions at Interface, Feb. 20-25. Marty Galganski, Tyson Field Science coordinator, presented “Increasing Investigation-Based Ecology for Urban K-6 Students.” Ann McMahon, Washington University instructor and Riverview Gardens science coordinator; Jack Wiegers, instructor; and Patrick Gibbons, professor of physics, presented four sessions on hands-on physical science from the Education 6000 Hands-On Science K-8 courses, and a session on professional development in Riverview Gardens. Susan Flowers, genetics director; and Chris Mohr, lab technician, presented “Shine On: Engineering Glow-in-the-Dark Bacteria.”

RISE partnership with Riverview Gardens

More than 60 K-6 grade teachers in Riverview Gardens have been hard at work on professional development activities as part of the district’s Renaissance in Science Education (RISE) project, funded by National Science Foundation. Marty Galganski, Tyson Field Science coordinator; Emily Whitney and Jane Walker, Tyson instructors; and Mark Kalk, program coordinator, have contributed ecology activities to the district’s elementary science curriculum, and have helped coach teachers in using them during Saturday sessions in the spring 2003 semester.

Lab equipment on the move

Science Outreach accepts donations of used, working lab equipment from universities and industry, and places them in schools with limited resources.

Steve Bequette, sales representative for ISC BioExpress, collects outdated lab equipment and delivers it to Science Outreach. If you would like to donate equipment, contact Bequette at 1-800-288-2901, ext. 314, or e-mail sbequette@bioexpress.com.

If you are interested in receiving equipment, contact Susan Flowers, (314) 935-8271 or e-mail flowers@biology2.wustl.edu.

Keeping Busy

**Janet Crews**, teacher at Wydown Middle (Clayton), is a STARR teacher for 2003-04. She is one of three teachers serving the St. Louis region through this DESE-sponsored program.

**Kathie Reuter**, teacher at Kratz Elementary (Ritenour), is coordinating the First Lego League competition in 2003-04. Teams of intermediate and middle students can build a robot and then participate in local and state competitions. For more information, call Reuter, (314) 493-6000, ext. 5010, or e-mail kathie_reuter@stlfirst.org.

**Susan Vinson**, teacher at St. Peter’s Elementary, was listed in Who’s Who in American Teachers in 2002.

If you or a colleague has recently published an article, presented a workshop, or won an award, please let us know. Send items to Dana Beneidcttus, dana@biology2.wustl.edu.
Missouri Botanical Garden
For more information about these workshops, call (314) 577-5144 or visit www.mobot.org.

Missouri Department of Conservation
These workshops are held at various Missouri wildlife sites in the St. Louis area. For more information about these workshops and other statewide workshops, visit www.conservation.state.mo.us/teacher/workshops/workshops.html.

June 10-12, Connecting Children’s Books and Conservation
June 17-19, Ecology of Missouri Plants and Animals
June 24-26, Animal Adaptations and Behavior
June 24-27, Using the Outdoors as a Classroom
July 8-10, Scouting the Daniel Boone Home
July 15-17, Project Learning Tree, Project WILD, Project WET
July 22-24, Lewis and Clark and the Big River Confluence
July 23-August 1, Forest Park Voyagers Teachers Academy

Saint Louis Zoo
For more information, call (314) 768-5466 or visit www.stlzoo.org.

June 12-13, Taxonomy, Phylogeny, and Evolution
June 16-20, Vertebrate Groups and Classification
June 14, 21, Animal Artistry for Teachers-I

University of Missouri-St. Louis
The Collaborative for Applied Experiences in Science program matches undergraduate math, science and engineering majors with St. Louis science or engineering companies for summer work experiences. Contact Kenneth R. Mares, (314) 516-6155, biokmare@admiral.umsl.edu, or visit www.umsl.edu/~sep/caestoc.html for more information.

Science Outreach Summer-Fall 2003 Course Registration

Please register me for:

Summer courses
Modern Genetics:
__ June 16-20 or __ June 23-27
__ Animal Behavior
__ Human Impact Ecology
__ Edu 6010 Mathematics Concepts

Fall courses
__ Edu 6009 Matter and Energy
__ Edu 6001 Electricity and Magnetism

Do not enclose payment. Fees will be collected at the first class.

Name

School

Grade level

Home address

Home phone

School phone

E-mail

Mail to Amy O’Brien, Washington University Science Outreach, One Brookings Drive, Campus Box 1137, St. Louis, MO 63130. Fax to (314) 935-4432, or send an e-mail to obrien@biology2.wustl.edu.
Inside

St. Louis MSP
Modern Genetics
Outreach Partnership
Summer courses
Fall courses
Education 6000
Teaching Teams
DNA Science Days
St. Louis Earth Day
Riverview Gardens partnership

Students from Cole Elementary (St. Louis Public) collect and observe insects during a summer visit to Tyson Research Center. Call (314) 935-8437 to schedule a field trip to Tyson. The Tyson Field Science Program is supported by the Gaylord Foundation, the Missouri Coordinating Board for Higher Education, the St. Louis Public Schools, the Friends of Tyson, and others.