SCIENCE PIONEERS

2011 - 2012 Programs

sciencepioneers.org

Who: Students, grades 4-12

What: Meet the Science Mentor Day allows students the opportunity to meet area scientists, technologists, engineers, and mathematicians to discuss science fair projects. Students learn about the connection between science and everyday life.

When: Saturday, November 5, 2011
8:30am - 12:00pm

Where: UMKC Student Center

Why: *Your students will*

- Get a head start on their science fair project
- Visit with science mentors one-on-one
- Walk away with a great idea for their project
- Attend workshops on the "how to's" of projects about computers, inventions or research
- Visit displays and chat with scientists, engineers, and technologists about their workplace investigations/ research

Students learned a lot about science fair projects, e.g. about dependent and independent variables… how to make a control group… how to choose a project… making an experiment advanced.

– Various student participants

Who: Young women, grades 6-8

What: An evening of hands-on experiences in science, technology, engineering and mathematics. Professional women from science- and math-related fields facilitate workshops and serve as role models. The keynote speaker is Dr. Cassandra Runyon who is an Associate Professor at the College of Charleston. While working with NASA, she helped to map the moon's surface in high resolution, determine its mineralogical composition and obtain details on the ice located at the Moon's poles.

When: Friday, January 20, 2012
6:00pm-10:00pm

Where: Science City at Union Station

Why: *The young women will*

- Have fun as they explore scientific principles by doing science
- Meet real life women professionals
- Learn about their work challenges and achievements
- Explore in a non-threatening, supportive atmosphere

The EYH program was terrific this year (even better than last year!).

– Katy Gregory, 2011 parent volunteer

(EYH) Expansion Program

Who: 40-50 girls, grades 6-8

What: The EYH Expansion Program gives young women an extended opportunity to explore the science, technology, engineering, and mathematics careers in hands-on workshops. The participants work in small groups in one of four career fields. The young women may register when they register for the EYH Conference or later. The Expansion Program will be open enrollment so EYH attendees can bring a friend.

When: Two Saturdays, TBD following EYH
8:30am to 12:00pm

Where: UMKC Campus

Why: *The young women will*

- Explore one career in greater depth through working with a female mentor
- Do more experiments and procedures that simulate the actual work of mentor
- Create take-home items produced in the workshops
- Receive personal attention for eight hours of extended hands-on sessions

Thanks for making the girls feel so special. Working with a mentor has been such a positive experience for my daughter.

– Parent of EYH Expansion participant

Who: Students grades 8-12, Teachers and Parents

What: Career scientists, engineers, and technologists present hour-long seminars on hot topics in science. Presenters hold a Q&A session after each seminar. These seminars are free, open to the public, and no registration is required.

When: Saturdays, October 2011 to March 2012
9:00am-10:00am

Where: Extreme Screen at Union Station

NOTE: SP will stamp students' notes, so you can give extra credit for their attendance. Many teachers do so!

Why: *Your students will*

- Learn about real KC science firsthand from those involved
- Hear what scientists do on the job
- Receive actual career education in STEM (science, technology, engineering & math) fields
- Supplement/compliment the curriculum you are teaching
- Visit with scientists afterwards

Your topics related very specifically to our current unit and reinforced, then elaborated beyond what we've been discussing in class.

– Paula J. Donham,
Science Facilitator,
Olathe East High *School*

October 8, 2011 – Forensic Science and DNA Analysis, Bringing the Scientific Method to the Courtroom, Kelly McGill Carroll, MSFS. Forensic Science has been around for hundreds of years. TV shows like "CSI" have turned it into a household name. The application of DNA testing is getting more sensitive every day. Come explore a day in the life of a real forensic scientist and follow the evidence from the crime scene, through the laboratory, to the courtroom.

October 22, 2011 – What Are Model Organisms and Why Are They Part of the Human Genome Project?, Matthew Buechner, PhD, Associate Professor University of Kansas. The Human Genome Project is finding out the location of thousands of mutations that either cause a genetic disease or allow you to get diseases such as cancer, diabetes, muscular dystrophy, or the most prevalent lethal genetic disease, polycystic kidney disease. We don't know what these "disease genes" do until we compare them to similar genes in other animals such as mice, fruit flies, and the tiny roundworm C.elegans.

November 12, 2011–Technology in Today's Medical World, Michael Ash, MD, RPh, Cerner. Learn about exciting new developments in healthcare technology.

December 3, 2011 – Cell Wars: Fighting Cancer with Smart Weapons, Lynn Marzinski, RN, University of Kansas Cancer Center. The latest anti-cancer therapies involve working inside cells to block signals, to make antibodies that target cells for destruction, or engage the immune system so that only cancer cells are being attacked. Come see electron microscopic pictures of the newest therapies in our fight against cancer and hear about the research involved in developing these drugs.

January 21, 2012 – No Longer a Black and White Moon!, Dr. Cassandra Runyon, PhD, College of Charleston. Recent advances in technology and planetary science have advanced our understanding of the Moon – and led to new questions. From the Chandrayaan-1/Moon Mineralogy Mapper (M3), Cassini, Deep Impact, and LRO/LCROSS missions, we now know that water is present on the Moon! Additionally, closer inspection of the apparent black or gray surface materials indicates the presence of a variety of minerals. What processes formed them? Might we compare them to similar events on earth? How does the Moon compare to Earth? Could we live there?

continued on the next page

February 4, 2012–Traumatic Brain Injury: Are You at Risk?, R. Scooter Plowman, MS, University of Kansas Medical Center. The number one cause of death and coma among young people in the US is Traumatic Brain Injury (TBI). We have cutting edge MRI techniques to diagnose and quantify the brain injury, as well as, to use in prevention and treatment for TBI. Come learn how exciting it is to be a graduate student who directly works on research in this area.

February 25, 2012–Spring Brings Severe Weather – Why?, Jim Keeney, Deputy Chief of Weather Services/Warning Coordination Meteorologist. The National Weather Service protects the public. We'll talk about our tools of the trade, job opportunities, and our function. View detailed information and video pertaining to tornadoes, severe storms, and flooding from 2011. Come see what Mother Nature can do!

March 10, 2012–Terrorism or Flu: Planning for the Next Big Disaster in KC, Alisha Griswold, Medical Reserve Corps of Greater Kansas City. Using decades of research and collective experience, we battle daily to keep Americans safe and protected from harms known and unknown. We have the latest tools to keep the community engaged and prepared. Let's identify some of the most common hazards to the KCMO regions and discuss methods of preparing for and reducing the impact of harm to individuals and families.

In addition to offering…valid, extra credit opportunities for my science students, …it is always a good thing when students come to class on Monday and talk with you about what they learned on a Saturday.

– Theresa Brightwell,
Oak Grove High School

The 61st Greater Kansas City Science and Engineering Fair

Who: Students, grades 4-12

What: The Greater Kansas City Science and Engineering Fair with more than 1,200 students entering each year is the area's largest science fair.

When: March 21-24, 2012
(Applications due by 5:00pm, February 17, 2012)

Where: Union Station

Why: *Your students will*

- Be motivated to do and love science
- Design a project to explore a question of his/her own choosing
- Improve performance on the inquiry questions of the state assessments
- Gain more science knowledge than through other methods of science teaching–81% of our students say it's true.
- Learn a valuable method of problem solving and become better critical thinkers.

This was a very memorable experience. I feel honored to be in it. Although it was challenging at times, I feel glad to know I have no limits.

– Alissa Taylor, 8th grade, Martin City Middle School

Friday – February 17, 2012

IMPORTANT!

FORMS DUE NO LATER THAN 5:00pm

Fair Applications and Certification Forms must be turned into Science Pioneers' office, Union Station, Suite 410 no later than 5:00pm.

The $5.00 entry fee must accompany applications.

Wednesday – March 21, 2012

8:00am - 3:00pm — PROJECT SET UP
Students may set up exhibits at Union Station. All projects must be set up by 3:00pm.

4:00pm - 10:00pm — ACADEMIC JUDGING
The fair is closed to the public.

7:30pm - 8:30pm — JUNIOR LEVEL INTERVIEWS
7th – 8th grade students are invited to be at their projects to interview with academic judges.

SENIOR LEVEL INTERVIEWS
All 9th - 12th grade students should be at their projects to interview with academic judges.

Thursday – March 22, 2012

7:00am - 12:00pm — SPECIAL AWARD JUDGING
The fair is closed to the public.

12:00pm - 5:00pm — PUBLIC VIEWING and SCHOOL FIELD EXPERIENCES
The fair is free and open to the public.

Friday – March 23, 2012

9:00am - 5:00pm — PUBLIC VIEWING and SCHOOL FIELD EXPERIENCES
The fair is free and open to the public.

4:00pm - 7:00pm — REMOVAL OF PROJECTS
All projects must be removed by 7:00 pm. Projects not picked up will be discarded!

Saturday – March 24, 2012

10:00am - 12:00pm — THE CHARLES N. KIMBALL AWARDS CEREMONY
Sheraton Crown Center Exhibit Hall
(enter from the Sheraton parking garage)

Parents, teachers, relatives and friends are invited to attend.

Who: Teachers, grade K-12

What: *"Igniting Student Interest in Science"*

Empower your students with hands-on activities you can blend immediately with your current lessons. Help them see STEM (science, technology, engineering, and math) as relevant, exciting, and cool! Leave this session with lots of engaging ideas, lessons, and free materials! Our presenter Leesa Hubbard is the Teacher-in-Residence for Sally Ride Science. She is also a teacher resource agent for the American Astronomical Society, liaison for the U. S. Space Foundation, and a Messenger Fellow.

When: September 15, 2011
4:30pm - 7:30 pm

Where: Ewing Marion Kauffman Foundation

Why: *You will*

- Explore hands-on activities and technology you can use in your classrooms immediately!
- Learn about all of our ScienceWise courses and 2011-2012 programs.
- Receive free materials and door prizes galore!

I always learn something and come away with ideas and things.

– 2010 teacher participant

Who: Teachers, grades K-12

What: ScienceWise courses are back with new topics and more exciting online courses! Registration with payment is required for all courses. Course cost is $15 for every four hours of course time. Registration is now available online! In addition, one hour of graduate credit is available for every 12.5 hours of class time for $50 offered by UMKC or Baker University. This fee is payable at the first course session teacher attends.

When: October 2011 to March 2012
4:30pm-8:30pm weekdays
8:30am-12:30pm Saturdays

Where: UMKC Training Room NW
4th Floor Union Station - Unless otherwise noted*.

Why: *You will*

- Use content and methods practiced at our courses–99% of our teachers do!
- Gain science knowledge and new ideas for teaching–98% of our teachers do!
- Improve student learning–100% of our teachers agree!

Amazing Job! Activities and labs that I can incorporate directly into my lessons to help teach my GLE's more effectively.

– 2010 Course Participant

Matter, Motion & More: Engaging Students in Science, Rosemary Camp and Mary Coogan, Saturday, October 1, 2011, Grades 6-12. Participants will perform and discuss inquiry activities in the areas of chemistry, life science, physical science, and earth science.

Science Fair Kickoff, Betty Paulsell & Patty Dailey, Saturday, October 8, 2011, Grades 4-12. Teachers, both novice and experienced, will learn how to organize a science fair, generate ideas for projects and use activities to motivate students. *HMS Beagle, Parkville.

KSAM (Kindergarten through Sixth Grade Life Science & Math), Cheryl Turlin, Tuesday, October 18, 2011, Grades K-6. KSAM – Process-based student experiences follow a standard format that "evolves" over the duration of the course.

The Chemistry of the Body, Scott McQuerry, online course during November 2011, Grades 3-8. This class will prepare you not only for a real-life application of biology and chemistry for your classroom, but for your own students' health!

Spinning through the Solar System Part II, Scott McQuerry, online course during November 2011, Grades 3-8. Gain a deeper understanding of how we calculate time, moon phases, and the amazing eclipses in our solar system. This course is the follow-up to our previous course offered summer 2011, but may be taken on its own.

Gearing Up to a Moving Experience, Ollie Bogdon, PhD, Thursday, November 10, 2011, Grades K-8. Explore simple physics and other sciences with a robotic twist. Bring physics to life for your students while tackling state standards.

Habitats, the Inside Story, Claudine Lamb, Saturday, November 19, 2011, Grades 4-8. Wake up the naturalist intelligence in you. Topics will include animal and plant habitats in the ecosystems of the Midwest: glades, forests, prairies, and wetlands. *Discovery Center

Ice, Ice, Baby, Cheri Hamilton & Brandon Gillette, Tuesday, November 29, 2011, Grades 3-8. The Center for Remote Sensing of Ice Sheets (CReSIS) is a Science and Technology Center established by the NSF in 2005, with the mission of developing new technologies and computer models to measure and predict the response of sea level change to the mass balance of ice sheets in Greenland and Antarctica.

A Look at Climate Change Using Online Data, Brandon Gillette & Cheri Hamilton, Tuesday, December 6, 2011, Grades 9-12. The Center for Remote Sensing of Ice Sheets (CReSIS) is a Science and Technology Center established by the NSF. Explore free online data sources and activities for an inquiry approach to studying and analyzing climate change.

continued on the next page

Simplified, Simple Machines, Scott McQuerry, online course during January 2012, Grades 3-8. Simplified, Simple Machines will put the "simple" back into these amazing little tools. Leave this class armed with an entire unit.

Wet 'n Wild Weather Part II, Scott McQuerry, online course during January 2012, Grades 3-8. This course picks up where Part I left off but can be taken by itself! Take an in-depth look at how water undergoes phase changes, the process of creating clouds, how weather fronts control our storms, and learn the basics of weather prediction as well.

Year of the Solar System, Carol Dunn, Saturday, January 14, 2012, Grades 5-8. Experience hands-on science activities incorporating math and literacy that are designed to engage students in the scientific processes, as well as increase their understanding of abstract concepts of space.

Inquiry, Inside Out, Ollie Bogdon, PhD, Thursday, January 26, 2012, Grades 4-8. Look at different ways to use inquiry, explore hands-on examples from NASA, as well as transform your existing material into a more inquiry-based delivery.

Activities in Life Science to Engage Today's Learners, Karen Rogers, Saturday, February 11, 2012, Grades 6-10. Learn the use of inexpensive, hands-on activities and demonstrations to help make life science easier to understand and easier to remember as well as the use of scientific inquiry.

Get Involved with GLOBE, Betty Paulsell & Pat Lucido, Saturday, March 10, 2012, Grades 4-12. Global Learning and Observations to Benefit the Environment (GLOBE) is a worldwide hands-on, school-based science education program that promotes and supports students, teachers and scientists to collaborate on inquiry-based investigations of the environment and the Earth system. GLOBE data can be used in classroom and individual research projects. This course will have two strands: reviewing and learning new protocols for experienced GLOBE teachers and learning protocols for teachers new to GLOBE. Teachers will work in grade level groups. *Rockhurst University

I teach high school advanced physics and advanced chemistry and didn't know how the [online] courses would benefit me. My eyes have been opened to a world of resources…

– Marvin Pennell, St. Peters, MO

Who: Teachers (both novice and experienced) considering or planning to have students do science fair projects this year

What: Learn how to organize a science fair, generate ideas for projects and use activities to motivate students. Find out about the rules for the Greater Kansas City Science & Engineering Fair and how to access them in more detail.

When: October 8, 2011
8:30am-12:30pm

Where: HMS Beagle, Parkville

Why: *You will*

- Obtain advice from the pros and establish personal contact for help later
- Walk away with loads of resources to jump start yourself and your students on science fair projects
- Learn tips about encouraging quality student research

I feel like I have a much better understanding of the science fair process…

– 2010 Kick off participant

Who: Teachers, grades K-12

What: ScienceWise Teacher Resource Day includes a Teacher Share-A-Thon and a Science Resource Expo. Master teachers share new exciting lessons. Kansas City Metro area science education organizations showcase the wonderful opportunities they have for teachers and students throughout metro area.

When: Saturday, February 4, 2012
9:00am - 12:00pm

Where: TBD

Why: *You will*

- Observe demonstrations of lessons in action
- Have your questions answered about field trips and other area resources
- Receive a free CD with all lesson plans and handouts, plus contact info for science education organizations, PowerPoint presentations and information on freebies and grants for the classroom

This has been a great day for us as new teachers. I got a lot from the senior teachers I met and for sure the materials I got will be great in my classroom experiments.

– Moulaye Seydi, 2011 Attendee

Who: Teachers and home school parents, upon request

What: Science Pioneers maintains a mentor directory which contains contact information for professional scientists, technologists, engineers and mathematicians. To obtain a directory, call 816-460-2261 or email admin@sciencepioneers.org

Why: *You will*

- Have student questions about their science fair projects answered by a professional
- Find resources to help with student research
- Locate a professional for a classroom visit

Everyone at Science Pioneers is so helpful with Science Fair questions. The Mentor Directory is just another wonderful tool for answers to research questions and speakers for my classroom.

– 2011 Elementary teacher

Who: School districts, schools, teachers

What: In consultation with Science Pioneers, curriculum coordinators, science facilitators, and teachers determine the specific professional development needs of their staff. Science Pioneers will then design custom workshops, seminars, or presentations to meet those needs.

When: Workshops or staff training sessions for two hours, half day, full day or multiple days on dates requested by the school or district

Where: On-site or location chosen by school or district

Why: *You will*

- Consult with qualified Science Pioneers staff to determine strategic goals for student learning and teacher training
- Choose from numerous STEM Professional development topics presented by over 40 master educators
- Provide high quality professional development at affordable prices
- Arrange a one-hour presentation by a STEM professional in the field, for staff or students.

Very good! Lots of resources that are very realistic. I could definitely do these activities at my school!

– Participant at a workshop for the Southland Professional Development Institute

SCIENCE PIONEERS

For more information about our programs, please contact us at the following:

Science Pioneers
30 W. Pershing, Suite 410
Kansas City, MO 64108
816.460.2261 | Fax: 816.460.2264
Email: admin@sciencepioneers.org
Web: www.sciencepioneers.org

Science Pioneers encourages registrations for all events. Please visit our website or email us for more details regarding each event.

Science Pioneers is on Facebook. Sign up to get connected to exciting events for students and teachers. Go to www.facebook.com and like us today.

2011-12 Event Dates for Science Pioneers

ScienceWise Kickoff,
Tuesday, September 15, 2011, 4:30 - 7:30pm,
Kauffman Foundation • Keynote: Leesa Hubbard

Science Fair Kickoff,
Saturday, October 8, 2011, 8:30 - 12:30pm,
HMS Beagle, Parkville

Meet the Science Mentor Day,
Saturday, November 5, 2011, 8:30am - 12:00pm, UMKC

Expanding Your Horizons,
Friday, January 20, 2012, 6:00 - 10:00 pm,
Union Station Science City • Keynote: Dr. Cassandra Runyon

Teacher Resource Day,
Saturday, February 5, 2012, 9:00am - 12:00pm, TBD

61st Greater Kansas City Science & Engineering Fair,
March 21-24, 2012, (forms due Feb. 17) at Union Station

Saturday Science Seminars,
9:00am, Union Station,
10/8; 10/22; 11/12; 12/3; 1/21; 2/4; 2/25; 3/10