



"4-H SET Updates" are sent out once a month to two email lists: one for 4-H Staff and a week later to our General News email list.

## September 2009

The [The 4-H Science, Engineering, and Technology \(SET\) Initiative](#) combines non-formal education with hands-on, inquiry-based learning in a positive youth development context to engage youth in improving their SET knowledge, skills and abilities. 4-H SET combines the strengths of 4-H Youth Development non-formal experiential-based delivery modes and strong youth-adult partnerships to address SET content as defined by the National Science Education Standards (1996).

### FEATURED NEWS

- **4-H National Youth Science Day on October 7, 2009!**

The 2009 4-H national Youth Science Experiment - "Biofuel Blast" - will engage youth in important environmental issues our global community faces together and the opportunity available for a greener tomorrow. As our nation grapples with important environmental issues such as global warming, sustainability and energy independence, "biofuels" -sources of energy obtained from recently harvested plant materials- are at the forefront of the discussion of alternative energy sources.



**This event is a great way to publicize 4-H and 4-H SET!** Download your 4-H National Youth Science Day **media toolkits** - news release template, media advisory and sample scripts - and customize for local media in time for your event. If you know of times, dates and locations of 2009 4-H NYSD experiments, we can offer support in getting media attention. Contact Steven Worker at [smworker@ucdavis.edu](mailto:smworker@ucdavis.edu) or 530-754-8519.

**For 4-H Staff:** Excitement is growing about this year's 4-H National Youth Science Experiment (NYSE)! We hope to generate lots of media for 4-H and 4-H SET this year! To help prepare you for the 2009 4-H NYSD, a webinar will be held on **Thursday, September 10, 2009, 11:00am - 12:00pm**. The call-in and Adobe Connect URL information was sent in a separate email on August 28.

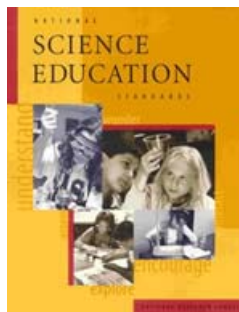
More information is available at <http://www.ca4h.org/SET/>

- The 4-H SET Initiative is based on the **National Science Education Standards** (1996). The Standards present a vision of a scientifically literate populace. Using a grade-level approach, they outline what content and processes students need to know, understand, and be able to do to be scientifically literate.

#### Principles of the Standards

1. Science is for all youth.
2. Learning science is an active process.
3. Science reflects the intellectual and cultural traditions that characterize the practice of contemporary science.

The *Standards* emphasize science education through inquiry-based learning, where youth build understanding through active exploration and questioning. The *Standards* outline content youth need to learn about science, which include: physical science, life science, earth and space science, science and technology, science in personal and social perspectives, and history and nature of science.



For more information, visit:

- The brief overview at <http://www.ca4h.org/SET/documents/CA4HSET-NSES.pdf>
- Or the online National Science Education Standards at [http://www.nap.edu/openbook.php?record\\_id=4962](http://www.nap.edu/openbook.php?record_id=4962)

### UPCOMING TRAININGS

- The last two scheduled eight hour train-the-trainer workshop, **Tools of the Trade II - Inspiring Young Minds to be SET\* Ready for Life! \*Science, Engineering, & Technology** will take place on September 30 and October 1. Through hands-on, inquiry-based activities the training will build the capacity of afterschool staff to incorporate science, engineering and technology experiences in afterschool settings. The last scheduled training will take place on September 30 and October 1 in San Diego. For more information, please visit <http://www.ca4h.org/set/updates/ToolsoftheTradeII.pdf>
- Project WILD, of the CA Department of Fish and Game is offering a **K-12 Facilitator Training on September 17**, from 8am-4:30pm at Lake Tahoe Basin. This training will certify you and further your understanding of how to teach parents, group leaders and other educators how to integrate environmental education activities into the California grade level standards. Click [here](#) for a flyer of the event and registration details.
- Three professional volunteer development opportunities are available for the *Power of the Wind* curriculum. The **Power of the Wind**, a new curriculum offered by the National 4-H Council, engages youth in using engineering principles to design and to build alternative energy projects, utilizing wind as the primary resource. Training locations include San Luis Obispo, San Diego, and UC Davis in Fall 2009. Additional information on training dates and registration will be forwarded as available. Primary contact: Cynthia Barnett, San Bernardino 4-H YD Advisor at [ccbarnett@ucdavis.edu](mailto:ccbarnett@ucdavis.edu). More information on the Power of the Wind is available at <http://projects.4-hcurriculum.org/curriculum/wind/>
- Now available on CD - **Tools of the Trade II: Inspiring Young Minds to be SET\* Ready for Life!** (\*science, engineering, and technology) a comprehensive staff-development guide with over 20 hours of training for afterschool staff and youth workers on how to incorporate science, engineering and technology in their programs. The CD has 14 individual sessions for trainers that include set up, materials list, background information, and evaluation tools.

Topics include:

- creating a science-rich environment,
- helping frontline staff be confident and comfortable in facilitating SET learning,
- understanding experiential and inquiry based learning,
- SET abilities for the 21st Century, and
- how kids learn science in afterschool settings.

To order, use the order form at <http://www.ca4h.org/set/updates/TOTIIOrderForm.pdf> or call Jackie Reilly 775-856-8404 or email [reillyj@unce.unr.edu](mailto:reillyj@unce.unr.edu)

## CURRICULUM

- A new 4-H robotics curriculum, titled "**4-H Robotics: Engineering for Today and Tomorrow**", is being developed by a multi-state partnership, funded by the National 4-H Council. The curriculum will contain three tracks: 1) Virtual online or DVD activities to explore concepts of robotics; 2) "Junk Drawer Robotics" will engage youth in exploring processes behind robotics and then apply these using household materials to engineering robotic designs; and 3) access to specific platforms, such as Lego FIRST, VEX, or Robotix. California 4-H is lead designer for Track 2, with an estimated publishing date of Fall 2010. For more information, please contact Richard Mahacek at [rlmahacek@ucdavis.edu](mailto:rlmahacek@ucdavis.edu).
- **PBSKids FETCH 2010 Challenge Packs** are now available! The 2010 Challenge Pack contains new activities that explore sound, light, and energy – and require inexpensive materials that won't break your budget! Use these challenges to create a fun, engaging event for kids and families or to provide additional challenges for your 4-H meeting. 2009 activities are available at <http://pbskids.org/fetch/parentsteachers/activities/challengepack.html>. To obtain the 2010 activities, please email [fetchnews@wgbh.org](mailto:fetchnews@wgbh.org). Be sure to include your name, organization, and mailing address (please indicate work or home).

## RESOURCES

- **4-H impacts young people's interest in science, engineering and technology!** The 4-H Study of Positive Youth Development (4HSPYD) is a national longitudinal study directed by Tufts University. From 2003 through 2008 over 6,000 youth from 41 states participated in the study, which includes questions around a wide variety of topics, such as academic engagement, family and peer relationships, health behaviors, neighborhood indicators, participation in youth programs, and others. Results from this study demonstrate the importance of the 4-H program in impacting young people's interest in science, engineering, and technology. Read the two-page summary developed by Katherine Heck, 4-H Center for Youth Development: <http://www.ca4h.org/set/updates/4-HSETFactSheet.pdf>
- **From UC Berkeley:** Science is so critical to our lives, we are regularly targeted by media messages about science in the form of advertising or reporting from the media. Our everyday lives are affected by all sorts of science-related policies — from what additives are allowed (or required) to be mixed in with gasoline, to where homes can be built, to how milk is processed. **Understanding the nature of science can make you a better-informed consumer** of those messages and policies. Read more about the science toolkit at [http://undsci.berkeley.edu/article/sciencetoolkit\\_01](http://undsci.berkeley.edu/article/sciencetoolkit_01)
- Preparing for emergencies is not only good practice but can also help teach fundamental science process skills! Emergency preparedness gives youth a sense of control, equips them with critical life skills, and is a key factor in helping them feel more safe and secure. Scientific knowledge is also empowering, as it helps kids make sense

of the world around them. **Discovery Education's "Ready Classroom" Emergency Preparedness** website contains resources and activities to engage youth in preparing for an emergency. <http://readyclassroom.discoveryeducation.com/>

- **NASA** invests in the Nation's education programs and supports the country's educators who play a key role in preparing, inspiring, exciting, encouraging, and nurturing the young minds of today who will be the workforce of tomorrow. NASA offers educational resources for the informal education community, which includes 4-H! Visit the website to find educational resources to bring the space agency's missions of **earth and space science** into your 4-H activities. <http://www.nasa.gov/offices/education/about/index.html>
- National 4-H Council, National 4-H Headquarters, and University of Arizona 4-H, invited all 4-H professionals, staff and volunteers to produce their own **digital film** for front-line educators and volunteers to help better implement 4-H SET programs. Six videos a range of activities facilitators can use with youth, content to help support our work in delivering science activities, and a step-by-step example of the scientific method. View the videos at <http://4-h.org/staffresources/videochallenge/>
- Watch videos of 4-H activities, events and projects on the **California 4-H YouTube channel**. Videos highlight 4-H SET projects, 4-H clubs, presentations and statewide conferences. If you have a 4-H video to add, please contact Steven Worker at [smworker@ucdavis.edu](mailto:smworker@ucdavis.edu). YouTube: <http://www.youtube.com/user/California4H>

## EVENTS & ACTIVITIES

- Are you interested in increasing the use of technology in 4-H? Do you have experience with technology, including digital photography, video, computers, GIS/GPS, programming, web design, or IT support? Join the **2009 California 4-H Computer Corps!** The 4-H Computer Corps supports the "T" in 4-H SET, conducts technology workshops, provides IT support, assists 4-H clubs, and records video and photos of 4-H events! 4-H members, age 16-19, 4-H volunteers and staff may apply by **September 30, 2009**. More information is available at <http://ca4h.org/wrp/comp corps/>.
- The American Geological Institute (AGI) invites 4-H to take part in **Earth Science Week 2009!** Being held October 11-17, Earth Science Week 2009 will encourage people everywhere to explore the natural world and learn about the geosciences. "Understanding Climate," the theme of Earth Science Week 2009, will promote scientific understanding of a timely, vital topic: Earth's climate. More information is available at <http://www.earthsciweek.org/>
- **Year of Science 2009: September - Celebrate Biodiversity and Conservation.** Life comes in all shapes and sizes and manages to persist in even the most extreme environments. That variety of life is captured by the term biodiversity - the array of life. Biodiversity is a global issue of great importance and provides an indicator of the overall health of our planet. [http://www.yearofscience2009.org/themes\\_biodiversity\\_conservation/celebrate/](http://www.yearofscience2009.org/themes_biodiversity_conservation/celebrate/)
- The **Afterschool Alliance** is working to ensure that all children have access to affordable, quality afterschool programs. On October 22, 2009, the 10th annual nationwide celebration of afterschool programs will take place in more than 7,500 communities. Join the 1 million Americans who take part in **Lights On Afterschool** to help call attention to the afterschool programs that keep our kids safe, inspire them to learn and help working families. <http://www.afterschoolalliance.org/loa.cfm>. The California 4-H Youth Development Program will have a booth at the State Capital featuring 4-H SET activities and promoting Lights on Afterschool. Contact Steven Worker at [smworker@ucdavis.edu](mailto:smworker@ucdavis.edu) if you would like to assist in these activities.
- 4-H members can help to collect soil samples to give a much clearer assessment of the health of the Nation's soils. Northeastern University is conducting the **National Soil Research Project** where students are measuring the humic (HA) and fulvic acid (FA) contents of the nation's agricultural top soils. HA and FA are vital organic components of healthy soils. They retain water, act as pH buffers, improve soil texture/porosity and regulate many other soil functions. We need to double the number of samples to be analyzed. We can do that with your help! We're asking 4-H members to collect and mail a one-pound, dry soil sample to Northeastern University for analysis. For more information or to participate, please contact Geoffrey Davies at [g.davies@neu.edu](mailto:g.davies@neu.edu).
- The Siemens Foundation, Discovery Education and the National Science Teachers Association invite you to join the **Siemens We Can Change the World Challenge**. The Challenge is the only of its kind that empowers youth to create replicable solutions to environmental problems in their communities, and to share their results with youth nationwide. <http://wecanchange.com/>

## INCENTIVES AND RECOGNITION

- The California 4-H Science, Engineering and Technology Initiative is strengthened by contributions of **higher education and government collaborators**. Collaborators bring expertise, new perspectives, and can open new opportunities for 4-H SET activities. Many County 4-H SET Steering Committees have brought on collaborators from county government agencies, schools, and local community colleges. Partnering also helps meet the 4-H Mission and Direction program criteria: "4-H is connected to, or has the potential to connect to UC or other campus-based faculty, programs and/or resources." Review the dynamic list of CA 4-H SET government and higher education collaborators at <http://www.ca4h.org/set/updates/SETCollaborators.pdf>. To add names of other CA 4-H SET collaborators to this list, please contact Steven Worker at [smworker@ucdavis.edu](mailto:smworker@ucdavis.edu).

- The **Coleopterists Society**, an international organization of professionals and hobbyists interested in the study of **beetles**, has established a program to recognize young people studying beetles. The Society has pledged up to \$300 each year for the **Youth Incentive Award program**. This program is for young Coleopterists in grades 7-12. The deadline is November 15, 2009. More information is available at [http://www.coleopsoc.org/default.asp?Action=Show\\_SocietyInfo&ID=Youth](http://www.coleopsoc.org/default.asp?Action=Show_SocietyInfo&ID=Youth)

## FUNDING OPPORTUNITIES

- The **Bob and Pat Dean Memorial Legacy Fund** offers resources in support of 4-H club work to 4-H members and their volunteer leaders. *4-H science, engineering and technology projects and activities are typically eligible!* Funding is intended for activities that meet the following criteria: 1) enable youth to develop citizenship, leadership, or life skills; 2) support the development of new and innovative 4-H projects benefiting 4-H members; 3) increase public awareness of the 4-H Youth Development Program; 4) expand the reach of the 4-H Youth Development Program (new youth, new audiences); 5) provide continuing benefits to the applicant's local 4-H Club or project. Information is available at: <http://www.ca4h.org/citizenship/funding/> and applications are due **September 15, 2009**.
- **California 4-H Service-Learning RFP: Do you have any 4-H SET projects with a service component?!**  
The California State 4-H Program offers funds to members and volunteer leaders on a competitive basis through the **California 4-H Service-Learning RFP**. Groups can request up to \$5,000 to fund activities that address significant environmental, economic and/or social issues affecting California's youth, families, and communities. The Service Learning RFP application and information is available on the web at: <http://www.ca4h.org/citizenship/funding/>. Examples of past projects are also listed. The application is due **September 15, 2009**.

## AROUND THE STATE

- **All Counties:** Over 450 high school 4-H members, adult volunteers and staff from 43 counties participated in the **2009 4-H State Leadership Conference** at UC Merced, August 6-9, 2009. Delegates participated in 4-H SET Sessions include topics in alternative energy, water quality, veterinary science, water conservation, 4-H volunteer development, forensic science, web design, and more! On Sunday morning, delegates were introduced to the 2009 4-H National Youth Science Experiment - biofuel blast - and asked to lead the experiment back in their home counties and clubs.
- **In Sacramento County: 4-H Water Wizards** is a 12-week science education project teaching 4th-6th grade students about water and its importance to the planet. Delivered to children in after school settings, students participate in hands-on learning experiences that encourage inquiry, teach basic information about water, and develop awareness. Youth also take action on a water issue in their community. Watch the YouTube video at [http://www.youtube.com/watch?v=3DS09u\\_RXy4](http://www.youtube.com/watch?v=3DS09u_RXy4) or for more information visit [http://cesacramento.ucdavis.edu/4H/4-H\\_Water\\_Wizards.htm](http://cesacramento.ucdavis.edu/4H/4-H_Water_Wizards.htm)
- **In Santa Clara County:** 4-H members in the Rolling Hills 4-H Club are preparing for the 2010 FIRST Lego Robotics Challenge (FRC). The first event for the Rolling Hills FRC project will be a demonstration at their meeting on Sept 9. The next event will be at Cal Games on Oct 10.

The FIRST mission is to inspire young people to be science and technology leaders, by engaging them in exciting mentor-based programs that build science, engineering and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

More information is available at <http://www.usfirst.org/roboticsprograms/frc/>



## Science, Engineering & Technology

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