

SECTION A: SELF-ASSESSMENT/NARRATIVE

STATEMENT OF ASSIGNMENT

My position description dated October 1, 2011 is still applicable. The only change to my assignment was the addition of a supervisory role for two PRII's.

I. PROGRAM SUMMARY NARRATIVE

I provide leadership to the 4-H Science, Engineering and Technology (SET) Initiative as outlined in the 4-H SET Plan of Action. My work is connected to the UC ANR Healthy Families and Communities Strategic Initiative and to the 4-H Science mission mandate. My narrative is divided into five sections, based on the expectations for Academic Coordinators ([APM 375-11](#)).

(1) Assessment of program and constituency needs

Situating my role in a broader social need: Scientific literacy is a core competency for young people's future as they join the workforce and begin to participate in civic discourse. From a state perspective, our economic prosperity and national security rely on a scientifically literate populace to generate innovations (NAS, 2007). Unfortunately, scientific literacy in the U.S. is low, with only 21% of high school seniors considered proficient in science. California ranks 49th among all states in 8th grade science literacy, and trends are not distributed equally across the population; White and Asian American students tend to outperform Black and Latino youth, and those from high-income households outperform those from low-income households (NCES, 2011). Emerging research on effective science education suggests that out-of-school time experiences, such as those provided in 4-H, can increase youth attitudes, knowledge and confidence in science content and process skills (National Research Council [NRC], 2009a). 4-H SET capitalizes on this research to provide young people with engaging opportunities to improve scientific literacy.

In partnership with the 4-H SET Leadership Team, I helped coordinate a statewide needs assessment involving four components: (1) identification of existing curriculum materials and resources; (2) identification of effective professional development models for staff & volunteers; (3) assessment of current conditions of county capacity to deliver 4-H science; and (4) interest from volunteers and members for SET programming. This assessment is ongoing and expected to complete in 2014.

(2) Academic program planning and development

My academic program planning and development areas for the California 4-H SET Initiative were guided by the California 4-H SET Leadership Team. The 4-H SET Plan of Action emphasizes the need to strengthen 4-H SET programming, provide professional development (PD) opportunities to program staff and 4-H volunteers, develop strategies to recruit new youth, and develop resources and funding to support these efforts. Hence, my projects are organized under three themes: integrated program development; PD; and leadership and coordination of the 4-H SET Initiative.

Theme 1: Integrated Program Development: *Advancement of domain-specific programs integrating program design, professional development, curriculum development, evaluation, resource development, and extension.*

iThrive: Integration of Thriving with Science Education

Background & Need: While 4-H programs are grounded in a framework of positive youth development (PYD), the intentional intersection between PYD and science education is under-utilized and represents an opportunity for intentional research and programming which integrates two ANR initiatives. California 4-H is in its third year of a five-year initiative to strengthen the competence and confidence of adult 4-H volunteers and teens in facilitating PYD approaches. To this end, and funded by the Thrive Foundation for Youth, California 4-H adopted the Step-It-Up-2- Thrive youth development model (Heck, Subramaniam, & Carlos, 2010). In the third year, the model was combined with the scientific and engineering practices in the Next Generation Science Standards (NGSS Lead States, 2013).

Products: I was the lead author on a curriculum development effort resulting in three publications: (1) *iThrive 3 member guide* and *iChampion 3 in SET: Adult volunteer leader guide* designed for 14-18 year old youth. (2) *iGrow: Thriving in science* targeted towards 9-12 year old youth. *iThrive 3* is currently being implemented across the state, beginning with three two-day workshops offered to Master Trainer teams. I co-presented these workshops, specifically introduction to experiential learning, science facilitation, and all of the activities from the curriculum. The curriculum was received positively, particularly due to the science and engineering emphasis. *iGrow* is being implemented and evaluated in afterschool settings this program year.

Evaluation: *iThrive 3* evaluation data are being collected through the 4-H Online Record Book. Post-test collection is planned for April – July 2014. The pre-test data show similar positive gains as the two earlier *iThrive* curricula. For example, key findings from the mid-term report (n=582) included: 28% of youth reported finding their spark; 43% of youth increased their Goal Management Skills at least ¼ of a SD; increases in youth's feelings that 4-H helped them get better at their spark was associated with increases in overall thriving ($\beta=.24$, $p<.05$), and more specifically, character ($\beta=.31$, $p<.05$). Given the science emphasis of *iThrive 3*, additional scales have been added to assess: (a) attitudes and interest in science; (b) confidence to do science; (c) usefulness of science; (d) gender bias in science; (e) mindset around abilities to do science; and (f) mindset around identity as related to science. Early survey responses indicate that members are generally positive about their science attitudes and interests, their science growth mindset, and that science is relevant and useful.

Youth Engineering Education

Background & Need: Engineering education has been shown to be an effective cross-disciplinary content area for science, engineering, and technology education and may improve science and mathematics learning (NRC, 2009b). Engineering contributes to youth scientific literacy and may be successfully applied and integrated in all of the ANR initiatives. The goals of these efforts were increasing the number of young people involved in engineering education and changing youth knowledge and attitudes towards engineering.

Junk Drawer Robotics: Extending previous work on the Junk Drawer Robotics (JDR) curriculum, I coordinated efforts to financially support nine JDR projects (with funds from Lockheed Martin), present two full-day JDR workshops for 4-H project leaders and external educators, extend the curriculum to new clientele, and conduct an evaluation of these efforts. In partnership with ---, I wrote and published an article in *Children's Technology and Engineering*, a chapter in a book titled *K-5 Engineering Curriculum Ready-to-Go*, and presented a poster at the Galaxy IV Conference. Evaluation of the nine projects demonstrated positive adult and youth gains. Project leaders improved their confidence in their facilitation abilities; for example, on a scale from 1=strongly disagree to 5=strongly agree, the items with the largest increase in the mean from retrospective-pre to post were "I understand how to act as a facilitator for youth as they work on their activities" (pre-mean=3.63, post-mean=4.21; increase of 0.59); "I understand how to begin activities with broad, open-ended questions that are focused on the concept(s) of the activity" (pre-mean=3.51, post-mean=4.04; increase of 0.53); and "I understand how to help youth develop communication skills to report data and observations" (pre-mean=3.57, post-mean=4.06; increase of 0.48). Youth reported liking science and engineering, thought they will both be important in the young person's future, and expressed a desire to learn more about both. In addition, youth reported that the learning environment allowed them to do hands-on activities, encouraged them to ask questions, and carry out investigations – important components of inquiry-based learning.

TechXcite: I provided statewide coordination for California's participation in Duke University's *TechXcite: Discovering Engineering* curriculum. With funding from the National Science Foundation, two counties participated with eleven sites total. I ordered supplies and assembled kits and oversaw UCD IRB approval. Early evaluation demonstrates that youth improve their understanding of and interesting towards engineering.

Youth Water Education

Background & Need: Water resources are a critical 21st century global environmental issue. Supported by the UC ANR strategic initiative to improve water quality, quantity, and security, in 2009, UC and 4-H committed to improving science literacy around water issues facing California. These efforts were guided by the goals of increasing the number of young people involved in water

education, changing youth knowledge, attitudes and behaviors, and increasing environmentally sound practices and behaviors.

California Water: Extending previous work on the *There's No New Water!* curriculum project, I assisted efforts to identify funding for a more extensive implementation and evaluation. Led by PI ---, Co-PI ---, and a team of 4-H YDA/YFCA's, I assisted with submitting an ANR grant "California Water: Youth Water Action Teams for Education and Research (CW)" to assess the effectiveness of youth water and science education programming that targets the development of knowledge and skills in youth in a manner that includes advancing scientific literacy in authentic, community-based contexts while promoting PYD and enhancing organizational capacity.

4-H2O: Youth were engaged in water quality education using funds from Toyota through the National 4-H Council. In Sacramento, an afterschool program was delivered to middle school youth, "4-H2O Water Wizards." In San Mateo, 4-H2O focused on improving youth water knowledge in public venues. In Southern California, youth were engaged in water education programs. I provided statewide coordination, represented California 4-H on the national conference calls, ensured reports were submitted by the three sites, and provided support for extension of these programs through PD opportunities. In 2013, Sacramento evaluated youth outcomes and found that over 80% of students reported using less water as a result of participating in 4-H Water Wizards; 78% of after school program staff indicated they better understood how inquiry relates to science; and 98% of students said they enjoyed the project.

Future Direction: A joint Oregon-Washington-California water education project has been explored, called "Western Water"; I organized a joint meeting at the Lawrence Hall of Science and have continued conversations with colleagues across state lines.

Technology Education

Background & Need: Technology plays a vital role in our society and is a 21st century skill for those entering today's workforce (NRC, 2002). In addition, studies on improving technological literacy suggest learning with technology can improve student's cognitive and affective outcomes.

TLT: I coordinated the California 4-H Technology Leadership Team (TLT) with a mission to increase the use of educational technology and improve technology literacy of 4-H members. I provided coordination of the team. As a group, TLT members presented over a dozen workshops (reaching over 300 4-H volunteers and members) at multi-county and statewide 4-H events.

Filmmaking: From Jan-Sept 2013, I coordinated the *4-H Enhancing Technological Literacy through Film Making Project*. The goal was to enhance technological literacy of 4-H members, ages 13-19, by helping them learn the basics of film production including storyboarding, filming, and editing. Outputs included (a) establishing a project website; (b) purchasing and assembling six video equipment loaner kits; (c) co-presenting 8 4-hour workshops to over 112 youth and adults in locations around California; (d) posting 24 youth-produced films on the 4-H YouTube channel. Participants reported improving their confidence and abilities to produce films; t-test comparisons between the means of the retrospective-pre and post demonstrated statistically significant improvement on all six questions; three examples include: (1) "I am confident in my ability to storyboard and script a film" (pre-mean=3.13, post-mean=4.24); (2) "I am confident in my ability to use video editing software" (pre-mean=3.24, post-mean=4.01); and (3) "I am able to produce a film from beginning to end" (pre-mean=3.43, post-mean=4.04).

Theme 2: Professional Development (PD): *Preparing educators to deliver high quality 4-H SET programs*

2013 National 4-H Science E-Academy

Led by the National 4-H Council, I was invited to serve on the planning team for the 2013 National 4-H Science E-Academy, July 2012 through March 2013. The E-Academy, with funding from the Noyce Foundation, was designed for CE/4-H staff across the nation and was held on Tuesdays and Thursdays for three consecutive weeks, beginning on February 26th and finishing March 14, 2013. I served on the "Doing Science" committee which was responsible for planning three 1.5 hour sessions. I participated in face-to-face meetings, planning calls, provided input on the agenda and presenter invitations, provided feedback on evaluation plans, and advertised the E-Academy to California 4-H staff. In addition, I prepared and delivered one of the sessions, titled "4-H Program Design with the Eight Science Practices." Overall evaluation indicated that the quality

of the E-Academy sessions was rated quite high; positive results for participant learning across all eleven sessions; and the E-Academy helped prepare educators to develop and enhance 4-H Science programs. Specific to the session I presented, there was 37% increase in knowledge about the 4-H SET abilities, 75% increase in knowledge about the NGGS science/engineering practices, and 34% increase in ability to identify scientific practices.

Workshops & tools for science education facilitators

I provided coordination support for multiple 4-H SET PD opportunities outlined in Section B. 4-H SET PD efforts have focused on four audiences: CE staff, volunteers, teen members, and afterschool providers. To reach these audiences, a combination of strategies, from short workshops to multi-day trainings have been developed and implemented. Evaluation efforts from each of the strategies have shown positive outcomes as reported by participants.

I maintain and regularly add resources to the public 4-H SET website. From Oct. 2012 to Sep. 2013, pages with SET content received close to 16,018 unique page views (Google Analytics). In addition, I compiled articles to be published in the monthly State 4-H UPDATES e-newsletter. The newsletter was emailed each month to 200 CE staff and to 15,500 public 4-H email addresses.

Theme 3: Leadership and coordination for the 4-H SET Initiative.

SET Leadership Team

The 4-H SET Leadership Team provides leadership for the 4-H SET Initiative. I facilitated weekly phone conferences and monthly in-person meetings which included developing agendas, facilitated meetings, and recording notes. The major projects in 2012-2013 included the crafting of a SET needs assessment, writing a paper to define scientific literacy, and deepening partnerships with programmatic and potential funding partners (e.g., LHS). Since the formation of the 4-H SET Initiative, the team has helped raise more than \$1.6 million; coordinated the presence of SET-related workshops at various venues; served as the initiator for several partnerships with external organizations; and provided support to CE staff in local efforts to strengthen 4-H SET.

4-H Children, Youth, and Families At-Risk (CYFAR)

Through USDA funding, California 4-H promoted youth science literacy in underserved communities in Yolo, Sacramento, and San Diego counties. The 4-H CYFAR Program is based on the human ecological principle of working across the lifespan in the context of the family and community. California's 4-H CYFAR sites target school age youth to improve knowledge, skills, attitudes and behavior necessary for fulfilling contributing lives. My role was the coordinate communication between federal, state, and the sites; UCD IRB approval; end-of-year reporting; facilitation of meetings. During the 2012-2013 program year, over 200 youth, grades K-6th, participated in CYFAR programs once per week mentored by 24 teens who facilitated science and gardening activities. These teens were recruited and trained by site staff in effective inquiry-based science education, experiential education, and on the curriculum. The curricular focus was science education, specifically on topics pertaining to gardening and the environment.

CYFAR was evaluated on three criteria: *Youth who participated demonstrated an increased interest in and improved attitude about science and technology.* Youth responded highly to the activities and practices of science and engineering, including liking science (70% strongly agreed or agreed), seeing how things are made and invented (80%), experimenting and testing ideas (74% strongly agreed or agreed), and being excited about new discoveries (82%). The programs emphasize these activities through hands-on activities and encourage questioning. *Youth demonstrated an understanding of and appreciation for the environment.* Youth reported high levels of caring about the Earth (92% strongly agreed or agreed), that youth were aware of environmental issues in their community (80%), that they believed people should protect the environment (82%), and that they did things to help the environment (86%). *Youth who participated reported positive relationships and a sense of belonging in the program.* Youth agreed that they felt comfortable in the program (77% strongly agreed or agreed), were treated with respect by teen leaders (87%), and felt the teen leaders were good role models (82%).

Outreach

Events: Recruitment of new youth into 4-H SET programming requires active promotion and marketing strategies. I developed and/or revised a number of updates/flyers for various audiences; handouts; and flyers for specific audiences. See Bibliography for a full list. I coordinated 4-H presence at multiple venues to increase visibility for 4-H SET, including the Bay Area Science Festival, American Geophysical Union Conference, CSTA, etc. – see Tables for a full list. I coordinated a dozen educational exhibits and recruited county 4-H staff and youth to provide hands-on 4-H SET activities at the State 4-H Field Day.

NYSD: The 4-H National Youth Science Day (NYSD) was created to promote 4-H, spark youth interest in 4-H and 4-H SET, and recruit new youth into 4-H. The October 2012 NYSD reached thousands of youth in 26 venues around California. I coordinated information flow from National 4-H Council, coordinated a RFP funding process for counties, and developed a California NYSD website. Participating counties reported success with generating interest in young people.

Partnerships: I worked to explore potential collaborations with other STEM education organizations. While the outcomes and impacts of these types of collaborations are challenging to measure, I believe that by partnering with other organizations, ANR/4-H may benefit from amplifying our ability to affect change. Organizations included: the California Afterschool Network (CAN); CA Science Teachers Association; Autodesk; and the Lawrence Hall of Science.

4-H Website: I provide leadership for the State 4-H website (www.ca4h.org). From Oct. 2012 through Sep. 2013, over 115,805 unique visitors were reported (Google Analytics); this is an increase of +12,465 from 10/11-9/12 and +32805 from 10/10-9/11. The website is one of the primary methods of communication from the State 4-H Office to CE offices, volunteers, and youth.

(3) Evaluation of academic program activities and functions

See Section B: Bibliography for a list of the evaluation reports. In addition to reports for an internal audience, I co/authored several articles in peer reviewed outlets to share knowledge with a broader audience. For example, with ---, I published an article in *Afterschool Matters* describing the 4-H SET Initiative and lessons learned around curriculum development and professional development. Utilizing data from seven years of 4-H State Leadership Conferences (an event I coordinated in my previous Program Representative position), I published a paper in the *Journal of Extension* outlining predictors of satisfaction with the conference. Finally, I formed an evaluation group within the CYFAR project (described above) with several 4-H YDA's to evaluate teen outcomes, using qualitative interview methods; this project is still underway.

(4) Development of proposals for extramural funding and identification of support resources.

Guided by the priorities of the 4-H SET Initiative, I worked with --- in the 4-H Foundation and other colleagues to craft projects, reach out to county-based colleagues, write and edit proposals, and submit them to corporations, foundations, and government entities. I increased the number of proposals submitted in this review period (11 total), from 7 in the previous period. See Section B for a full list of proposals.

(5) Supervision and leadership of other academic appointees or staff

During this review period, I began supervising two program representatives. After successfully recruiting --- into the new PRII for animal science position in Nov. 2012, I worked to orient her to ANR, provide mentoring, and help her on a successful career in CE. --- is responsible for a broad array of programs, including animal science education, the State 4-H Field Day, 4-H at the State Fair, the 4-H Presentation Program, CA 4-H teams to national competitive events, 4-H Horse Classic, and acting as our liaison to Sectional and State Leaders' Councils. During her first year, I have provided more intensive guidance and oversight as she has learning her programs – including bi-weekly meetings, reviewing documents before they are released, participating in meetings and activities that she oversees (e.g., Field Day, one day of Horse Classic, one day of State Fair, etc.), and forming a “4-H Policy Colloquium” group to help her become familiar with 4-H policies (this group has since expanded to 7 staff).

In addition, I serve as the supervisor for ---, a 10% contract Program Representative II, responsible for the South Central Section's LCORT youth conference.

II. PROFESSIONAL COMPETENCE AND ACTIVITY

My PD is divided into three components: a) informal learning; b) organized sessions; and c) academic study. (a) I continued to read literature including articles and books on science education, positive youth development, and experiential education. These include reports from the National Research Council, journal articles, and other materials. (b) I participated in conferences/workshops focusing on positive youth development, science education, technology, and research methodologies. This included participation in the annual conference of the American Educational Research Association and the No. American Assoc. for Environmental Education. The full list is outlined in Section B. (c) I was advanced to candidacy for a PhD in the Learning Sciences on December 9, 2013 (UC Davis School of Education). The coursework undertaken has had direction application in my work and my dissertation topic will focus on youth learning in 4-H.

III. UNIVERSITY AND PUBLIC SERVICE

My service is grouped into three areas: a) National 4-H; b) State 4-H; and c) ANR. (a) I served on two teams related to my position, the E-Academy and the Western Region 4-H Science group; I served in a leadership position and as a presenter for the E-Academy. (b) I continued to provide a wealth of service to the State 4-H Office by informally mentoring new colleagues, serving on and leading committees, and assisting the formation of the 4-H Futures Task Force. (c) For ANR, I was serving on the AAC Rules & Elections committee until invited to serve on the Personnel Committee (transition in July 2013). I chaired the RAC for the 4-H PRII and sat on a RAC for CSIT (See Tables). I sit on the Youth Development program team and two workgroups (science education and diversity). Finally, I served on the poster subcommittee for the 2013 ANR Conference.

IV. AFFIRMATIVE ACTION

I employed multiple strategies to address equal opportunity priorities: a) outreach; b) CYFAR; c) promoting equity; and d) diversity workgroup. (a) I continued promoting outreach through various strategies including coordinating California 4-H's participation with public venues for the 4-H National Youth Science Day; hosting 4-H tables/booths at four events (see Tables); and conducting interviews with UC ANR CSIT News and Outreach information in Spanish. (b) I provided statewide coordination for the CYFAR project which targets K-8 youth in underserved communities. Each of the three sites, Yolo, Sacramento, and San Diego Counties, uses a new model of 4-H delivery that may be replicated in other communities. I co-chaired a sustainability meeting with site staff to develop a common model, now named "Science and Health through Garden-based Learning" to increase the reach of 4-H to underserved clientele, particularly low-income Latino youth and families. (c) For those activities I did coordinate directly, I strived to ensure equitable service to all ethnic and gender groups. This included ensuring gender and ethnic diversity on recruitment advisory committees. In addition, for those groups I coordinated, like the TLT, I had each member signed a Standard of Expected Behavior document which contained, among other items, commitment to diversity: "*Role model through actions and words a respect for human dignity and an appreciation for people of all races, ethnicities, genders, religions, abilities, and sexual orientations.*" (d) I began serving on the diversity workgroup: "Building and Sustaining Engagement with Diverse Audiences."

Appendix A: Acronyms

AAC: Academic Assembly Council
ANR: Agriculture and Natural Resources
CAN: California Afterschool Network
CE: Cooperative Extension
CSIT: Communication Services and Information Technology
CYFAR: 4-H Children, Youth, and Families At-Risk (funding from USDA)
DAST: Draw-a-Scientist Test
IRB: Institutional Review Board (for human subjects research)
JDR: Junk Drawer Robotics
ORB: Online Record Book
NRC: National Research Council
NYS: National 4-H Youth Science Day
PD: Professional Development
PR: Program Representative
RAC: Recruitment advisory committee
SET: Science, Engineering, and Technology
SMS: Simple text-messaging service
STEM: Science, technology, engineering, and mathematics (acronym commonly used in K-12 school)
TLT: 4-H Technology Leadership Team
UC: University of California
UCD: University of California, Davis
USDA: United States Department of Agriculture

Appendix B: References

- Heck, K. E., Subramaniam, A., & Carlos, R. (2010). The Step-It-Up-2-Thrive theory of change. *Monograph*. University of California, 4-H Center for Youth Development. Retrieved from <http://www.ca4h.org/files/4046.pdf>
- National Center for Education Statistics (2011). *The nation's report card: Science 2009*. (NCES 2011-451). Washington, D.C.: Institute of Education Sciences, U.S. Department of Education. Retrieved from: <http://nces.ed.gov/nationsreportcard/pdf/main2009/2011451.pdf>
- National Research Council. (2002). *Technically speaking - why all Americans need to know more about technology*. Washington, DC: National Academies Press.
- National Research Council. (2009a). *Learning science in informal environments: people, places, and pursuits*. Washington D.C.: The National Academies Press.
- National Research Council. (2009b). *Engineering in K-12 education: Understanding the status and improving the prospects*. Washington, DC: The National Academies Press.
- NGSS Lead States. 2013. *Next Generation Science Standards: For States, By States*. Washington, DC: The National Academies Press.
- The National Academies. (2007). *Rising above the gathering storm: Energizing and employing America for a brighter economic future*. Washington, DC: National Academies Press.

SECTION B: TABLES

I. PROJECT SUMMARY TABLE

Project Title or Creative Activity/ Duration	Role (PI, Co-PI, etc.)	Collaborators (with affiliation)	Support	Support Source
Theme 1: Integrated Program Development				
iThrive	Curriculum Developer	Thrive Team	15%	Thrive Foundation
<i>Engineering Education: TechXcite</i>	Coordinator	Duke University, National 4-H Council	10% effort \$35,200	National Science Foundation
<i>Engineering Education: LM-ROBO Robotics</i>	Coordinator	National 4-H Council	4% effort \$15,000	Lockheed Martin
<i>Water Education: 4-H2O</i>	Coordinator	Counties: Sacramento, San Mateo, Los Angeles, Orange	10% effort \$45,000	National 4-H Council, Toyota
<i>Technology Education: Technology Leadership Team</i>	Coordinator	N/A	\$10,000	Leavey Foundation
<i>Technology Education: 4-H Filmmaking Workshops</i>	Coordinator	Technology Leadership Team	\$10,000	BestBuy
Theme 2: Professional Development				
National 4-H Science E-Academy	Planner	National 4-H Council	\$2,000	Noyce Foundation
SET Workshops: various	Coordinator & Presenter	SET Leadership Team	\$10,000	Leavey Foundation
Theme 3: Leadership and coordination for the 4-H SET Initiative.				
SET Leadership Team	Facilitator	SET Leadership Team	\$5,000	Program Fees
CYFAR I	Coordinator	Counties: Sacramento, San Diego, Yolo	20% effort \$128,000	USDA
4-H Revolution of Responsibility Minigrant	Reviewer	State 4-H Office	\$100,000	Multiple; CA 4-H Foundation
<i>Promotion and Publicity: 2012 4-H National Youth Science Day</i>	Coordinator	Counties: Alameda, Contra Costa, Del Norte, El Dorado, Humboldt, Imperial, Inyo-Mono, Marin, Mendocino, Merced, Riverside, San Luis Obispo, Santa Barbara, Siskiyou, Solano, Yolo, Yuba	5% effort \$15,000	National 4-H Council, Toyota

Extramural proposals submitted from Oct. 1, 2012 through Sep. 30, 2013.

Agency	Sub'd	Project Title	Req'd	Funded?	Roles
Waste Management	July 2013	4-H Water Wizards: Youth Water and Science Education Project	\$48,684	<i>pending</i>	(gift) Coordinator: S. Worker; included ---
Raytheon	July 2013	Expanding the 4-H Junk Drawer Robotics Program	\$31,252	<i>pending</i>	(gift) Coordinator: S. Worker
BestBuy	July 2013	Enhancing Engineering and Technological Literacy through 4-H Makerspaces Project	\$10,000	No	(gift) Coordinator: S. Worker
Union Bank	May 2013	Raising the Bar(n) for 4-H Animal Science Education (RBASE). Phase 1: Curriculum Dissemination and Volunteer Development in Two Multi-County Regions	\$33,141	No	(gift) Coordinator: S. Worker; included ---
Honda Foundation	Apr 2013	Expanding 4-H Water Wizards	\$75,000	No	(gift) Coordinator: S. Worker; included ---
Lockheed Martin	Mar 2013	Expanding the 4-H Junk Drawer Robotics Program	\$27,197	<i>pending</i>	(gift) Coordinator: S. Worker
USDA NIFA	Feb 2013	Children, Youth, and Families At-Risk Award	\$128,000	Yes	PI: --; Coordinator & Evaluator: S. Worker; includes ---
Federal EPA	Nov 2012	4-H Youth Water Action Teams for Education and Research (Y-WATER)	\$103,928	No	PI: ---; Co-PI: ---; Coordinator: Worker; included ---

II. EXTENSION ACTIVITIES

a. Meetings Organized (Classes/Short Courses/Demonstrations/Field Days/Other)

Begin Date- End Date	Meeting Name	Topic/no. of repetitions	Role	Location(s)	No. of Att.
Aug 22, 2013	4-H CYFAR Sustainability Meeting	Coordinating, communication	Co-Facilitator	Davis	16
May 25, 2013	State 4-H Field Day	Largest statewide 4-H event	Coordinated educational activities	Davis	1,500
Mar 23, Jul 24, Aug 17	CA 4-H Technology Leadership Team Meetings	Four times	Worked with a youth facilitator to prepare the agenda and record notes.	Davis	12
Mar 12, 2013	4-H Social Media Strategy Mtg.		Convener and facilitator	Davis	8
Jan 24, 2013	Joint WA-OR-CA 4-H Potential Water Education Project Collaboration		Facilitator	Lawrence Hall of Science, UC Berkeley	10
Jan 4-6, 2013	Joint 4-H State Ambassador / 4-H Technology Leadership Team Meeting		Coordinated logistics, agenda, and invitation of presenters.	NV State 4-H Camp, Lake Tahoe	30
Oct 2012 – Sept 2013	4-H SET Leadership Team	Phone call once a week; face-to-face meeting once a month	Facilitator (crafted agendas, recorded notes)	Phone & in-person	4

b. Educational Presentations (including oral presentations and posters)

Begin Date- End Date	Meeting Name/Event	Presentation Topic/ no. of repetitions	Location(s)	No. of Attendees
Aug 24, Sep 7, Sep 14, 2013	4-H Thrive Master Trainer session	Workshop: <i>iThrive 3, review of activities</i> (4 hours)	UC Davis	50
Aug 6, 2013	SPAN/Region 4 After School Programs Annual Kickoff Conference	Workshop: <i>Junk Drawer Robotics</i> (1.5 hours)	Suisun City	40
Aug 4, 2013	HomeSchool Association Conference	Workshop: <i>Putting Youth on the Path to Thriving through 4-H</i>	Sacramento	5
Aug 2, 2013	HomeSchool Association Conference	Workshop: <i>4-H Programs Empower Youth</i>	Sacramento	20
July 27, 2013	4-H State Leadership Conference	Workshop: <i>Paper Airplane (Thrive)</i>	UCD	20
July 27, 2013	4-H State Leadership	Workshop: <i>Mystery Tube</i>	UCD	20

Begin Date- End Date	Meeting Name/Event	Presentation Topic/ no. of repetitions	Location(s)	No. of Attendees
	Conference	<i>(Thrive)</i>		
July 26, 2013	4-H State Leadership Conference	Workshop: <i>Can-Can Robot</i>	UCD	20
July 17, 2013	UC Associates, special invited presentation	UC ANR Youth, Families, and Communities	Oakland	10
Jun 18, 2013	REC Directors	Introduction to 4-H and 4-H Science	UC Davis	15
May 28, 2013	Yuba City Afterschool	Workshop: <i>Junk Drawer Robotics (3 hours)</i>	Yuba City	25
Apr 5, 2012	California Afterschool Network Webinar	Webinar: <i>4-H Science, Engineering, and Technology (SET)</i>	Online	30
Mar 7, 2013	National 4-H Science E-Academy	Poster: <i>Enhancing science education with engineering and technology practices.</i>	Online	250
Mar 7, 2013	National 4-H Science E-Academy	Poster: <i>2008-2011: California 4-H Science, Engineering, and Technology Initiative.</i>	Online	250
Mar 7, 2013	National 4-H Science E-Academy	Poster: <i>California 4-H Technology Leadership Team.</i>	Online	250
Mar 7, 2013	National 4-H Science E-Academy	Poster: <i>There's No New Water! Curriculum.</i>	Online	250
Feb 20, 2013	UC Davis AED100	Class presentation: <i>Introduction to 4-H</i>	UCD	30
Jan 5, Feb 2, 9, 23, Mar 2, 9, Apr 27, Oct 3, 2013	4-H Filmmaking Workshop	8 repetitions	Santa Barbara, UC Davis, Santa Cruz, Red Bluff, Mendocino, Ontario	Total: 112
Dec 1, 2012 & Jan 12, 2013	Junk Drawer Robotics workshop	2 workshops	Mountain View & Palmdale	75
Nov 14, 2012	2012 Conference on the Strategic Initiative for Water	Poster: <i>There's No New Water!</i> and Lightning Talk: <i>UC ANR 4-H Water Education Efforts</i>	UC Davis	50
Nov 10, 2012	State 4-H Leaders' Forum	Workshop: <i>Transforming Community Service to Service Learning (1.25 hour)</i>	Asilomar Conference Center	20
Nov 10, 2012	State 4-H Leaders' Forum	Workshop: <i>Hands-On & Minds-On: Experiential Learning in 4-H (1.25 hour)</i>	Asilomar Conference Center	20
Oct 2, 2012	Special Webinar for 4-H Staff	Webinar: <i>California: State of the 4-H SET Initiative (1 hour)</i>	Online	30

c. **Other** (including websites, social marketing, blogs, collaborations with other agencies or organizations)

Begin Date- End Date	Description	No. of Instances
Dec 2001 – ongoing	Leadership for the California State 4-H Website	

d. **Other** (including TV and/or radio interviews/programs, newspaper/trade magazine interviews)

Begin Date- End Date	Interviewed/Written by (optional)	Topic	Media/Publication
June 2013	UC ANR CSIT News and Outreach information in Spanish (NOS)	Los clubes juveniles y el bienestar comunitario – <i>4-H clubs and community</i>	111 Spanish-language radio stations
June 2013	UC ANR CSIT News and Outreach information in Spanish (NOS)	Salud y educación dos grandes retos para California - <i>Health and education: Two major challenges for California</i>	80 publications alerted
April 2013	UC ANR CSIT News and Outreach information in Spanish (NOS)	Familias y Comunidades Saludables – <i>Healthy families and communities</i>	80 publications alerted

e. **Other Outreach**

Begin Date-End Date	Description
Apr 20, 2013	4-H Booth at the Richmond Arts Center, “Earth Day: UpCycle!” event, Richmond
Dec 2, 2012	4-H Booth at the American Geophysical Union Conference, San Francisco
Nov 3, 2012	4-H Booth at the Bay Area Science Festival, San Francisco
Oct 19-20, 2012	4-H Booth at the California Science Teachers’ Association Annual Conference, San Jose

III. PROFESSIONAL COMPETENCE AND ACTIVITY

a. Professional Development and Training

Begin Date- End Date	Location	Length	Name and/or Description of Activity
PhD Program Courses			
Mar – Jun 2013	UC Davis	Quarter	UC Davis School of Education Course EDU292: Interview Methods
Jan – Mar 2013	UC Davis	Quarter	UC Davis School of Education Course EDU237: Survey Design
Sept-Dec 2012	UC Davis	Quarter	UC Davis School of Education Course EDU292: Youth Participatory/Interactive Culture
Conferences			
May 16-17, 2013	Crystal City, VA	2 days	CYFAR Evaluation Professional Development Workshop
Apr 29-May 1, 2013	San Francisco	3 days	American Educational Research Conference
April 9-11, 2013	Ontario	3 days	ANR Statewide Conference
Feb 26, 28, Mar 5, 7, 12, 14	Online	6 days	National 4-H Science E-Academy
Feb 11-13, 2013	Sacramento	3 days	All 4-H Staff Conference “Creating a Thriving Organization for the Next 100 Years!”
Feb 8, 2013	San Ramon	1 day	San Francisco Bay Area STEAM (science, tech, engineering, arts, and math) Colloquium
Nov 9-11, 2012	Monterey	3 days	California State 4-H Leaders’ Forum.
Oct 12, 2012	Oakland	1 day	North American Association of Environmental Education Annual Conference
Oct 10-11, 2012	Online	2.5 hours	Sloan Consortium International Conference on Online Learning; participation in 3 virtual sessions.
Webinars and Short Talks			
May 13, 2013	UC Davis	1 hour	Talk by Dr. Susan Bissell, “ The Protection of Children in our Globalizing World: Change, Challenge and Champions”
May 9, 2013	Online	1 hour	Webinar on “Social Capital and 4-H”
Oct 31, 2012	Online	1 hour	Webinar by Dr. Zeldin, “The Psychology and Practice of Youth-Adult Partnerships”
Other			
Jun 17, 2013	Davis, CA	1 day	ANR Supervisor Training 101
Nov 6, 2012	UC Davis	1 day	Creating and Empowering Middle Managers workshop

b. Disciplinary Societies and Professional Associations

Disciplinary Society/Prof. Assoc Name	Membership/Meetings – Attended/Activities
California 4-H Association	Served as President-Elect from Sept 1, 2012 – Aug 31, 2013, and currently serving as President. Served as Chair of the Constitution and Bylaws Revision Committee, Dec 2012 – Feb 2013.
American Educational Research Association (AERA)	Participated in their annual conference, San Francisco, April 2013. Member of the division of learning and instruction; special interest groups include informal learning environments research; learning sciences; and out-of-school time.
National Association of Extension 4-H Youth Development Agents	Participated in and presented at the conference (Galaxy IV) in Pittsburg, PA.
North American Association for Environmental Education (NAAEE)	Participated in and presented at their annual national conference in Oakland, CA.
California Science Teachers Association (CSTA)	Participated in their statewide annual conference, San Jose.
Member of Professional Societies	
International Technology and Engineering Educators Association (ITEEA)	
National Association for Research in Science Teaching (NARST)	
International Society for Technology in Education (ISTE)	

c. Evidence of Professional Competence

Begin Date-End Date	Location	Name and/or Description of Award, Recognition, Professional Presentation, Office or Activity
Oct 2011 - ongoing	ANR Building	Formed and coordinate the YFC-based Academic Coordinator Community of Practice to provide mutual support in academic coordination issues
Professional society presentations (peer reviewed)		
Sept 18, 2013	Pittsburg	Poster presentation at Galaxy IV Conference titled, <i>4-H Junk Drawer Robotics</i>
Sept 18, 2013	Pittsburg	Poster presentation at Galaxy IV Conference titled, <i>Effective, Efficient Online Training in Cooperative Extension</i>
Apr 10, 2013	Ontario	Co-presented a science session at the ANR Conference titled, “ <i>Youth Science Literacy Across ANR</i> ”; specifically on the 4-H CYFAR project and 4-H Revolution of Responsibility service learning projects.
Apr 9, 2013	Ontario	Poster presentation at the ANR Conference titled, <i>Children, Youth, and Families At-Risk (CYFAR) program 2009-2013</i>
Apr 9, 2013	Ontario	Poster presentation at the ANR Conference titled, <i>2008-2012 California 4-H Science, Engineering, and Technology (SET) Initiative</i>
Apr 9, 2013	Ontario	Poster presentation at the ANR Conference titled, <i>Effective, efficient online training in cooperative extension</i>
Mar 7, 2013	Online	Invited to present a session at the National 4-H Science E-

Begin Date-End Date	Location	Name and/or Description of Award, Recognition, Professional Presentation, Office or Activity
		Academy for approximately a hundred CE staff across the country titled, <i>4-H Program Design with the Eight Science Practices</i>
Oct 12, 2012	Oakland	Co-presented a session at the North American Association for Environmental Education annual conference titled, <i>Youth Water Conservation and Quality Education</i>
Invitations to Serve on National Committees		
Jul 2013	USDA NIFA	Invited to serve as a Subject Matter Expert on the CYFAR Professional Development and Technical Assistance (PD&TA) Program
July 2012 – March 2013	National 4-H Council	Invited to serve on the National 4-H Science E-Academy Planning Team

IV. UNIVERSITY AND PUBLIC SERVICE (county/local program, regional, state, national)

a. University Service

Begin Date-End Date	Activity	Org Level	Your Contribution and Leadership Role
National Service			
Nov 2012 – Nov 2013	National 4-H Voices of History Committee	National	Participated on calls, shared my expertise in filmmaking.
July 2012 – March 2013	National 4-H Science E-Academy Planning Team.	National	Lead the 4 member “Doing Science” subcommittee responsible for planning three sessions.
January 2010 - ongoing	California 4-H representative to the Western Region 4-H Science Liaisons	Regional/National	Liaison
State Service			
Aug 14, 2013	4-H Public Values meeting	State	Participated in session at UC Davis
Jun 18, 2013	Cal Focus Oversight Review Committee	State	Served on committee.
Feb 2013 - ongoing	4-H Futures Task Force	State	Representative; helped with initial formation and charge.
Nov 2012 – Dec 2013	4-H Centennial Planning Committee	State	
Mar 2012 - Dec 2012	4-H Foundation Website Committee for the 4-H Revolution of Responsibility	State	Served as a representative of the 4-H program staff.
May 2011 - ongoing	Revolution of Responsibility Minigrant Program Team	State	Member of the program team, responsible for coordinating the review process for request for funding.
Dec 2010 - ongoing	Served on the 4-H Online Record Book Leadership Team	State	Early in 2011 I provided leadership for the committee; now I serve as a member.
July 2009 – ongoing	California 4-H Animal Science Advisory Committee.	State	Serve as an academic liaison to the committee.
ANR Service			
Aug - Sep 2013	4-H Programmer Recruitment Advisory Committee	State / CSIT	Served on committee.
Jul 2013 – ongoing	ANR Academic Assembly Personnel Committee	State	Served as member.
May 2013 - ongoing	ANR Building and Sustaining Engagement with Diverse Audiences workgroup	State	Member

Begin Date-End Date	Activity	Org Level	Your Contribution and Leadership Role
Feb 20, 2013	Participation in the ANR “Partnership to Advance Cooperative Extension”	State	Participant
Dec 2012 – April 2013	ANR Conference Poster Subcommittee	State	Member.
Jul 2012 – June 2013	ANR Academic Assembly Rules and Elections Comm.	State	Serve as a committee member; Chair-Elect
Jun – Oct 2012	Recruitment Advisory Committee – 4-H Program Representative II	State	Chaired the committee.
Feb 2012 - ongoing	ANR Science Literacy Program Team	State	Member of team.

b. Public Service – List public service activities

Begin Date-End Date	Activity	Org Level	Your Contribution and Leadership Role
May 2013 - ongoing	SciSkill Quest Project Science Curriculum & Instruction Advisory Group	National	Member of advisory group.

V. BIBLIOGRAPHY

Publications from the period October 1, 2012– September 30, 2013.

Peer Reviewed
None

Not Peer Reviewed A – Popular (articles, newsletters, stories, UC Delivers, etc.); B – Technical (reports, curricula, and articles); C – Abstracts and other outreach materials

Type	Citation
Curriculum	
B	Worker, S. M., Miner, G. M. & Horrillo, S. J. (2013). <i>iChampion 3 in science, engineering and technology: Adult volunteer leader guide</i> . Davis, CA: University of California Division of Agriculture and Natural Resources, 4-H Youth Development Program.
B	Worker, S. M., Miner, G. M. & Horrillo, S. J. (2013). <i>iThrive 3 member guide</i> . Davis, CA: University of California Division of Agriculture and Natural Resource, 4-H Youth Development Program.
B	Worker, S. M., Miner, G. M., & Horrillo, S.J. (2013). <i>iGrow. Thriving in science. Facilitator guide</i> . Davis, CA: University of California Division of Agriculture and Natural Resources, 4-H Youth Development Program.
Evaluation & Final Reports	
B	Worker, S. (2013). Enhancing Technological Literacy through 4-H Film Making Statewide Project, Final Report prepared for BestBuy. [9 pages]
B	Worker, S. (2013). Evaluation report for the 2013 State 4-H Field Day. <i>State 4-H Office</i> . [5 pages]
B	Worker, S. (2013). Evaluation report for the 2012-2013 California 4-H LM-ROBO Project. <i>State 4-H Office</i> . [29 pages]
B	Worker, S. (2012, August). Evaluation report for the 2012-2013 California 4-H CYFAR2009/SET Project. <i>State 4-H Office</i> . [23 pages]
B	Iaccopucci, A., & Worker, S. (2013). Evaluation report for the 2012-2013 California 4-H CYFAR2011/HL Project, Final Report prepared for USDA NIFA. [I analyzed the youth survey data and completed the outcome part of the report.]
Posters	
C	Worker, S., Dogan, S., Manglallan, S., Bird, M., Gutstein, J., & Horowitz, M. (2013). <i>Children, Youth, and Families At-Risk (CYFAR) program 2009-2013</i> . Poster presented at the 2013 ANR Conference, Ontario, CA.
C	Ambrose, A., Dogan, S., Harris, L., Schmitt-McQuitty, L., Smith, M., Worker, S. (2013). <i>2008-2012 California 4-H Science, Engineering, and Technology (SET) Initiative</i> . Poster presented at the 2013 ANR Conference, Ontario, CA.
C	Ching Young, J., Manton, L.M., Worker, S., Martin, A. (2013). <i>Effective, efficient online training in cooperative extension</i> . Poster presented at the 2013 ANR Conference, Ontario, CA.
C	Worker, S., & Mahacek, R. (2013). <i>4-H Junk Drawer Robotics Curriculum</i> . Poster presented at the Galaxy IV Conference, Pittsburgh, PA.

Type	Citation
C	Ching Young, J., Manton, L.M., Worker, S., Martin, A. (2013). <i>Effective, efficient online training in cooperative extension</i> . Poster presented at the 2013 Galaxy IV Conference, Pittsburgh, PA.
C	Smith, M., & Worker, S. (2012). <i>There's No New Water! Curriculum</i> . Poster presented at the 2012 Conference on the Strategic Initiative for Water, UC Davis.
C	Mahacek, R., & Worker, S. (2013). <i>Enhancing science education with engineering and technology practices</i> . Poster presented at the 2013 National 4-H Science E-Academy.
C	Ambrose, A., Mahacek, R., Schmitt-McQuitty, L., Smith, M., Worker, S. (2013). <i>2008-2011: California 4-H Science, Engineering, and Technology Initiative</i> . Poster presented at the 2013 National 4-H Science E-Academy.
C	Worker, S. (2013). <i>California 4-H Technology Leadership Team</i> . Poster presented at the 2013 National 4-H Science E-Academy.
C	Smith, M., Worker, S. (2013). <i>There's No New Water! Curriculum</i> . Poster presented at the 2013 National 4-H Science E-Academy.
UC Delivers	
A	Worker, S., Horowitz, M., Manglallan, S., Harns, M., Gutstein, J., Bird, M. (2012). 4-H CYFAR: Youth grow through science programming. <i>UC Delivers</i> .
Project Sheets	
C	Worker, S. (2012). 4-H water education project. <i>California 4-H Project Sheet</i> .
C	Worker, S. (2012). 4-H robotics project. <i>California 4-H Project Sheet</i> .
Presentation Slides	
C	Worker, S. (2013). <i>4-H Science, Engineering, and Technology (SET)</i> . Digital slides for the New 4-H Staff Orientation Webinar, September 25, 2013.
C	Worker, S. (2013). <i>4-H Junk Drawer Robotics</i> . Digital slides for the SPAN/Region 4 After School Programs Annual Kickoff Conference, Suisun City, CA, August 6, 2013.
C	Worker, S. (2013). <i>4-H Science!</i> Digital slides for the 4-H Thrive Master Trainers.
C	Miner, G., Worker, S. (2013). <i>Putting youth on the path to thriving through 4-H</i> . Digital slides for the HomeSchool Association Conference, Sacramento, CA, August 4, 2013.
C	Iaccopucci, A., Worker, S. (2013). <i>4-H program empowers youth!</i> Digital slides for the HomeSchool Association Conference, Sacramento, CA, August 2, 2013.
C	Worker, S. (2013). <i>Can-Can Robot: From 4-H Junk Drawer Robotics & iThrive 3</i> . Digital slides from the 4-H State Leadership Conference, UC Davis, July 26, 2013.
C	Worker, S., Iaccopucci, A., Schneider, C. (2013). <i>UC ANR, Youth, Families, and Communities</i> . Digital slides for the UC Associates meeting, July 17, 2013, Oakland, CA.
C	Worker, S., Dogan, S., Ambrose, A. (2013, June). <i>4-H Youth Development & 4-H Science, Engineering, and Technology Initiative</i> . Digital slides for the UC REC Directors' meeting, Davis, CA, June 18, 2013.
C	Worker, S. (2013). <i>4-H Science, Engineering, and Technology (SET)</i> . Digital slides for the California Afterschool Network, April 5, 2013.
C	Worker, S. (2013, March). <i>4-H program design with the eight science practices</i> . Digital slides for the National 4-H Science E-Academy, March 7, 2013.
C	Worker, S. & Iaccopucci, A. (2013). <i>University of California 4-H Youth Development Program</i> . Digital slides presented at the AED 100 Class in the UCD School of Education, February 20, 2013

Type	Citation
C	Aiu, A., & Worker, S. (2013). <i>Filming & Video Production</i> . Digital slides for the 4-H Technology Leadership Team's 4-H Filmmaking Project.
C	Worker, S., Smith, M., Meyer, M. (2012). <i>Youth water conservation and quality education</i> . Digital slides for the North American Association for Environmental Education, October 12, 2012 in Oakland, CA.
C	Worker, S., Smith, M., Schmitt-McQuitty, L., Ambrose, A. (2013). <i>California: State of the 4-H SET Initiative</i> . Digital slides presented to CA 4-H staff on a special webinar, October 2, 2012.
Newsletters, Flyers, Promotional Pieces	
B	Worker, S. (2013). Final report to Leavey Foundation on SET and TLT.
B	Worker, S., & Watkins, S. (2012). Business operation procedures for sectional and state 4-H councils, committees, events, and activities.
B	Worker, S. (2013). 2013 4-H Film Making Statewide Project. [Flyer distributed at workshops.]
A	Horrillo, S., Worker, S. et al. (2013). 4-H Futures Task Force 2013.
A	Worker, S. (2013). CYFAR Overview Flyer.
C	Worker, S. et al. (2013). Media advisory: October 6 – 12, 2013 is National 4-H Week; Coincides with 4-H Centennial Events Around California.
C	Worker, S. et al. (2013). Template text for the State Assembly Resolution to commemorate the 4-H centennial.
B	Worker, S. & Ambrose, A. (2013, May). Thoughts and Comments on the Make Movement and California 4-H. [white paper presented to the Western Region 4-H Science Liaisons.]
A	Worker, S. (2013). 4-H Science, Engineering, and Technology Education. [Program brief for the UCD Healthy Youth, Healthy Environments Research Atlas.]
C	Worker, S., Smith, M. et al (2013). 4-H Animal Science Talking Points [For use at the 2013 State Fair.]
A	Worker, S. (Ed.) <i>4-H SET E-News</i> . [Included in the Monthly UPDATES electronic newsletter; 12 months from Oct. 2012 through Sep. 2013.] Retrieved from http://www.ca4h.org/News/