

# A Collaboration of Sierra Sands Unified School District and High Desert Leapin' Lizards, Inc.



## Rural Committee Presentation

### Moving Beyond the Bell ASES Program

Presented by Amy Worley



#### Moving Beyond the Bell

#### ASES STEM Academy

Every year, time for science in the school day dwindles. Science units and hands-on projects might be a thing of the past! ASES STEM Academy is bridging that gap by bringing science, technology, engineering and mathematics to the afterschool programs at Faller, Pierce, and Inyokern Elementary Schools. Our goal is to bring STEM experts into schools and K-5 classrooms to supply essential exposure to science.

We have a variety of 2-4 week units planned this school year in a variety of fields and interests, such as forensics, chemistry, engineering, ASTRONOMY, biology, plant telece, geology, archaeology, ecology, robotics, and business development. We want each unit to provide as much hands-on experience as possible, with labs, testing, and enrichment at each opportunity.

Please call us today at (760) 499-1770 to find out more about how you can help, or visit our web site at [www.hdllrc.org](http://www.hdllrc.org) for more information.

High Desert Leapin' Lizards was awarded the **Jhunki Basu Foundation Special Focus Award** for the Partnering for Excellence: Innovations in Science, Technology, Engineering and Math Education competition, hosted by Carnegie Corporation of New York, The Opportunity Equation, and Ashoka Change-makers.



# STEM Academy



*Moving Beyond the Bell ASES Program*

As a result of the 2011-2012 program evaluation/reflection, the STEM Academy was developed to better meet the needs of the students, program staff and address goals of program funding.

- Focus of our curriculum is Science, Technology, Engineering and Math (STEM)
- Year-long curriculum schedule has been developed and include topics of Forensics, Business, Junk Box Wars, Biology, etc.
- Standards-based [Common Core Math, Common Core ELA, CA Content Standards for Science and Health aligning to the Next Generation Science
- Hands-on, project-based activities that utilize scaffolding techniques
- Variety of topics and activity formats to meet the needs of all learners

Month	M	T	W	T	F	Proposed Topics
August	13	14	15	16	17	Symposium #1 Pacebuilders/Orientation
	20	21	22	23	24	Mini Unit Scientific method, Science notebooks, data collection, data recording, Computer monitoring of data trends, Computer presentation of results (PowerPoint)
	27	28	29	30	31	
Sept.	3	4	5	6	7	Unit #1 Forensics - Evidence collection, fingerprints, dental impressions, footprints, hair & fibers, chromatography, observation, LHS Gems Kit, Blood Typing Lab, Blood Spatter Pattern Analysis, tire tracks, tool impressions
	10	11	12	13	14	
	17	18	19	20	21	
Oct.	1	2	3	4	5	Symposium #2 Art/Technology
	8	9	10	11	12	Unit #2 Business - money, advertising (Microsoft Publisher/Powerpoint), Accounting (Excel), Design a Laminated Stand, building, bridge, sales
	15	16	17	18	19	
Nov.	22	23	24	25	26	Symposium #3 Halloween/Dia de Los Muertos
	29	30	31	1	2	(Mini) Unit #3 Junk Box Wars - Engineering and physics, building: bridge, boat, slingshot, catapult, tower
	5	6	7	8	9	
Dec.	12	13	14	15	16	Unit #4 Astronomy - astrolabe, star charts, navigation, mythology, moon phase box, adopt-a-constellation (research & PowerPoints), stargazing
	19	20	21	22	23	Symposium #4 Christmas Science - chromatography decorations, Christmas Cookie Chemistry, Gingerbread House engineering, Junk Box Wars "Saving Frosty"
	26	27	28	29	30	
Jan.	3	4	5	6	7	Unit #5 Biology - Plant Science (greenhouse construction, hydroponics, plant cycle, vertical gardening), Nutrition (food pyramid, cooking (in prep for Restaurant at Health Fair), vitamins, minerals, health)
	10	11	12	13	14	
	17	18	19	20	21	
Feb.	24	25	26	27	28	Symposium #5 Health & Fitness with Health Fair/Restaurant/Open House
	31	1	2	3	4	Unit #6 Geology & Archeology
	7	8	9	10	11	
Mar.	14	15	16	17	18	Symposium #6 Archeology - fossils, excavation, reconstruction, LHS Gems Kit
	21	22	23	24	25	Unit #7 Water - oceans, weather, water states (solid, liquid, gas), building a barometer, water pressure, water conservation (Charity Water), Pirate Week, LHS Gems Kits
	28	29	30	31	1	
Apr.	4	5	6	7	8	Symposium #7 Earth Day - Charity Water Walk
	11	12	13	14	15	Unit #8 Chemistry - solutions, Matter states (Solids, liquids, gases), acids & bases, Dobleck, bubbles, lemons, soap, food chemistry, mentos & diet coke. A lot of LHS Gems Kits.
	18	19	20	21	22	
May	25	26	27	28	29	Symposium #8 Camp Days
	31	1	2	3	4	
	8	9	10	11	12	



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# Afterschool Education and Safety Program (ASES)



*Moving Beyond the Bell ASES Program*

## Changemakers Awards

High Desert Leapin' Lizards was awarded the Jhumki Basu Foundation Special Focus Award for the Partnering for Excellence: Innovations in Science, Technology, Engineering and Math Education competition. The U.S.-based competition—hosted by Carnegie Corporation of New York, The Opportunity Equation, and Ashoka Changemakers®—is sourcing innovative solutions for bringing STEM professionals into schools to offer their talent, knowledge, and real-world skills to students, in partnership with their teachers and schools. This recognition is a result of the strong partnerships that High Desert Leapin' Lizards has with Sierra Sands Unified School District, Cerro Coso Community College, and Naval Air Warfare Center and its Educational Partnership agreements and staff.



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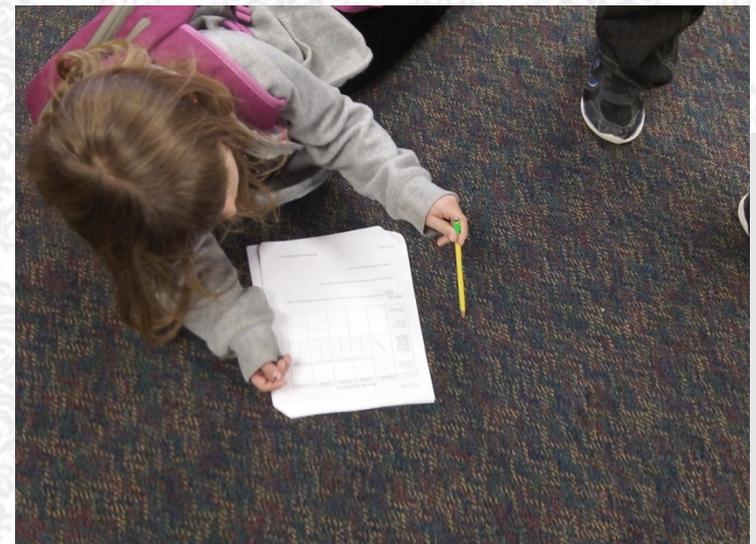
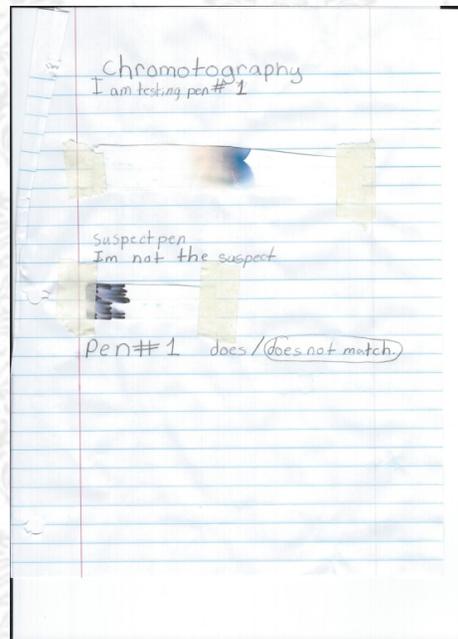
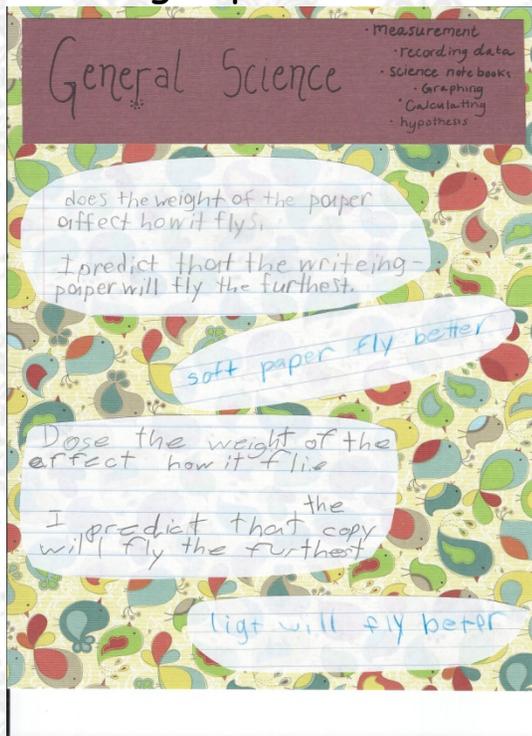


# Scientific Method Unit



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- Established the format and expectations of the STEM Academy and provided basic information to begin the study of science topics
- Began process of utilizing science notebooks (adjusted format for grade levels)



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# Forensics Unit



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- Four week unit- evidence, prints, impressions, blood/DNA
- Concentrated on math standard of pattern recognition and science standard of variation of individuals and inherited characteristics and investigation.



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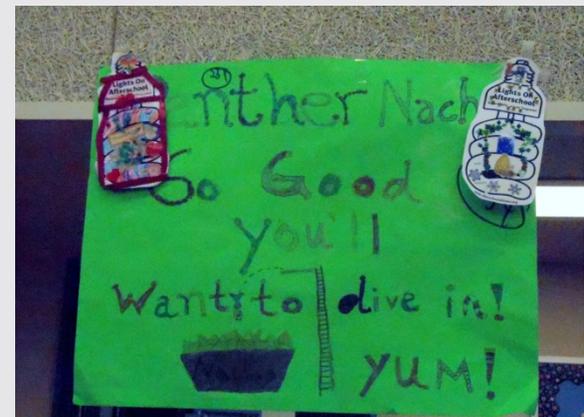


# Business Unit



*Moving Beyond the Bell ASES Program*

- Three week unit- develop a plan, understanding marketing, and supply and demand
- Unit addressed math standards and technology
- Culminated in our LOA event



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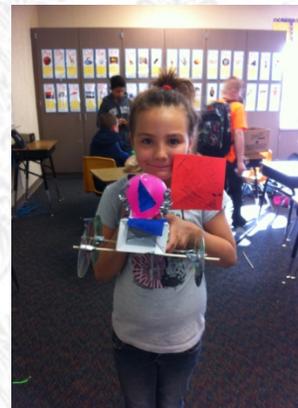


# Junk Box Wars



## *Moving Beyond the Bell ASES Program*

- Two week unit- design and redesign, engineering basics, simple machines, and forces and motion
- Unit addressed science standard of simple machines and forces and motion
- Participated in pilot "Go Green Racer" program from Museum of Science, Boston
- Students from Advanced Engineering Program at BHS assisted with unit
- Culminated in Racer Rally!



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# Astronomy Unit



## Moving Beyond the Bell ASES Program

- Three week unit- concentration of human explorations, focusing on Moon, Mars, Stars and Constellations
- Unit addressed science standards for astronomy
- Utilized NASA-developed curriculum and lessons



ASES STEM Academy  
High Desert Leaps! Lizards ASES Academy is offering an Astronomy Unit, with a focus on human exploration. This is an exciting year to study astronomy, with the Curiosity Rover on Mars and Cassini-Huygens giving us new information from Saturn. Our first work will be creating many photos of the lunar surface and human exploration of the Moon. The second work, we will study Mars or Saturn. These shows studying Mars will be using JPL's Teleguide.

Many programs to design a colony on Mars. Our third work, we will learn more about stars and constellations.

Flash to the Moon

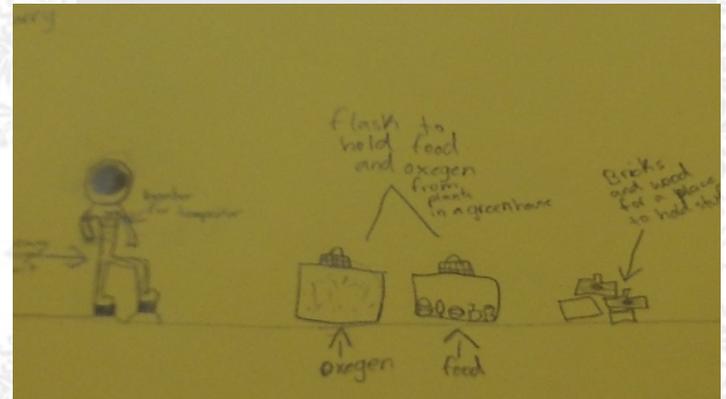
Want to volunteer? We'd love to have you! Please call our corporate office.

High Desert Leaps! Lizards

Location: 12855 N. 1st St. Suite 100  
P.O. Box 100  
Sierra Sands Unified School District  
Sierra Sands Unified School District

STAR PARTY

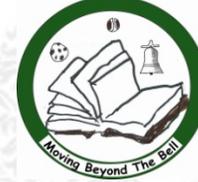
Come by any of our school sites at Pierce, Fuller, or Inyokern #1 from 4:30-6:00 to see what we have been doing for our ASTRONOMY UNIT! Stargazing begins at 5:15. Hot drinks will be provided!



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# Racer Rally



## Moving Beyond the Bell ASES Program

### Recycled Racer Rally — science after school



Jaamine Craddock, 10, left, and Joyce Gurley, 10, show off their Recycled Racer Rally entry, "Buzzy." Photo by Linda Saholt

By LINDA SAHOLT  
News Review Correspondent

Science can be a lot of fun. Students at three local elementary schools who attend after-school programs put on by High Desert Leapin' Lizards were presented with an intriguing project — and the Recycled Racer Rally was the result.

The three schools in the program are Pierce, Fuller and Inyokern. Students in the program in Grades K to 5 were given boxes of "junk" items — recycled materials to use to build little racers. Some students worked in teams, some individually — but all created some sort of vehicle.

At Theodore H. Fuller Elementary School, students worked for two weeks, building their racers and decorating the cafeteria for their rally. Students created a sloping racetrack out of flattened cardboard boxes topped with black construction paper and painted yellow lines. The finish line was a netball backdrop. Their advisor had a homemade checkered flag. Winners received small prizes, and all students got popcorn and lemonade.

Jaamine Craddock and Joyce Gurley teamed up with a third student, who was absent during the rally, and built their racer, "Buzzy," with loving care. "We put a



### Rally

Continued from Page 3

lot of work and decoration into it," said Jaamine. "It took two weeks."

"At first, we couldn't get the right wheels. Then we added a ball-bear in the back instead of on the top, so it would go faster. We tried to make it look beautiful and fast. Then we made signs to help us cheer."

"We won second place," said Joyce. "It was fun."

Michael Robinson, 10, showed off his racer equipped with CDs for wheels. "These twirl better than bottle caps," he said. "They roll really good." The racer's body was an empty box. Michael was one of a team of six classmates, all of whom used CDs for their racers.

Kindergarten students made small racers from half-pint milk cartons laid on their sides and each equipped with one large wheel as an axle.

In other experiments, students made boats out of aluminum foil and floated them in tubs of water. Then they added pennies one at a time, to see how many pennies each boat could hold before it sank.

A third project involved making paper chains, but the challenge was to see how to make the joints

stronger, to see which method would be most resistant to tearing. Advisors put the youngsters to work about what they learned, principles involved and the terminology.

"This is a culminating event. The kids made their projects, let them, re-engineered them and sold them again," said Tim Free, program director. The event is part of Leapin' Lizards' "A School Education and Safety" — Science, Technology, Engineers and Math — program.

Many parents were on hand to camera, to document their children's creative endeavors.

For more information, visit [www.hdlrc.org](http://www.hdlrc.org).

**STEM Academy**

High Desert Leapin' Lizards

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**Go Green Recycled Racer Rally & Engineering Expo**

**Come by any of our school sites at Pierce, Fuller, or Inyokern on Friday, November 16 from 3-4 PM to watch the exciting action, and see student engineering projects!**

**Junk Box Wars**

Engineering Design Challenges  
November 5-16

Want to volunteer? We'd love to have you! Please call our corporate office.

**High Desert Leapin' Lizards**

Sierra Sands Unified School District  
1305 N. Norma St.  
Redwood City, CA 94065  
www.hdlrc.org

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1305 N. Norma St.  
Redwood City, CA 94065  
Phone: 650-395-1170  
Fax: 650-395-1170



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# Collaboration



## *Moving Beyond the Bell ASES Program*

- Collaborate with Naval Air Weapons Station, Weapons Division to provide Robotics and Chemistry
- Collaborate with Hungry River Theater Group, Maturango Museum, Kern County Waste Management "Clean Sweep" and the China Lake Astronomical Society to provide programs during afterschool
- STEM Coordinator is a member of the California Afterschool Network's STEM Committee, Co-Chair of the Promising Practices Dissemination Workgroup, and serves on the Quality, English-Language Learners, and Rural Committees
- Elicit support from Burroughs High School programs, staff and students related to curriculum topics



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# Community Involvement



*Moving Beyond the  
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- Participated in the 2013 Children's Fair
- Participated in the 2012 Non-Profit Community Showcase
- HDLL is a United Way Member Agency
- Representative attends monthly IWV Collaborative meetings
- Participate in the Cerro Coso Community College Career Fair
- Participated in the National Lights On Afterschool event



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# Professional Development



*Moving Beyond the  
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- STEM unit trainings
  - Planned and Provided by STEM Coordinator and the STEM Committee.
  - Held one per unit and scheduled before the school year begins.
  - Present staff with unit background knowledge, hands on experience with lessons to be presented.
  - Allow staff members to participate in a Professional Learning Community with their afterschool peers.
  - Provide staff with unit pacing guides and themes and vocabulary.



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