

ENERGY IS EVERYWHERE!

U.S. DEPARTMENT OF
ENERGY | Energy Efficiency &
Renewable Energy



Connecting with Science & Technology Centers

March 19, 2015



Webinar Series sponsored by
Housing and Urban Development,
Department of Energy and
Department of Education

Webinar Agenda

- Welcome and Intro to Webinar Series (HUD)
- Overview of Association of Science and Technology Centers (ASTC)
 - Ann Hernandez, Program Manager, Professional Development, ASTC
- Highlights from Museums
 - Kathy Dawes, Educational Outreach Coordinator, Palouse Discovery Science Center, WA
 - Kristin Leigh, Deputy Director & Director of Community Engagement, !Explora!, NM
 - Karen Hays, Program Development Manager, Denver Museum of Nature and Science, CO
- Q & A



You are on mute! Use your webinar bar to fill out poll or chat to send in a question.

Email energyliteracy@ee.doe.gov about the Energy is Everywhere Webinar Series

Welcome

- Why are we talking with the **Association of Science & Technology Centers?**

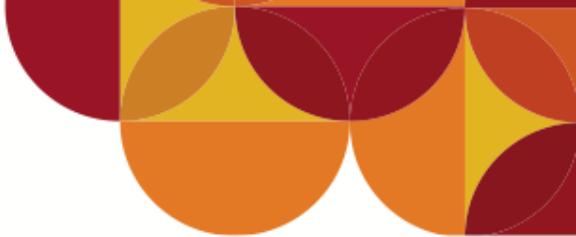
1. Resources and Programs to share

- ✓ Located across the country and internationally
- ✓ ASTC members include science centers and museums and also zoos, aquariums, planetariums, botanical gardens, children's museums and more!
- ✓ Great Resources for Public Housing and Low-Income residents:
 - Mission is to serve the public
 - Resources and programs to engage

Welcome

2. Ties into Science, Technology, Engineering, & Math (STEM):

- Report by the President's Council of Advisors on Science and Technology (PCAST) estimates there will be **one million fewer STEM graduates over the next decade** than U.S. industries need.
- The **demand** for professionals in STEM fields is projected to **outpace the supply of trained workers and professionals**.
- **STEM competencies are increasingly required for workers both within and outside specific STEM occupations.**
- *“Progress on STEM is critical to building a just and inclusive society: STEM participation and achievement statistics are ‘especially disturbing’ for women and minorities, who are substantially underrepresented in STEM fields.”*
- **From:** President's National Science and Technology Council, 2013 5-year Strategic Plan:
http://www.whitehouse.gov/sites/default/files/microsites/ostp/stem_stratplan_2013.pdf



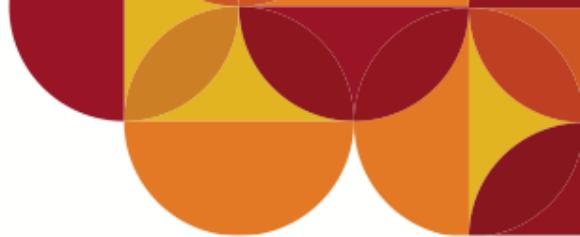
Energy is Everywhere: Connecting with Science and Technology Centers

March 19, 2015

**Ann Hernandez
Program Manager, Professional Development
Association of Science-Technology Centers**

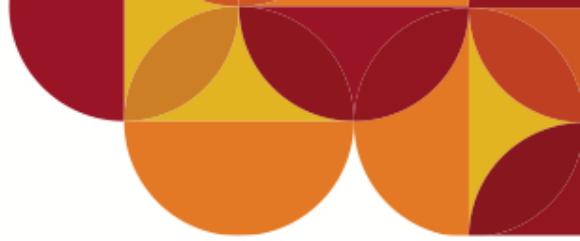


ASSOCIATION OF
SCIENCE-TECHNOLOGY CENTERS



About ASTC

- A Washington, DC-based nonprofit association representing nearly 500 science centers and museums in 46 countries across the globe.
- Members include not only science centers and museums, but also nature centers, aquariums, planetariums, zoos, botanical gardens, natural history museums, and children's museums, as well as companies, consultants, and other organizations that share an interest in informal STEM education.

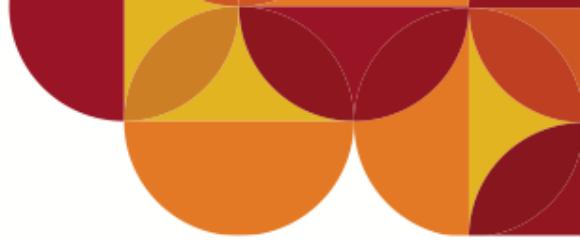


About ASTC

- ASTC provides a **collective voice, professional support, and programming opportunities** for science centers, museums, and related institutions whose innovative approaches to science learning inspire people of all ages about the wonders and the meaning of science in their lives.



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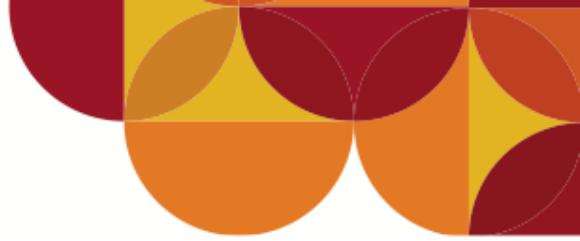


Why Science Centers Matter

- Science centers ignite long-term interest in the STEM fields.
- Science centers are places where play and academics come together.
- Science centers foster strong science teachers.
- Science centers provide learning and exploration for a lifetime.
- Science centers offer global solutions to local problems.



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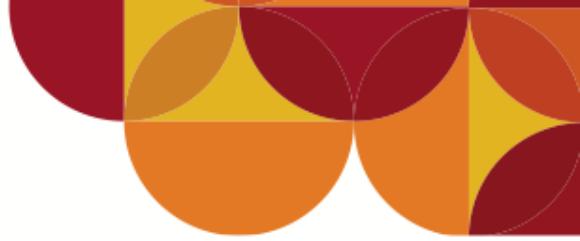


Why Science Centers Matter

- Science centers are uniquely positioned to raise awareness, understanding, and interest levels in the STEM (and energy!) fields.
- Science centers specialize in cultivating critical thinking and analytical skills—two of the most important abilities required of a future STEM workforce.
- Science centers are helping to prepare a new generation of responsible global citizens who will be able to address the problems that will face our world over the next century.



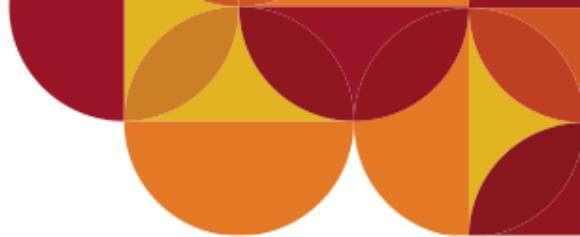
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The ASTC-DOE Partnership

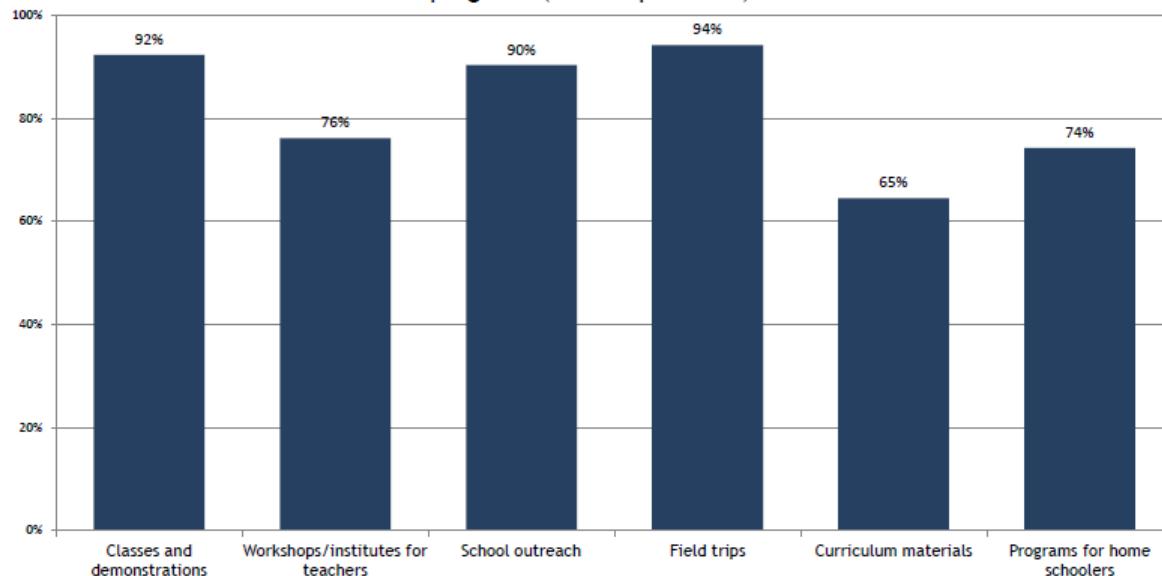
An opportunity to work jointly to promote energy literacy for the 21st century workforce and citizenry.

- Energy Literacy Empowerment Initiative
- STEM Mentoring Café
- Minorities in Energy STEM and Energy Literacy Series



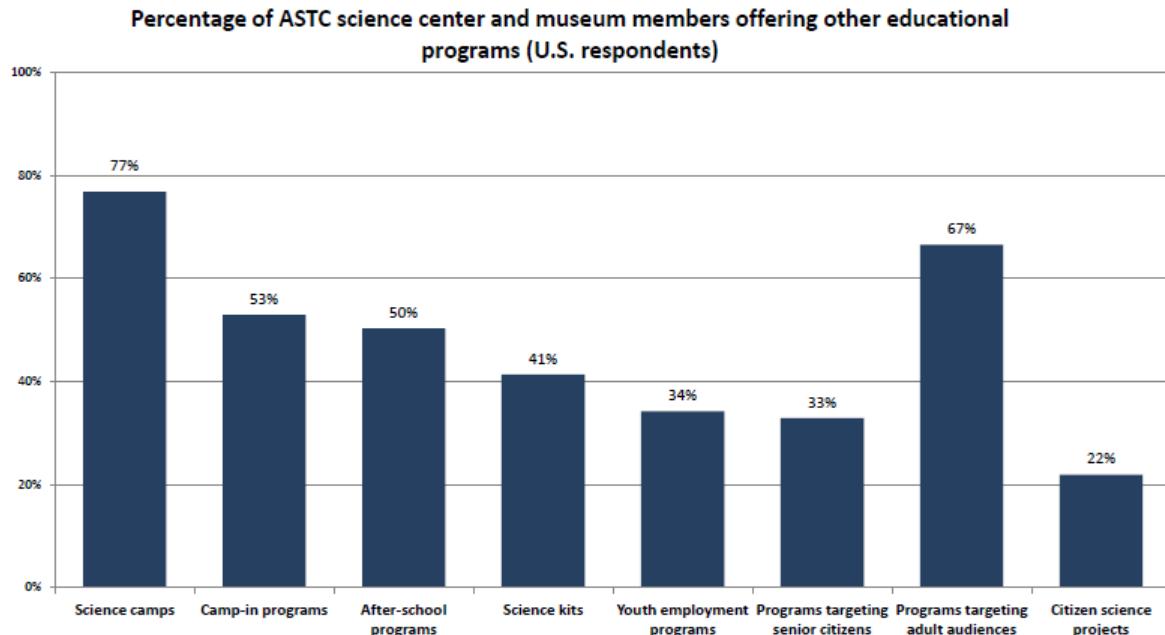
Science Centers and Education

Percentage of ASTC science center and museum members offering school-related programs (U.S. respondents)



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Science Centers and Education



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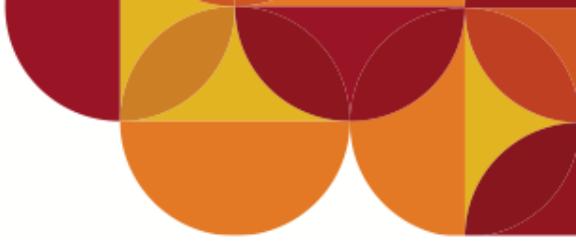
Energy Literacy

The screenshot shows the museum's website with a blue header. The main content area features a large image of people interacting with a circular, illuminated exhibit. Below the image, a section titled "Future Energy Chicago" includes tabs for "exhibit overview", "energy garden", "simulation game", and "resources". A paragraph describes the interactive simulation game, mentioning it requires an additional ticket and is a timed-entry experience. At the bottom, there's a "Future House" section with a thumbnail image and a brief description.

The screenshot shows the COSI website with a dark blue header. The main content area features a large graphic with the text "ENERGY explorers" in green and yellow. The background includes illustrations of a sun, clouds, a car, and people. Below the graphic, a section titled "Your ENERGY choices matter" discusses the exhibition's focus on energy's impact on the world. The top navigation bar includes links for "Buy Tickets Online", "Calendar of Events", "Membership", "Volunteer & Employment", "COSI Blog", "VISIT COSI", "EXHIBITS & LIVE SHOWS", "FOR FAMILIES", "FOR EDUCATORS", and "FOR SCOUTS".



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Career Ladder Programs

Like 33 people like this. Be the first of your friends.

HIGH SCHOOL EXPLAINERS

Who are the High School Explainers, what do they do, and why is the experience life changing for so many of them?

[WHAT'S AN EXPLAINER?](#) + [WHAT DO THEY DO?](#) + [HEAR THE STORIES](#) +

High School Explainers, the Exploratorium's youngest employees, are a diverse group of students who engage visitors at exhibits, lead demonstrations, and run many museum operations.

Some are interested in science; all have a spark for learning new things. In keeping with the Exploratorium's philosophy, they build their own skills while learning to help others.

[Learn more about the program.](#)

magic

dissection

"It's been life changing in ways I didn't think it would be."—Clare

[Learn more about what they do.](#)

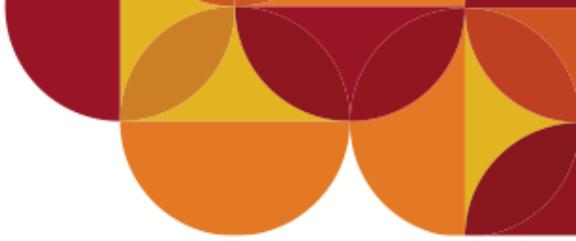
[Hear more stories.](#)

Kate

Clare



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Volunteer Opportunities



The New Austin Children's Museum



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How to contact your local science center:

1. Search www.astc.org for centers in your area
2. Explore the science center's website for existing programs and memberships
3. Contact their staff- Director of Education/Programs, Outreach Manager, Group Reservations, Membership Manager

FIND A SCIENCE CENTER

Country

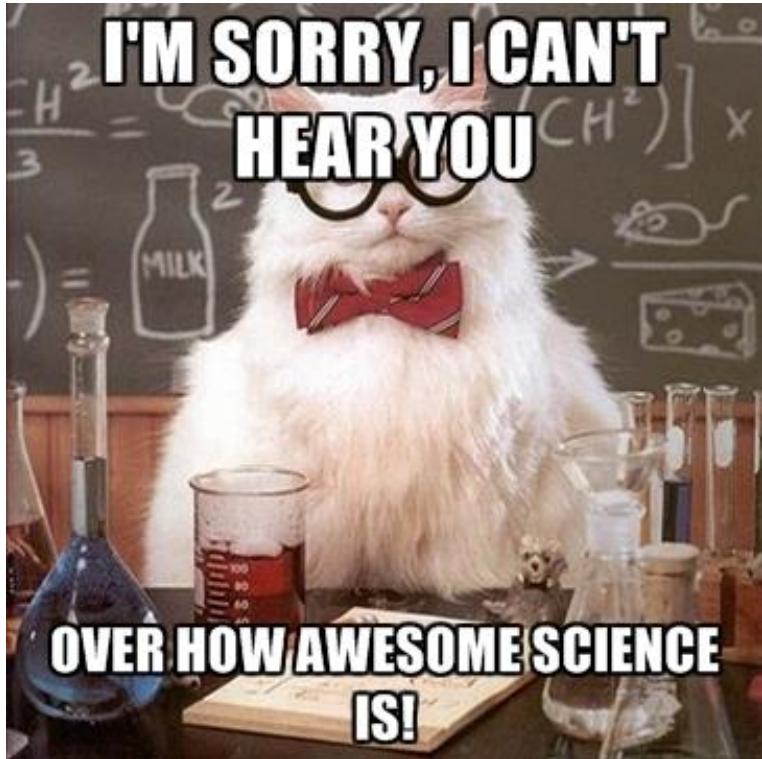
U.S. State (if applicable)

Keyword Search

For participants in the reciprocal free admission program, please visit the [Travel Passport Program page](#). Please note that not all ASTC-member science centers and museums participate in the Passport Program.



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Follow @sciencecenters on Instagram

Palouse Discovery Science Center

Pullman, WA



We provide field trips, Family Science Saturday events, and outreach programs and portable exhibits for:



- Libraries
- Schools
- After-school programs
- Family Science Nights
- County Parks
- Girls Scouts
- Science Clubs
- Community Events

Current Outreach programs focus on “Energy for the Future”

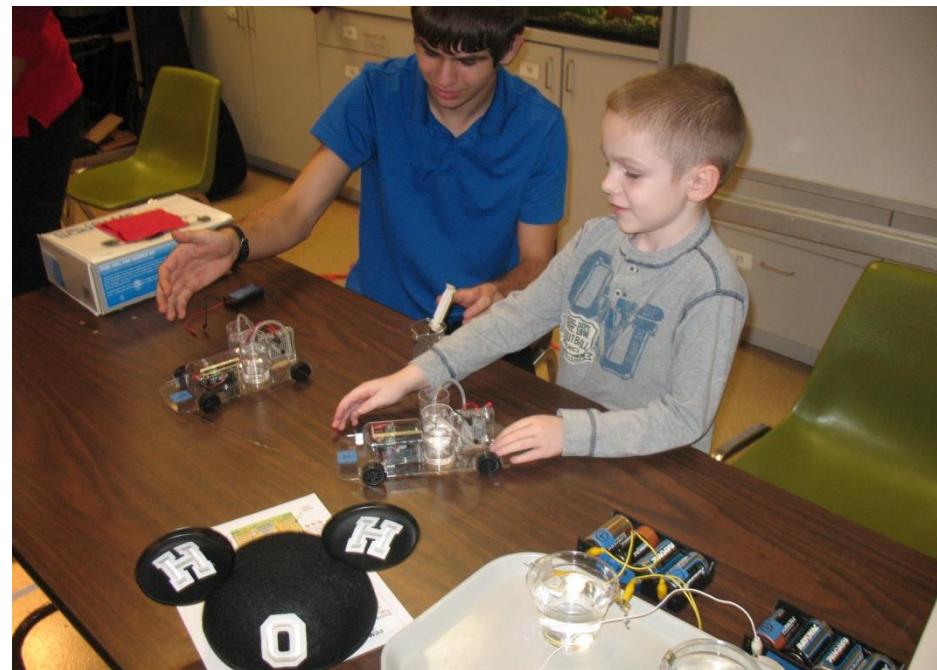


**Snap Circuits
Green**

**Chemical
Energy**



**Hydrogen
Power:
Fuel Cell Cars**



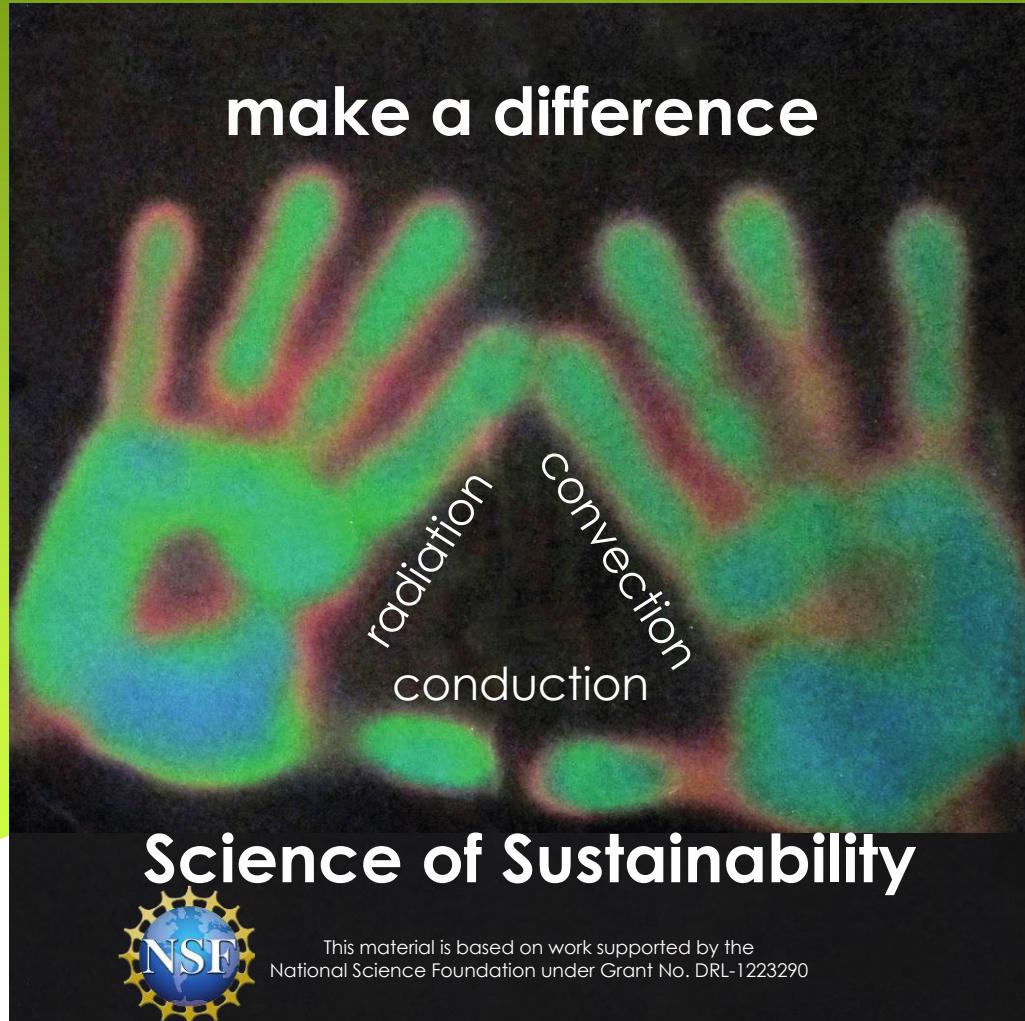
Wind Power



Solar Power



Project SOS: Making Connections Using the Science Of Sustainability



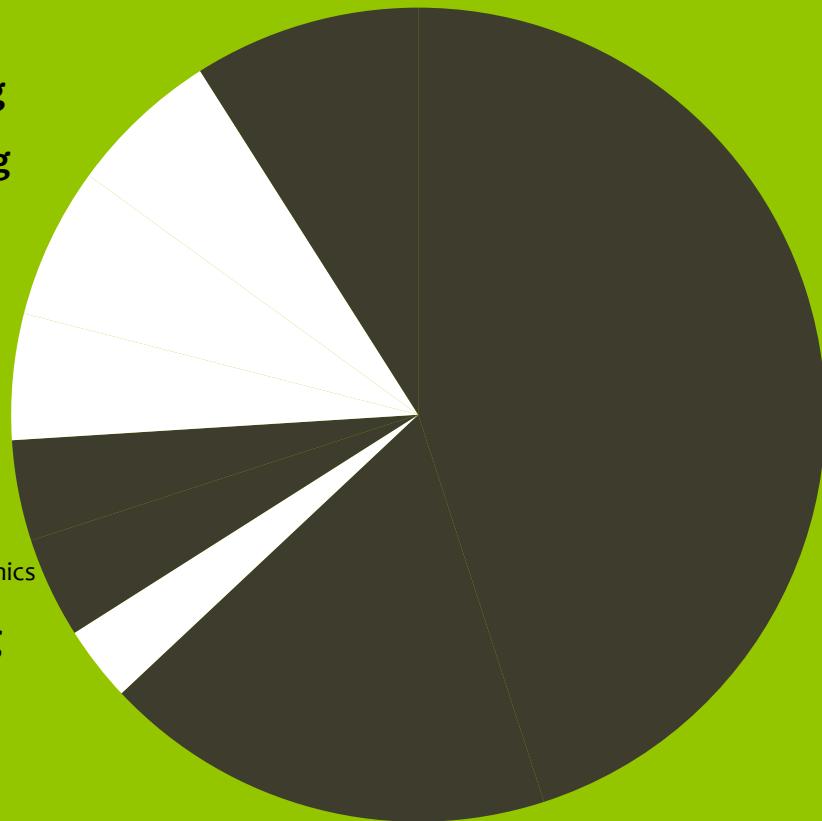
**Principal
investigators:**

Kathy Dawes, PDSC
Kathleen Ryan, WSU
Christine Berven, UI

Funded by NSF
Grant No.
DRL-1223290

Home energy use related to Heat

- Space heating
- Water heating
- Wet cleaning
- Refrigeration
- Cooking
- Other
- Lighting
- Computers/Electronics
- Space cooling



80%



Our Audience

Population Data (2010 Census):

- 1,599 Coeur d'Alene Reservation
(Plummer/Worley/Tensed/Desmet)
- 882 Kendrick/Juliaetta, ID
- 550 Rosalia, WA

- Pullman, WA
- Moscow, ID



DAY 1: In the Community

Exploring Heat Energy

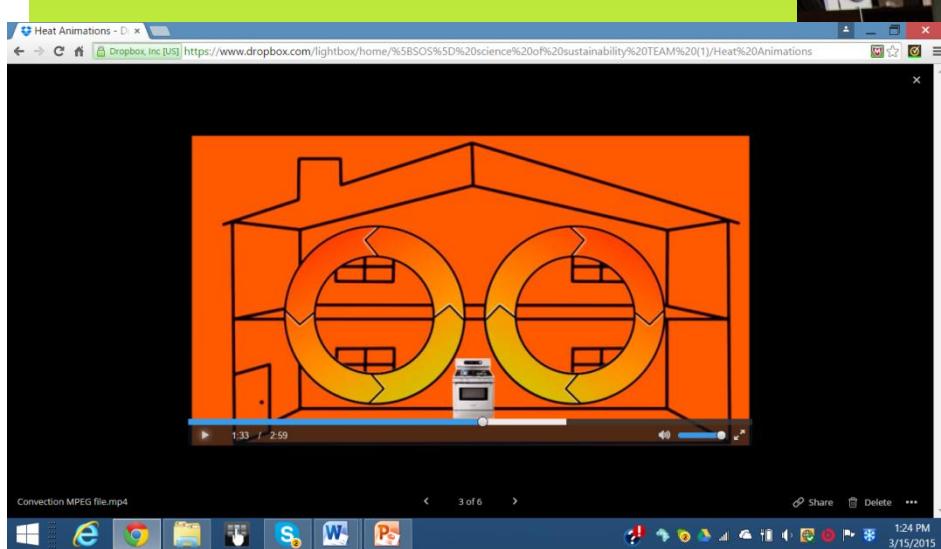
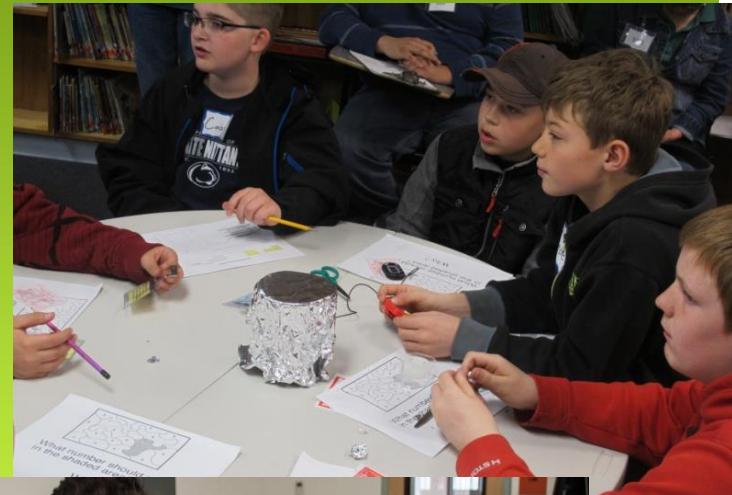
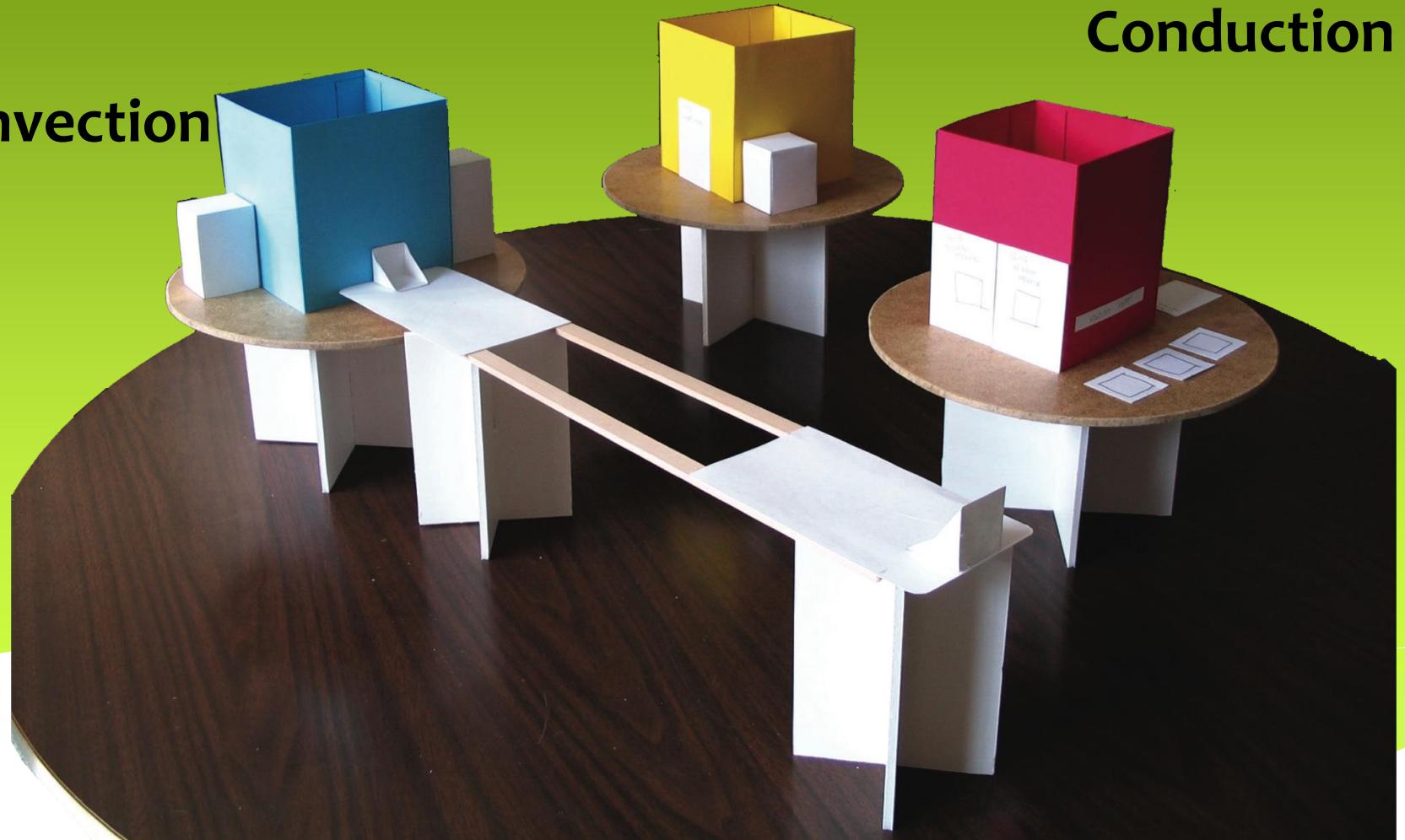


Exhibit Prototypes

Radiation

Conduction

Convection



Experiencing the Exhibits

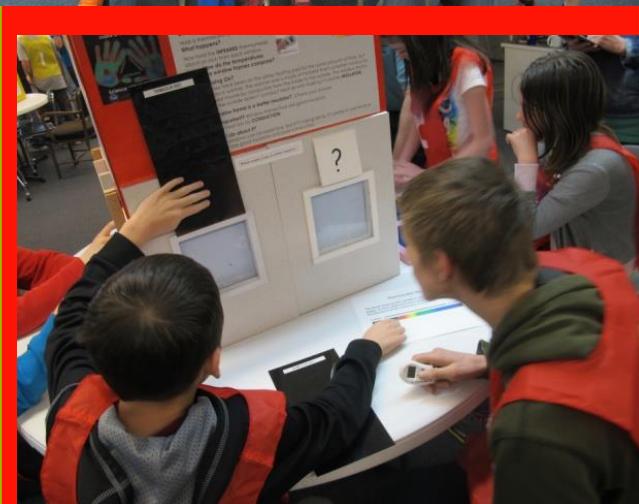
Conduction Experts



Convection Experts



Radiation Experts



Sharing Expertise



Model House Challenge

Testing the house



Checking the house after improvements



Selecting materials

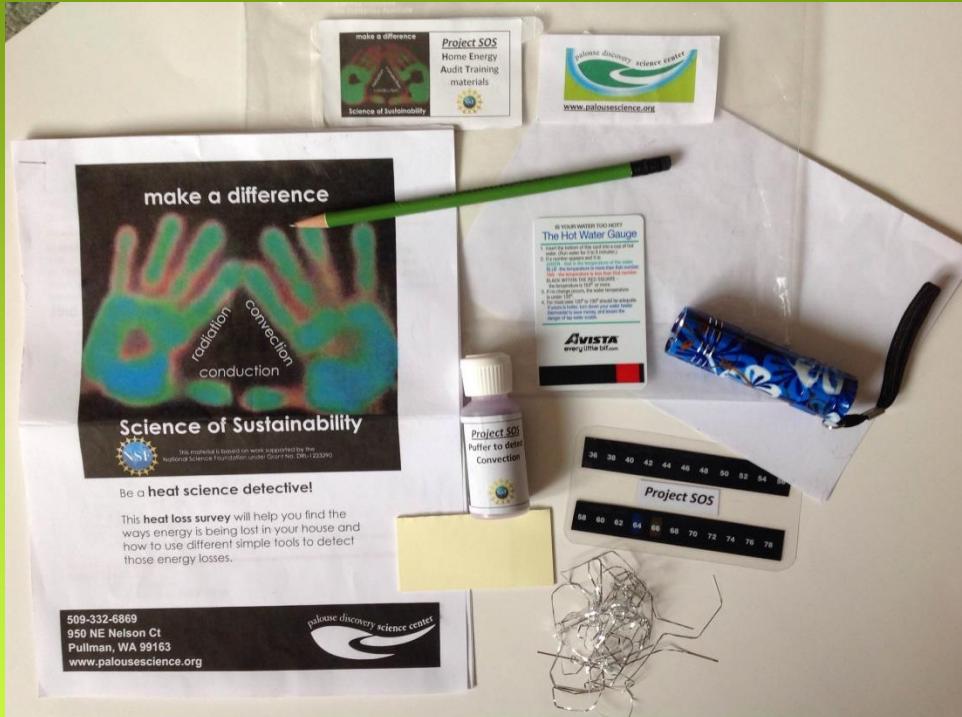


Fixing the house

Reporting results



HEAT Kits to take home



DAY 2: At the science center

What did you
find out?

What can you do
about it?



Career Opportunities!

**For more information
and resources,
go to our website:**

www.palousescience.net

**Scroll down to:
Project SOS**



Palouse Discovery Sc × Google www.palousescience.net

palouse discovery science center Palouse Discovery Science Center CALL US 509-332-6869

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Hands-on, Minds-on SCIENCE

Plan a trip for your classroom or group.

Don't miss out! Check here to see PDSC upcoming events.

Enjoy free admission to PDSC events, receive discounts, and more!

PLANETARIUM
Check out our planetarium page to learn when we will be having shows.

SUMMER CAMPS
Learn more about our PDSC summer camps and how to sign up.

DAILY LESSONS
Join PDSC staff for a daily lesson!

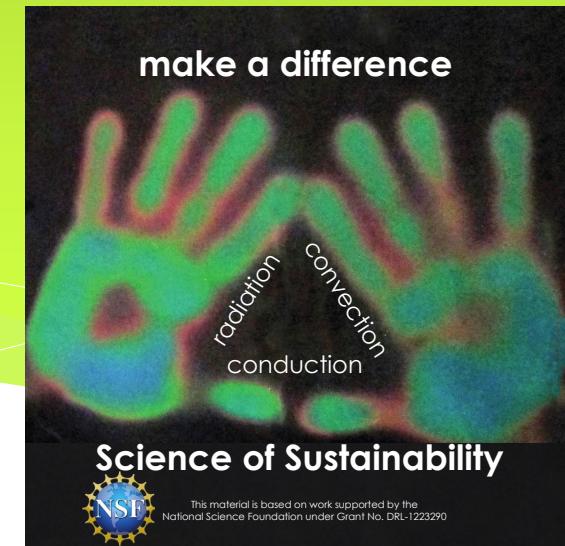
Project SOS
make a difference
conductivity
Science of Sustainability

What's Up In The Sky?
In The Sky?

LEGO

For the Future:

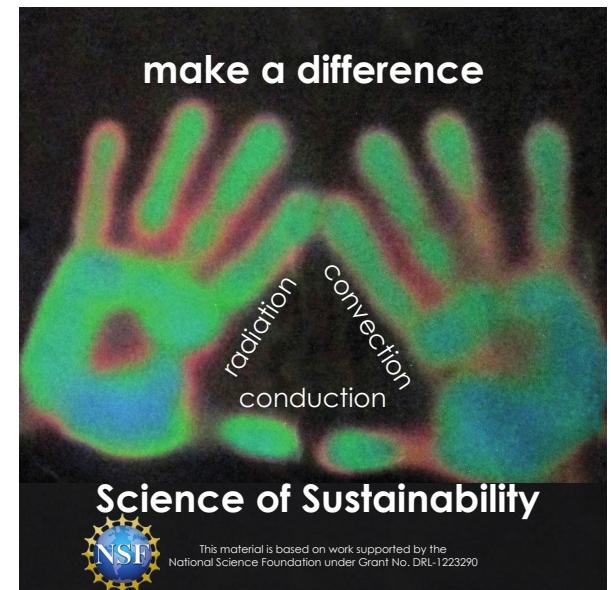
- ▶ Develop final versions of project components
- ▶ Recruit family participants as well as teens
- ▶ Expand the project by taking it to other science centers and organizations with similar goals to promote sustainable energy use



This material is based on work supported by the National Science Foundation under Grant No. DRL-1223290

Contact:

- * **Kathy Dawes**
- * **Educational Outreach Coordinator**
- * **Palouse Discovery Science Center**
- * **Pullman, WA**
- * **outreachpdsc@gmail.com**
- * **208-310-2922**



Science of Sustainability



This material is based on work supported by the
National Science Foundation under Grant No. DRL-1223290

Explora Albuquerque, NM

KRISTIN LEIGH

DEPUTY DIRECTOR AND DIRECTOR OF COMMUNITY
ENGAGEMENT



Community Partner Membership Program

- Increases access to Explora by working through partner agencies to provide no-cost memberships to low-income families, providing unlimited access to Explora's safe, science-rich learning environment
- 13,000+ memberships have been provided to clients of partner organizations (free, unlimited admission to Explora for up to six people, regularly valued at \$90)
- Primarily funded through Explora's operating budget, with other funding from the State of New Mexico, the United Way of Central New Mexico, and others
- Examples of *Community Partners*:
 - Nurse Family Partnership
 - ABQ Housing Authority
 - Albuquerque Public Schools Title I Schools
 - Over 70 other organizations



Partnership with Albuquerque Housing Authority (AHA)



- Partnership established September 2013
- Albuquerque Housing Authority (AHA) Family Self-Sufficiency Program serves appx. 5,000 people
- AHA offered Explora memberships to any of those clients that included families with children
- 151 AHA families requested Explora memberships by calling the City's 311 phone line; AHA provided Explora with a spreadsheet of these families, and Explora processed and mailed membership cards

AHA Visitation Rates

9/1/13-9/1/14			Total Visits	Total # of People
	Total Visits	Total Number of People		
AHA	184	721	234	912
9/2/14-3/10/15			AHA utilization rate: 1.5 avg. family visits/year Paid member utilization rate: 4.4 avg. family visits/year	
			Working to increase <i>Community Partner</i> rates to more closely match those of paid members	
AHA				



Future plans

Explora and AHA are collaborating to plan a **Family Science Night** at Explora for client families. Explora will open its doors for an evening event that gives families the opportunity to learn and discover together--and have the whole museum to themselves! The 151 member families will be invited, as will AHA families through requested memberships, in the hope that they will become Explora members, as well.





Getting Connected with the Denver Museum of Nature & Science

Karen Hays



D E N V E R M U S E U M O F N A T U R E & S C I E N C E



Connecting

D E N V E R M U S E U M O F N A T U R E & S C I E N C E

Free Days



D E N V E R M U S E U M O F N A T U R E & S C I E N C E



D E N V E R M U S E U M O F N A T U R E & S C I E N C E



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D E N V E R M U S E U M O F N A T U R E & S C I E N C E

Find out more
www.dmns.org



Questions and Contact Us

Questions: Type in the questions/chat box.

**We are interested in your feedback on the
Energy Is Everywhere Series!**

energyliteracy@ee.Doe.gov