

Arizona Science Lab



STEM Workshops

- The ASL offers students in grades 4-8, free all day, project-based science & engineering workshops, taught by volunteer engineers and scientists.
- Each workshop emphasizes the WOW factor of hands on construction project and experiments!



ASL - Funding

- Supported by :
 - IEEE Foundation
 - IEEE Power and Energy Society
 - APS Foundation
 - Verizon Foundation
 - Intel Corp.
 - NXP Semiconductors
 - and Individuals...



Our Goals

- Get students excited about science and engineering!
- Show them science can be fun!
- Relate science to engineering.
- Teach some science and how engineers work.
- Have a rewarding experience!

What We Do

- Ask questions, define problems, build models.
- Teach through lecture, demonstrations, exercises, & building.
- Explain science principles & design engineering tradeoffs and solutions.
- Teach engineering: design, build, test, reengineer.
- Provide historical context, impact on society.
- Work in teams, Measure effectiveness, Wrap-up, Career discussion.

Arizona Science Lab Rocket Launches November, 2011



Schools, Teachers & Students

- Teachers choose a Workshop from a list of ready-to-run Workshops that support the Common Core and Arizona Science Education Content Standards
- Up to 60 students come for the day to our Tempe Lab, usually 2-3 workshops per week
- **1593** students taught so far in the 2014-15 school year – over **14,000** students in 6 years!
- Expect to teach over **2500** for 2014-2015 school year
- **59** teachers have also attended TISP workshops

Volunteers – Making the ASL Work

- We are 100% volunteer based. Our volunteers have:
 - Enthusiasm for science, technology, engineering & math (STEM).
 - Desire to share knowledge & experience with students.
 - Desire to help students learn & enjoy science.

A Little Bit of Solar Fun

A person wearing a green t-shirt with "GREEN GIANTS" printed on it is working on a solar car project. The car is a small, blue, four-wheeled vehicle with a solar panel mounted on top. The person is adjusting the wiring of the solar panel. The background is a plain, light-colored wall.

Arizona Science Lab
"Here Comes the Sun"
Solar Car Project

May, 2013

www.azsciencelab.org

Current Workshops

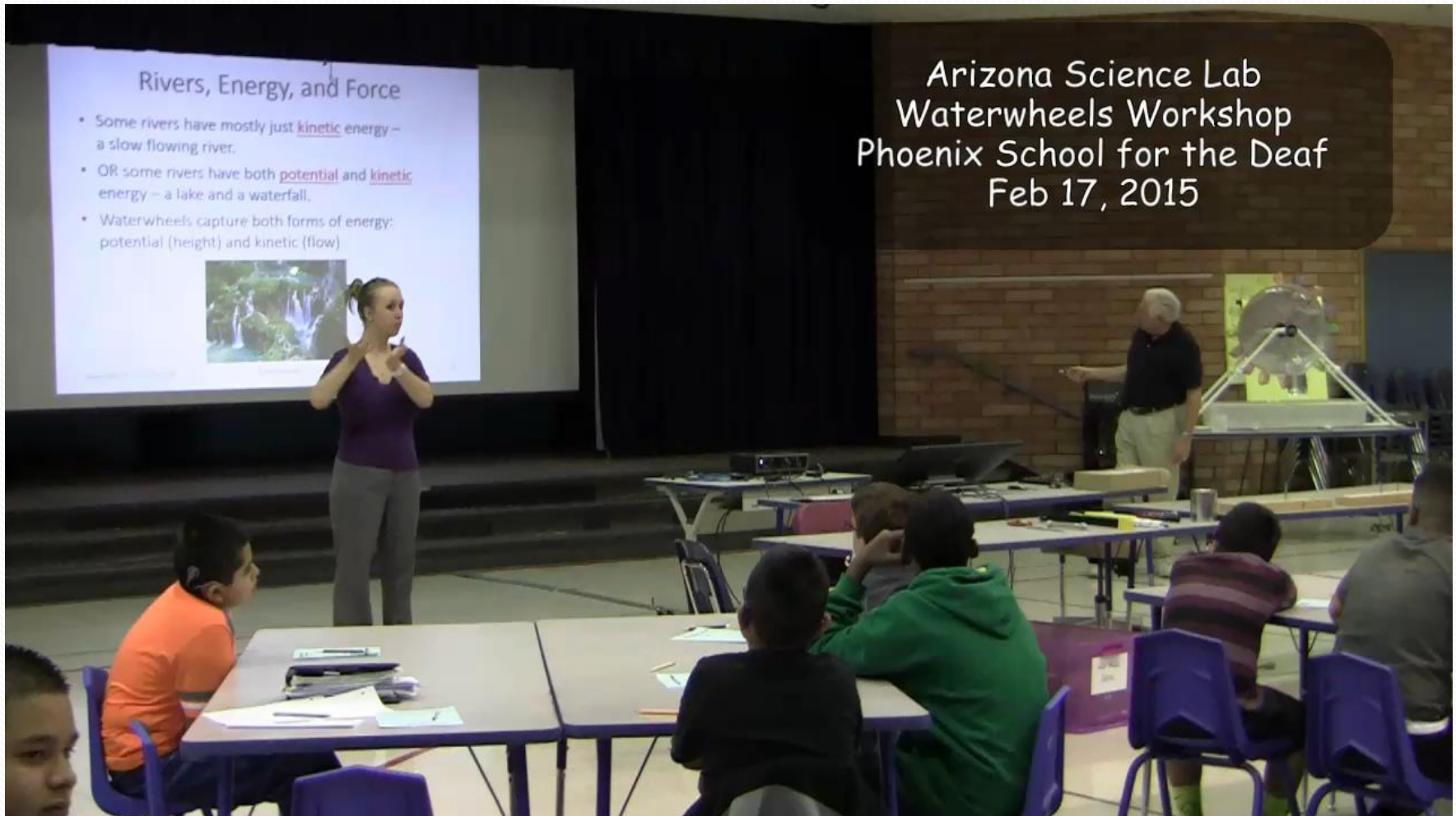
- **Up, Up and Away** – Build & Launch Rockets
- **Sail Away** - Design, Build & Sail a Sailboat
- **Here Comes the Sun** - Build & Race Solar Cars
- **Watermills** – Build & Test a Waterwheel
- **Electric Motors** – Build & Measure a Motor
- **Ciphers and Codes** – Exercises in Cryptography
- **Oscillators & Waves** – Measurements & Testing

The Science We Teach

- **Newton's Laws & Rocket Aerodynamics**
- **Archimedes Principle**
- **Levers and Simple Machines**
- **Forces & Moments of Inertia**
- **Potential and Kinetic Energy**
- **Conservation of Energy**
- **Magnetism & Electromagnetism**
- **Electric Circuits**
- **Ohm's Law**
- **Bernoulli's Principle**
- **Solar Cells and Renewable Energy**
- **Information Representation & Secure Codes**

We Teach All Students

Title 1 Schools, Charter Schools, Gifted
Classes, even the School for the Deaf





THE ARIZONA SCIENCE LAB

Evans School Facility
4525 S. College Ave
Tempe, AZ 85282

www.azsciencelab.org