THE ARIZONA SCIENCE LAB

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

www.azsciencelab.org

THE IEEE "ARIZONA SCIENCE LAB" WORKSHOP PROGRAM IS PROVIDED ABSOLUTELY FREE TO THE STUDENTS, TEACHERS AND SCHOOLS OF ARIZONA!!

❖ **Teachers bring their 4 thru 8 grade science classes (up to 60 students) to the Arizona Science Lab for a day of Science Workshop, a Science Field Trip!**

❖ **Each Science Workshop uses a lab setting to conduct a project-based lesson plan, complete with demonstrations, lecture and a construction project and/or experiments in a single 4 hour session.**

  o **The students work in engineering teams of two and keep the projects they build.**

❖ **Each Workshop is conducted by retired, employed, and university student engineers and scientists who:**

  o **Are highly qualified in math, physics, computers, electronics, power generation & distribution, structures, thermal, chemistry, materials science, software, etc.**

  o **Have "real world applications" experience of the science and can relate the theory being taught to the everyday application and to the design and operation of everyday objects.**

❖ **The teachers choose a Lab Workshop from a list of ready-to-run Workshops that support the National Science Education, Next Generation (Common Core), and Arizona Science Education Content Standards.**

❖ **Each Workshop emphasizes the "Wow!" factor of hands-on construction projects and experiments:**

Seven Workshops are currently being offered:

1. <u>Sail Away</u> – Archimedes Principle, Forces and Moments, Newton's Laws; Design & Build A Sail Boat.

2. <u>Here Comes The Sun</u> – Renewable Energy, Solar Cells, Electric Circuits, Sources & Loads In Series & Parallel; Build A Solar Powered Race Car.

3. <u>Working With Watermills</u> – Renewable Energy, Kinetic & Potential Energy, Simple Machines, Mechanical Advantage; Design & Build A Water Wheel.

4. <u>All About Electric Motors</u> – Electricity, Circuits, Magnetism, Electromagnetism, Electric Motors; Build an Electric Motor.

5. <u>Popsicle Bridges (not currently offered)</u> – Structures in Compression, Tension, Shear and Torsion; Design & Build A Truss Bridge

6. <u>Rockets</u> – Newton's Laws, Rocket Aerodynamics, Using Simulations; Design; Build and Launch an Air / Water Rocket.

7. <u>Ciphers and Codes</u> – Information Representation, Protection, Decoding, Secure Codes; Many Exercises in Coding and Decoding and solving a crime puzzle.

8. <u>Oscillators & Waves</u> - Pendulums, Kinetic/Potential Energy, Oscillators/Waves, Measurements, Graphing; Students Do Many Experiments with Pendulums and Oscillators.

Building sail boats   **Building water wheels**   **Building electric motors**   **Building solar powered cars**   **Building bottle rockets**

FOR MORE INFORMATION, GO TO OUR WEBSITE:

WWW.AZSCIENCELAB.ORG

OR CONTACT:

ROY ZABOROWSKI, ASL REGISTRAR   **ROY@BBZ.NET**   **602-993-9557**

"Helping Students Transfer
What Is Learned In The
Classroom To The World Beyond"