“This camp broadens your mind. It makes you want to learn in school instead of going to school for no reason.” Vinay Valsaraj, Baton Rouge High.

The first Shell Energy Venture camp for the Baton Rouge area took place the week of July 22-26, 2013. It hosted 27 students and a high-school teacher. It took place at the Baton Rouge Community College (BRCC) and Louisiana State University (LSU). The campers had a valuable opportunity to work hands on with university researchers and experience technology not typically available in a classroom setting. The goal of the camp was to be a fun learning experience that would excite students in science and mathematics as well as to introduce them to the world of energy.

Baton Rouge high-school teachers Jeannette Thompson and Richard Hansen, both from the Dunham School with a combined background in physics, computers, astronomy, chemistry, environmental and chemical engineering, lead the students through a unique experience. Six campers signed up as camp student leaders. These leaders received training before the camp. Each was assigned a group and facilitated the learning experience among their peers. To reflect on what
they learned, campers worked everyday on a power point presentation that summarized their experiments and presentations were made throughout the camp.

The camp started by discussing the importance of science and math in our every day lives. The campers were presented with the history of energy from the time of the big bang to the many energy transformations, the energy cycle, and the energy outlook in the world in the next 50 years. Special emphasis was made to the energy that our bodies use and the energy sources we utilize every day. Following along with this theme the students were presented with the formation, refining, and uses of crude oil. A tiller engine was used to demonstrate how a four stroke engine works.

A great variety of experiments were used to reinforce fundamental science concepts such as pressure, density, heat, temperature, phase change, and conductivity. In order to explore energy concepts they made a solar energy house, tested different type light bulbs for their energy efficiency, fabricated wind mills, distilled coke to learn the basics of fractional distillation, made a basic electric generator to study how power is generated, and explained how an electric circuit works as they made their own working “Operation” game.

A pressure cooker and a vacuum pump were used to illustrate the relationship among temperature, pressure, volume and phase change. Campers loved to see water boil at room temperature, how marshmallows grow in a vacuum, and how caramel is made from condensed milk under high temperature and pressure.
We visited the PTEC lab at BRCC and the Unit Ops lab at LSU. Students attending these schools collaborated with our campers and introduced them to how the following pieces of equipment work: a distillation column, an absorption tower, a heat exchanger, a centrifugal pump, a boiler, a three phase separator, a viscometer, a vapor liquid equilibrium still, a refrigeration system, and control room computer screens.

We toured the COGEN Power Plant, the Ice Cream Manufacturing Facility, and LaHouse; an energy efficient and disaster resistant home. On these tours, they saw examples of some of the equipment and concepts they had seen throughout the camp. Our last tour was to The PERTT lab (Petroleum Engineering Research and Energy Transfer Laboratory). We not only toured the facility but also calculated hydrostatic pressure and took an in depth look at drilling under the instruction of Dr. John Smith, a drill engineer and LSU professor.

Campers were introduced to a set of tools used in STEM careers: the power of using Wolfram Alpha, Excel, graph interpretation, how to make computer simulations, and how to program a robot.

There were several races: an egg drop competition, a typical “Well Christmas Tree” competition, to see what group extracted the greatest amount of oil at PERTT, and a competition that involved programming robots to go around obstacles. Campers also participated in a car energy race where they designed their own race cars powered either by solar cells or renewable salt water fuel cells.
The last day Shell professionals discussed energy jobs/careers with the campers and answered their questions. David Esquibel from Shell worked closely with us to make this camp a success!

Thank YOU!!!

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Link to camp fun video: https://www.dropbox.com/s/hntye5tkd3neha9/Shell%20Energy.m4v

Guest Speakers:

- Paul Thompson: Univar Geizmar, Plant Manager
- Dr. Karim Elkholy, BRCC, STEM
- Dr. Laura Younger BRCC, Science
- John Defeo ITI, Associate Dean of Education
- Earl Millard Frazier BRCC
- Dr. Tom Swain SLCC Lafayette, Professor
- Dr. John Flake LSU, Chemical Engineering
- Dr. Tony Cupit LSU, Cogen plant
- Dr. Les Butler LSU, Chemistry
- Dr. Kayanush Aryana LSU, Dairy Science
- Dr. John Smith LSU, Petroleum Engineering
It was really exciting to work in this energy venture. We knew that kids would be impacted by this camp long term but did not expect to have students walk out of the camp already making changes to their school schedule to favor math and science. Several campers and parents expressed their interest in coming back next year for the same camp or for an Energy Venture Camp level 2. Looking forward to next year as well!!

Jeannette and Richard.