Boys and Girls Club of Suffolk Science Fair
July 9, 2014

“Wisdom is not the product of schooling but of the lifelong attempt to acquire it.”
– Albert Einstein
On July 9, 2014, the first annual William & Mary Applied Research Center (ARC) Science Fair was held at the Boys & Girls Clubs of Suffolk (BGCS) located at John F. Kennedy Middle School. The science fair was developed and organized by Amy Wilkerson, Laboratory and Research Manager of William & Mary’s Applied Research Center (ARC). Instead of a traditional science fair where the students design the projects, Amy was able to coordinate with the College of William & Mary (WM), Christopher Newport University (CNU), Old Dominion University (ODU), Norfolk State University (NSU), Jefferson Lab (JLAB) and the Nansemond River Preservation Alliance (NRPA) to bring the science, technology, engineering, and mathematics (STEM) outreach displays, demonstrations, and hands-on activities to the students. Approximately 100 elementary and middle school age girls and boys were able to participate in the event, including several high school volunteers. Amy has been working with the Suffolk Boys and Girls Club as part of her “Fill the Gap” project that has been funded by an IDEA grant from the WM Office of Diversity and Equal Opportunity and a grant from the American Association of University Women. During the first part of this year, with funding from these grants, Amy, along with volunteers, was able to present Mini-Spectrometer Workshops for approximately 70 BGCS members during three different sessions. Highlights from the science fair are provided below.

**Station 1: WM Mini-Spectroscopy Demonstration:**

WM ARC staff member Brandt Robertson facilitated the mini-spectroscopy station. He provided a brief explanation about spectroscopy as the participants were given an opportunity to view the unique spectra of nine different light sources using a hand held mini-spectrometer attached to a smart phone. This allowed participants to utilize, the free software provided by PublicLab.org to analyze each light source.
Station 2: WM Fire Safety Demonstration

Bradley Meirs, WM Fire Safety Officer, provided a popular hands-on display that included fire extinguishers, smoke detectors, and a microwave oven damaged from improper use. Participants learned valuable information about how to prevent and stop fires in the home.

Station 3: ODU Photocell Demonstration:

WM ARC staff member and senior biology major at ODU, Nick Moore, demonstrated a hands-on photocell activity that included chimes and a fan. Since the demonstration was set-up indoors, a lamp was used as the light source for the photocells.

Station 4: NSU Vacuum Pump Demonstration:

NSU research associate professor Dr. Jonathan Skuza provided a vacuum pump demonstration for the participants who watched how changing the pressure inside the vacuum chamber causes objects like a marshmallow or balloon in the chamber to transform.
Station 5: CNU Spectrophotometer Demonstration:

Thomas Dushatinski, a CNU undergraduate majoring in chemistry, demonstrated his ultra-violet and visible light spectrophotometer. The spectroscopy technique is very important in the field of chemistry for differentiation of materials. The demonstration allowed for students to observe the color of the ink from pens and predict their absorbance spectra that are typically inverse of what you see.

Station 6: WM Microscope Learning Station:

Samson Worrell, a rising sophomore at Virginia Union University who is working at the ARC for the summer, demonstrated the proper use of a microscope and participants were also able to complete an instructional work sheet before viewing the samples provided.

Station 7: WM Plasma Ball:

Nick Arcand, an ARC summer intern and rising freshman at the University of West Virginia, demonstrated the plasma ball for participants. As you can see, the participants eagerly lined up to touch the ball and learn about the unique properties of plasma.
Station 8: NRPA Waterway Demonstration:

Participants received training & information about the Nansemond River and what we need to do to protect this river and other waterways in our community. A demonstration was provided showing how pollution and chemicals can enter our waterways and the techniques that are used to test water quality.

Station 9: WM Environmental, Health & Safety Demonstration:

Sandra Prior, W&M’s Director of Environmental, Health and Safety, demonstrated the Heimlich maneuver for participants along with life-saving CPR techniques and general first aid treatments. The participants definitely enjoyed the life size training aids.
Station 10 and 11: Joint JLAB/WM Activity Tables:

Abby Wilkerson, Amy’s granddaughter, and Cheryl Outland, WM-ARC summer intern and rising sophomore at Radford University, applied tattoos to the participants that took part in activities at the tables. They also assisted the participants with signing the science fair banner and completing work sheets. Participants were able to take home cups, water bottles notepads, pencils and even 3-D glasses that were donated by JLAB.

Station 12: WM Display and Information Table

Song Vick, a WM Laboratory Tech, is pictured here with our display and information table.
A special thank you goes out to our volunteers from BGCS, WM, CNU, ODU, NSU, NRPS, and JLAB that made this event possible.