Crazy about Science and Technology?

RASPBERRY PI – ARDUINO WORKSHOP FOR THE NOVICE COMPUTER USER
DAVID R. KRAEMER OF KANSAS WESLEYAN UNIVERSITY
June 8 or June 20 in salina AND July 6 or July 13 in hays 9:00-4:00
College Credit Available

This workshop will provide users with an introduction to the Raspberry Pi computer and the Arduino microcontroller. This workshop is designed for the novice computer user and no experience with either product is assumed. The Raspberry Pi is a $35, fully functional computer which runs the open-source Linux operating system. The Pi has extraordinary capabilities, including programming, photography, gaming, and multitudes of other options. It has applications that truly range from Kindergarten through high school. The Pi, along with the Arduino, is at the heart of the Maker revolution that is currently underway.

The Arduino is an inexpensive interface that is used to turn things on and off. Participants will learn the fundamentals of operating the Pi and basic interfacing with the Arduino. It can be controlled from the Pi or from the Web. This is a very fun experience and the coursework has been successfully tested on students as young as third graders. Participants will learn the fundamentals of operating the Pi, connecting the Arduino, constructing basic electrical circuits, and making stuff happen. Since workshops of this sort have no value if the participant cannot continue to work at their home institution, all participants will receive a kit of all necessary workshop components, including the Raspberry Pi Model 3, with power adapter, micro SD card, Arduino Mega, breadboard, wires, resistors, and dc motor.

CONDUCTING VERNIER MEASUREMENTS WITH THE RASPBERRY PI AND ARDUINO
DAVID R. KRAEMER OF KANSAS WESLEYAN UNIVERSITY
June 9 or June 21 in salina AND July 7 or July 14 in hays 9:00-4:00
College Credit Available

This workshop will provide participants with an introduction to taking measurements with standard Vernier instrument probes. Instead of connecting to the standard Vernier interfaces, the probes are connected to a Raspberry Pi computer and an Arduino microcontroller.   This workshop is designed for the novice computer user and no experience with either product is assumed. When connected to the Arduino, a very inexpensive instrument controller and a $17 Vernier adapter, the system is capable of conducting experiments with any of the commercially available Vernier probes. When connected to a screen, keyboard and mouse, the Raspberry Pi operates like a normal computer. It utilizes the Linux operating system instead of Windows, but it is very similar in look and feel. Once programmed, it is capable of running in the field without any peripherals. It can operate for hours under battery or solar power, making inexpensive, student-designed field experiments feasible.

Workshops of this sort are of limited value if the participant cannot continue to work at their home institution. All participants will receive a Raspberry Pi Model 3 computer, power adapter, micro SD card, Arduino and Vernier shield (adapter) included in the cost of the workshop. Participants will have Vernier instrumentation to work with for the duration of the workshop.

DOING SCIENCE: USING NEXT GEN SCIENCE STANDARDS IN 3RD-8TH GRADE
KRISTIN KRAEMER OF KANSAS WESLEYAN UNIVERSITY
June 27 in salina 9:00-3:00
College Credit Available

This workshop will explore how the pieces of the Next Generation Science Standard Framework- practices, cross cutting concepts, and disciplinary core idea- fit together and how to create or adapt activities to meet the new criteria. This is a two part workshop. In the first part, we will explore what the new standards mean, and do several example activities using the integrated framework. In the second part, participants will develop or adapt activities that can be used in their own classroom. Participants should bring their own electronic device and are encouraged to bring materials they wish to adapt.

TO REGISTER: Call 785-825-9185 or email: register@smokyhill.org