

## **BE WiSE SPAWAR Physics & Engineering Bootcamp July 27 – 30, 2009**

### **Physics and Engineering Summer Experience for BE WiSE Girls**

This four-day experience will immerse students in a research environment, with access to several laboratories and working scientists at the Pt. Loma SPAWAR campus. A variety of topics, such as physics, robotics, acoustics, electronics, radio frequency technology, and image processing, will be studied. Students will work with SPAWAR scientists, and complete projects or challenges in several areas. Students will develop a presentation highlighting their experiences and what they learn, which will be shared with SPAWAR personnel and students' family members.

### **EXPECTED STUDENT LEARNING OUTCOMES:**

- Know and describe a range of examples of research conducted at SPAWAR, and explain their importance
- Gather data using computer software and other laboratory devices
- Apply mathematics and graphing to data analysis
- Understand the conservation of energy, and use data and evidence from activities to support explanations
- Learn image processing techniques, and use these techniques to identify unknown signals
- Understand the basics of power, electronics, control systems, signal processing, and telecommunications Understand basic elements of telecommunications
- Build circuits, and design a device to accomplish a task
- Understand the uses and applications of radio frequency technology, and investigate its' applications