Sunday Academy 2016-2017

“How Good are Sunscreens” and “Light and Color”

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Objectives:
- The students will learn the basics of skin cancer and protection of sunscreens
- The students will examine how analytical techniques are applied to their daily life.
- The students will learn the basics of light properties and interaction between light and matters.

Standards covered:
9-10.2.2 Use appropriate safety equipment and precautions during investigations
9-10.2.6. Design and conduct a guided investigation
9-10.5.4 Identify the short-term and long-term effects of physical processes
9-10.6.1 Use appropriate technologies and techniques to solve a problem
9-10.8.3 Explain how individuals and groups, from different disciplines in and outside of science, contribute to science at different levels of complexity
11-12.1.1 Explain how scientists create and use models to address scientific knowledge
11-12.2.1. Understandings about Scientific Inquiry: Explain how new knowledge and methods emerge from different types of investigations and public communication among scientists
11-12.2.2. Abilities Necessary To Do Scientific Inquiry: Select and use appropriate instruments, measuring tools, and units of measure to improve scientific investigations
11-12.6.2. Technological Design: Identify examples of how new technologies advance science

Session Organization
11:00-11:15 Cultural connection and general organization
11:15-11:30 Presentation: How Good are Sunscreens
11:30-12:00 Activity 1: Detection of known concentration of oxybenzone using an UV-Vis Spectrometer
12:00-12:30 Activity 2: Analysis of sunscreen samples using the UV-Vis Spectrometer
12:30-01:10 Lunch
01:00-01:15 Presentation: Experiment with Light
01:15-01:45 Activity 3: Rainbow and prism
01:45-02:30 Activity 4: Adding colors
02:30-2:45 Activity 5: Solar cell demonstration
02:45-03:00 Wrap up and clean up