**OUR Lesson Plans**  
  
The activities will be outlined as follows (a. is for grades K-2, b. for 3-5):

1. Science (Solar)
   1. Solar Beads - Students should understand how the sun creates light and people can use that light to create energy in forms such as, solar panels.
   2. Coin Battery – Students will make and test a real battery from pennies nickels and lemon juice
2. Technology (Future Eco-Home)

a. Color your own eco home – We will review the technologies that go into an eco-home of the future, students will cut, color, and paste as they learn

b. Design your eco home – Students will get to draw and design their own eco home as they learn about efficient technologies, and what makes certain buildings efficient and others not

1. Engineering (Wind)
   1. Construct your own wind turbine – Students will learn about solar and wind technologies and then in groups get to build their own turbine from popsicle sticks and other craft supplies
   2. Construct your own anemometer – Students will learn about solar and wind technologies, and then in groups get to build an anemometer for which they will learn measurements and perform simple calculations to determine wind speeds.
2. Math (Environmental Sustainability)
   1. How much of the earth can be used? – A series of demonstrations to show what fraction of the earth’s water is accessible drinking water, and what fraction of the earth’s land is actually habitable
   2. Save or Waste? - Showing how a variety of behavioral changes that can add up to make a large difference on the community

SAMPLE LESSON PLAN – Solar Beads

**A. Solar Beads**  
- Students will learn the difference between sunlight and light bulbs.  
  
B. Learning Objectives  
- Students should understand how the sun creates light and people can use that light to create energy in forms such as, solar panels.  
- Students will learn the intensity of sunlight and how it is stronger than household light bulbs.  
  
C. Assessing Learning  
- Students will be able create a hypothesis and prove the hypothesis through testing solar beads.

D. Materials Needed  
Solar beads  
String  
Scissors   
Light bulb  
  
E. Procedure   
  
I - Introduction (5 Min)  
Asks probing question of “Why?” and/or “How?”  
  
So we hear a lot about saving energy and turning off the light, but why do you think it is so important? Do you think the sun will stay the same intensity forever? Do you think we take for granted the sun that lights our days?  
  
How does the sun directly affect you?   
  
Have you ever been burned by the sun? In history people use to bake in the summers under the hot sun. Recently people have been seeing the result of their actions by forming skin cancer. It is affecting families and as a result sunscreen has become a common item in every household. Why do you think sunscreen is important?  
  
Do you wear sunscreen?

II - Activity (15 min)   
Administered by teacher - instructional video to explain ahead of time.

1. Set out among groups of desks piles of UV beads provided in your packets.  
2. Have a class discussion on creating a hypothesis for the lab.  
Example: If the beads are exposed to artificial light than the beads will not change colors because artificial light does not contain UV rays.  
2. Fit string around each child’s wrist and cut at appropriate length or cut string to an appropriate key chain size if someone would like to make a keychain. (leave about an inch of extra length for knotting)  
3. Knot one end of the string and the students may start to put the beads onto the string.  
4. Inform the kids to leave about 2 inches of string without beads so you may knot the ends together.  
5. Have the kids hold up their bracelets to a light bulb.  
6. Takes the kids outside and have them hold their bracelets up to the sun.  
7. Go back inside and have a discussion on whether their hypothesis was correct or incorrect.  
  
III - Recap/ Quiz  
Why did the beads change under sunlight and not under a light bulb?  
Which light do you think is stronger, light bulbs or sunlight?  
  
IV- Career Spotlight  
Physicist   
Biologist/ Marine Biologist  
Chemist  
Environmentalist   
Geologist