

SECTION 1 ACTIVITIES

Activity 2: Sun-Made Art

ACTIVITY TYPE: Science-Kit Lab

OVERVIEW: Students make art pieces using energy from the sun. Solargraphics paper has been coated with two compounds that make it sunlight-sensitive. When struck by ultra-violet light, these compounds undergo a reaction creating new compounds, which changes the color of the exposed areas from blue to white. Ultra-violet light is responsible for making skin tan or red when left unprotected and overexposed to the sun.

When an exposed Solargraphics print is developed in water, the white areas (which have a chemical compound containing iron) turn blue as the iron oxidizes. The unexposed blue area is water soluble and washes away leaving the white paper showing through.

Construction paper also works for this project, though it takes a lot longer to change color (24-48 hours instead of 10-20 minutes).

GOAL: Students learn about solar energy through art.

SUBJECTS: Science and Art

TIME: 1 hour

SETTING: Outside on a sunny day.

MATERIALS: Geosafari Solargraphics paper (from science kit) or red construction paper, scissors, and various objects for making designs (e.g., leaves, paper cutouts, and nuts and bolts).

KEY VOCABULARY: Energy, light, solar energy, solar radiation, sun, and wavelength.

CORRELATIONS TO STANDARDS	
NATIONAL	Physical Science – 3d: Light interacts with matter by transmission, absorption, or scattering.
IDAHO	Science – Goal 1.2: Understand concepts and processes of evidence, models, and explanations.
OREGON	Science – Energy: Describe and explain various energy transfers and resulting transformations.
WASHINGTON	Science – Systems 1.3 Changes: Understand how interactions within and among systems cause changes in matter and energy.

ABOUT THE AUTHORS: Founded in 1998, Bonneville Environmental Foundation (BEF) is essentially a non-profit business. Through the sales and marketing of green power products (known as carbon offsets) BEF gives individuals and businesses a way to participate in solving our most pressing environmental issues. All of the net revenues, or “profits,” that the organization makes are reinvested in projects that restore damaged watersheds and support the development and understanding of renewable energy technologies such as solar, wind, and biomass.



* ACTIVITY 2: SUN-MADE ART

source: Bonneville Environmental Foundation (BEF)

Sun-Made Art

STEP 1: Students cut shapes out of white paper that they would like to transfer onto the Solargraphics or construction paper (e.g., leaf, heart, star, their initials). Students can also collect objects that they would like to place on top of the Solargraphics or construction paper (e.g., a small branch, coin, metal washer).

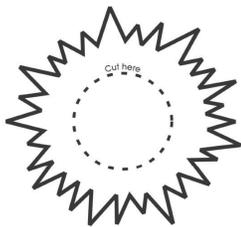
STEP 2: Have students tape their cutouts to the Solargraphics or construction paper or arrange their objects on the paper. Place the Solargraphics or construction paper in a flat, sunny place without a lot of wind (e.g., a windowsill or sidewalk). Note that Solargraphics paper reacts with the sun as soon as it is exposed, so do not leave the paper in the sun while students work on cutouts.

STEP 3: If using Solargraphics paper, remove the paper from the sun after approximated 15 minutes and then soak the paper in a shallow tub of water for 5 minutes. Once the images have darkened on the wet paper, remove the papers from the water and place them in a flat place to dry.

If using construction paper, remove it from the sun after 24-48 hours. Do not submerge in water.

STEP 4: Conclude the activity with a discussion of how the sun's energy changed the color of the paper. Discuss other things that the sunlight changes such as the color of hair and skin.

Image Ideas:



Paper Cutouts



Leaves



Nuts and Bolts