Create a Sun Print

Make your own artwork using sunlight!

Materials:

Sun print paper*, objects to make prints with (leaves, shells, feathers, small toys, shapes cut out of cardstock, etc.), index card or cardboard square, shallow container with water, paper towels. You will also need a sunny day and access to outside. *Optional:* clear picture frame or piece of plexiglass.

*Sun print paper can be ordered at www.sunprints.org. You can also use a dark shade of construction paper (leave it in the sun for 4-6 hours, and do not rinse with water).

Instructions:

Step 1: Gather objects to make your artwork. Small and flat items work best.

Step 2: Arrange your objects on the index card or cardboard square. Once you have decided on a design, transfer your objects to the sun print paper (blue side up). *Hint:* Work in a shaded area, as direct sunlight will expose the sun print paper too quickly.

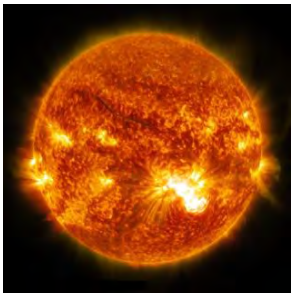
Step 3: *Optional:* Place a clear picture frame or piece of plexiglass over your art. This will help keep the objects from moving. If your objects are heavy enough to stay in place by themselves, you can skip this step.

Step 4: Take your art outside. Leave it in bright sun for five to ten minutes, until most of the color disappears from the paper. The sunnier it is, the less time it will take. If it is partly cloudy, leave the paper outside for longer.

Step 5: Rinse your paper in the pan of water for one minute, until it turns dark blue. Lay the paper flat on paper towels to dry, and admire your artwork!

How Do Sun Prints Work?

Sun prints are a kind of *cyanotype*; a process that uses sunlight to develop images.



The Sun emits energy in a range of wavelengths, from very short waves like gamma and X-rays to very long waves such as radio waves. Visible light is in the middle, and ultraviolet light is on the shorter end.

Left: The Sun's surface. Image: NASA/SDO.

Sun prints use paper coated with chemicals sensitive to *ultraviolet* light. When the paper is exposed to ultraviolet light, two molecules react and form a new colorless molecule. Areas of the paper covered by objects don't react, so they remain blue.

Rinsing the paper in water washes away the original blue compound, turning those areas of the paper white. At the same time, the water reacts with the colorless molecule and turns a deep blue. These two reactions form a sun print!

Delesseria alata by Anna Atkins. Image: New York Public Library.

Astronomer John Herschel discovered a procedure to make cyanotypes in 1842. He used the process to make copies of his notes. A year later, the botanist Anna Atkins used the cyanotype process to make prints of algae and seaweed, and published them in her book *Photographs of British Algae: Cyanotype Impressions*. It is recognized as one of the first books to be illustrated with photographic images, and Atkins is considered one of the first female photographers.

Discover more about Anna Atkins:

www.sciencefriday.com/articles/botanicals-blue-victorian-womans-take-algae/

Today, artists all over the world carry on the cyanotype tradition. See examples by botanist and curator Steffi Ickert-Bond: www.frontierbotany.info/botanical-art/

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