



Solstice Markers and Sun Clocks

Prehistoric humans living in what is now Petrified Forest NP were great astronomers. They kept an eye on the movements of the stars throughout the year and recognized which star positions corresponded to changes in the seasons.

Many petroglyphs throughout the Southwestern US are winter or summer solstice markers. They are symbols carved into the stone that show the location of a light event occurring when the sun reaches its highest or lowest altitude in the sky.

The summer solstice petroglyph at Puerco Pueblo (shown below) is a small spiral with a beam of light hitting its center. This would have told people that the rains were starting soon because the summer solstice occurs a few weeks before the AZ monsoon season. This is an important thing to know if you are a farmer which the ancestral Puebloans were. Someone sure was paying attention!

You don't have to wait for a solstice event to create something fun with the movement of the sun.

Use this activity to make your own sun clock that tells time using just a few household items on a bright sunny day.



Puerco Pueblo
summer solstice marker

What you need:

- sunshine!
- a new but sharpened pencil
- paper plate
- marker
- toothpicks
- ruler



Step 1:

Begin this activity about 10 minutes before noon. Place your plate up-side down on a flat surface. Using the sharpened end of your pencil punch a hole into the center of the plate. With your marker write the number twelve on the edge the plate then take your ruler and draw a line from the hole to the number 12.

Step 2:

At noon take your paper plate outside and place it on a soft patch of grass or dirt in an open area. Set the pencil in the hole in the plate. Lean the pencil slightly towards the edge of the plate and push the pencil into the ground.

Step 3:

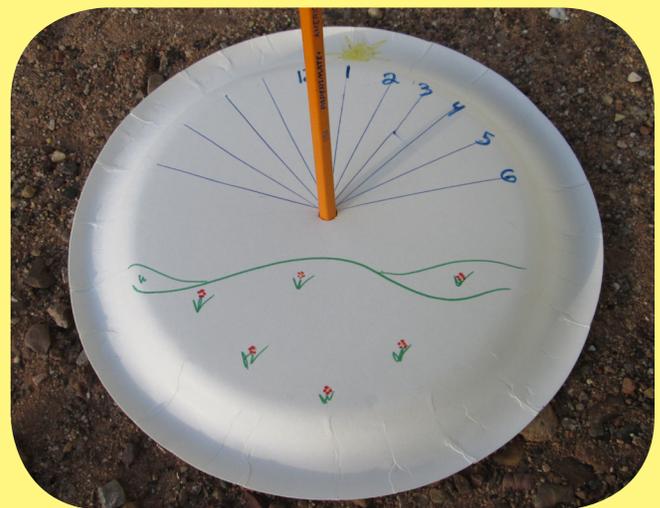
Turn the plate until the pencil's shadow is on top of the line you drew. Push the toothpicks through the edges of the plate into the ground to keep it from spinning.

Step 4:

Where do you think the pencil's shadow will be in one hour? Leave the plate and come back at one o'clock. Write the number 1 on the edge of the plate where the pencil's shadow is now. Repeat this until 6pm marking the next number at the location of the pencil's shadow after each hour has passed.

Step 5:

Since you won't have a sun shadow at night you can mark the other half of the clock by mirroring the lines you've drawn onto the other side of the plate. You can even draw pictures on your clock for added decoration.



Now you have a sun clock! You can use this clock on sunny days to tell time by where the pencil's shadow falls. Just remember not to move the plate or your clock will be wrong.