

Paper Plate Education

"Serving the Universe on a Paper Plate"

Activity: Sub-Solar Cup



This and several other activities from the *Paper Plate Astronomy* videotape and DVD are now available online as [free streaming video!](#)

Throughout the year, this simple device will indicate where on the Earth the sun is currently overhead. See the [Analemma](#) activity to plot a figure-8 analemma (right) on a globe using the Sub-Solar Cup.



Drill a small hole out of the bottom of a dark plastic cup. On the top of the cup secure two pieces of thread to make a set of cross hairs. Cut out a viewing window on the side of the cup.



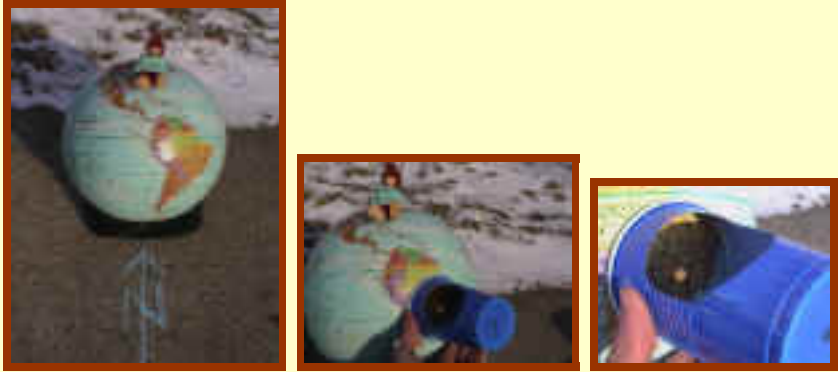
Secure the globe on its side so that a figure standing at the observer's location is upright on the globe. That is, a tangent at the observer's location is parallel to the ground. Align the figure's line of longitude on the globe with your north-south meridian.



Position the cup upside down on the globe so that sunlight goes through the small hole and is centered over the cross hairs. That location is the current sub-solar point.



View the location of the sun at local noon throughout the year to track the [sun's annual migration](#) between the tropics.



This activity, contributed with original reference by Gary Tomlinson, is an adaptation of an activity written by Robert Mitchell. See *The Physics Teacher*, May 1991, pp. 318-319.

GLPA Proceedings, 1999, pp. 36-36.

[Note: This activity is included in the [Paper Plate Astronomy video/DVD/streaming video.](#)]

[Home](#)

[Activities!](#)

[Site Map](#)

[Light Pollution](#)

[What's New?](#)

[Upcoming Events](#)

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