

## Solar Modules – Determining True South

There are three ways to determine which way is true south.

### Google Earth

You can use [Google Earth](#) to zero in on your house and find true south. This requires downloading a small program from the Google Earth site. Place the item you want to determine the direction of right in the center of the display, as the angles change as you pan around. In the "View" drop-down menu, selecting "Grid" will display a latitude-longitude grid in which the grid lines run in the north-south and east-west directions.

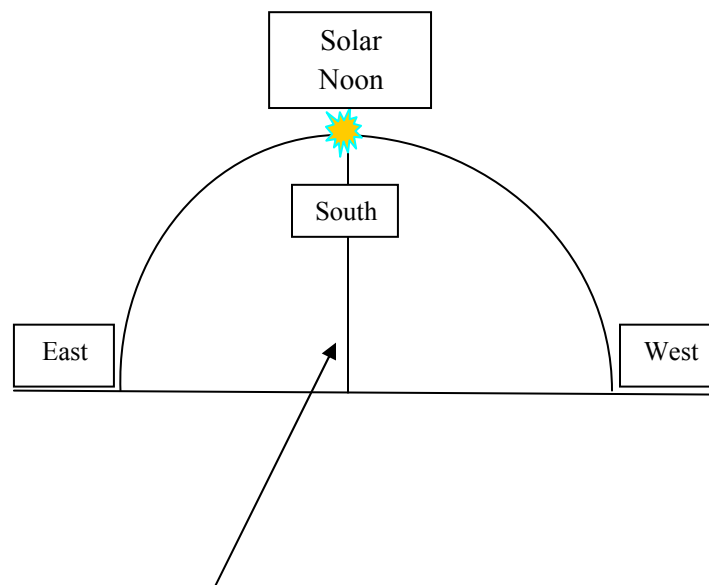
### Solar Noon Method

This method uses the fact that the sun is always true south at solar noon. A shadow cast by a vertical object at solar noon runs true north-south. So, at solar noon, use the shadow cast by a plumb-bob string or the vertical edge of a building to determine true south.

To determine the local time that corresponds to solar noon, find the sunrise and sunset times from a current local paper (where "local" and "current" are both important!). Most GPS units will also give the times for sunset and sunrise -- just make sure the GPS is set to your time zone. Solar noon is exactly half way between the sunrise and sunset time. Note that the difference between local time noon and solar noon can be quite a bit, depending on your location in the time zone, and daylight saving time.

You can also use this NOAA solar time calculator to find the local time for solar noon at your location:

<http://www.srrb.noaa.gov/highlights/sunrise/sunrise.html>



This [Print Solar Noon Calendar](#) prints out solar noon for your exact location for the entire year.

### **Compass Method**

You can use a magnetic compass to find south. The compass reading must be corrected for the magnetic declination in your area. Magnetic declination is the difference (in degrees) between the direction the compass needle points and true north. Magnetic Declination depends on your location. You can look up the declination for your area at:

<http://www.ngdc.noaa.gov/seg/geomag/jsp/Declination.jsp>. Some compasses allow the declination to be set. If yours does, then just set your local declination and you are good to go. If not, then on each compass reading, you must offset the compass needle from the true north mark on the compass by the declination angle. For example, if you live in Bozeman, MT your declination is about 14 degrees east. To take a true compass bearing, rotate the compass until the needle points 14 degrees east of north on the compass bearing scale. If your declination were 14 degrees west, you would rotate the compass until the needle was 14 degrees west of north on the bearing scale (it would point to  $360 - 14 = 346$ ).

### **Tax Assessor Maps**

In some areas, tax assessors offer downloadable maps of your property that show true south.