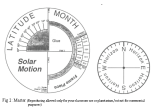
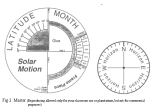


Solar Motion Demonstrator Introduction



You are going to make a remarkable device that accurately models the motion of the Sun as seen from any place in the Northern Hemisphere, at any time of the year. This device was designed by Professor Joseph L Snider of Oberlin College. He has given permission to reproduce his creation for students to use and understand solar motion in relationship to the earth observation.

New terms:
Horizon is a huge, imaginary circle centered on the observer, equidistant from the zenith.
Zenith – point straight overhead
Angular Height - the angle between your line of sight to a point on the horizon directly beneath the Sun and your line of sight to the Sun.
Azimuth is an angle used to define the apparent position of an object in the sky, relative to a specific observation point. 0° (north), 90° (east), 180° (south), 270° (west), and 360° (north again)

Parts of the Solar Motion Demonstrator (SMD):
Solar Motion Frame: Blue frame represents the sky (contains latitude and months)
The swinging "**Month**" arm of the Frame has two functions:

1. Setting the Sun marker at the desired month adjusts for the time of the year.
2. Swinging it from one side to the other (preferably East to West) moves the Sun in its apparent daily path over the Earth.

The "**Latitude**" part of the Frame is used to adjust the Horizon Disk to set the imaginary observer at any latitude from the Equator (0°) to the North Pole (90°).
Horizon disc: green disc located in center of SMD – represents the surface of the earth
Day - above the green disc; **night** - below the green disc
Observer: - black dot on the green horizon disc (represents **you** standing on earth).
Sun: represented by the **brass head** of the paper fastener

Other Latitudes Needed for this Activity:

Tropic of Cancer: 23.5° N	Arctic Circle: 66.5° N	North Pole 90° N
Agoura Hills, CA: 34° N	Stonehenge: 51° N	Equator 0°

To use the Solar Motion Demonstrator:

1. Pivot the Horizon Disk along the North-South axis so that the right hand side of the disk moves away from you through 90 degrees.
2. Line up the slot in the Horizon Disk with the edge of the Frame where it is labeled "Latitude."
3. Slip the slot in the Horizon Disk over the Frame and align it with the latitude of your location (or one you may be interested in). The Horizon Disk must be perpendicular to the latitude part of the Frame.
4. Next, slide the "Sun" along the outer rim of the Frame to the appropriate month.

The edge of the Horizon Disk represents the visible horizon for some imaginary person standing at the black dot in the center of the disk. To see the path the Sun makes across the sky for that particular latitude and time of year, swing the month portion of the Frame completely from the "East" to the "West" as marked on the Horizon Disk.