The Ecliptic

The best way to understand the night sky is through the classical idea of the ecliptic. Earth and the visible planets orbit the Sun in nearly the same plane (the ecliptic plane), and the Moon orbits the Earth in close to the same plane. So we see the Sun, Moon, and planets in nearly one line across the sky (the ecliptic). As the Earth rotates daily, the celestial sphere appears to rotate, and the Sun, Moon, and planets rise and set in sequence along the ecliptic. From the perspective of Earth, the Sun and the visible planets appear to move slowly along the ecliptic through the Zodiac constellations that divide it, with the planets' sequence and apparent motion changing based on where they are in their orbits. Uranus and Neptune are also on the ecliptic, but are not visible to the unaided eye, so the are not shown here.

Solstice = "Sun Stationary"

The Northern Hemisphere's Summer Solstice occurs June 21st when the North Pole is most titled toward the Sun in the Earth's orbit. The Sun at noon has been rising higher in the sky since the Winter Solstice and the rise gradually comes to a stop on the Summer Solstice before falling again. Sunrises and sunsets stop being further to the Northeast and Northwest and slowly begin shifting back toward the Southeast and Southwest.

Winter Solstice

Sun rises in the Southeast and sets in the Southwest. The shortest day of the year.

Spring Equinox March 20

Sun rises due East and sets due West 12 hours later. Days keep lengthening.

Summer Solstice

Sun rises in the Northeast and sets in the Northwest. The longest day of the year.

Autumn Equinox

Sun rises due East and sets due West 12 hours later. The days keep shortening.

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Star finder, celestial sphere, pinpoint planetarium

Globetarium.com

Sun and visible planet positions on June 21, 2019

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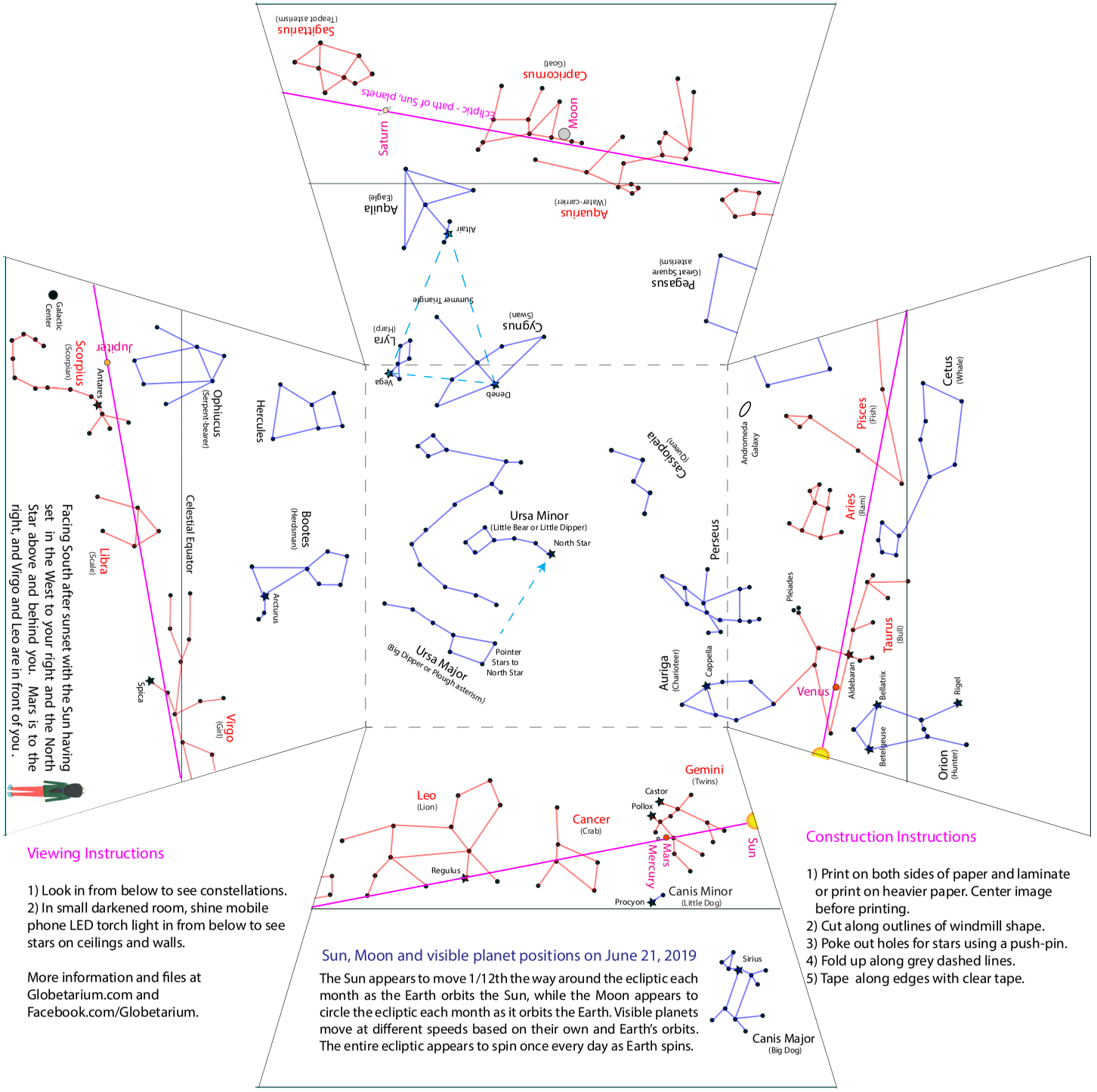

Facing South after sunset with the Sun having set in the West to your right and the North Star above and behind you. Mars is to the right, and Virgo and Leo are in front of you.

Viewing Instructions

1) Look in from below to see constellations.
2) In small darkened room, shine mobile phone LED torch light in from below to see stars on ceilings and walls.

More information and files at Globetarium.com and Facebook.com/Globetarium.

Sun, Moon and visible planet positions on June 21, 2019

The Sun appears to move 1/12th the way around the ecliptic each month as the Earth orbits the Sun, while the Moon appears to circle the ecliptic each month as it orbits the Earth. Visible planets move at different speeds based on their own and Earth's orbits. The entire ecliptic appears to spin once every day as Earth spins.

Construction Instructions

1) Print on both sides of paper and laminate or print on heavier paper. Center image before printing.
2) Cut along outlines of windmill shape.
3) Poke out holes for stars using a push-pin.
4) Fold up along grey dashed lines.
5) Tape along edges with clear tape.