

Construction Instructions

- 1) Poke out holes for stars using a push-pin.
- 2) Fold up along dashed lines.
- 3) Tape together edges with clear tape.

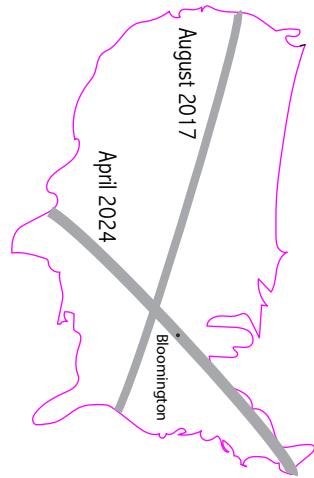
Viewing Instructions

- 1) Look in from below to see constellations.
- 2) In a small darkened room, shine cellphone light in from below to see stars on ceilings and walls.

Selected constellations, asterisms, and bright stars shown. Sun, Moon, and planets not to scale.

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America's next total solar eclipse is coming to Bloomington!



The best way to understand the night sky is through the classical idea of the ecliptic. Earth and the 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 move slowly along the ecliptic through the Zodiac constellations that divide it, with the planets' sequence and apparent motions changing based on where they are in their orbits. Due to the Earth's tilt, the ecliptic is tilted and the Sun crosses the celestial equator during Spring and Fall equinoxes in its annual cycle.

The Ecliptic

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Frustarium

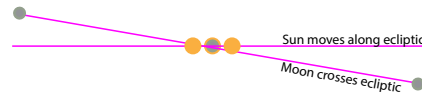
Frustum-shaped star finder,
celestial sphere, pinpoint planetarium

Facebook.com/Globetarium

Science Fest

October 21, 2017
Kirkwood Observatory

As the Moon orbits the Earth, each month it passes between the Sun and Earth (new moon), and each month it also crosses the ecliptic plane. When both happen at the same time, the Moon is exactly between the Earth and Sun so a solar eclipse may be seen. The Sun's diameter is 400 times that of the Moon, but the Sun is 400 times further away than the Moon, so they appear to be about the same size. In a total solar eclipse some planets and stars can be seen in the daytime sky. During the August 21, 2017 eclipse, Mercury, Venus, Mars, and Jupiter could be seen. During the April 8, 2024 eclipse, Mercury, Venus and Jupiter will be visible.



The Sun and the visible planets are in the same plane as Earth, so they are in the same "ecliptic" line across the sky when viewed from Earth. Planets to the Sun's East are visible after sunset, and planets to the Sun's West are visible before sunrise.

