



Frustum-shaped star finder, celestial sphere, pinpoint planetarium

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Birthday Edition

Harry Potter

Frustarium

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.

Never look at the sun except through eclipse glasses.

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

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The Ecliptic

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 rise and set in sequence along the ecliptic. The Sun and planets move slowly along the ecliptic through the Zodiac constellations that divide it, with their sequence and apparent motion 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.