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Why do the Sun and Moon look the same size?
Although the Sun is much larger than the Moon, they appear to be about the same size in the sky because the Sun is also much more distant. During a solar eclipse if the Moon is relatively slightly closer the Moon blocks the Sun entirely (total eclipse on April 8) and if the Moon is relatively slightly further away it leaves a ring of the Sun uncovered (annular eclipse this past October).
During a Solar Eclipse the Moon blocks the Sun in a small region that moves across Earth
About 300X closer
About 300X larger diameter
Sun and visible planet positions in the Zodiac as seen from Earth's orbit in the Ecliptic Plane
Leo
Cancer
Gemini
Taurus
Aries
Pisces
Aquarius
Capricorn
Sagittarius
Scorpio
Libra
Virgo
Sky During Total Eclipse
April 8, 2024 starting 3:08 pm
After the partial eclipse starts around 2 pm from the right side of the Sun, the Moon will totally obscure the Sun in Indianapolis starting at about 3:06 pm for several minutes. During the eclipse Venus and Jupiter, and maybe Mercury, Mars, and Saturn, will appear along the ecliptic.
Looking West
Looking South
Looking East
The Ecliptic - path of Sun, Moon, and planets across sky
Mercury
Moon
Sun
Venus
Jupiter
Saturn
Mars
Why are the Sun, Moon, and Planets in a line?
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 one rough line across the night sky (the ecliptic). A solar eclipse occurs when the Moon passes in front of the Sun along the ecliptic. In the path of totality the Sun is completely obscured and the sky turns dark.
Ecliptic
Sun,Moon
Venus Saturn Mars
Mercury
Jupiter
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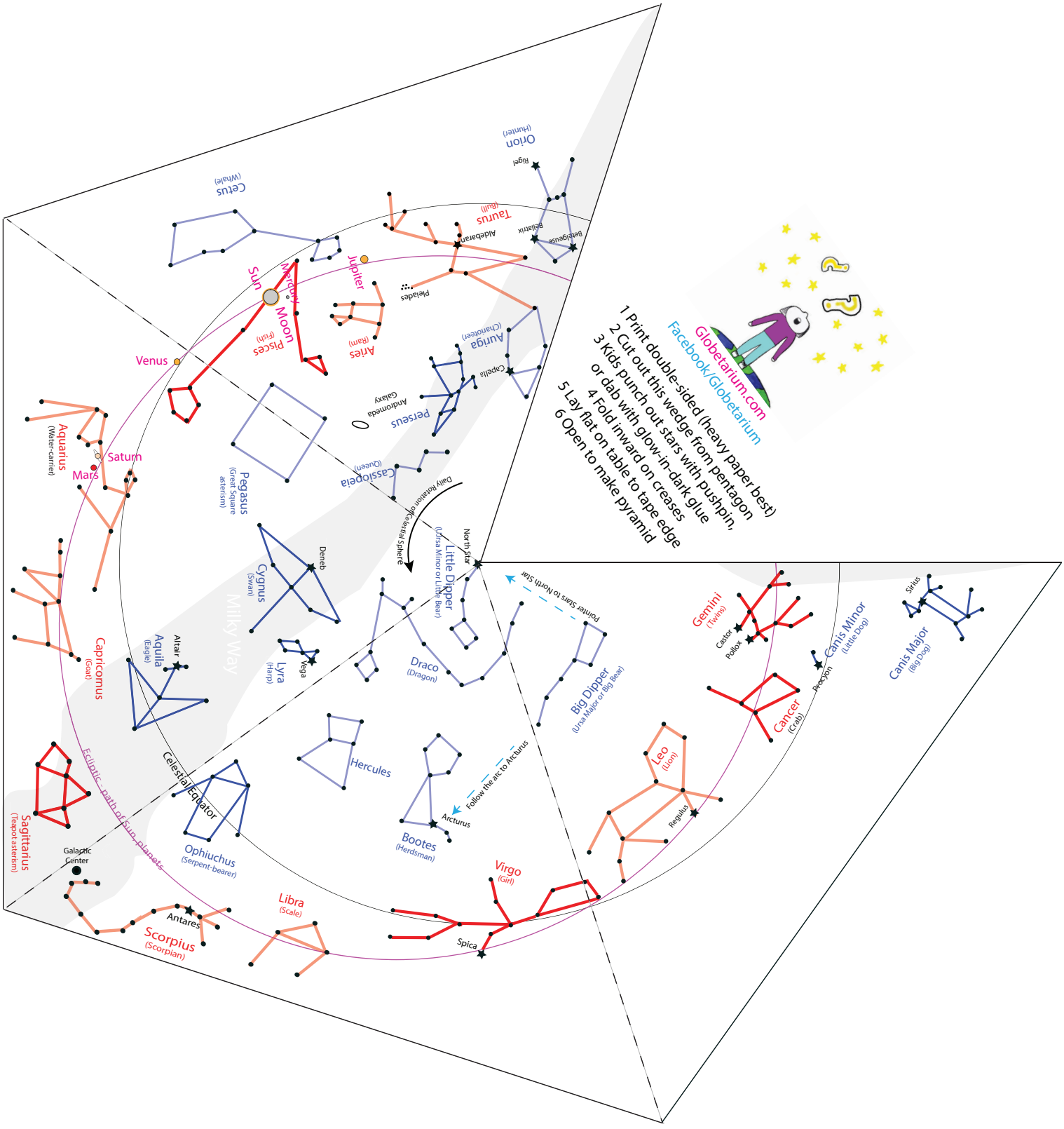
Total Eclipse April 8, 2024!
The solar eclipse will completely block the Sun for over four minutes on the Totality Path. Each month the Moon passes between the Sun and Earth (New Moon), and each month it crosses the ecliptic plane twice. When it crosses during a New Moon, the Moon is exactly between the Earth and Sun so it eclipses the Sun.
April 8, 2024
Totality Path
Dallas
Austin
San Antonio
Little Rock
Indianapolis
Bloomington
Detroit
Toronto
Cleveland
Cincinnati
Buffalo
Rochester
Burlington
Montreal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1 Print double-sided (heavy paper best)
2 Cut out this wedge from pentagon
3 Kids punch out stars with pushpin,
or dab with glow-in-dark glue
4 Fold inward on creases
5 Lay flat on table to tape edge
6 Open to make pyramid
Cetus (Whale)
Orion (Hunter)
Rigel
Taurus (Bull)
Aldebaran
Bellatrix
Betelgeuse
Pleiades
Sun
Mercury
Moon
Jupiter
Pisces (Fish)
Aries (Ram)
Venus
Auriga (Charioteer)
Capella
Perseus
Andromeda Galaxy
Cassiopeia (Queen)
Aquarius (Water-carrier)
Saturn
Mars
Pegasus (Great Square asterism)
Daily Rotation of Celestial Sphere
North Star
Little Dipper (Ursa Minor or Little Bear)
Pointer Stars to North Star
Deneb
Cygnus (Swan)
Milky Way
Capricornus (Goat)
Altair
Aquila (Eagle)
Lyra (Harp)
Vega
Draco (Dragon)
Big Dipper (Ursa Major or Big Bear)
Gemini (Twins)
Castor
Pollox
Canis Minor (Little Dog)
Procyon
Sirius
Canis Major (Big Dog)
Cancer (Crab)
Leo (Lion)
Regulus
Hercules
Follow the arc to Arcturus
Arcturus
Bootes (Herdsman)
Ecliptic - path of sun, planets
Celestial Equator
Ophiuchus (Serpent-bearer)
Sagittarius (Teapot asterism)
Galactic Center
Antares
Scorpius (Scorpian)
Libra (Scale)
Virgo (Girl)
Spica