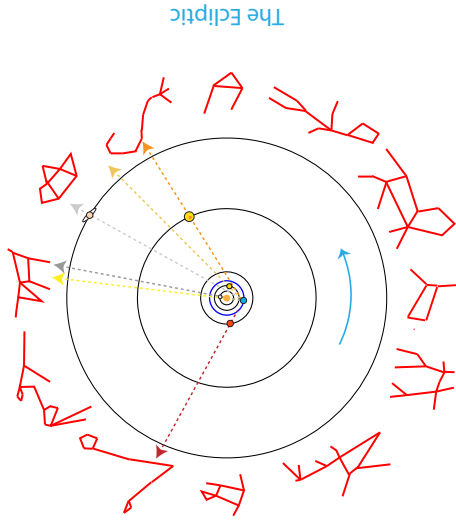


The best way to understand the night sky is through the classical idea of the ecliptic. Earth and the visible planets orbit the Sun in nearly the same plane (the ecliptic plane), and the Moon orbits the Earth in close to the same plane. So we see the Sun, Moon, and planets in nearly one line across the 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 they are not shown here.



The Ecliptic

Constellations

Constellations are groups of stars in memorable shapes that divide up the sky in regions. The modern system is based on ancient Babylonian and Greek constellations. Most important are the 12 Zodiac constellations (mostly animals - hence the "zoo" of Zodiac) that divide up the ecliptic path of the sun and planets into 12 segments of 30 degrees each. The Zodiac "signs" traditionally reflect the constellation that the sun is in during that month, but due to Earth's 22,000-year wobble cycle the Zodiac is now out of sync by about a month. The imaginary lines connecting stars into constellations are not always very evocative of the constellation names, so the famous children's illustrator H.A. Rey ("Curious George") redrew them in the 1950s and many of his versions are now standard.

February 2019 Night Sky Highlights

February 4: New Moon. The Moon in its monthly orbit around Earth will be between the Earth and the Sun and so it will set with the Sun and not be in the night sky. It will be near the Sun in the daytime sky, but it will not be visible in the Sun's glare. It will be slightly below the ecliptic plane so it will not block the Sun. Traditionally "New Moon" meant the slight Crescent Moon that is visible just after sunset a few days later.

February 19: Full Moon, Supermoon. The Moon will be opposite the Sun and so will it appear as a full disk and will reflect the most light back on Earth. Since it is opposite the Sun, as the Earth spins the Full Moon rises just as the Sun sets, and it sets just as the Sun rises. The Moon will be near its perigee, so it will be a few percent closer than usual and will appear a little larger than usual.

Sun and visible planet positions
on February 2, 2019

