The Seasons



June 21

The Seasons		
Summer	Hemisphere pointed more directly toward the Sun	
Winter	Hemisphere pointed more away from the Sun	
Vernal Equinox	March 21 (northern spring begins). Sun directly over equator at noon. "equinox" means "equal night"	
Summer Solstice	June 21 (northern summer begins). Sun reaches 23.4° latitude overhead (Tropic of Cancer). "solstice" means "the Sun stands still"	
Autumnal Equinox	September 23 (northern autumn begins). Sun passes equator again (headed down).	
Winter Solstice	December 21 (northern winter begins). Sun reaches -23.4° latitude (Tropic of Capricorn).	

Note: Seasonal temperature extremes do not occur at the same time as positional extremes due to *seasonal lag*, the month or two that it takes Earth's water to freeze or thaw.

The Seasons and Planetary Phenomena





Planetary Phenomena		
Eastern elongation	Evening star (evening sky after sunset)	
Westerly elongation	Morning star (rises before the Sun in the night)	
Retrograde motion	Inner planet passes Earth or Earth passes outer planet. Normal (eastward) motion stops and begins to move westward.	
Conjunction	Superior planet on far side of Sun	
Inferior Conjunction	Inferior planet between Earth and Sun	
Superior Conjunction	Inferior planet on far side of Sun	
Opposition	Superior planet behind Earth in line with Sun	
Greatest Eastern Elongation	Inferior planet's greatest angular distance East of the Sun	
Greatest Western Elongation	Inferior planet's greatest angular distance West of the Sun	

Note: the best time to view *inferior* planets is at sunset and sunrise. The best time to view *superior* planets is at opposition; visible all night, roughly closest to Earth, nearly completely illuminated.