

Name: key

* Noontime sun in NY is always south (W.S. - Season's Review The sun's change by 23.5° each season!)

Fill in the table below. Some answers may require a range of latitudes. Compass directions may be abbreviated (N, S, E, W, NE, etc...).

SEASON in New York State	DATE when season begins in NY	Latitude of the Sun's vertical ray at noon (90°)	Length of day in NY (shortest / longest / even)	Length of night in NY (shortest / longest / even)	Latitude(s) on Earth where there is 24 hours of day	Latitude(s) on Earth where there is 24 hours of night
Winter	Dec 21	23.5° S	Shortest (9)	Longest (15)	90° S (pole)	90° N
Summer	June 21	23.5° N	Longest (15)	Shortest (9)	90° N (pole)	90° S
Spring	March 21 st	0°	12 / even	12 / even	—	—
Fall	Sept 21-23 rd	0°	12 / even	12 / even	—	—

NOT on winter astronomy final! \downarrow ~~↓~~ ↓ solar intensity (angle)

SEASON in New York State	Location of sunrise in NY	Location of sunset in NY	Length of Shadow in NY (longest or shortest)	Insolation* in NY (greatest or least)	Direction of shadow at sunrise in NY	Direction of shadow at noon in NY	Direction of shadow at sunset in NY
Winter	SE	SW	longest	least	NW	N	NE
Summer	NE	NW	shortest	greatest	SW	N	SE
Spring	E	W	moderate	mod.	W	N	E
Fall	E	W	moderate	mod.	W	N	E

*insolation refers to "incoming-solar-radiation," or the amount of the Sun's energy that reaches the Earth's surface

