Aim: Describe What Causes the Seasons.

Video: Rotation/Revolution

Coriolis Effect / Foucault Pendulum = Proof Earth Rotates

Spring Equinox  Direct Sun @ Equator
March 21

Summer Solstice
June 21

Direct Sun @ Tropic Cancer 23.5° N

Fall/Autumn Equinox
Sept. 23

Direct Sun @ Equator
Equinox

Winter Solstice
Dec. 21

Winter
N hem tilts away from Sun

N. hem tilts to sun

Direct Sun @ Tropic Capricorn 23.5° S

What Causes the Seasons?

1. Earth's Axis is Tilted 23.5°
   this is why the Tropics are located at 23.5° N/S

2. Parallellism of Earth's Axis.
   Earth's N. Pole always points to Polaris!

φ  φ  φ

Polaris
Each Season:

**Summer Solstice**

June 21

Direct Sun @ Tropic Cancer 23.5°N
N. hemi tilted towards the Sun.
Arctic Circle = 24 hrs daylight ~ N. Pole
Antarctic Circle = 24 hrs darkness ~ S. Pole

40°N NY = 15 hrs daylight
0° Equator = 12 hrs daylight
40°S NZ = 9 hrs daylight
Winter Solstice
Dec. 21
N. Pole
N. Pole View
Sun
23.5° N
0°
23.5° S

S. Pole
N. Pole = 0 hr day
S. Pole = 24 hr day
Equator = 12 hr day
41°N = 9 hr day
41°S = 15 hr day

Direct Ray @ Tropic Capricorn
B/c S. Pole tilted toward Sun

N. Pole = 24 hr darkness

Equinox March 21 | Sept. 23
N. Pole = 12 hr day
S. Pole = 12 hr day
Equator = 12 hr day
41°N = 12 hr day
41°S = 12 hr day

Direct Rays
Sun

EQUAL day/night
Why is the Sun always to the **SOUTH** in NYS?

From NYS (~41°N) you must always look **Southward** to see the Sun.

* It is **NEVER** **DIRECTLY** overhead in NYS! *