- I can describe what duration of insolation depends on
- I can name the # of hours of daylight for NY & the North Pole on the first day of all seasons
- I can explain how clouds affect insolation
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- I can explain insolation temperature lag

What Factors Affect Insolation?

- Angle of Insolation
- Duration of Insolation
- Surface Characteristics
- Weather – Clouds

Don't Write

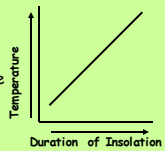
Duration of Insolation

- The # of hours of sunlight received by an area
  - Depends on the latitude & season

Biggest variation – 24 hrs of daylight or darkness

North Pole in the Summer

Temp. varies directly w/ duration. As the length of day increases, temperature increases



- In NYS
  - Dec 21st – 9 hours of day light
  - June 21st – 15 hrs of day light

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Duration of Insolation & the Seasons

- Summer Solstice
  - June 21st
  - NY – 15 hours day light
  - N. Pole – 24 hours of day light

- Equinox
  - March 21st & Sep. 23rd
    - Sun's rays are vertical at the Equator
    - Equal day & night (12 hours)

- Winter Solstice
  - Dec 21st
  - NY – 9 hours of day light
  - N. Pole – 0 hours of day light

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Clouds affect on Insolation

They block insolation during the day & trap heat at night

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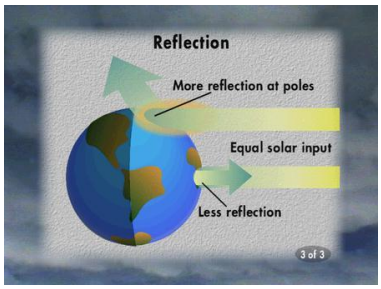

Why is there more reflection at the Poles?

1. Snow & Ice
2. Low angle of insolation
3. Sunlight has to travel a longer distance through Earth's atmosphere when low in the sky

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Something to think about…

- What time of day is it the hottest?
  - Between 2-4 pm
- What time of day is the sun the highest in the sky?
  - Solar Noon
- Why are they different times?

DON'T WRITE!

DON'T WRITE!

Max. intensity of insolation for NY = June 21st

Maximum temperatures for NY = Late July/Early August

WHY?

The Earth is still absorbing more energy than it's radiating!

DON'T WRITE!

Minimum intensity of insolation for NY = December 21st

Minimum temperatures for NY = Late January/Early February

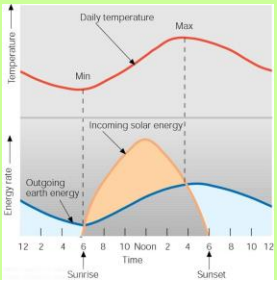
WHY?

The Earth is losing more energy than it's absorbing!

Insolation Temperature Lag

- Insolation is maximum at noon.
- Next 2-3 hours, the ground still absorbs more energy than it radiates.
  - temperature continues to rise

When insolation = radiation, max temp is reached.



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