

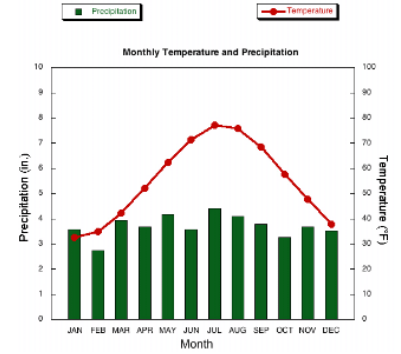
Lesson: Climates Notes 1

I Can.../Main Ideas

Notes

Climate: the _____ view of a region's _____ conditions over a _____ period of time

A _____ shows the average monthly _____ & _____ for a location



^ NYC climograph

I can name the two properties that determine an areas climate

The two main factors that determine climate are

- _____
- _____

I can explain Annual Temperature Range

Annual Temperature Range - _____ between average _____ of the _____ month & the _____ month

I can contrast Arid & Humid

Arid or _____ when

- _____ is _____ than needed

Humid or _____ when

- _____ is _____ than needed

** Need = _____ evapotranspiration **

The Factors that Influence Climate are

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

I can describe how latitude effects temperature & moisture

Temperature varies at different latitudes because of the _____ of _____ of sunlight

High Latitudes (_____)

- Maximum angle of the sun is _____
- Average temperature is _____

Low Latitudes (_____)

- Maximum angle of the sun is _____
- Average temperature is _____

Southern Hemisphere _____ are _____.

(ESRT pg _____)

Moisture varies because of _____ and _____

Low Pressure - _____

High Pressure - _____

Lesson: Climate Notes 2

I Can.../Main Ideas

I can how distance from water affects climate

Notes

Lake, ocean, seas _____ climate patterns

- Water take time to _____ up and _____ down because it has a _____

I can contrast Marine & Continental climates

Marine Climate - _____ summers & _____

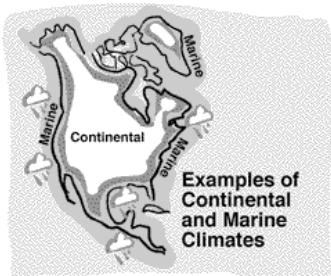
winters

- _____ annual temperature range

Continental Climate - _____ summers & _____

winters

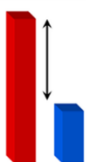
- _____ annual temperature range



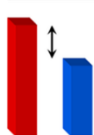
Range:

The difference between the HIGHEST value and LOWEST value for a set of data

Inland Areas

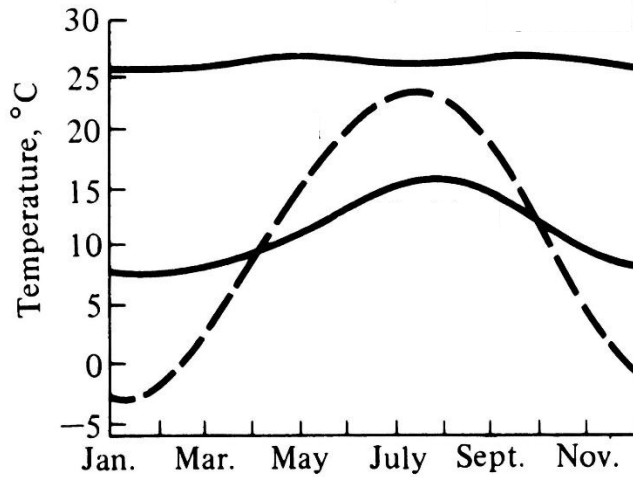


Coastal Areas



LABEL the temperature graph with

- Equatorial
- Continental
- Maritime



I can explain how ocean currents affect climate

Currents flowing away from the equator carry _____ water to _____ latitudes.

- Causes _____ climate and _____ precipitation

Currents flowing toward the equator carry _____ water to _____ latitudes.

- Causes _____ climates with _____ precipitation

I can use the Planetary Wind chart in ESRT pg _____

U.S. is located in the prevailing _____ wind belt

- weather moves to the _____

California has more of a _____ climate because prevailing winds are _____ from the coast

Monsoons

Weather changes caused by the shifting of _____

- Causing _____ summers & _____ winters in Asia

I can explain El Niño & La Niña

El Niño - periods of ocean _____ along the _____ coast of South America

La Niña - periods of ocean _____ along the _____ coast of South America

Lesson: Climate Notes 3

I Can.../Main Ideas

I can explain elevations effects on temperature & precipitation

I can contrast the windward & leeward side of a mountain

Notes

As elevation _____ the air becomes _____
_____ and _____

- Less dense air _____ hold as much _____

So as elevation increases, the temperature _____

As elevation increases the amount of _____ the air can hold _____

The air reaches its _____

_____ forms clouds

_____ starts to fall

There are two sides to a mountain range

_____ - the side that faces oncoming _____

_____ or _____ fall on this side

_____ temperatures

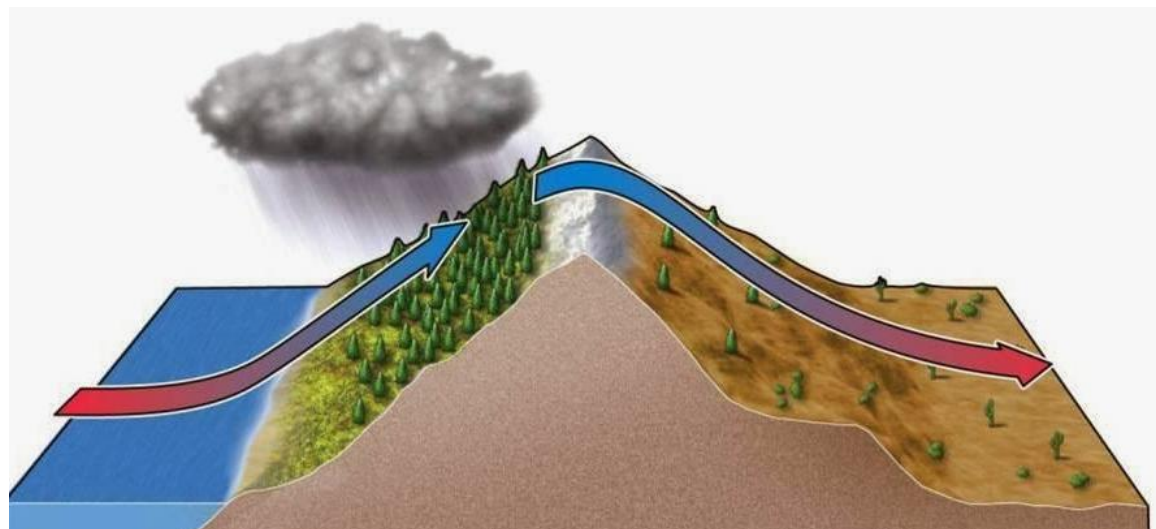
_____ - the downside of the mountain

_____ sometimes called the _____

Often times you will find a _____ located here

Label the picture using the terms

- Windward
- Leeward
- Wet & cool
- Dry & warm
- Rain shadow
- Condensation
- Prevailing winds



I can describe vegetation's effects on temperature

When forests are cut down, _____, more _____ occurs

Without the trees to _____ the solar energy from the sun the energy _____ the land, which than _____ the _____

I can explain how clouds effect temperature during the day & night

The _____ clouds the _____ heat reaches the earth from the sun during the _____ and the _____ heat is _____ at night.

Lesson: What is Insolation?

I Can.../Main Ideas

Notes

I can explain how Earth receives & gives off energy

Insolation: IN _____ SOL _____ ATION
 - The sun's radiation that is received at _____
 - Earth's surface reradiates _____

I know where the ozone layer is & what it protects us from

Most UV radiation is _____ by the _____
 O-zone layer is made of _____
 It is found in the _____
 Ozone is being _____ by humans introducing _____ into the atmosphere.
 Results in more _____ (UV) _____ reaching the Earth's surface

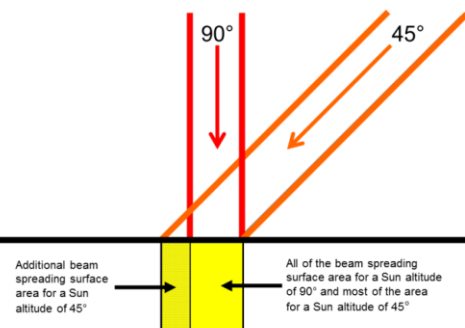
I can name the factors that affect reflection & scattering

- Angle

1. Angle of Incidence: Angle at which the _____ strikes the _____
 Determined by: the _____ of _____, _____ and _____

Higher the sun is in the sky = higher the _____
 _____ ** _____ insolation is absorbed.**

Effect of Sun Altitude on Beam Spreading at the Surface



- Surface Characteristics

2. Surface Characteristics:

_____ & _____ surfaces → insolation is _____

 _____ & _____ surfaces → insolation is _____

- Land vs water

3. Land & Water Heating:

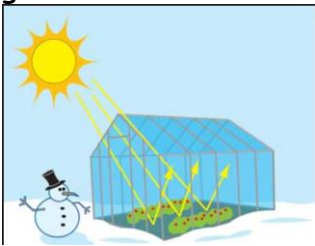
Water heats up & cools off _____ than land because

- _____
- Highly _____ to insolation
- Can move freely so _____ occur
- _____ are constantly taking place

Lesson: Factors Affecting Insolation 1

I Can.../Main Ideas

I can explain the greenhouse effect



I can describe global warming

I can name the main factors that affect insolation

Notes

Greenhouse Effect - Earth's atmosphere lets in _____

but most _____ does not escape.

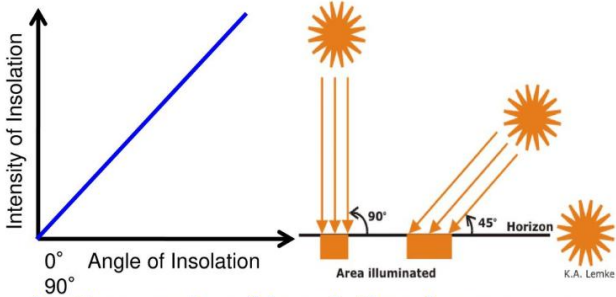
- _____ is absorbed by greenhouse gasses
 - _____, _____, _____, & other gasses

Global Warming - an _____ in the Earth's average _____

Four Factors that Affect Insolation:

1. _____ of _____
2. _____ of _____
3. _____
4. _____ - _____

I can explain why the angle of insolation changes



As the angle of insolation increases, the intensity increases

0° angle - _____ intensity; happens near the _____

90° angle - _____ intensity; happens near the _____

Factors that affect the angle and intensity are

1. _____
2. _____
3. _____
4. _____

Shape of the Earth

The Earth is a _____

Latitude

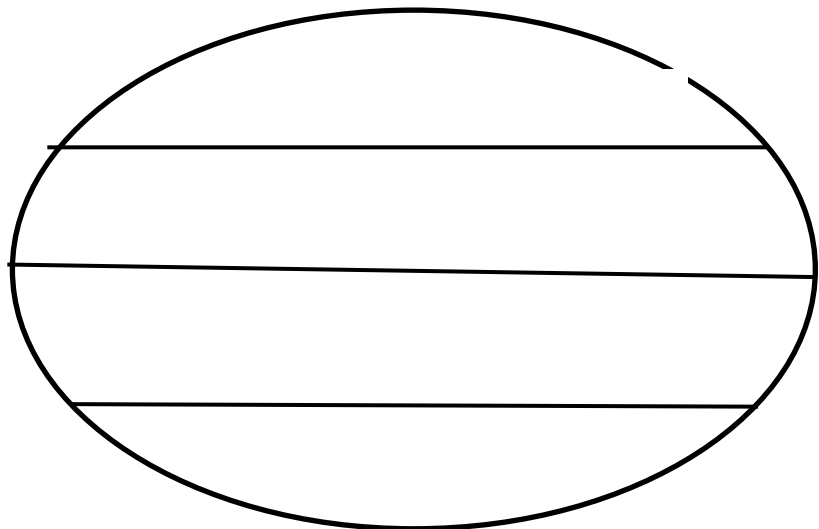
- Only one _____ can have the sun directly overhead on a certain day of the year.

- o The sun is _____ directly overhead in NY

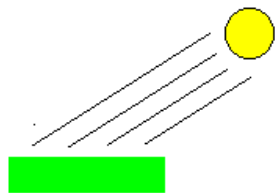
As Latitude increases the angle of insolation _____

LABEL the globe

- Equator
- Tropic of Cancer
- Tropic of Capricorn
- Dates sun is directly overhead



Seasons

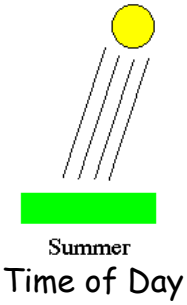


Winter

December _____st - the _____

- Vertical ray hits _____
- Angle of insolation is _____ this day in the N.

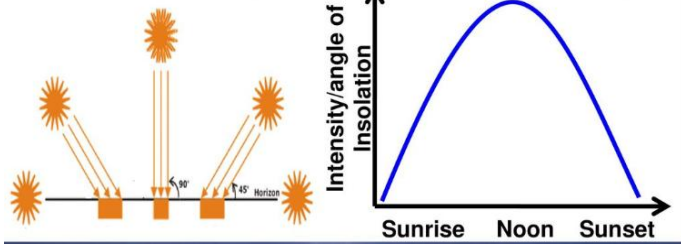
Hemisphere



June _____st - the _____

- Vertical ray hits _____
- Angle of insolation is _____ this day in the N. Hemisphere

Time of Day



The Sun reaches its _____ point in the sky at _____ (_____) & lowest at _____ & _____

Lesson: Factors Affecting Isolation 2

I Can.../Main Ideas

Notes

I can describe what duration of insolation depends on

The # of _____ of _____ received by an area

- Depends on _____ and _____

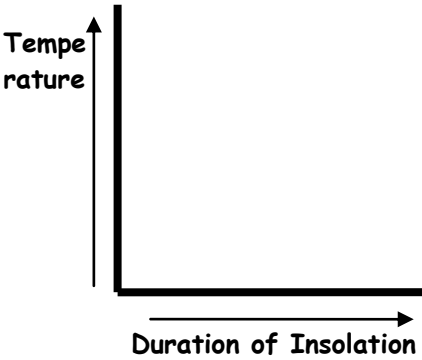
Biggest variation - _____ hours of _____ or _____

Temperature varies directly with _____

As the length of the day _____ temperature _____

In NYS

- December _____ - _____ hours of daylight
- June _____ - _____ hours of daylight



^ Fill out graph

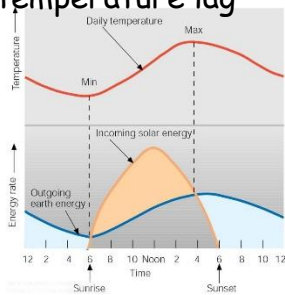
I can name the # of hours of daylight for NY & the North Pole on the first day of all seasons

Summer Solstice	Winter Solstice
Date:	Date:
NY:	NY:
North Pole:	North Pole:
Equinox	
Dates:	
NY:	
North Pole:	

I can explain how clouds affect insolation

I can describe why the poles have more reflection

I can explain insolation temperature lag



Lesson: What causes the seasons

I Can.../Main Ideas

I can explain why we get different seasons

They _____ insolation during the _____ and _____ heat at _____

1. _____ & _____
2. _____ of _____
3. Sunlight has to travel a _____ distance through Earth's _____ when _____ in the sky

Insolation is _____ at _____

Next 2-3 hours, the ground still _____ more energy than it _____.

- Temperature continues to _____

When insolation = _____, _____ temp is reached

Notes

Distinguished by differences in _____, _____ & _____

Four seasons are: _____, _____, _____, & _____ (_____)

Seasonal changes result from

1. Change in _____ of _____
2. Change in _____ of _____
3. Change of _____ of _____

Caused by:

1. _____
2. _____ around the _____
3. _____

I can describe what would happen if the Earth's tilt changed

Rotational axis is tilted at an angle of _____

- This is the reason the sun shifts between _____ and _____
- If the tilt was _____ bigger or smaller we would _____ or _____ to death

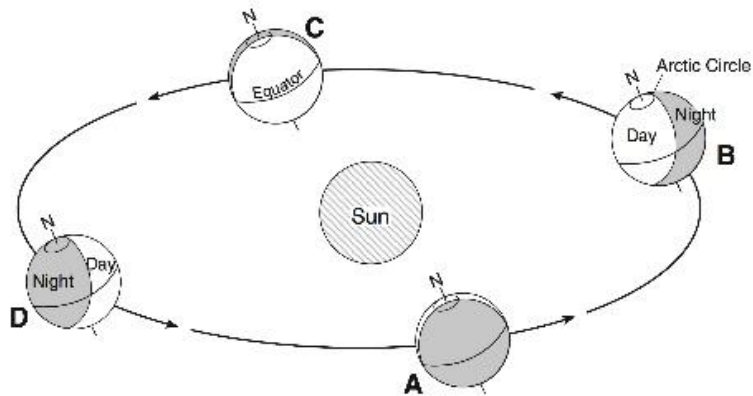
Parallelism

Earth's axis always points towards the _____
(_____)

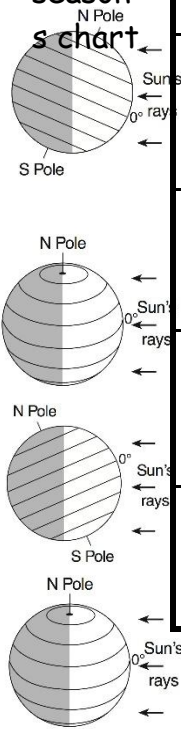
Revolution of Earth

Changes the _____ of _____ & _____

Label what season letters A, B, C, & D represent



I can fill out the season chart



Time of year	Sun is Directly above	NYS hours of daylight	Equator hours of daylight	N. Pole hours of daylight	S. Pole hours of daylight	Sun's altitude in NYS
Summer Solstice _____						
Fall Equinox _____						
Winter Solstice _____						
Spring Equinox _____						

Aim: Celestial Spheres

Do Now: What is the difference between apparent and real motion? _____

Apparent Motion: when objects _____ to be moving.

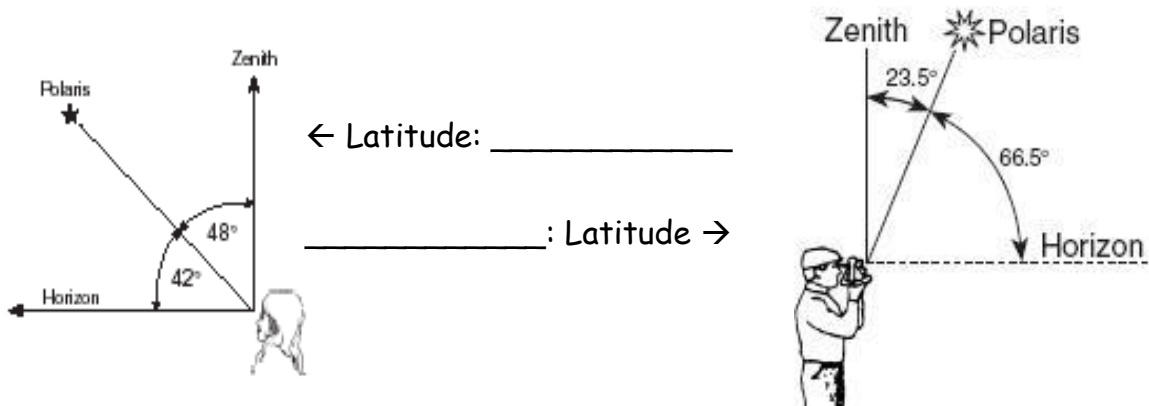
Real Motion: when objects are _____ moving

- Earth _____ °/hr from _____ to _____
 - Causes the sun & stars to _____ to rise in the _____ & set in the _____

STARS _____ ACTUALLY MOVE!

- The Night Sky is referred to as a _____
 - The North Celestial Pole (as well as the North Pole) always points to _____
 - That is why the stars near _____ appear to move _____ it in a complete _____.

****The altitude of POLARIS = your _____ in the _____ Hemisphere****



- Stars (Sun) **APPEAR** to rise in the _____ and _____ in the west just like our _____ moving _____ °/hr

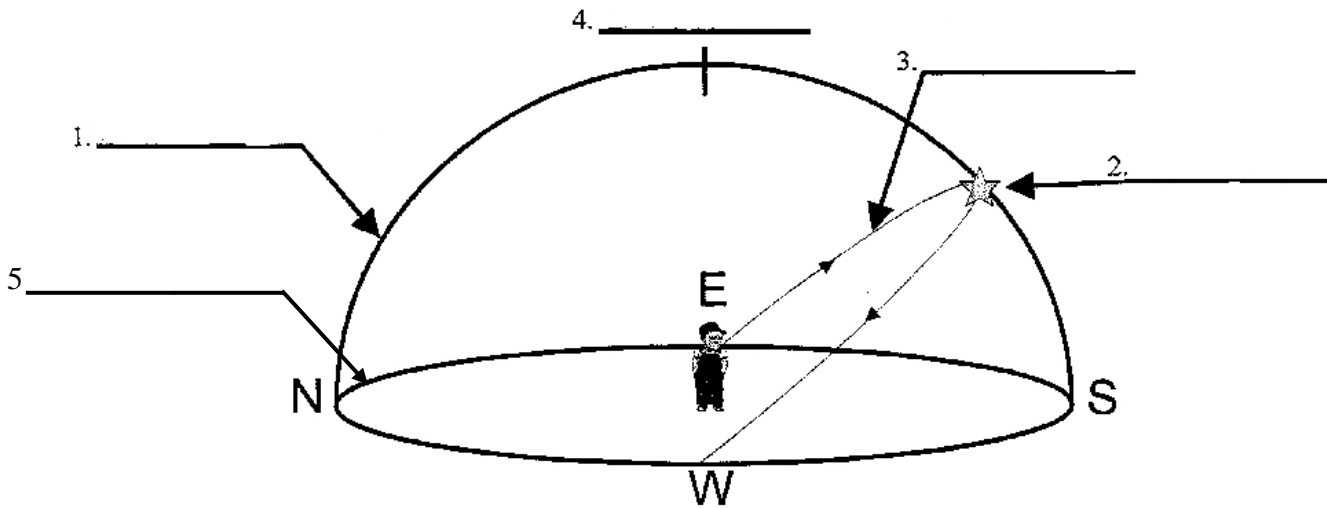
Parts of the Celestial Sphere



1. Zenith: Point on the sphere that is _____

2. Horizon: Everything _____ is _____, everything _____ is _____
3. Celestial Meridian: - _____ circle passing through the _____ and _____ points on our _____ and the _____
4. Celestial Object: An _____ located on the _____
5. Star Path: - Apparent movement of _____ on the _____

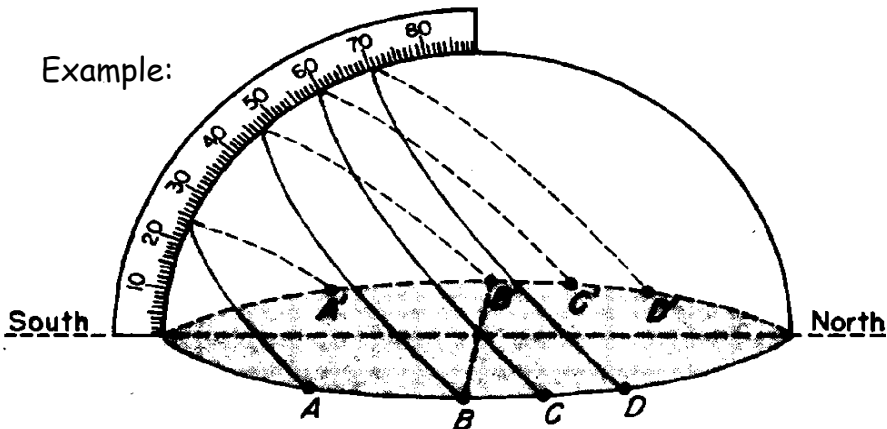
Labeling Parts of the Celestial Sphere



Altitude and Azimuth

- Altitude the _____ above the _____
 - Highest altitude is _____
- Azimuth Direction: direction the _____ is located at

Example:

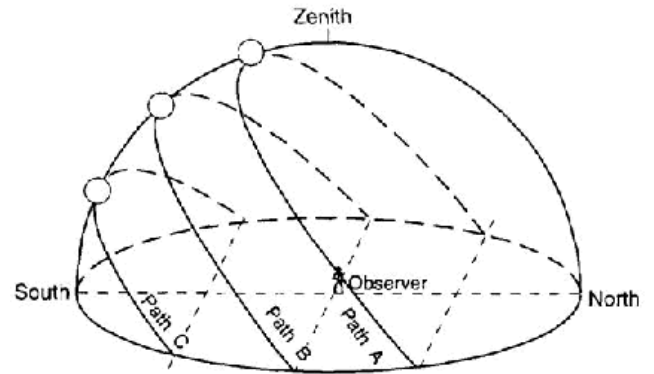
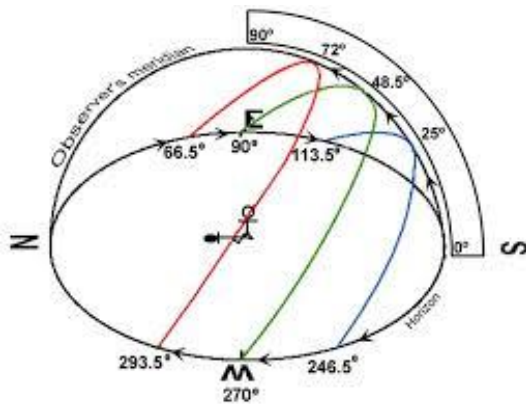


- Star on Path A altitude _____
- Star on Path B altitude _____
- Star on Path C altitude _____
- Star on Path D altitude _____

Celestial Spheres & the Seasons

- Spring & Fall (Equinox) - sun rises directly _____ and sets directly _____
- Summer (juNE ____) - sun rises _____ of _____ and sets _____ of _____ - _____ in the sky
- Winter (deSEMBER ____): sun rises _____ of _____ and sets _____ of _____ - _____ in the sky

LABEL the Seasons on the diagrams below



Sun and Shadows: The _____ the sun is in the sky the _____ the shadow

