

Name _____

HR _____

The Water Cycle and Climates Outline

The Water (Hydrologic) Cycle

- _____ has a _____ supply of _____
- This supply is constantly being _____ between the _____, atmosphere, and _____

—During the _____ of water, water enters the _____ by _____ and _____

— _____ is the process where living _____ release water _____ to the atmosphere

- Of the precipitation that _____ on Earth's _____

— _____ % returns to the atmosphere by _____

— _____ % _____ (sinks into) the ground (_____)

— _____ % is surface _____ that enters _____ and _____

Groundwater

- Zone of _____

—All _____, cracks and other openings in _____ and _____ grains become completely _____ with _____

—Water will stop _____ into the _____ once it has reached a layer of solid _____ that it cannot _____ through

- The _____ Table

— _____ between the zone of _____ and the zone of _____

Groundwater

- The amount of _____ in the _____ and the movement of water through the _____ are controlled by the characteristics of the _____ and rock found near the _____
- Almost all _____ on Earth's surface are _____

Porosity

- The number of _____ in a material compared with its _____
- The porosity (percent of _____ space) determines how much _____ or _____ a sample of rock can _____
- Particle _____ alone does not affect the _____ of a soil

Permeability

- The ability of a _____ to _____ water
- The _____ (how _____ water can pass _____ a soil) depends on the _____ of the _____ and how the pores are _____
- Surface _____ occurs when _____ exceeds the _____ of a soil, when a soil is _____, or when the _____ (gradient) of a soil's surface is too _____ to allow _____ to occur

Capillarity

- The ability of a _____ to draw water _____ into tiny _____ between _____ grains
- Soils composed of very _____ particles show the _____ capillary uptake

-This is because these soils have _____ surface area per unit volume for water to _____ to them than do soils with _____ particles

● Capillary _____ moves _____ against the force of _____ because of the _____ between _____ molecules and the _____ of the soil particles

Rainfall and Stream Flow

● _____ and _____ do not respond immediately to _____

● Most _____ falls on the _____ and then must _____ over the land as _____ to reach a stream

● A time _____ occurs between maximum _____ and maximum _____ discharge

Factors Affecting Stream Flow

● _____ falling _____

● Low _____ of the _____

● _____ blocks overland flow

● Large _____ respond _____ because most runoff must flow a great _____ to reach the rivers

● _____ streams and streams in _____ areas where the land is steep and rocky respond _____ to rainfall

● _____ is very _____ and very _____ in regions with _____, paved _____, and _____ lots

Watersheds (Drainage Basin)

- The geographic area that _____ into a particular _____ or other body of _____
- Bounded by a drainage _____, usually a line of high _____, across which _____ do not flow

How Heat Energy Travels

- _____ is heat flow by density currents within a _____
- _____ heating of Earth's _____ by the sun causes _____
- _____ is a form of heat flow that occurs when a _____ substance comes in _____ with a _____ substance
- The _____ energy of the _____ atoms and molecules is transferred to the _____ atoms and molecules, making them _____ more
- Earth's primary source of _____ is the _____
- _____ is the flow of energy as electromagnetic waves, such as visible light
 - It is the fastest _____ of heat _____
 - All _____ travels at the speed of _____, 300,000,000 meters per second

Insolation

- Earth receives nearly all of its _____ from the _____
- The sun's electromagnetic _____ that reaches the _____ is called _____ (INcoming SOLar radiATION)
- The _____ (strength) of insolation depends on several factors
 - _____

— _____
— _____ of _____

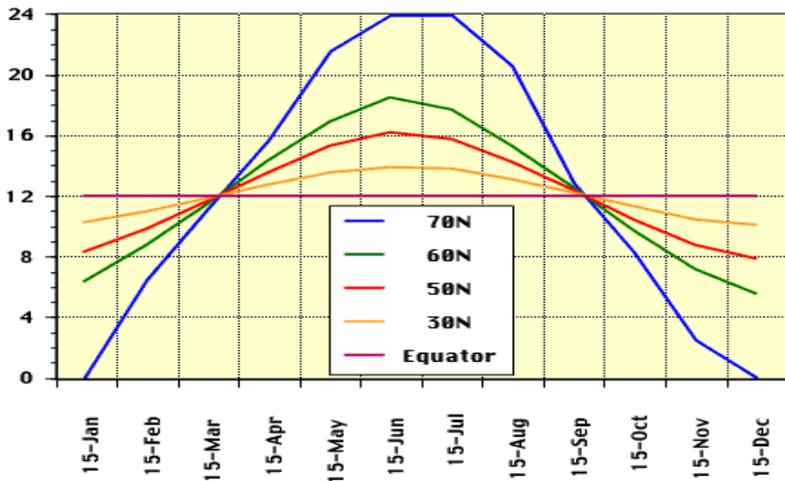
Angle of Insolation

- A measure of how _____ the sun is in the _____
- As the sun _____ and _____, this angle _____
- This angle is measured from the _____ up to the position of the _____
- The _____ sun has the _____ angle of insolation
- The angle also changes _____
- Because Earth is _____, each _____ has a different angle of insolation

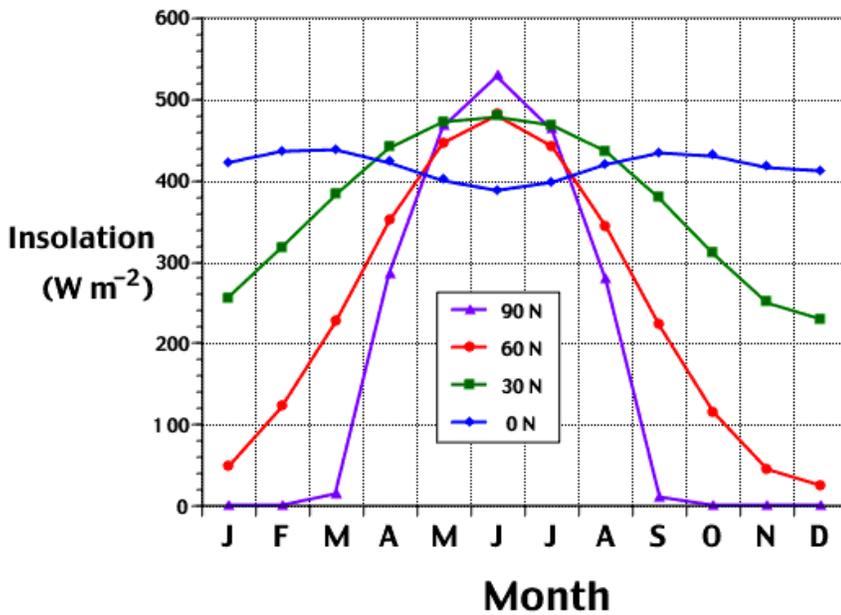
Duration of Insolation

- The _____ of _____ (from sunrise to sunset), or _____ period, that the sun _____ in the _____
- A section of Earth's _____ receives the most _____ energy when the sun is _____ in the sky and when the _____ of insolation is the _____
- As the _____ of insolation and the _____ of insolation _____, the _____ at Earth's surface _____

Variations in Day Length



Variations of Insolation



Absorption of Insolation

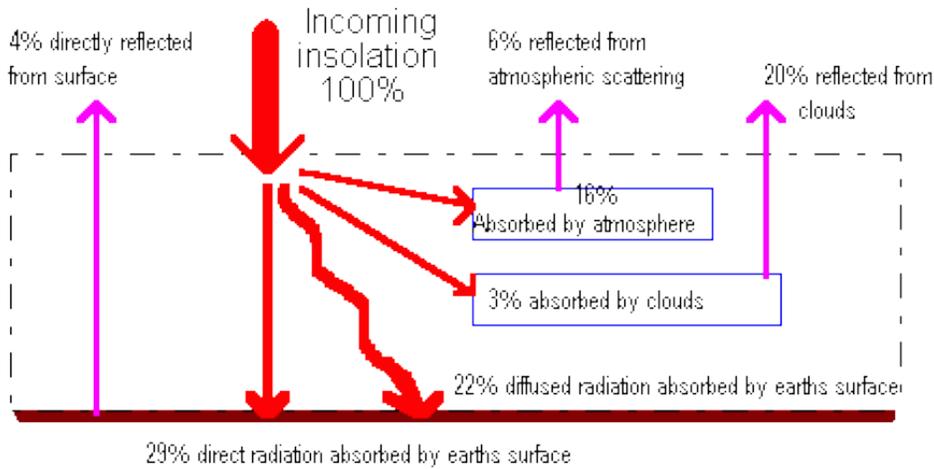
● Upon reaching the Earth's _____, visible _____ waves are _____, _____, or _____

● _____-colored objects _____ most of the light that falls on them

● _____-colored objects _____ most of the light that falls on them

- Some of the _____ energy is changed into _____ heat _____ that reradiated _____ into the _____ at _____

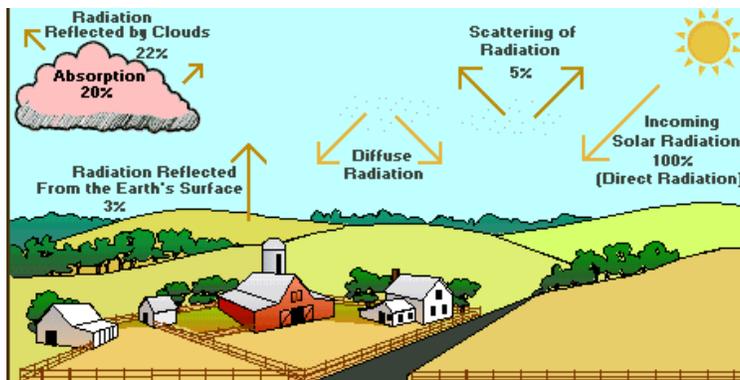
Absorption of Insolation



Reflection of Insolation

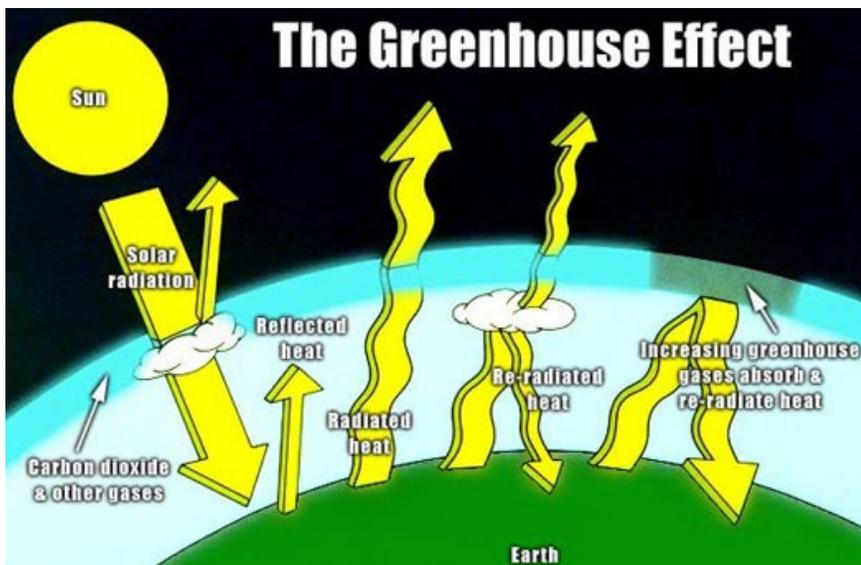
- When light is _____, it bounces off a _____
- _____ reflect about _____ of the light falling on them
- The _____ the _____ of insolation, the _____ the reflection of _____ rays
- More _____ also occurs when the land is _____ in color or covered by _____ or _____

Reflection of Insolation



Terrestrial Radiation

- Energy _____ emitted from Earth's _____ are _____ in _____ than energy _____ emitted from the _____
 - The longer _____ waves radiated by _____ are absorbed by _____ and remain trapped in the _____
- This process is called the _____ **effect**



Insolation Temperature Lag

- A time _____ exists between the time of greatest _____ of insolation and the time of _____ air _____
- This is because insolation _____ is first absorbed by Earth's _____ and then _____ as heat energy that _____ the _____

Climate

- Unlike weather, the _____ for a large geographical _____ is based on the _____ conditions measured over a _____ period of time
- The average conditions of _____ and _____ and the annual _____ of these conditions characterize a region's _____

Factors that Affect Climate

- _____
 -The _____ is an important factor that determines the average local _____
- _____
 - _____-altitude locations have _____ climates because of the _____ of air as it moves to _____ elevations
- _____ Ranges
 -Can modify _____ and temperature _____
- _____ and Large Bodies of _____
 -Because of its specific _____, _____ heats up and cools down more _____ than _____ areas
 -The climates of locations near the _____ or other large bodies of water are more _____ than inland climates
 - _____ and _____ climates are _____ in the _____ and _____ in the _____ than are inland climates
- _____ Currents

-Air above an _____ current is affected by the surface _____ of the _____

- _____ water will _____ the air, and _____ water will _____ the air

● Planetary _____ Belts

-Prevailing _____ are important in determining the effect of _____ currents on nearby climates

-There are various regions of _____ (low-pressure systems) and _____ (high-pressure systems) _____ currents

● _____ producing _____ weather

● Typical _____ Tracks

-US Weather _____ usually move from _____ to _____