Four Seasons & the Water Cycle

Flathead Lake Biological Station
Sketchnotes Review

Visual Note-taking: "THREE" Things To Remember

1. Not merely writing the usual way: **Text**
2. Hierarchy
3. Distinction

Important
- Details, descriptions, etc.

Visual Mnemonics

A picture is worth a thousand words:

- Emphasis

You call the shots

Charts, maps, and visuals

Enhances memory

Improves understanding

Why visual note-taking?

Do things your way so everything makes more sense.

Way more fun than reading books.
Sketchnotes Review

Sketchnote Tips

Lettering
- High
- Low
- Skinny
- Fat
- All Caps
- Small Caps
- Kinder
- Fancy
- Fast
- Reverse
- Block
- 3D
- Dash

Bullets
- •
- ○
- □
- ◇
- ☆
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Framed
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- ◇
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Connectors
- ▼
- ◇
- ◆
- ▲
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Shadows
- ▼
- ◇
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- ☆
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People
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Geography Review

LATITUDE

Longitude

Equator

Latitude
North (+)

90
60
30
0

South (-)

90
60
30
0

Longitude
180

Prime meridian

0

West (-)

90
120
150
0

East (+)

60

30

120

90

Microsoft Illustration
The Four Seasons

Jun. 21st is the LONGEST day in the year

Dec. 21st is the SHORTEST day in the year

The Earth is tilted and so the amount of sunlight varies throughout the year.
Is it Winter or Summer???

The summer in the Northern Hemisphere is the winter in the Southern Hemisphere.

The winter in the Northern Hemisphere is the summer in the Southern Hemisphere.
How Does the Amount of Sunlight Vary by Latitude?

There is MORE DIRECT SUNLIGHT at the equator...which leads to MORE EVAPORATION!
How Does the Sun Impact the Water Cycle?

The WARM, MOIST (light) AIR RISES at the equator.

As it moves towards the poles it COOLS (gets heavy) DRIES, AND SINKS at 30°.

It rises at 60° and sinks again at the poles.
How Does Uneven Sunlight Create Three Climate Zones?

**FIGURE 15.3 Climate Zones**

The uneven heating of Earth by the Sun results in three different climate zones.

- **POLAR CLIMATE**
  - The polar climate zone is located in far northern and far southern reaches of the planet, where the temperature is typically cold and often below freezing.

- **TROPICAL CLIMATE**
  - The tropical climate zone, which surrounds the equator, runs from the tropic of Cancer to the tropic of Capricorn and is characterized by warm, moist conditions.

- **TEMPERATE CLIMATE**
  - The temperate climate zone is located in the broad area lying between the polar and tropical climate zones. This zone experiences summer and winter seasons of about equal length.
What is a Terrestrial Biome?

**BIOME**: A large community of plants and animals that live in a distinct region. Biomes are defined by their **climate** and **vegetation**.

**CLIMATE**: Patterns of **rainfall** and **temperature** over time.
How Does the Water Cycle Impact Climate?

Notice where all of the tropical forests, deserts, and temperate areas are!
Terrestrial Biomes

TROPICAL FOREST:

- Warm temps all year
- High precipitation
- Structured, layered tree canopy
- Diverse animals
  - Monkeys, birds, insects, snakes, bats, frogs, tigers, etc.
**Terrestrial Biomes**

**DESERT:**

- Low rainfall (<30cm/year)
- All life adapted to conserve water
- Growth and reproduction tied to seasonal rains
- Shrubs, cacti, succulents
- Animals that can live in high temps
  - Ants, sparrows, rodents, lizards, snakes, etc.
Terrestrial Biomes

TEMPERATE BROADLEAF FOREST:

- High rainfall and snowfall
- Hot summers & cold winters
- 4 distinct seasons
- Varied shrubs and deciduous trees
- Many migrating & hibernating animals
  - Mice, squirrels, birds, foxes, black bears, mountain lions, etc.
CONIFEROUS FOREST/TAIGA:

- High elevations/latitudes
- Harsh snowy winters
- Shorter, cool summers
- Many cone bearing conifers, mosses, lichens, & shrubs
- Many migrating & hibernating animals
  - Moose, deer, elk, hares, wolves, lynx, owls, bears, migratory birds, etc.
**Terrestrial Biomes**

**POLAR ICE:**
- High latitudes
  - North of Arctic Tundra & Antarctica
- Extremely cold year round
- Low precipitation
- Mosses and lichens
- Many animals with more insulation
  - Arctic: polar bears, seals, walrus, etc.
  - Antarctic: penguins, seals, whales, etc.
How Does the Water Cycle Impact Climate in the West U.S.?
How Do the Rocky Mountains Impact The Water Cycle?

Local geography also affects climate

- Altitude, nearby bodies of water, & mountains...we have all three!
How Do the Rocky Mountains Impact The Water Cycle?

Local geography also affects climate

- **Altitude, nearby bodies of water, & mountains...we have all three!**
Water is life!

How can you help to protect it!
How Does Climate Change Impact the Water Cycle?

Click [here](#) to check out this great video of the Mendenhall Glacier in Alaska!

Click [here](#) to check out this eye opening look at the Columbia Glacier in Alaska!

Click [here](#) to see the impressive Ilulissat Glacier in Greenland!