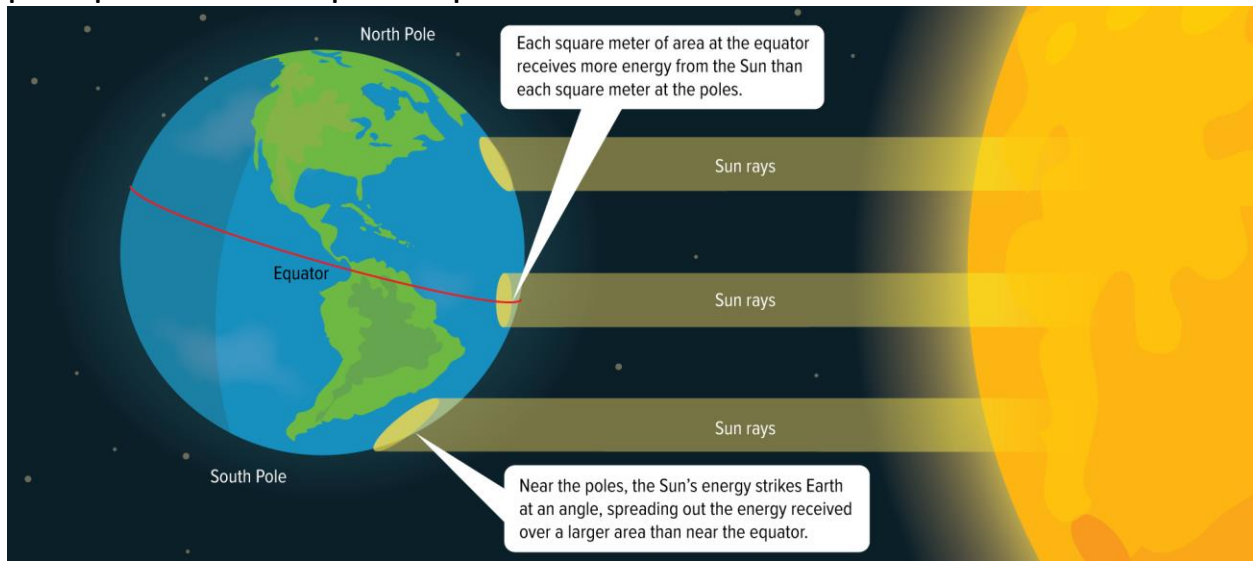


Module 3: Communities, Biomes, and Ecosystems

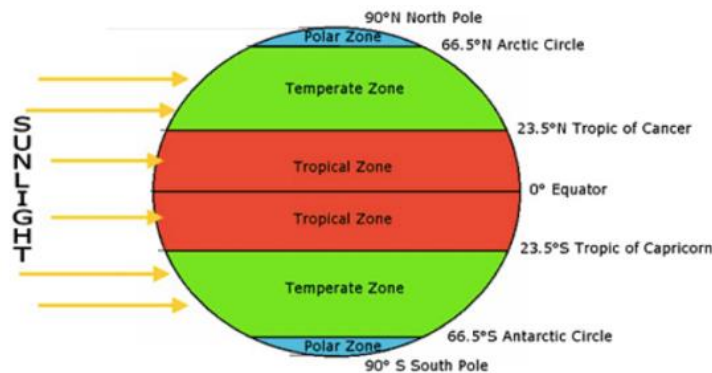
Lesson 2: Terrestrial Biomes

Weather: atmospheric conditions such as temperature and precipitation at a specific place and time

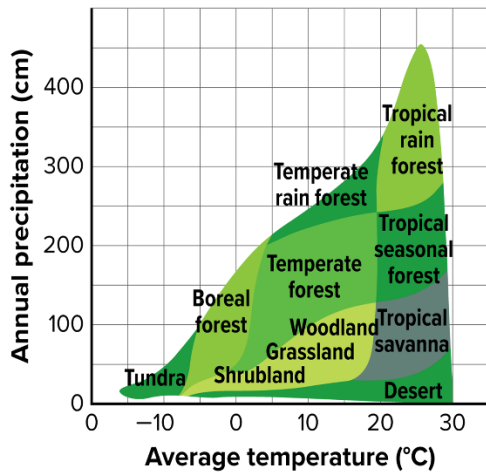


Latitude: distance of a point on Earth's surface north or south of the equator

- Equator = 0° latitude
- North Pole = 90° N
- South Pole = 90° S
- Made up into 3 zones: Polar, Temperate, and Tropical zones



Annual Precipitation v. Temperature for Various Biomes



Climate: average weather conditions in a specific area, determined by latitude, elevation, ocean currents, and other factors

- An area's latitude has a large effect on its climate
- Winds are created from temperature imbalances
- Ocean currents carry warm water to the poles. As it cools, it sinks and moves towards tropical regions

- Earth's surface is warmed by the greenhouse effect.
- [Weather vs. Climate Video](#)
- [Earth's Climate Cycles](#)
- [Ocean Currents](#)

Major Land Biomes: classified by the characteristics of plants and abiotic factors such as temperature, precipitation, amount of sunlight, and type of wind (page 57 – 61)

- **Tundra:** treeless biome with permanently frozen soil under the surface called permafrost
 - Below polar ice caps across northern Europe, N. America, and Siberia in Asia
 - Plants that survive have shallow roots
 - Caribou, polar bears, wolves
 - Average yearly precipitation of 15 – 25 cm (~6-10 inches)
- **Boreal forest:** biome south of the tundra with dense evergreen forests and long, cold, dry winters
 - Also called the northern coniferous forest or taiga
 - Moose, beavers, wolverines, deer
 - Average yearly precipitation of 30 – 84 cm (~12-33 inches)

- **Temperate forest:** biome south of the boreal forest in southern Canada, eastern US, most of Europe, and parts of Asia and Australia.
 - Characterized by broad-leaved, deciduous trees (shed their leaves in autumn), well-defined 4-seasons
 - Squirrels, rabbits, skunks, birds, deer, amphibians and reptiles, black bears, and snakes
 - Average yearly precipitation of 75 – 150 cm (~29-59 inches)

- **Temperate Woodland:** biome characterized by small trees and mixed shrub communities occurs in areas on western coasts of N. and S. America, South Africa, and Australia
 - Foxes, jackrabbits, bobcats, coyotes, reptiles
 - Average yearly precipitation of 38 – 100 cm (~15-39 inches)

- **Temperate Grasslands:** biome characterized by fertile soils with a thick cover of grasses
 - Drought, grazing, fires, and animals keep grasslands from becoming forests
 - Found in the middle latitudes of N. and S. America, Asia, Africa, and Australia
 - Called prairies in N. America, pampas and llanos in S. America, steppes in Asia, savannas and veldts in Africa, and rangelands in Australia
 - Gazelles, bison, horses, mice, coyotes, foxes, wolves, birds, snakes, grasshoppers, and spiders
 - Average yearly precipitation 50 – 89 cm (~20-35 inches)

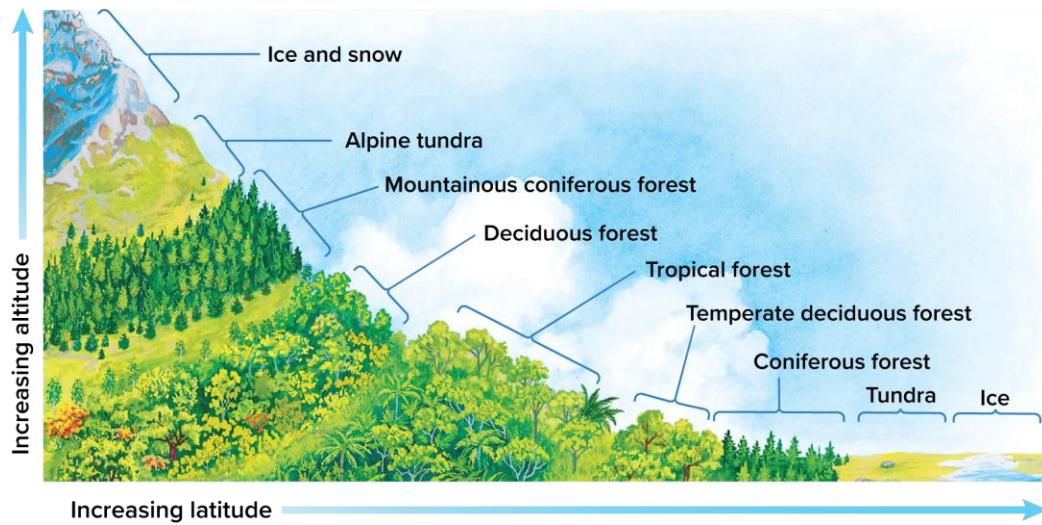
- **Desert:** area with low rainfall, whose annual rate of evaporation exceeds its annual rate of precipitation
 - Exist on every continent except Europe
 - Cacti and succulents such as Aloe vera
 - Lizards, bobcats, birds, rats, antelope

- Average yearly precipitation 2 – 26 cm (~0.8-10 inches)
- **Tropical savanna:** biome characterized by grasses and scattered trees
 - Biomes occur in Africa, S. America, and Australia
 - Zebras, wildebeest, antelopes, lions, hyenas, cheetahs, elephants, giraffes, koalas, and emus
 - Average yearly precipitation 50 – 130 cm (~20-51 inches)
- **Tropical seasonal forest:** biome characterized by deciduous and evergreen trees
 - Also called a tropical dry forest
 - Areas in Africa, Australia, and South and Central America
 - It resembles the temperate forest because of the dry season the trees drop their leaves to conserve water
 - Monkeys, elephants, Bengal tigers, koalas, rabbits, spiders
 - Average yearly precipitation >200 cm (~79 inches)
- **Tropical rain forest:** hot, wet biome with year-round humidity
 - Contains Earth's most diverse species of plants and animals
 - Central and South America, southern Asia, west central Africa, and northern Australia
 - Chimpanzees, tigers, orangutans, bats, toucans, sloths, and cobra snakes
 - Average yearly precipitation 200 – 1000 cm (~79-394 inches)

[Biome Video – Khan Academy](#)

Other terrestrial areas:

- Mountains – don't fit the definition because climate characteristics and plant and animal life vary on elevation
 - This allows many communities to exist on a mountain



- Polar regions – not considered true biomes because they are ice masses, not true land areas with soil
 - The coldest recorded temperature was -89°C (-128.2°F) was in Antarctica
 - Boards the tundra at high latitudes and are cold all year
 - Polar bears, arctic foxes, and penguins