



# CHAPTER 5: BIOMES OF THE EARTH

REGIE L. MAGALLANES, LPT,  
M.ED

Environmental Science -  
Instructor

# SEVEN OF EARTH'S BIOMES



Coniferous Forest



Temperate Deciduous Forest



Desert



Grassland



Rainforest



Shrubland



Tundra

# CONIFEROUS FOREST

1. What is the temperature range for this biome?  
-40 degrees Celsius to 20 degrees Celsius
2. What is the average precipitation? 300 to 900 millimeters of rain per year
3. What types of plants live here? Coniferous-evergreen trees (trees that produce cones and needles; some needles remain on the trees all year long)

# CONIFEROUS FOREST

4. Where is this biome located? **Canada, Europe, Asia, and the United States**

5. What is a conifer? **Conifers are trees that grow needles instead of leaves, and cones instead of flowers. Conifers tend to be evergreen, that is, they bear needles all year long.**



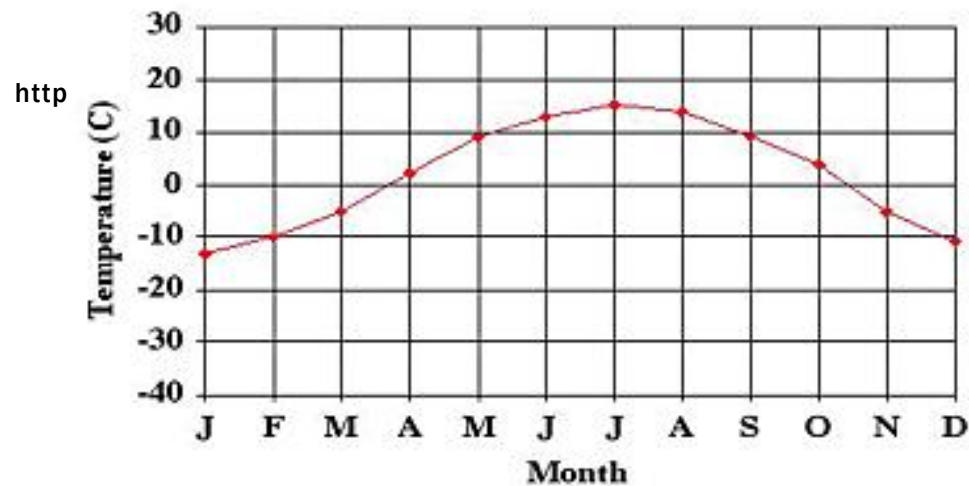
● Beaverlodge, Canada



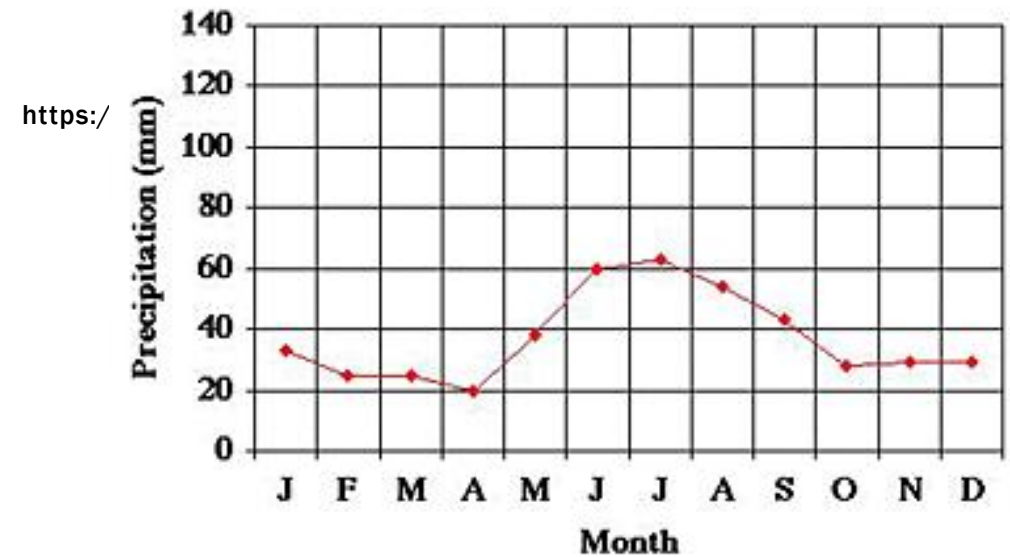


# CONIFEROUS FOREST BEAVERLODGE, ALBERTA, CANADA

## TEMPERATURE



## PRECIPITATION



# TEMPERATE DECIDUOUS FOREST

1. What is the temperature range for this biome?  $-30^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ , yearly average is  $10^{\circ}\text{C}$ , hot summers, cold winters
2. What is the average precipitation? 750 to 1,500 mm of rain per year
3. Give three examples of plants that live here. Broadleaf trees (oaks, maples, beeches), shrubs, perennial herbs, and mosses.



# TEMPERATE DECIDUOUS FOREST

4. Where is this biome located? Eastern United States, Canada, Europe, China, and Japan

5. Why does this biome have four seasons? Temperate deciduous forests are located in the mid-latitude areas which means that they are found between the polar regions and the tropics. *The deciduous forest regions are exposed to warm and cold air masses, which cause this area to have four seasons*

# TEMPERATE DECIDUOUS FOREST

6. Why do the trees in this biome lose their leaves? This adaptation allows plants to survive cold winters.







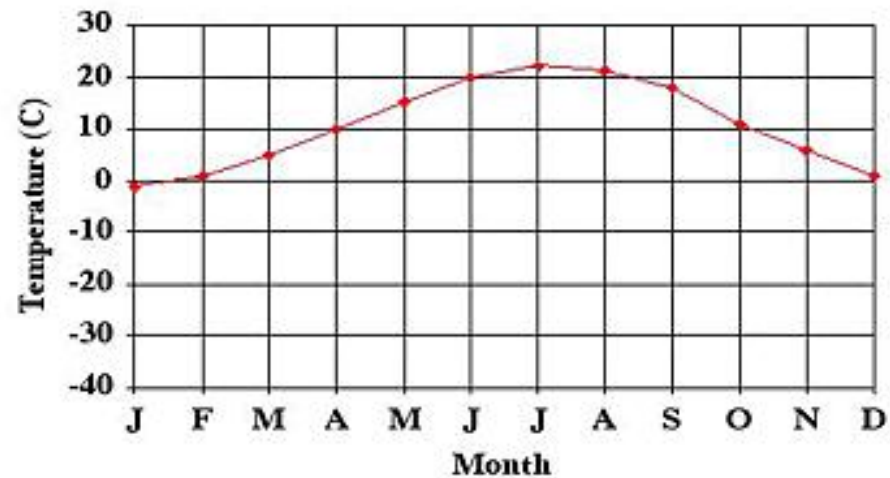


# Temperate Deciduous Forest Staunton, Virginia, United States

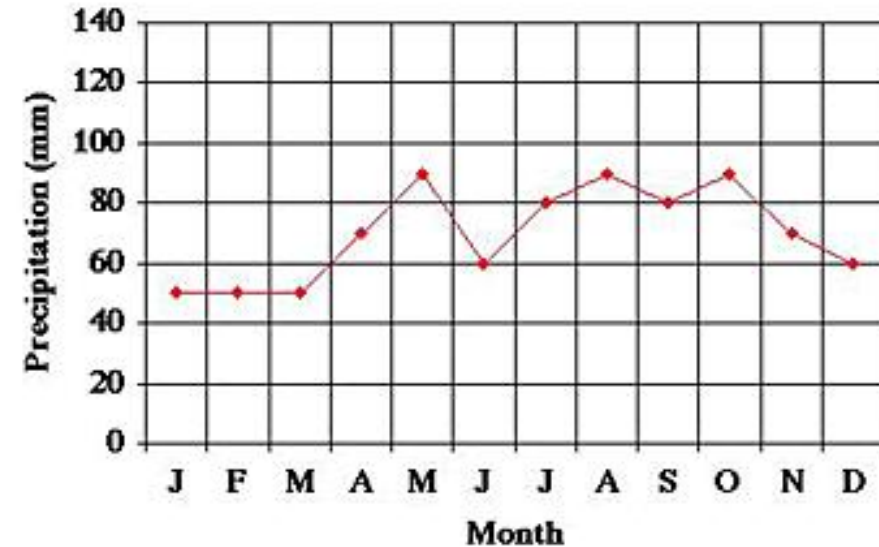
Temperature

Precipitation

- <https://www.earthobservatory.nasa.gov/img/biome/tempvirginia.gif>



- <https://www.earthobservatory.nasa.gov/img/biome/precipvirginia.gif>





# DESSERT

1. What is the temperature range for this biome?

**Average of 38°C (day), average of -3.9°C (night)**

2. What is the average precipitation?

**About 250 mm of rain per year**

3. Give three examples of plants that live here.

**Cacti, small bushes, short grasses**

# DESSERT

4. Where is this biome located? Between  $15^{\circ}$  and  $35^{\circ}$  latitude (North and South of the equator); examples are Mojave, Sonoran, Chihuahuan, and Great Basin (North America); Sahara (Africa); Negev (Middle East); and Gobi (Asia)

# DESSERT

5. Why does the temperature change so drastically in the desert?

The temperature in the desert can change drastically from day to night because the air is so dry that heat escapes rapidly at night.

# DESSERT

6. How are desert plants adapted to their location?  
Some plants, such as cacti, store water in their stems and use it very slowly, while others like bushes conserve water by growing few leaves or by having large root systems to gather water or few leaves. Some desert plant species have a short life cycle of a few weeks that lasts only during periods of rain.



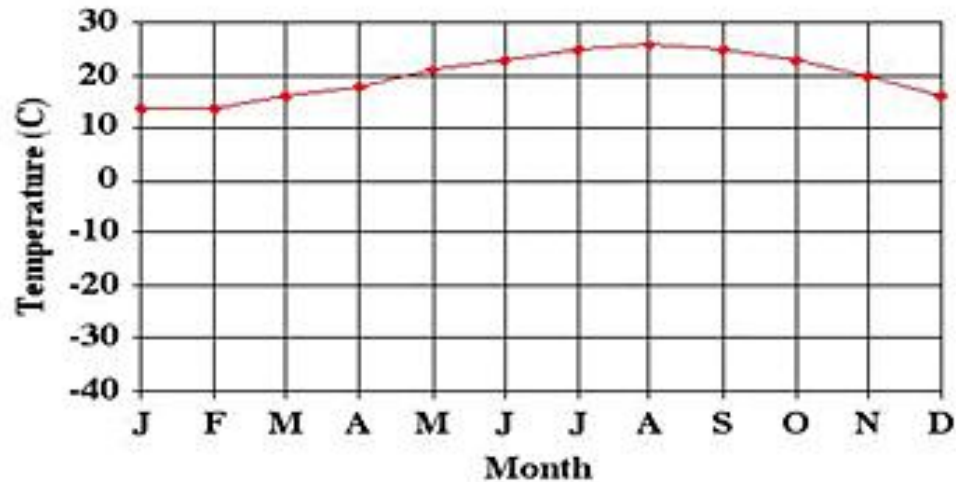




# Desert El-Oasr el-Akhdar, Egypt

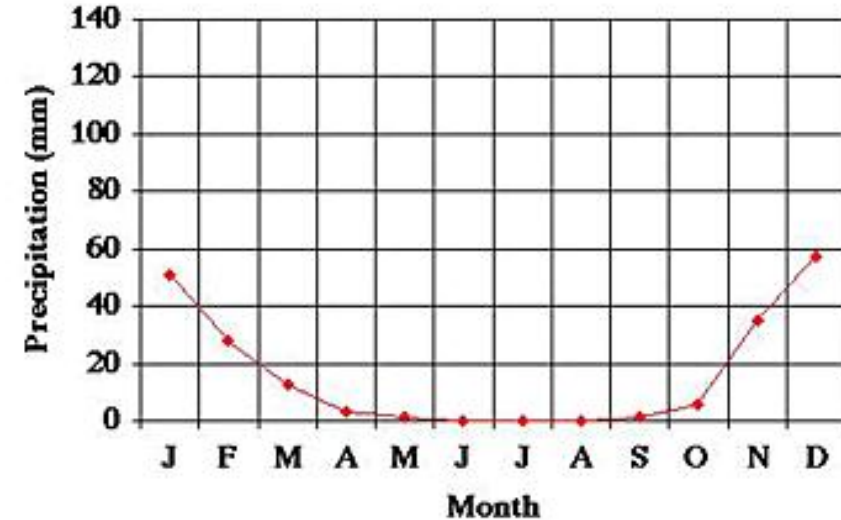
## Temperature

- <https://www.earthobservatory.nasa.gov/img/biome/tempegypt.gif>



## Precipitation

- <https://www.earthobservatory.nasa.gov/img/biome/precipegypt.gif>



# GRASSLAND

1. What is the temperature range for this biome?  
**Dependent on latitude, yearly range can be between  
-20°C to 30°C**
2. What is the average precipitation? **About 500 to  
900 mm of rain per year**
3. Give three examples of plants that live here.  
**Grasses (prairie clover, salvia, oats, wheat, barley,  
coneflowers)**

# GRASSLAND

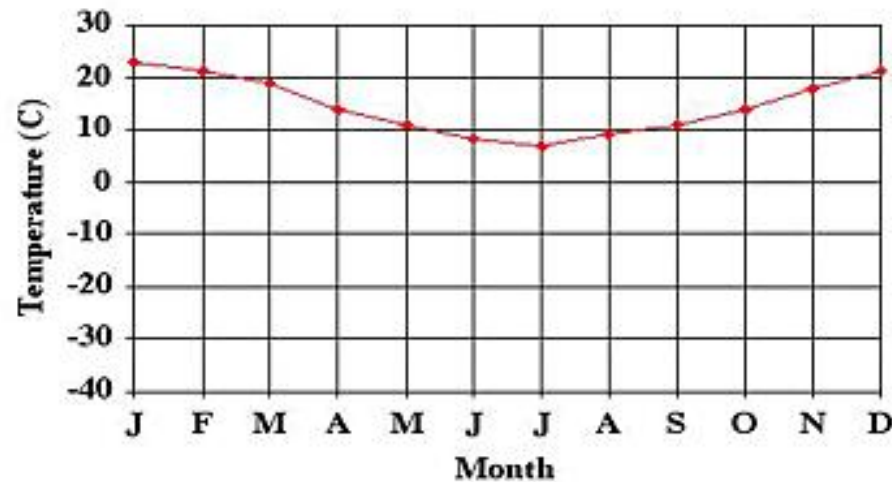
4. Where is this biome located? The prairies of the Great Plains of North America, the pampas of South America, the veldt of South Africa, the steppes of Central Eurasia, and surrounding the deserts in Australia
5. What is special about the roots of the plants in this biome? These short grasses can have roots that extend 1 m (about 3 ft) deep.

# Grassland

## Ingeniera White, Argentina

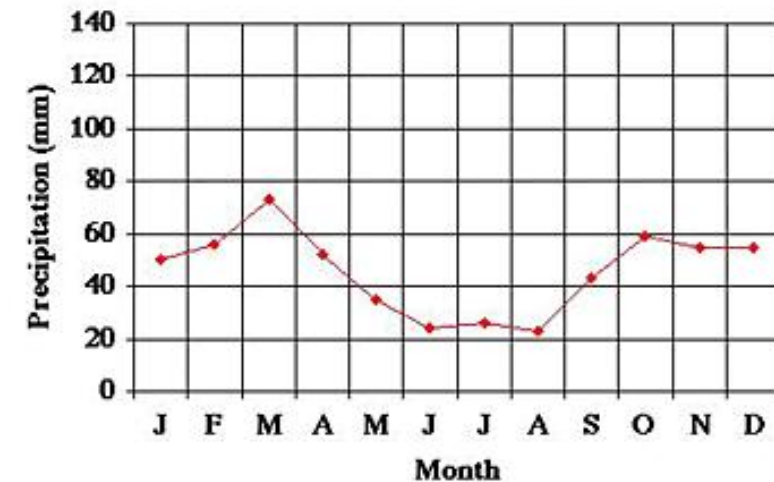
### Temperature

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### Precipitation

- <https://www.earthobservatory.nasa.gov/img/biome/precipargentina.gif>





# RAINFOREST

1. What is the temperature range for this biome?  
**20°C to 25°C, must remain warm and frost-free**
2. What is the average precipitation? **2,000 to 10,000 millimeters of rain per year**
3. Give three examples of plants that live here. **Vines, palm trees, orchids, ferns**

# RAINFOREST

4. Where is the biome located? **Between the Tropic of Cancer and the Tropic of Capricorn**
5. Describe the two types of rainforests. **Tropical rainforests are found closer to the equator where it is warm. Temperate rainforests are found near the cooler coastal areas further north or south of the equator.**

# RAINFOREST

6. Why do the fallen leaves decompose quickly in this biome? This material decomposes rapidly in the **wet, warm conditions (like a compost pile)** sending nutrients back into the soil. Few plants are found on the floor of the forest due to the lack of sunlight. However, the hot, moist atmosphere and all the dead plant material create the perfect conditions **in which bacteria and other microorganisms can thrive.**







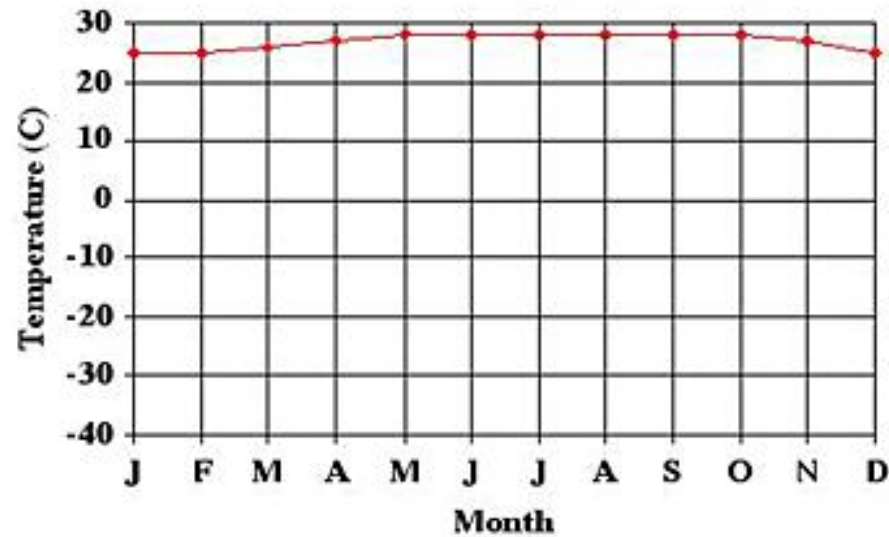


# Rainforest

## Campa Pita, Belize

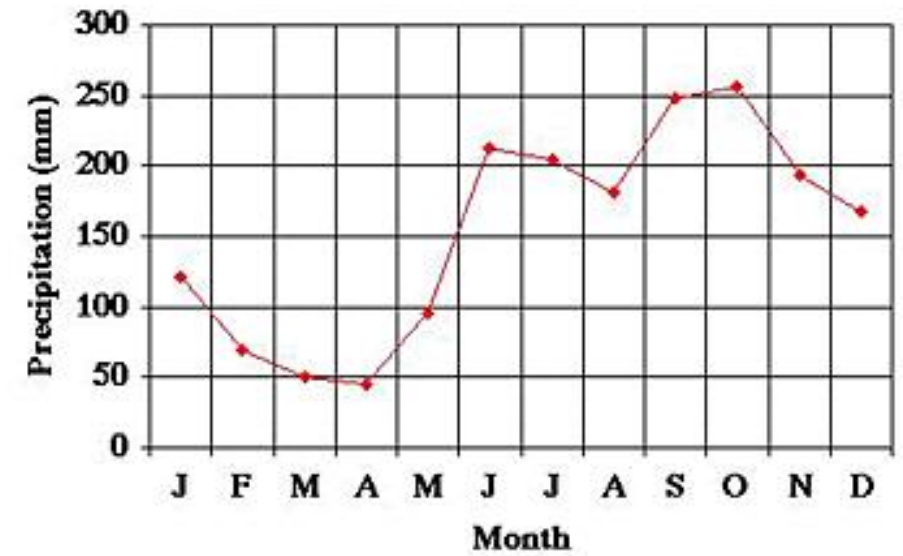
### Temperature

<https://www.earthobservatory.nasa.gov/img/biome/tempbelize.gif>



### Precipitation

<https://www.earthobservatory.nasa.gov/img/biome/precipbelize.gif>



# SHRUBLAND

1. What is the temperature range for this biome? **Hot and dry in the summer, cool and moist in the winter**
2. What is the average precipitation? **200 to 1,000 mm of rain per year**
3. Give three examples of plants that live here.  
**Aromatic herbs (sage, rosemary, thyme, oregano), shrubs, acacia, chamise, grasses**

# SHRUBLAND

4. Where is this biome located? **West coastal regions between 30° and 40° North and South latitude**
5. Why does the temperature change so drastically in the desert? **The temperature in the desert can change drastically from day to night because the air is so dry that heat escapes rapidly at night. The daytime temperature averages 38°C while in some deserts it can get down to -4°C at night.**

# SHRUBLAND

6. How are desert plants adapted to their location? In the areas with little rainfall, plants have adapted to drought-like conditions. Many plants have small, needle-like leaves that help to conserve water. Some have leaves with waxy coatings and leaves that reflect the sunlight. Several plants have developed fire-resistant adaptations to survive the frequent fires that occur during the dry season.









# Shrubland

## Middelburg, South Africa

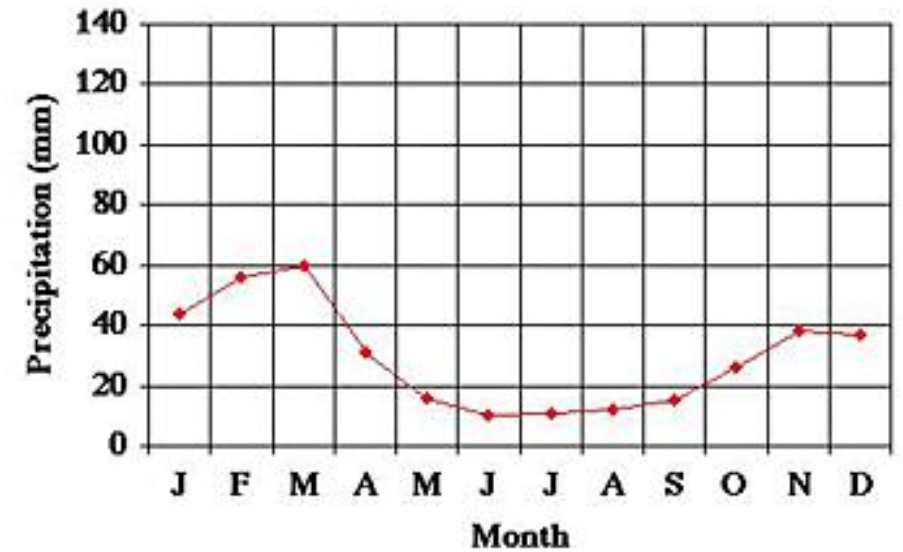
### Temperature

<https://www.earthobservatory.nasa.gov/img/biome/tempsouthafrica.gif>



### Precipitation

<https://www.earthobservatory.nasa.gov/img/biome/precipsouthafrica.gif>



# TUNDRA

1. What is the temperature range for this biome? -  
**40°C to 18°C**
2. What is the average precipitation? **150 to 250 mm  
per year**
3. Give three examples of plants that live here. **Lichens,  
mosses grasses, sedges, shrubs**

# TUNDRA

4. Where is the tundra located? Regions south of the ice caps of the Arctic and extending across North America, Europe, and Siberia (high mountain tops)
5. Describe permafrost. Permafrost is a layer of permanently frozen ground below the surface, called permafrost. This permafrost is a defining characteristic of the tundra biome. In the tundra summers, the top layer of soil thaws only a few inches down, providing a growing surface for the roots of vegetation.

# TUNDRA

6. Why are there no trees in the tundra? **Almost no trees due to short growing season and permafrost. The few trees that do manage to grow stay close to the ground so they are insulated by snow during the cold winters.**



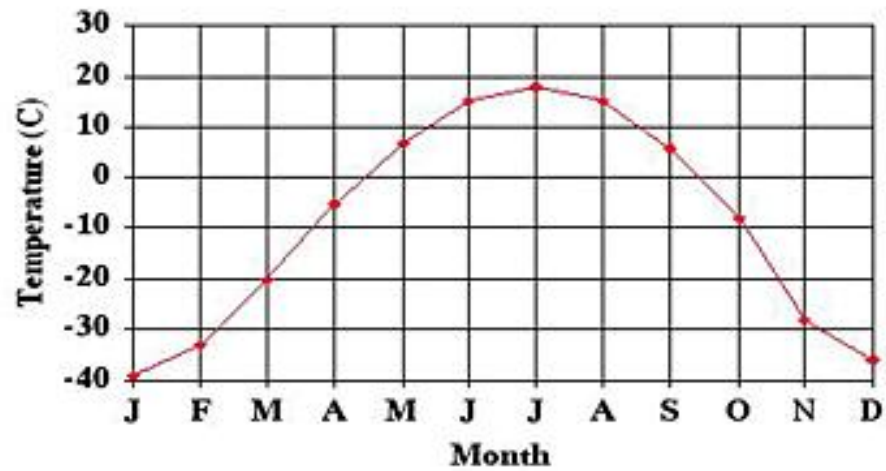






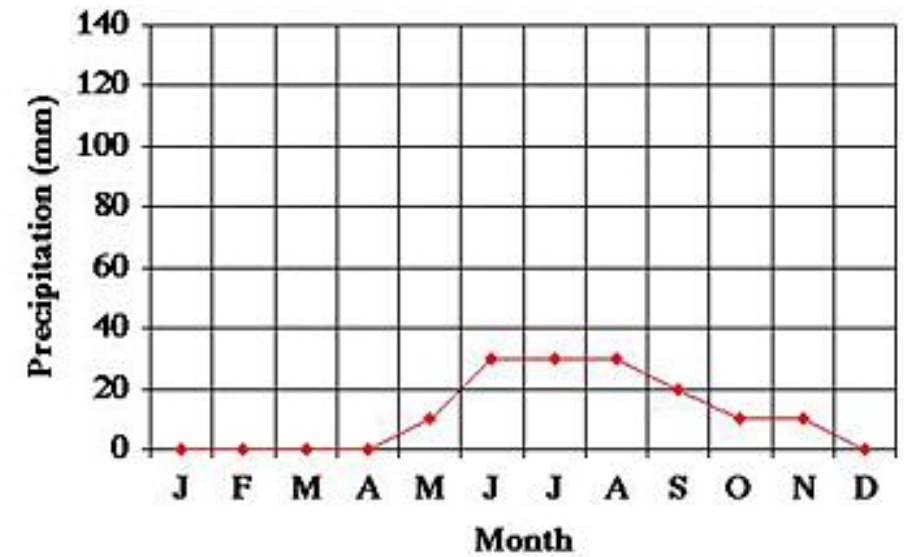
## Temperature

<https://www.earthobservatory.nasa.gov/img/biome/temprussia.gif>



## Precipitation

<https://www.earthobservatory.nasa.gov/img/biome/preciprussia.gif>



Frogmore, England / **temperate, deciduous forest**

Goteborg, Sweden **coniferous forest**

Koombooloomba, Australia **rain forest**

Barrow, Alaska **tundra**

Alice Springs, Australia **desert**

San Bernadino, California **shrubland**

Centralia, Kansas **grassland**

THANK YOU!

thank you