

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Period: \_\_\_\_\_

# Packet: Climate Variables

## CLASS NOTES

- Climate - \_\_\_\_\_

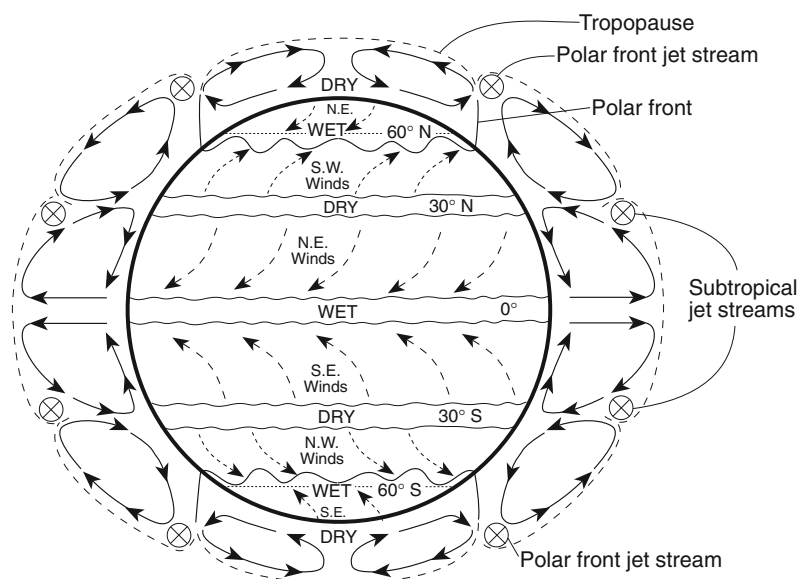
### 1. Latitude and Temperature

- Temperature is affected by \_\_\_\_\_, the angle of insolation, intensity, and \_\_\_\_\_

### 2. Planetary Winds

- Prevailing Winds - \_\_\_\_\_

- Prevailing Winds are caused by \_\_\_\_\_ differences and redistribute heat



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## 3. Latitude and Moisture

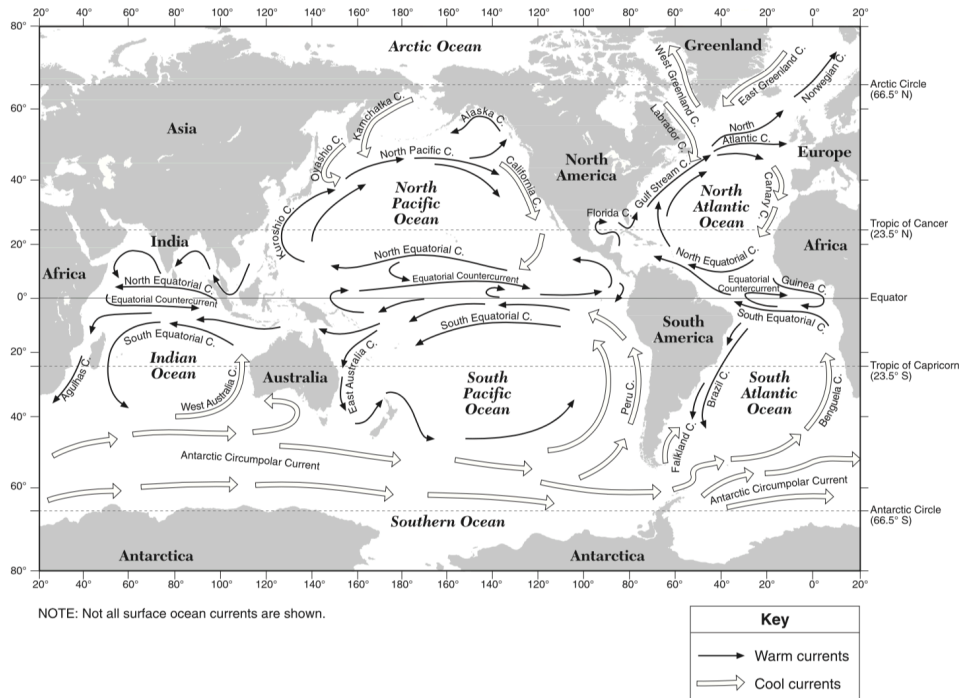
- Moisture content varies with latitude because of the planetary winds
  - Low pressure causes air to \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_, to form clouds and rain
  - High pressure causes air to \_\_\_\_\_ and form arid regions

## 4. Large Bodies of Water

- Oceans, seas, lakes, and bays modify climate regions where land masses close to a body of water will be regulated by the \_\_\_\_\_ rate of heating and cooling of water

## 5. Ocean Currents

- Coastal climates are modified by ocean currents
  - Warm waters flow away from the \_\_\_\_\_
  - Cold waters flow away from the \_\_\_\_\_



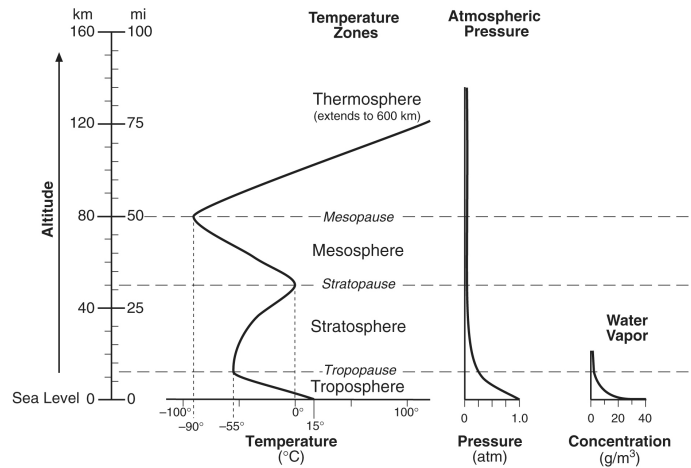
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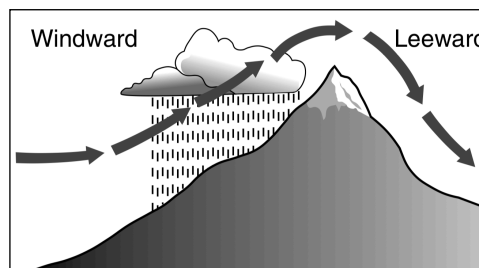
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## 6. Mountains and Elevation

- Higher elevations are cooler due to temperatures decreasing



- Mountains intersect planetary winds causing the air rise, expand, cool, and condense creating a cooler and more moist region on the windward side



## 7. Cloud Cover

- During the day clouds \_\_\_\_\_ sunlight from warming Earth's surface and at night \_\_\_\_\_ heat in the atmosphere

## 8. No Cloud Cover

- During the day sunlight reaches the earth and heat energy \_\_\_\_\_ the surface and at night \_\_\_\_\_ back into space

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**Directions:** Answer the following questions using your class notes and your Earth Science Reference Tables.

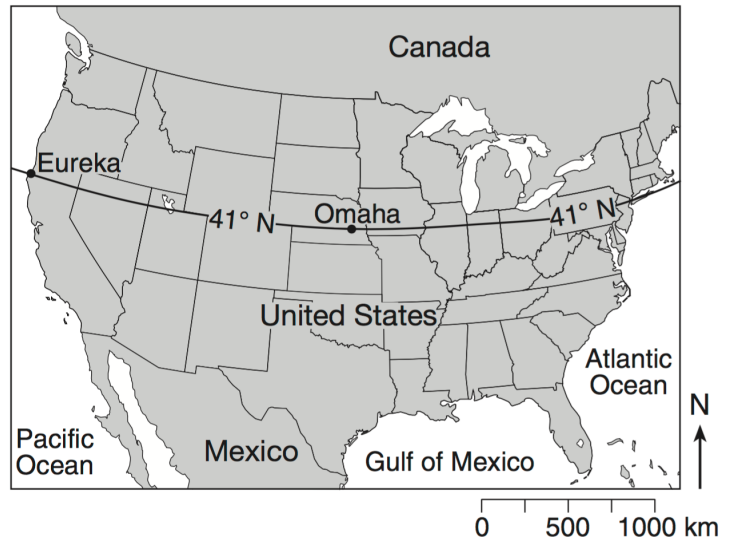
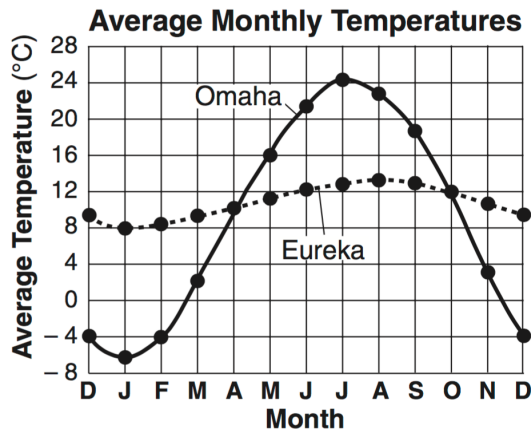
1. Which current is a warm ocean current that flows completely around Earth?
  - a. North Equatorial Current
  - b. California Current
  - c. West Wind Drift
  - d. Gulf Stream
2. What is the best explanation for ice caps existing at the Earth's poles and some mountains located near the Earth's Equator have snow-covered peaks?
  - a. Both mountain and polar regions have arid climates.
  - b. An increase in snowfall and an increase in temperature have a similar effect on climate.
  - c. Mountain and polar regions receive more energy from the Sun than other regions do.
  - d. High elevation and high latitude have a similar effect on climate.
3. Which one of the following statements best explains why climates at continental shorelines generally have a smaller yearly temperature range than inland climates at the same latitude?
  - a. Land changes temperature rapidly, due to the high specific heat and lack of transparency.
  - b. Ocean water changes temperature slowly, due to the high specific heat and transparency.
  - c. Ocean water is a good absorber and a good conductor of heat energy.
  - d. Land is a poor absorber and a poor conductor of heat energy.
4. Compared to an inland location of the same elevation and latitude, a coastal location is likely to have
  - a. warmer summers and cooler winters
  - b. cooler summers and warmer winters
  - c. warmer summers and warmer winters
  - d. cooler summers and cooler winters
5. According to the Earth Science Reference Tables, the climate of which location in New York State is influenced least by large bodies of water?
  - a. Buffalo
  - b. Jamestown
  - c. New York City
  - d. Binghamton
6. Which ocean current brings warm water to the southeastern tip of Africa?
  - a. Brazil Current
  - b. Guinea Current
  - c. Agulhas Current
  - d. Benguela Current
7. The deflection of Earth's planetary winds is an example of
  - a. the Coriolis effect
  - b. the Doppler effect
  - c. convection
  - d. gravitational pull

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Base your answers to questions 8 through 10 on the graph and map below and on your knowledge of Earth science. The average monthly temperatures for Eureka, California, and Omaha, Nebraska, are plotted on the graph. The map indicates the locations of these two cities.



8. Explain why Omaha, which is farther inland, has a greater variation in temperatures throughout the year than Eureka, which is closer to the ocean.
9. Identify the month with the greatest difference in the average temperature between the two cities.
10. Identify the surface ocean current that affects the climate of Eureka.