

*\*Use the factors that influence climate information below to answer the questions on the next page.*

# Activity

You can use this info to help you throughout the project.

**Do this 1st**

## Factors That Influence Climate

While an area's climate can be the product of several factors, usually only one or two exert a major influence. In this activity you will identify factors, from those listed below, that are primarily responsible for producing the climate for selected locations.

### Factors That Influence Climates

• Those that affect:

#### Temperature

- | Factor  | Influence |
|---|-----------|
| 1. <u>Latitude</u> —As latitude increases, the average yearly temperature decreases.  |           |
| 2. <u>Nearness to centers of large landmasses</u> —Locations near the center of a large landmass tend to have wide ranges in temperatures, both between day and night and seasonally.                             |           |
| 3. <u>Nearness to large bodies of water</u> —Large bodies of water have a moderating effect on the temperatures of coastal areas, producing low ranges in temperature, both between day and night and seasonally. |           |
| 4. <u>Location relative to large mountain ranges</u> —Windward sides of mountain ranges are cooled, while leeward sides are warmed.   |           |
| 5. <u>Elevation</u> (height above sea level)—As elevation increases, the average yearly temperature decreases.  |           |
| 6. <u>Ocean currents</u> —Ocean currents tend to warm temperatures of eastern coastal areas and cool temperatures of western coastal areas.   |           |

*Michigan is about 900 ft above sea level*

*Colorado is about 6,800 ft above sea level*

• Those that affect:

#### Precipitation

- | Factor   | Influence |
|--|-----------|
| 1. <u>Latitude</u> —Belts of low pressure centered at latitudes of 0° and 60° N and S produce generally heavy precipitation. Belts of high pressure centered at latitudes of 30° N and S produce dry climates; sometimes even deserts. |           |
| 2. <u>Nearness to centers of large landmasses</u> —Locations near the center of a large landmass tend to have dry climates.  |           |
| 3. <u>Nearness to large bodies of water</u> —Areas near large bodies of water tend to have higher than average precipitation, especially areas on the leeward side of the water.   |           |
| 4. <u>Location relative to large mountain ranges</u> —Windward sides of mountains tend to receive higher than average precipitation, while leeward sides receive lower than average precipitation.                                     |           |
| 5. <u>Prevailing wind direction</u> —Wind direction determines the windward and leeward sides of both mountain ranges and large bodies of water.   |           |

Using the table of factors that influence climate, answer the following questions, which refer to the diagram on page K57. The diagram represents an imaginary continent on the Earth that is surrounded by water. The arrows indicate the direction of the prevailing winds. Two large mountain ranges are also indicated. Points A, B, and E are located at sea level; C and D are in the foothills of the mountains; F is high in the mountains.

## Example

1. What factor would cause location F to have a colder yearly climate than any other location?

Center of a large landmass (mountains).  
D and C are located near a large landmass (mountains) too but not in the center.

2. What three factors would cause location E to have the greatest annual rainfall?

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3. Which location, C or D, would you expect to have the greater annual rainfall? \_\_\_\_\_

Explain your answer. \_\_\_\_\_

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4. Which location, A or B, would you expect to have the greater range in temperature during the year? \_\_\_\_\_ Explain your answer. \_\_\_\_\_

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5. Location A is in the center of a large desert. What factor could account for its low annual precipitation? \_\_\_\_\_

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6. What three factors would cause the climate at location D to be cooler than at location B?

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Name \_\_\_\_\_



