	Climate - Chapter 26 **26.1 Factors That Affect Climate**
Intro	**climate** the average weather conditions in an area over a long period of time ▪***Temperature Range:*** the difference between the highest and lowest temperatures of a month ▪***Precipitation:*** The average amount of rainfall an area can acquire over a year ▪The climate of a region can also be affected by the –*Latitude of a region* –*Heat absorption and release* –*Topography* –*Winds* –*Ocean currents*
Latitude	▪**Latitude** is the distance from the equator. ▪Latitude determines the amount of solar energy received, and the prevailing winds of a region ▪The higher the latitude of an area is, the smaller the angle at which the sun's rays hit Earth is and the smaller the amount of solar energy received by the area is.
Solar Energy	▪Because Earth's axis is tilted, the angle at which the sun's rays hit an area changes as Earth orbits the sun. ▪Equatorial regions: 12 hours day & night with steady high temperatures. ▪Polar regions: large variation of daylight hours, steady low temperatures.
Wind Patterns	▪Latitude determines global winds ▪Winds affect humidity, precipitation, temperature, & cloud cover. ▪Different prevailing winds = different climate ▪Global winds also affected by ocean currents & major mountain ranges.
Heat Absorption & Release	**specific heat** the quantity of heat required to raise the temperature of 1 gram of a substance 1°C ▪Even if not in motion, water warms more slowly than land does. ▪Water also releases heat energy more slowly than land does. ▪Land heats faster than water and thus can reach higher temperatures in the same amount of time. ▪Waves, currents, and other movements continuously replace warm surface water with cooler water from the ocean depths. ▪In turn, the temperature of the land or ocean influences the amount of heat that the air above the land or ocean absorbs or releases. ▪The temperature of the air then affects the climate of the area.

Ocean Currents	▪Water moves around the globe – ***LAND DOESN'T*** ▪The temperature of ocean currents that come in contact with the air influences the amount of heat absorbed or released by the air. ▪The temperature of the air moving ***ONTO SHORE*** is affected by the temperature of the ocean/water it comes into contact with
Seasonal Winds	**monsoon** a seasonal wind that blows toward the land in the summer, bringing heavy rains, and that blows away from the land in the winter, bringing dry weather ▪Temperature differences between the land and the oceans sometimes cause winds to shift seasonally in some regions. ▪Monsoon climates, such as that in southern Asia, are caused by heating and cooling of the northern Indian peninsula.
Topography	▪The surface features of the land, or *topography*, also influences climate. ▪The elevation, or height of landforms above sea level, produces distinct temperature changes. ▪Temperature generally decreases as elevation increases.
Rain Shadows	▪When a moving air mass encounters a mountain range, the air mass rises, cools, and loses most of its moisture through precipitation. ▪As a result, the air that flows down the other side of the range is usually warm and dry. This effect is called a *rain shadow*. ▪One type of warm, dry wind that forms in this way is a *foehn* (FAYN), a dry wind that flows down the slopes of the Alps.