ABIOTIC FACTORS

1. PHYSICAL ENVIRONMENT

homeostasis
- maintaining a stable internal environment
- resist changes in external environment
- temperature - environment 0-40°C
  - mammals 37° & birds 41°

law of minimum
- distribution-abundance controlled by a limited resource
- temp, light, food, water, space, soil

law of tolerance - distribution-abundance also retarded if a resource is excessive

2. SUNLIGHT & HUMIDITY

light - provides for heat, photosynthesis
- 25% reflected by atmo
- 25% absorbed by atmo
- 5% reflected by surface
- 45% absorbed by surface

greenhouse effect
- surface absorbs high-energy light
- surface re-radiates low-energy light
- atmo absorbs & incr global temp.

absolute humidity
- amount of moisture in atmosphere
- more humid if warmer, at lower elev.

3. PERIODICITY

periods - daily circadian, 2x daily tidal, monthly lunar, annual

seasons
- earth tilted 23.5° from axis of rotation
- tropics direct sunlight
- temperate sunlight more spread out, cooler-fluctuates more than tropics
- northern & southern seasons opposite

4. SOIL

soil - reservoir for nutrients (incl. P & S)
- formed from weathering of rocks

textures - % diff size of soil particles
- clay small, silt medium, sand large, gravel largest
- loam balances clay-silt-sand

5. GEOGRAPHY

microclimate
- local weather in immed surroundings

vegetation - cooler if more plants

topography - valleys more humid
- south-facing slopes sunny & warmer
- north-facing slope shady & cooler
- warmer nearer to ground

rain shadow - upslope cools & rains
- downslope warms & absorbs water

6. URBAN ENVIRONMENTS

absorbs more sunlight
- more if concrete, less if haze/smog

radiates more heat - 6-8° warmer
- more people, autos, bldgs, heaters

lower relative humidity - less plants

less evaporation - water drains away

more fog - condenses around smog