**Climatology Study Guide**

**Complete ALL by Test Day (October 17th)**

EEn.2.6 Analyze patterns of global climate change over time.

EEn.2.6.1 Differentiate between weather and climate.

1. Explain major climate categories (Köppen climate classification system – temperate, tropical, and polar).
2. Compare weather and climate.

EEn.2.6.2 Explain changes in global climate due to natural processes.

1. Summarize natural processes that can and have affected global climate (particularly El Nino/La Nina, volcanic eruptions, sunspots, shifts in Earth’s orbit, and carbon dioxide fluctuations).
2. Explain the concept of the greenhouse effect including a list of specific greenhouse gases and why CO2 is most often the focus of public discussion.

EEn.2.6.3 Analyze the impacts that human activities have on global climate change (such as burning hydrocarbons, greenhouse effect, and deforestation).

1. Outline how deforestation and the burning of fossil fuels (linked to increased industrialization) contribute to global climate change.
2. Explain how large-scale development contributes to regional changes in climate (i.e. heat islands in large cities like NY, Chicago, Beijing, etc).
3. Analyze actions that can be taken by humans on a local level, as well as on a larger scale, to mitigate global climate change.

EEn.2.6.4 Attribute changes to Earth’s systems to global climate change (temperature change, changes in pH of ocean, sea level changes, etc.).

1. Analyze how changes in global temperatures affect the biosphere (ex. agriculture, species diversity, ecosystem balance).
2. Explain how changes in atmospheric composition contribute to ocean acidification. Analyze its effect on ocean life and its connection to global climate change.
3. Explain how changes in global temperature have and will impact sea level.
4. Analyze how sea level has been affected by other earth processes such as glaciations and tectonic movements. Consider long- and short-term changes.