**AICE Environmental Management/ AP Environmental Science: Final Exam Review Sheet**

**Section 1: The Biosphere**

1. What are abiotic and biotic factors and how do they contribute to ecosystem functions?
2. Outline the main processes and steps in the carbon, nitrogen, phosphorus, and oxygen cycles (table? Chart? Etc.?).
3. Describe the process of eutrophication and what dangers it poses. What causes it?
4. Create a diagram comparing species, populations, communities, ecosystems, and biomes.
5. Diagram a food chain/web. Include brief descriptions of all trophic levels and examples of each. What happens when one level is eliminated or numbers plummet?
6. Diagram or describe succession, including differences in primary and secondary succession.
7. Describe the four ways we describe populations, including examples for each.
8. What are some ways that populations can grow? Include graphs and a survivorship curve to demonstrate what happens when a population hits carrying capacity.
9. How does competition limit population growth rates?
10. How do limiting factors affect populations? Differentiate between density dependent and independent limiting factors.
11. Describe the different types of organismal interactions (parasitism, mutualism, commensalism).
12. How does human population growth compare in LEDC vs MEDC countries?
13. Describe the four stages of demographic transition.
14. How does increasing human population impact the environment? Provide at least three examples.
15. What are indicator and umbrella species?

**Section 2: The Lithosphere**

1. Create a diagram comparing and describing the chemical AND physical layers of the Earth.
2. Create comparative drawings to show the three types of plate boundaries. Include differences for continental and oceanic boundaries.
3. What causes the different types of volcanoes?
4. How can humans avoid health hazards posed by volcanoes? How do we monitor volcanoes?
5. Describe the main points of an earthquake (focus, epicenter, what causes the quake).
6. Compare and contrast the two types of body waves and the one discussed type of surface wave. Include drawings for each.
7. Describe and diagram the three types of faults.
8. How do we monitor and protect ourselves from earthquakes?
9. How do soils form and what constitutes each soil horizon?
10. Describe the rock cycle.
11. Compare and contrast soil erosion and degradation.
12. What are mass movements and what causes them?
13. How can humans manage mass movements and prevent their damage?
14. What sustainable agricultural practices can improve and protect soil quality?
15. What are fossil fuels and how are each of the main three fuels formed?
16. Compare and contrast each of the three main fossil fuels.
17. What methods do we use to extract lithosphere resources from the Earth? Describe at least three.
18. How does nuclear power work and what are some important controls we have to make nuclear power more safe?
19. What is energy sustainability and what are some concerns associated with it?
20. Create a chart that comprehensively discusses each of the following: biomass and biofuels, hydroelectric power, solar energy, wind power, geothermal energy, and hydrogen fuel cells.

**Section 3: The Hydrosphere**

1. Diagram and describe the steps of the water cycle.
2. Describe the different ways water is stored as groundwater (confined, unconfined, perched aquifers).
3. How do humans use water on a global scale? How do uses compare in developed vs. less developed countries?
4. How to humans over-consume water and what are some ecological concerns associated with this?
5. What are some actions humans take to cause floods, and how might we control floods?
6. Why is water pollution a serious concern both ecologically and in regards to human health?
7. Create a diagram to illustrate biomagnification.
8. Outline the three classes of water pollutants.
9. How is oil a pollutant and what dangers does it pose?
10. What legislation protects our clean water? Describe.
11. What are some issues associated with solid waste management around the world and in the United States? How do we dispose of our waste?
12. What can be done to improve the sustainability of solid waste management?
13. What is dangerous about disposing waste via landfills and incinerators?
14. What is CERCLA and why is it important?

**Section 4: The Atmosphere**

1. Create a diagram of the atmosphere that includes important layers, temperature changes, and labeled technologies.
2. What is stratospheric ozone and why is it important? Why is tropospheric ozone harmful?
3. What causes winds and global wind currents?
4. How do winds create the Earth’s climate bands and biomes?
5. Describe in a chart Earth’s major terrestrial biomes: tundra, taiga, grasslands, temperate deciduous forest, desert, monsoon rainforest, tropical rainforest.
6. Describe in a chart Earth’s major aquatic biomes: freshwater ecosystems such as lakes, wetlands, and streams, marine biomes such as estuaries, intertidal zone, neritic zone, open sea zone, and deep sea zone.
7. How do atmospheric currents lead to oceanic currents?
8. What are some examples of extreme weather and how might we prepare for them?
9. What are the major sources of air pollution? Include both natural and anthropogenic causes.
10. Create a chart describing the sources, causes, and effects of the following pollutants: carbon dioxide, sulfur oxides, nitrogen oxides, photochemical oxidants, heavy metals, and VOC’s.
11. Diagram the greenhouse effect and describe why it is both important and dangerous.
12. What is global climate change and why should we be concerned about it?
13. How might global climate change influence the various living and nonliving spheres of Earth?
14. What might global climate change do to the human population?