**APES Study Guide**

**Unit 8: GLOBAL CHANGE**

***DUE****: Due on day of unit test.*

*Directions:**Answer each question in complete sentences.* ***Must be handwritten in order to receive credit.***

**Textbook Reference:**

Chapter 19 – Climate Disruption and Ozone Depletion

**Vocabulary:**

*Directions: Review key vocabulary, words may appear in quizzes and/or tests. You are not required to write the definitions but are encouraged to review.*

Chapter 19

carbon capturing and storage (CCS)

ozone

global cooling

global warming

greenhouse effect

**Study Guide Questions (SGQ):**

*Directions:**Answer each question in your own words as you read through the text. Answers must be in* ***complete handwritten sentences.***

Chapter 19

1. Describe atmospheric warming and cooling over the past 900,000 years and during the last century.
2. How do scientists get information about past temperatures and climates?
3. What is the greenhouse effect and why is it so important to life on the earth?
4. How have human activities affected atmospheric greenhouse gas levels during the last 275 years and especially in the last 30 years?
5. List the major human activities that add CO2, CH4, and N2O to the atmosphere.
6. After studying past climate change and the nature of the earth’s climate system for almost three decades, what two general conclusions did most of the world’s climate scientists agree on about atmospheric warming over the past 30 years? How did scientists arrive at these two general conclusions, and why was this such a rare event?
7. How do scientists use models to make projections about future temperature changes?
8. How can positive feedback loops affect future temperature changes and thus global climate? Give two examples of such loops.
9. Describe the contribution of waste heat from energy conversion devises to projected climate disruption.
10. Describe how each of the following might contribute to projected atmospheric warming and resulting global climate disruption: (a) CO2 emissions, (b) a hotter sun, (c) the oceans, (d) cloud cover and (e) air pollution. What are three effects of increasing atmospheric CO2 levels on the oceans?
11. Briefly describe how projected climate disruption is likely to affect: (a) drought, (b) ice cover, (c) permafrost, (d) sea levels, (e) extreme weather, (f) biodiversity, (g) crop yields, and (e) human health during this century.
12. List seven examples of climate tipping points we could be approaching.
13. What are five factors that make it difficult to deal with the problem of projected climate disruption?
14. Describe the interactions among science, politics and climate.
15. Describe John Sterman’s bathtub analogy as it applies to CO2 emissions.
16. What are three major prevention strategies and three major cleanup strategies for dealing with projected climate disruption?
17. List six steps that governments could take to help slow projected climate disruption.
18. What is a pollutant and why is CO2 being classified as a pollutant?
19. What are the advantages and disadvantages of using taxes on carbon emissions or energy use to help reduce greenhouse gas emissions?
20. What is cap-and-trade and what are the advantages and disadvantages of using it to help reduce greenhouse gas emissions?
21. What are the pros and cons of developing an international treaty to help deal with the threat of projected climate disruption?
22. What is the U. S. city of Portland, Oregon, doing to help reduce its greenhouse gas emissions?
23. What is China doing to help reduce its contribution to the climate disruption?
24. What is the United States doing to help reduce its contribution to this problem?
25. List five ways in which you can reduce your carbon footprint.
26. List five ways in which we can prepare for the possible long- term harmful effects of climate change.
27. Describe how human activities have depleted ozone in the stratosphere, and list five harmful effects of such depletion.
28. How are the problems of atmospheric warming and ozone depletion connected?