**(AP) ENVIRONMENTAL SCIENCE 2022-23 November 9, 2022**

**Today’s Agenda (Day 51)**

1. Housekeeping Items

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1. Homework Check:

🡪 Chapter 7 Vocabulary

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1. Class Activity:

🡪 DAY 3: Chapter 6 PPT Review

1. ~~Section 6.2 – Biomes are determined by climate~~
2. **Section 6.3 – Major biomes of the world**
3. Section 6.4 – Major aquatic ecosystems

HOMEWORK:

* READ: CHAPTER 6 – Kinds of Ecosystems & Communities
* READ: Chapter 7 – Populations: Characteristics and Issues
* COMPLETE: Ch 7 Reading Guide Questions
* **STUDY**: Chapter 6 Test

CHAPTER 7 – Populations

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| Affluence | Age distribution | Asexual reproduction  | Biotic potential | Birth rate | Carrying capacity |
| Death phase | Death rate | Deceleration phase | Demography | Density-dependent limiting factors | Dispersal |
| Doubling time | Ecological footprint | Emigration | Environmental resistance | Exponential growth phase (log phase) | Extrinsic limiting factors |
| Gross national income | Immigration  | intrinsic limiting factors | K-strategists | Lag phase | Less-developed countries |
| Limiting factors | More-developed countries | Mortality | Natality | Population | Population density |
| Population growth rate | R-strategists | Replacement fertility | Sex ratio | Sexual reproduction | Stable equilibrium phase |
| Standard of living  | Survivorship curve | Total fertility rate | Zero population growth |  |  |

REMINDERS

* **TEST: Ch 6 ~~🡪 Nov. 8~~ Nov. 10**
* **QUIZ: Ch 7 Vocabulary – Nov. 15**
* Ch 7 Reading Guide – Nov. 12
* **TEST: Ch 7 🡪 Nov. 17 Note change of date**

**(AP) ENVIRONMENTAL SCIENCE 2022-23 READING GUIDECHAPTER 6**

REVIEW QUESTIONS

1. Describe the process of succession. How does primary succession differ from secondary succession?

2. How does a climax community differ from a successional community?

3. List two abiotic characteristics typical of each of the following biomes: tropical rainforest, desert, tundra, taiga, savanna, Mediterranean shrublands, tropical dry forest, temperate grassland, temperate rainforest, and temperate deciduous forest.

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5. What two primary factors determine the kind of terrestrial biome that will develop in an area?

6. How does height above sea level affect the kind of biome present?

7. What areas of the ocean are the most productive?

8. What is the role of each of the following organisms in a marine ecosystem: phytoplankton, zooplankton, algae, coral animals, and fish?

9. Which of the following organisms functions only in the euphotic zone: seaweed, crabs, phytoplankton, fish?

10. List three differences between freshwater and marine ecosystems. 11. What is an estuary? Why are estuaries important?

CRITICAL THINKING QUESTIONS [for APES students only]

1. Does the concept of a “climax community” make sense? Why or why not?

2. What do you think about restoring ecosystems that have been degraded by human activity? Should it be done or not? Why? Who should pay for this reconstruction?

3. Identify the biome in which you live. What environmental factors are instrumental in maintaining this biome? What is the current health of your biome? What are the current threats to its health? How might your biome have looked 100, 1,000, 10,000 years ago?

4. Imagine you are a conservation biologist who is being asked by local residents what the likely environmental outcomes of development would be in the tropical rainforest in which they live. What would you tell them? Why do you give them this evaluation? What evidence can you cite for your claims?

5. The text says that about half of the old-growth temperate rainforest in the Pacific Northwest has been logged. What to do with the remaining forest is still a question. Some say it should be logged, and others say it should be preserved. What values, beliefs, and perspectives are held by each side? What is your ethic regarding logging old-growth in this area? What values, beliefs, and perspectives do you hold regarding this issue?

6. Much of the old-growth forest in the United States has been logged, economic gains have been realized, and second-growth forests have become established. This is not the case in the tropical rainforests, although they are being lost at alarming rates. Should developed countries, which have already “cashed in” on their resources, have anything to say about what is happening in developing countries? Why do you think the way you do?

**(AP) ENVIRONMENTAL SCIENCE 2022-23 READING GUIDECHAPTER 7**

REVIEW QUESTIONS

1. How is biotic potential related to the rate at which a population will grow?

2. List three characteristics populations might have.

3. Why do some populations grow? What factors help to determine the rate of this growth?

4. Draw and label a population growth curve.

5. Under what conditions might a death phase occur?

6. List four factors that could determine the carrying capacity of an animal species.

7. How do the concepts of birth rate and population growth differ?

8. How does the population growth curve of humans compare with that of bacteria on a petri dish?

9. Give examples of intrinsic, extrinsic, density-dependent, and densityindependent limiting factors.

10. How do K-strategists and r-strategists differ?

11. As the human population continues to increase, what might happen to other species?

12. All successful organisms overproduce. What advantage does this provide for the species? What disadvantages may occur?

13. What is demographic transition? What is it based on?

14. Interpret the meaning of I = P x A x T.

15. Why is your ecological footprint larger than that of a person in Africa?

16. How does the age distribution of a population affect the rate at which a population grows?

17. Why do economic well-being and the status of women influence the number of children born in a country? 18. List ten differences between your standard of living and that of someone in a less-developed country.

19. Why do people who live in overpopulated countries use plants as their main source of food?

20. Which three areas of the world have the highest population growth rate? Which three areas of the world have the lowest standard of living?

21. Describe three reasons why women in the less-developed world might desire more than two children.

22. How are age distribution, total fertility rate, and immigration affecting the way the U.S. population is changing?

CRITICAL THINKING QUESTIONS [for APES students only]

1. Why do you suppose some organisms display high natality and others display lower natality? For example, why do cottontail rabbits show high natality and wolves relatively low natality? Why wouldn’t all organisms display high natality?

2. Consider the differences between K-strategists and r-strategists. What costs are incurred by adopting either strategy? What evolutionary benefits does each strategy enjoy?

3. Do you think it is appropriate for developed countries to persuade less-developed countries to limit their population growth? What would be appropriate and inappropriate interventions, according to your ethics? Now imagine you are a citizen of a less-developed country. What might be your reply to those who live in more-developed countries? Why?

4. Population growth causes many environmental problems. Identify some of these problems. What role do you think technology will play in solving these problems? Are you optimistic or pessimistic about these problems being solved through technology? Why?

5. Do you think that demographic transition will be a viable option for world development? What evidence leads you to your conclusions? What role should the developed countries play in the current demographic transition of developing countries? Why?

6. Imagine a debate between an American and a Sudanese person about human population and the scarcity of resources. What perspectives do you think the American might bring to the debate? What perspectives do you think the Sudanese would bring? What might be their points of common ground? On what might they differ?

7. Many people in developing countries hope to achieve the standard of living of those in the developed world. What might be the effect of this pressure on the environment in developing countries? On the political relationship between developing countries and already developed countries? What ethical perspective do you think should guide this changing relationship?

8. The demographic changes occurring in Mexico have an influence on the United States. What problems does Mexico face regarding its demographics? Should the United States be involved in Mexican population policy?