**(AP) ENVIRONMENTAL SCIENCE 2022-23 November 14, 2022**

**Today’s Agenda (Day 53)**

1. Housekeeping Items

🡪

1. Homework Check:

🡪 Ch 7 Reading Guide

1. Class Activity:

🡪 BEGIN: Chapter 7 PPT Review

1. **Section 7.1 – Population Characteristics**
2. Section 7.2 – Population growth curve
3. Section 7.3 – Factors that limit population size
4. Section 7.4 – Categories of limiting factors
5. Section 7.5 – Carrying Capacity
6. Section 7.6 – Reproductive strategies and population fluctuations
7. Section 7.7 – Human population growth
8. Section 7.8 – Human population characteristics and implications
9. Section 7.9 – Factors that Influence human population growth
10. Section 7.10 – Population growth rates and standard of living
11. Section 7.11 – Hunger, food production and environmental degradation
12. Section 7.12 – The demographic transition concept
13. Section 7.13 - The US population picture
14. Section 7.14 – What does the future hold?

HOMEWORK:

* READ: Chapter 7 – Populations: Characteristics and Issues
* COMPLETE:
* **STUDY**: Chapter 7 Vocabulary Quiz & Test

CHAPTER 7 – Populations

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 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

* **QUIZ: Ch 7 Vocabulary – Nov. 17**
* **TEST: Ch 7 🡪 Nov. 22**

**(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 density-independent 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?

**(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?