

APES Study Guide

Unit 4: Human Population & Urban Environments

This unit begins a transition that brings the course from the study of ecology and earth science (the manner in which the Earth's systems evolved to function) to the study of environmental science (environmental change, and the consequences of the interaction between humans and their environment).

Textbook Reference:

Miller, *Living in the Environment*, 15th Edition: Chapters 8 & 9 (p2-30; p529-546)

Outside Reading:

Gonick, and Outwater, *The Cartoon Guide to the Environment*, Chapter 8.

Vocabulary

(50)

population	mortality	population momentum
population dynamics	birth rate	family planning
demography	crude birth rate	demographic transition
age structure	death rate	fall line
age structure diagram	crude death rate	city planning
zero population growth	growth rate	urban sprawl
logistic growth curve	replacement-level fertility	city park
J-curve	total fertility rate	urbanization
migration	baby boom	green belt
immigration	life expectancy	urban forestry
emigration	infant mortality rate	heat island

Study Guide Questions (SGQs): (Please write out the question and answer thoroughly.)

1. Describe the various types of population distribution patterns that can occur in nature and comment on which is most common and why.
2. Define *birth rate*, *death rate*, *immigration*, and *emigration*. Write an equation to mathematically describe the relationship between these rates and the rate of population change.
3. Define *limiting factor*. Give an example of a resource that would be limiting in an ecosystem.
4. Define *exponential growth*.
5. Compare a *J-shaped* growth curve with an *S-shaped* growth curve and comment on the factors that produce the sigmoid (S-shaped) curve.
6. Explain *density-dependent* population controls and *density-independent* population controls.
7. List the four general types of population fluctuations in nature. Indicate which of these is most common.
8. Discuss the relationships between predators and prey and the possible interactions upon each other.
9. Define *r-selected* species and *K-selected* species and compare the two. Give an example for each type of species reproductive pattern.
10. Describe the three general types of survivorship curves in nature.
11. Explain the genetic effects on a population that has undergone *bottleneck*, *genetic drift*, and/or *inbreeding* due to isolation of the population.
12. List the nine major ways that humans have altered natural ecosystems and comment on the effects of these alterations for the future of the planet.
13. Define *birth rate*, *death rate*, *emigration rate*, and *immigration rate*. Write an equation to mathematically describe the relationship between these rates and the rate of population change.
14. Distinguish between replacement-level fertility and total fertility rate. Describe how total fertility rate affects population growth. List at least five factors that affect birth and fertility rates and five factors that affect death rate.
15. Summarize changes over time in the U.S. population growth rate. Give reasons for the high rate of teen pregnancy in the United States compared to the rate in other industrialized countries. Draw connections between population growth and environmental degradation in California.
16. Define *infant mortality rate*. Explain why it is considered a good indicator of quality of life.
17. Compare rates of population growth in developed countries and developing countries. Explain the differences you find.
18. Using population age structure diagrams, explain how the age structure of a country creates population growth momentum. Summarize problems associated with a baby boom and a declining population.
19. Summarize key factors used to influence population size: immigration policy, family planning, economic rewards and

- penalties, empowering women. Summarize the current attitudes toward immigration policy in the United States.
20. List the four stages of the demographic transition. List social, biological, political, and economic issues that can be addressed to help developing countries undergo a demographic transition. List three factors that may limit the effectiveness of a demographic transition in influencing population size.
 21. Compare and evaluate the population policies of India and China. Summarize what we have learned from decades of trying to influence human population growth. List the major goals of the UN Conference on Population and Development.

APES Unit 4 Calendar

Monday October 24	Tuesday October 25	Thursday October 27
	Unit 3 Test In Class: • Test • Essay • Grade Test in Class 📅	Quiz In Class: • <i>The People Bomb</i> • Human Population HW: • SGQs 1-12 • 10 vocabulary
Monday October 31	Tuesday November 1	Thursday November 3
Due: • SGQs 1-12 In Class: • Cities • Transforming the City • <i>The People Bomb</i> Handout: • Cartoon Guide chapter 8	In-Class Essay	In Class: • Transforming the City • Cartoon Guide chapter 8 • Eco-column Lab • Unit Review HW: • Unit review • SGQs 13-21
Monday November 7	Wednesday November 9	Thursday November 10
In Class • Lecture on Populations 📅 HW: • Unit review • Study for the test...	Unit 4 Test In Class • Grade In-Class Essay Due: • Unit 4 Vocabulary List • SGQs 13-21 Handout: • "The Worst Mistake..." • Study Guide – Unit 5 HW: • Read "The Worst Mistake..."	📅 NO CLASS 📅 