Chapter 7

Reading Motivator

Human Populations

From the AP Outline:

**Population Biology Concepts (10–15%)**

1. *Population ecology; carrying capacity; reproductive strategies; survivorship curves*

 **B.  Human Population**

 1.  Human Population Dynamics - *Historical population sizes; distribution; fertility rates; growth rates and doubling*

 *times; demographic transition; age-structure diagrams*

 2.  Population Size - *Strategies for sustainability; case studies; national policies*

 3.  Impacts of Population Growth *Hunger; disease; economic effects; resource use; habitat destruction*

**The Environmental Implications of China’s Growing Population** - Opening Case Study pages 179-180

1. What types of environmental problems are being caused by China’s large population growth?
2. In addition to population growth, economic development is increasing resource consumption in China. Which do you think plays a bigger role in achieving sustainability: addressing population growth or economic development?
3. Considering China’s growth, do you think the strict measures taken by the country’s government to reduce growth (such as the One Child Policy) are justified? Or is this a violation of human rights?

**Scientists Disagree on Earth’s Carrying Capacity** pages 180-181

1. What was Malthus’ prediction about the carrying capacity of the Earth, and why was he wrong?
2. What do you think the major constraining limits on human population growth are? (In other words, what will be the critical **limiting resources** that determine Earth’s carrying capacity for humans?)

**Demographics – Many factors drive human population growth** pages: 181-188

1. Provide the formula for calculating the change in population size over a given period of time:

1. What does the TFR of a country measure, and why is it an important demographic measurement?
2. Which regions of the world have SHORT life expectancies, which ones have LONG life expectancies, and what are the major factors that influence this?
3. What information do population pyramids show, and why are they important demographic information?

**Many Countries go through Demographic Transition** pages: 188-191

1. What is underlying cause of the demographic transition that most countries go through as they develop?

Complete the following chart regarding the demographic transition:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Stage I** | **Stage II** | **Stage III** | **Stage IV** |
| What happens? |  |  |  |  |
| Why? |  |  |  |  |
| Impact on population? |  |  |  |  |

1. What major factors tend to reduce the number of children families have?
2. Based on the experiences of Thailand, Kenya and China in promoting family planning, what do you think the key is to reducing population growth in developing countries? Is this goal beneficial or harmful?

**Population Size and consumption interact to influence the environment: pages: 191-196**

**Development, Consumption, IPAT**

1. How do the annual population growth rates of developed countries compare to developing countries?
2. Where is most of the future growth in the human population expected to happen?
3. Why does calculating the per-capita ecological footprint for a country allow us to approximate the affluence level of the society?
4. What are the 3 terms in the IPAT equation that affect a society’s impact on its environment? Give an example of how a change in each would cause a change in the society’s impact.
	1.
	2.
	3.
5. How can the technology factor of the IPAT equation work to either increase OR decrease the impact of a society on the environment?
6. As a country develops economically, its impact on the environment shifts from local to global scales. Using your knowledge of the industrial revolution, explain why this is.
7. Contrast the types of environmental problems which occur from local environmental impacts (typically in developing countries) and global environmental impacts (typically from developed countries).
8. How does the percentage of people living in urban areas in developed countries compare to developing countries? How is this expected to change in the next 20 years?
9. We find that countries with very low GDPs per capita have little impact on the environment, then the impact rises as GDP increases, until eventually the impact begins to decrease. What causes this pattern (low impact🡪 rising impact 🡪 falling impact)?
10. Some environmental scientists have argued that **increasing the GDP** of developing nations is the best way to decrease their impact on the environment. Explain why this might work.

Working Towards Sustainability: **Gender Equity and Population Control in Kerala**: pages 197-198

1. The status and rights of women varies widely around the world; in some nations, they have surpassed men in educational attainment, while in other countries women remain second-class citizens or victims of violence and poverty. How do women’s rights and societal development interact? Consider demographics, economics, politics, and sustainability in your response.

**Chapter 7 Vocabulary List**

|  |  |
| --- | --- |
| Demography | . |
| Demographers | . |
| Immigration | . |
| Emigration | . |
| Crude Birth Rate (CBR) | . |
| Crude Death Rate (CDR) | . |
| Total Fertility Rate | . |
| Replacement-level fertility | . |
| Developed countries | . |
| Developing countries | . |
| Life expectancy | . |
| Infant mortality | . |
| Child mortality | . |
| Age structure diagram | . |
| Population pyramid | . |
| Population momentum | . |
| Demographic transition | . |
| Family planning | . |
| Affluence | . |
| IPAT Equation | . |
| Urban area (census definition) | . |
| Gross domestic product (GDP) | . |