**Environmental Science Study Guide**

Human Population and Demographics

Objectives:

* Assess the scope of human population growth.
	+ Global population at 7 billion and adding about 3 people every second.
	+ Global growth rate currently stands at 1.2%.
	+ Rising population can deplete resources, intensify pollution, stress social systems, or degrade ecosystems, such that natural environment or our quality of life decline.
* Evaluate how human population, affluence and technology affect the environment.
	+ Rising population and rising affluence (leading to greater consumption) each increase environmental impact. Technological advances have frequently worsened environmental degradation, but they can also help mitigate our impact.
* Explain and apply the fundamentals of demography
	+ Demography applies the principles of population ecology to the statistical study of human populations.
	+ Demographers study size, density, distribution, age structure, and sex ratios of populations, as well as rates of birth, death, immigration, and emigration.
	+ Total fertility rate (TFR) contributes greatly to change in a population’s size.
* Outline and assess the concept of demographic transition
	+ The demographic transition model explains why population growth has slowed in industrialized nations. Industrialization and urbanization have reduced the economic need for children, while education and the empowerment of women have decreased unwanted pregnancies. Parent in developed nations choose to invest in quality of life rather than quantity of children.
	+ The demographic transition may or may not proceed to completion in all of today’s developing nations. Whether it does is of immense importance for the quest for sustainability.
* Describe how wealth and poverty, the status of women, and family planning programs affect population growth.
	+ When women are empowered and achieve equality with men, fertility rates fall and children tend to be better cared for, healthier and better educated.
	+ Family planning programs and reproductive education have successfully reduced population growth in many nations.
	+ Poorer societies tend to have higher population growth rates than do wealthier societies.
	+ The high consumption rates of affluent societies may make their ecological impact greater than that of poorer nations with larger populations.
* Characterize the dimensions of the HIV/AIDS epidemic.
	+ About 40 million people worldwide are infected with HIV/AIDS, of which 27 million live in sub-Saharan Africa.
	+ Epidemics that claim large numbers of young and productive members of society influence population dynamics and can have severe social and political ramifications.
* Articulate your thoughts on statements that deal with ethical issues about population and the environment.
* Identify possible environmental, social, political and economic effects of a growing world population.
* Explain the cause and effect relationships between environmental, social, political and economical issues and the growing world population.
* Understand how certain events from the past related to the environment, food and agriculture, public and reproductive health, industry/transportation, social justice, and women’s roles have influenced population.
* Determine whether certain environmental, social and economic indicators show improvement or decline over the past 200 years.
* Examine how increases and decreases in certain population trends impact the health and wellbeing of our global community.
* Understand that despite the progress we’ve made over the years, there are still many areas where we must work to improve the lives of others and the global environment.
* Be familiar with U.N. Millennium Development Goals and progress being made toward them.
* Make connections between various quality of life indicators for several countries and draw conclusions based on these connections.
* Discuss the factors that contribute to continued population growth.
* Articulate your thoughts on Hans Rosling’s paradoxical answer that only by raising the living standards of the poorest can we check population growth.
* Compare and contrast how the three developing nations (China, India and Kenya) have tried to slow rapid population growth through the use of national campaigns.
* Indentify the pros and the cons of the attempts of these nations to slow rapid population growth.

**Vocabulary**

*Understand and be able to apply each of these terms.*

1. Demographics –
2. Developing Countries –
3. Developed Countries –
4. Total Fertility Rate –
5. Life Expectancy –
6. U.N. Millennium Development Goals-

**Key Concepts**

*Identify and be able to relate events that occurred within each of these areas to population growth.*

1. Environment-
2. Food and Agriculture-
3. Public and Reproductive Health-
4. Industry/ Transportation-
5. Social Justice-
6. Women’s Roles-

**Critical Thinking**

*Be able to read, analyze, and give complete answers to questions like these.*

1. Fill out this summary chart showing the demographic divide between developed and developing countries:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Example Country** | **Average Age** | **Average Income per Person** | **Fertility Rate** | **Child Mortality Rate** |
| **Developed** |  |  |  |  |  |
| **Developing** |  |  |  |  |  |

1. The majority of the world’s population is found in ( developed / developing ) countries.
2. Fill out this summary table of the differences between the stages of the demographic transition model.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Description of Living Conditions**  | **Birth Rates (High / Low)** | **Death Rates (High / Low)** | **Population Change**  |
| **Pre-Industrial****stage** |  |  |  |  |
| **Transitional****stage** |  |  |  |  |
| **Industrial****stage** |  |  |  |  |
| **Post-Industrial****stage** |  |  |  |  |

1. Why has human population continued to grow despite environmental limitations? Do you think this growth is sustainable? Why or why not?
2. How technology can either increase or decrease environmental impact? Provide at least 2 examples.
3. What characteristics and measures do demographers use to study human populations? How does each of these help determine the impact of human populations on the environment?
4. Why have fertility rates fallen in many countries?
5. How does the demographic transition model explain the increase in population growth rates in recent centuries? How does it explain the decrease in population growth rates in recent decades?
6. Why are the empowerment of women and the pursuit of gender equality viewed as being important to controlling population growth? Describe the aim of family-planning programs.
7. Why do poorer societies have higher population growth rates than wealthier societies? How does poverty affect the environment? How does affluence affect the environment?
8. Do you agree with Hans Rosling that only by closing the gap between the rich and the poor can we reduce population growth or do you think that by raising the living standards of the poorest we will create new environmental issues? Explain.
9. Consider Nicaragua. How do population, affluence, technology and ecological sensitivity affect your environment? How can we regulate the relationship between population and its effects on the environment?
10. Do you think all of today’s developing nations will complete the demographic transition and come to enjoy a permanent state of low birth and death rates? Why or why not? What steps might we as a global society take to help ensure that they do? Now think about developed nations such as the US and Canada. Do you think these nations will continue to lower and stabilize their birth and death rates in a state of prosperity? What factors might affect whether they do so?
11. Imagine that India’s prime minister puts you in charge of that nation’s population policy. India has a population growth rate of 1.7% per year, a TFR (total fertility rate) of 2.9, a 46% rate of contraceptive use, and a population that is 72% rural. What policy steps would you recommend and why?
12. Now imagine you have been asked to help design a population policy for Germany. Germany is losing population at an annual rate of 0.2%, has a TFR of 1.3, a 72% rate of contraceptive use and a population that is 88% urban. What policy steps would you recommend and why?
13. Do you think a government should be able to enforce strict penalties for citizens who fail to abide by reproductive policies like the one China has in place? If you disagree with China’s policy what alternatives can you suggest for dealing with the resource demands of a quickly growing population?