Env. Sci. level 2

**Population Unit (Chap 8 and 9) Study/Review Guide**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block \_\_\_\_\_\_\_\_ Date \_\_\_\_\_**

* Read Chapter 8 Section 1. How Population Change in Size
* Read Chapter 9 Section 1. Studying Human Populations
* Read Chapter 9 Section 2. Changing Population Trends
* Review class handouts and all assignments
* Practice the review questions at the end of each chapter and the standardized tests at the end of your book.
* Understand the following key terms: population, population size, population density, population growth rate, birth rate, death rate, exponential growth, logistic growth, carrying capacity, resource limits, demography, demographer, age structure, migration, emigration, life expectancy, developed countries, undeveloped countries, technological advances, industrial revolution, infrastructure, shortage of fuel wood, unsafe water, impacts on land.
* Be able to answer the following questions:
1. Describe the difference between exponential population growth and logistic growth and what might cause them.
2. Describe how the size and growth rate of the human population has changed in the last 200 years (when and why the population grew slowly or rapidly)
3. Describe three environmental problems caused by rapid human population growth
4. Explain how the environment might limit population size (carrying capacity) and identify factors that affect the carrying capacity of the environment
5. Explain how a population is affected by emigration, immigration, birth rate and death rate.
6. Recognize and explain the differences of population age structures (population profiles) of developed and undeveloped countries.

For the yeast population lab:

1. Be able to state the problem you investigated in your yeast population lab.
2. Be clear about the independent and dependent variables in your experiment.
3. Be clear about the controlled variables in your experiment.
4. Be able to write a clear, complete and replicable procedure of your experiment.
5. Be able to present your data and graph in a well-organized and appropriate manner.
6. Be able to draw a correct conclusion according to your lab data.
7. Be able to evaluate an experiment (your own or others) and give appropriate suggestions for improving the experiment.

**Some review questions on Populations**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_**

**Multiple Choice**

*Identify the letter of the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. An example of a population is

|  |  |  |  |
| --- | --- | --- | --- |
| a. | all trees in a forest. | c. | all plants in a forest. |
| b. | all maple trees in a forest. | d. | all animals in a forest. |

\_\_\_\_ 2. A species of plant has exponential growth after it is introduced into an area where it has never lived. Which statement best describes exponential growth?

|  |  |
| --- | --- |
| a. | Each individual plant grows much larger than usual. |
| b. | The population immediately decreases. |
| c. | Within a few years the population increases dramatically. |
| d. | The species’ reproductive potential declines. |

\_\_\_\_ 3. If over a long period of time, each pair of adults in a population had only two offspring and the offspring lived to reproduce, the population would

|  |  |  |  |
| --- | --- | --- | --- |
| a. | grow. | c. | remain the same. |
| b. | shrink. | d. | disperse randomly. |

\_\_\_\_ 4. The carrying capacity of an environment for a particular species at a particular time is determined by the

|  |  |  |  |
| --- | --- | --- | --- |
| a. | number of individuals in the species. | c. | reproductive potential of the species. |
| b. | distribution of the population. | d. | supply of the most limited resources. |

\_\_\_\_ 5. Professionals who study and make predictions about human populations are called

|  |  |  |  |
| --- | --- | --- | --- |
| a. | stenographers. | c. | geologists. |
| b. | demographers. | d. | populists. |

\_\_\_\_ 6. It took 50 years for Earth’s human population to double from 1 billion to 2 billion. How long did it take for the population to double again to 4 billion? (look at Figure 1 on page 235)

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 100 years | c. | 44 years |
| b. | 75 years | d. | 25 years |

\_\_\_\_ 7. Which factor contributed most to the exponential growth of the human population?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | more food, better hygiene | c. | higher fertility rates |
| b. | higher birth rates | d. | increased immigration |

\_\_\_\_ 8. A population pyramid is created by

|  |  |
| --- | --- |
| a. | studying a group of people and noting when each member dies. |
| b. | graphing the distribution of ages in a population at a specific time. |
| c. | calculating the number of children a woman gives birth to in her lifetime. |
| d. | estimating the demand for services within a community. |

\_\_\_\_ 9. Human population growth was most rapid during which period of human history?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Ice Ages | c. | Bronze and Iron Ages |
| b. | Stone Ages | d. | Modern Age |

\_\_\_\_ 10. Growth rates for different parts of the world vary depending on the level of development of the region. Which region is experiencing the biggest increase in population?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Europe | c. | Asia |
| b. | North America | d. | Australia |

\_\_\_\_ 11. Between 1880 and 1930 human population doubled due to

|  |  |
| --- | --- |
| a. | the Industrial revolution. |
| b. | a combination of high birth rates and low death rates. |
| c. | improvements in societal infrastructure and services. |
| d. | All of the above |

\_\_\_\_ 12. Which of the following is a reason that wood is considered a limited resource in many developing countries?

|  |  |
| --- | --- |
| a. | Wood is used in place of money to buy food. |
| b. | Fuel wood allows people to purify their water by boiling it. |
| c. | Excess wood is used to construct shantytowns. |
| d. | People cut down trees faster than they can grow. |

\_\_\_\_ 13. Countries with high growth rates usually have an age structure that has

|  |  |
| --- | --- |
| a. | an even distribution over all ages. |
| b. | more older people than young people. |
| c. | more younger people than older people. |
| d. | more middle-aged people than younger people. |

\_\_\_\_ 14. Which of the following would *not* cause population to decrease in a region?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | increased immigration | c. | decreased fertility rates |
| b. | increased emigration | d. | decreased survivorship |

\_\_\_\_ 15. Less-developed countries suffer more from rapid population growth because they are less likely to have the \_\_\_\_\_ to support the population.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | fertility rates | c. | infrastructure |
| b. | cultural values | d. | family-planning methods |

\_\_\_\_ 16. Populations are growing more rapidly in

|  |  |  |  |
| --- | --- | --- | --- |
| a. | Italy. | c. | Japan. |
| b. | Canada. | d. | Peru. |

**Completion**

*Complete each sentence or statement.*

 17. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of an ecosystem for a particular species is the maximum population that the ecosystem can support indefinitely.

1. A population’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the number of its members per unit area or per volume.
2. A population’s growth rate is its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rate minus its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rate.
3. A population has a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ growth rate when the death rate is higher than the birth rate.
4. An increase in population could result from increased birth rate, increased \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or immigration.

 22. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ revolutions brought about changes that caused exponential growth of the world human population.

 23. The study of human population patterns is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 24. A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ helps demographers predict which age groups will experience the most growth.

 25. An adequate supply of fuel wood helps to prevent disease by allowing water to be boiled to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it.

 26. Local water supplies may be contaminated when they are also used for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ disposal.

 27. Population on the continent of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is expected to shrink by the year 2050.

 28. During the last 200 years, the human population has undergone \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ growth.