

World Human Population Lab

Please Do Not Write On This - use a separate piece of paper!!

PART A: Human Population Movie

1. What was the sound in the video? What did it symbolize?
2. Approximately, what year did you begin to notice a large increase in population growth? What historical events, scientific advances or social changes at that time period may have contributed to that population growth?
3. Were there any points (time periods) in the film where you noticed slight decreases in the population? What historical events in those time periods may have contributed to the population decreases?
4. In which time period did the most population growth occur? During that time period, which parts of the world experienced the most growth?
5. Are there any areas of the world that are likely to remain relatively unpopulated by the year 2020? Why would this be so?
6. Why were there no dots in North America prior to the 16th century? What about Native Americans?

PART B: Human Population Analysis

* On a piece of graph paper, plot the growth of the human population using the data in **Table 1**. (NOTE: plot the years in increments of 50 to the year 2050, and on the population axis to 9 billion people)

1. Use your graph to determine ALL of the doubling times for the human population between AD 1 and 1990 (draw the extrapolation lines on your graph and label them 1A, 1B, & 1C).
 - A. How much time elapsed before the human population of AD 1 doubled the first time?
 - B. How much time elapsed for the population to double the second time?
 - C. How much time elapsed for the population to double the third time?
 - D. Is the amount of time needed for the human population to double *increasing or decreasing*?
 - E. What does the answer to "1D" indicate about how fast the human population is growing?
2. Extend your graph to the year 2050. What do you estimate the human population will be in that year?
3. Using the equations below, estimate the doubling time for the current population based on the rate of growth from 2000 to 2014. * **You must show your work!**

$$\text{Rate of growth} = \frac{(\text{population in 2014} - \text{population in 2000})}{(\text{population in 2000}) (\text{number of years})} \times (100)$$

(in percent)

$$\text{Doubling time (in years)} = \frac{70}{\text{rate of growth}} ; \text{ so } 2000 + \text{doubling time} = \text{year 2000 population will double}$$

- A. In what year will the population for 2000 have double in size?
- B. What will the population size be in that year?

Table 1. The human population from 1 AD to 2014 AD.

Year (AD)	Population (billions)
1	0.3
1000	0.31
1250	0.4
1500	0.5
1750	0.79
1800	0.98
1850	1.26
1900	1.65
1910	1.75
1920	1.86
1930	2.07
1940	2.3
1950	2.52
1960	3.02
1970	3.7
1980	4.44
1990	5.27
1999	5.98
2000	6.06
2010	6.92
2014	7.18

PART C: Discussion Questions: Complete sentences for FULL credit!

1. Describe the shape of the human population graph. Discuss why it has that shape.
2. What are the three or four most important factors (resources) required to sustain a human population?
3. In what ways is the earth as a whole similar to an island such as Hawaii? Does the earth have a carrying capacity? Explain your answer.
4. What might happen to the population of humans if the present growth rate continues?
5. In your opinion, give two methods that could be used to reduce the growth rate?
6. Cite a place in the world where population growth is a problem today. How is it a problem?
7. Cite a place in the world where population growth is *not* a problem today. Why is it not a problem?
8. Suggest several problems in our country that are related to the human population.
9. In your opinion, what are the most important three or four things to be concerned about with regard to the world population growth? (Think about the impact of a human population explosion on your future, your children's future, or the future of our planet).