Chapter 35 Section 2 & 3

Human Population Growth Graphing Activity

Objectives:

You will create a graph of human population growth and use it to predict future growth.
You will identify factors that affect population growth.

Statistics on Human Population

Year A.D.	Number of People (in billions)
1650	.50
1750	.70
1850	1.0
1925	2.0
1956	2.5
1966	3.3
1970	3.6
1974	3.9
1976	4.0
1980	4.4
1991	5.5
2000	6.0
2004	6.4

<u>Instructions for creating your graph.</u>

- Place time on the horizontal aÈλă ó·π!Èλăú. Values should range from 1650 to 2020.
- Place űKŝ yumber of people on the vertical aÈλs ó¸π!Èλăú, in **two different scales**.
  - 0 to 20 billion on the left ØŜℕűλǑl·f l·Èλă
  - 0 to 8 billion on the right ØŜℕűλǑl·f l·Èλă

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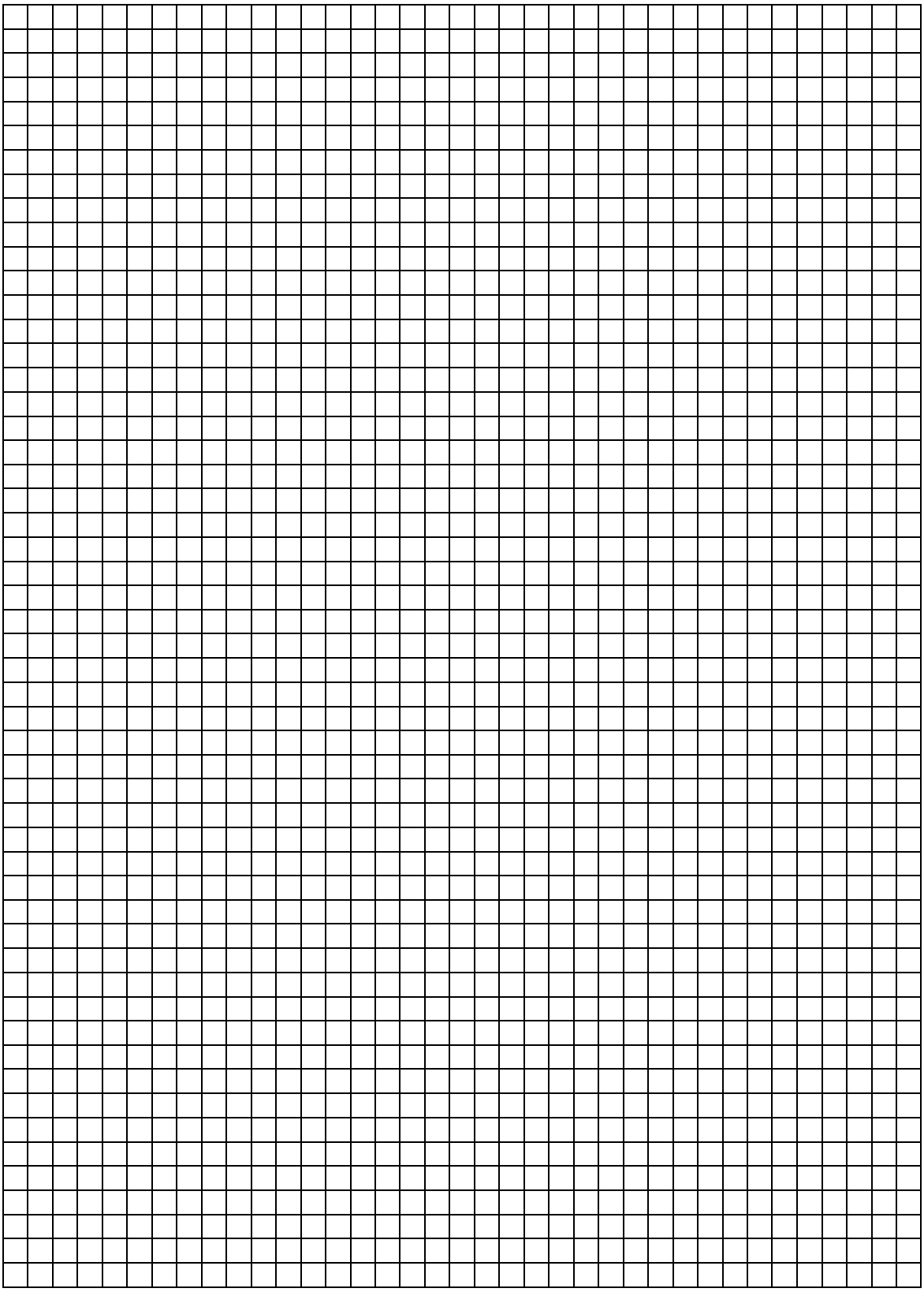
Make sure that your scale covers most of the graph, on both axes, and that you have the correct labels and units for the X and Y access and a title for your graph.



The Earth's Carrying Capacity

Prior to 1950, the death rate was high, which kept the numbers of humans from increasing rapidly. In the 19th Century, the agricultural revolution increased food production. The industrial revolution improved methods of transporting food and other goods. In the 20th Century, advances in medicine, sanitation and nutrition have decreased the death rates further. These factors combined to produce the rapid growth of the human population in the 20th century.

As with any population, humans are also limited by factors such as space, amount of food and disease. The carrying capacity is the number of individuals that a stable environment can support. Authorities disagree on the maximum number of people that the earth can support, though the numbers generally range for 8 to 10 billion. As the population approaches its limit, starvation will increase. Some countries have a much higher growth rate than others. Growth rate is the number of people born minus the number of people that die. Compare the growth rates of the following countries: Japan -0.02%, Sweden 0.45%, United States 0.97%, Israel 1.66%, Afganistan 3.85%. A country with a 1% growth rate will double its population in ~70 years. A country with a 4% growth rate will double its population in ~ 18years.

Most countries are trying to reduce their growth rate. Zero population growth means that as many people are being born as there are dying - to achieve zero population growth, each couple would need to have no more than two children (to replace the parents). Even if this number is achieved, the population will continue to grow because the parents will still live on for decades, as their children have children and their children have children, and so forth. The United States reached zero population growth in the 1980's, and yet the overall population of the US still increases.

Name: _____ Block:_____ Date: _____

Analysis: It took 1649 years for the world population to double, going from .25 billion to .50 billion people.

1. How long did it take for the population to double a second time? _____

2. How long did it take for the population to double a third time? _____ A fourth time?_____

3. Based on your graph, in what year will the population reach 8 billion? _____

4. What did plotting the points at two different scales (Y-axis) show you about the way that the scale used in a graph can affect the perception of what the graph shows?

5. Define the following terms:

a. Immigration-

b. Emigration-

c. Carrying Capacity-

d. Zero Population Growth-

e. Density-dependent Limiting Factor-

f. Density-independent Limiting Factor-

6. What factors contributed to the world's overall population growth in the last 150 years?

a.

b.

c.

7. If the carrying capacity of the earth was 9 billion people, when would this number be reached (according to your graph)?

8. What will happen when the human population exceeds the earth's carrying capacity?