Human Population Control

Some people believe there is only one way to avoid the bad environmental effects of the human population explosion. They argue that the birth rate must be decreased to match the death rate. To accomplish this, they insist that parents must take responsibility for keeping their families small. Such suggestions are not well received by a number of people for example, some 40 % of adults believe an ideal family includes four or more children. Is that too large a number if the birth rate is to match the death rate? This exercise will help you decide for yourself.

Suppose there are five sets of parents, and that each set of couples has a different idea as to what is the best family size. In each set there are 12 adults (six couples). See Table 1, below.

Table 1

6 men 6 women	6 men 6 women	6 men 6 women	6 men 6 women	6 men 6 women
12 adults	12 adults	12 adults	12 adults	12 adults
Set 1	Set 2	Set 3	Set 4	Set 5
one child per couple	two children per couple	three children per couple	four children per couple	five children per couple

Assume that the children, grandchildren, and so on, of each set of parents agree with the original parents on ideal family size. Using Table 2, calculate the size of the population that results from each set of parents for the next four generations. Assume that at the end of each generation only the children of that generation are alive (all parents dead). Also, assume that each generation has about an equal number of men and women. If you come up with an odd number of people in any generation, consider the unpaired individual to be childless.

Table 2   Generation

Parent Set	Parent (1st)	2nd	3rd	4th	5th
1	12				
2	12				
3	12				
4	12				
5	12				

1. Identify which parent sets will produce an increasing, a steady, and a decreasing population.
2. Graph the information from Table 1 drawing a separate line for each parent set.
3. Which of the curves resembles the world population curve?
4. Suppose that you agree with those who argue that the birth rate must not exceed the death rate.
Based on table 1, what number of children would you recommend for each family?
5. What effects would unexpected increases in the death rate have if this method of birth control were used?

6. Do you believe it would really make any difference if there were a reduction in family size in North America? Study Figure 1 to find the answer.

U.S. Population Estimate by U.S. Census Bureau
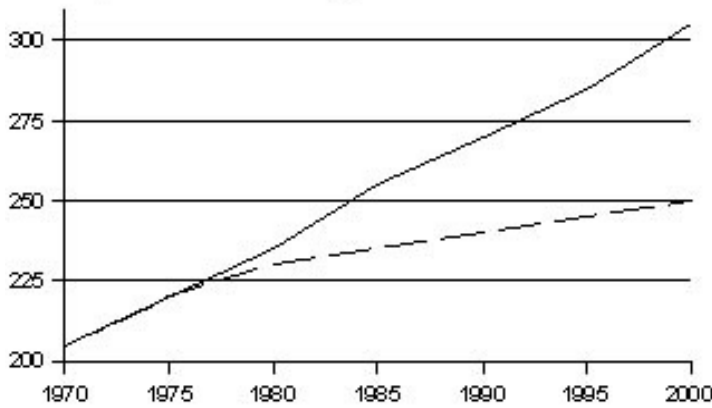
7. If present trends continue, what will the United States population be in the year 2010?
8. If, beginning in 1970, families had decided to have no more than two children each, what would the United States population be in the year 2010?
9. What is the difference (in millions of people) between your answers to questions 7 and 8?

The assumption you made earlier about all parents dying, is of course not true in North America. It is quite common for several generations (grandparents, parents, children, etc.) to be alive at the same time. One reason for this is people are living longer each generation. Study Table 2 to see what has been happening to life expectancy throughout history.

10. What reasons can you give for the increasing life span of humans?
11. Based on the trend in table 2, what would you predict will be the life expectancy for a child born in the year 2000? Why?
12. What do you see as the strongest reasons for birth control?
13. What do you think are the strongest reasons against birth control?

Table 3

Region and Time	Life Expectancy
Neanderthal Man	29
Classical Greece	35
Classical Rome	32
England, 14th Century	38
England, 19th Century	41
North America, 1900	50
North America, 1940	61
North America, 1970	72
North America, 2000	78