AP English Language and Composition

Suggested reading time – 25 minutes

Suggested writing time – 50 minutes

Directions: The following question is based on the accompanying eight sources.

This question requires you to synthesize a variety of sources into a coherent, well-written essay. When you synthesize sources you should refer to them to develop your position and cite them accurately. Your argument should be central; the sources should support this argument. Avoid merely summarizing sources.

Introduction

The issue of global human population has long been one of contention. While we can look to the past and the present to see the effects of population growth on the environment, communities and the economy, predictions about the future of population growth and the Earth's carrying capacity vary. Just what does the future hold and what is an individual's responsibility concerning the planet's population?

Assignment

Read the following sources (including any introductory information) carefully. **Then write an essay that takes a position that defends, challenges or qualifies the claim that couples should voluntarily limit themselves to two biological children. Synthesize at least three sources for support.**

Refer to the sources by their titles (Source A, Source B, etc.) or by the description in the parenthesis.

Source A (Crispin)
Source B (Last)
Source C (Farabee)
Source D (Seely)
Source E ("Population")
Source F (Hendrixson)
Source G ("World")
Source H (Siegle)

Source A

Tickell, Crispin. "Ecology, Conservation and the Human Role." Peterhouse College, Cambridge. 5 May 2004.

[T]he handiwork of this one animal species [humans] has become increasingly evident. From North America to Australia, humans hunted down the big mammals, and the patchy transition from hunter gathering to settled agriculture, with steep increases in human numbers, led to deforestation on a vast scale, with changes in global ecology ranging from very big to very small organisms.

The growth of cities accelerated all such changes; and the industrial revolution, which began around 250 years ago, accelerated them still more. An observer from outer space would see more changes in the last 200 years than in the preceding 2000, and more changes in the last 20 years than in the preceding 200. He might indeed conclude that the Earth was suffering from some biological calamity, or case of malignant maladaptation, in which a species, like infected tissue in an organism, multiplies out of control, affecting everything else.

The linkages were explored in a recent series of articles in Science magazine. The series began with the effects of human population increase and of damage to biodiversity with the global ecosystem. Taking the case of biodiversity, Martin Jenkins wrote: "With the harvest of marine resources now at or past its peak, terrestrial ecosystems will bear most of the burden of having to feed, clothe and house the expanded human population."

Already nearly half of the Earth's land had been transformed by direct human action, and the indirect effects are beyond calculation.

It has been suggested elsewhere that humans have three biological characteristics which dominate their behaviour. First is their propensity to use and exploit whatever resources they can find as if there were no limit. Other species may share this propensity, but none has anything like ever increasing human technical skills in doing so. In short humans are too clever by half.

Our second characteristic is our curiosity, inventiveness and love of play which tends to transform every activity, whether politics, war or science, into games which induce self-absorbed behaviour, sometimes beneficial in the short term, but often out of touch with the long term realities of the environment. We see ourselves as so special that Nature herself is our servant.

Our third characteristic is our intellectual predilection for putting subjects into compartments, thereby missing their connections and inter-relationships. As a result we fail to see, let alone comprehend the big picture. Yet it is only through seeing the big picture that we can hope to draw sensible conclusions, and take decisions consistent with the circumstances in which we find ourselves together with the other millions of organisms affected by human activities.

Source B

Last, Jonathan. "One Last Thing: The Population Contraction." Philadelphia Inquirer. 21 May 2006.

[Phillip] Longman has spent many years studying demographic trends, and the conclusions are unsettling. As he writes in his 2004 book, *The Empty Cradle*, birthrates in America and around the world are declining beneath sustainability; the populations growth is slowing and, unless the trends of the last 200 years change, will soon bring about population decline – and with it, potential shifts in global prosperity and power.

Forget domestic politics and international relations: Fertility is the thing. As Longman explains it, it's the grand unified theory of everything. As fertility rates decline, populations, then economies, then military power, then world influence, diminish.

This is a bit counterintuitive. . .More traffic, more housing, more strip centers, more kids applying to college. It looks as if the world is bursting at the seams.

There's some truth to that. There are 6.5 billion people today, and that number is increasing every year. But according to demographic estimates, the world's population will peak somewhere between 9 billion and 12 billion in the next 75 years – give or take – and after that will precipitously decline. While the average age of the population gets more and more advanced.

Global fertility rates have been declining for a long time. Today, they're half of what they were in 1972. Fifty-nine countries (accounting for 44 percent of the world population have fertility rates below replacement levels. The United Nations projects that by 2050, 75 percent of all countries will fall below replacement levels.

Captialism is, historically speaking, a relatively new contraption, but recent experience suggests that capitalism and falling populations don't mix particularly well. Japan's fertility rate is 1.34, 17 percent of its population is over 65, and its economy is a shambles. By 2050, Japan will lose a seventh of its population…

In the coming years, the United States will struggle to avoid this fate. Our declining fertility is, literally, a matter of life and death.

Source C

Farabee, M.J. "Population Ecology." Estrella Mountain Community College. 2001. 10 May 2007. <http://www.emc.maricopa.edu/faculty/farabee/biobk/BioBookpopecol.html>.

Population Growth

A population is a group of individuals of the same species living in the same geographic area. The study of factors that affect growth, stability, and decline of populations is population dynamics. All populations undergo three distinct phases of their life cycle:

1. growth
2. stability
3. decline

Population growth occurs when available resources exceed the number of individuals able to exploit them. Reproduction is rapid, and death rates are low, producing a net increase in the population size.

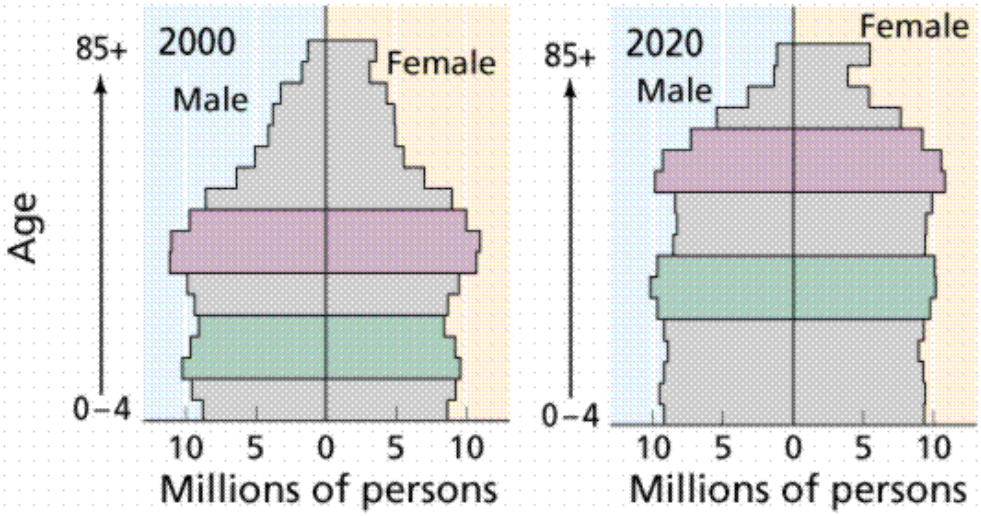
Population stability is often proceeded by a "crash" since the growing population eventually outstrips its available resources. Stability is usually the longest phase of a population's life cycle.

Decline is the decrease in the number of individuals in a population, and eventually leads to population extinction.

Factors Influencing Population Growth

Nearly all populations will tend to grow exponentially as long as there are resources available. Most populations have the potential to expand at an exponential rate, since reproduction is generally a multiplicative process. Two of the most basic factors that affect the rate of population growth are the birth rate, and the death rate. The intrinsic rate of increase is the birth rate minus the death rate.

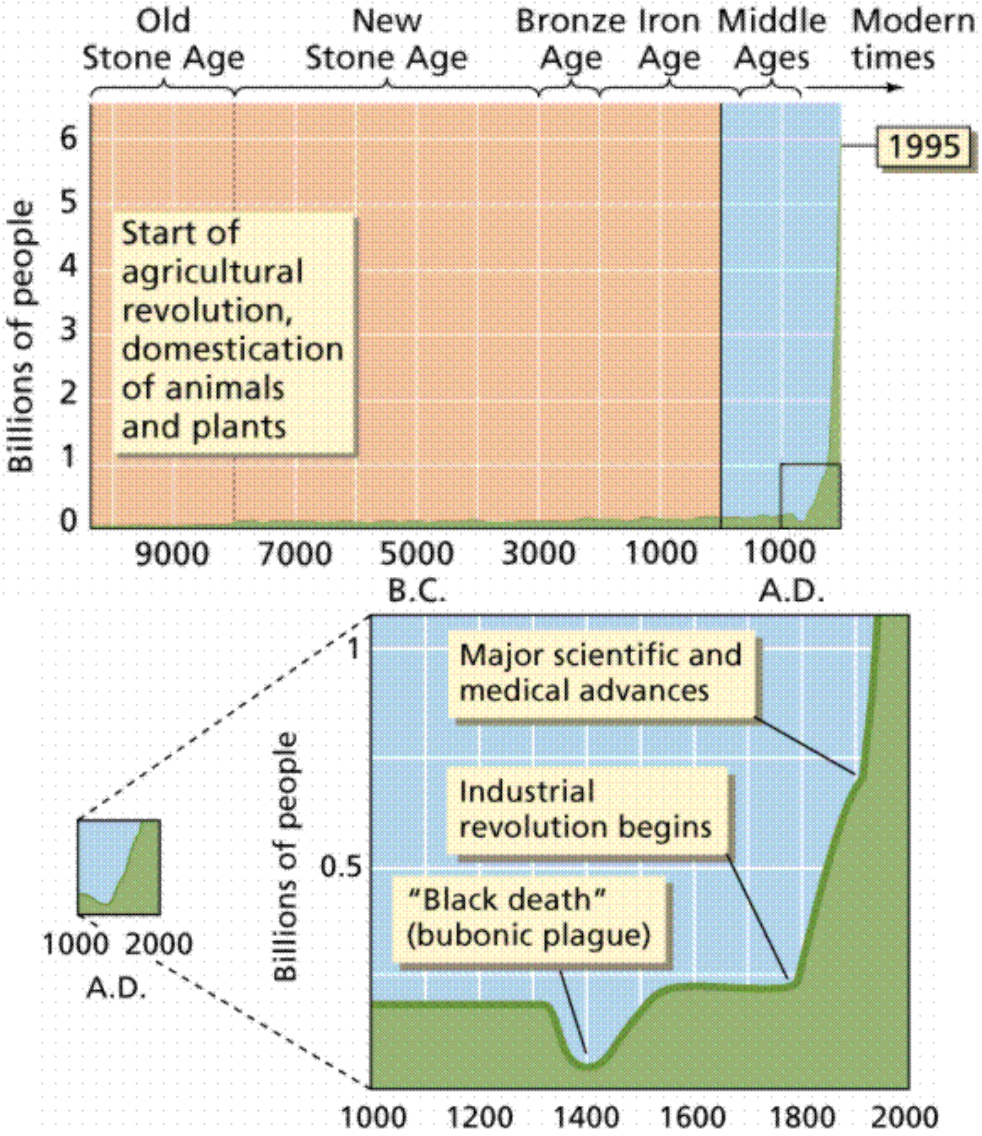
Two modes of population growth. The Exponential curve (also known as a J-curve) occurs when there is no limit to population size. The Logistic curve (also known as an S-curve) shows the effect of a limiting factor (in this case the carrying capacity of the environment).



The Baby Boomers and Gen X. As the population bulge, the baby Boomers born after World War II, aged

and began to have children of their own this created a secondary bulge termed Generation X. What happens when the Generation X members begin to have their own children?
Human populations are in a growth phase. Since evolving about 200,000 years ago, our species has proliferated and spread over the Earth. Beginning in 1650, the slow population increases of our species exponentially increased. New technologies for hunting and farming have enabled this expansion. It took 1800 years to reach a total population of 1 billion, but only 130 years to reach 2 billion, and a mere 45 years to reach 4 billion.

Despite technological advances, factors influencing population growth will eventually limit expansion of human population. These will involve limitation of physical and biological resources as world population increased to over six billion in 1999. The 1987 population was estimated at a puny 5 billion.



Human population growth over the past 10,000 years. Note the effects of worldwide disease (the Black death) and technological advances on the population size.

Source D

Seely, Ron. “House Go Up, Aquifer Goes Down.” Wisconsin State Journal. 28 Aug. 2006.

[Mike] Frey, operations manager for Middleton's water utility, is charged with finding water for an entire growing, thirsty city.

It's a task that has become increasingly more complicated because of the rapid growth that typifies Dane County's suburban communities.

That growth, experts say, means we are making more demands on the deep underground aquifer that supplies drinking water for all municipalities in the county - and affecting the lakes, streams and springs that make this such a pleasant place to live.

In recent studies of water supply issues statewide, Dane County is listed as one of a handful of areas in the state where rapid growth is having a discernible impact on the deep aquifer, which we depend upon for our drinking water, and on streams and wetlands and other surface waters that are also fed by groundwater.

"All the water is being used," said Randy Hunt, a hydrogeologist with the U.S. Geological Survey who has extensively studied the effect we're having on surface waters. "Even if we're not using it all, all of the other natural features such as wetlands and streams are."

We humans, however, have pumped so much water from the aquifer since pre-settlement times, according to the Wisconsin Geological and Natural History Survey, that its level has dropped some 60 feet in some spots.

As a result of such use, springs have dried up. The base flow of the Yahara River has dropped. Water from lakes Mendota and Monona now supplies the aquifer instead of the other way around.

Such effects, along with the difficulty of finding places to put municipal wells, are among the main concerns facing Dane County communities when it comes to drinking water.

"You can't put 500,000 people in this county without having some impact on the water system," said Michael King, division administrator for Dane County's Community Analysis and Planning Division.

Source E

"Population and Poverty." State of the World Population 2004. United Nations Population Fund. 10 May 2007. <http://www.unfpa.org/swp/2004/english/ch2/index.htm>.

The central premise of the 1994 Cairo conference was the notion that the size, growth, age structure and ruralurban distribution of a country's population have a critical impact on its development prospects, and specifically on prospects for raising the living standards of the poor. Reflecting this understanding, the ICPD called on countries to "fully integrate population concerns into development strategies, planning, decision-making and resource allocation at all levels."

Among the key population-development concerns the Programme of Action addressed were: population and poverty, the environment, health, morbidity and mortality, and population distribution, urbanization and internal and international migration.

Poverty perpetuates poor health, gender inequality and rapid population growth. The ICPD recognized that empowering individual women and men with education, equal opportunity and the means to determine the number and spacing of their children is critical to breaking this vicious cycle.

In 1994 there was already solid evidence, based on two generations of experience, that developing countries with lower fertility and slower population growth have higher productivity, more savings and more productive investment, resulting in faster economic growth.
Analysis of more recent data confirms that countries that have reduced fertility and mortality by investing in health and education have prospered as a result.

Source F

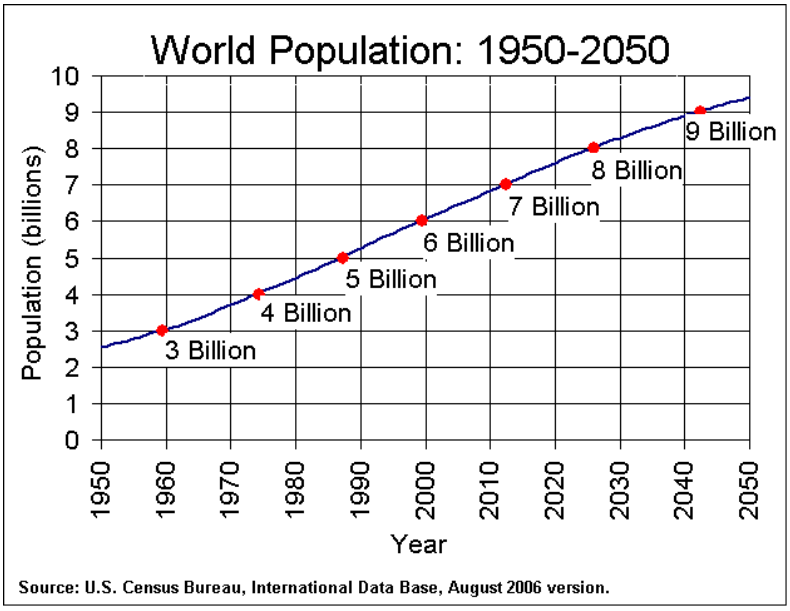
Hendrixson, Anne. "U.S. High School Textbooks: Perpetuating the Idea of Overpopulation." Political Environments. 31 March 2000, pg. 52.

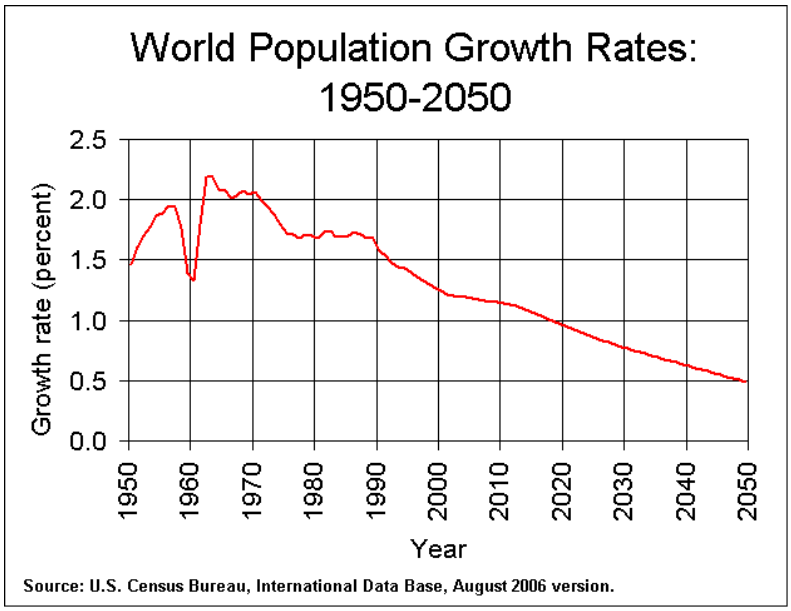
Ingrained into the U.S. popular imagination is the idea that the world is overpopulated. Americans talk not so much about "population" as "overpopulation," in the belief that the planet is burdened with too many people. Often, Americans think of this glut of people as flowing from Mexico, India or Africa where birth rates are perceived as out-of-control and rising. Many view "overpopulation" as the main cause of environmental degradation, urban sprawl, hunger, poverty, political instability and even war. However, although many Americans believe and repeat the dire forecast of overpopulation, few know basic facts about demographic dynamics. For instance, few realize that recent UN data indicate that population growth rates are declining worldwide faster than anticipated.

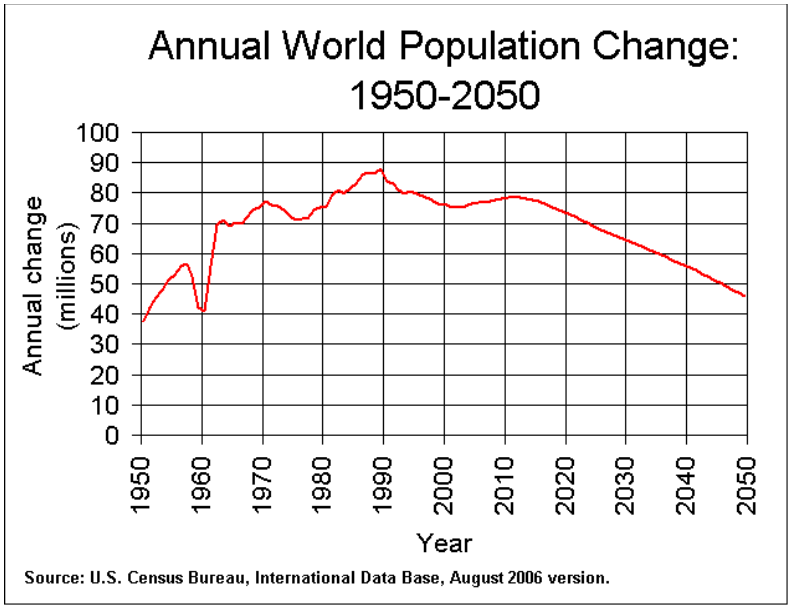
The idea of overpopulation promotes the simple assumption that there are a finite amount of global resources spread among too many people. The reality, however, is far more complex. Inequitable production, consumption and distribution patterns often have far more to do with generating poverty and environmental degradation than the impact of population growth. According to UN figures, the richest fifth of the world's people who live in the developed countries consume 66 times as much as the poorest fifth. The richest fifth consume 45% of all meat and fish, 58% of total energy, and 84% of all paper. In addition, they own 87% of the world's vehicle fleet, a major source of greenhouse gases. Meanwhile, the gap between rich and poor is growing as a result of the globalization process.

Source G

"World Population Information." International Programs Center 24 Aug. 2006. U.S. Census Bureau. 10 May 2007. <http://www.census.gov/ipc/www/world.html>.




World Population Growth Rates:
1950-2050
Growth rate (percent)
2.5
2.0
1.5
1.0
0.5
0.0
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
Year
Source: U.S. Census Bureau, International Data Base, August 2006 version.


Annual World Population Change:
1950-2050
Annual change
(millions)
100
90
80
70
60
50
40
30
20
10
0
1950
1960
1970
1980
1990
2000
2010
2020
2030
2040
2050
Year
Source: U.S. Census Bureau, International Data Base, August 2006 version.

Source H

Siegle, Lucy. “Is it Ethical to Have Children?” The Observer. 22 Jan. 2006

Number of progeny evidently wasn't an issue that troubled Jacob in the book of Genesis. You may remember he had 12 sons, resulting in all sorts of jealousy around that coat. Neither was it problematic for celluloid families: the Von Trapps and the Waltons, each weighing in with seven children - the same number of kids as the average family in Sudan (one of the poorest countries in the world) attempts to sustain today.

But, increasingly, having kids throws up sustainability angst in the developed world. Because while that 'mother earth' moniker might give the impression that the planet is waiting with open arms to welcome our offspring, we know we're already pushing it. Europeans use three times their fair share of land and resources to sustain their lifestyles, while Americans push this up to five times.

So it seems we are duty bound to weigh up the ticking of biological clocks against a backdrop of increasing environmental degradation and over-population. The global village - a rather twee term considering its industrial size - currently stands at 6.5bn, but is predicted to expand to 9bn by 2050. And according to Professor Omer Moav, an economist at the Hebrew University in Jerusalem, the answer to combating global poverty lies in having fewer children. Meanwhile, eminent scientists Professor Chris Rapley, director of the British Antarctic Survey and Professor Guillebaud, chair of the Optimum Population Trust, have called for urgent discussion on population management. They are both of the opinion that the world just cannot sustain a burgeoning global population, even with dramatic lifestyle alterations which might mitigate pressure on life-sustaining resources: shelter, food and water. As the global population is currently growing at around 76m every year, they are not kidding.