

## **Human Population Growth: An S/T/S Issue**

Part of teaching science is helping students understand **how science relates to social problems**, both as a source of solutions and, sometimes, as a contributor to the problems. The unprecedented human population growth that has occurred in this century is largely a result of scientific and technological advances. The social and environmental impacts of population growth are also problems that science is being called upon to address. Thus the issue is a most effective focus for science/technology/society education.

It took approximately 3 million years for the world's population to reach 1 billion in about 1800. The number rose to 2 billion by about 1930, 3 billion by 1960, 4 billion by 1975, 5 billion by 1987 and 6 billion by 1999. In other words, most of the world population size we have today was added in this century. Human numbers are growing at an unprecedented pace, and we are testing the limits of our planet as never before.

Advances in science and technology were major factors leading to this rapid population growth. Medical advances and disease prevention through improved sanitation, inoculation and pest control have brought down child mortality rates and led to longer life spans. Advances in agriculture and transportation have led to increased food production and improved nutrition.

These improvements in people's quality of life are remarkable and laudable achievements, yet they have also created a new and major social problem: population growth so rapid that it throws off the delicate balance of nature. Air and water pollution, deforestation, thinning of the ozone layer, global warming, threats to biodiversity, soil erosion and depletion of many other natural resources are among the serious impacts of continuing growth in human numbers.

Because most of the population increase today is occurring in developing countries (over 95%), many Americans feel that they neither contribute to nor are affected by the problem. U.S. growth, however, places disproportionate demands on the world's resources. During the next decade India and China will each add to the planet about ten times as many people as the United States will -- but the 57.5 million new Americans will contribute more greenhouse gases to the atmosphere than the roughly 900 million Indians and Chinese combined.

Today's students will probably see all of the environmental problems related to rapid population growth increase in their lifetimes. It is important that students understand how population, resources and the environment are interrelated and realize their individual decisions will contribute to the population trends and resource consumption patterns of the future