

You're One in Seven Billion!



Understanding
Population Dynamics

We've all heard the expression, "You're one in a million!". With the ever-growing number of people on the planet, it might be more accurate to say, "You're one in seven **billion!**" As humans, we are all part of a giant global family made up of people from all over the world. Although we may look, act and dress differently, each person shares the same basic needs and hopes for the future. When the **population** of our global family grows, it becomes more difficult for our home (planet Earth) to meet everyone's needs and wants.

Think of your own home and family. What if your family continued to grow but remained in the same house or apartment? What sort of things might change in the way you live? What are some things you would need more of in your home? For starters, you would need more food, beds, clothes and energy to heat water for showers and to power all of the appliances that would be used more often. You would also need more cooperation because each person would have less privacy and personal space.

If your family grew, you might decide to build on to your house or move to a bigger house or apartment. When the global family grows, there is not a bigger planet where we can move. Earth is the only planet where humans can live and it is a **finite** system. We can never increase the number of oceans or mountains on Earth. None of the minerals or oil buried in the Earth can be resupplied. And there is only so much **fertile soil** in which to grow the world's food supply.

We must take care of the Earth because it will always be our home. But our global family grows every day. In the time it takes you to blink your eyes, three more people have been added to the family. That works out to 160 more people every minute; 9,589 every hour; 230,137 every day and over 84 million every year! In fact, our family has almost seven billion (7,000,000,000) people now!

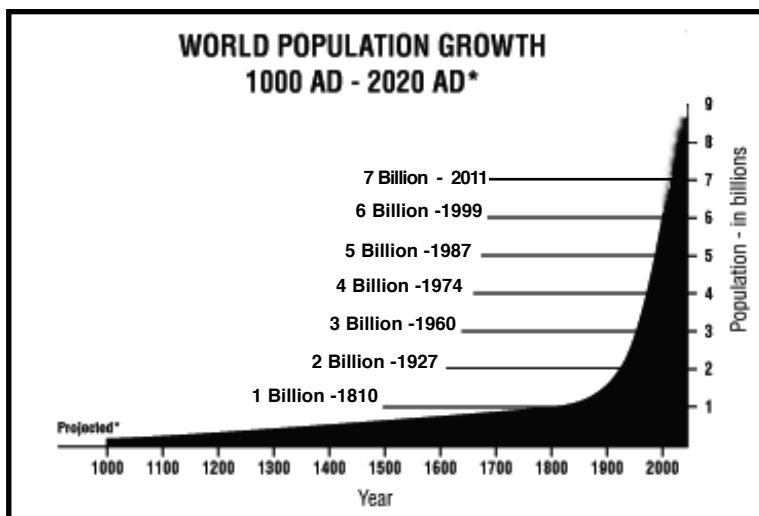
Oh! How We've Grown

How did our global family become so large? For most of human history, the population grew very slowly because people didn't live as long as they do today. Our earliest ancestors relied on hunting and gathering their food to survive. Only a finite number of people could be supported on the wildlife in an area for a limited amount of time. Then, just 12,000 years ago, several cultures shifted from hunting and gathering to farming. Humans became the first and only species ever to control its own food supply. Civilizations grew and so did the human population.



Until recently, **birth rates** and **death rates** were about the same, keeping the population stable. People had many children, but a vast number of them died before age five. Without modern medicine, vaccines, clean and healthy living conditions, many children did not survive common diseases like measles or the flu.

These trends in child deaths began to change with the coming of the **Industrial Revolution**, a period of history in Europe and North America when there were great advances in science and technology. Beginning in the late 1700s, this revolution saw the creation of the steam engine and the use of electricity. During this period there were also many inventions that promoted longer life. These included improvements in farming, nutrition, medicine and **sanitation**. Now, people were able to fight once-deadly germs, produce more and different kinds of food and cure more illnesses. Before long, these new discoveries and inventions spread throughout the world, lowering death rates and improving people's quality of life.



Now you might be wondering what happened to the birth rates while the death rates were coming down. In Europe and North America, the Industrial Revolution eventually led to people having fewer children because more people were now moving to the cities. New farm machinery, such as the cotton gin and wheat thresher, allowed more crops to be harvested in less time with fewer laborers. At the same time, industrialization created more jobs for people in factories and offices in the growing urban centers. However, most of the world was less industrialized, large families were still needed to help farm the land and so birth rates stayed higher than death rates.

The world population began to grow significantly. By 1930, the world population reached two billion. Just 30 years later, in 1960, the world population hit three billion. The population soared to four billion by 1975, topped five billion in 1987, reached six billion in 1999 and is expected to hit seven billion by 2011. As you can see, in the scope of human history, this “population explosion” has been fairly recent. Over the past 300 years, the world's population has grown **exponentially**, doubling at an ever-faster rate.

Different populations grow at different rates around the world. This depends on how many children families tend to have and the **life expectancy** (number of years someone is expected to live) of people in different places. The populations of many countries in Asia, Africa and

Latin America are growing the fastest, especially where large families are still important to parents who need more children to help with family farms and provide for them in their old age. These poorer, **less developed countries** tend to have lower life expectancies and higher **infant mortality rates** (rates of infant deaths). When couples know some of their children may not survive to adulthood, they often choose to have more. In many cases, couples wish to limit their family size, but lack the information and means to make these choices.

While **more developed countries** tend to have slower rates of population growth, some still grow steadily. The United States, for example, is the third most populated country in the world, and grows by almost two million people each year. That's like adding another city the size of Houston, Texas, to the nation's population every year!

Those of us who live in small towns or farm areas may not feel that the United States greatly contributes to world population problems. Some argue that population growth in the United States may have more serious environmental impacts than growth in any other part of the world because of "the typical American lifestyle." Each American uses more energy and more water and produces more garbage than a person living anywhere else in the world. We make up less than 5% of the world population, yet use up more than 20% of the Earth's natural resources. Because of this, even modest increases in population in the United States have far-reaching impacts for all members of the global family.

What's the Big Deal?

OK, so the population of the planet is growing and there are already about seven billion of us. Is this something we should care about? Yes. Can the world population keep growing without end? No. When it comes to population, bigger isn't always better. Every population, whether it's of plants, animals or people, has a **carrying capacity**. This is the maximum number of a species that can be supported by the finite resources available. Think of a wooded area that is home to deer, rabbits and squirrels. There is only enough food to be found for so many animals. If the populations of these animals grow too much, some may have to leave to find other food and shelter. The wooded area has a carrying capacity — it can only support so many animals.

The same is true for people. It may seem like there's plenty of room to go around in this big world of ours. But we need to remember that when the number



of people doubles, a lot of other things grow or shrink. With every new person added to the planet, the need for food, shelter, clothes and fuel grows. More people also demand more cars, roads, schools, hospitals, restaurants and stores. Even as our demands grow, the ability of our world to meet those demands shrinks. More buildings mean cutting more trees for lumber, burning more fuel for energy and using up land that may have been home to different plants and animals. There is only so much land on our planet to grow food, plant trees, build cities and still leave space for animals and plants to grow in the wild. If there are too many people, there may not be enough of some of the things we need for everyone to have a share.

What Can Be Done

Population growth rates come down when couples can choose to have fewer children. Throughout the world, birth rates have been gradually dropping as people receive education on how to plan their families. People everywhere are learning the economic and health benefits of waiting until they're older to have children and then spacing their births by several years — two factors that slow the population growth. If the average family size throughout the world were two children and two parents, the world's population would be at a stable level (also known as **zero population growth**). Your family and teachers are the best sources of information on when and how to plan a family.

The problem for our planet isn't just numbers of people, though. In looking to protect Earth's natural beauty and keep enough natural resources for the future, we must also take care to use resources carefully and to be considerate of the needs of others. Resource conservation means making thoughtful choices about the way we use energy, eat, travel and create waste. The decisions each person makes go a long way to making our planet a more comfortable home for the global family.



Reading Comprehension and Analysis:

1. By how many people is the world population growing each year?
2. Why is the world population growing faster now than it did hundreds of years ago?
3. What is meant by “the Earth’s carrying capacity to support humans”?

Glossary:

billion: quite a large number (1,000,000,000). A billion is a thousand times as large as a million. It would take 95 years to count a billion dollars if you counted it eight hours each day at the rate of \$1 each second.

birth rates: the yearly number of births per 1,000 people.

carrying capacity: the number of people who can be supported at a sustainable level in an area with given resources and technology.

death rates: the yearly number of deaths per 1,000 people.

exponential growth: a growth pattern in which numbers double (multiplied by 2).

fertile soil: soil that is rich in minerals and good for growing crops.

finite: limited amount.

Industrial Revolution: a period in history (mid-18th century through the 19th century) when there was a surge of new technological advances.

infant mortality: the annual number of deaths to infants under one year of age per 1,000 live births in a given year.

less developed countries: poorer countries that do not manufacture as many of their goods as more developed countries.

life expectancy: the average number of years someone is expected to live based on current health trends.

more developed countries: countries with greater overall wealth. These countries tend to be more industrialized, bringing in money from producing more goods and services.

population: the number of people in a country or region.

sanitation: the prevention of disease and promotion of good hygiene by maintaining clean conditions and safe drinking water.

zero population growth: when a population is stable, neither growing nor decreasing. Globally, this would occur when the birth rate and the death rate are the same.

