# Population Growth and Urban Planning

# Summary

World population growth is a major global issue, particularly in large cities where populations increase exponentially. What are the results of rapid population growth in cities? What changes must occur to accommodate growing populations? What are the major causes and effects of this growth?

## Time Frame

6 class periods of 90 minutes each

## Group Size

Small Groups

## Materials

## Software

Web page creation, word-processing, spreadsheet, database, desktop-publishing Other

Almanac, historical society, museums, demographer, historian, U.S. Census Bureau

# **Background for Teachers**

This Internet-based learning activity challenges the student to find sources online and elsewhere that describe real-world population dilemmas. Online resources can include free sites as well as subscription sites for newspapers and magazines. The activity can be altered to address different cities and regions worldwide. In preparation for the lesson, the teacher should identify local experts and Internet sites. It is not necessary to complete all of the activities for the lesson to be successful. Many activities can be altered to become grade-level appropriate.

## Instructional Procedures

## Activities

In class, students discuss the following terms and their definitions: zero population growth, population density, demographics, urban sprawl, census, immigration, migration, infrastructure, population booms (list causes), megacities, birthrate, death rate, fertility rate (FR), growth rate, natural increase, and net increase. Each student starts a glossary, which they can add to and use as a reference.

In small groups, discuss problems that may occur as a result of a city being heavily populated. One student records the answers on the board to be transcribed later using word-processing software. Each student chooses a different problem to research and formulates solutions. Discuss the ways in which technology affects population growth. In what ways might technology help solve problems that already exist?

Search the Internet for newspaper and magazine articles that address the issue of rising population density. One example can be found in the Associated Press article "Tokyo to Use Underground Technology" (July 6, 1998). What is Tokyo's solution to the problem of lack of space? What are the benefits to this solution? What problems are developers experiencing as they implement this solution? Is this a case in which population growth has been changed by technology? After reading several pertinent articles, students discuss different ways that population problems are solved.

In small groups, students explain the situation in Tokyo using the terms listed in the first activity. Students can use an almanac, the Internet, or other resources to find statistics to support their

positions. Students find the same statistics for 10, 20, and 50 years ago and compare them to more recent figures. What do students notice? They record their answers. Small group discussions between students are appropriate.

Students identify the most heavily populated cities in America. How do these populations compare with Tokyo's? What are some problems these cities are experiencing as a result of their large populations?

Students trace development and population changes in the last 100 years in their own town or city. How has the population changed? How has the town or city changed to accommodate it? Students use maps, newspaper articles, the historical society, and local museums for their research. Ask someone who has lived in the town for many years to describe the changes he or she has seen. Contact a historian, obstetrician, demographer, or other population expert to comment on changes he or she has seen. Identify the reasons for changes in population (Is it birthrate? Death rate? Migration? etc.) Use as many terms from the glossaries as possible. This activity can be completed in small groups with assigned roles or individually. Using city simulation software such as SimCity 3000, students create a city and track its growth over 10, 100, and 1,000 years. What attracts individuals to cities? Students act as urban planners and produce a page layout document or poster of regulations for big city land developers to follow as they dig 330 feet into the ground.

Using word-processing software, students write a one-act play, poem, or short story about the quality of life in Tokyo in the year 2050. Based on current growth trends, what is the population? What is the standard of living? How is the population being accommodated? If possible, students include statistics in a spreadsheet to document their findings.

Students prepare an on-screen computer presentation with a multimedia program, or a Web page, based on the problem they researched in the second activity. Include visual aids such as graphs, drawings, photographs from magazines, and so on. Students should include the solution they have come up with. Discuss with the class the viability of their solutions.

Have students imagine they are urban planners for a town in the year 2050. They describe the way their town looks right now, then develop a plan for modifying the infrastructure and social services to suit the population in the year 2100. Students create drawings of what the city looks like now and what it looked like before, and what it might look like in 50 years. They justify the placement of resources, living spaces, and recreational areas in 2050.

Students brainstorm what new careers might exist in the future. What career areas will need the most employees? Which ones might disappear altogether? Students develop career profiles for areas that will have heavy needs in the next 20 years. Students identify these areas and devise a career path to prepare themselves for one of these careers.

## Extensions

While working at O'Farrell Community School, my students successfully designed and developed cities. This was before the Internet had reached its present level of sophistication. My students created cities and then tracked the success of their cities with spreadsheet software and written logs of expenditures, population growth statistics, and urban planning.

## Assessment Plan

Each of the activities can be assessed based on individual rubrics. Many of the activities lend themselves to rubrics that can be collaboratively authored by students and teachers.

## Bibliography

The Utah Education Network received permission from ISTE (The International Society for Technology in Education) to share this lesson.

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