

Math TODAY™

Teacher Edition



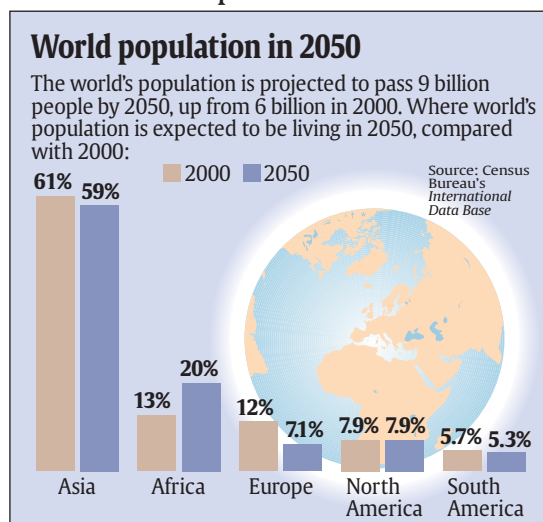
NO. 1 IN THE USA



World population in 2050

By: Bob Tower

USA TODAY Snapshots®



By William Risser and Quin Tian, USA TODAY

Activity Overview:

The data in the USA TODAY Snapshot "World population in 2050" is in a relative frequency form. Students will use the percents to calculate the population for each of the continents shown and then display this data as a bar graph. Students will compare their bar graph with the USA TODAY Snapshot and discuss any differences and similarities. In addition, students will also determine the percent change in population. This will give them practice with positive and negative percents, and the opportunity to explain what these values mean in the context of world population.

Concepts:

- Percent increase and decrease over time
- Comparing and interpreting graphical displays of data

Objectives:

Students will:

- display univariate data in a bar graph.
- calculate percent change (increase and decrease) in a population.

Activity at a Glance:

- Grade level: 9-12
- Subject: Statistics
- Estimated time required: 15-20 minutes

Materials:

- TI-83 Plus family or TI-84 Plus family
- Overhead view screen calculator for instruction/demonstration
- Student handout
- Transparency
- CellSheet™ Application

Prerequisites:

Students should:

- be familiar with the functionality of the CellSheet™ Application.
- know how to determine percent increase/decrease.



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Background:

This activity will give students practice in comparing graphs and will give them the opportunity to look at relative frequency and frequency bar graphs. Students will be asked to compare their graph with the USA TODAY Snapshot for differences and similarities. After the population for each continent has been determined, students will calculate the percent change in the 2000 population compared to the projected population in 2050. This activity will provide students with the opportunity to practice interpreting the meaning of positive and negative values.

Preparation:

- Provide one graphing handheld for each student.
- Each student should have a copy of the corresponding student activity sheet.

Classroom Management Tips:

- To help the activity begin smoothly, have students open a new spreadsheet in the CellSheet™ Application and complete it under your guidance.
- Students will have a better understanding of how to read the graphic and retrieve data if you use the transparency for a class discussion before the students start working.
- Students can work individually or in small groups on this activity. Working in groups is especially helpful as they learn the various features of the handheld.
- Allow students to talk about the "how" and "why" approach they used to find the solutions.
- You may want to start the class activity with a discussion about percent increase and decrease.

Data Source:

Census Bureau's International Data Base

National Council of Teachers of Mathematics (NCTM) Standards*:

Data Analysis and Probability Standard

- Select and use appropriate statistical methods to analyze data.
- Formulate questions that can be addressed with data and collect, organize, and display data to answer them.

Connections Standard

- Recognize and apply mathematics in contexts outside of mathematics.

*Standards are listed with the permission of the National Council of Teachers of Mathematics (NCTM), www.nctm.org. NCTM does not endorse the content or validity of these alignments.

Additional Resources:

- Student handout
- Transparency
- TI Technology Guide, for information on the following: TI-83 Plus family, TI-84 Plus family, List Editor and ScienceTools
- TI-Navigator™ Basic Skills Guide for information on using the TI-Navigator Classroom Learning System

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Activity Extension:

- The Population Reference Bureau website, <http://www.prb.org/datafind/datafinder.htm>, provides information about countries around the world. Have students choose a country or region and explore the growth rates for that country or region over time. Then have them prepare a report to share with the class about the country or region they selected. Have them include any factors in their report that may influence the growth rate for that country or region.
- Use the USA TODAY website, www.usatoday.com/news/nation/census/front.htm, to review the population change in the United States. Have students explore the economic impact on a region when the population increases or decreases.
- Have students read USA TODAY and make a list of issues or world conditions that might affect where the world population lives. Have them summarize their findings and conclusions.

Curriculum Connections:

- Geography
- World History
- Economics
- Agriscience
- Business

Teacher Notes:

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Assessment and Evaluation:

Q. Determine the population for each of the continents shown in the USA TODAY Snapshot "World population in 2050."

A. The numbers in the table show the population using two significant digits.

	Population 2000	Population 2050
Asia	3.7	5.3
Africa	.78	1.8
Europe	.72	.64
North America	.47	.71
South America	.34	.48

Q. Which continent is projected to have the greatest percent increase in population? What is the percent increase?

A. Africa has the greatest percent increase. The percent increase is 130 using two significant digits.

Q. What is the percent change in population for Europe? What impact will this change have on the percentage of the expected population of Europe by 2050?

A. According to the estimates Europe will experience a percent change of -11. This means that the expected number living in Europe by 2050 will decrease by about 11%.



If you are using the TI-Navigator Classroom Learning System, send the provided LearningCheck assessment to your class to gauge student understanding of the concepts presented in the activity. See the TI-Navigator Basic Skills Guide for additional information on how this classroom learning system may be integrated into the activity.