



IMMIGRATION NATION

TEACHER VERSION

Subject Level:

Elementary School Math

Grade Level:

3-5

Approx. Time Required:

45 minutes

Learning Objectives:

- Students will be able to create a bar graph that represents four different data sets and to develop its scale.
- Students will be able to create and plot data on a line graph and to develop its scale.
- Students will be able to analyze data presented in bar and line graphs.

Activity Description

Students will examine data of the number of immigrants to the United States, to create bar graphs and line graphs with appropriate scales. Students will then compare and analyze their graphs to draw conclusions about the data.

Suggested Grade Level:

3-5

Approximate Time Required:

45 minutes

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Topics:

- Bar graphs
- Line graphs
- Immigration

Skills Taught:

- Analyzing data
 - Creating a bar graph
 - Creating a line graph
 - Interpreting graphs in context
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Materials Required

- The student version of this activity, 9 pages
- Crayons or colored pencils

Activity Item

The following item is part of this activity. The item, its data source, and instructions for viewing the source data online appear at the end of this teacher version.

- Item 1: Recent U.S. Immigrants From Four World Regions, 2000–2010

For more information to help you introduce your students to the Census Bureau, read [“Census Bureau 101 for Students.”](#) This information sheet can be printed and passed out to your students as well.

Standards Addressed

See chart below. For more information, read

[“Overview of Education Standards and Guidelines Addressed in Statistics in Schools Activities.”](#)

Common Core State Standards for Mathematics

Standard	Domain	Cluster
<p>CCSS.MATH.CONTENT.3.MD.B.3</p> <p>Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. <i>For example, draw a bar graph in which each square in the bar graph might represent 5 pets.</i></p>	<p>3 MD – Measurement & Data</p>	<p>Represent and interpret data.</p>

Standard	Domain	Cluster
<p>CCSS.MATH.CONTENT.5.G.A.1</p> <p>Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).</p>	5 G - Geometry	Graph points on the coordinate plane to solve real-world and mathematical problems.
<p>CCSS.MATH.CONTENT.5.G.A.2</p> <p>Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</p>	5 G - Geometry	Graph points on the coordinate plane to solve real-world and mathematical problems.

Common Core State Standards for Mathematical Practice

Standard
<p>CCSS.MATH.PRACTICE.MP6. Attend to precision.</p> <p>Students will develop their own bar and line graphs and appropriate scales for each.</p>

National Council of Teachers of Mathematics’ Principles and Standards for School Mathematics

Content Standard	Students should be able to:	Expectation for Grade Band
Data Analysis and Probability	Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.	Represent data using tables and graphs such as line plots, bar graphs, and line graphs.

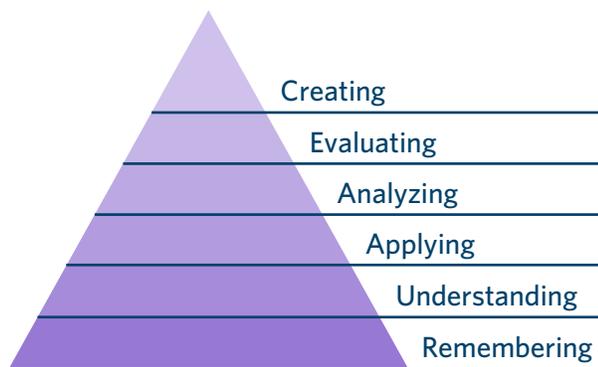
Content Standard	Students should be able to:	Expectation for Grade Band
Data Analysis and Probability	Select and use appropriate statistical methods to analyze data.	Describe the shape and important features of a set of data and compare related data sets, with an emphasis on how the data are distributed. Compare different representations of the same data and evaluate how well each representation shows important aspects of the data.

Guidelines for Assessment and Instruction in Statistics Education

GAISE	Level A	Level B	Level C
Formulate Questions	X		
Collect Data			
Analyze Data	X		
Interpret Results	X		

Bloom's Taxonomy

Students will use census data to **create** bar and line graphs and their scales and will **analyze** these graphs to draw conclusions about data trends.



Teacher Notes

Before the Activity

Students must understand the following key terms:

- **Axes** – two perpendicular lines of a graph, one horizontal and the other vertical
- **Bar graph** – a graph using bars to show amounts of different things so those things can be compared easily
- **Data** – facts usually represented by numbers
- **Line graph** – a graph using points connected by lines to show how something changes in value (as time goes by, or as something else happens)
- **Immigration** – movement of people into a country
- **Scale of a graph** – the distance between equal marks on a graph’s axes, representing the relation between a data set’s units and how they appear on the graph

Students should have a basic understanding of the following ideas and concepts:

- Ability to create basic bar and line graphs, including their scales
- Ability to read and write large numbers up to the hundred thousands

Teachers should group students into pairs. Teachers should note to students that the American Community Survey data used in this activity represent year of entry (YOE) as opposed to total foreign-born population.

During the Activity

Teachers should monitor students as they work.

After the Activity

Teachers should facilitate an in-depth discussion about the trends and patterns students found in the immigration data, while helping students see the increases, the decreases, and anything uncommon in the data sets. Teachers should ask probing questions to push students’ thinking.

Extension Ideas

- Teachers could ask students to identify the different regions from Item 1 on a globe or map.
- Teachers could ask students to write complete sentences about the trends or patterns they observed in the data sets and then make predictions about what the data and/or graphs will look like in the future.
- Teachers could read to students about different immigrant populations throughout time to create a cross-disciplinary experience.

Student Activity

Click [here](#) to download a printable version for students.

Student Learning Objectives

- I will be able to create a bar graph and its scale.
- I will be able to create a line graph and its scale.
- I will be able to look at data from my bar graph and from my line graph.

A lot of people born in other countries — 40 million — came to the United States and were living here in 2010. But this hasn't always been the case. In this activity, you will use four data sets that show the number of U.S. residents in 2000 and in 2010 who moved here from different countries (called immigrants) to make a bar graph and a line graph. These graphs will help you understand how the number of immigrants in our country has changed over time.

Activity Item

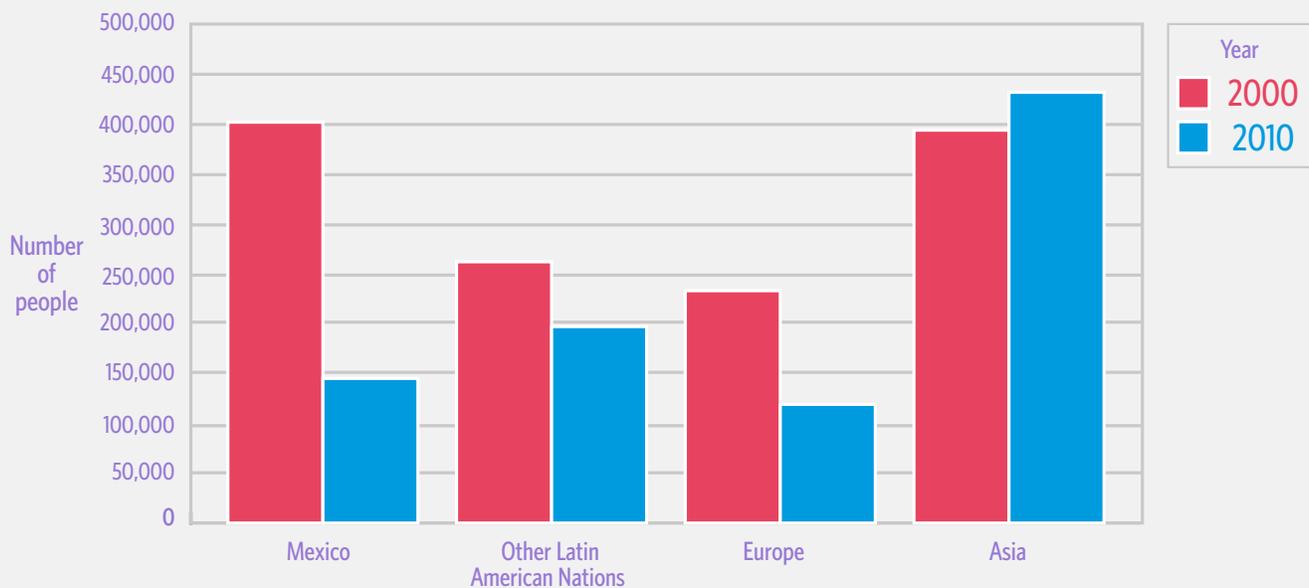
The following item is part of this activity and appears at the end of this student version.

- Item 1: Recent U.S. Immigrants From Four World Regions, 2000–2010

Part 1 - Use Data to Make Graphs

- Use **Item 1: Recent U.S. Immigrants From Four World Regions, 2000–2010** to make a bar graph that shows how many people came here from Mexico, other Latin American nations, Europe, and Asia in 2000 and in 2010. Look at the size of the numbers to help you pick a good scale; use one color for all the 2000 bars and a different color for all the 2010 bars.

Immigration Into the United States: 2000 and 2010



Data source: U.S. Census Bureau, American Community Survey, 2000–2010.

- What scale did you use for your bar graph? Why?

Student answers will vary depending on the scale selected. For the sample graph above, a student answer could include the following: On the scale for the vertical axis, I counted by every 50,000 people. The numbers in the data go from 119,000 to 432,00, so I needed a big number in my scale to get from the smallest to the biggest number.

- Now use all of the data from **Item 1** to make a line graph with four different lines. Each line should show a region where people used to live before moving to the United States in every year between 2000 and 2010. Again, look at the numbers in the data to help you create a good scale.

Immigration Into the United States:
2000-2010



Data source: U.S. Census Bureau, American Community Survey, 2000-2010.

- What scale did you use for your line graph? Why?

Student answers will vary depending on the scale selected. For the sample graph above, a student answer could include the following: Just like in my bar graph, I picked a big scale for my vertical axis, counting by every 100,000 people, to let me show the large number of immigrants from Asia and the small number of immigrants from Europe.

Part 2 - Look at the Data in Your Graphs

- In your bar graph, what patterns or changes do you see that could help you compare the number of immigrants just in 2000 and in 2010?

Student answers will vary but could include: Between 2000 and 2010, the number of immigrants from Mexico, other Latin American nations, and Europe decreased and the number of immigrants from Asia increased.

2. How does your bar graph show you these patterns or changes?

Student answers will vary depending on their answers to the previous question but should reference the height of the bars for each region.

3. Now, looking at your line graph, what changes, similarities, or differences do you notice in the data, going from 2000 all the way to 2010?

Student answers will vary but could include: In 2003, the number of immigrants from every region except Asia decreased before increasing the next year.

Part 3 – Make Conclusions About the Data

1. Thinking about what you saw in your graphs, how has immigration changed in the United States between 2000 and 2010?

Student answers will vary but could include: More people came to the United States from Mexico, other Latin American nations, and Europe in 2000, but more people came to the United States from Asia in 2006 through 2010.

2. Which region did most immigrants come from in 2010?

Asia

3. Looking at your answer to question 2, how did the number of immigrants from that region change between 2000 and 2010?

The number of immigrants from Asia went down in the mid-2000s and went up after that.

4. Which graph is better for showing trends or patterns in the number of immigrants to the United States between 2000 and 2010? Explain.

The line graph is better because it shows many more changes. It shows that the number of immigrants from Europe went up a little from 2000 to 2001, went down a lot through 2003, and then did not change very much from 2005 to 2010. I can't see this information in the bar graph because it shows just two years.

5. Looking at your line graph, which year(s) had the biggest gap between the regions? Explain.

2010, when the number of immigrants from Asia was much larger than the numbers from the other regions.

6. Still looking at your line graph, which year(s) had the smallest gap between the regions? Explain.

Between 2000 and 2001, when the number of immigrants from Mexico and Asia were almost the same and were closest to the numbers from the other regions.

Item 1: Recent U.S. Immigrants From Four World Regions, 2000–2010

Mexico	
Year	Number of People Who Came to the United States From This Region
2000	402,000
2001	387,000
2002	331,000
2003	294,000
2004	385,000
2005	369,000
2006	333,000
2007	262,000
2008	214,000
2009	158,000
2010	145,000

Item 1: Recent U.S. Immigrants From Four Regions, 2000-2010 (Continued)

Other Latin American Nations	
Year	Number of People Who Came to the United States From This Region
2000	262,000
2001	278,000
2002	238,000
2003	193,000
2004	210,000
2005	216,000
2006	209,000
2007	184,000
2008	175,000
2009	179,000
2010	197,000

Item 1: Recent U.S. Immigrants From Four Regions, 2000-2010 (Continued)

Europe	
Year	Number of People Who Came to the United States From This Region
2000	233,000
2001	245,000
2002	201,000
2003	126,000
2004	140,000
2005	159,000
2006	151,000
2007	147,000
2008	141,000
2009	126,000
2010	119,000

Item 1: Recent U.S. Immigrants From Four Regions, 2000-2010 (Continued)

Asia	
Year	Number of People Who Came to the United States From This Region
2000	394,000
2001	380,000
2002	361,000
2003	313,000
2004	306,000
2005	337,000
2006	389,000
2007	404,000
2008	429,000
2009	424,000
2010	432,000

Data source: U.S. Census Bureau, American Community Survey, 2000-2010.

www.census.gov/newsroom/cspan/foreignbornpop/20120511_cspan_foreignbornpop_slides_7.pdf

Click on the link above to view the data electronically.