Population Pyramids

Anne Hoeper – Wood Intermediate School

Grade Level (Req.): 7th-10th grade	Content Area (Req.): World Geography, Human Geography, English	Unit (Opt.):
Connections to Other Disciplines (Opt.): • • •		
Time Frame (Req.): 1 class period	Goal (Req.): To understand the people of the world and how different they are.	
	Objective (Req.): Students will be aware of population growth in India compared to the United States.	

Materials Needed (Req.): • India and United States Population Pyramids for 2000, 2025, 2050 • Demographic data for India and United States • Information can be found at http://www.census.gov/ipc/www/idbnew.html – Click on Population pyramids • • • •	New Vocabulary (Opt.): • • • • •

Anticipatory Set/Introduction [Inquiry Question is required] (Req.): How does the population growth in India compare to the United States? What services will the population need in 2025 and 2050?

Instructional Sequence/Procedure (Req.):
1. Explain how a population pyramid is created. It shows the age and sex structure of a population.
2. Show the students a current US population pyramid. Go over the parts of a population pyramid (title, age categories, male/female, x-axis, y-axis, key)
3. Ask the students the following questions about the pyramid: Which age group has the greatest number of people? Which bar includes the students in this classroom? Are there more people in your age group or in the age group below yours?
4. Explain that a pyramid shows the history of the country's population growth. Explain that in the US from 1945-1965 people had larger families. These people are now between 35-55. They are called the baby boomers. Find this group on the pyramid.
5. Show the students examples of population pyramids that show the three types of population growth: rapid, slow, and negative. How do they differ from the US?
6. Explain how the pyramid shape changes as time passes. This can be done by showing the animated population pyramids found at http://www.census.gov/cgi-bin/ipc/idbpyrs.pl?cty=US&out=d&ymax=300
7. Demonstrate how to fill in a population pyramid.
8. Divide the class into groups of 3.

9. Assign half of the groups India and the other half of the groups the United States.
10. In each group students will decide who will do the pyramid for 2000, 2025, and 2050.
11. Give each student a blank population pyramid form and provide statistics for the years of 2000, 2025, 2050.
12. Students will fill in the population pyramid for their assigned year and country. Is your country's population growing rapidly or slowly?
13. Groups will compare their three population pyramids and determine if the country's population is growing, declining or remaining the same. Students should discuss the following: Why would a government want to know the population of the different age groups? What difference does the age of the people in a country make? (Different ages have different needs) What kinds of products do young people use? (Diapers, day care, toys, health care, schools, etc.) What about older people? (Different kinds of health care, different foods, different products) Groups will determine the services the government will need to provide for the population of their country. Using 2000, 2025, 2050 data: Are the bars getting larger or smaller? In what age groups? What would count for this trend?
14. Combine a United States group with an Indian group. Which country and year has a larger population under the age of 19? Which country and year has a smaller population over the age of 65? Why are all of the pyramids smaller near the top?
15. Groups will share their three pyramids, the growth of the populations, and what services will be needed to provide for the population's needs.
16. Extension: Create a population pyramid using Microsoft Excel.
17.
18.
19.
20.

Formative Evaluation (Req.): Class participation and discussion	Assessment (Req.): 1) Write a paragraph describing the projected growth of India. 2) Compare India's growth to the projected growth of the United States. Write three sentences comparing the US and India. Create a list of services that will be needed to provide for each country's population. Respond to the following: What I first thought when I began this activity _____. (expected to learn) What I learned from this activity _____. (give details) What I think about the information gained. 3) Use a rubric to grade the population pyramid.

Iowa Core Curriculum Standards Used (Req.):
- Geography, grade 9-12: Understand the use of geographic tools to locate and analyze information about people, places, and environments.
- Geography, grade 9-12: Understand how human factors and the distribution of resources affect the development of society and the movement of populations.
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Common Core Curriculum Standards Used (Opt.):
- Speaking and Listening, grade 6-12: Engage effectively in a range of collaborative discussions

(one-on-one, in groups and teacher-led) with diverse partners on specific grade level topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

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NGS Standards Used (Req.):

- How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective
- The characteristics, distribution, and migration of human populations on Earth's surface
- How to apply geography to interpret the present and plan for the future
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Five Themes of Geography Used (Req.):	School District Standards and Benchmarks (Opt.):
- Place - - - -	- - -

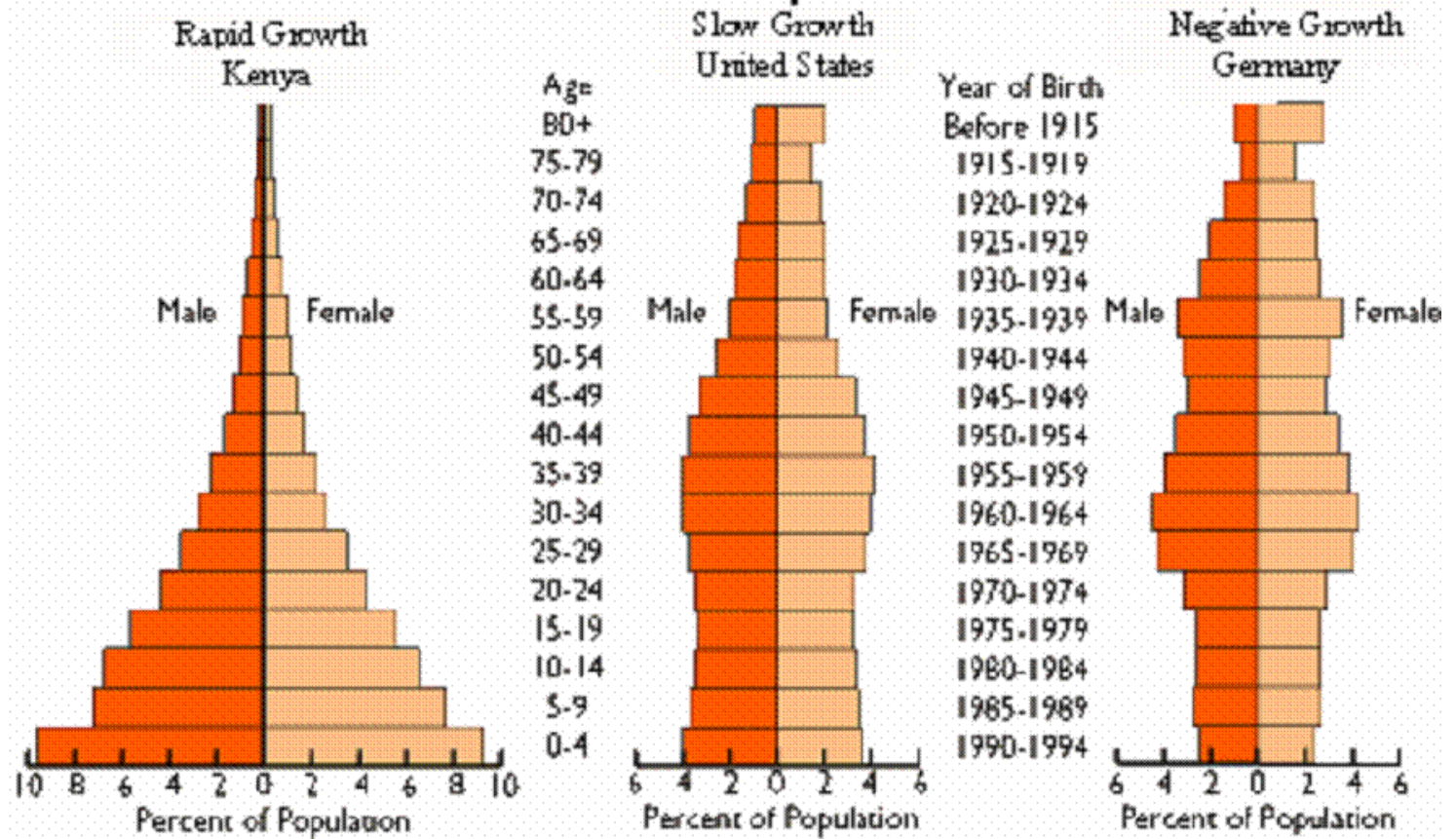21st Century Universal Constructs (Opt.): Collaboration

Other Disciplinary Standards (Opt.):

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Other Essential Information (Opt.):

Other Resources (Opt.):

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Three Patterns of Population Change

Rapid Growth
Kenya

Slow Growth
United States

Negative Growth
Germany

Age	Year of Birth
80+	Before 1915
75-79	1915-1919
70-74	1920-1924
65-69	1925-1929
60-64	1930-1934
55-59	1935-1939
50-54	1940-1944
45-49	1945-1949
40-44	1950-1954
35-39	1955-1959
30-34	1960-1964
25-29	1965-1969
20-24	1970-1974
15-19	1975-1979
10-14	1980-1984
5-9	1985-1989
0-4	1990-1994

Male   Female

Male   Female

Male   Female

10 8 6 4 2 0 2 4 6 8 10
Percent of Population

6 4 2 0 2 4 6
Percent of Population

6 4 2 0 2 4 6
Percent of Population

PRB

Population Pyramid Chart

	Male											Female

80+												
75-79												
40-74												
65-69												
60-64												
55-59												
50-54												
45-49												
40-44												
35-39												
30-34												
25-29												
20-24												
15-19												
10-14												
5-9												
0-4												
	12	10	8	6	4	2	2	4	6	8	10	12

RUBRIC FOR POPULATION PYRAMID

Name _____   Period _____   Date _____

Pyramid has the following:	excellent	satisfactory	Unsatisfactory
1. title	3	2	1
2. axis x is labeled "ages"	3	2	1
3. axis y is labeled "population"	3	2	1
4. population correctly represented	3	2	1
5. population numbers along the y axis	3	2	1
6. student name is in A2	3	2	1
7. paragraph (see directions)	7	5	3
	Total Points	_____	Grade _____

EXTENSION USING EXCEL

1. In A1 type "**your name and period**"
2. In B2 type "**males**"
3. In C2 type "**females**"
4. In A3 type the ages ranges starting with "**0-4**" at the topA4 "**5-9**"
    A5 "**10-14**"
    A6 "**15-19**"
    A7 "**20-24**"
    A8 "**25-29**"
    A9 "**30-34**"
    A10 "**35-39**"
    A11 "**40-44**"
    A12 "**45-49**"
    A13 "**50-54**"
    A14 "**55-59**"
    A15 "**60-64**"
    A16 "**65-69**"
    A17 "**70-74**"
    A18 "**75-79**"
    A19 "**80+**".
5. Under "males" in column B type in the male values. Use a negative sign in front of each number. For example, instead of typing 5 type –5. All of the male values must have a "**-**" in front of the number.
6. Under "females" in column C type in the female values. Do **NOT** use a – sign.
7. Highlight cells A2-C19. Click on "format" at the top. Click on "cell**s**". Click on the "border" tab. Click on the boxes that are labeled "outside" and "inside". Click on "OK"

8. Highlight cells A2-C19. Click on the Chart Wizard at the top of the window
9. Select the "Custom Types" tab
10. Select "Tubes" from the "Chart Type" menu
11. Click "Next"
12. Click "Next"
13. Click in the "chart title" box.
    In the chart title box type **country name and** "**Population Pyramid**".
    Category (X) axis is the vertical axis (   ) for ages. In this box, type "**Ages**".
    Value (Y) axis is the horizontal axis (—) for population. In this box type "**Population**".
14. Click on the "axes" tab and uncheck any box in the category "x axis".
15. Click on the "Data labels" tab and uncheck any box.
16. Click "Next"
17. The box in front of "as object in" should have a dot.
18. Click "Finish"
19. Point the cursor at one of the bars and right click the mouse. Select "format data series"
20. Click on "options" tab.
21. In the "gap width" box change the number to "**0**".