

POPULATION FUTURE

ANSWER KEY - PAGE 2

1. Looking at the four graphs, what trends do you observe?

Students will probably recognize that from 1980 to 2021, every region experienced population growth. From 2021 until 2050, every region except Europe is expected to see population growth. From 2050 to 2100, Africa is expected to be the only region experiencing significant population growth, while Asia, Latin America, and Europe are projected to have a decrease in their populations.

2. You've seen the data displayed two ways – as numbers on a table and as a gridded bar graph. Is either format more effective in helping you understand the changes over time or among regions? Explain your answer.

Answers will vary. It is likely that many students will find the data displayed on the gridded bar graph as more effective in grasping the population differences among regions and changes over time. There is evidence that data visualization (through graphs, maps, etc.) makes it easier for the human mind to comprehend data and identify trends and patterns within data sets.

3. Which regions grew the most between 1980 and 2021?

Asia grew the most in raw numbers (by nearly 2 billion). Africa grew by the largest percentage (287%) – nearly tripling.

4. Which region is expected to grow the most between 2021 and 2100? What might be some social, economic, or environmental impacts of this change?

Africa, which is expected to triple in population size. Meeting the needs of this much larger population will require a rapid expansion in education and health care systems, infrastructure systems (utilities, waste treatment, etc.), and economic development. Such rapid population growth can have negative impacts on the environment, including air and water pollution and shrinking wildlife habitat.

5. Which regions' populations are expected to shrink between 2021 and 2100? What might be some social, economic, or environmental impacts of this change?

Europe's population is expected to gradually shrink by about 16 percent between 2021 and 2100 (748 million to 630 million). Populations in Latin America and Asia are expected to continue to grow through at least 2050 before starting to shrink back to slightly more than the 2021 populations by 2100. Europe is already concerned about a shrinking labor force and a graying population that will need more eldercare services. The environmental impacts of a smaller "footprint" could be positive, enabling more land conservation, as demand for housing, cropland and other resources decreases.

6. How are these demographic changes expected to alter each region's representation in the world population? (Think about a region's percentage of the total global population.)

Africa is expected to represent 39 percent of the world's population in 2100 (up from 17 percent in 2021). Northern America is expected to remain at 5 percent of the world population. Asia is expected to maintain the largest population of all world regions but would drop from 59 to 43 percent of the total world population.

POPULATION FUTURE

STUDENT WORKSHEET 1 - PAGE 1

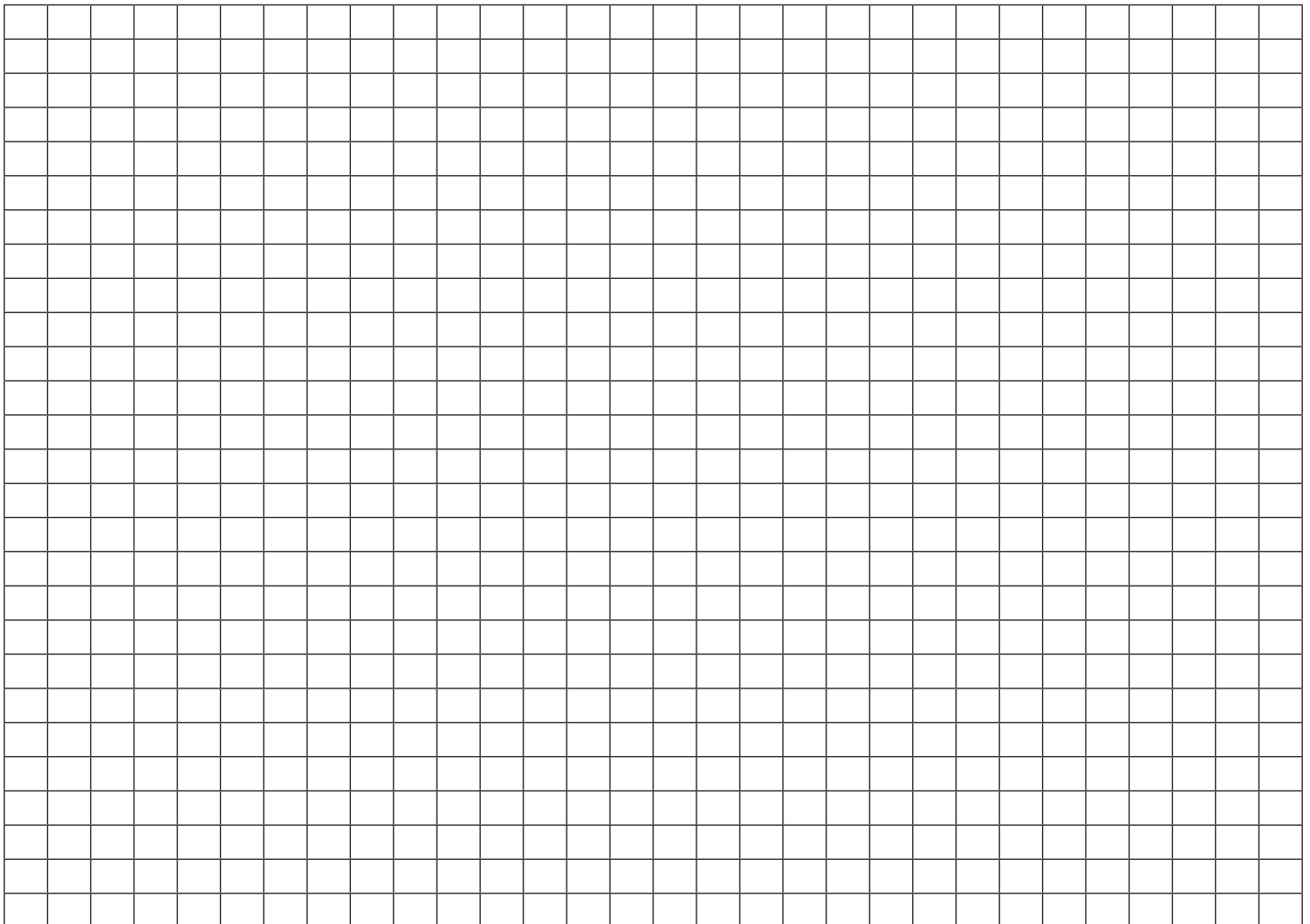
Name: _____ Date: _____

Construct a bar graph of the world's population by regional grouping.

WORLD POPULATION - 1980

Region	Population (in millions)	# of Grid Squares	% of World Population
Africa	478		
Asia	2,625		
Europe	694		
Latin America and the Caribbean	365		
Northern America	254		
Oceania	23		
TOTAL			

1. Use the scale: 1 grid square = 25 million people. Calculate the number of grid squares needed for each region.
2. Plot the grid squares on the graph below. Use a different color to identify each region. (Colors: Africa – Green; Asia – Red; Europe – Brown; Latin America – Yellow; Northern America – Blue; Oceania – Purple)



POPULATION FUTURE

STUDENT WORKSHEET 1 - PAGE 2

When all group members have completed their graphs, lay them all out on a table and compare. Then answer the following questions as a group.

1. What are the trends you observe? Which regions have gotten larger? Smaller? What does this tell us about global population growth that has already happened and that is projected to occur?

2. You've seen the data displayed two ways – as numbers on a table and as a gridded bar graph. Is either format more effective in helping you understand the changes over time or among regions? Explain your answer.

3. Which regions grew the most between 1980 and 2021?

4. Which region is expected to grow by the most between 2021 and 2100? What might be some social, economic, or environmental impacts of this change?

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STUDENT WORKSHEET 2 - PAGE 1

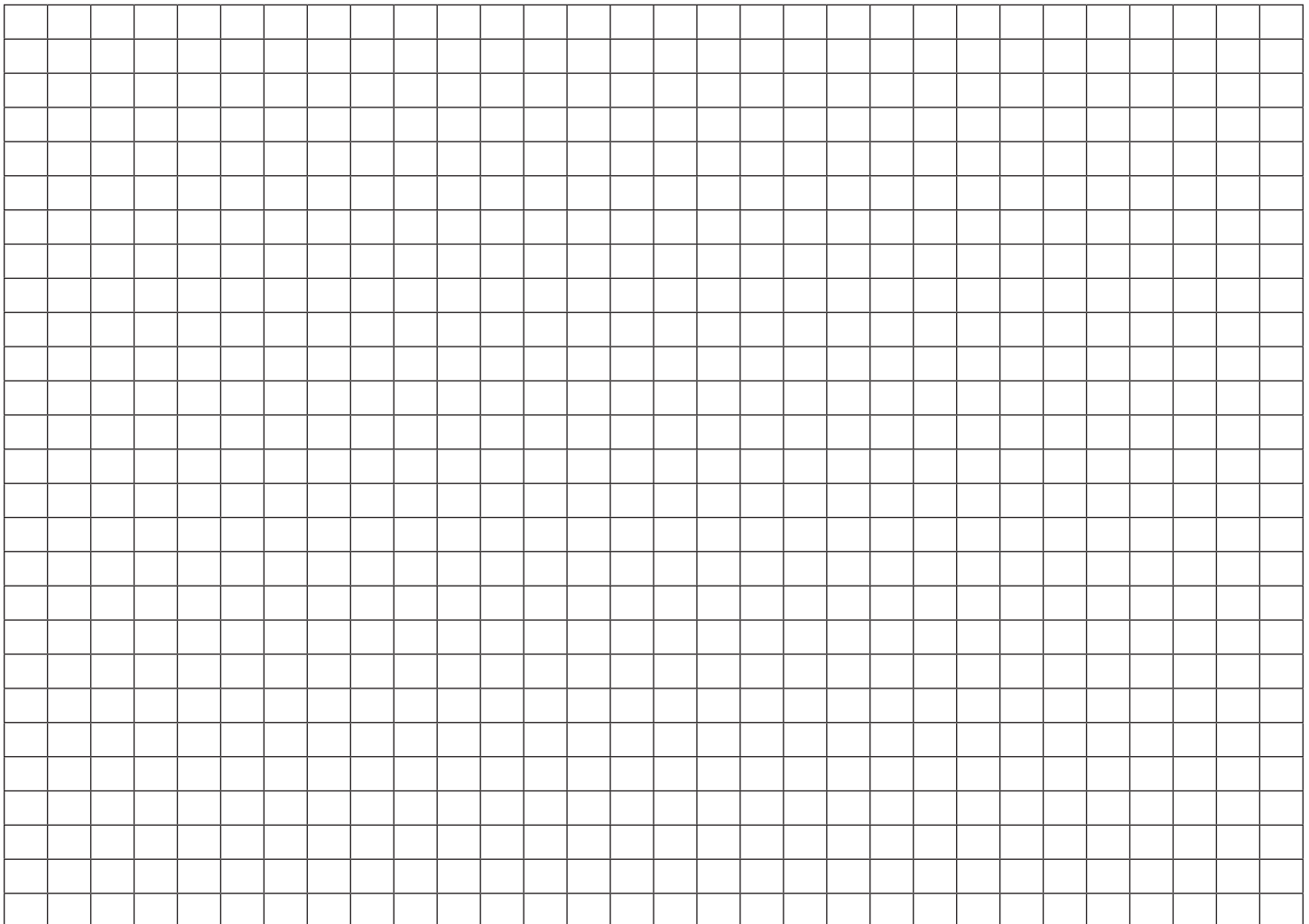
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Construct a bar graph of the world's population by regional grouping.

WORLD POPULATION - 2021

Region	Population (in millions)	# of Grid Squares	% of World Population
Africa	1,373		
Asia	4,680		
Europe	748		
Latin America and the Caribbean	660		
Northern America	371		
Oceania	43		
TOTAL			

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STUDENT WORKSHEET 3 - PAGE 1

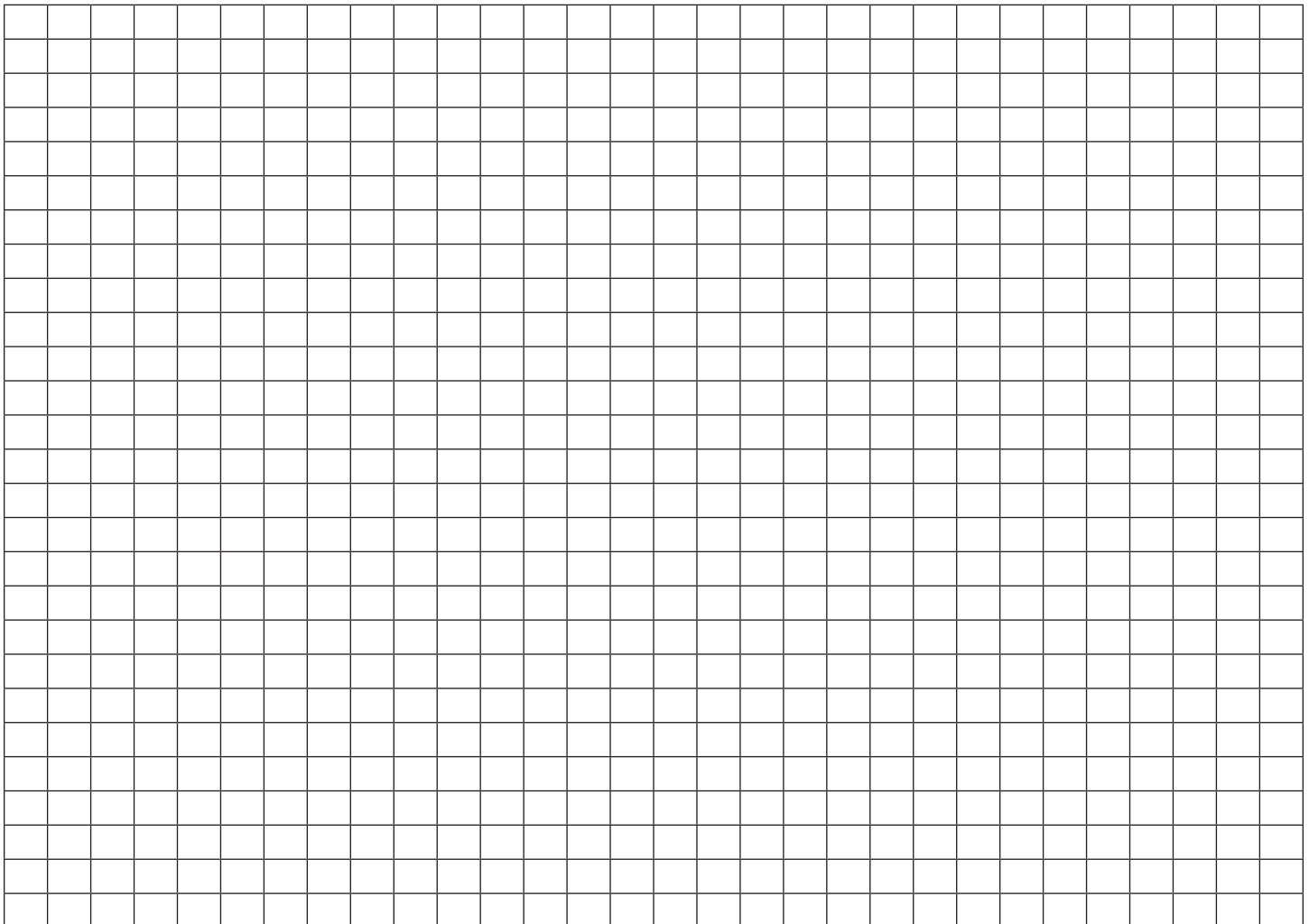
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Construct a bar graph of the world's population by regional grouping.

WORLD POPULATION - 2050 Projection

Region	Population (in millions)	# of Grid Squares	% of World Population
Africa	2,489		
Asia	5,290		
Europe	710		
Latin America and the Caribbean	762		
Northern America	425		
Oceania	57		
TOTAL			

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STUDENT WORKSHEET 4 - PAGE 1

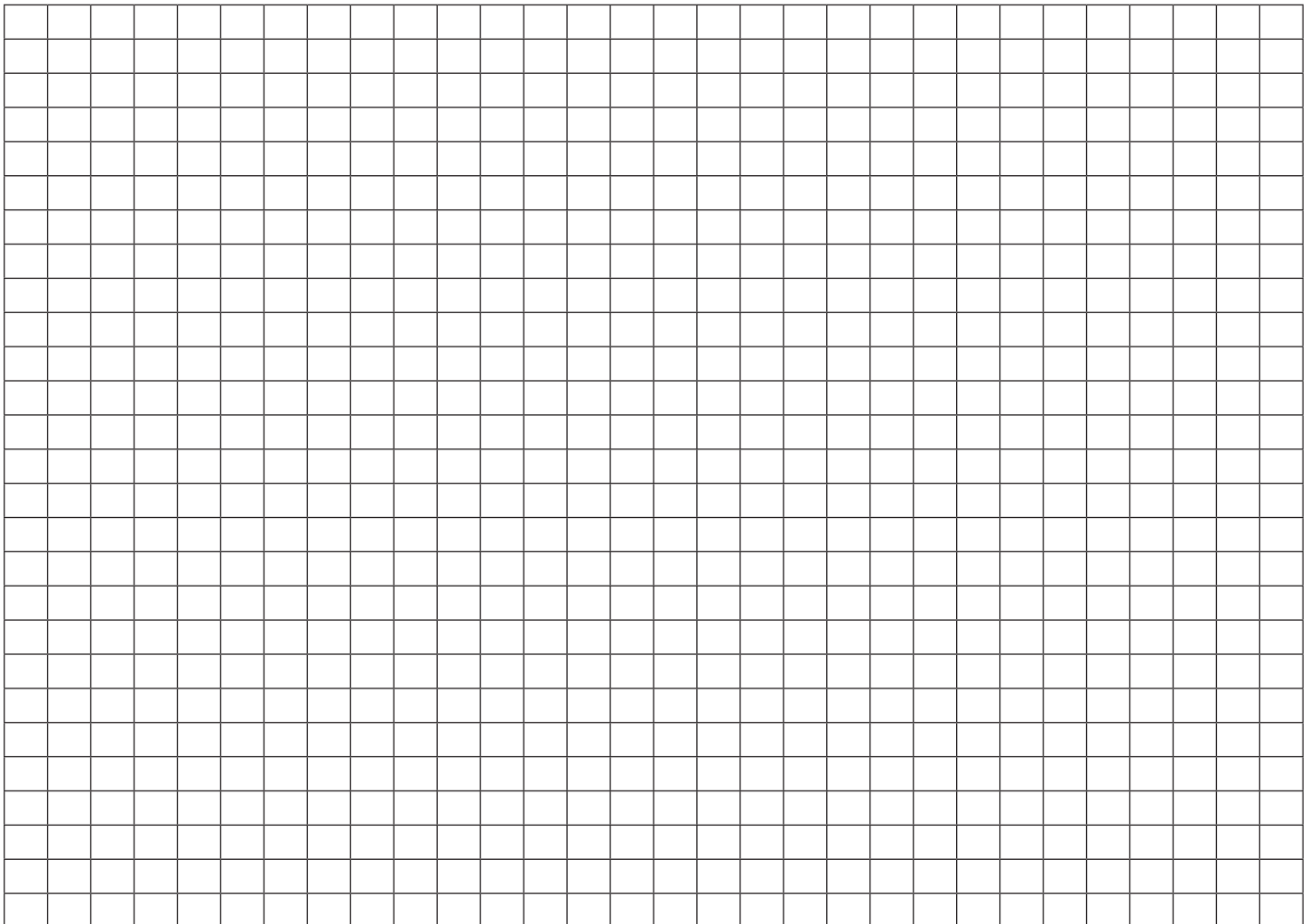
Name: _____ Date: _____

Construct a bar graph of the world's population by regional grouping.

WORLD POPULATION - 2100 Projection

Region	Population (in millions)	# of Grid Squares	% of World Population
Africa	4,280		
Asia	4,720		
Europe	630		
Latin America and the Caribbean	680		
Northern America	491		
Oceania	75		
TOTAL			

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