Population Paths

Read population data and connect change to environmental impacts.

ES.11 "Construct an explanation of how human populations undergo growth and decline. a. Analyze and interpret data on human population trends in developing and developed countries and in the global population as a whole. b..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the birth and death rate clues for stages 2, 3, and 5, and circle one possible environmental impact for each of those stages. Number the table rows from greatest to least growth relative to the starting population.

Why Growth Looks Different

1. The table tracks population change from 1960 to 2020. Germany, a developed country, grew slowly, while Niger, a developing country, grew rapidly relative to its starting size. The global total also rose because births exceeded deaths worldwide. Migration can change a country's population, but movement between countries cannot change the global total.

APPROXIMATE POPULATION, 1960 AND 2020

Population	1960 (millions)	2020 (millions)
World	3,030	7,850
Niger	3.4	24.3
Germany	72.8	83.2

2. In stage 1 of the demographic transition model, high birth and death rates limit growth, though fuelwood use can damage forests. In stage 2, deaths fall while births remain high; rapid growth can expand farms and water use. In stage 3, births fall, slowing growth, but growing industry can increase pollution. Countries may pass through these stages at different times.

3. In stage 4, birth and death rates are both low, and population is fairly stable. High consumption per person can still generate waste and greenhouse gases. Some countries enter a proposed stage 5, when births fall below deaths and population may decline without immigration. A shrinking population may reduce total demand, but consumption choices still shape environmental impacts.

2 ANSWER WITH EVIDENCE

Use the passage

1. About how many million people did the world population gain from 1960 to 2020?

2. Which country grew more relative to its 1960 population, Niger or Germany? Use both countries' data to support your answer.

3. How do the likely environmental pressures differ between stages 2 and 3 as the population trend changes?

4. Why might a country in stage 5 still have a large environmental impact even if its population declines?

3 YOUR TURN

Your own words

Imagine a country where births fall from 35 to 18 per 1,000 people, deaths fall from 12 to 8 per 1,000, and population rises from 10 to 17 million as electricity use per person increases. Identify its likely transition stage, explain two environmental pressures it could face, and propose one action to limit an impact.

ANSWER KEY

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HIGH SCHOOL · ES.11

PART 1 · READ AND MARK

Underline the birth and death rate clues for stages 2, 3, and 5, and circle one possible environmental impact for each of those stages. Number the table rows from greatest to least growth relative to the starting population. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	About how many million people did the world population gain from 1960 to 2020?	**About 4,820 million people, or 4.82 billion.**
2	Which country grew more relative to its 1960 population, Niger or Germany? Use both countries' data to support your answer.	**Niger grew more. Its population rose from 3.4 to 24.3 million, about seven times its starting size; Germany's rose from 72.8 to 83.2 million, about 1.1 times its starting size.**
3	How do the likely environmental pressures differ between stages 2 and 3 as the population trend changes?	**Rapid growth in stage 2 can expand farms and water use. Growth slows in stage 3 as births fall, but growing industry can increase pollution.**
4	Why might a country in stage 5 still have a large environmental impact even if its population declines?	**Population decline may reduce total demand, but consumption choices still shape environmental impacts.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

This country is likely in stage 3: births have fallen, deaths are low, and the population is still growing. More people could increase demand for farmland and water. Rising electricity use per person could also increase greenhouse gas emissions if power comes from fossil fuels. Building wind or solar power could limit those emissions even while the population grows.

Accept stage 3 explanations that use falling births, low deaths, and continued growth. Environmental pressures and proposed actions should have a clear, scientifically reasonable connection to the scenario.