Harborplain Changes

Use population data to investigate what shapes a town's growth.

HS-ENV5-1 "Analyze and interpret data on how the size and rate of growth of the human population in any location is affected by economic, political, religious, technological, and environmental (resource availability) factors."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one condition in the passage from each of these five categories: economic, political, religious, technological, and environmental. Circle the highest growth rate in the table so you can connect conditions to the data.

Why Did Harborplain Grow?

1. Harborplain is a fictional coastal town used to test explanations for population change. The table shows its population at the start and end of each decade. A decade's percentage growth compares the increase with the population at that decade's start. Births, deaths, and movement into or out of town can all change its size.

HARBORPLAIN POPULATION, FICTIONAL DATA

Decade	Population at start	Population at end	Growth rate
2000 to 2010	10,000	12,000	20%
2010 to 2020	12,000	15,000	25%
2020 to 2030	15,000	15,600	4%

2. From 2000 to 2010, a new port brought jobs, and a government housing program helped workers move in. From 2010 to 2020, improved water treatment reduced deaths from unsafe drinking water. Some families also chose to have more children because of their religious beliefs. These changes may help explain the faster growth shown in the table.

3. After 2020, repeated droughts cut the town's freshwater supply. The government limited new housing permits, while port jobs declined. Some residents left, and fewer people moved in. The town still gained residents by 2030, but its growth rate fell sharply. The table alone cannot tell how much each factor contributed.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which decade gained the most residents? Calculate its gain and compare its growth rate with the other decades.

2. Which two conditions described for 2010 to 2020 could help explain the higher growth rate? Explain how each could affect population.

3. Compare the government housing decisions in the first and last decades. How do the growth rates differ, and why can't you credit the decisions alone?

4. How could drought and declining port jobs both help explain the 2020 to 2030 growth rate, even though the population increased?

3 YOUR TURN

Your own words

Invent two changes from different factor categories for Harborplain from 2030 to 2040. Predict a plausible 2040 population and growth rate using 15,600 as the starting population, then explain how both changes could affect growth and why your estimate is uncertain.

ANSWER KEY

Harborplain Changes

HIGH SCHOOL · HS-ENV5-1

PART 1 · READ AND MARK

Underline one condition in the passage from each of these five categories: economic, political, religious, technological, and environmental. Circle the highest growth rate in the table so you can connect conditions to the data. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which decade gained the most residents? Calculate its gain and compare its growth rate with the other decades.	**From 2010 to 2020, Harborplain gained 3,000 residents. Its 25% growth rate was also the highest.**
2	Which two conditions described for 2010 to 2020 could help explain the higher growth rate? Explain how each could affect population.	**Improved water treatment reduced deaths, and some families chose to have more children because of their religious beliefs. Both could increase population growth.**
3	Compare the government housing decisions in the first and last decades. How do the growth rates differ, and why can't you credit the decisions alone?	**A housing program helped people move in when growth was 20%. Later, the government limited new housing permits when growth was 4%. Other conditions, including jobs and drought, also changed.**
4	How could drought and declining port jobs both help explain the 2020 to 2030 growth rate, even though the population increased?	**Less freshwater and fewer jobs could lead residents to leave or discourage newcomers. The population still rose by 600, but its growth rate was only 4%.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

A new factory opens, bringing jobs, and a desalination plant increases available freshwater. I predict 17,160 residents in 2040, a gain of 1,560, or 10% from 2030. Jobs could attract newcomers, while added water could support them. The estimate is uncertain because future births, deaths, and migration are unknown.

Accept plausible links between conditions and population change, including answers that distinguish an association from a proven cause. For Part 3, check that the predicted growth rate uses 15,600 as its base.