Population in 2020

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Collect data on the population for the last 200 years to help you make your prediction. Give reasons for your estimate.

Grade Levels 6 - 8

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Context

We had been solving problems that had patterns and could be connected to exponents. I wanted to give my students a real-world problem where exponential growth occurred. The discussions we had about how quickly the population has grown were very interesting. Most students were very concerned about the planet and overpopulation.

What This Task Accomplishes

This task asks students to find data about the population and graph this information, and find a way to predict future populations.

What the Student Will Do

The students went to the library to look up the population of the United States for the past 200 years. They graphed the results (needing to decide what scale to use) and then had to think of a way to predict a future population.

Time Required for Task

Two or three class periods, depending on outside time available to students.

Interdisciplinary Links

This task can be linked to a social studies unit on the United States or a science unit on pollution or overpopulation.

Teaching Tips

You might want to have a discussion about making a graph and deciding on a scale to use so there are equal increments and all the information can be presented.

Suggested Materials

- Different types of graph paper
- Reference materials (to find the population of the United States since 1700)

Possible Solutions

Answers will vary. Look for explanations of past growth patterns in determining the future population.

Benchmark Descriptors

Novice
This student has not collected the correct information. His/her graph is not accurate. His/her estimate is lower than the current population. There is no reason for the solution.

Apprentice
This student is beginning to see increases in the population and indicates that there are small steps in the beginning and larger increases in the last 100 years, but there is no reason for their estimate. The scale on their graph could not accommodate the larger populations.

Practitioner
This student sees that the differences between the populations every 30 years increased at a constant rate, but his/her explanation for his/her estimation should be linked to his/her graph. However, his/her graph stops at 1989 and the reasoning loses some of its strength.

Expert
This student noticed that the difference between the populations every 30 years increased at a constant rate. His/her graph helped him/her to see that their prediction of 317 million in the year 2020 was reasonable. The curve on the graph is quite powerful.