SN EDUCATOR GUIDE

December 17, 2022 & December 31, 2022

Human Population Hits a Milestone

Student Discussion Worksheet

Directions: Read the *Science News* article "The world population has now reached 8 billion" and answer the following questions as directed by your teacher. A version of the article, "Human population hits a milestone," appears in the December 17, 2022 & December 31, 2022 issue of *Science News*.

Population on a global scale

1. What does the graph included in the story show, according to the graph title? What is measured on the y-axis and x-axis? What are the units of measure and what increments are represented by each mark on the axes?

2. What do the colors of graphed lines represent? How was each line obtained and why were the various lines included in the graph, according to the article? Choose a point on the line and describe the data it represents. Don't forget to include appropriate units.

3. Use the graph to calculate the average rate of change per year from 2000 to 2020. Use the graph to calculate the median projected rate of change per year from 2060 to 2080.

4. How would you describe the general trend in data that you see on the graph? How does the rate of change differ from observed to projected values?

Extension: Think about different mathematical functions you know and use one in your description of the overall trend.

5. Why do you think the graph is included in the article?

Processing projections

1. How do you think the United Nations calculated the observed global population?

2. What factors do you think went into creating the computer simulated population projections? Brainstorm a list.

3. What happens to the range of the samples of projections as the dates go further into the future? Give specific data points to support your answer?

4. How would you expect the uncertainty of the projections to change as the dates extend further into the future?

5. Why do you think the United Nations found it worthwhile to project the global population? Why might it be beneficial to include many of the projections on the graph?