

Lesson Plan

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Grade level(s)/Subject taught: Math 7 - 9

Objectives: After looking up specific statistical data, students represent quantitative relationships graphically and interpret the meaning of a specific part of a graph in terms of the situation represented by the graph. Students collect, organize, and represent data sets that have one variable and identify relationships within a data set by hand and through the use of an electronic spreadsheet software program.

1. Mathematical Concept:

Students will work with population growth dealing with statistics as related to the algebraic standards and will model and interpret this information using a graphing calculator and a computer.

2. Materials:

- notebook paper
- pencils
- markers
- poster board
- graphing calculator TI-84
- rulers

3. Lesson Format:

INTRODUCTION: Class would begin with computer connected to a LCD projector displaying a picture of the country of China. I would then ask the students to tell me things they know about China and direct them to ponder how many people live in China. I would then introduce the essential question for the day. We would then review the concepts of linear and exponential growth functions. We would review how to create lists in our graphing calculators. As a class we would discuss world population growth, and why this is such an important world issue. I would encourage students to provide input to the discussion. The class would be organized into groups of preferably three students each. Students in each group should equally contribute to the tasks that follow. I would preview a few of the bookmarked sites with the students (on the LCD) and explain how the sites can be used to find Chinese population information.

DIRECTIONS:

- 1) Using the data on the LCD, please record the data in a list using your graphing calculator. L1 will be years and L2 will be population. Use the following years: 1910 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, and 2000.
- 2) Analyze the data so far. Is there a pattern? Is there a noticeable increase in the population of China over the time selected? If there are any drastic changes from one decade to another, do some research to see if there is a reason for this change (due to a war, a disease breakout, natural disaster, etc.).
- 3) Graph the data using Stat plot. Make a line graph. Is there a noticeable trend in the graph? Does the population growth appear to be an exponential or linear pattern?
- 4) Create a larger illustration of your graph by using the poster board and markers. Make sure to label the years and population with an appropriate scale and key.
- 5) Look at the graph and guess what the population in China will be 10 years from now, 20 years from now, and 30 years from now. How about in the year 2100?
- 6) Are you worried about the population growth in China, and in the entire world? Why or why not?
- 7) Conduct a class discussion after assignments are complete about general findings, observations, and any surprises from the research. What possible scenarios could occur due to exploding population growth?

PRODUCT:

In this center you will conduct 1 presentation as a group.

CLEAN-UP:

1. Make sure that all materials are back in the basket.

ASSESSMENT:

Students will present their graphs as a group and will be assessed on a 4 point scale:

Score	Description
4 points	Each presenter contributed, graph was accurate, students were engaged during work period, project is complete
3 points	Graph was accurate, students were engaged during work period, project is complete
2 points	Students were engaged during work period, project is complete
1 point	Project is complete

CONCLUSION:

At the end of the lesson students will be able to

- Distinguish the difference between linear and exponential
- Create a line graph using their graphing calculator
- Give students practice in reading line graphs
- Display the purpose of visual representations of data

REVIEW:

Students will complete a “ticket out the door” and journal about their reaction to the lesson on population growth.