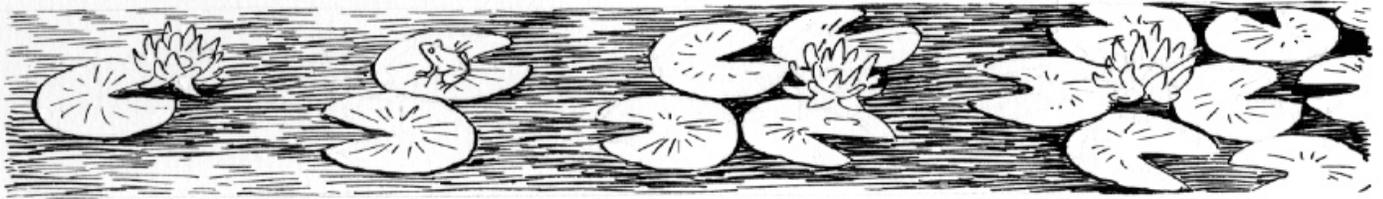




Double Up



“At first there is only one lily pad in the pond, but the next day it doubles, and thereafter each of its descendants doubles. The pond completely fills up with lily pads in 30 days. When is the pond exactly half full? Answer: on the 29th day.”
—Old French riddle

Unlike the lily pads in the French riddle, the human population does not double in size every day. However, it is increasing more quickly than you might suspect. In this activity, you will have the chance to investigate how quickly the populations in different countries are increasing.



Procedure

- 1 Your team will be assigned six to eight countries. Find each country's 10-year growth rates on the “Growth Rates Worldwide” handout. (The 10-year growth rate tells you the rate at which the population of the country increases every 10 years.)
- 2 Based on each country's growth rate, make a prediction as to how many decades (10-year periods) it might take for each country's population to double in size. Record your predictions on a separate sheet of paper.
- 3 Use an initial population of 50 individuals for each country. Follow the steps listed on your “Calculating Population Growth” handout to calculate how large each country's population will be after 10 years. Record the new population size on a separate sheet of paper.
- 4 Repeat the process until each country's population size doubles.
- 5 Use your results to make a graph that shows how the population for each country increases over 10-year periods. Graph the number of years on the x-axis and the number of people on the y-axis. Draw the best-fit curve.

Questions

Write your answers on a separate sheet of paper.

- 1 Compare your results with your original predictions. How do they compare?
- 2 Compare your results with those of other teams. How does increasing or decreasing the growth rate affect how quickly the population size increases or decreases?
- 3 Use your “Growth Rates Worldwide” handouts to find the country or territory with the lowest growth rate and the country or territory with the highest growth rate. Use your formula to calculate how long it would take each one to double. How do they compare to the countries in your original data set? If you were a leader of either of those countries, what would be your concerns about your country's growth rate?
- 4 The world population is currently estimated at roughly six billion people. If the projected 10-year growth rate is 0.123, how long will it take for the world population to double?

