Task
World Population

The table shows the estimates world population over time.

Year	World Population
10 000 B.C.E.	1 000 000
9000 B.C.E.	3 000 000
8000 B.C.E.	5 000 000
7000 B.C.E.	7 000 000
6000 B.C.E.	10 000 000
5000 B.C.E.	15 000 000
4000 B.C.E.	20 000 000
3000 B.C.E.	25 000 000
2000 B.C.E.	35 000 000
1000 B.C.E.	50 000 000
500 B.C.E.	100 000 000
1	200 000 000
1000	310 000 000
1750	791 000 000
1800	978 000 000
1850	1 262 000 000
1900	1 650 000 000
1950	2 518 629 000
1955	2 755 823 000
1960	2 981 659 000
1965	3 334 874 000
1970	3 692 492 000
1975	4 068 109 000
1980	4 434 682 000
1985	4 830 979 000
1990	5 263 593 000
1995	5 674 380 000
2000	6 070 581 000
2005	6 453 628 000

1. Consider the world population from 10 000 B.C.E. to 6000 B.C.E.
a) Use technology to make a scatter plot of the data.
b) Predict whether a linear, quadratic, or exponential model best fits the data.

c) Find the equation of the line or curve of best fit for your chosen model. Examine the correlation coefficient. Does this value confirm your prediction? Justify your reasoning.

2. Consider the world population from 1000 to 2005.
a) Use technology to make a scatter plot of the data.
b) Predict whether a linear, quadratic, or exponential model best fits the data. Does more than one model seem to fit?
c) Find the equation of the line or curve of best fit for your chosen model(s). Examine the correlation coefficient(s). Which model is the best fit? Justify your reasoning. Was your prediction correct?

3. Compare your graphs from questions 1 and 2.

4. a) Use your model from question 1 to predict the population in the year 2060.
b) Use your model from question 2 to predict the population in the year 2060.
c) Which prediction seems more reasonable? Explain.

5. Some researchers predict that food production on Earth can sustain a maximum of 14 000 000 000 people. When will our planet reach this limit? Find your answer algebraically.