

Graphing a Bacterial Population Growth Curve

This is a “dry” activity, one in which you don’t collect your own data but instead, use the data of others. In this case you will graph and interpret data from a study in which the growth of a bacteria population was investigated.

Problem

What is the shape of a bacterial population growth curve? Why does it have that shape?

Materials Graph paper pencil

Procedure

- a. Study the table to the right closely. These data were obtained by a scientist as follows:
A suitable nutrient medium was inoculated with a small number of a certain species of bacterium. The resulting culture was incubated at the optimum temperature for this organism. Every hour the number of bacteria in a drop of the culture was counted. A sampling method was used, so the scientist did not actually count every bacterium.
- b. Graph the data in the table. Put the time in hours on the horizontal axis and the population number on the vertical axis.
- c. Examine your graph. Mark the following regions on it:
 - region of slow but progressive population growth
 - region of rapid population growth
 - region of population decline
 - region of population stability

<u>Time (h)</u>	<u>Population</u>
0	150
1	190
2	380
3	700
4	1450
5	3000
6	5600
7	7000
8	7600
9	7650
10	7400
11	6600
12	6100
13	5500
14	5300
15	5400
16	5600
17	5500
18	5300
19	5400
20	5500

Table: Growth of a Bacterium Population

Discussion

1. Explain the region of slow growth.
2. Why does the growth rate eventually increase a great deal?
3. What factors may be responsible for the peaking and subsequent decline in numbers?
4. This population could eventually crash to zero. Why?

SNC2D Worksheet: Graphing a Bacterial Population Growth Curve

