Science, Gr. 9

Reproduction – Asexual Reproduction

# Population Growth by Binary Fission

Suppose you get on a bus to go to school. At 8:20 a.m. you yawn, and a single *Streptococcus* bacterium floats into your open mouth and settles in your throat. Under ideal conditions that bacterium can reproduce in 20 minutes. So, by the time the bus drops you off at school at 8:40 a.m. there are two bacteria in your throat. When your class starts at 9:00 a.m., there are four.

1. Assume that bacteria reproduce asexually by binary fission ever 20 minutes. Complete this:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time | 8:20 | 8:40 | 9:00 | 9:20 | 9:40 | 10:00 | 10:20 | 10:40 | 11:00 | 11:20 | 11:40 | 12:00 |
| Number of bacteria in throat | 1 |  |  |  |  |  |  |  |  |  |  |  |

2. On a separate scrap sheet of paper, calculate how many bacteria will be in your throat at the following times:

 3:20 p.m.

 6:00 p.m.

 10:00 p.m. (good luck!)

3. On the back side of this page create a graph showing the population growth of the bacteria from 8:20 to 12:00. Put time along the horizontal (left/right) axis, and number of bacteria along the vertical (up/down) axis.

4. What time do you think your throat will start to feel sore? Why?

5. Can bacteria keep growing like this forever? Explain your answer.

