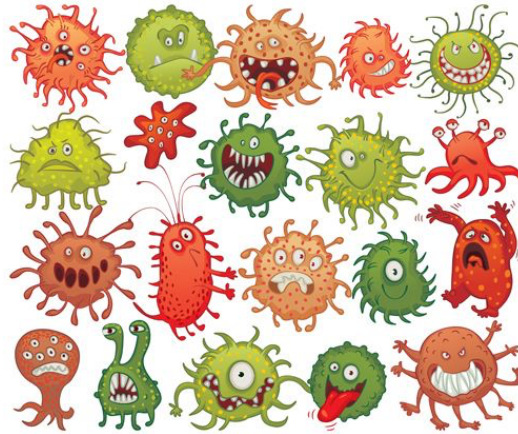


The Growth of Bacteria

Name:

Date:

Block:



Bacteria reproduce by a process called binary fission. It is a process that allows bacteria to divide once about every 20 minutes under ideal conditions. In this exercise, you will simulate the growth of bacteria over 10 generations.

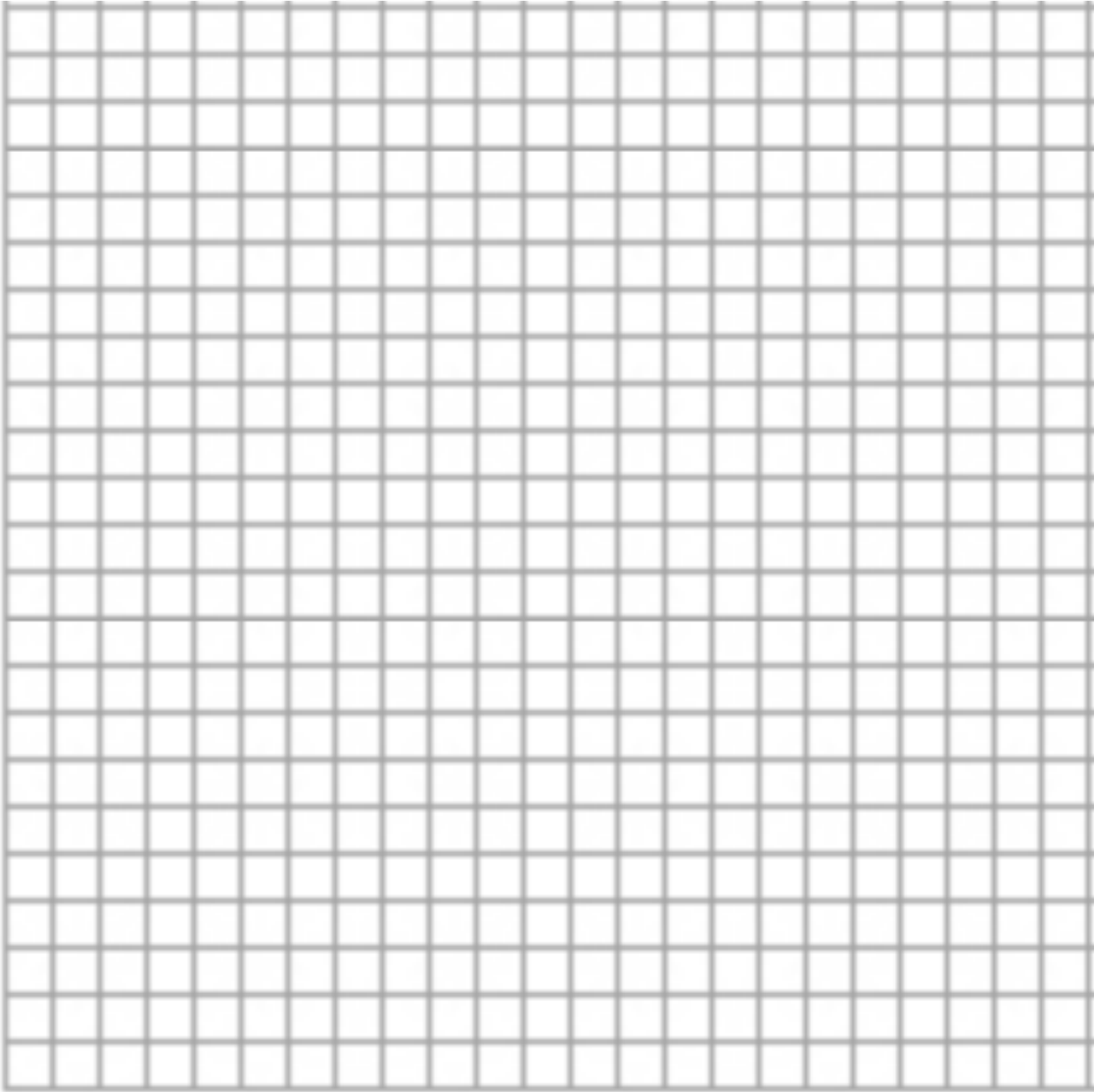
In this exercise, the bacteria will reproduce under ideal conditions. Therefore, they will double their numbers every generation. To visualize this growth, we will record their growth numerically and visually. Afterwards, we will represent the growth on a line graph.

We will start with one bacterium and see how many bacteria will be reproduced after 10 generations.

Data Table:

Generation	Time	Population Size	Generation	Time	Population Size
1 st	0 min	1	6 th		
2 nd	20 min	2	7 th		
3 rd			8 th		
4 th			9 th		
5 th			10 th		

Graph:



Conclusion:

1. How does this activity represent binary fission?

2. What is the population size of your population after 10 generations have passed?

3. The curve on your graph represents exponential growth. How would you describe the growth of the bacteria at the beginning of the activity compared to the end?

4. What is the population size of your population after 15 generations? Be sure to show how you got your answer.

5. If it takes 20 min for your bacteria to divide, how long would it take for your population to reach 15 generations? Remember that in Generation 1, the time is at 0 min. Be sure to show how you got your answer.

6. Calculate in terms of minutes or hours how long it would take before the population of bacteria to reach 1,000,000 bacteria. Be sure to support your response.

7. Normal cells in your body do not show this kind of growth. However, cancer cell growth resembles exponential growth. Why do you think this is bad for a living organism?