High School Science Virtual Learning

Applied Biological Science
Bacterial Growth

April 13, 2020

High School Applied Biological Science
Lesson: April 13, 2020

Objective/Learning Target:
Describe how bacteria grow including the parts of a bacterial growth curve.

Let's Get Started:

1. Watch this short clip on bacteria dividing.
2. Why isn't the world covered in visible bacteria?

Let's Get Started: Answers

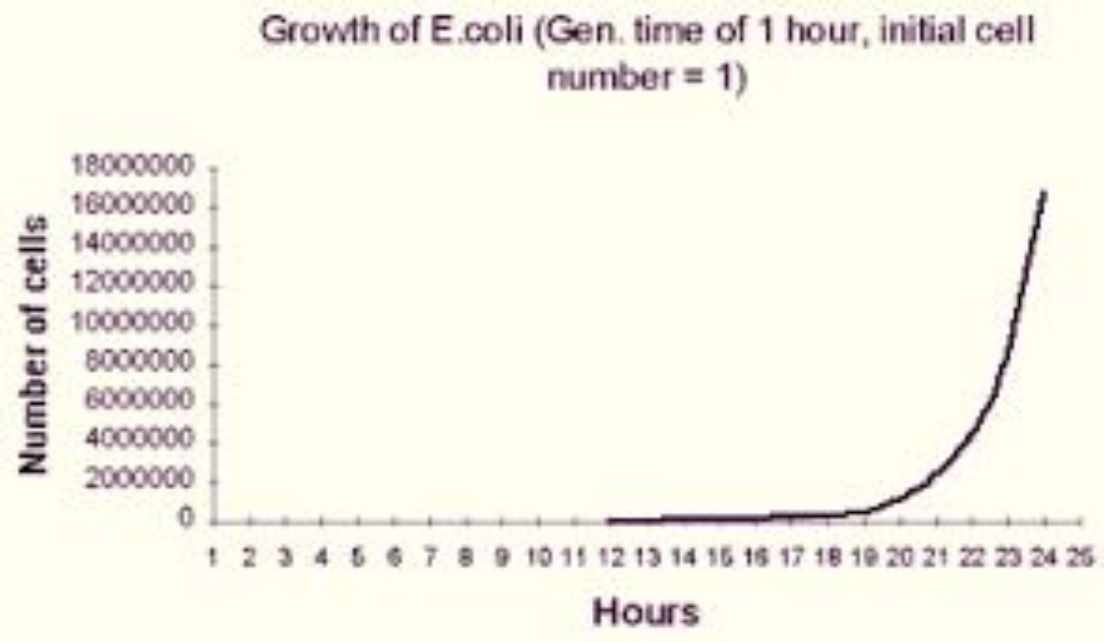
There are limiting factors that keep bacteria from growing indefinitely.

How do bacteria grow?

Lesson Activity:

1. **Follow the directions on this worksheet to calculate and plot the growth of the bacterium E. coli on a sheet of paper.**

Lesson Activity: Answer



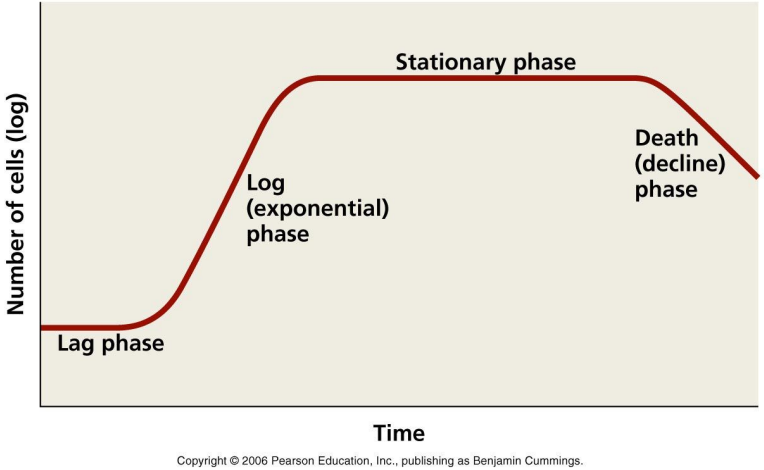
Practice Questions

1. Label the lag phase, log phase, and stationary phase on your graph.
2. What is the carrying capacity of the petri dish for the E. coli?
3. Explain how a colony on a Petri plate could reach its carrying capacity.
4. Why don’t the bacteria in the environment grow like what we see in the petri dish?
5. What happens after bacteria reach the log phase?

Answer Key

Once you have completed the practice questions check with the work.

1. See picture
2. 8,400,306 bacteria
3. The colony could either run out of nutrients from the agar or run out of space from other colonies.
4. The same limiting factors apply but also oxygen, food, water, competition, etc.
5. Death phase



More Practice Questions

1. Why would biotechnologists want to keep colonies of cells in the exponential phase?
2. How might biotechnologists keep cells in exponential growth?
3. View and complete this worksheet on a piece of paper.

Answer Key

Once you have completed the practice questions check with the work.

1. To prevent them from entering stationary phase and eventually death phase.
2. Constantly taking samples from bacteria in log phase and transferring them to new petri dishes.
3. View the answer key.

Additional Practice

View this lecture video for more information on each part of the growth curve.