

# Bacteria Lesson

## Goals:

1. Students understand how rapidly bacteria multiply and how they multiply by splitting.
2. Students recognize that there are 3 different shapes of bacteria.
3. Students are familiar with the cell structure of bacteria.
4. Students realize that some bacteria are harmful but 90% are actually not. They should be able to identify some ways in which bacteria is helpful.

## Procedure:

### DAY ONE:

1. Begin by reading the opening paragraph on p. 56 to students.
2. Brainstorm what they know about bacteria. Write it on the board so you have an idea of what they know and what preconceptions they have.
3. Explain to students that bacteria is a single celled organism but unlike other unicellular organisms, their genetic material is not found in the nucleus. One amazing thing about them is how they reproduce quickly!
4. Pair students up with a partner and on a piece of paper, have them make a list of how many bacteria they will have after a certain amount of time if a bacteria divides every 20 minutes. Let them use a calculator!

### Example:

Time	# of Bacteria Cells
0 minutes	1
20 min	2
40 min	4
60 min	8
80 min	16
100 min	32
120 min	64

5. Share some of the numbers together as a class and discuss why it is important to take care of yourself when you are sick by washing your hands frequently, showering, washing sheets, etc.
6. Share this fun bacteria video: <http://www.youtube.com/watch?v=5Xi2Nc1UicQ>
7. Here is another more serious one that may show better how bacteria spreads: <http://www.youtube.com/watch?v=jdONxsUkXRg&feature=related>
8. Here is another one to get them thinking: <http://www.youtube.com/watch?v=4lmwbBzClAc&feature=related>

## DAY TWO:

Begin by reviewing some ideas of bacteria. In writing, have students explain:

1. How quickly does bacteria multiply?
2. How can bacteria be spread amongst people?
3. Where can you find bacteria?

Today, begin by introducing students to the three shapes of bacteria on P.57. What does each one look like? According to the captions, where is each one found?

Now look at the parts of a bacteria cell... Give students this picture to put in their notes and have them fill in what each of the parts talked about in the book does. (on attached note page)

Challenge groups to do the following: DI Science Activity... Given a variety of household materials, they must work together to create a model of a bacteria, labeling its parts and presenting it to the class. They will have 6 minutes to work. Give whatever materials you have! Once I have are:

- Toothpicks
- Paper
- Scissors
- Pencils
- String
- Clay,
- Toilet Paper Roll
- Aluminum Foil
- Pipe Cleaners
- Tissue

Once models are made and presented, ask teams to answer the following questions:

1. Where is the genetic material for a bacteria found?
2. What are three things that make a bacteria cell like an animal cell?
3. How is a bacteria cell different from an animal cell?

Finally, not all bacteria are harmful. Point out to students that only 10% of all bacteria is harmful. Most bacteria is either harmless or helpful to people. Read p. 61-65 together, filling in the following notes as you go. (on the attached paper)