

**Lesson 1: Testing Antibiotics**

The Greek word antibiotic breaks down into “*anti*,” which means against, and “*biotic*,” which means life. Antibiotics are drugs used to treat infections from bacteria. Escherichia coli (*E. coli*) is a bacterium that lives in the intestines. Most strains of *E. coli* are harmless, but some can cause serious illnesses like cramps, diarrhea, and vomiting. Antibiotics help fight the bacteria, but different antibiotics have different effects on the bacteria. It’s time to test the effectiveness of antibiotics, so grab a petri dish to get started.

Doing the Science

1. Start the *E. coli* Simulation by clicking on the “Sim” tab.
2. Click on the “New Sample” button.
3. Click and drag the swab to the bacteria test tube and unclick.
4. Drag the swab from the bacteria test tube to the petri dish. Move the swab around the petri dish to fill all four quadrants with bacteria.
5. When the petri dish is filled, dispose of the swab by dragging the swab over the trash.
6. Place the small round tablet of Antibiotic A into one of the quadrants of the petri dish.
7. Repeat step 6 for Antibiotics B, C, and D.
8. Move the petri dish into the incubator by dragging the petri dish to the white box on the left.
9. To start the incubation process, click on the “Start Timer” button.
10. Click on the “Analysis” button to look at the bacteria.
11. Click and drag the ruler to each of the quadrants and measure the area where the antibiotic has inhibited the growth of the bacteria. This will be the clear spot in the middle of the bacterial growth. Record the size into Table 1 below.
12. Type the measurements for each of these areas into the correct slot and click on “Update Table”.

Table 1.

Sample	Antibiotic A	Antibiotic B	Antibiotic C	Antibiotic D
1				

Do You Understand?

1. Which of the antibiotics was most effective at killing the bacteria? How could you tell?
2. What results do you predict for other repeated trials?