



Objective

The Water Testing virtual lab is intended to help learners explore basic techniques for water testing in the lab. It can be used as a training module prior to a lab experience with water testing. It can also be used for distance learning or as a lab activity (on computers) in the classroom. It can be used alone or as a followup to the Water Sampling virtual lab.

Teachers can use the educational prompts below to guide discussion. Additional resources linked below can help teachers or students learn more about how we measure *E.coli* in water samples and support deeper thinking about the implications of contaminated water sources.

First, give students 15 to 20 minutes to explore the water testing module at <https://conserve.nmsu.edu/conserve-testing-app/index.html>

Then, use the prompts below to help your students review the main points of the water testing module and discuss its broader implications.

Main Content Overview Questions

- What is a CFU? (Colony Forming Unit: The number of viable bacteria cells in a sample.)
- Why are the water samples diluted before counting the bacteria? (To have a countable estimate of colonies.)
- Why is it important to make sure all equipment used is clean before sampling? (To avoid cross contamination.)

Discussion Points/Prompts

- What kinds of contaminants do you think water treatment facilities test for? (bacteria, viruses, chemical residues; COVID-19 in wastewater to understand community spread.)
- You looked at the basic processes of testing water samples for *E.coli* in the lab. After testing, what do you think the next steps for treating the samples would look like? (UV, chemical treatment; see irrigation.nmsu.edu for detailed information about various treatment methods.)
- Can you think of any ways to help eliminate larger contaminants before water is thoroughly treated? (reducing runoff, filtering water.)
- There are multiple types of water treatment systems currently approved and in use. How might these systems vary? (Cost, location compatibility, microbial treatment type.)

