



# Body Fluid Dilution

**STEM Sims**

## Lesson 2: Dilution Test

In Lesson 1 you practiced making various dilutions. In this lesson, you'll be tested on your preparation of a variety of dilutions using a virtual laboratory.

### Doing the Science

1. Start the Dilution Solution Simulation by clicking on the "Sim" tab.
2. Click the "Test" button.
3. The whiteboard provides the total amount of volume required for your dilution. The board also presents either the necessary Dilution or Dilution Factor. Enter the information shown in the whiteboard in Table 1 below.
4. Calculate the volume of BF and diluent required to make the dilution. Record this information in Table 1.
5. Click in the middle of the pipette and drag it to a position above the test tube holding the BF. When the test tube darkens, release the pipette and it will enter the tube.
6. Click the plunger on top of the pipette to draw up 100 microliters of BF. Each click of the plunger adds 100 more microliters to the pipette. Based on your earlier calculation, when the appropriate amount of BF has been added to the pipette, click and drag the pipette to the mixing tube in the mixer. Click the plunger once to add the entire volume of the pipette to the mixing tube. Please note that the mixer displays the total volume of solution in the mixing tube.
7. Move the pipette to above the Used Tips box. Once released, it will enter the box and discard the used tip. Move the pipette to a position above the New Tips box, release, and a new pipette tip will be added.
8. Move the pipette to above the beaker containing the diluent, release, and obtain the correct amount of diluent to make the specified dilution (based on your calculation). Remember that each click on the pipette draws 100  $\mu\text{l}$  of solution into the pipette.
9. Again, position the pipette above the mixing tube, release, and depress the plunger to add the entire volume of diluent to the mixing tube.
10. Click the red "Mix" button. Repeat the testing process two more times by clicking the "Next" button.
11. You will be provided with an evaluation of your work after you complete the three test dilutions. Make sure to record your results below.

**Table 1.**

Dilution or Dilution Factor	Total Volume Required ( $\mu\text{l}$ )	BF Volume ( $\mu\text{l}$ )	Diluent Volume ( $\mu\text{l}$ )

### Dilution Test Correct? (Please circle)

Sample 1: Yes No

Sample 2: Yes No

Sample 3: Yes No