

Go to ; https://www.labxchange.org/library/items/lb:LabXchange:4eecf5fe:lx_simulation:1

Click on start simulation. Start by selecting Level 1.

1. Which micropipette will you be using?

2. Click next section. Click next section again.
3. Using the + and - circles, adjust each volume to how big you predict for it to be.
4. Read the instructions and click start simulation.
5. Complete the protocol outlined on the right side of your screen. You will mircopipette the 4 volumes from your predictions to see if you were correct. (start with 20 μ L, then do 15 μ L, then do 7.5 μ L, then do 2 μ L.)
 - a. To start, click on the p20 micropipette. Click on the 2 μ L. Then make adjustments to the volume until it reads 20 μ L. Save the volume.
 - b. Click on the p20 tips box.
 - c. Click on the micropipette and drag it on top of the tip box.
 - d. Open the red dye by clicking on the tube.
 - e. Now click and drag the micropipette down to the red dye.
 - f. Click on the plunger until you reach the first stop, then let go.
 - g. Now move the pipette over to circle A.
 - h. Click on the plunger until you reach the second stop, then let go.
 - i. Click and drag the micropipette over to the trash. Click eject tip.
 - j. Repeat this process again, but do 15 μ L in circle B, 7.5 μ L in circle C and 2 μ L in circle D.

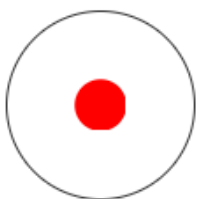
If you get a message that the tip was already used and to eject and get a new one, it is because you accidentally touched the tip to the side of the container at some point. Just follow the directions and try again, being really careful not to touch the tip to anything.

6. If you need to, click next until you get to the results screen. Take a screenshot of **BOTH** your predictions and your results and insert the screenshot into the blue box below. (To screenshot on a chromebook, press control, shift and the button highlighted in yellow in the picture on the right.)

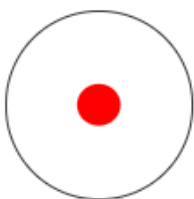


Predicted Results

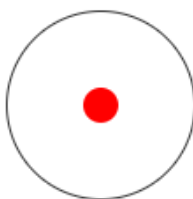
These are your initial predictions.



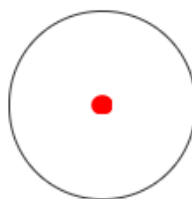
A | 14 μ l



B | 11.5 μ l



C | 9.5 μ l



D | 5.5 μ l

Actual Results

These are your results based on the volumes you pipetted.



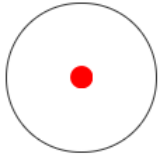
A | 20µl

Correct!



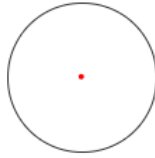
B | 15µl

Correct!



C | 7.5µl

Correct!



D | 2µl

Correct!

Ideal Results

Ideal Results

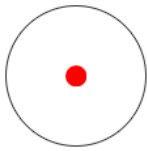
These are the sizes you would expect to see if you pipetted the correct volumes.



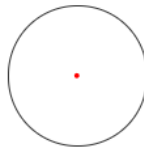
A | 20µl



B | 15µl



C | 7.5µl



D | 2µl

Result feedback

7. Complete the reflection questions.
8. Click next section.
9. Read the summary and click on end simulation.
10. What are 4 things you learned while doing this online simulation?

1. In this simulation, I learned the correct way to use a micropipette in a lab like setting the volume on a micropipette.
2. I learned to use the plunger to draw up liquid and expel liquid.
3. I also learned to close the tip boxes when I'm done and discard the micropipette tip after use to prevent contamination.
4. I learned the proper procedures on how to execute Micropipetting Solutions.

11. Look back at the 4 volumes that you pipetted. What is the TOTAL volume (in microliters) that you pipetted?

The total volumes of what I pipetted is 44.5 µl (microliters)

12. If you were going to suck up all 4 dots using just one micropipette, which one would you pick and why would you pick that one and not another one? (choices are p20, p200 and p1000)

I will still use p20; it is easy to operate especially when it comes to small volumes. The number I pipetted has small differences from each other that's why p20 is good for small numbers not exceeding 200.

13. Take your answer for #11 and convert it into mL.

44.5 µl is converted to **0.0445** ml

14. How confident do you feel about selecting the correct volume on a micropipette and using one correctly?

By following the instructions and with the right setting of micropipette to the desired volume, I'm 100 % confident that I can draw up and expel the liquid correctly.