



# Measuring UP!

Version 031826

Based on original activities developed by

[MassBioEd](#)

In this activity, students will use a 2-20  $\mu$ L micropipette to learn how to pipette and then compare drops of different sizes to see the difference in scale!

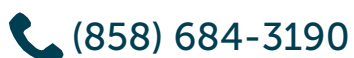
## Laboratory Safety

1. Wear lab coats, gloves, and eye protection as required by district protocol.

## Materials Required

Set up for 8 workstations, with students working in groups of 3

Item	Quantity needed for 8 workstations
20 - 200 $\mu$ L micropipette	8
<a href="#">Pipette tips</a>	32
<a href="#">0.65 mL microcentrifuge tubes</a>	32
Diluted food coloring, 1 colors	4 mL
10 x 10 cm of Parafilm® or wax paper	1 per station
Paper towel	1 per station



FastTaq, GreenGel, gloTray, PrepOne, spiniOne and The Winston are trademarks of Embi Tec.  
GelGreen is a trademark of Biotium. MiniOne is a registered trademark of C.C. IMEX.  
Patents issued: US 10,641,731 B2, US 20110253541 A1, US 11879118-B2, US 12,384,994,  
US 11,879,117, US 11,879,118

## Teacher Preparation

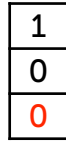
1. Dilute your color dye
2. Dispense 500  $\mu\text{L}$  of diluted color dye into eight 0.65 mL microcentrifuge tubes
3. Cut the Parafilm® or Wax paper into 10 x 10 cm pieces. Need 1 per pipette station.
4. Print student instructions on page 3.

### Student workstations to include:

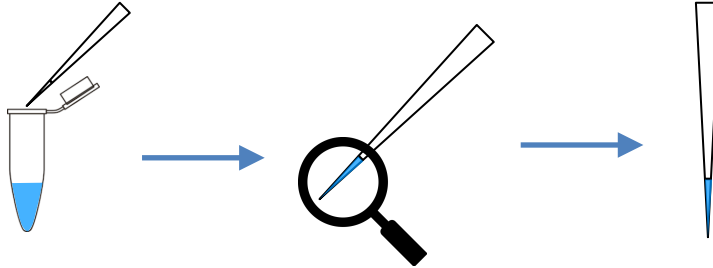
- 1 tube of diluted color dye
- 20-200  $\mu\text{L}$  pipette
- Pipette tips
- 1 piece of wax paper/Parafilm®
- Print out of student instructions

## Student Instructions

1. Set your 2-20  $\mu\text{L}$  pipette to 10  $\mu\text{L}$ .



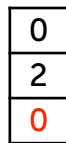
2. Add a tip to the end of the pipette, draw up 10  $\mu\text{L}$  of your color dye and observe how much is in the tip.



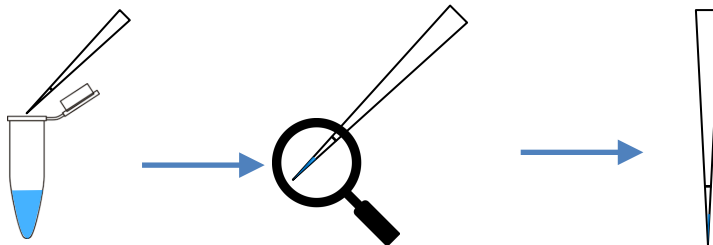
3. Dispense the color dye onto your wax paper.

4. Make 4 additional drops of 10  $\mu\text{L}$  onto your wax paper.

5. Set your 2-20  $\mu\text{L}$  pipette to 2  $\mu\text{L}$ .



6. Using the same tip, draw up 2  $\mu\text{L}$  of your color dye.



7. Dispense the color dye onto your wax paper.

8. Make 4 additional drops of 2  $\mu\text{L}$  onto your wax paper.

9. Compare the drops to see if they are the same size

10. Check your partner's drops, are they the same size as yours?

11. Use a paper towel to cleanup