

# LAB: pH and Color Indicators

Name \_\_\_\_\_ Date \_\_\_\_\_

Obtain a 12 by 8 well micro-plate.

Obtain a micropipettor and 3 tips. Use one tip for HCl, one tip for NaOH, and one tip for the distilled water.

KEEP TRACK WHICH PIPETTE TIP IS USED FOR WHICH CHEMICAL. A permanent marker could make this easier.

Set the pipettor to a volume of **25  $\mu\text{L}$** . In cells A1, C1, and E1, put 10 full volumes of 0.1M HCl. That is, fill the pipettor and empty it into the well ten times ( $10 \times 25 \mu\text{L} = 250 \mu\text{L}$ ). This will equal a total volume of 0.250 mL.

*Alternate method: Set the pipettor to 200  $\mu\text{L}$ , place one full volume into the well. Set the pipettor to 50  $\mu\text{L}$ , place one full volume into the same well. ( $200 \mu\text{L} + 50 \mu\text{L} = 250 \mu\text{L}$ ).*

In cells **A12, C12, and E12**, put 10 full volumes of 0.01M NaOH.

In cells **A2-A11, C2-C11, and E2-E11**, put 9 full volumes ( $9 \times 25 \mu\text{L} = 225 \mu\text{L}$ ) of distilled water.

## SERIAL DILUTION PROCEDURE

Using the HCl tip:

Adjust the pipettor to 25  $\mu\text{L}$ .

Stir the contents of well A1. Draw up 25  $\mu\text{L}$  of A1, Place it into cell A2.

Stir the contents of well A2. Draw up 25  $\mu\text{L}$  of A2, Place it into cell A3.

Stir the contents of well A3. Draw up 25  $\mu\text{L}$  of A3, Place it into cell A4.

Continue this procedure through **A6**.

Using the NaOH tip:

Stir the contents of A12, Draw up 25  $\mu\text{L}$  of A12, place it into cell A11.

Stir the contents of A11, Draw up 25  $\mu\text{L}$  of A11, place it into cell A10.

Stir the contents of A10, Draw up 25  $\mu\text{L}$  of A10, place it into cell A9.

Continue this procedure through **A7**.

