

What are standards and how are pH standard solutions prepared?

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What are standards and how are pH standard
solutions prepared?

Do now (5 minutes)

- ▶ Grab an Apron.
- ▶ There are some that are cut short for our classmates. If you can use a longer apron, then use it and leave the ones that are cut off for others.
- ▶ **THANK YOU!**

What are standards and how are pH standard solutions prepared?

Do now/HW

- ▶ What do you think the letters in “pH” stand for? Give a reason for your answer.
- ▶ Hint: In yesterday’s lesson we spoke about the particular atoms are that make a solution acidic or basic.

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Objectives

- ▶ I can prepare calibrating solutions.
- ▶ I can measure volume using a graduated cylinder.
- ▶ I can prepare pH standards of 4, 7, and 10.

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Materials

► Calibration

- Hanna Combo Meter (pH meter)
- pH buffer capsules for pH 4, 7, and 10
- Distilled water
- Graduated cylinder
- Stirring rod optional
- Jar with cap (greater than 100mL)
- Colored labeling tape
- Paper towels
- Apron and goggles
- Non latex gloves

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Fig. 01. Hanna Combo meter (pH).

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Fig. 02. Calibration Standards

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Fig. 03. 1000mL beaker and squirt bottle.

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Fig. 04. Probe storage solution and probe.

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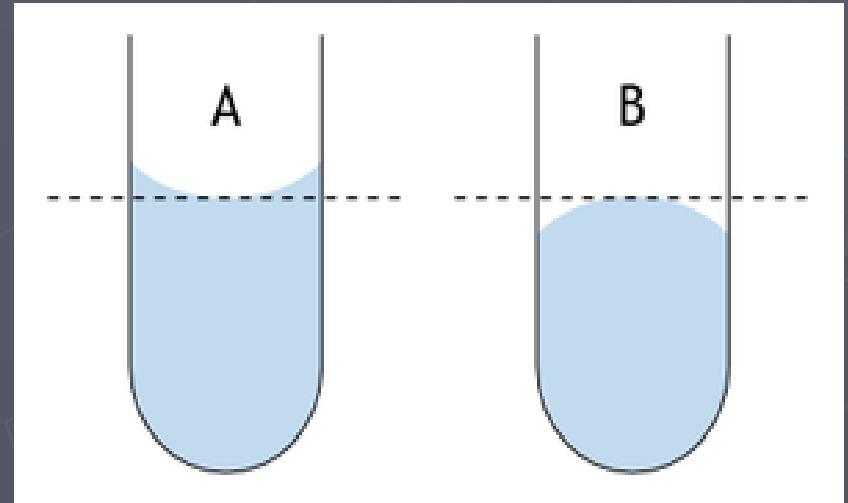
What are standard solutions?

- ▶ How are rulers made?
- ▶ There is a standard with which all rulers are modeled after.
- ▶ A standard allows us to set a definition to a physical or chemical property and then repeat that property over and over again.

Preparing Standards

► Measure 100 ml of filtered water.

- Put graduated cylinder on flat surface
- Level your eyes with the surface of the water to read scale cylinder
- Water surface in cylinder is curved (**meniscus**)
- Read the volume at bottom of curve



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Converting Review

1 cubic centimeter (cm^3) = 1 Milliliter (mL)

and

1000 milliliters (mL) = 1 Liter (L)

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Preparing Standards

- ▶ Add standard buffering powder to 100mL container.
 - Open container
 - Grab buffer “pill” ** between index fingers and thumbs
 - Twist off above container
 - Empty contents thoroughly into container



- **** I will assign which pill to groups.**

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HW

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