



Dispose of the materials as directed by your teacher.

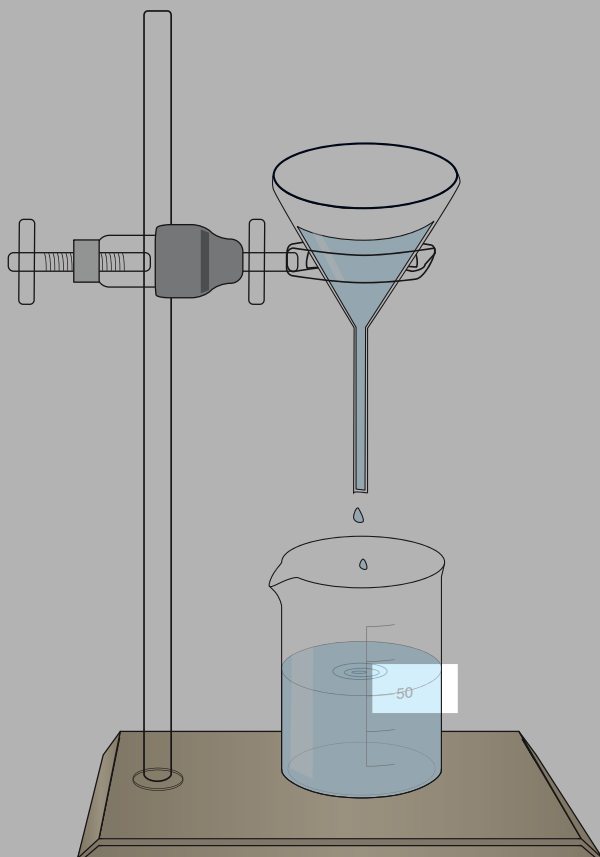
Clean up your workstation.

Wash your hands and arms thoroughly after the activity.

- a) Record the appearance of the mixture in your *Active Chemistry* log. Note if the substance is soluble, slightly soluble, or insoluble.
- b) Review each result and the corresponding chemical formula. In your *Active Chemistry* log, suggest why some of the organic compounds are much more soluble than others.

Expert Group IV: Fertilizers in Water

Plants require three primary mineral nutrients: nitrogen, phosphorus, and potassium. These are the nutrients found in commercial fertilizers. Some commercial fertilizers containing these elements are: ammonium nitrate, NH_4NO_3 ; calcium superphosphate, $\text{Ca}(\text{H}_2\text{PO}_4)_2$; and potassium carbonate, K_2CO_3 .



1. Add 10.0 mL of de-ionized water to a clean beaker. Measure the water temperature.
 - a) Record the temperature in your *Active Chemistry* log.
2. With stirring, add solid compound to the water until no more solid will dissolve. Measure the temperature of the solution. If the temperature changed as the solid dissolved, wait for it to settle close to its initial value.
3. Find the mass of a clean 50-mL beaker and a clean watch glass. You will use the watch glass as a lid for the beaker.
 - a) Record this mass in your *Active Chemistry* log.
4. Filter the solution into the clean 50-mL beaker.
5. Evaporate the water from the solution using a hot plate set on low heat. Be careful to evaporate the filtrate slowly to avoid splattering. Use the watch glass to catch any splatter. When it is nearly dry, you might prefer to leave it overnight in a warm place to dry out completely.
 - a) Determine the mass of solid that dissolved in the 10.0 mL of water by subtracting the mass of the beaker, watch glass, and solid from the earlier recorded masses of the beaker and the watch glass. Record this solubility value, in grams per 100 mL of water, in your *Active Chemistry* log.
 - b) Convert your g/100 mL of water value to ppm (mg/L of water). The term ppm stands for parts per million. The concentration expressed in mg/L has the same numerical value when expressed in ppm for water solutions. Show your mathematical steps and your value in your *Active Chemistry* log.