



# Make a Simple Salad Dressing to Practice Metric Measurement

Lesson By Service Member Daniel Marbury, Michigan

## Themes:

- Preparing Healthy Food
- Precisely Calculating and Mixing Ingredient Quantities

**Grade Level:** 3-5

**Subject Area:** Science, Math

## Summary:

This is a relatively simple cooking activity that you can do with your students to help them practice using different tools for measurement and to enhance their understanding of volumes of ingredients in relation to one another and in relation to containers of different shapes and sizes. Furthermore, it illustrates to students the simplicity and ease of creating healthy vinaigrette dressings from scratch.

## Michigan GLCEs:

S.IP.04.14 Manipulate simple tools that aid observation and data collection.

S.IP.04.15 Make accurate measurements with appropriate units for the measurement tool.

S.IP.04.16 Construct simple charts and graphs from data and observations.

P.PM.04.16 Measure the weight (spring scale) and mass (balances in grams or kilograms) of objects.

P.PM.04.23 Compare and contrast the states (solids, liquids, gases) of matter.

## Materials:

- Light Vegetable Oil, Olive, Oil, or Soy Oil
- Apple Cider Vinegar
- Orange Juice
- Mustard Powder
- Salt
- Pepper
- Cayenne
- Bring containers with different volume capacity to store finished dressing (good examples include ½ pint, quart, and ½ gallon mason jars)

For each group of students bring:

- 1 Set of measuring spoons with metric equivalence marked (i.e. 1 TBSP= 15ml)
- 1 Beaker with at least 360mL Capacity (2 Cups)
- 2 Medium size paper cups for distributing dry and wet ingredients
- 4 Medium size paper cups for distributing dry and wet ingredients
- Fork or Whisk

## Preparation:

**Prep Time** (15 – 20 min)

1. Gather appropriate number of kitchen supplies for the number of groups you will be working with.
2. Gather all of the salad dressing ingredients.
3. Make copies of salad dressing recipe worksheet for each student.

**Teaching Time:** 45 min

**Opening:**

Ask students if they know what some of the typical ingredients used in a salad dressing are. Ask for a show of hands among students who have ever made their own dressing before. Explain that making your own dressing is a way to customize the flavors for your salad. Pass out the student worksheet and explain that today you will be preparing an Orange Juice – Vinegar Dressing.

**Lesson Procedure:**

1. Instruct students to first read all of the ingredients to be used in the dressing.
2. Explain that in their groups they will be calculating the appropriate amount of dressing to make based on the number of students in the group. Instruct them to begin filling out their worksheet by recording the number of people in their group and by copying that number in the blank spaces after the multiplication signs.
3. Ingredient by ingredient let student individually attempt the measurement calculations, and discuss the correct answers as a class for various group sizes, until all students have a complete recipe with ingredient measurements.
4. Distribute cooking equipment along with a cup filled with orange juice for the first wet ingredient. Discuss the process of adding up the metric measurements on the measurement spoons to create the correct volume for the recipe. While students are measuring the orange juice into their beakers, prepare cups with the next ingredient for them to measure.
5. Repeat the process until you have combined all wet ingredients. You may want to point out the separation of the different layers of liquids in the beaker. (You may use this as an opportunity to review or preview the concept of density and buoyancy).
6. Distribute the mustard powder. Explain that most salad dressings include a mixture of oil and water ingredients (such as vinegar and orange juice), which will never combine no matter how much they are mixed. In order to help the water ingredients to surround the oil in the dressing we add an “emulsifying agent” such as mustard powder. Instruct students to begin mixing their dressing well with a fork or whisk, which they can continue doing until the recipe is complete.
7. Repeat the ingredient distribution and mixing process with the final wet ingredients.
8. While leaving the beakers in front of all of the groups, collect all of the kitchen equipment to wash.

**Wrap up:**

1. Ask students to read and record the measurement on their beaker for the total quantity of dressing, which they prepared in each of their groups.
2. Hold up the different sized containers for storing the finished dressing. Ask students to predict based on the observation of the volume in their own salad beaker and based on the number of groups in the class as a whole, which container would be best suited to hold all of your class dressing.
3. Even if you did not prepare a salad, have lettuce leaves, carrot sticks, or another vegetable for students to dip and taste their dressing immediately in fulfillment of their hard work (if possible).
4. Discuss the benefits of preparing your own dressing:
  - a. Flavor – Explore creative combinations and make just enough for a few servings so that you do not get tired of the same old bottle of dressing you never seem to use up.
  - b. Health – Control the quality by knowing all the ingredients used. You control the type of oil used, and can benefit from the reduced and healthier fat of olive oil and soy oil.
  - c. Money – The basic ingredients for dressing are much less expensive when purchased in large quantities for many dressings than when purchased already combined in a store bought dressing.

**Extension:**

- Prepare dressing one day and then mix a salad the next as an opportunity to practice measuring the mass of ingredients with scales. Taste the dressed salad together as a class or share it with the entire school lunchroom by serving it on the salad bar.