

Activity

1

Reproducible
Master

Overcome by Emulsion

Did you know that preparing food is really a science? Test your knowledge of kitchen science with these experiments.

Kitchen Science Facts

- An **emulsion** is a **mixture** of a **fat** and a **liquid** that would not usually be combined, like oil and vinegar.
- **Stable emulsions never separate.** Unstable emulsions revert back to the original ingredients over time.
- **Stable emulsions** include an **emulsifier**, which is a substance that **allows molecules to interact** and bind together as they mix. In cooking, emulsifiers include **eggs** and even **mustard!**



Part A.

Kitchen Science Challenge!

Write the letter of the **ingredients** at right next to the **emulsions** they help create. (Hint: Some ingredients may be used in more than one emulsion.)

INGREDIENTS

- A. Milk**
- B. Oil** (olive, vegetable, canola, etc.)
- C. Egg yolks**
- D. Vinegar or lemon juice**
- E. Cocoa butter**



EMULSIONS

- Vinaigrette** 1. ___ 2. ___
- Mayonnaise** 1. ___ 2. ___ 3. ___
- Milk chocolate** 1. ___ 2. ___

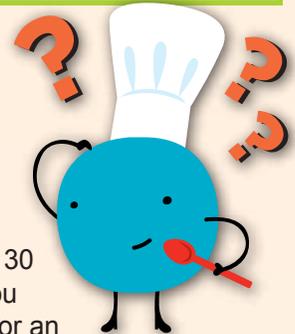


Part B.

What would happen if...

...you experimented with an emulsion? Follow the steps below and your teacher's directions to see if you can mix up some results!

1. Measure 3 tablespoons of **white vinegar** in a **glass bowl**.
2. Measure ½ cup **vegetable oil** into a measuring cup.
3. Add the **vegetable oil** into the **vinegar** in the glass bowl **2-3 tablespoons at a time**.
4. Use a **fork** to beat the mixture **after each addition** of oil.
5. **Observe the emulsion** after 30 minutes. Did you make a **stable** or an **unstable** emulsion? How can you tell?



Kitchen Science at Home

Restaurant chefs use **emulsions** like the recipe for vinaigrette dressing below to make their fresh salads taste great. Ask a parent to help you make it at home and toss it together with your favorite salad ingredients!

Salad Vinaigrette Recipe

INGREDIENTS

- 3 tablespoons white wine vinegar
- ½ cup olive oil
- 1 teaspoon Dijon mustard
- Salt and pepper to taste



DIRECTIONS

In a small bowl, whisk together the vinegar, mustard, and salt and pepper. Slowly add the olive oil, whisking as you add.

PERSONALIZE IT!

Add your favorite fresh herbs or flavorings (cilantro, oregano, fresh garlic, bacon bits, finely grated parmesan, etc.) as a finishing touch.



At Ryan's, science and food are always on the menu! Our talented chefs make dishes that will satisfy the **cravings** of everyone in your family. We also throw in a dash of family fun with special events like our **Kids' Birthday Club** and **Thursday Family Night** where, each week, a different family activity is included as part of the dining experience!

