

# For Teachers: Samples

## List of Materials and Equipment

Ingredients	Equipment
<ul style="list-style-type: none"> <li>Oil</li> <li>Water</li> <li>Soy Lecithin</li> <li>Food coloring</li> </ul>	<ul style="list-style-type: none"> <li>Capped tubes</li> <li>Scale</li> <li>Weighboat</li> <li>A stick to scrape off residue</li> <li>Mortar and pestle</li> <li>Vortex</li> <li>Rubber band</li> <li>Labels and pens</li> </ul>

## Sample Ratios

SAMPLE A			
Raw Ingredient	Percent	Mass	Volume
Oil	70%	7g	≈7.5ml
Water	20%	2g	2ml
Soy Lecithin	10%	1g	
<b>Total</b>	<b>100%</b>	<b>10g</b>	

SAMPLE B			
Raw Ingredient	Percent	Mass	Volume
Oil	20%	2g	≈2.5ml
Water	70%	7g	7ml
Soy Lecithin	10%	1g	
<b>Total</b>	<b>100%</b>	<b>10g</b>	

SAMPLE C			
Raw Ingredient	Percent	Mass	Volume
Oil	20%	4.5g	≈5ml
Water	60%	4.5g	4.5ml
Soy Lecithin	20%	1g	
<b>Total</b>	<b>100%</b>	<b>10g</b>	

## Protocol (To make a single sample)

1. Prepare a tube with blue cap.
2. Weigh out **continuous phase** according to the ratios above and pour into tube.
3. Weigh out **soy lecithin\*** according to the ratios above and pour into tube.  
Note: if soy lecithin is chunky use mortar and pestle to grind it thoroughly, but not smudging it onto the mortar, before putting it in.
4. Invert tube **2-3** times and vortex tube for **3** minutes at level **8**.  
Note: If there are still undissolved soy lecithin particles, vortex a bit more, and use probing stick to manually break particles.
5. Weigh out oil according to the ratios above and pour into tube.  
Note: Volume can also be used, but weight may be more accurate for viscous solutions like oil.
6. Put **one** drop of food coloring in the tube.
7. Vortex tube for **5** minutes until the color is uniformly distributed.

## Scaling

3 tubes per table X 5 tables = 15 tubes  
 5 tubes of each sample X 10g = 50 g  
 50g of each sample => divide into 5 tubes

OR

Just make 15 tubes separately b/c of limited size of vertex