

# Types of Mixtures Lab

## Purpose

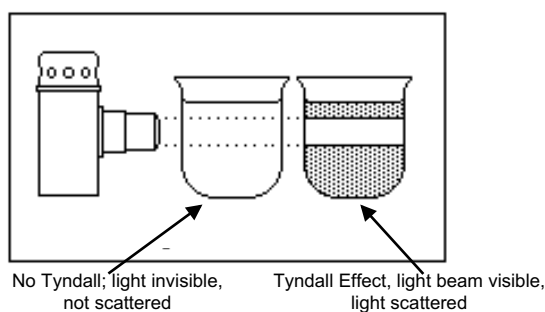
- To classify types of mixtures
- To observe the Tyndall Effect
- To see if mixtures can be separated by filtration

## Materials

6 cups or beakers	Graduated cylinder	Spatula	Pipette
Milk	Corn starch	Oil	
Sugar	Food Coloring	Dirt	
Flashlight	Salt	Water	

## Procedure A

1. Label the beakers/cups a – f.
2. Prepare mixtures in different beakers/cups with 200 mL of water and the following substances: (a) 1 tablespoon of sugar (b) 1 teaspoon of corn starch (c) 2 teaspoons of dirt (d) 5 drops of food coloring (e) 20 mL of oil. In the final cup (f), mix 1-2 pipettes of milk in 200 mL of water.
3. Stir the contents of each mixture and record the appearance of each mixture immediately after stirring. Then observe the mixtures and their characteristics over the next 10 minutes. Record your observations.
4. Note which mixtures do **not** separate after standing. Shine a flashlight through each mixture. Make a note of the mixture(s) in which the path of the light beam is visible (this is called the Tyndall Effect, see the illustration below).



## Procedure B – Clean up and filtration- can filtration separate the mixtures?

1. Follow the teacher's instructions to fold pieces of filter paper
2. Put one piece of filter paper in a funnel
3. Hold the funnel over an empty container and pour some of sample (a) through the funnel.
4. Look at the filter paper in the funnel and at the solution. Did filtration separate the mixtures? Record your observation in data table 2
5. Repeat this filtration procedure for each of your samples (b-f). NOTE: You do NOT need to filter ALL of it. When you have enough data, record your observation and move to the next sample.
6. When you are done, all the samples can be washed down the sink EXCEPT for the soil. The soil must be dumped out in the garbage can.
7. Make sure all your glassware etc. is clean before putting them back where they belong
8. Make sure your lab station is wiped down and clean

## Types of Mixtures Data tables

Data Table 1

Mixture	Observations after stirring and mixing	Heterogeneous or Homogeneous?	Separate After Standing?	Tyndall Effect?
A				
B				
C				
D				
E				
F				

Data table 2- Separated by filtration? Yes or no?

Sample a	Sample b	Sample c	Sample d	Sample e	Sample f

### Lab Questions: Use Complete Sentences!

1. What is the difference between a Heterogeneous mixture and a Homogenous mixture? (Definitions)
2. In mixture sample (b), what is the solute and what is the solvent?
3. Look up the properties of a suspension. Which samples were suspensions?
4. Look up the properties of a colloid. Which samples were colloids?
5. Look up the properties of a solution. Which samples were solutions?
6. In each of the suspensions created, identify which substance was *least* dense and explain how you know this.
7. Look at your data. What type of mixture(s) cannot be separated using filtration? (Suspensions? Colloids? Solutions?)

**Final Summary and Conclusions** – Write at least one paragraph discussing the major concepts and using scientific vocabulary. What conclusions can you make? Do NOT just repeat the procedure.