

**LAB [10 pts]**  
**Establishing Equilibrium**

Name \_\_\_\_\_  
Lab partner \_\_\_\_\_ Date \_\_\_\_\_

**Purpose:** To investigate how a **system reaches equilibrium and what it means to be at equilibrium.**

**Procedure:**

1. Obtain two 10-mL graduated cylinders. Label one graduated cylinder “Reactants” and the other “Products.”
2. Obtain two pre-labeled straws, one is “F” for “Forward” and the other is “R” for “Reverse.”

**Experiment #1:**

3. Fill the “Reactant” cylinder with colored water to the 10.0-mL mark.
4. Place the forward straw into the reactant cylinder so that it touches the bottom. Place the reverse straw in the empty product cylinder. In the data charts below, **circle “fatter” or “thinner”** to specify which straw was used in each cylinder.
5. Put one finger over the top of the forward straw so that the liquid is trapped in the straw. Put another finger over the reverse straw.
6. At the **same** time, transfer the colored water in both straws to the opposite cylinder. **Note** – during the first transfer, no product is present yet, so nothing is transferred to the reactant.
7. Record the height of water in each cylinder in the data table. *Note: Straws can NOT be in the cylinders when one records the heights.*
8. Continue to make transfers (Repeat steps 5, 6, and 7) until the heights in the cylinders remain constant for at least 5 readings. *Make sure to consistently start with the same straw in each cylinder as before.*

**Experiment #2:**

9. Repeat the entire experiment, but this time begin with 10.0 mL of colored water in the product cylinder and nothing in the reactant cylinder. Use the same straws for the forward and reverse reactions.

**Data Table**

Exp. #1	Height of water in cylinder (mL)	
	Reactant cylinder Fatter or thinner	Product cylinder Fatter or thinner
Transfer #		
0	10.0 mL	0.0 mL
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Exp.#2	Height of water in cylinder (mL)	
	Reactant cylinder Fatter or thinner	Product cylinder Fatter or thinner
Transfer #		
0	0.0 mL	10.0 mL
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

