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## Mass Is Conserved—Volume Is Not! Worksheet

## Data Table

Demo	Solutions		Final Volume (mL) Prediction	Final Volume (mL) Actual
Demo 1	mL of water	mL of water		
Demo 2	mL of water	mL of ethyl alcohol		
Demo 3	mL of hydrochloric acid	mL of sodium hydrox- ide		

## Questions

1. Calculate the final mass for each demonstration using the following densities.

Water—0.9982 g/mL Ethyl alcohol—0.789 g/mL 2 M hydrochloric acid solution—1.0333 g/mL 2 M Sodium hydroxide solution—1.0805 g/mL 1 M Sodium chloride solution—1.0385 g/mL 0.9823 M Sodium chloride solution—1.0378

Demo	Solutions		Final Mass (g)	
Demo 1	g of water	g of water	g of water	
Demo 2	g of water	g of ethyl alcohol	g of solution	
Demo 3	g of hydrochloric acid	g of sodium hydroxide	g of solution	

- 2. Explain how accurately your final volume predictions matched the actual final volume.
- 3. Explain the reasoning for the final volume after combining ethyl alcohol and water. Draw an example.
- 4. Write the balanced equation for the neutralization of hydrochloric acid and sodium hydroxide.
- 5. Using the balanced equation and the density information, show the mathematical calculation for the final volume of solution in demonstration 3.

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