

**S8P1a. I can develop and use a model to compare and contrast pure substances (elements and compounds) and mixtures. This includes homogeneous and heterogeneous mixtures.**



**Pure substance (element), Compound, Mixture Lab**

**Prior Knowledge:**

1. What is a Pure substance? \_\_\_\_\_
2. What is a Compound? \_\_\_\_\_
3. What is a Homogeneous mixture? \_\_\_\_\_
4. What is a Heterogeneous mixture? \_\_\_\_\_

**Problem:** How can you tell the difference between a pure substance, element, and compound?

**Hypothesis:** If \_\_\_\_\_, then \_\_\_\_\_

**Materials: Sheets of paper, Play-Doh, Toothpicks**

**Blue Play-Doh = Hydrogen**

**Red Play-Doh = Oxygen**

**Green Play-Doh = Carbon**

**Yellow Play-Doh = Nitrogen**

**Instructions/Procedure:**

1. Write 'Element' on one sheet of paper. Write 'Compound' on one sheet of paper. Write 'Mixture' on one sheet of paper.
2. Follow along with the teacher. Take some of the blue Play-Doh and make eight small spheres. Connect two small spheres together using a toothpick. What have you just made? \_\_\_\_\_ Have you made an element, compound, or mixture? \_\_\_\_\_ How do you know? \_\_\_\_\_
2. Take some of the red Play-Doh and make eight larger spheres.
3. Use two toothpicks to connect the red sphere to the two blue spheres that are connected to the toothpick. What have you just made? \_\_\_\_\_ Have you made an element, compound, or mixture? \_\_\_\_\_ How do you know? \_\_\_\_\_

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4. Put two oxygen atoms together, put two hydrogen atoms together, and put a water molecule together. What have you created when you put all three of these together (Element, Compound, Mixture)? \_\_\_\_\_ How do you know? \_\_\_\_\_

5. Now put  $\text{CO}_2$  together. What have you created? \_\_\_\_\_

6. Now put  $\text{N}_2$  together. What have you created? \_\_\_\_\_

7. Now put  $\text{NH}_3$  together. What have you created? \_\_\_\_\_

**Lab Review Questions**

8. How can you tell if you have made an element/pure substance? \_\_\_\_\_

9. How can you tell if you have made a compound/molecule? \_\_\_\_\_

10. How can you tell if you have made a mixture? \_\_\_\_\_

11. What is the difference between a pure substance (element) and compound (molecule)? \_\_\_\_\_

12. What is the difference between a compound (molecule) and a mixture? \_\_\_\_\_

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