

PHYSICAL & CHEMICAL CHANGES LAB

Name _____

Date _____

In this lab, you will perform different activities and, based on your observations, determine whether a chemical or physical change has taken place.

List the five pieces of evidence that a chemical change has taken place:

1. _____
2. _____
3. _____
4. _____
5. _____

SAFETY

- Do not ingest any chemicals.
- Safety goggles and aprons must be worn at all times during the lab due to the use of some harmful chemicals.

PROCEDURE

Perform each of the following activities and carefully observe what happens. After each activity, complete your data table according to the instructions in *Observations and Conclusions*.

USE CAUTION WITH THE HOT PLATE AND WARM WATER

Yeast, Sugar and Warm Water – Heat 200 mL of water in a beaker on the hot plate until it reaches about 50°C. Pour the water into an Erlenmeyer flask, using a plastic funnel. Use a tea spoon to add 4 teaspoons of sugar. Swirl the flask to mix the solution. Open a packet of Rapid Rise Yeast and pour the contents into the sugar solution. Place the lips of a balloon over the top of the Erlenmeyer flask and set it aside. **Before you leave for the day, note your observations in your data table.** Leave the set up, as is, until the next day.

1st Set of Activities - USE CAUTION WITH THE OPEN FLAME AND THE HOT MATCH HEAD

1. **Lighting a Match** – Strike the match on the matchbox and let the match burn for several seconds. Blow out the match and place it in the evaporating dish. Observe what happened to the match head before and after the match was lit and note your observations on your data table.
2. **Burning a candle**- Light another match to light the candle and observe what happens to the wick of the candle and note your observations on your data table. (Place this match also in the evaporating dish)
3. **Melting Wax**- Notice what happens to the candle wax as the wick burns and note your observations on your data table.
4. **Toasting a Marshmallow** – Place a marshmallow on a toothpick and hold it over the candle flame. Notice at which point it just physically melts and at which point it begins to chemically change. Note your observations on your data table.
5. **Blowing out a Candle** – Blow out the candle and note your observations in your data table.

2nd Set of Activities -

- 6. Crushing chalk** – Use a mortar and pestle to crush a piece of chalk.
- 7. Mixing crushed chalk with water** – In a small cup, mix a small amount of the crushed chalk with water. Use a spoon to stir the solution. Note your observations on your data table.
- 8. Mixing crushed chalk with vinegar** – In another small cup, mix a small amount of crushed chalk with vinegar. Use a spoon to stir the solution and note your observations on your data table.
- 9. Mixing Kool-Aid and Water** – In a third small cup, mix two tea spoons of Kool-Aid with water. Use the spoon to stir the solution and note your observations on your data table.

3rd Set of Activities

- 10. Mixing Baking Soda and Vinegar** – Use a teaspoon to place one teaspoon of baking soda into the balloon. Place the lip of the balloon over the Erlenmeyer flask, containing vinegar, being careful not tip any baking soda into the flask. When the balloon is secure, hold the balloon up so that the baking soda falls into the flask. Note your observations in the data table.
- 11. Mixing Baking Soda and Water** – Use a teaspoon to place one teaspoon of baking soda into a small cup of water. Use the spoon to stir the mixture and note your observations in the data table.
- 12. Mixing Corn Starch and Water** – Use a teaspoon to place one teaspoon of corn starch into a small cup of water. Use the spoon to stir the mixture and note your observations in the data table.
- 13. Mixing Corn Starch with Vinegar** – Use a teaspoon to place one teaspoon of corn starch into a small cup of vinegar. Use the spoon to stir the mixture and note your observations in the data table.

4th Set of Activities **Use Care with the Iodine, it will Stain Clothes. If any iodine gets on your skin, wash thoroughly with water and soap. Please be careful not to get any in your eyes.**

- 14. Mixing Iodine with Baking Soda** – Use an eye dropper to place a few drops of iodine on the baking soda in a petri dish. Note your observations in the data table.
- 15. Mixing Iodine with Corn Starch** – Use an eye dropper to place a few drops of iodine on the corn starch in a petri dish. Note your observations in the data table.

5th Set of Activities

- 16. Alka-Seltzer and Water** – Fill a small cup with water. Use the pH paper to measure the pH of the water. Add two Alka-Seltzer tablets to the water. After the fizzing has stopped, use the pH paper to measure the pH of the solution again. Note pH measurements and any other observations in your data table.
- 17. Glow Stick** – Bend and then shake a glow stick. Note your observations in your data table.

OBSERVATIONS & CONCLUSIONS

On the basis of your observations for each activity, note any evidence of a chemical change. In the last column, describe whether what occurred was a chemical or a physical change.

Activity	Activity Title	Evidence of Chemical Change	Physical or Chemical Change
1	Lighting a Match		
2	Burning a Candle		
3	Melting Wax		
4	Toasting a Marshmallow		
5	Blowing Out a Candle		
6	Crushing Chalk		
7	Mixing Chalk with Water		
8	Mixing Chalk with Vinegar		
9	Mixing Kool-Aid with Water		

10	Mixing Baking Soda with Vinegar		
11	Mixing Baking Soda with Water		
12	Mixing Corn Starch with Water		
13	Mixing Corn Starch with Vinegar		
14	Mixing Iodine with Baking Soda		
15	Mixing Iodine with Corn Starch		
16	Alka-Seltzer and Water		
17	Glow Stick		
	Yeast & Sugar Solution 1 st Day		
	Yeast & Sugar Solution 2 nd Day		