

Name _____

Date _____ Hr _____

Physical or Chemical Change

Introduction: Most changes that occur can be classified as physical or chemical changes. Physical changes occur without any changes in composition. In other words, no new substances appear as a result of the change. On the other hand, when chemical changes take place, a change in composition also occurs. Basically, one or more new substances appear as a result of the change.

Materials for the changes you will perform are located at different stations in the room. Simple instructions for you to follow at each station are included. You should go to each station, not necessarily in order, record the name of the change, follow the instructions and record your observations and your conclusions about the type of change involved.

Safety Precautions:

- Do NOT mix any items unless instructed.
- DO NOT taste any of the materials; some of them are poisonous.
- Wear goggles and aprons at all times.
- Wash your hands after completing the experiments.

Pre Lab for Data Collection: On your own paper, create a single data table that shows the station number, station name, your observations, and whether each station is an example of a chemical change or a physical change. Make sure your observations are SUPER-complete – write down EVERYTHING that you observe at each station!

Procedures:

Station #1 Vinegar and Baking Soda

- Fill a test tube about $\frac{1}{4}$ full with vinegar.
- Then use a stick to put a SMALL (about $\frac{1}{2}$ cm long on the stick) amount of baking soda into the tube.
- After your observations are complete, pour the test tube contents into the sink, and rinse the test tube with water before putting it back into the rack.

Station #2 Iodine on a Potato

- Cut a SMALL fresh slice from the potato.
- Use a dropper to put 3-4 drops of iodine solution on the potato slice.
- After your observations are complete, throw away the used slice of potato into the trash can!

Station #3 Salt and water

- Fill a test tube about $\frac{1}{4}$ full with tap water.
- Use a stick to add $\frac{1}{2}$ cm (long on the stick) of salt to the water.
- Cover the mouth of the test tube with your thumb and vigorously shake the tube.
- Observe what happens to the salt.
- When you have completed your observations, pour the test tube contents into the sink, and rinse the test tube with water before putting it back into the rack.

Station #4 Seltzer Tablet

- Fill a test tube about $\frac{1}{4}$ full with tap water.
- Put a small piece of Alka-Seltzer tablet into the water in the test tube.
- When you have completed your observations, pour the test tube contents into the sink, and rinse the test tube with water before putting it back into the rack.

Station #5 Ice

- Put 2 or 3 small pieces of ice into a test tube and observe what happens to the solid ice for one minute while holding the test tube cupped in the palm of your hand.
- When you have completed your observations, pour the test tube contents into the sink and rinse it before returning it back to the rack.

Station #6 Bunsen Burner and Magnesium Ribbon

- Light the Bunsen Burner, adjust flame so it is burning with a blue cone.
- Using tongs hold a piece of magnesium ribbon in the flame. **DO NOT LOOK DIRECTLY AT THE MAGNESIUM.**
- Record your observations.
- Dispose of the magnesium ribbon in the waste bucket. Turn off burner.

Station #7 PH Indicators

- Fill a test tube about $\frac{1}{4}$ full of cabbage juice.
- Add 3-4 drops of the vinegar provided, stir the test tube with the wooden splint.
- Rinse the test tube, refill with $\frac{1}{4}$ full of cabbage juice.
- Add 3-4 drops of bleach. **BECAREFUL, BLEACH STAINS!**
- Make observations. When your observations are completed, discard the contents and rinse the test tube in the sink before returning it to the rack.

Station #8 Baggie Experiment

- Place one small spoonful of calcium chloride into a plastic sealable bag and the same amount of BAKING SODA. Seal the bag, shake it. Observe. Shake the contents into one corner of the baggie.
- Measure 3 squeezes of indicator solution (about 10 mL) into the opposite corner as the white powder. Seal the bag.
- GENTLY tilt the bag to tip liquid indicator into the powder. Observe. Hold the baggie in the palm of your hand while making your observations.
- Dispose of the baggie in the waste bucket at the table.

Data Analysis: Answer the following questions on a separate sheet of paper!

1. List all of the chemical changes you observed.
2. List all of the physical changes you observed.
3. What were some of the observations that indicated a physical change had occurred?
4. What were some of the observations that indicated a chemical reaction had occurred?

Conclusion: On your own paper, write a well-developed conclusion (at least 5 sentences) about what was learned and what types of observations (evidences) can be used to tell whether a physical or chemical change has occurred.

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