

PHYSICAL AND CHEMICAL CHANGE LAB CINNY WEST

This is a lab that I do when I have discussed and practiced recognizing the signs of a physical and chemical change. I set up these 15 simple experiments and have the students make their way through each. Students should use their notes or the book to write down their research step. This should be notes that will help them answer the problem statement. Then I have the students write a hypothesis statement. I always have my students write the hypothesis as an IF-Then statement. **If a chemical change is occurring, then** To familiarize the students with correct procedure I sometimes have the students write down the procedure and materials for each experiment before they are allowed to conduct the experiment. If I do not have time for that I just tell them that the procedure is taped to the desk. I cut out each of the 15 procedure statements and tape them to the desk. I have the students work their way around to the 15 stations by giving about 5 minutes per 2 stations. The students must read the procedure, conduct the experiment, write down their observations, decided if a physical or chemical change has occurred and write down their reason or evidence behind their decision. I usually have the students write the conclusion for homework. This experiment usually takes 1 ½ class periods, but it really reinforces the differences between physical and chemical change.

LAB REPORT CHEMICAL & PHYSICAL CHANGES

NAME _____

PROBLEM: What are the signs of a chemical change vs. a physical change?

RESEARCH: _____

HYPOTHESIS: _____

PROCEDURE: You will be conducting 15 experiments in this lab. The directions for each one are taped to the desks. Read the direction and write down the procedure for each set-up in the table below.

TEST	MATERIALS	PROCEDURE
1		
2		
3		
4		
5		

TEST	MATERIALS	PROCEDURE
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

DATA AND ANALYSIS- Conduct each experiment and look for chemical changes. Be careful-there are physical changes hidden among the experiments. Use the data table below to record your findings. Decide whether each test is showing a physical or chemical change, and state your reasons. By stating your reason for your observation, you will have crossed over from apprentice to proficient observation skills. After you have finished the test at each station, clean up your area and get it ready for the next person.



TEST	OBSERVATION	PHYSICAL	CHEMICAL	REASON OR EVIDENCE
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

CONCLUSION: (Accept or reject your hypothesis based on your observations from each test & answer the problem statement. You must use specific evidence from the tests.)

TEST 1

YOU WILL NEED	WHAT TO DO
1g copper sulfate iron nail beaker	<u>Observe</u> the nail in the copper sulfate solution and compare it to the iron nail placed on the napkin. Compare the copper sulfate solution in the small beaker to the copper sulfate solution with the nail in it.

TEST 2

YOU WILL NEED	WHAT TO DO
eyedropper vinegar graduated cylinder milk beaker	Add 3 dropperfuls of vinegar to 25ml of milk in a beaker. Observe any changes. <u>Rinse beaker with milk & vinegar after you finish.</u>

TEST 3

YOU WILL NEED	WHAT TO DO
dropper vinegar eggshell watch glass	Add a dropperful of vinegar to a piece of eggshell in the watch glass. Also observe the whole egg in vinegar. <u>Wipe out the watchglass after each use.</u> DO NOT TOUCH THE WHOLE EGG IN THE VINEGAR.

TEST 4

YOU WILL NEED	WHAT TO DO
bunsen burner aluminum pie plate tongs candle wax	Put a sample of candle wax on a pie plate & gentle heat over the bunsen burner. Use tongs to hold the pie plate. <u>Observe</u> the wax while it is being heated and after it is taken off the heat.

TEST 5

YOU WILL NEED	WHAT TO DO
drinking straw small beaker limewater	Pour a small amount of the clear liquid in the large beaker into the smaller beaker. Using the drinking straw, blow slowly into the liquid in the small beaker. <u>Empty the liquid and rinse the small beaker before you leave this station.</u> CAUTION: DO NOT SPLASH LIMEWATER ON YOURSELF. DO NOT DRINK THE LIMEWATER. USE A NEW STRAW, NOT A USED ONE.

TEST 6

YOU WILL NEED	WHAT TO DO
lemon juice toothpick brown paper candle	With a toothpick, write a word on the piece of brown paper using lemon juice. Heat the paper gently over the candle flame. Do Not Burn The Paper. <u>Throw paper away after use.</u>



TEST 7

YOU WILL NEED	WHAT TO DO
iodine solution dropper cornstarch watchglass	Place a small amount of cornstarch in the watch glass. Add one small drop of iodine solution to the cornstarch powder. <u>Make you observations. Rinse the watch glass and dry after each use.</u>

TEST 8

YOU WILL NEED	WHAT TO DO
baking powder watch glass dropper water	Add a few drops of water to a small sample of baking powder in the watch glass. Make your observations. <u>Rinse and dry the watch glass after each use.</u>

TEST 9

YOU WILL NEED	WHAT TO DO
beaker filled with distilled water aluminum foil dropper clothes pin lit candle	Make an spoon out of aluminum foil. Place a drop of distilled water in the spoon. Using the clothes pin, heat the spoon over the candle flame. Does anything remain in the dish? <u>Throw away foil after using.</u>

TEST 10

YOU WILL NEED	WHAT TO DO
salt beaker stirring rod water	Place a few crystals of salt in 25 ml of water and stir. What happens? Can the salt be recovered? How? <u>Rinse beaker after use.</u>

TEST 11

YOU WILL NEED	WHAT TO DO
sugar aluminum foil lit candle clothes pin	Make a spoon shape out of aluminum foil. Place a few crystal of sugar in the spoon. Using the clothes pin, hold the foil spoon over the lit candle for a few seconds. What happened? <u>Be sure to throw away the aluminum foil after using.</u>

TEST 12

YOU WILL NEED	WHAT TO DO
chalk watch glass beaker of vinegar dropper	In the watch glass, add a dropperful of vinegar to a small piece of chalk. What happens? <u>Make sure to put the chalk in the garbage after observing and wipe out the watch glass.</u>

TEST 13

YOU WILL NEED	WHAT TO DO
watch glass beaker of baking soda beaker of vinegar dropper powder spoon	In the watch glass, add a drop of vinegar to a small amount of baking soda. What happens? <u>Rinse and dry the watch glass after observing the results of the test.</u>

TEST 14

YOU WILL NEED	WHAT TO DO
issue paper newspaper paper towel pie plate matches	Take a piece of each type of paper, one by one, and place each piece in an aluminum pie plate. Light each piece with a match. Did they behave differently or more or less alike? Make observations for each different paper. <u>Throw burnt paper in trash and wipe out pie pan for the next person.</u>

TEST 15

YOU WILL NEED	WHAT TO DO
#6 recycled plastic toaster oven permanent markers scissors oven mitt hole punch	Cut the bottom out of the plastic tray and write or draw a design with the markers. Punch a hole in the plastic if you want to make a key chain. Observe the plastic's physical properties. Place the plastic on the tray and carefully place the tray in the oven. Observe the plastic in the oven for approximately 45 seconds. Compare the plastic now with the plastic before it was placed in the oven.