How Do I Make New Stuff From Old Stuff?

7th Grade Chemistry Unit Materials

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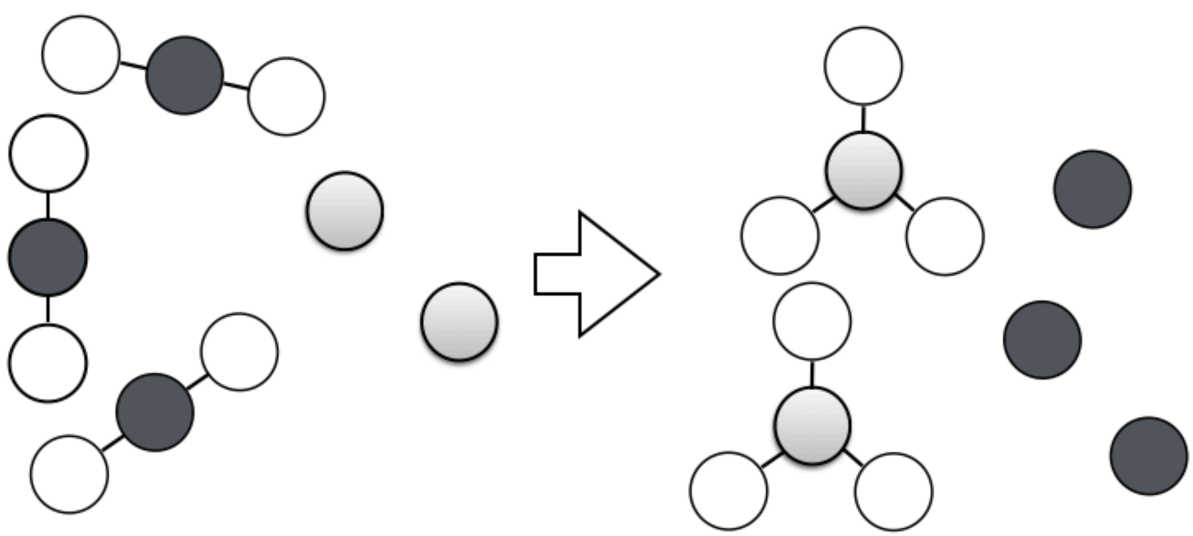

How Will I Be Graded?

Assessment is an important tool for providing students with feedback to help them improve, as well as allow parents to monitor their child's progress. In science classes, students will receive standards based grades for their assignments. Their progress will be reported using grade reports online. This means that most assignments will be evaluated on a 4-point rubric with the following values:

How to Read Your Scores on Assignments

Rubric Value:	What it Means:	Should you redo this assignment?
Mastery	I can do this well enough to teach others.	No. You have finished this assessment.
Proficient	I am able to do this.	You can if you are not satisfied.
Developing	I am in the process of learning to do this.	You must redo this assignment.
Beginning	I have not started learning to do this.	You must redo this assignment.

Can I Redo an Assignment?

With the exception of Exit Slips, all assignments can be redone. You are encouraged to work on an assignment until you have a score that is satisfactory to both you and your teacher. Mrs. Ostrowski and Mr. Bingaman are satisfied with ratings of "proficient" or better. You may set higher standards for yourself. If an assignment does not meet these standards they should be redone until you have learned to complete them satisfactorily.

For a complete explanation of how to redo an assignment or retake a test please visit us at:

www.south7thscience.com

Name ____ Period ______________ Date ______________

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Lesson 1: Can I Make New Stuff From Old Stuff?

Activity 1.1

Purpose

In this activity you will record observations of copper chloride and aluminum foil. Then you will put the materials together in a beaker. After some time, write your observations and inferences of what you saw.

✚ Safety

Copper chloride can irritate your skin and eyes. Wear safety goggles, gloves, and aprons. If you get copper chloride on your skin or in your eyes, rinse the area with cool water and tell your teacher immediately.

Data Tables

Materials	Observations
Aluminum Foil	
Copper Chloride	

Materials	Observations	Inferences
Combined Aluminum Foil and Copper Chloride		

1.) Write down questions you have about what you just saw.

2.) If you think about the “old stuff” as the aluminum foil and copper chloride, do you think “new stuff” was made when you put them together? Explain your ideas?

Name ______________________________ Period ____________ Date ____________

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Lesson 1: How Is This Stuff the Same and Different?

Activity 1.2

Purpose

You will make careful observations of Unknown #1 and Unknown #2. Generate 5 categories in the data table to compare and contrast the substances then answer the conclusion questions.

✚ Safety

You may look at, touch, and smell the substances. Do not taste them.

Data

Categories					
Unknown #1					
Unknown #2					

Conclusions

1. Based on your observations, write a clear and complete claim that answers this question: *Are Unknown #1 and Unknown #2 the same or different substances?*

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2. What evidence do you have to support your claim from question 1?

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3. Based on your observations, make an inference about what are Unknown #1 and Unknown #2?

____

____

Name ______________________________ Period ____________ Date ____________

Lesson 2: Do Fat and Soap Dissolve in the Same Liquid?

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Activity 2.1

Hypothesis

Do you think fat and soap will have the same solubility? Why or why not?

____

____

Procedure

1. Label the test tubes with numbers 1 through 4.
2. Fill **test tube 1 and 2** with **water**.
3. Fill **test tube 3 and 4** with **oil**.
4. Acquire a very small amount of **fat** (the size of a grain of rice) using a toothpick. Put the fat into **test tube 1**. Repeat this process for **test tube 3**.
5. Acquire a very small amount of **soap** (the size of a grain of rice) using a toothpick. Put the soap into **test tube 2**. Repeat this process for **test tube 4**.
6. Each group member should pick a test tube. Firmly cover the opening with their thumb while holding it. <u>Be sure the entire opening is sealed or the liquid will spill.</u>
7. Rock the test tube upside down, and right side up again, over and over for 2 minutes.
8. Record your observations of the fat or soap for each test tube in the data table. Write down the solubility of each combination in the data table.
9. Pour out the contents of the test tube in the sink. Rinse the test tubes thoroughly.
10. Set up your materials nicely for the next group.

Data

Test Tube #	Contents	Observation After Shaking	Solubility (soluble or not soluble)
1	Water and Fat		
2	Water and Soap		
3	Oil and Fat		
4	Oil and Soap		

Conclusion

Based on the data from your lab, are fat and soap the same or different substances? Write a clear and complete claim and evidence from your **data table**.

Name ____ Period _______________ Date _______________

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Lesson 3: Do Fat and Soap Melt at Different Temperatures?

Activity 3.1

Purpose

In this investigation you will measure the melting points of fat and soap to give you more information about the two substances.

✚ Safety

Wear goggles during this investigation. Do not touch the top of the hot plates or the beaker. Touching these surfaces could cause severe burns.

Procedure

1. Examine your lab set up. The test tubes of soap and fat should be secured by the ring stand over a 500 ml beaker full of water resting on a hot plate.

2. Check that the fat and soap are submerged in the water.

3. Insert thermometers in the soap and fat test tubes.

4. Record the **starting temperatures** of the soap and fat in the data table.

5. Put on your goggles. Turn the hotplate on to medium-high and watch each beaker carefully. Start the stopwatch.

6. Watch each beaker carefully and record the temperature every 30 seconds. In the second data table record the temperature at which each substance begins to melt.

7. When the water begins to boil, record the final temperature of each substance and turn the burner off.

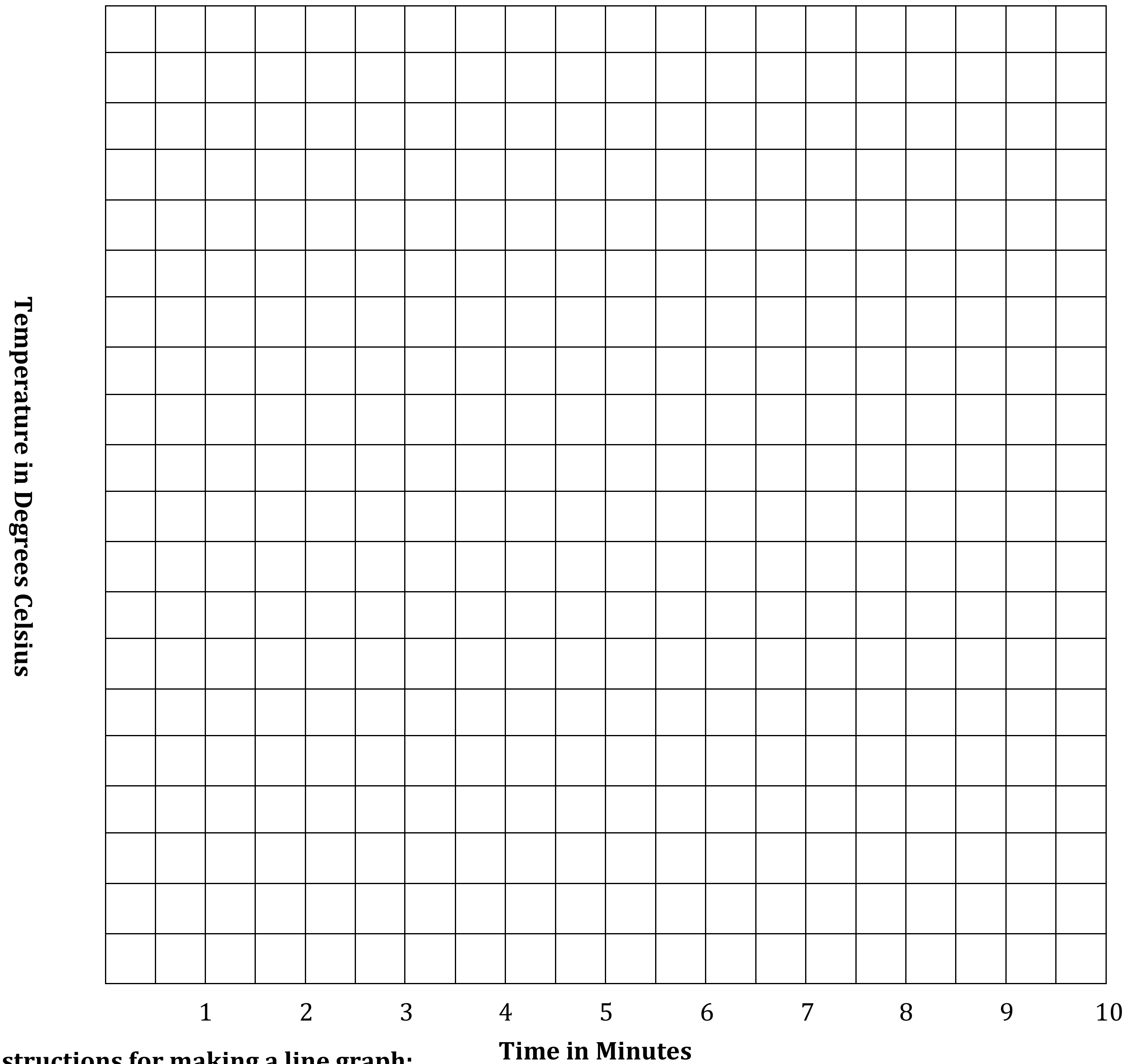
8. Remove the thermometers and clean them off.

Data

Time	Temperature of Fat	Temperature of Soap
Start		
0:30		
1:00		
1:30		
2:00		
2:30		
3:00		
3:30		
4:00		
4:30		
5:00		
5:30		
6:00		
6:30		
7:00		
7:30		
8:00		
8:30		
9:00		
9:30		
10:00		

	Temperature of Fat	Temperature of Soap
Melting Point:		

Temperature Change of Fat and Soap Over Time



Instructions for making a <u>line graph</u>:

1. Number the temperature scale on the y axis so that the lowest and highest temperatures fit and are spread evenly across the graph.
2. Choose a different color for each substance and label the key with that color.
3. Using the color you chose, plot each data point carefully on the graph.
4. Connect the data points with a smooth line or curve.

Key:

☐ Temperature of Fat

☐ Temperature of Soap

Conclusion

Based on the data from this experiment are soap and fat the same or different substance?

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____

____

What specific evidence from your data tables can you use to back your claim?

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Name ______________________________ Period __________ Date __________

Lesson 4: Do Fat and Soap Have the Same Density?

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Activity 4.2

Purpose

In this activity we will collect data to calculate the density of soap and fat.

Procedure

Measuring the density of soap:

1. Place the sample of soap on the balance scale. Record the **mass of the soap** on the first data table.
2. Fill a graduated cylinder about half full of alcohol. Record the volume of the alcohol on the first data table.
3. Carefully drop the soap into the graduated cylinder. Record the volume of the soap and alcohol on the first data table.
4. Subtract the volume of the alcohol from the volume of the soap and alcohol to find the volume of the soap. Record the **volume of the soap** on the first data table.
5. Divide the **mass of the soap** by the **volume of the soap** to find the **density of the soap**.

Measuring the density of fat:

1. Place the graduated cylinder of fat on the balance scale. Record the mass of fat and graduated cylinder on the second data table.
2. Read the mass of the empty graduated cylinder on the label. Record the volume of the empty graduated cylinder on the second data table.
3. Subtract the mass of the empty graduated cylinder from the mass of the fat and the graduated cylinder to find the **mass of the fat**. Record this on the second data table.
4. Look at the amount of fat that is in the graduated cylinder. Record the **volume of the fat** on the second data table.
5. Divide the **mass of the fat** by the **volume of the fat** to find the **density of the fat**.

Data Table 1

Quantity	Measurements
Mass of Soap	
Volume of Alcohol	
Volume of Alcohol and Soap	
Volume of Soap	
Density of Soap	

Data Table 2

Quantity	Measurements
Mass of Fat and Graduated Cylinder	
Mass of Empty Graduated Cylinder	
Mass of Fat	
Volume of Fat	
Density of Fat	

Conclusion

In past labs you may have concluded that soap and fat are different substances. Which quantities in your data tables from this lab can be used to support that claim? Which quantities cannot? Explain why.

If you measured a large bar of soap and compared it to the measurements you made today, will their mass and volumes be the same? Would their densities be the same?

Name ______________________________ Period __________ Date __________

Your Progress:
• Mastery • Proficient • Developing • Beginning

Lesson 6: What Happens to Properties When I Combine Substances?

Activity 6.1

Purpose

We will check properties and make observations of baking soda and road salt and compare them to observations after the substances are mixed.

✚ Safety

Wear safety goggles for this experiment. Wash your hands when you are done cleaning up.

Procedure

1. Make careful observations of the materials in the bag. Record your observations in the data table.

2. Put 5 g. of baking soda and 10 g. of road salt into a plastic bag.

3. Use a graduated cylinder to measure 10ml of water. Pour the water into a small container.

4. Carefully set the container inside the bag without tipping.

5. Do not spill the container as you zip the bag closed.

6. Tip over the container inside the sealed bag.

7. Make careful observations. Record your observations.

Data

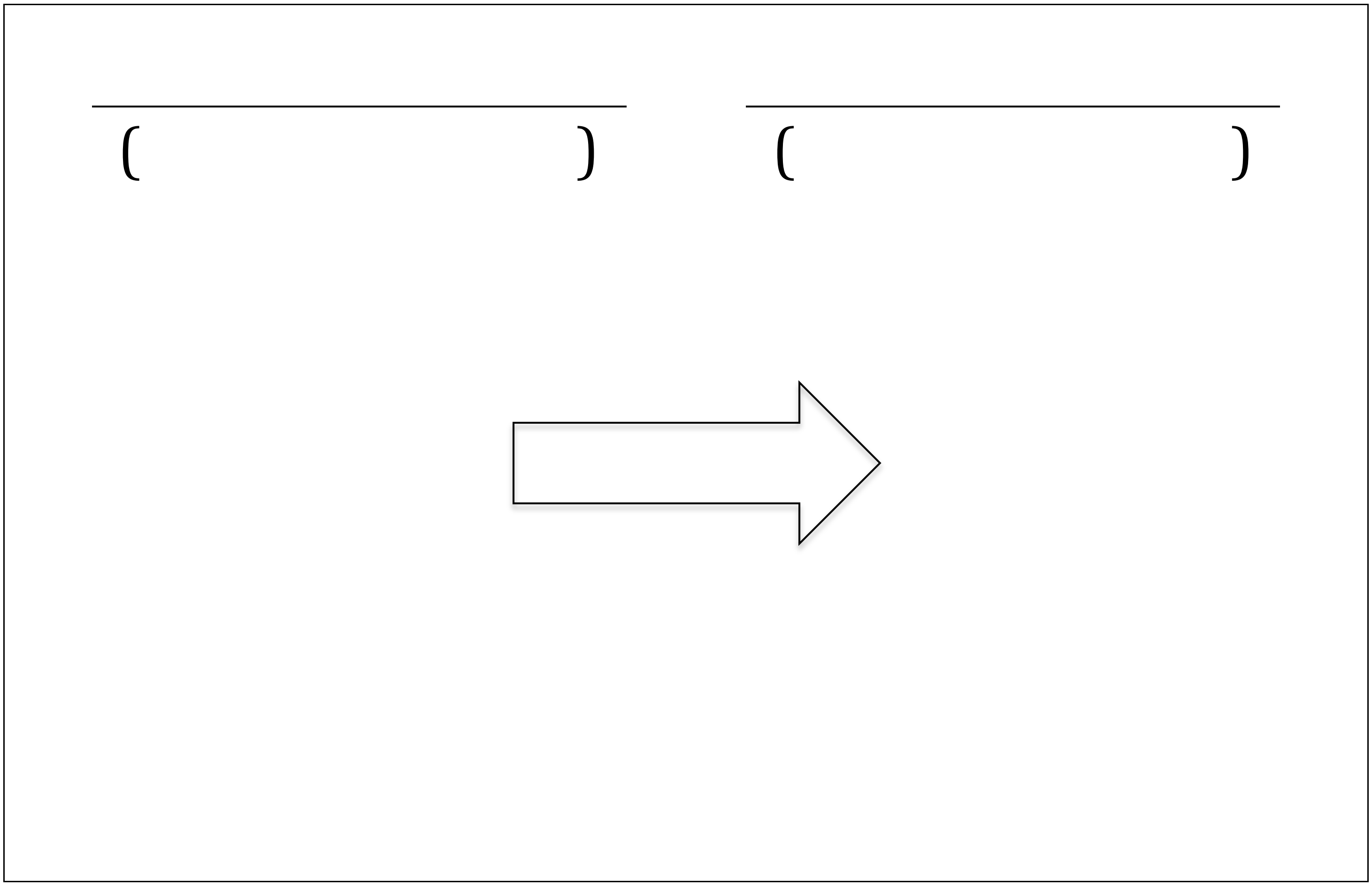
Before Mixing

Substance	Color	Solubility in Water	State of Matter at Room Temperature	Other Observations
Sodium Bicarbonate				
Calcium Chloride				
Water				

After Mixing

Substance	Color	Solubility in Water	State of Matter at Room Temperature	Other Observations

Graphic Organizer



Conclusions

1. What happens when you combine baking soda, road salt, and water? What is this process called and how do you know this process happened?

Name ______________________________ Period ____________ Date ____________

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Lesson 7: Is Burning a Chemical Reaction?

Activity 7.1

Purpose

You will watch your teacher burn a strip of magnesium and compare the properties of the reactants to the product.

✚ Safety

Do not look directly at the burning magnesium- watch the demonstration in your peripheral vision.

Data Table

Compare the properties of the magnesium strip to the ashes.

	Color	Solubility in Acetic Acid	Malleability
Magnesium			
Ash (____________ ____________)			

Conclusions

Write a claim to the following question: Is burning magnesium a chemical reaction?

Representing Chemical Reactions

Word Equation- In the following space write the word equation for burning magnesium.

Reactant	→	Product

Model- In the following space, draw a representation of the ball-and-stick model of the chemical reaction.

Reactant	→	Product

Chemical Equation- In the following space write the chemical equation using the chemical formulas.

Reactant	→	Product

Name ______________________________ Period __________ Date __________

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Lesson 8: Why is the Statue of Liberty Green?

Activity 8.1

Purpose

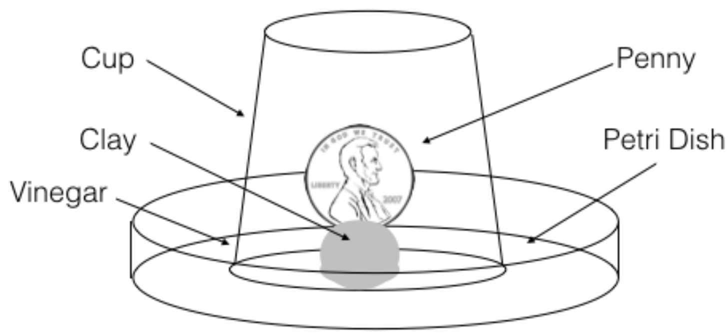
To build a working model of the Statue of Liberty and the acid rain which affects it.

✚ Safety

Vinegar is acetic acid and is moderately corrosive. Avoid getting the vinegar in your mouth or eyes.

Procedure

1. Place a piece of clay, about the size of a marble in the petri dish.
2. Stand a penny in the middle of the dish by pressing it into the clay.
3. Fill the petri dish about half full with vinegar.
4. Record your observations of the penny on the data table.
5. Place the cup upside down over the penny.



6. Place the dish in the back of the room, where the teacher has indicated, until the following class period.
7. After the model has been allowed to work for at least 24 hours, bring it back to your lab station.
8. Remove the cup and make observations about how the penny has changed.
9. Record your observations on the data table. Include all of the properties you can observe of the vinegar, copper, and the green substance on the penny.

Data

Substance	Properties
Vinegar	
Copper	
Green Substance	

Conclusion

Describe what happened in this activity with a word equation:

_______________________ + _______________________ → ________________________________

What specific property changes occurred that convince you that this was a chemical reaction?

____

____

____

____

Name ______________________________ Period __________ Date __________

Lesson 8: Why is the Statue of Liberty Green?

Activity 8.2

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Purpose

In this activity we will construct a molecular model of the reaction we witnessed between the penny and the vinegar.

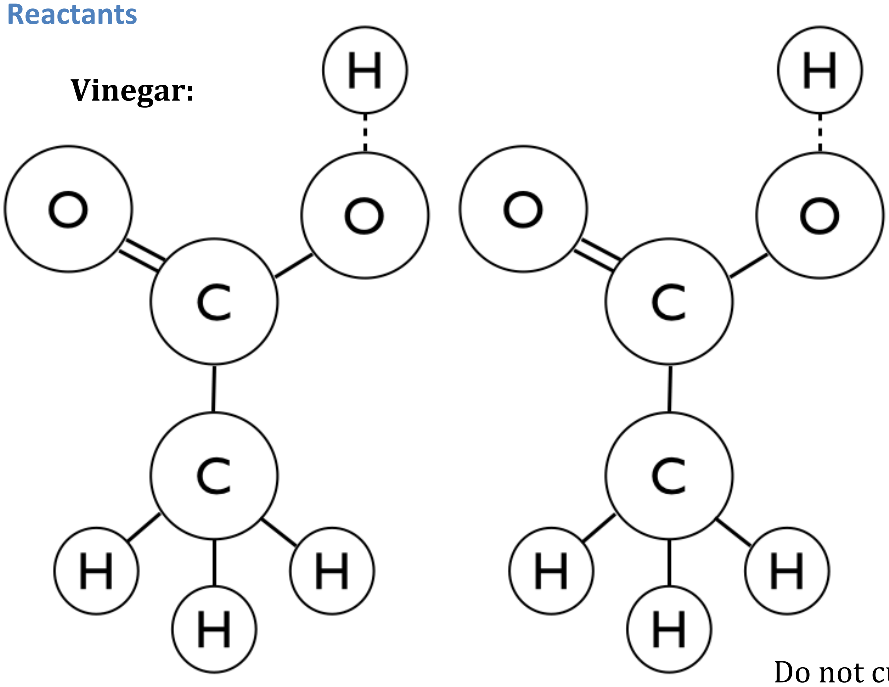
Instructions

1. Locate the page labeled "Parts for Constructing the Products"
2. Cut out each **molecule** from the page.
3. Cut off only the Hydrogen atoms that are connected to the vinegar molecule by a dotted line. Glue the remaining portion of the molecule to the page where it is labeled "Model of Products".
4. Cut out Copper atoms and join them to this part of the vinegar molecule where the hydrogen atom used to be. Label this new molecule copper acetate. ($CuCH_3COO$)
5. Join the two hydrogen atoms into one molecule of hydrogen gas. Label this molecule hydrogen gas. (H_2)
6. Compare the model you started with to the model you created. These two models form the **model equation.**
7. Use the model equation to help you construct a **word equation.**
8. Use the word equation, model equation and the following formulas to create a **chemical equation**.

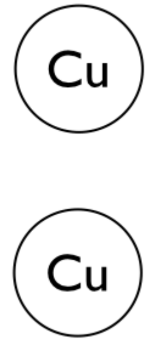
    - Copper — Cu
    - Acetic Acid — CH_3COOH
    - Copper Acetate — $CuCH_3COO$
    - Hydrogen — H_2

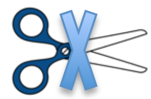
Model of Reactants

Vinegar:



Copper:





Do not cut the atoms out from this page.

Model of Products

Word Equation

____________________ + ____________________ → ____________________ + ____________________

(Reactants) **(Products)**

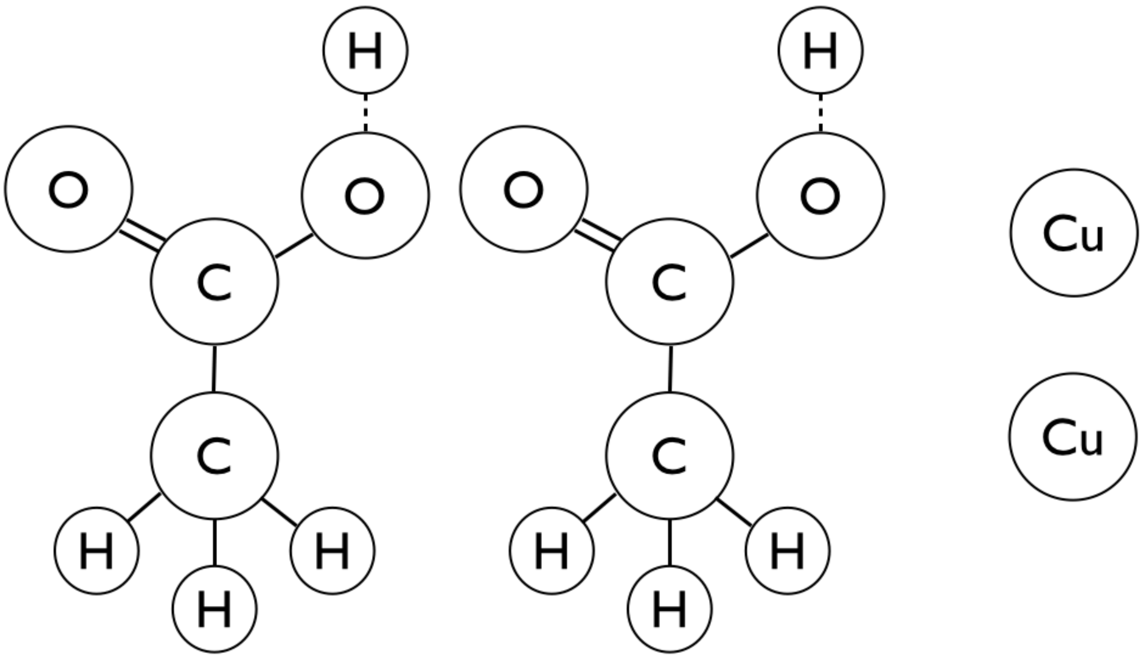
Chemical Equation

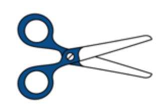
____________________ + ____________________ → ____________________ + ____________________

(Reactants) **(Products)**

Parts for Constructing the Products

Cut apart these pieces according to the instructions and glue them back down on the previous page where it says “Model of Products.”





Name ______________________________ Period __________ Date __________

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Lesson 8: How Does Alcohol Burn?

Activity 8.3

Purpose

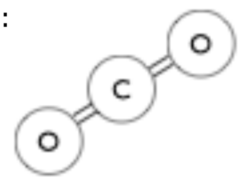
In this activity we will construct a molecular model of the reaction we witnessed when alcohol is burned.

Instructions

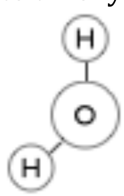
9. Locate the page labeled "Parts for Constructing the Products"

10. Cut out each individual atom from the oxygen and alcohol molecules. You will glue these atoms to the page where it is labeled "Model of Products".

11. Join two oxygen atoms to a carbon atom to form as many carbon dioxide molecules as possible. Each one should look like this:



12. Join two hydrogen atoms to an oxygen atom to form as many water molecules as possible. Each one should look like this:



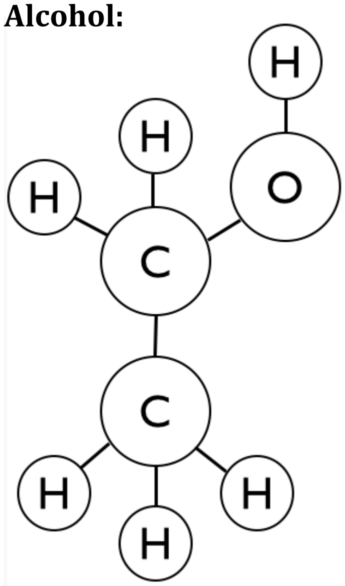
13. Use the model equation to help you construct a **word equation.**

14. Use the word equation, model equation and the following formulas to create a **chemical equation**.

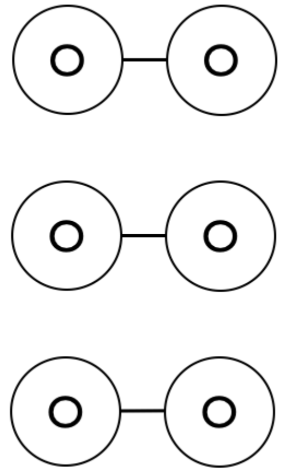
- Oxygen O_2
- Alcohol CH_3CH_2OH
- Carbon Dioxide CO_2
- Water H_2O

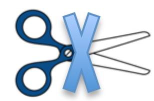
Model of Reactants

Alcohol:



Oxygen:





Do not cut the atoms out from this page.

Model of Products

Word Equation

____________________ + ____________________ → ____________________ + ____________________

(Reactants) **(Products)**

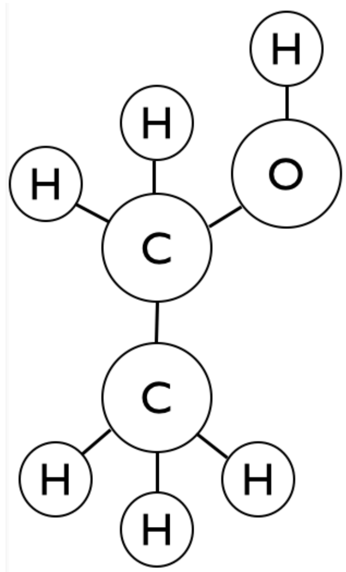
Chemical Equation

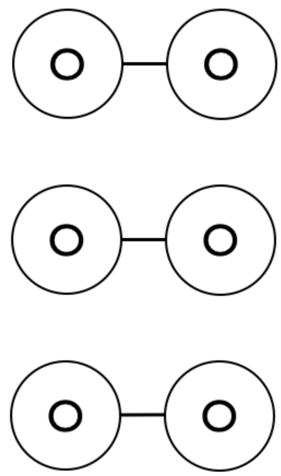
____________________ + ____________________ → ____________________ + ____________________

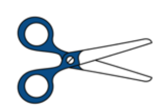
(Reactants) **(Products)**

Parts for Constructing the Products

Cut apart these pieces according to the instructions and glue them back down on the previous page where it says “Model of Products.”







Cut the atoms out from this page.

Name ____ Period _______________ Date _______________

Lesson 10: What Happens During Electrolysis?

Activity 10.2

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Purpose

In this activity we will construct a molecular model of the reaction we witnessed in the video about electrolysis.

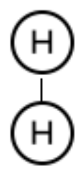
Instructions

15. Locate the page labeled "Parts for Constructing the Products"

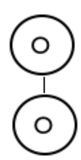
16. Cut out each **atom** from the page.

17. Locate the empty space labeled "Model of Products".

18. Use the atoms you cut apart to create as many Hydrogen molecules as possible. Each molecule should look like this:



19. Use the remaining atoms to create as many Oxygen molecules as possible. Each molecule should look like this:



20. Compare the model you started with to the model you created. These two models form the **model equation.**

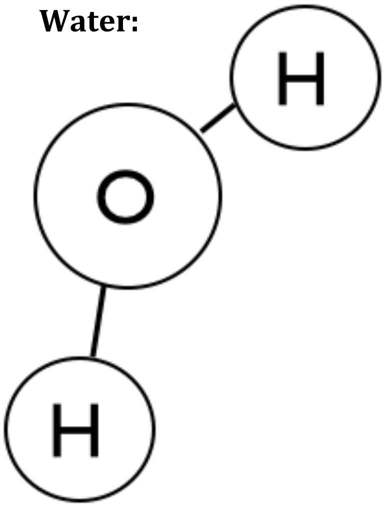
21. Use the model equation to help you construct a **word equation.**

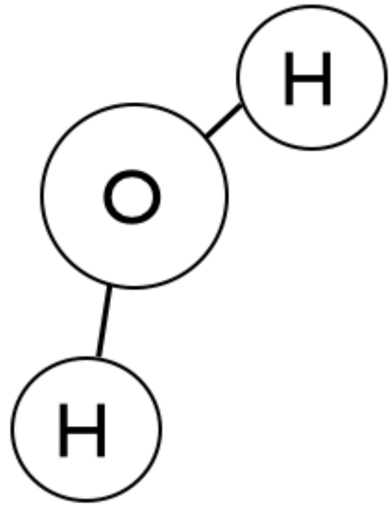
22. Use the word equation, model equation and the following formulas to create a **chemical equation**.

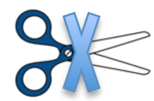
- Hydrogen H_2
- Oxygen O_2
- Water H_2O

Model of Reactants

Water:







Do not cut the atoms out from this page.

Model of Products

Word Equation

_______________________ → _______________________ + _______________________

(Reactant) (Products)

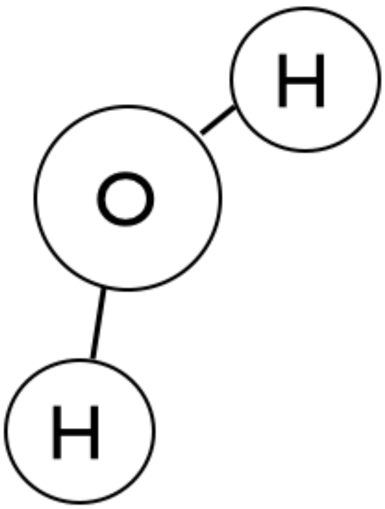
Chemical Equation

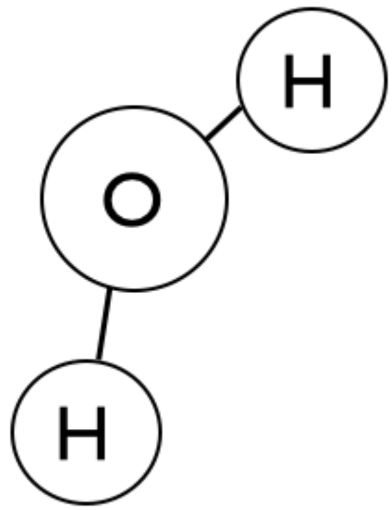
_______________________ → _______________________ + _______________________

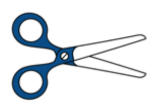
(Reactant) (Products)

Parts for Constructing the Products

Cut apart these pieces according to the instructions and glue them back down on the previous page where it says "Model of Products."







Name ______________________________ Period ____________ Date ____________

Lesson 11: How Can I Turn Fat into Soap?

Activity 11.1

Purpose

Over the coarse of this unit, you have established that soap and fat are different substances. Through a chemical reaction you can turn fat into soap. We will do this in class.

Chemical Reaction

______________________ + ______________________ → ______________________

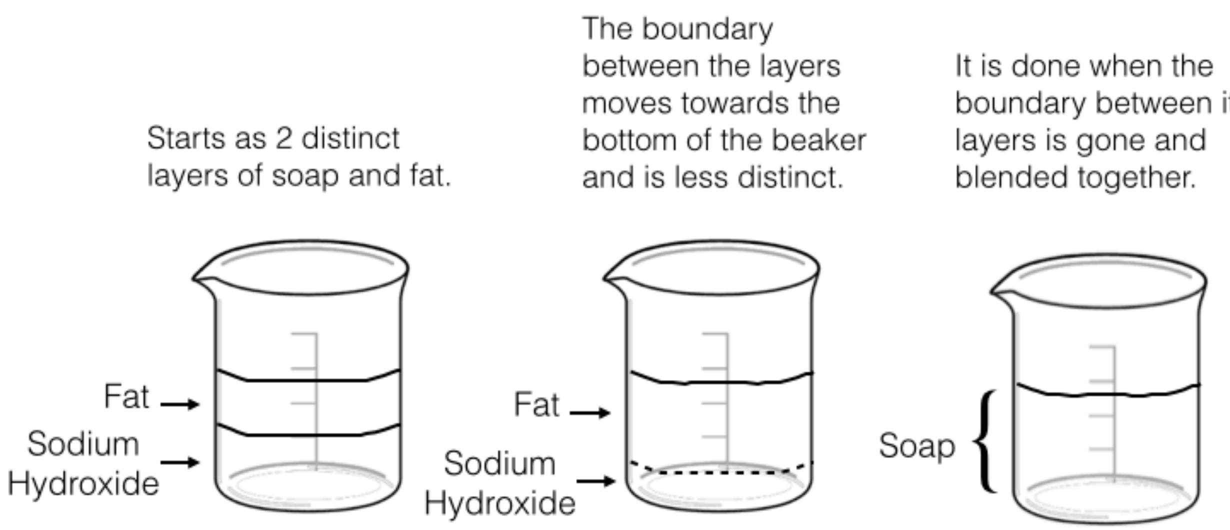
✚ Safety

Sodium hydroxide can burn your skin. You need to wear safety goggles, gloves, and an apron. If you get sodium hydroxide on your skin, rinse your skin with cool water, and tell you teacher immediately. Also you are using a hot plate so be careful of burns and spilling hot liquids.

Procedure

1. Check you have all your supplies:
    - Goggles, apron, gloves, Sharpie marker, 1 clear plastic cup, graduated cylinder, glass stirring rod, 1 glass beaker, 1 bottle of rubbing alcohol, and 1 hot plate.
    - Nearby there should be a digital scale and salt. Cups of fat should be at the supply counter.
2. Put on your safety goggles.
3. Use the Sharpie to label **one clear plastic cup** with your groups' names and class period.
4. Take a plastic cup to the digital balance. Place the cup on the balance and zero it by pressing "**tare**" or "**zero**". The balance should read 0.00. Check the units are in **grams**.
5. Mass **50 grams** of salt into the cup. Take the cup with the salt back to your lab station.
6. Measure **150 ml** of water with the **graduated cylinder**. Pour the water into the **clear plastic cup**.
7. Carefully pour the **50 g. of salt** into the **clear plastic cup**. Set the cup that contained the salt back into the lab kit.
8. Stir the water and mixture with the glass stirring rod until the salt is mostly dissolved (about 1-2 minutes). Place the **clear plastic cup with the salt water** to the side.
9. Take the bottle of rubbing alcohol from the kit.
10. Measure **20 ml** of **rubbing alcohol** with the **graduated cylinder**. Pour the **20 ml** of **rubbing alcohol** into the **beaker**.
11. Get a cup of fat from the supply counter. The teacher has massed it for you (11 g). Put the **11 g** of **fat** into the **beaker** with the rubbing alcohol.

12. Stir the mixture of fat and rubbing alcohol with the glass stirring rod for about 1 minute. Try to break up the fat and mix it with the rubbing alcohol. Throw out the cup that contained the fat.
13. Turn on your burner on to **WARM** temperature.
14. Place the **beaker** on the burner and continue stirring for 2-3 more minutes. The fat will not completely dissolve, but the mixture should turn somewhat cloudy. Take the **beaker** off the burner. The beaker should be cool enough to move.
15. Have your **teacher** pour **20 ml** of sodium hydroxide into the **beaker.**
16. Place the beaker on the burned on **WARM** temperature. Stir the mixture with the glass stirring rod.
17. Stir the mixture for about **12 minutes**. **DO NOT let the mixture boil. DO NOT put your face over the beaker.** Refer to the progressoin of the chemical reaction below.



18. Turn off the burner. After the liquid becomes **a single layer,** ask **your teacher** to pour the mixture into the clear plastic cup that contains the salt solution. **DO NOT STIR IT.**
19. Carefully place the clear plastic cup at its designated location for your class. It will sit overnight.
20. Get a new plastic cup for the next group. Rinse off the stirring rod. Double check the burner is off. Wash your hands.
21. Give your lab partners a high five- you made soap!

Name ______________________________ Period ____________ Date ____________

Lesson 12: Does Mass Change During a Chemical Reaction?

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Activity 12.1

Purpose

Alka seltzer and water will be used to determine if mass changes in a chemical reaction.

✚ Safety

Wear safety goggles while mixing the chemicals in this lab.

Procedure

1. Fill the cup with about 100 ml of water.
2. Check the scale is zeroed.
3. Place the cup with water and 2 Alka-Seltzer tablets on the scale and record the mass on the back page. Do not put the tablets into the water yet.
4. Place the tablets inside the cup and allow the tablets to react completely. Record your observations on the back page.
5. Record the mass of the reacted tablets, water, and cup on the back page.
6. Discuss with your group your observations and compare the masses from before and after the reaction.
7. Discuss how you can design an experiment to explain the changes in the mass from before and after the reaction.

Data Table

	Before the Reaction	After the Reaction
Total Mass (in grams)		
Observations During the Reaction		

Conclusion

What happened to the mass of the cup, and everything in the cup, when the tablets reacted with the water?

Why do you think this happened?

Extension

What would need to be done differently in order to have the mass stay the same?

Design a Closed System:

Draw a diagram that shows how a closed system could be built to allow the Alka-seltzer and water to exist in a closed system. The system must allow the two to react while remaining a closed system. Be sure to label all of the parts of your model:

Data

Build the system you have designed and repeat the experiment:

	Before the Reaction	After the Reaction
Total Mass (in grams)		
Observations During the Reaction		

Conclusion

Was the system you designed a closed system? How do you know?

Name ______________________________ Period ____________ Date ____________

Lesson 12: Does Mass Change During a Chemical Reaction?

Activity 12.1 Post Lab Assessment

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

1. What were you trying to prove in the Alka-Seltzer lab that you designed?

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2. Which data table shows the Alka-Seltzer lab as a **closed system** and **why?**

____

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____

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____

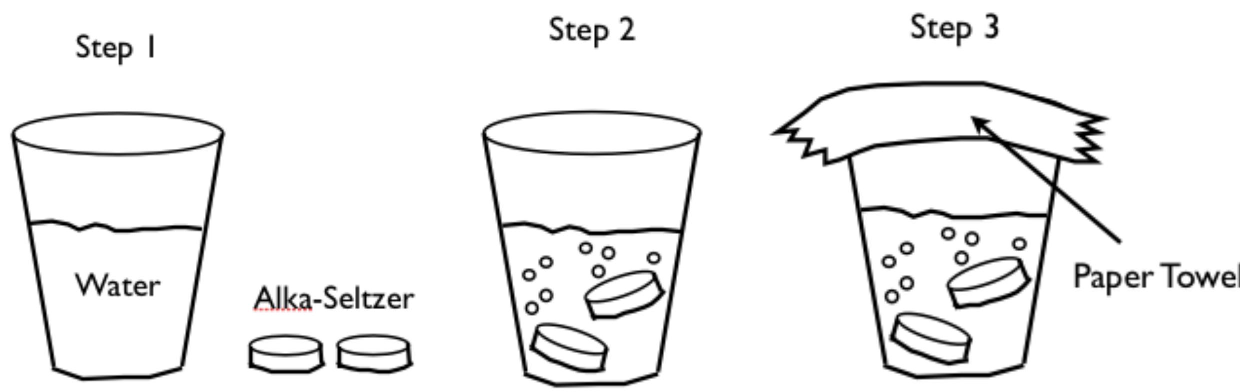
Table A

	Before Reaction	After Reaction
Total Mass (grams)	100 grams	99 grams

Table B

	Before Reaction	After Reaction
Total Mass (grams)	100 grams	100 grams

Look at the pictures below. What are **2** reasons this experiment will not answer the main question of the lab that you just designed?



Reason 1:

____

____

Reason 2:

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State a **scientific principle** that supports the lab experiment you just conducted and **why** it supports the experiment.

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Name ________________________________ Period ____________ Date ___________________

The pH Scale

The pH scale is a numeric scale used to measure the acidity or alkalinity of a solution that contains water. The H stands for hydrogen ions. Acids produce a lot of hydrogen ions, while bases absorb them. For this reason, a low number, like 1 on the pH scale means something is very acidic, a high number such as 14 is very basic. Both are very corrosive, but in different ways. Water is neutral and has a pH of 7. The p stands for power, as in exponential numbers in math class. **Each step on the pH scale is a change of ten times the strength.** Lemon Juice has a pH of 2, and Sulfuric acid has a pH of 1. They are 1 step apart.

How many times stronger is Sulfuric Acid than Lemon Juice?

On the other side of the scale, the Sodium Hydroxide we used to make soap has a pH of 14. Bleach has a pH of only 12. These are two steps apart on the scale.

It is important to remember that the pH scale measures how substances interact with water. If a substance does not dissolve in water, it does not have a pH.

What is the pH of the fat we used to make soap? How do you know?

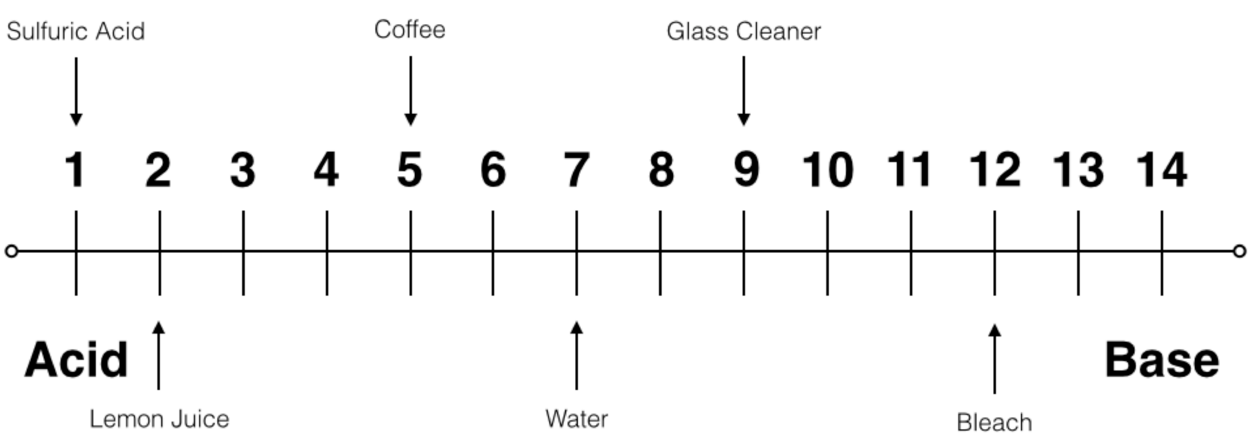
Testing pH

We will be testing the pH of several substances from this unit. The pH of a solution can be measured by dipping a piece of pH paper into it, and comparing the color to a numerical chart on the bottle. The paper has been treated with a mixture of different indicators that change color in the presence of acids and bases. To conserve paper, we will tear each strip into thirds and use tweezers to dip them into the substance on a spot plate. For the substances that are solids, dissolve these in a few drops of water first.

Substance	pH	Substance	pH
Vinegar		Road Salt	
Kool-Aid		Baking Soda	
Commercial Soap		Sodium Hydroxide	

The pH scale shows us the relationship between various substances. Some are more corrosive than others.

Add the substances you tested to the scale below:



Based on the results above above, what do you think the pH of your soap your soap that you made would be? Why?

Name ____ Period _______________ Date _______________

Lesson 14: Did we do a good job making soap?

Your Progress:

- Mastery
- Proficient
- Developing
- Beginning

Activity 14.1

✚ Safety

Your soap may be a little harsh on your skin. Do not attempt to wash yourself with your soap. Rinse your hands off completely when you have finished this lab.

Purpose

You will use a variety of tests to check to see how well your soap turned out.

Efficiency

You used 11 grams of fat and 24 grams of sodium hydroxide. What mass would you expect your soap to have?

11 grams Fat + 24 grams Sodium Hydroxide → _____________ grams Soap

Carefully, place your soap on the scale. Find the mass of your soap.

Expected Mass:	Actual Mass	Amount Lost or Gained

Thinking about what you expected the mass to be, and what it was, why might they be different?

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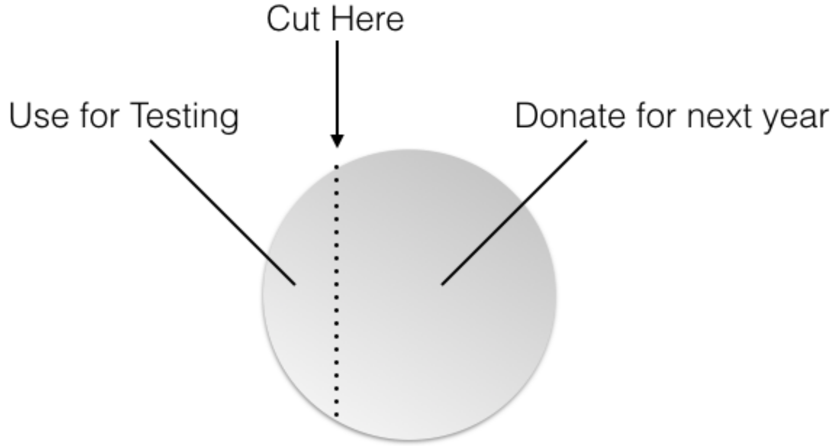
____

Cutting Off a Sample

Use a plastic knife to cut off a sample to test. Make the cut about one fourth of the way across the sample as shown in the diagram. Take the smaller piece to do your testing with. The rest should be placed in the to be donated pile for next year's labs.



As you are cutting the sample make some observations about how hard it is to cut. Record these observations below.

Basic Properties

Carefully, look at your soap. Smell it and touch it. Record your observations below:

Hardness	
Malleability	
Color	
Smell	
Texture	

Solubility

Use the metal scoop to scrape a very small amount from three different locations on the sample. Add them in a small plastic cup to 10 ml of water. Stir this with the stirring rod for 2 minutes. Do not discard the solution.

Observations:	Solubility:

pH

Measure the pH of the soapy water you created above. Compare it to the value you recorded earlier in the pH Scale activity.

pH of Commercial Soap	pH of Your Soap

Thinking about the reactants, why might the pH of your soap be different?

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