



# WORKSHEET ON CHEMICAL VS PHYSICAL PROPERTIES AND CHANGES

**Background:** Keeping the difference between physical and chemical properties as well as changes can be a challenge! This worksheet will help you do this. First, use the book to define the following terms.

VOCABULARY WORD	DEFINITION
Physical Property	
Physical Change	Change in which the identity of the substance does NOT change
Chemical Property	
Chemical Change	

**Part One:** Physical or Chemical Property? Fill in the chart using the vocabulary words or phrases provided.

**Vocabulary words**

Boiling point	Ability to rust	Melting point	Brittleness	Reactivity with vinegar
elasticity	Flammability	Density	Transparency	ductility

Each word is used once. Define the word when done!

Chemical Property↓	Definition
	• The ability to burn
	• Reacts with oxygen to produce rust

Physical Property↓	Definition
	• The property of letting light pass through something

**Part Two:** Physical or Chemical Change? Indicate with a 'P' or a 'C' which type of change is taking place.

1. _____ glass breaking	10. _____ mixing salt and water
2. _____ hammering wood together	11. _____ mixing oil and water
3. _____ a rusting bicycle	12. _____ water evaporating
4. _____ melting butter	13. _____ cutting grass
5. _____ separate sand from gravel	14. _____ burning leaves
6. _____ bleaching your hair	15. _____ fireworks exploding
7. _____ frying an egg	16. _____ cutting your hair
8. _____ squeeze oranges for juice	17. _____ crushing a can
9. _____ melting ice	18. _____ boiling water

Name: \_\_\_\_\_  
Hour: \_\_\_\_\_ Date: \_\_\_\_\_

## Chemistry: *Properties*

Recall that *physical properties* can be observed without producing new substances. *Chemical properties* describe how a substance interacts with other substances to produce new substances. *Extensive properties* depend upon the amount of matter in the sample; *intensive properties* do not.

Directions, Part 1: Classify each of the properties listed below as extensive or intensive. Then classify each property as physical or chemical. Write the word out to earn full credit.

<i>Property</i>	<i>Extensive or Intensive Property</i>	<i>Physical or Chemical Property</i>
color		
combustibility		
hardness		
density		
mass		
melting point		
ductility		
volume		
reactivity with acid		
odor		
weight		
malleability		
tendency to corrode		

Directions, Part 2: Some measurements or descriptions of properties are listed below. Write which property is being described in each case. Select properties that are listed in the table from Part 1.

- |                                                          |          |
|----------------------------------------------------------|----------|
| A. 15 dm <sup>3</sup>                                    | A. _____ |
| B. can easily be hammered into sheets                    | B. _____ |
| C. 2.8 g/cm <sup>3</sup>                                 | C. _____ |
| D. burns when heated in the presence of O <sub>2</sub>   | D. _____ |
| E. shiny metal forms a chalky white layer on its surface | E. _____ |
| F. can be scratched by a diamond                         | F. _____ |
| G. 500°C                                                 | G. _____ |
| H. can easily be drawn into a wire                       | H. _____ |

Name: \_\_\_\_\_  
 Hour: \_\_\_\_\_ Date: \_\_\_\_\_

**Chemistry: Classifying Matter**

Classify each of the materials below. In the center column, state whether the material is a **pure substance** or a **mixture**. If the material is a pure substance, further classify it as either an **element** or **compound** in the right column. Similarly, if the material is a mixture, further classify it as **homogeneous** or **heterogeneous** in the right column. Write the entire word in each space to earn full credit.

<i>Material</i>	<i>Pure Substance or Mixture</i>	<i>Element, Compound, Homogeneous, Heterogeneous</i>
concrete		
sugar + pure water ( $C_{12}H_{22}O_{11} + H_2O$ )		
iron filings (Fe)		
limestone ( $CaCO_3$ )		
orange juice (w/pulp)		
Pacific Ocean		
air inside a balloon		
aluminum (Al)		
magnesium (Mg)		
acetylene ( $C_2H_2$ )		
tap water in a glass		
soil		
pure water ( $H_2O$ )		
chromium (Cr)		
Chex mix		
salt + pure water ( $NaCl + H_2O$ )		
benzene ( $C_6H_6$ )		
muddy water		
brass (Cu mixed with Zn)		
baking soda ( $NaHCO_3$ )		