

Properties: Chemical vs Physical

Extensive vs Intensive

Quantitative vs Qualitative

Name _____

Put each underlined word (group of words) or numbers in the appropriate one of the five category columns below.

Solid

Sitting on the desk is a heavy 38.1 g solid cube has a small volume of 2.0 ml, has a melting point of 3818°C and has a high density of 19.05 g/ml. The cube is shiny silver-color and is soft. The cube currently has a temperature of 24.5°C. The substance burns in air and is ductile and malleable. The substance slowly decomposes in water, and reacts with acids but not bases.

Liquid

The beaker holds a large volume of 250.0 ml of a blue-colored liquid which has a boiling point of 112°C and has a density of 1.15 g/ml. The mass in the beaker is 287.5 g and its temperature is very hot. The liquid is volatile (evaporates easily) and is not flammable.

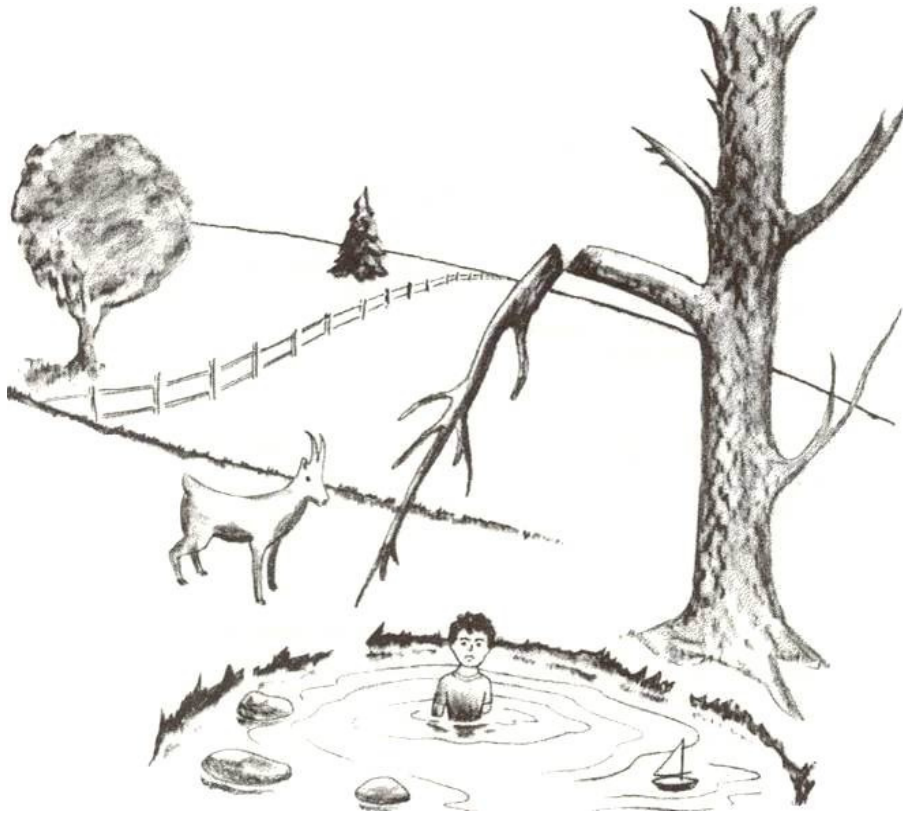
Gas

The instructor is holding a big 35 L balloon filled with a gas less dense than air. The gas is odorless and colorless. The gas is explosive, and has a current temperature of 25°C.

Most all chemical properties are intensive, and most that we will consider will be qualitative, thus you will notice on one category for chemical properties, no subgrouping.

chemical properties	physical properties			
	intensive		extensive	
	qualitative	quantitative		qualitative

Use the picture below to categorize the following statements as observations or inferences.
Circle your choice.



- | | |
|--|--------------------------|
| 1. The person is in the water. | observation or inference |
| 2. The weather is cold. | observation or inference |
| 3. The tree branch is broken. | observation or inference |
| 4. The boy fell off the branch. | observation or inference |
| 5. The goat is standing by the pond. | observation or inference |
| 6. The branch will fall on the boy's head. | observation or inference |
| 7. The boy fell off the rocks. | observation or inference |
| 8. There is a sailboat in the water. | observation or inference |
| 9. The sailboat belongs to the person. | observation or inference |
| 10. The goat pushed the girl into the pond | observation or inference |
| 11. The tree by the pond has no leaves | observation or inference |
| 12. There are three rocks in the pond | observation or inference |
| 13. The tree by the pond is dead | observation or inference |
| 14. There are three trees in the picture | observation or inference |

Practice problems are crafted carefully in this course to help you determine if you understand the concepts and problems being presented. Remember, answers are provided for you so that you can self-correct and identify any problems or misconceptions you are having. If you do not “test” yourself by doing the homework and then checking your progress, it will be hard for you to know how you are doing (and the need for help if you are having difficulty) and perhaps make it difficult for you to have success on the graded opportunities (quizzes). It is very important that as you try the practice sheets you must make note of the problems that you do not understand so that you can ask about those questions in class. We will not “go over” practice work unless you initiate the questions.

chemical properties	physical properties			
burns in air decompose in water reacts with acids not bases not flammable explosive				
	intensive		extensive	
	qualitative	quantitative		qualitative
	solid	mp 3818°C	38.1 g	heavy
	high density	19.05 g/ml	2.0 ml	small
	soft	temp 24.5°C		
ductile & malleable				
blue-colored	bp 112°C	250 ml	large	
temperature is	1.15 g/ml	287.5 g		
very hot				
volatile (evaporates)				
less dense	25°C	35 L	big	
odorless & colorless				

Observation vs Inference

- | | |
|----------------|-----------------|
| 1. observation | 8. observation |
| 2. inference | 9. inference |
| 3. observation | 10. inference |
| 4. inference | 11. observation |
| 5. observation | 12. observation |
| 6. inference | 13. inference |
| 7. inference | 14. observation |