

# Homework #1

Due: Tuesday January 26th

Name: \_\_\_\_\_

Student ID: \_\_\_\_\_

Chem 192 – Spring 2010  
Cañada College

Total Possible Points: 10

Suggested for Chapter 1 (pg 12-13): Review Questions 4, 7, 15; Exercises 2, 4, 6

1. (three points, ¼ point per square) Complete the table below.

	Example	Description	State	Classification *
1	A)	When put in a larger container the sample expands to fill a greater volume.	B)	The sample is homogenous and a pure substance
2	Banana	(no description)	C)	D)
3	E)	Something commonly found in a kitchen.	Liquid.	A homogenous mixture of two or more substances.
4	Ice crystals floating in water.	(no description)	F)  (hint: the system contains two states, name both)	G)
5	H)	Something found in the grocery store.	Solid.	I)
6	J)	(no description)	Liquid (the entire sample is liquid).	A heterogeneous sample. The phases can be either pure substances or mixtures.
7	K)	Something commonly found in nature. The sample does not change shape when transferred to a larger container.	L)	A homogeneous sample (can be either a pure substance or mixture).

\* When classifying a sample, indicate whether it is a pure substance or a mixture and whether the matter is homogenous or heterogeneous.

**2.** (one point, ½ point per blank) All matter is made up of microscopic particles. Depending on what state that matter is in these particles behave differently:

- a) Particles in one state are close together but free to move around.
- b) Particles in one state are held rigidly and close together.
- c) Particles in one state are far apart and free to move independently.

Write an a, b, or c next to each of the states of matter listed below to indicate which description above best matches that state.

Solid \_\_\_\_\_

Gas \_\_\_\_\_

**3.** (three points, ½ point per blank) Chemistry is the study of matter. Which of the following is matter (put an M for matter and an X for something other than matter):

(A) Wood \_\_\_\_\_

(D) Steam \_\_\_\_\_

(B) Sunlight \_\_\_\_\_

(E) Electricity \_\_\_\_\_

(C) Saltwater \_\_\_\_\_

(F) Heat \_\_\_\_\_

**4.** (two points) You are given a sample. You observe that the sample changes shape when it is put into a different container. You know the sample is not a solid, you hypothesize that the sample is a liquid. Using your knowledge of the properties of different states, suggest an experiment to help you decide if the sample is a liquid or a gas. Describe the possible outcomes of the experiment and how you would decide whether the sample was a liquid or a gas based on these results.

**5.** (one point) If you conduct the experiment in question 4 you may decide the sample is a liquid. Is that decision an observation, a law, or a theory? (circle one)