

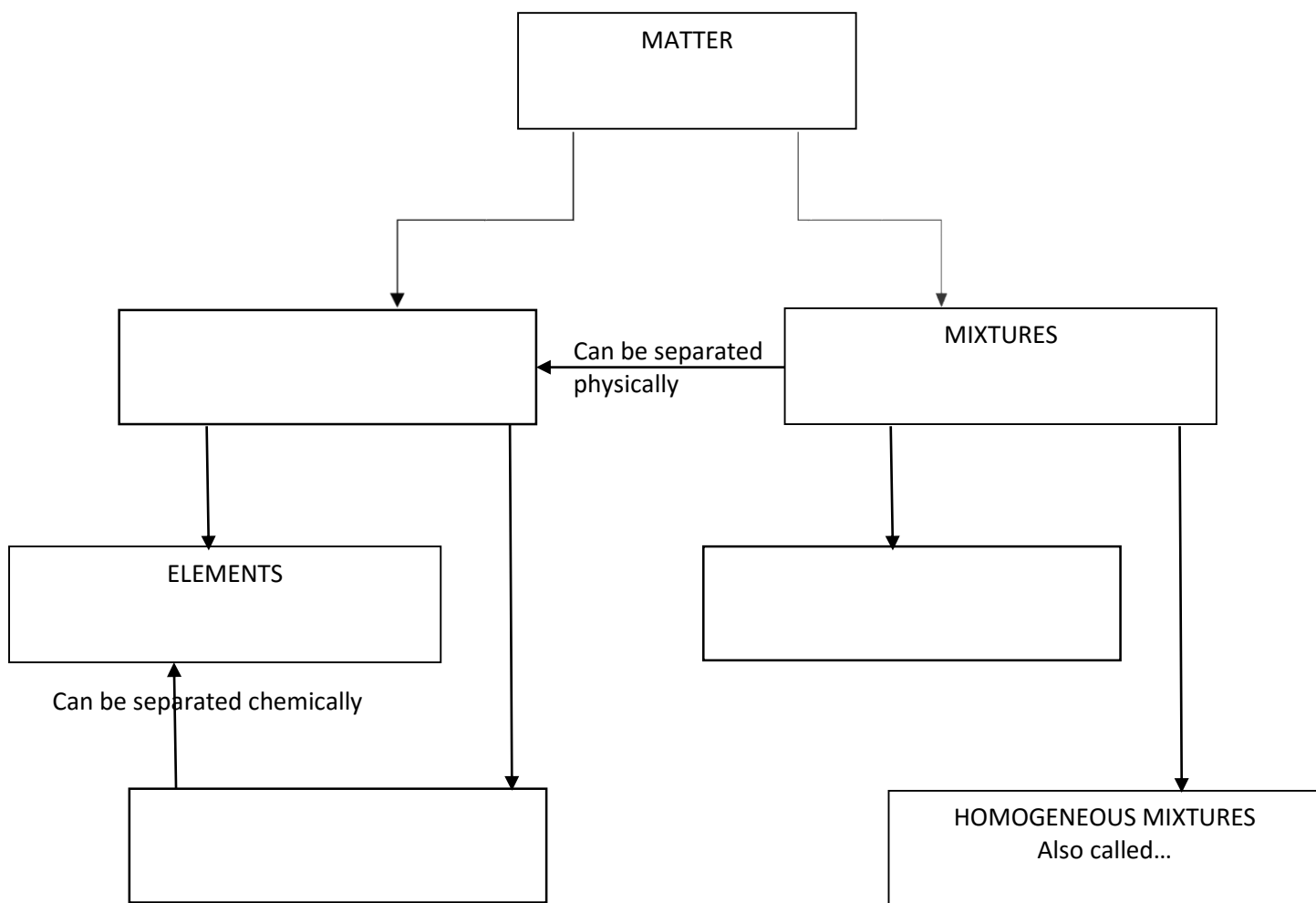
1. Read Chapter One: Introduction to Chemistry, pp. 7-32. Fill in the blank spaces in the Chapter One sample outline provided.
2. Read Chapter Two: Matter and Change, pp. 39-55. Take hand-written detailed notes on this chapter using the format from Taking Notes from Textbooks or another format that works for you. No photocopied, typed, or digitized notes will be accepted – notes must be hand-written!
3. a. Define pure chemistry and applied chemistry.  
  
b. What is a career for someone interested in pure chemistry? For applied chemistry?
4. A student wanted to know if adding peat moss to sand would affect its ability to retain water. He mixed different amounts of sand and peat moss and measured the amount of water each mixture absorbed, in mL.

Composition of Mixture	Water Retained (mL)
100% Peat Moss	120
20% Sand, 80% Peat Moss	115
40% Sand, 60% Peat Moss	110
60% Sand, 40% Peat Moss	86
80% Sand, 20% Peat Moss	84
100% Sand	71

- a. What is the independent variable?
- b. What is the dependent variable?
- c. What is the control?
- d. What are three things that should be held constant in this lab?
- e. Did the student conduct enough trials? Explain.
- f. What type of graph would be appropriate to display the data? Why?

- g. Graph the data using graph paper or a graphing program and attach.
- h. What conclusions can be drawn from the data? Type your conclusion and attach.
5. Go around the house and find three things that have developed from chemistry and explain how.
6. Label each of the following as either *hypothesis*, *model*, *fact*, *theory*, or *law*.
- \_\_\_\_\_ If I spend more money on cleaning products, then they will be more effective at removing stains.
  - \_\_\_\_\_ The universe began with a big bang
  - \_\_\_\_\_ The earth is spherical
  - \_\_\_\_\_ All objects fall toward the earth when dropped from any height
  - \_\_\_\_\_ Electrons orbit the nucleus in a way similar to planets orbiting the sun
7. Identify the following as either *quantitative* or *qualitative*.
- |                                |                           |
|--------------------------------|---------------------------|
| a. _____ 5.0 g                 | d. _____ 12 years old     |
| b. _____ Blue in color         | e. _____ Large density    |
| c. _____ 6.7 g/cm <sup>3</sup> | f. _____ Rough in texture |
8. Compare and contrast physical and chemical changes.
9. Identify the following as either a *chemical* or *physical* property.
- |                     |                            |
|---------------------|----------------------------|
| a. _____ Blue color | d. _____ Reacts with acids |
| b. _____ Density    | e. _____ Boiling point     |
| c. _____ Luster     | f. _____ Flammability      |
10. Identify the following as either a *chemical* or *physical* change.
- |                                       |   |
|---------------------------------------|---|
| a. _____ Aluminum foil is cut in half | d. _____ Clay is molded into a new shape                |
| b. _____ Milk goes sour               | e. _____ Jewelry tarnishes                              |
| c. _____ Butter melts on warm toast   | f. _____ Water evaporates from the surface of the ocean |

11. Fill out the following diagram. Include a definition in each square.



12. Identify the following as either an *element*, *compound*, *homogeneous mixture*, or *heterogeneous mixture*.

- |  |                            |
|--|----------------------------|
| a. _____ Apple juice                           | f. _____ Protactinium      |
| b. _____ Iron                                  | g. _____ Latex house paint |
| c. _____ Carbon monoxide                       | h. _____ Water             |
| d. _____ Air                                   | i. _____ Sea Water         |
| e. _____ Medicine that says shake before using |                            |

13. A sample of metal has a mass of 10.5 g and a volume of 1.21 cm<sup>3</sup>.

- a. What is the density of the metal?
- b. Using the chart at right, identify the metal.

Aluminum	2.70 g/cm <sup>3</sup>
Bismuth	9.79 g/cm <sup>3</sup>
Cadmium	8.69 g/cm <sup>3</sup>
Gold	19.3 g/cm <sup>3</sup>
Tin	7.26 g/cm <sup>3</sup>

14. Define *intensive* and *extensive* properties. Identify the following properties as *intensive* or *extensive*:

a. \_\_\_\_\_ Mass

b. \_\_\_\_\_ Volume

c. \_\_\_\_\_ Density

15. Compare and contrast your mass and weight on Earth's moon as compared to on Earth.

16. Arrange the following steps of the *scientific method* from first #1 to last #7.

a. \_\_\_\_\_ Test Your Hypothesis by Doing an Experiment

b. \_\_\_\_\_ Do Background Research

c. \_\_\_\_\_ Draw a Conclusion

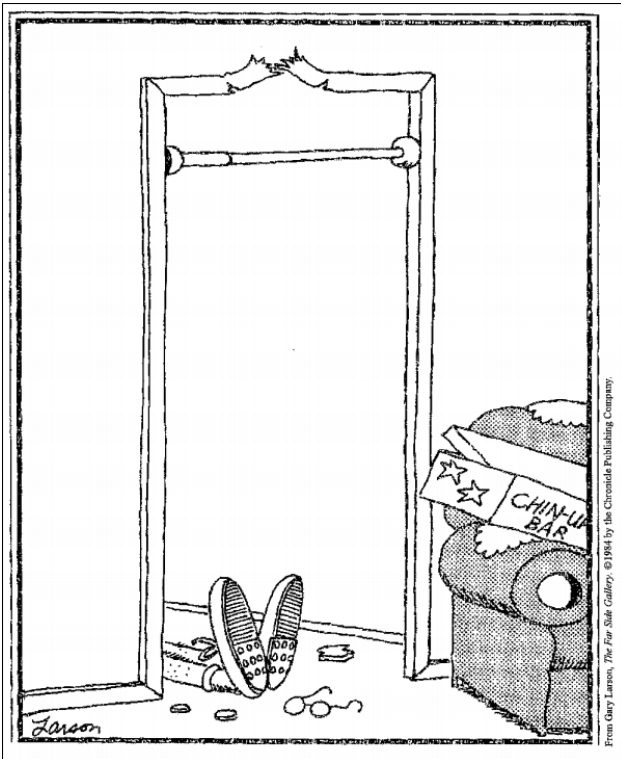
d. \_\_\_\_\_ Communicate Your Results

e. \_\_\_\_\_ Construct a Hypothesis

f. \_\_\_\_\_ Ask a Question

g. \_\_\_\_\_ Analyze Your Data

17. Define *observation* and *inference*. Look at the picture below and list two observations and two inferences.



An observation is:

An inference is:

Two observations from the picture are:

Two inferences from the picture are: