

Classification of Matter

All of the stations are numbered and the corresponding questions for each station are found in this paper. So, for example if you are at station 6 you look through the handout and find the questions for station 6. The next station you would go to would be station 1. If you are finished answering your questions you can complete the definitions at the end of this paper while you are waiting to change stations. You will find the definitions within the notes at each station.

Station 1

On the desk you will find a few examples of matter. Matter is defined as anything that takes up space, has mass and is made up of particles. Cars, clouds and cola are examples of matter. Draw a quick sketch of each sample of matter and label each type.

a)

b)

c)

Make a list of 6 different types of matter. 1 _____
2 _____ 3 _____ 4 _____
5 _____ 6 _____

Station 2

Matter can be classified into two groups, Homogeneous and Heterogeneous. Matter that is homogeneous has only one visible phase. A phase is a visible portion of matter. Heterogeneous matter is matter that has more than one phase.

Observe the samples at station 2.

Sample A has one visible phase so it is classified as _____

Sample B has two visible phases so it is classified as _____

Sample C has one visible phase so it is classified as _____

Sample D has three visible phases so it is classified as _____

In the following examples state the number of phases and if it is homogeneous or heterogeneous.

Example	Number of Phases	Classification
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____

Station 3

Homogeneous matter can be classified into two groups, mixtures and pure substances. A solution is a homogeneous mixture. Solutions contain different types of particles and all of the particles are very small. The following samples are solutions. Sample A is Kool Aid, Sample B is salt and water, Sample C is air, and Sample D is an alloy. An alloy is a mixture of metals which is a solution.

List five solutions that you would use at home.

1. _____
2. _____
3. _____
4. _____
5. _____

Station 4

Solutions can be separated into pure substances. If the salt and water solution was left for a while the water would evaporate into the air and the salt would be left in the beaker. The salt cannot be separated further by normal chemical means and is considered a pure substance. A pure substance is made up of only one kind of small particle.

The following are samples of pure substances.

Sample A: Sugar

Sample B: Copper

Sample C: Distilled Water

Sample D: Nitrogen

See if you can guess what the following pure substances are:

- | | |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |

Station 5

Heterogenous mixtures can be classified into mechanical mixtures. Mechanical mixtures are mixtures with more than one phase and have large particles throughout. The following are types of mechanical mixtures.

Sample A: A suspension is small particles that will eventually settle. (dirt and water)

Sample B: A colloidal dispersion is even smaller particles that will eventually settle. (Corn starch and water)

Sample C: An emulsion is a mixture of small droplets of one liquid mixed with another. (Oil, water and detergent)

Name types of salad dressings (or other examples) that are a(n):

Suspension _____

Colloidal dispersion _____

Emulsion _____

Station 6

Classify the substances below into three groups and describe why you classified them this way.

Group One

Group Two

Group Three

What are some reasons why we classify things?

Definitions:

Write the definitions for the following terms.

a) matter _____

b) pure substance _____

c) mixture _____

d) phase _____

e) homogeneous _____

f) heterogeneous _____

g) solution _____

h) mechanical mixture _____

i) suspension _____

j) colloidal dispersion _____

k) emulsion _____
