

## Chemistry Worksheet: Matter #1

1. A mixture (**is/is not**) a chemical combining of substances.
2. In a compound the (**atoms/molecules**) are (**chemically/physically**) combined so that the elements that make up the compound (**retain/lose**) their identities and (**do/do not**) take on a new set of properties.
3. The smallest identifiable unit of a compound is a(n) \_\_\_\_\_, which is made up of \_\_\_\_\_ which are chemically bonded.
4. True or False: A mixture is always made up of a combination of elements.
5. In a mixture, the substances (**lose/retain**) their identities.
6. In a mixture the substances involved (**can/cannot**) be separated by a simple physical process.  
In a compound the elements involved (**can/cannot**) be separated by a simple physical process because the elements are (**physically combined/chemically bonded**).
7. True or False: An element can be broken down into a simpler substance.
8. The smallest identifiable unit of an element is a(n) \_\_\_\_\_.
9. From the following list of substances, circle the ones that are elements:

|        |                |              |          |
|--------|----------------|--------------|----------|
| silver | carbon dioxide | wood alcohol | chromium |
| water  | hydrogen       | carbon       | nitrogen |
| oxygen | gold           | sugar        | salt     |
| air    | sulfur         | magnesium    | nickel   |
10. Explain how to separate the sugar and water in a solution of sugar and water.
11. How would you separate a mixture of alcohol and water?
12. How would you separate sand and water?

13. Classify the following as pure substances or as mixtures:

|         |          |               |
|---------|----------|---------------|
| air     | gasoline | grain alcohol |
| water   | sugar    | gold          |
| mercury | oxygen   | salt water    |

14. Classify the following as heterogeneous or as homogeneous:

|                     |                |                |
|---------------------|----------------|----------------|
| sand & salt mixture | hydrogen       | iron           |
| salt water          | unfiltered air | iron with rust |
| pure water          | an apple       | nitric acid    |
| tossed salad        | granite        | wood           |

15. Classify the following as an element, a compound, a solution, or a heterogeneous mixture:

|                 |                          |
|-----------------|--------------------------|
| aluminum        | raisin bread             |
| carbon dioxide  | water                    |
| sugar and water | sulfur                   |
| sulfuric acid   | mercury                  |
| an orange       | water & instant coffee   |
| a pencil        | carbon particles & sugar |
| nitrogen        | air                      |
| gasoline        | grain alcohol            |