Classification of Matter – Study Guide

*sections 1.2 and 1.3 in OpenStax*

**States of Matter**

**Matter** is defined as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

It can exist in three different states: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* In **solid matter**, atoms or molecules are in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ locations.

A solid has a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ volume and a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shape.

* In **liquid matter**, atoms or molecules are free to move relative to each other giving liquids a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ volume but not a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shape.

Liquids assume the shape of their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* In **gaseous matter,** atoms or molecules have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between them and are free to move relative to one another.

Gases always assume the \_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_ of their container.

**Classifying Matter**

What is the difference between a pure substance and a mixture? Give two examples of each.

What is the difference between an element and a compound?

What is the difference between a homogeneous mixture and a heterogeneous mixture? Give two examples of each.

**Physical and Chemical Properties and Changes**

What is the difference between a physical property and a chemical property? Give at least two examples of each.

What is the difference between a physical change and a chemical change? Give at least two examples of each.

**End of Chapter 1 Problems**

#17, 19, 27, 29

For detailed solutions to these problems, go to the [OpenStax website](https://openstaxcollege.org/textbooks/chemistry/resources) and download the “Student Answer and Solution Guide.”