

Investigation 2: Properties of Materials

This investigation will help you to:

- Learn more about atoms.
- Learn more about an element.
- Learn more about a solid.
- Learn more about density.
- Learn more about electrical conductivity.
- Learn more about ductility and malleability.
- Learn more about magnetic properties.
- Learn more about thermal conductivity.

To learn more about atoms, visit the following web sites:

All About Atoms, **Jefferson Lab**

Follow this link for an introduction of atoms.

To learn more about an element, visit the following web sites:

Element, **Chem4kids.com**

This resource provides an explanation of chemical elements as well as provides links to 18 easy-to-understand elements.

What are elements?, **NYU/ACF Scientific Visualization laboratory**

This online resource offers basic information on the size of atoms.

To learn more about a solid, visit the following web sites:

Gases, Liquids, and Solids,

Purdue

Information offered at this location includes the basic characteristics of solids, liquids, and gases as well as figures and tables that illustrate the differences.

Solid Basics, **Chem4kids.com**

Investigate the basic properties of solids (i.e., atomic arrangement, freezing point, and crystal structure) by surfing this site. It also provides illustrations to help you understand how solids hold their shape.

To learn more about density, visit the following web sites:

Density of Minerals, **Webmineral**

Visit this online resource to access information on the instruments and formulas used to determine the density of minerals. This web page also serves as a mineralogy database that offers density information in two tables: metallic minerals and nonmetallic minerals.

To learn more about electric conductivity, visit the following web sites:

Water on the Web: Understanding Electrical Conductivity, **Water on the Web**

Visit this web site to learn about the science of electrical conductivity and its importance. It provides an interactive glossary that makes learning the basics easier.

Factors Influencing Electrical Conductivity, **EPA**

Discover the variables that affect electrical conductivity by clicking here.

What causes different types of materials to conduct heat at different rates?, **Mad Science Network**

The second paragraph of this discussion reveals the nature of electrical conductivity in metals vs. nonmetals, such as salts, oxides, etc.

To learn more about ductility and malleability, visit the following web sites:

Metals and Non-metals, **BBC**

A educational site on the physical and chemical properties of metals and non-metals.

To learn more about magnetic properties, visit the following web sites:

Magnetic Properties, **University of Surrey, Guildford**

An overview of the magnetic nature of minerals and technical information on different types of magnetic minerals is presented at this site.

To learn more about thermal conductivity, visit the following web sites:

Thermal Conductivity Science, **Hukseflux Thermal Sensors**

Learn the basics of measuring thermal conductivity by clicking measurement primarily focusing on soils and granular materials. It also offers a list of conductivity measurements for common household goods such as water, olive oil, cotton, cork, wood, and leather by the orders of magnitude.
