1.1

* Atoms are the smallest form of elements
	+ All matter is made of atoms
	+ Each element is made of a different atom
		- **Proton** – positively charged particle
		- **Neutron** – uncharged particle
		- **Nucleus** – the center of an atom, made of protons and neutrons
		- **Electrons** – negatively charged particles that move around outside the nucleus
	+ **Atomic number** – the number of protons in the nucleus of an atom
	+ **Atomic mass number** – total number of protons and neutrons in an atom’s nucleus
	+ **Isotopes** – atoms of the same element that have a different number of neutrons
* Atoms form ions
	+ **Ion** – formed when an atom gains or loses one or more electrons
		- **Positive ion** – loses an electron
		- **Negative ion** – gains an electron

1.2

* Elements make up the periodic table
	+ Elements can be organized by similarities
		- **Atomic mass** – the average mass of all the element’s isotopes
		- **Periodic table** – shows a periodic, or repeating, pattern of properties of the elements
* The periodic table organizes the atoms of the elements by properties and atomic number
	+ **Group** – elements in a column
	+ **Period** – elements in a horizontal row

1.3

* The periodic table is a map of the elements
	+ The periodic table has distinct regions
		- **Reactive** – indicates how likely an element is to undergo a chemical change
	+ Most elements are metals
		- **Metal** – elements that conduct electricity and heat well and have a shiny appearance
			* Reactive metals
			* Transition metals
			* Rare earth elements
	+ Nonmetals and metalloids have a wide range of properties
		- **Nonmetals** – properties opposite of metals
			* **Halogens** – group 17
			* **Noble Gases** – group 18
		- **Metalloids** – elements that have properties of both metals and nonmetals
	+ Some atoms can change their identity
		- **Radioactivity** – the process by which atoms produce energy and particles
			* **Half-life** – the amount of time that it takes for one-half of the atoms in a particular sample to decay