

# Grade 6 Science Summary

## AY 2017-2018 - Term 1

### Chapter 4

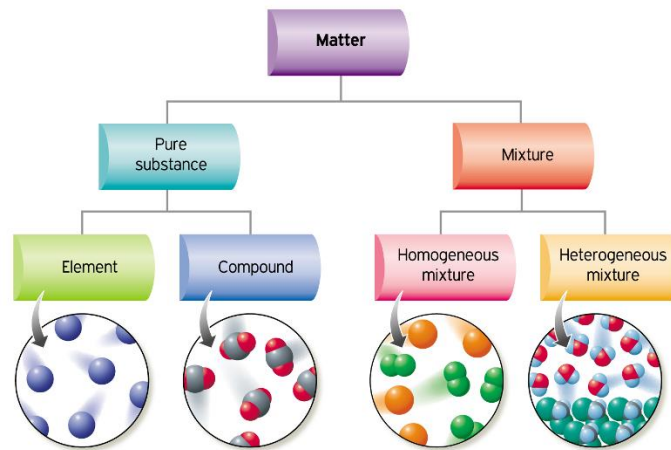
The Big Idea: How does the classification of matter depend on atoms?

#### Lesson 4.1 Substances and Mixtures

Essential Question: What is the relationship among atoms, elements, and compounds?

Success Criteria:

- Matter is anything that has mass and takes up space.
- An atom is a building block of matter.
- An element is matter made of only one type of atom.
- A substance is matter made with a composition that is always the same.
- A molecule is two or more atoms held together by chemical bonds and acts as a unit.
- A compound is a substance made of two or more elements that are chemically joined in a specific combination.



Essential Question: How are some mixtures different from solutions?

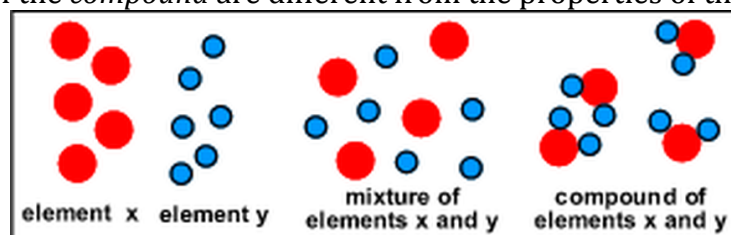
Success Criteria:

- A mixture is matter that can vary in composition.
- A mixture is made of two or more substances that are blended but are not chemically bonded.
- A heterogeneous mixture is a mixture in which the substances are not evenly mixed.
- A Heterogeneous mixture is not a solution.
- A Homogenous mixture is a mixture in which two or more substances are evenly mixed, but not bonded together.
- A Homogenous mixture is a solution.
- A Heterogeneous mixture can be separated into parts by filtering, using magnets, decanting, or adding heat.

Essential Question: How do mixtures and compounds differ?

Success Criteria:

- The properties of the *compound* are different from the properties of the atoms that make it up.



- The atoms that make up a given *compound* are bonded together.
- Changing the composition of a *compound* makes a new compound.

## Lesson 4.2 The Structure of Atoms

**Essential Question:** Where are protons, neutrons, and electrons located in an atom?

**Success Criteria:**

- The Nucleus is the region at the center of an atom that contains most of the mass of the atom.
- The nucleus is made up of protons and electrons.
- Protons are positively charged particles in the nucleus of an atom.
- Neutrons are uncharged particles in the nucleus of an atom.
- Electrons are negatively charged particles that occupy the space in an atom outside of the nucleus.
- Electron Cloud is the region surrounding an atom's nucleus where one or more electrons are most likely to be found.

**Essential Question:** How is the atomic number related to the number of protons in an atom?

**Success Criteria:**

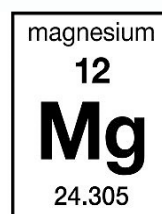
- Atomic number is the number of protons in the nucleus of an atom of an element.
- The identity of an atom is determined by its atomic number.



Oxygen

Atomic number 8

8 protons



Magnesium

Atomic number 12

12 protons

**Essential Question:** What effect does changing the number of particles in an atom have on the atom's identity?

**Success Criteria:**

- An isotope is one of two or more atoms of an element having the same number of protons, but a different number of neutrons.
- An Ion is an atom that has a charge because it has gained or lost electrons.
- A change in the number of *neutrons* or *electrons* causes the identity of the atom to stay the same.
- A change in the number of *protons* of an atom results in a *new* element with a new identity.