

Activity 3

Environmental Chemistry Definitions

The vocabulary from Activity 1 on the scientific method is important for all your science lessons. Review the Activity 1 vocabulary, with emphasis on the words *classify*, *dependent variable*, *hypothesis*, *independent variable*, *inference*, *qualitative data*, *quantitative data*, *repeated trials*, and *replication*.

Atoms – The different types of tiny particles that are the smallest structural building blocks of matter; more than 100 types of atoms are known.

Bond – A mechanism by which atoms “stick” together.

Chemical – A substance whose properties or actions make it possible for it to combine with, or create a reaction with, other substances.

Chemical analysis – Various techniques chemists use to analyze and identify substances.

Chemical reaction – A process in which two or more substances interact with one another to form a new product.

Compound – Two or more elements that are bound together by a physical or chemical processes, producing a third substance. Example—when elemental sulfur and iron are heated, a new *compound*, iron sulfide, is produced.

Concentration – The ratio of the amount of one substance to another in a mixture or solution; example—the *concentration* of *dissolved oxygen* in the water sample was 8 milligrams of oxygen per 1 liter of water, or 8mg/L.

Density – The mass of an object in relation to its volume; how heavy something is. Example—the element mercury is more dense than water.

Electron – A negatively charged subatomic particle that is part of the structure of an atom.

Element – A substance made of only one kind of atom, like pure gold or a diamond (pure carbon).

Gas – One of the three states of matter that has widely spaced particles that are weakly bonded to one another with no fixed volume or shape, such as water vapor or steam.

Liquid – One of the three states of matter that has loosely bonded particles with a fixed volume but no fixed shape; liquids take the shape of their container.

Mass – A measurement of the amount of matter in an object.

Matter – Anything you can feel, taste, see, hear, or that takes up space and has mass; atoms combine to form matter; matter usually occurs in three physical states on Earth – solid, liquid, and gas.

Mixture – A substance made up of individual molecules or compounds that don't combine or react chemically with one another, such as a mixture of salt and water – the salt may dissolve in water, but the water and salt will never chemically combine to make a new third product.

Molecules – Substances made up of different kinds of atoms bonded together, like water, which is formed when hydrogen and oxygen bond together.

Neutron – A non-charged (neutral) subatomic particle that helps make up the structure of an atom.

Particle – Something that is very, very small.

Periodic Table of Elements – A chart used to classify all the known types of atoms by their numbers of protons, neutrons, and electrons.

Proton – A positively charged subatomic particle that helps make up the structure of an atom.

Solid – One of the three states of matter that has tightly packed atomic particles with a fixed volume and shape.

States of matter – Three physical characteristics that molecules can exhibit; solid, liquid, or gas (there is a fourth state of matter, plasma, that will not be introduced during this lesson).

Subatomic particles – Parts that make up an atom; protons, neutrons, and electrons.

Toxin – A poisonous substance.

Texture – A characteristic of a substance that can be felt by using the sense of touch (gritty, silky, etc.) or seen by observing its appearance (smooth, rough, etc.).

Volume – A measurement of the space that an object occupies.