FOSS Chemical Interactions Course
Glossary
NGSS Edition © 2019

alchemy the prescientific investigation of substances, including the search for ways to change common metals into gold (SRB)

atmosphere gases surrounding a planet (SRB)

atom the smallest particle of an element (SRB, IG)

atomic number the number assigned to an element, based on the number of protons in the nucleus of its atom (SRB)

biomagnification the process where a chemical is taken in by an organism due to consuming an organism that already has the chemical in their body (SRB)

bond an attractive force acting between atoms (SRB, IG)

burning a chemical reaction in which a substance reacts with oxygen to form a new product (SRB, IG)

calorie the unit of energy that will raise the temperature of 1 gram of water 1 degree Celsius (SRB, IG)

carbohydrate a group of carbon-based nutrients, including sugars and starches (SRB)

carbon dioxide a compound made of bonded carbon and oxygen atoms; CO_2 (SRB)

chemical equation a representation of a chemical reaction using chemical formulas (SRB)

chemical formula a code that represents the number and kinds of atoms in one particle of a substance (SRB, IG)

chemical name the name chemists use for a substance, which contains the names of the elements in that substance (SRB, IG)

chemical property a characteristic of a substance that determines how it interacts with other substances (SRB)

chemical reaction a process during which the atoms of starting substances (reactants) rearrange to form new substances (products) (SRB, IG)

climate change the change in climate due to increased energy usage and greenhouse gases (SRB)

combustion a chemical reaction, commonly called burning (SRB)

common name the everyday-language name of a substance (SRB, IG)

compound a substance defined by a particle composed of two or more different kinds of atoms (SRB, IG)

compressed reduced in volume as a result of applied pressure (SRB, IG)

compression reducing the distance between particles by force (IG)

concentrated a solution with a large amount of solute dissolved in a small amount of solvent (SRB, IG)

concentration the amount of solute dissolved in a measure of solvent (SRB)

condensation the change of phase from gas to liquid (SRB, IG)

conduction the transfer of energy (heat) from one particle to another as a result of contact (SRB, IG)

conservation of energy a scientific law stating that no energy is created or destroyed during energy transfers (SRB, IG)

conservation of mass a scientific law stating that no matter is created or destroyed during a reaction (SRB)

conservation of matter principle stating that no matter is created or destroyed during a reaction (IG)

conserved unchanged during a process (SRB)

constraint a restriction or limitation (SRB, IG)

contract to reduce the volume of a sample of matter as a result of cooling (IG)

contraction the reduction of volume of a sample of matter as a result of cooling (SRB)

cooling energy transfer that decreases the kinetic energy of a substance's particles (SRB, IG)

core the most dense, central layer of Earth, composed mostly of iron and nickel (SRB)

criterion (plural: **criteria**) requirement (SRB, IG)

crude oil a material made of mostly carbon and hydrogen; also known as petroleum (SRB)

crust Earth's hard outer layer of solid rock (SRB)

crystal a structure formed by networks of atoms arranged in repeating patterns. Crystal shape is also a physical property that helps to identify a substance. (SRB, IG)

cyclotron an instrument used to create new elements (SRB)

density the ratio of mass and volume in a sample of matter (SRB)

deposit the change of phase from gas directly to solid (SRB)

deposition when a material changes directly from a solid to a gas; oppose of sublimation (IG)

dilute a solution with a small amount of solute dissolved in a large amount of solvent (SRB)

dissolve to mix one substance uniformly into another substance at the particle level (SRB, IG)

dry ice the solid phase of carbon dioxide (SRB)

electron a subatomic particle with a negative charge (SRB)

element a fundamental substance that cannot be broken into simpler substances by chemical or physical processes (SRB, IG)

energy transfer the movement of energy from one location to another (SRB, IG)

engineer someone who designs solutions based on scientific findings (SRB)

engineering problem the challenge that engineers seek to solve by designing and testing solutions (SRB, IG)

equilibrium a condition in which a system is experiencing no net change (SRB, IG)

evaporation the change of phase from liquid to gas (SRB, IG)

exothermic reaction chemical reaction that transfers energy to the environment in the forms of light, heat, and/or sound (SRB)

expand to increase in volume as a result of heating (IG)

expansion an increase of volume (SRB, IG)

extinct a group of organisms with no living members (SRB)

force a push or a pull (SRB)

freeze to change phase from liquid to solid (SRB, IG)

freezing point the temperature at which a liquid changes to a solid; different for each substance (SRB, IG)

fundamental simple and basic (SRB)

gas a phase of matter that has no definite shape or volume. Particles of gas fly independently through space. (SRB, IG)

gaseous existing in the gas phase (SRB)

greenhouse gas a gas that absorbs and radiates thermal energy in the atmosphere, effectively trapping warmth in the atmosphere (SRB)

heat of fusion energy that causes the solid/liquid phase change without changing the temperature of the substance (SRB)

heating energy transfer that increases the kinetic energy of a substance's particles (SRB, IG)

herbicide a plant poison (SRB)

hydrocarbon a group of substances made of carbon and hydrogen (SRB)

insoluble not capable of being dissolved (SRB)

insulation material that can reduce energy transfers (SRB, IG)

ionic compound a compound in which atoms are connected to each other with a weak network of bonds (ionic bonds) rather than covalent bonds (IG)

kinetic energy energy of motion (SRB, IG)

lava molten rock flowing on Earth's surface (SRB)

limiting factor the reactant that is present in the least amount in a reaction, which determines when the reaction stops (SRB, IG)

lipid a group of organic substances that includes oils, fats, and waxes (SRB)

liquid a phase of matter that has definite volume but no definite shape. Loosely bonded particles in liquid can flow over and around one another. (SRB, IG)

mantle the large rocky part of planet Earth, located between the core and the crust (SRB)

mass a measure of the quantity of matter (SRB)

matter anything that has mass and takes up space (SRB, IG)

melt to change phase from solid to liquid (SRB, IG)

melting point the temperature at which a solid changes to a liquid; different for each substance (SRB, IG)

metal a group of elements that stretch, bend, and conduct heat and electricity (SRB)

mixture two or more substances together (SRB, IG)

molecule a particle made of two or more atoms that are held together with strong (covalent) bonds (SRB, IG)

nitrogen a colorless, odorless, gaseous element that makes up about 78 percent of Earth's atmosphere (SRB)

noble gas a gaseous element that does not react with other elements (SRB)

nucleus the center of an atom, composed of protons and neutrons (SRB)

octane an eight-carbon hydrocarbon molecule that is one of the main ingredients in gasoline (SRB)

organic compound a substance produced by an organism (SRB)

oxidizer a substance that provides an oxygen source for a combustion reaction (SRB)

particle the smallest piece of a substance that is still that substance (SRB, IG)

periodic table of the elements an organization of the elements based on chemical properties (SRB, IG)

petroleum a natural resource made of mostly carbon and hydrogen; also known as crude oil (SRB)

phase the physical condition of a sample of matter based on the kinetic energy of its particles. Common phases include solid, liquid, and gas. Also called state. (SRB)

phase change the process in which a substance changes state through energy transfer; the six processes are evaporation, condensation, melting, freezing, sublimation, and deposition (IG)

phase of matter the current state of a substance: solid, liquid, or gas (SRB)

physical property a characteristic of a substance that can be observed without changing it chemically, such as size, shape, density, and phase (SRB)

potash an impure form of potassium carbonate (SRB)

precipitate an insoluble solid product of a reaction (SRB, IG)

predict to make an accurate estimation of a future event based on knowledge or pattern (SRB)

product a substance produced in a chemical reaction (SRB, IG)

protein very large organic molecules that contain nitrogen (SRB)

proton a subatomic particle that has a positive charge (SRB)

pyrotechnics a field of science that studies explosive exothermic chemical reactions like those used to create fireworks (SRB)

radiation a form of energy that travels through space (SRB)

radioactivity radiation given off by the elements (SRB)

ratio a mathematical relationship between two numbers (SRB)

reactant a starting substance in a chemical reaction (SRB, IG)

room temperature the average kinetic energy of the particles in the air and other objects in a typical comfortable room (SRB)

scanning tunneling microscope an instrument that can create images of arrays of atoms (SRB)

solid a phase of matter that has definite volume and definite shape. The particles of a solid are tightly bonded and cannot move around. (SRB, IG)

solubility the ability of a substance to dissolve in a solvent (IG)

soluble capable of being dissolved (SRB)

solute a substance that dissolves in a solvent to form a solution (SRB, IG)

solution a mixture formed when one substance dissolves in another (SRB, IG)

solvent a substance in which a solute dissolves to form a solution (SRB, IG)

state of matter the current phase of a substance, either a solid, liquid, or gas (IG)

sublimation to change phase from solid to gas (SRB, IG)

substance a type of matter defined by a unique particle (SRB, IG)

symbol a representation of an element using specific letters (SRB, IG)

synthetic human-made (SRB)

temperature a measure of the average kinetic energy of the particles in a substance (SRB, IG)

thermal energy radiant energy that heats (SRB, IG)

thermometer an instrument used to measure the average kinetic energy of particles in a substance (SRB, IG)

transparent matter through which light can pass and an image can be seen clearly (SRB)

vacuum space containing no particles of air or anything else (SRB)

vibrate to move rapidly back and forth (SRB)

volume a defined quantity of space (SRB)

water vapor the gas phase of water (SRB)

well-ordered array a repeating pattern (SRB)