noble gas one of the elements of Group 18 of the periodic table (helium, neon, argon, krypton, xenon, and radon); noble gases are unreactive (117)

noble-gas configuration an outer main energy level fully occupied, in most cases, by eight electrons (118)

nomenclature a naming system (222)

nonelectrolyte a liquid or solid substance or mixture that does not allow an electric current (406)

nonmetal an element that conducts heat and electricity poorly and that does not form positive ions in an electrolytic solution (19)

nonpolar covalent bond a covalent bond in which the bonding electrons are equally attracted to both bonded atoms (176)

nonvolatile substance a substance that has little tendency to become a gas under existing conditions (446)

nuclear binding energy the energy released when a nucleus is formed from nucleons (682)

nuclear fission the splitting of the nucleus of a large atom into two or more fragments; releases additional neutrons and energy (697)

nuclear forces the interaction that binds protons and neutrons, protons and protons, and neutrons and neutrons together in a nucleus (76)

nuclear fusion the combination of the nuclei of small atoms to form a larger nucleus; releases energy (699)

nuclear power plant a facility that uses heat from nuclear reactors to produce electrical energy (698)

nuclear radiation the particles that are released from the nucleus during radioactive decay, such as neutrons, electrons, and photons (685)

nuclear reaction a reaction that affects the nucleus of an atom (684)

nuclear reactor a device that uses controlled nuclear reactions to produce energy or nuclides (698)

nuclear shell model a model which represents nucleons as existing in different energy levels, or shells, in the nucleus (683)

nuclear waste waste that contains radioisotopes (696)

nucleic acid an organic compound, either RNA or DNA, whose molecules are made up of one or two chains of nucleotides and carry genetic information (770)

nucleon a proton or neutron (681)

nuclide an atom that is identified by the number of protons and neutrons in its nucleus (79, 681)

O

orbital a region in an atom where there is a high probability of finding electrons (106)

order in chemistry, a classification of chemical reactions that depends on the number of molecules that appear to enter into the reaction (572)

organic compound a covalently bonded compound that contains carbon, excluding carbonates and oxides (711)

osmosis the diffusion of water or another solvent from a more dilute solution (of a solute) to a more concentrated solution (of the solute) through a membrane that is permeable to the solvent (452)

osmotic pressure the external pressure that must be applied to stop osmosis (452)

oxidation a reaction that removes one or more electrons from a substance such that the substance's valence or oxidation state increases (632)

oxidation number the number of electrons that must be added to or removed from an atom in a combined state to convert the atom into the elemental form (232)

oxidation state the condition of an atom expressed by the number of electrons that the atom needs to reach its elemental form (232)

oxidation-reduction reaction any chemical change in which one species is oxidized (loses electrons) and another species is reduced (gains electrons); also called *redox reaction* (633)

oxidized describes an element that has lost electrons and that has increased its oxidation number (632)

oxidizing agent the substance that gains electrons in an oxidation-reduction reaction and that is reduced (642)

oxyacid an acid that is a compound of hydrogen, oxygen, and a third element, usually a nonmetal (469)

oxyanion a polyatomic ion that contains oxygen (225)

P

parent nuclide a radionuclide that yields a specific daughter nuclide as a later member of a radioactive series (690)

partial pressure the pressure of each gas in a mixture (365)

pascal the SI unit of pressure; equal to the force of 1 N exerted over an area of 1 m^2 (abbreviation, Pa) (364)

Pauli exclusion principle the principle that states that two particles of a certain class cannot be in exactly the same energy state (112)

percentage composition the percentage by mass of each element in a compound (243)

percentage error a figure that is calculated by subtracting the accepted value from the experimental value, dividing the difference by the accepted value, and then multiplying by 100 (45)

percentage yield the ratio of the actual yield to the theoretical yield, multiplied by 100 (317)

period in chemistry, a horizontal row of elements in the periodic table (17)

periodic law the law that states that the repeating chemical and physical properties of elements change periodically with the atomic numbers of the elements (135)

periodic table an arrangement of the elements in order of their atomic numbers such that elements with similar properties fall in the same column, or group (135)

petroleum a liquid mixture of complex hydrocarbon compounds; used widely as a fuel source (723)