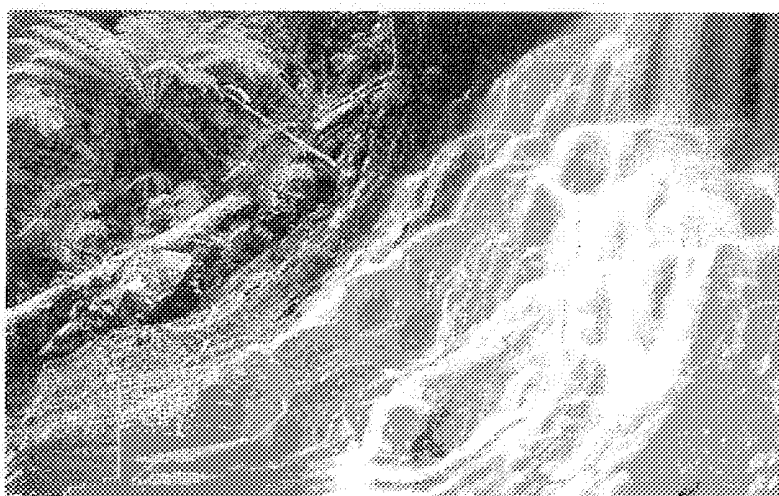


Conceptual Chemistry

Understanding Our World of Atoms and Molecules

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physical dependence A dependence characterized by the need to continue taking a drug to avoid withdrawal symptoms.

physical model A representation of a system that helps us predict how the system behaves.

physical property Any physical attribute of a substance, such as color, density, or hardness.

point source A specific, well-defined location where pollutants enter a body of water.

polar bond A chemical bond having a dipole.

polymer A long organic molecule made of many repeating units.

potential energy Stored energy.

power The rate at which energy is expended.

precipitate A solute that has come out of solution.

principal quantum number n An integer that specifies the quantized energy level of an atomic orbital.

probability cloud The pattern of electron positions plotted over time to show the likelihood of an electron being at a given position at a given time.

producer An organism at the bottom of a trophic structure.

product A new material formed in a chemical reaction, appearing after the arrow in a chemical equation.

protein A polymer of amino acids, also known as a polypeptide.

proton A positively charged subatomic particle of the atomic nucleus.

psychoactive Said of a drug that affects the mind or behavior.

psychological dependence A deep-rooted craving for a drug.

pure The state of a material that consists of a single element or compound.

quantum hypothesis The idea that light energy is contained in discrete packets called quanta.

quantum A small, discrete packet of light energy.

rad A unit for measuring radiation dosage, equal to 0.01 joule of radiant energy absorbed per kilogram of tissue.

radioactivity The tendency of some elements, such as uranium, to emit radiation as a result of changes in the atomic nucleus.

reactant A starting material in a chemical reaction, appearing before the arrow in a chemical equation.

reaction rate A measure of how quickly the concentration of products in a chemical reaction increases or the concentration of reactants decreases.

recombinant DNA A hybrid DNA composed of DNA strands from different organisms.

reduction The process whereby a reactant gains one or more electrons.

rem A unit for measuring radiation dosage, obtained by multiplying the number of rads by a factor that allows for the different health effects of different types of radiation.

replication The process by which DNA strands are duplicated.

reverse osmosis A technique for purifying water by forcing it through a semipermeable membrane.

ribonucleic acid A nucleic acid containing a fully oxygenated ribose sugar.

saccharide Another term for carbohydrate. The prefixes *mono-*, *di-*, and *poly-* are used before this term to indicate the length of the carbohydrate.

salinization The process whereby irrigated land becomes more salty.

salt An ionic compound formed from the reaction between an acid and a base.

saturated hydrocarbon A hydrocarbon containing no multiple covalent bonds, with each carbon atom bonded to four other atoms.

saturated solution A solution containing the maximum amount of solute that will dissolve.

scientific hypothesis A testable assumption often used to explain an observed phenomenon.

scientific law Any scientific hypothesis that has been tested over and over again and has not been contradicted. Also known as a scientific principle.

semipermeable membrane A membrane that allows water molecules to pass through its submicroscopic pores but not solute molecules.

sensory neuron A peripheral neuron that transmits electrical signals from the senses to the central nervous system.

soil horizon A layer of soil.

solid Matter that has a definite volume and a definite shape.

solubility The ability of a solute to dissolve in a given solvent.

soluble Capable of dissolving to an appreciable extent in a given solvent.

solute Any component in a solution that is not the solvent.

solution A homogeneous mixture in which all components are in the same phase.

solvent The component in a solution present in the largest amount.

specific heat capacity The quantity of heat required to change the temperature of 1 gram of a substance by 1 Celsius degree.