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model (mōd'l) A systematic description of an object or phenomenon that shares important characteristics with the object or phenomenon. Scientific models can be material, visual, mathematical, or computational and are often used in the construction of scientific theories. See also *hypothesis*, *theory*.

modem (mō'dēm) A device for transmitting and receiving digital data over telephone wires. Modems send data by converting it into audio signals and receive it by converting audio signals back into digital form. The speed at which modems transmit data is measured in bps (bits per second).

moderator (mōd'ə-rā'tər) A substance, such as graphite, water, or heavy water, placed in a nuclear reactor to slow neutrons down to speeds at which they are more likely to be captured by fissionable components of a fuel (such as uranium-235) and less likely to be absorbed by nonfissionable components of a fuel (such as uranium-238). Also called *neutron moderator*. See also *slow neutron*.

modification (mōd'ə-fī-kā'shən) A change in an organism that results from external influences and cannot be inherited.

modulate (mōj'ə-lāt') To vary the amplitude, frequency, or some other characteristic of a signal or power source. See also *amplitude modulation*, *frequency modulation*.

modulo (mōj'ə-lō) With respect to a specified modulus. Eighteen is congruent to 42 modulo 12 because both 18 and 42 leave 6 as remainder when divided by 12.

modulus (mōj'ə-ləs) Plural **moduli** (mōj'ə-li'). 1. A number by which two given numbers can be divided and produce the same remainder. 2. The numerical length of the vector that represents a complex number. For a complex number $a + bi$, the modulus is the square root of $(a^2 + b^2)$. 3. The number by which a logarithm to one base must be multiplied to obtain the corresponding logarithm to another base.

modulus of elasticity The ratio of the stress applied to a body to the strain that results in the body in response to it. The modulus of elasticity of a material is a measure of its stiffness and for most materials remains constant over a range of stress. ► The ratio of the longitudinal strain to the longitudinal stress is

called **Young's modulus**. ► The ratio of the stress on the body to the body's fractional decrease in volume is the **bulk modulus**. ► The ratio of the tangential force per unit area to the angular deformation in radians is the **shear modulus**. See also *Hooke's law*.

Moho (mō'hō') The Mohorovičić discontinuity.

Mohorovičić discontinuity (mō'hə-rō'və-chích) The boundary between the Earth's crust and mantle, located at an average depth of 8 km (5 mi) under the oceans and 32 km (20 mi) under the continents. The velocity of seismic primary waves across this boundary changes abruptly from 6.7 to 7.2 km (4.1 to 4.5 mi) per second in the lower crust to 7.6 to 8.6 km (4.7 to 5.3 mi) per second in the upper mantle. The boundary is estimated to be between 0.2 and 3 km (0.1 and 1.9 mi) thick and is believed to coincide with a change in rock type from basalts (above) to peridotites and dunites (below). It is named after its discoverer, Croatian seismologist Andrija Mohorovičić (1857–1936).

Mohs scale (mōz) A scale used to measure the relative hardness of a mineral by its resistance to scratching. From softest to hardest, the ten minerals of the Mohs scale are talc (measuring 1 on the scale), gypsum, calcite, fluorite, apatite, orthoclase, quartz, topaz, corundum, and diamond (measuring 10 on the scale).

molar¹ (mō'lər) *Chemistry*. 1. Relating to a mole. 2. Containing one mole of solute per liter of solution.

molar² (mō'lər) Any of the teeth located toward the back of the jaws, having broad crowns for grinding food. Adult humans have 12 molars.

mold (mōld) Any of various fungi that often form a fuzzy growth (called a *mycelium*) on the surface of organic matter. Some molds cause food to spoil, but others are beneficial, such as those used to make certain cheeses and those from which antibiotics like penicillin are developed. The molds do not form a distinct phylogenetic grouping but belong to various phyla including the ascomycetes and the zygomycetes. See also *slime mold*.

mole¹ (mōl) A small, usually pigmented, benign growth on the skin.

mole² (mōl) The amount of an element, compound, or other substance that has the same number of basic particles as 12 grams of Carbon-12. The number of particles making up a