**Radioactive decay (radioactivity)** the spontaneous decomposition of a nucleus

to form a different nucleus

**Radiocarbon dating (carbon-14 dating)**  a method for dating ancient wood or

cloth on the basis of the radioactive decay of the nuclide C-14

**Radiotracer** a radioactive nuclide, introduced into an organism for diagnostic

purposes, whose pathway can be traced by monitoring its radioactivity

**Random error** an error that has an equal probability of being high or low

**Rate of decay** the change per unit time in the number of radioactive nuclides in

a sample

**Reactant** a starting substance in a chemical reaction. It appears to the left of

the arrow in a chemical equation

**Reactor core** the part of a nuclear reactor where the fission reaction takes place

**Reducing agent (electron donor)** a reactant that donated electrons to another

substance, reducing the oxidation state of one of its atoms

**Reduction** a decrease in oxidation state (a gain of electrons)

**Rem** a unit of radiation dosage that accounts for both the energy of the dose

and its effectiveness in causing biological damage (from *r*oentgen *e*quivalent for *m*an)

**Resonance** a condition occurring when more than one valid Lewis structure can be written for a particular molecule. The actual electronic structure is represented not by any one of the Lewis structures but by the average of all of them