Glossary

conduction heat transfer through stationary matter by physical contact

convection heat transfer by the macroscopic movement of fluid

emissivity measure of how well an object radiates

greenhouse effect warming of the Earth that is due to gases such as carbon dioxide and methane that absorb infrared radiation from the Earth's surface and reradiate it in all directions, thus sending a fraction of it back toward the surface of the Earth

heat the spontaneous transfer of energy due to a temperature difference

heat of sublimation the energy required to change a substance from the solid phase to the vapor phase

kilocalorie 1 kilocalorie = 1000 calories

latent heat coefficient a physical constant equal to the amount of heat transferred for every 1 kg of a substance during the change in phase of the substance

mechanical equivalent of heat the work needed to produce the same effects as heat transfer

net rate of heat transfer by radiation is $\frac{Q_{\text{net}}}{t} = \sigma e A \left(T_2^4 - T_1^4\right)$

***R* factor** the ratio of thickness to the conductivity of a material

radiation energy transferred by electromagnetic waves directly as a result of a temperature difference

radiation heat transfer which occurs when microwaves, infrared radiation, visible light, or other electromagnetic radiation is emitted or absorbed

rate of conductive heat transfer rate of heat transfer from one material to another

specific heat the amount of heat necessary to change the temperature of 1.00 kg of a substance by 1.00 $^{\circ}$C

Stefan-Boltzmann law of radiation $\frac{Q}{t} = \sigma e A T^4$, where σ is the Stefan-Boltzmann constant, A is the surface area of the object, T is the absolute temperature, and e is the emissivity

sublimation the transition from the solid phase to the vapor phase

thermal conductivity the property of a material's ability to conduct heat