Unit: 2. HEAT FLOW

VOCABULARY

active solar heat	heat energy obtained directly from the Sun
bimetallic strip	a welded strip of two metals with different thermal expansion properties.
boiler	a heating appliance that uses heat energy released from fossil fuels to warm water for use in radiant or convection heating systems
calorie	the amount of energy required to raise the temperature of 1.00 gram of water from 14.5°C to 15.5°C; equal to 4.18 joules
calorimeter	an insulated device to measure energy exchange due to heat flow
catalytic combustor	an attachment that allows exhaust gases to be chemically broken down to release more energy
combustion	the reaction of a substance with oxygen which releases heat energy and/or light
compression stroke	a process that pressurizes the fuel mixture in an engine
compressor	a pump that increases the pressure of a gas
conduction	the process of heat flow through a substance due to the molecular motion within the material
convection	heat flow due to the mass motion of a fluid
engine	a machine that converts an energy input into mechanical energy output
entropy	a measure of disorder
exhaust stroke	a process during which waste gases are expelled from an engine cylinder

expansion valve	a valve that controls the flow of fluid from a high pressure area to a low pressure area
external combustion	the combustion process as it occurs outside the engine
four stroke engine	an internal combustion engine that uses a timed, four-step process to convert chemical energy to mechanical energy.
furnace	a heating appliance that uses heat energy released from fossil fuels to warm air for use in forced-air systems
heat engine	a machine that converts the internal energy of a fuel into mechanical energy
heat pump	an appliance that extracts heat energy from one source and deposits it elsewhere
hydronic	a liquid-based substance used to carry heat energy through a heating system
insulation	any material that reduces heat flow
intake stroke	a process which draws fuel mixture into an engine cylinder
internal combustion	the combustion process as it occurs inside the engine
internal energy	the total kinetic and potential energy due to the motions and positions of the molecules of an object
ozone layer	a layer of ozone (O_3) in the stratosphere that absorbs much of the incoming ultraviolet radiation from the Sun and prevents it from reaching the surface of Earth
power stroke	an engine process during which the fuel ignites and product gases push against the piston
R-value	a standardized measure of the ability to insulate

radiation	heat flow away from the emitting object by means of electromagnetic waves, mostly in the infrared region
radiator	part of a central heating system that radiates heat from hot water or steam into a room
refrigerant	a substance used to transfer heat energy while vaporizing and condensing
refrigeration cycle	a sequence of thermodynamic processes whereby the use of a refrigerant accomplishes the transfer of heat energy so that cooling results
specific heat capacity	the quantity of energy that a given mass of a substance must absorb to increase its temperature by a specific amount
thermal conductivity	a physical property of materials that relates their ability to transfer thermal energy by conduction
thermal equilibrium	a situation in which materials in contact are at the same temperature
thermal insulation	a method of preventing energy from escaping or entering by heat flow
thermostat	an appliance that controls the maintenance temperature of a heating system