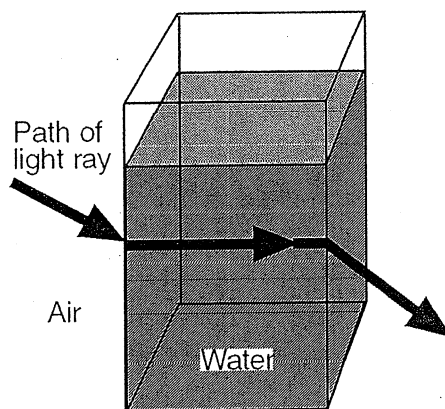


Name: _____

- 1) In general, good absorbers of electromagnetic radiation are also good
 - 1) reflectors
 - 2) refractors
 - 3) convectors
 - 4) radiators
- 2) At which temperature would an object radiate the most electromagnetic energy?
 - 1) 310 K
 - 2) 140DF
 - 3) 80DC
 - 4) 50DC
- 3) Which type of surface absorbs the *greatest* amount of electromagnetic energy from the Sun?
 - 1) smooth, shiny, and light in color
 - 2) smooth, shiny, and dark in color
 - 3) rough, dull, and light in color
 - 4) rough, dull, and dark in color
- 4) Changing the shingles on the roof of a house to a lighter color will most likely reduce the amount of solar energy that is
 - 1) absorbed
 - 2) refracted
 - 3) reflected
 - 4) scattered
- 5) The diagram below represents the path of visible light as it travels from air to water to air through a glass container of water.



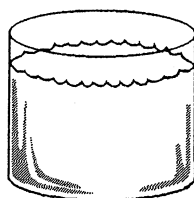
The light did *not* travel in a straight line because of

- 1) absorption
 - 2) convection
 - 3) refraction
 - 4) scattering
- 6) All objects warmer than 0 Kelvin (absolute zero) must be
 - 1) expanding in size
 - 2) radiating electromagnetic energy
 - 3) condensing to form a gas
 - 4) warmer than 0D Celsius
 - 7) For which phase change does water absorb the most energy?
 - 1) melting
 - 2) condensation
 - 3) evaporation
 - 4) freezing
 - 8) A piece of a plant in a classroom fishtank moved upward and across the tank, away from the water heater. When the plant reached the other side of the tank, it sank before moving back toward the heater. What type of energy transfer does this movement represent?
 - 1) convection
 - 2) refraction
 - 3) radiation
 - 4) conduction
 - 9) The collision of molecules within a substance results in the transfer of energy by
 - 1) insolation
 - 2) radiation
 - 3) convection
 - 4) conduction
 - 10) By which process do the Sun's rays pass through the atmosphere?
 - 1) conduction
 - 2) radiation
 - 3) convection
 - 4) compression

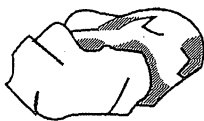
- 11) Which statement *best* describes the pattern of energy flow in a closed system?
- 1) Energy flows out of the system.
 - 2) Energy flows from energy sinks to energy sources.
 - 3) Energy flows from energy sources to energy sinks.
 - 4) Energy flow is cyclical, so that equilibrium is never reached.
- 12) Water loses energy when it changes phase from
- 1) solid to liquid
 - 2) gas to liquid
 - 3) liquid to gas
 - 4) solid to gas
- 13) Which process requires water to gain 2,260 joules of energy per gram?
- 1) melting
 - 2) vaporization
 - 3) condensation
 - 4) freezing
- 14) How many joules are required to evaporate 1 gram of boiling water?
- 1) 1,130
 - 2) 334
 - 3) 2
 - 4) 2,260
- 15) During some winters in the Finger Lakes region of New York State, the lake water remains unfrozen even though the land around the lakes is frozen and covered with snow. The primary cause of this difference is that water
- 1) has a higher specific heat
 - 2) reflects more radiation
 - 3) gains heat during evaporation
 - 4) is at a lower elevation
- 16) An increase in latent heat can cause liquid water to
- 1) melt
 - 2) evaporate
 - 3) freeze
 - 4) condense
- 17) The *greatest* amount of energy would be gained by 1,000 grams of water when it changes from
- 1) ice to liquid water
 - 2) water vapor to liquid water
 - 3) liquid water to ice
 - 4) liquid water to water vapor
- 18) Which of the following processes requires water to gain heat energy from the environment?
- 1) evaporation
 - 2) precipitation
 - 3) condensation
 - 4) infiltration

Questions 19 and 20 refer to the following:

The diagrams below represent 100-gram samples of four different Earth materials at room temperature. Each material has an initial temperature of 20°C.



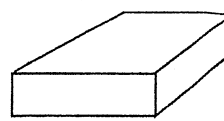
Water
20°C



Basalt
20°C



Granite
20°C



Copper
20°C

- 19) If the basalt is placed in the container of water, the temperature of the water will most likely
- 1) remain the same
 - 2) decrease
 - 3) increase
- 20) When exposed to equal amounts of heat energy, the copper warms faster than the granite because the two materials have different
- 1) densities
 - 2) masses
 - 3) specific heats
 - 4) colors