

Physics: Energy

1. Energy transfer	
Energy	Energy cannot be made or destroyed only transferred.
Reducing energy transfer	Energy transfer can be reduced by using lubrication and insulation
Lubrication	To use a substance such as oil to make a machine operate easily and to prevent friction between parts
Insulation	A way to reduce heat loss
Thermal conductivity	The higher the thermal conductivity of a material the higher the rate of energy transfer by conduction across the material.
Conduction	The transfer of energy through a solid.
Cavity wall insulation	Insulating material placed in between two rows of bricks, reduces heat loss by conduction
2.0 Infrared Radiation	
Emit	Give out, the hotter the object the more energy is emitted
Absorb	Take in
Infrared radiation	Radiation given off by hot objects that brings about energy transfer
Black body	An object that absorbs all of the radiation incident on it. A black body does not reflect or transmit radiation, being the best possible emitter
Matt Black	Good absorber and emitter of radiation
Silver	Good reflector of radiation
Constant temperature	A body at constant temperature is absorbing radiation at the same rate as it is emitting radiation. The temperature of a body increases when the body absorbs radiation faster than it emits radiation.

3. Specific Heat Capacity	
Specific heat capacity	The amount of energy required to raise the temperature of 1kg of substance by 1°C
Equation	change in thermal energy = mass × specific heat capacity × temperature change $[\Delta E = m c \Delta\theta]$ change in thermal energy ΔE in joules, J mass m in kilograms, kg specific heat capacity c in joules per kilogram per degree Celsius, J/kg °C temperature change $\Delta\theta$ in degrees Celsius, °C.
3.0 Equipment to measure specific heat capacity	
<p>The diagram shows a beaker of water used for measuring specific heat capacity. The beaker is surrounded by a layer of insulation. Inside the water, there is a thermometer to measure temperature changes and a heater to provide energy. The heater is connected to an electrical circuit consisting of a 12V power supply, a voltmeter (V) connected in parallel across the heater, and an ammeter (A) connected in series to measure the current. An aluminium block is also submerged in the water to absorb the heat from the heater.</p>	
4. House improvements	
Cavity wall	Insulates and prevents heat loss by conduction, placed between two rows of bricks
Roof	Loft insulation
Windows	Double glazing and curtains