Review P1.1 Heat energy transfers

Can you…?	☺	😐	☹
P1.1.1 Infrared radiation			
State that all objects emit and absorb infrared radiation			
Relate the temperature of an object to the amount of infrared radiation it radiates in a given time			
Relate the colour (light or dark), and reflectivity (shiny or matt) of surfaces to how well they absorb, emit and reflect infrared radiation			
P1.1.2 Kinetic theory			
Recognise diagrams to show the difference between the particles in solids, liquids and gases, and use the kinetic theory to explain states of matter			
Compare the energy that particles have in solids, liquids and gases			
P1.1.3 Energy transfer by heating			
Outline how particles are involved in heat transfers by conduction, convection, evaporation and condensation			
Recognise from the arrangement and movement of particles whether a material is a conductor or insulator			
Explain how the free electrons in metals make them good conductors			
Use the idea of particles moving apart to make a fluid less dense, to explain simple applications of convection			
Use the kinetic theory to explain the cooling effect of evaporation			
Outline the factors that affect the rate of evaporation and condensation			
Explain the design of devices in terms of energy transfer (e.g. cooling fins)			
Relate the rate that heat energy is transferred by an object to: surface area and volume; material; the surface the object is in contact with			
Explain animal adaptations in terms of energy transfer (e.g. relative ear sizes of animals in cold and warm climates)			
Relate the rate of energy transfer to the temperature difference between an object and its surroundings			
Compare ways in which energy is transferred in and out of objects by heating and ways in which the rates of these transfers can be varied (e.g. in the design of a vacuum flask, insulating buildings)			
Evaluate the design of everyday appliances that transfer energy by heating, including economic considerations (e.g. radiators and heat sinks)			
P1.1.4 Heating and insulating buildings			
Relate the U-value of a material to how effective it is as an insulator			
Describe how solar heating panels can be used to provide hot water			
Calculate the energy transferred to a substance (E) from the mass of substance heated (m), its specific heat capacity (c) and the change in temperature (θ) using this equation: $E = m \times c \times \theta$			
Evaluate the effectiveness of different types of material used for insulation, including U-values and economic factors including payback times			
Evaluate different materials according to their specific heat capacity			