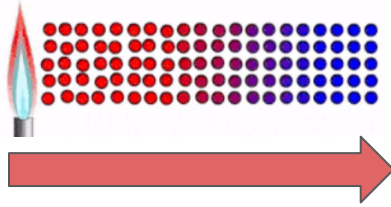
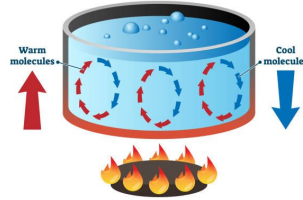


Yr8 Heat energy transfers knowledge organiser

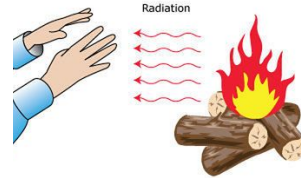
Heat transfers through solids by **conduction**.
Particles in a solid vibrate faster the hotter they are.
They collide with the particles next to them.
These particles gain energy and vibrate faster too.
This transfers heat energy through the solid.



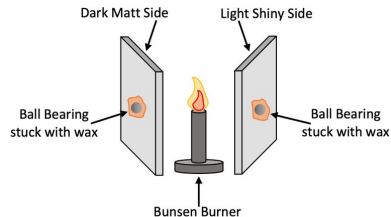
Heat transfers through liquids and gases by **convection**.
The liquid or gas becomes less dense when heated.
As it is less dense it rises, and the colder liquid falls.
This will create a convection current.
This transfers heat energy through the liquid or gas.



Heat **radiation** is emitted by all objects. The hotter they are, the more radiation they emit.
Heat radiation can transfer through a vacuum.



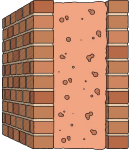
Matt black surfaces are the best absorbers and emitters of heat radiation.



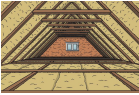
Shiny surfaces are the worst absorbers of and emitters of heat (they reflect).

Insulating homes

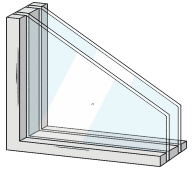
Cavity wall insulation traps air between two layers of brick within foam / fibers. This reduces conduction and convection.



Loft insulation traps air within fibres it is made of. This reduces conduction and convection.



Double glazing traps air between two layers of glass. This reduces conduction.



Shiny foil reflects heat radiation back into the room.



Payback time is the time it takes for an insulation method to pay back the initial cost by saving from the heating bill.