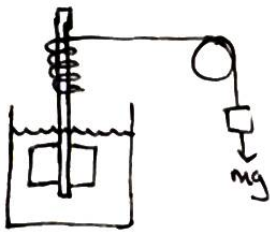


Heat

So what is heat? This was a question that took a very long time to be properly understood and many scientists dedicated much of their careers to working this out.

It turns out that heat is thermal energy in transit exchanged between bodies in thermal contact. Note that thermal contact is different to physical contact as heat can also be exchanged through radiation.

Joule showed that heat is just motion using an experiment involving an adiabatic process (meaning no heat is exchanged).



A mass is released which causes the paddles to spin and a temperature change is noted. But no heat has been exchanged which must mean the temperature change is due to the motion of the water.

$$\Delta U = W = mg\Delta h$$

$$\text{but } U = C_v \Delta T \quad \therefore C_v \Delta T = mg\Delta h \text{ so there is a temperature change!}$$