Heat Transfer: Radiation

- All things radiate electromagnetic energy

  → $I_{emit} = Q/t = eA\sigma T^4$

  - » e = emissivity (between 0 and 1)
    - perfect "black body" has e=1
  - » T is temperature of object in Kelvin
  - » σ = Stefan-Boltzmann constant = 5.67×10^{-8} J/s-m^2-K^4

  → No "medium" required

Surroundings at T_0

T ← Hot stove

DEMO

- All things absorb energy from surroundings

  → $I_{absorb} = eA\sigma T_0^4$

  - » T_0 is temperature of surroundings in Kelvin
  - » good emitters (e close to 1) are also good absorbers