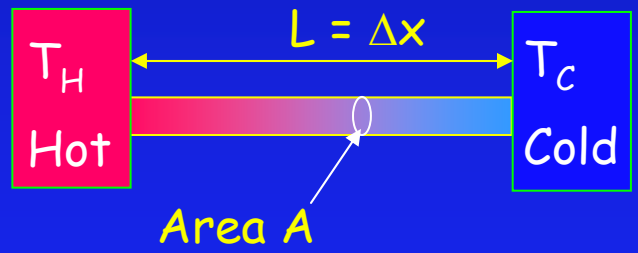
Heat Transfer: Conduction

- Hot molecules have more KE than cold molecules

- High-speed molecules on left collide with low-speed molecules on right *teaspoons*
  - ➔ energy transferred to lower-speed molecules
  - ➔ heat transfers from hot to cold

- I = rate of heat transfer = Q/t [J/s]
  - ➔ $I = \kappa A (T_H - T_C)/L$
    - » $Q/t = \kappa A \Delta T/\Delta x$
  - ➔ κ = "thermal conductivity"
    - » Units: J/s-m-C
    - » good thermal conductors…high κ
    - » good thermal insulators … low κ
  - ➔ $R = L/(A\kappa)$ = thermal resistance: Then $I = \Delta T/R$



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