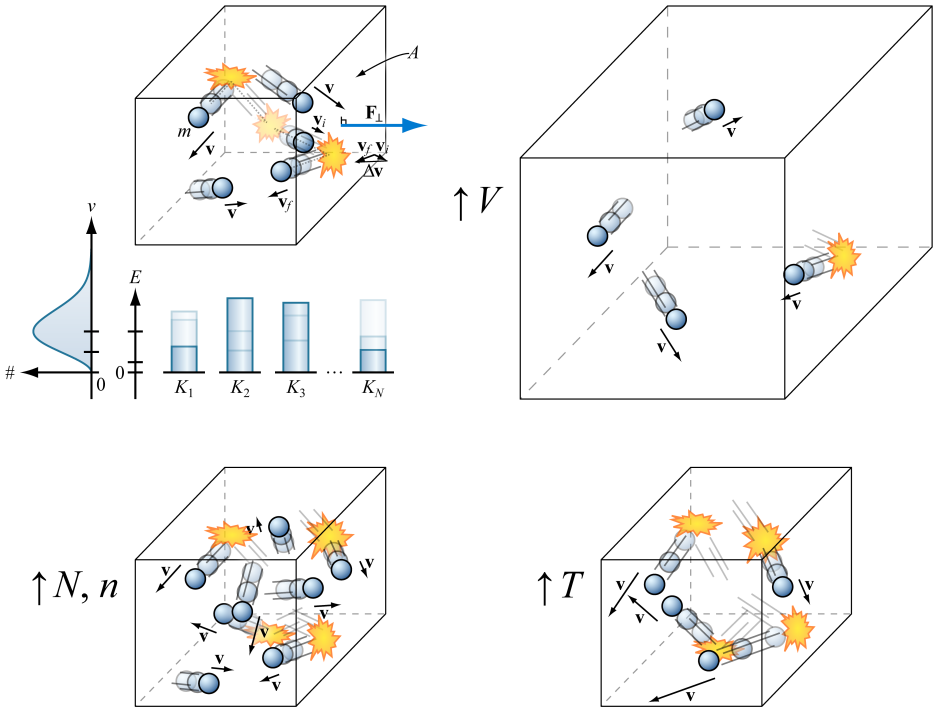
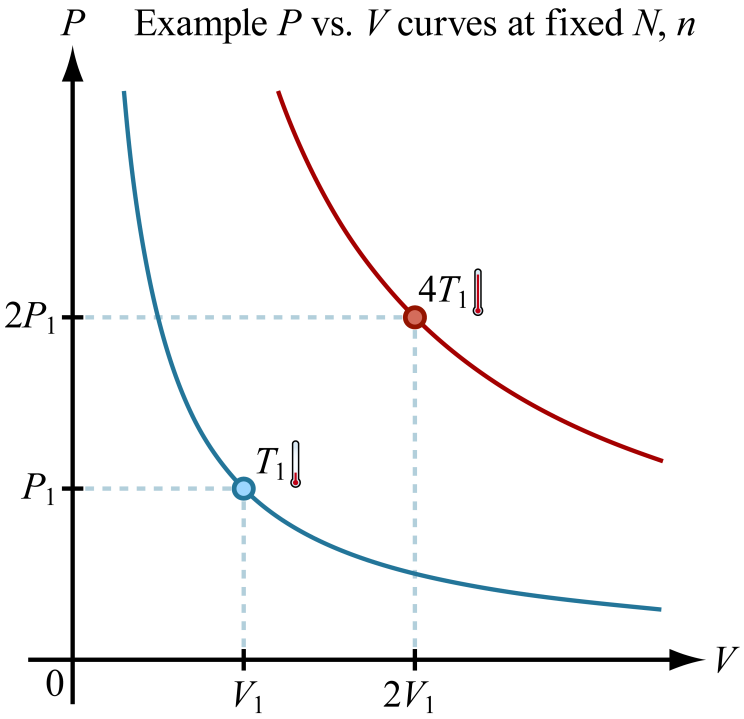
Kinetic theory of ideal gases





$$K_{\text{PARTICLE,AVG}} = \frac{1}{2}mv_{\text{RMS}}^2 = \frac{3}{2}k_{\text{B}}T$$

$$k_{\text{B}} = 1.38 \times 10^{-23}\,\frac{\text{J}}{\text{K}}$$

$$[T] = \text{K}$$
$$T \text{ in K} = T \text{ in °C} + 273\text{K}$$

$$P = \frac{Nk_{\text{B}}T}{V} = \frac{nRT}{V}$$

$$[P] = \frac{\text{N}}{\text{m}^2} = \text{Pa}$$

$$1\text{ atm} = 1.0 \times 10^5\text{Pa}$$
$$=: 760\text{ torr}$$
$$= 760.\text{ mm Hg}$$

$$R = 8.314\,\frac{\text{J}}{\text{mol}\cdot\text{K}}$$

STP: 273 K and 1 atm