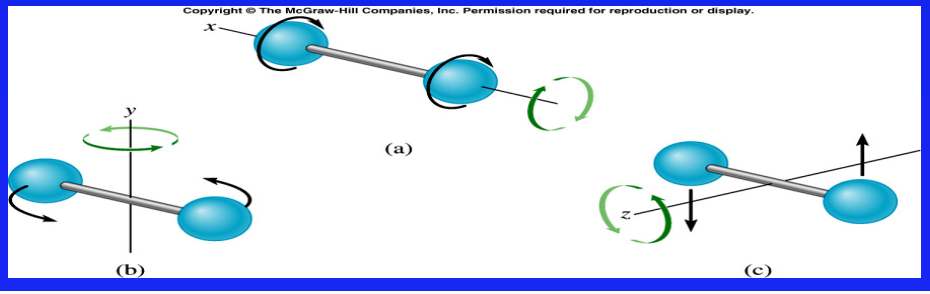
Specific Heat for Ideal Gas

- Monatomic Gas (single atom)
  - All energy is translational kinetic
  - At constant volume, work = 0
  - $Q = \Delta K_{tr} = 3/2\ nR\Delta T$
  - $C_V = 3/2\ R = 12.5$ J/(K mole)
- Diatomic Gas (two atoms)
  - Can also rotate
  - $C_V = 5/2\ R = 20.8$ J/(K mole)



	Gas	$C_V \left(\frac{J/K}{mol}\right)$
Monatomic	He	12.5
	Ne	12.7
	Ar	12.5
Diatomic	H_2	20.4
	N_2	20.8
	O_2	21.0
Polyatomic	CO_2	28.2
	N_2O	28.4