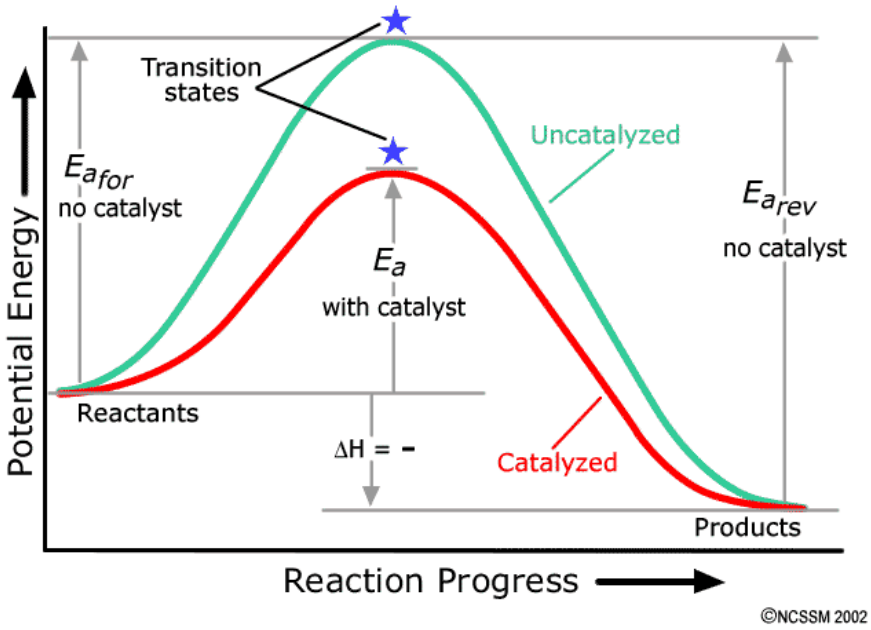
Kinetic Molecular Theory and Reaction Rate - Continued

4. Temperature – higher temp. = faster rxn.
   - More particles achieve E_{act}
   - Greater chance of collision.
5. Catalyst – speeds up reaction by lowering E_{act}
   – they are not consumed



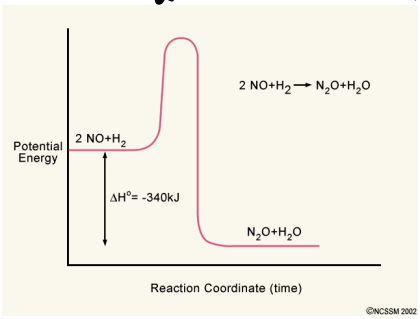
Note - uncatalyzed reaction still goes on.

Questions - p. 476 # 1
p. 484 # 1, 2, 4

Reaction Mechanisms & Rate-Determining Step

Example - overall reaction

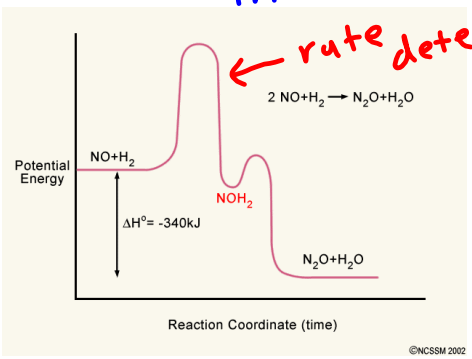
$2NO + O_2 \rightarrow 2NO_2$



1. $NO + O_2 \rightarrow \cancel{NO_3}$
2. $\cancel{NO_3} + NO \rightarrow 2NO_2$

} 2 steps (elementary rxn.)

intermediates



This could represent a 2-step rxn.

Example - Write overall rxn. given-

1. $\cancel{NO_2} + NO_2 \rightarrow \cancel{NO_3} + NO$ slow
2. $\cancel{NO_3} + CO \rightarrow \cancel{NO_2} + CO_2$ fast

---

$NO_2 + CO \rightarrow NO + CO_2$ overall

Rate-determining step = (1) (slow)

p. 478 #5-8
p. 486 #10,11

Read p. 479 & on.