

# AP Chemistry Daily Videos

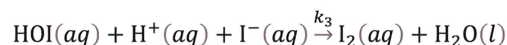
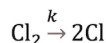
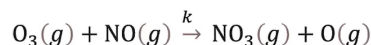
## 5.8 Reaction Mechanism and Rate Law

### Video #1

1. Making a rate law from a reaction mechanism is different than when you used data to derive the rate law for an overall reaction. In a reaction mechanism, the rate law is derived from the \_\_\_\_\_ of the balanced equation.
2. Give an example of unimolecular, bimolecular, and termolecular. Which type of reaction is most likely to occur and why?

3. Pause the video at 5:08 and attempt the problem, then evaluate how you did and identify any errors. Identify each as unimolecular, bimolecular, or termolecular.

YOU DO IT! Stop the video and write the rate law expression for the following SLOW STEPS from three different mechanisms.



4. Pause the video at 7:00 and attempt the problem, then evaluate how you did and identify any errors.

The rate law expression reaction of hydrogen peroxide and iodide in an acidic solutions is found to be first order with respect to hydrogen peroxide and first order with respect to iodide. Does the proposed mechanism below support this rate law expression?

STEP 1:	$\text{H}_2\text{O}_2(aq) + \text{I}^-(aq) \xrightarrow{k_1} \text{H}_2\text{O}(l) + \text{OI}^-(aq)$	<b>SLOW</b>
STEP 2:	$\text{H}^+(aq) + \text{OI}^-(aq) \xrightarrow{k_2} \text{HOI}(aq)$	<b>FAST</b>
STEP 3:	$\text{HOI}(aq) + \text{H}^+(aq) + \text{I}^-(aq) \xrightarrow{k_3} \text{I}_2(aq) + \text{H}_2\text{O}(l)$	<b>FAST</b>
OVERALL:	$\text{H}_2\text{O}_2(aq) + 2\text{I}^-(aq) + 2\text{H}^+(aq) \rightarrow \text{I}_2(aq) + 2\text{H}_2\text{O}(l)$	

5. The rate law is always written from the slow or fast step? Why?