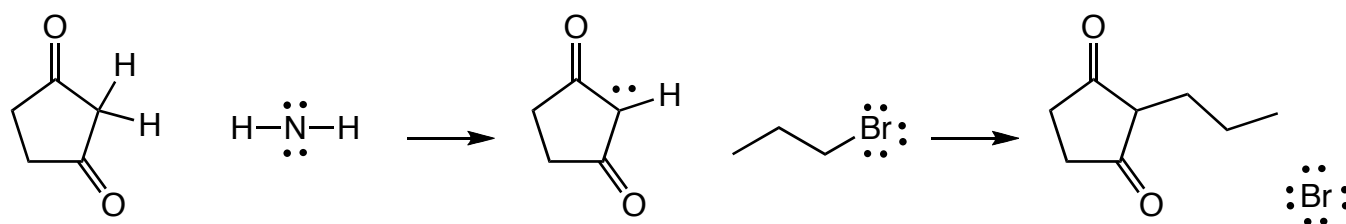
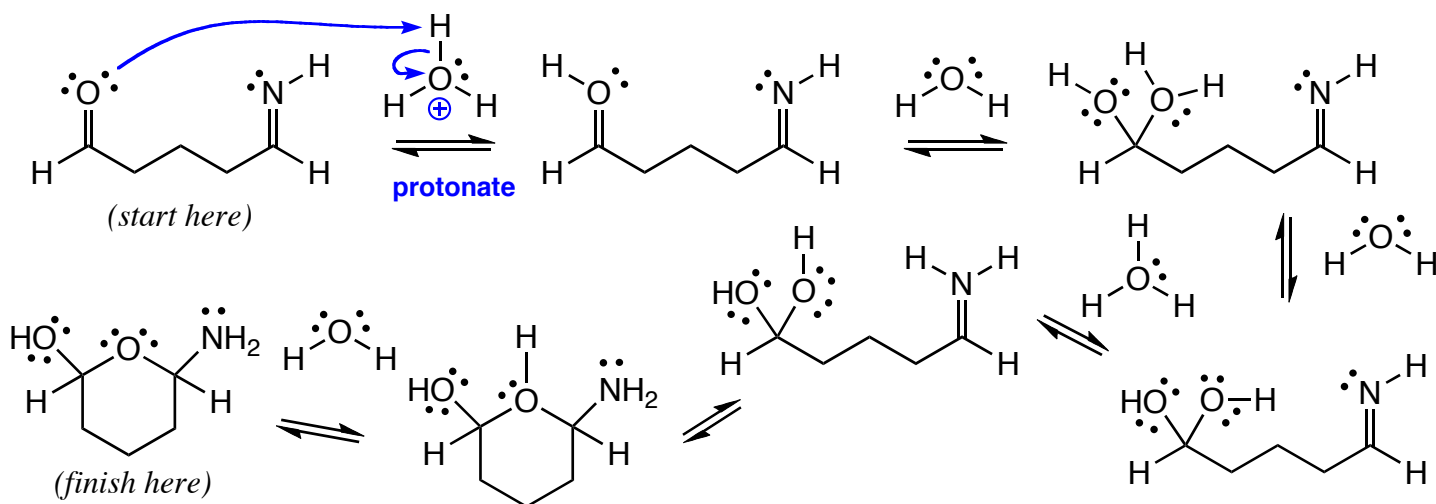


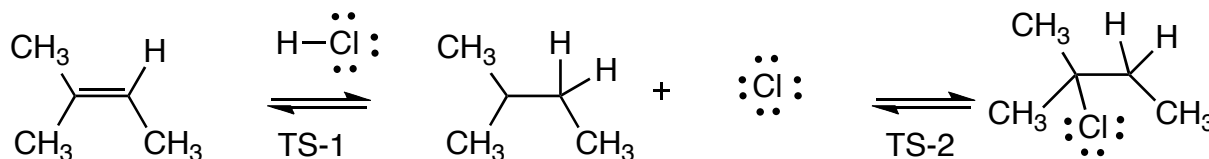
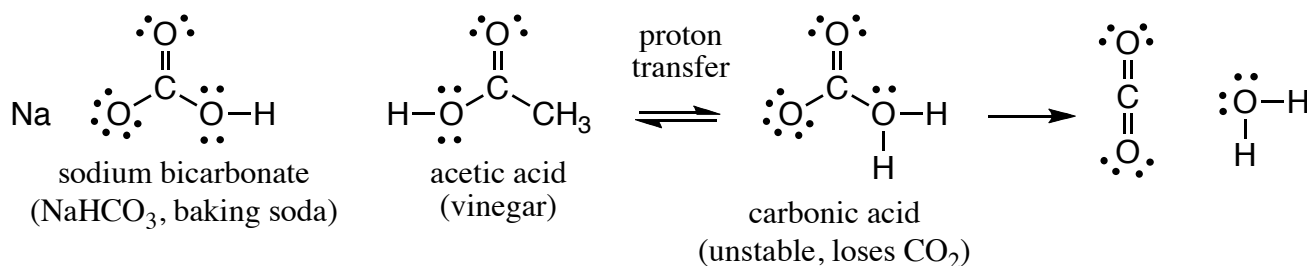
Add in any missing **formal charges**. **Draw curved arrows** for each step of the following mechanisms.

Identify any **proton-transfer** (acid-base) steps and label the step as "protonate" or "deprotonate" to describe what is happening to the organic compound involved - if it accepts a H^+ it's a protonation step ("protonate").

The first step of the first problem has been started for you to show an example of what is expected.



homemade "volcano" or chemistry experiment in a bag (www.youtube.com/ChemistryConnected)



Draw the **structures of the transition states TS-1 and TS-2** for the above two-step mechanism.