

## 6.S: Overview of Organic Reactivity (Summary)

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You should be confident in interpreting and using the curved arrow drawing convention for showing two-electron movement. Given a set of curved arrows describing a reaction step, you should be able to draw the product indicated by the arrows. Alternatively, given the starting structure and a product for a reaction step, you should be able to draw the curved arrows showing how bonds were broken and formed. You need not understand (yet) the chemistry behind these steps, you just need to be able to use the drawing formality.

- You should be able to recognize three reaction mechanism types: an acid-base reaction, a one-step nucleophilic substitution, and a two-step nucleophilic substitution.
  - Given an example reaction, you should be able to identify a nucleophile, electrophile, and in many cases a leaving group.
  - Given an example reaction mechanism, you should be able to recognize one or more reaction intermediates.
  - Given a reaction coordinate diagram for a hypothetical reaction, you should be able to recognize whether the reaction is endergonic or exergonic, and whether the equilibrium constant is greater than or less than 1. You should be able to identify the point(s) on the diagram corresponding to transition state(s) and reaction intermediate(s). In a multi-step reaction diagram, you should be able to identify the rate determining step.
  - Given a detailed reaction process showing starting reactant(s), intermediate(s), and product(s) with associated curved arrows, you should be able to sketch a reaction coordinate diagram that is consistent with the details of the reaction mechanism.
  - You should be able to explain the role of a catalyst in a reaction.
  - You should be able to list the major differences between a typical biological reaction and a typical laboratory reaction.
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