Background: Our work with alkenes was a bit of foreshadowing. It's a fancy way of saying that after introducing alkenes we are going to work on naming them. These compounds are the most chemically interesting thing we've seen so far, and they will be our first introduction into chemical reactions. For the first few weeks we have focused on carbon as the backbone of our molecules. Now we are going to see what they can do!

The chemical reactivity of alkenes comes from their concentration of electrons in a pi cloud between a pair of carbon atoms. Things that are interesting in negative charges (electrophiles) will react with them. We document this with curved arrow notation in something called a mechanism. In a mechanism, the arrow always starts at the electrons, and ends at their destination. Negatives go to positives.

If you can keep that idea in mind, you will be just fine in organic chemistry. Negative electrons move towards positive centers and form bonds.

We will look at the electrophilic addition reaction, and we will consider the thermodynamics of it. This will tell us how much progress the reaction makes, and gives us an idea of how much product can be formed. As you may be learning in lab, organic syntheses have crappy yields, and thermodynamics have a lot to do with that.

Without a lot of math, we will use some thermodynamic information to make sense of why certain reactions proceed and why others do not. We will use the collision model of reactions (with a bit of review from 2046) to describe the entire reaction pathway.

Foreshadowing: Next week we are going to dive into reactions. Foreshadowing, not a spoiler.

Outcomes: Upon successful completion of the week, students should be able to:

1. Give the IUPAC name for alkenes based on their spatial arrangement.
2. Identify nucleophiles and electrophiles.
3. Use Gibbs Free Energy to determine the progress of a reaction.
4. Distinguish between the kinetic and thermodynamic stability of a reaction.

Recommended Problems:

5.39, 5.47, 5.48, 5.55, 5.58, 5.62