Background: Everything we draw is flat, two dimensional. We draw it that way, because it is easier to turn it in for a grade. Collecting and grading 3D objects is a lot more work.

While that is fine for most 2D pursuits, organic chemistry happens in three dimensions and we need to think of it that way. This week we will be considering the stereochemistry of the electrophilic addition reaction.

Depending on the reaction, different things will add across the double bond differently. In some cases, like hydro-halogenation a carbocation intermediate is formed. That flat planar intermediate can be attacked by an electrophile from either side and create an 'R' or an 'S' compound.

Other reactants like Br_2 have a different method for adding across a double bond, and a number of products with different stereochemistries can come from that.

This outlines one of the more important functions of an enzyme. They position molecules in such a way to favor just one product. They also only work on one kind of reactant, because they have their own stereochemistry.

This week, you will be thinking outside the box, for the dimensions.

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

1. Determine the stereochemistry of various reactions based on their pathway.
2. Utilize this chiral approach in chemical synthesis.

Recommended Problems:

6.64, 6.66, 66.81, 6.82, 6.87, 6.95