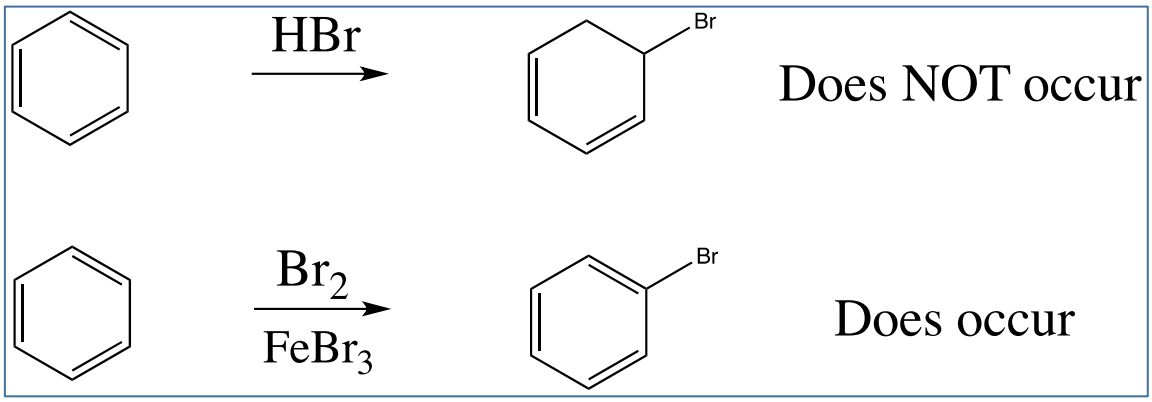
Aromaticity and Benzene #1: Recognizing and Understanding Aromaticity

Alrighty, gang. We've done a decent amount with Conjugated Systems, so now it's time we take our talents and explore Aromatic Compounds and how we go about performing reactions with them—namely with benzene. But before we get into learning new reactions and mechanisms, let's make sure we **completely** understand how to identify aromaticity and what being aromatic entails.

1.) So if you take a gander at the reactions below, I need you to put on your organic detective hat for a hot sec. When trying to perform the Markovnikov Addition of HBr to Benzene, no reaction occurs. However, and you don't know this reaction **yet**, but a different set of reagents accomplishes the bromination of benzene. Knowing what we know about aromaticity, explain why this is the case.



That wasn't hard, right? Remember, having that cyclic system of adjacent p orbitals is **SUCH** a stabilizing effect that a reaction like a Markovnikov Addition will not occur—it disrupts the aromaticity of the ring without restoring it at the end, which is energetically unfavorable. We need different pathways to do chemistry with aromatic compounds, and you'll see how we do that in the next video and corresponding worksheet.

2.) But back to identifying aromaticity. Below, you can see a whole bunch of molecules. What I need you guys to do is go through each molecule and determine whether each one is **Aromatic, Anti-Aromatic,** or **Non-Aromatic** using the 3 conditions of aromaticity we discussed in the last video.

--To be aromatic, you have to have a cyclic structure, the cyclic structure must be conjugated, and the electrons involved in the conjugated, cyclic system must abide by the 4n + 2 rule.
--To be anti-aromatic, you need to have all of the aforementioned except you have 4n electrons in the conjugated, cyclic system.
--And to be non-aromatic, you have to be missing one of those conditions.