Organometallics and Named Reactions

The broad goal of the project is to introduce you to a variety of metal complexes and the synthetic utility available to organic chemists beyond the reagents shown in the textbook. You will practice describing a named reaction starting with the substrate, the reagents used in the transformation, and the product pointing out the bonds that are broken/formed. This assignment will improve both your research (SciFinder Scholar) and communication (PowerPoint and oral) skills.

Choose two of the following reactions/catalysts and obtain the following information.

- Provide the generic reaction/structure and describe what the overall chemistry is (carbon-carbon bond formation, hydrogenation of a double bond, etc.). *Wikipedia is often a good general reference for this type of information.*

- Using SciFinder, search for two papers regarding the reaction/catalyst. The first must be by the original chemist and the second one by another researcher who has cited the first paper in their work. *The second paper may be found using the related citations feature. If you are having difficulty with SciFinder consult http://www.cas.org/support/scifi/howto/index.html.*

- From each paper, provide an example of a specific reaction including reagents used.

Create a five-minute presentation (3-6 slides) based on the information above to present to the class. The presentation should be created in PowerPoint with all structures drawn using ChemDraw. The chemistry should be described using terms you have learned in class and not necessarily the words in the paper that you can’t pronounce.

Adam’s Catalyst  
Barbier Coupling  
Buchwald-Hartwig Coupling  
Cadiot-Chodkiewicz Coupling  
Grubbs Catalyst  
Heck Coupling  
Jacobsen-Katsuki Reaction  
Kharasch Reaction  
Lindlar Catalyst  
Miyaura Coupling  
Noyori Annulation  
Nozaki-Hiyama-Kishi Coupling  
Pauson-Khand Reaction  
Prevost Reaction  
Reformatsky Reaction  
Rosenmund-von Braun Reaction  
Sharpless Aminohydroxylation  
Sharpless Asymmetric Dihydroxylation  
Sharpless Asymmetric Epoxidation  
Sonogashira Coupling  
Stephen Reduction  
Stephens-Castro Coupling  
Suzuki Coupling  
Tebbe Reagent/Reaction  
Ullman Coupling  
Wacker Oxidation  
Wilkinson’s Catalyst  
Wurtz Coupling  
Ziegler-Natta Catalyst