C-C bond formation

Pre-lesson assignment – Textbook pg 490-493

Revise the following key terms in context

- Nucleophilic substitution
- Nucleophilic addition
- Electrophilic substitution
- Reduction

Make notes on C-C bond formation

Use the following questions to structure your notes.

1. Describe the formation of a C-C bond by the reaction of haloalkanes with CN^-
    a. Write a mechanism for this reaction.
2. Describe the formation of a C-C bond by the reaction of aldehydes and ketones with CN^-
    a. Explain why HCN is not used.
    b. Write an equation to show how HCN is produced *in situ.*
    c. Write a mechanism for this reaction.
3. Describe the production of…
    a. Amines from nitriles
    b. Carboxylic acids from nitriles
4. Describe the alkylation of a benzene ring.
    a. Write a mechanism for this reaction
    b. Show equations for the formation of a $[C_2H_5]^+$ electrophile and the regeneration of the $AlCl_3$ catalyst.
5. Describe the acylation of a benzene ring
    a. Write a mechanism for this reaction
    b. Show equations for the formation of the $[COC_2H_5]^+$ electrophile and the regeneration of the $AlCl_3$ catalyst.