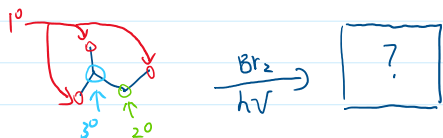


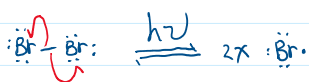
Agenda:

- Radical reactions
- SN2 / Roadmap
- Synthesis (if time permits)

* When given the "choice", molecules react to create the most stable radical.

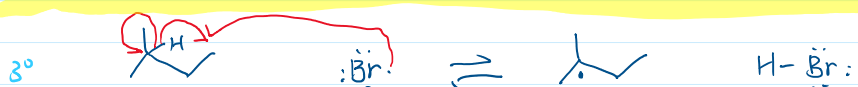
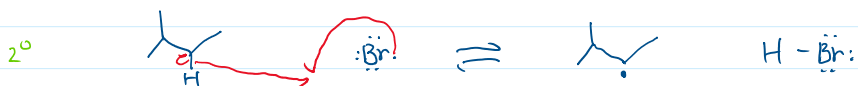
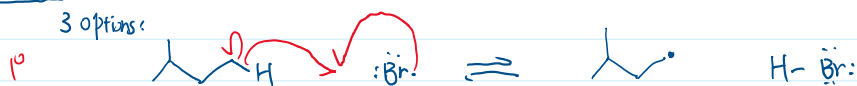


① Initiate:



② Propagation:

3 options:



Make the most stable radical → lowest energy intermediate

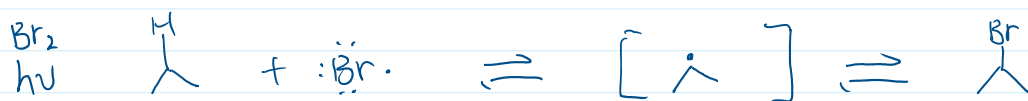
↓
give rise to the major product.

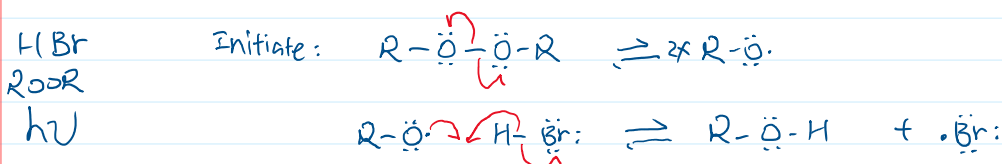
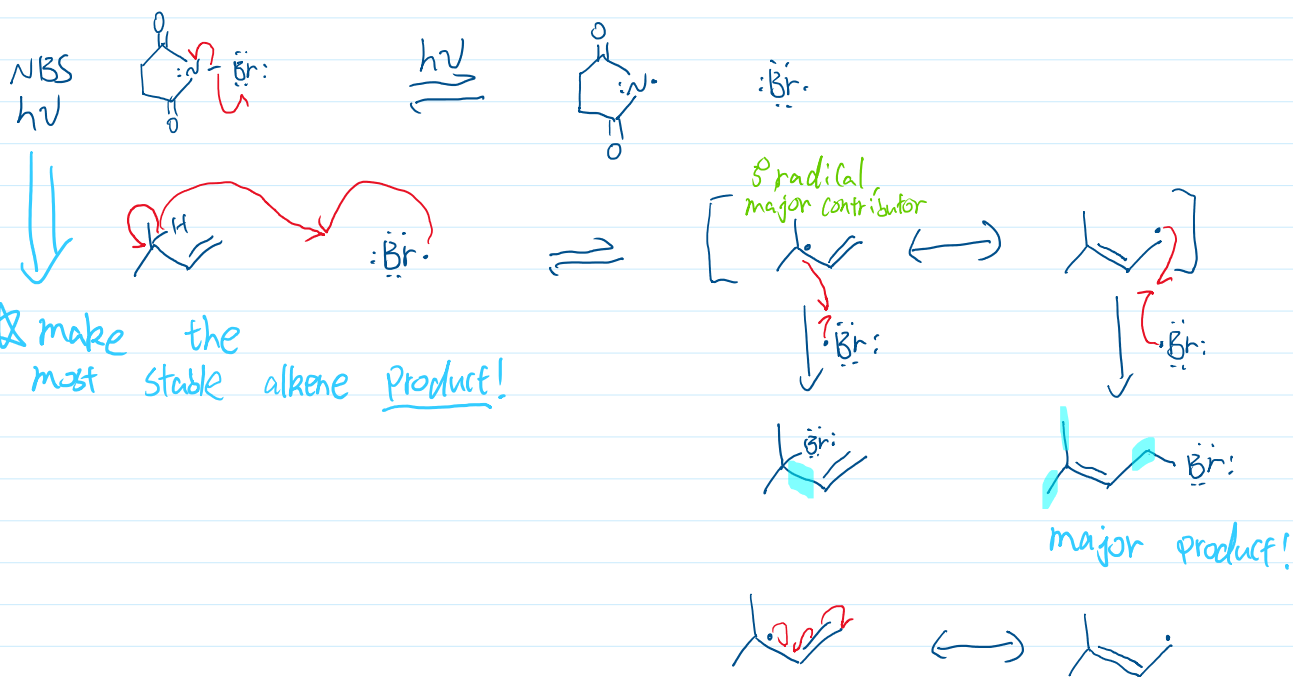
③ Termination:



Other Radical rxns:

where a radical ① abstract an H-atom in the first step or ② Adds to a double bond (HBr, ROOR, hv) depends on specific conditions.





cheat sheet: only add $\cdot Br$ to $C=C$ in one case (HBr, ROOR, hν).
In the other 2 radical mechanism, the 1st step is to abstract an H-atom.

↓
for both of these, chose the H-atom that makes the most stable radical

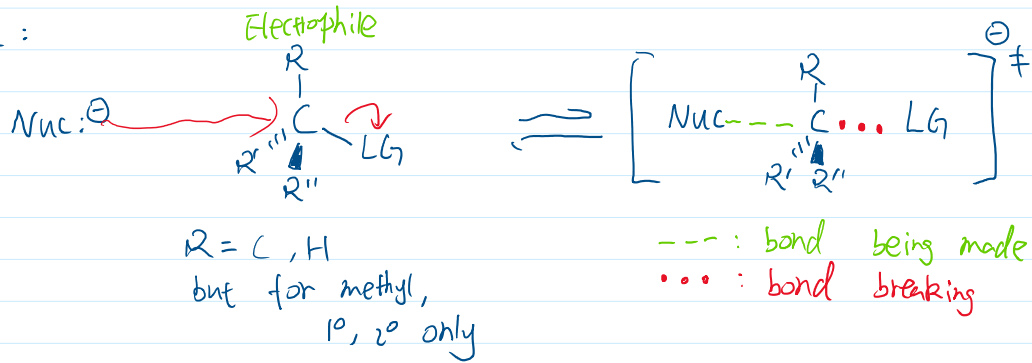
⇓
for NBS/hν, note the most stable radical intermediate may not give the major product!

S_N2:

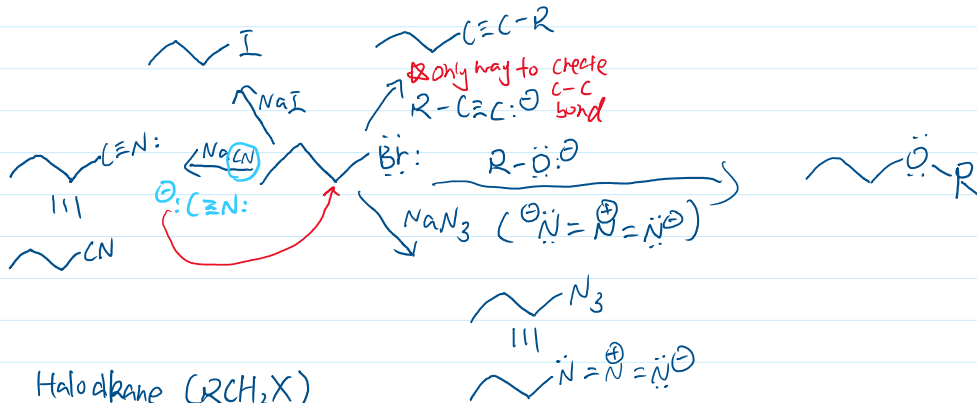
Electrophile
R

⊖
±

S_N2:

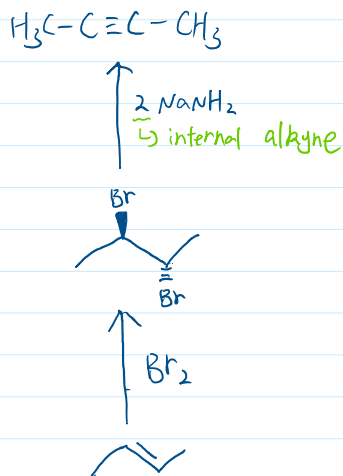
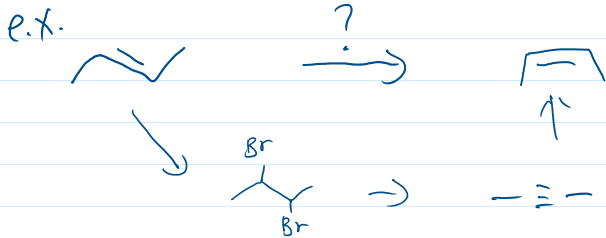


Electrophile in S_N2: Haloalkanes.



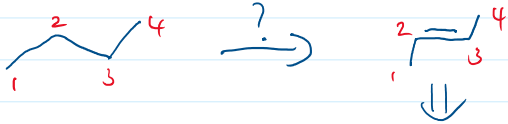
Primary Haloalkane (RCH₂X)
 methyl Haloalkane (CH₃X)

NO E2 (unless 1°/w KO^tBu)





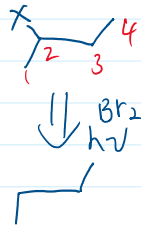
e.x:



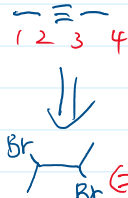
can be made by

- ① Elimination
- ② Alkyne reduction

①

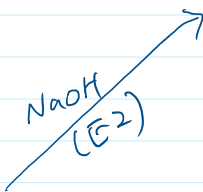
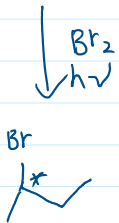
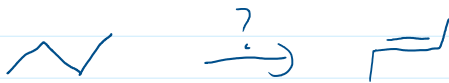


②

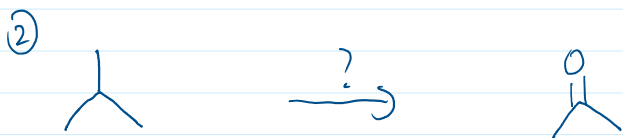
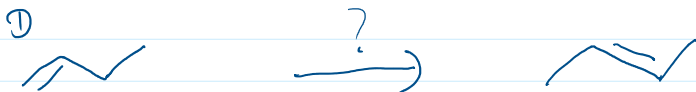


Problematic:

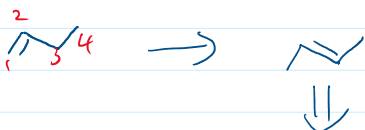
- ① we don't know how to go from alkane to vicinal dihalide directly
- ② the only rxn to make dihalide is via alkene



racemic



① 4C \rightarrow 4C

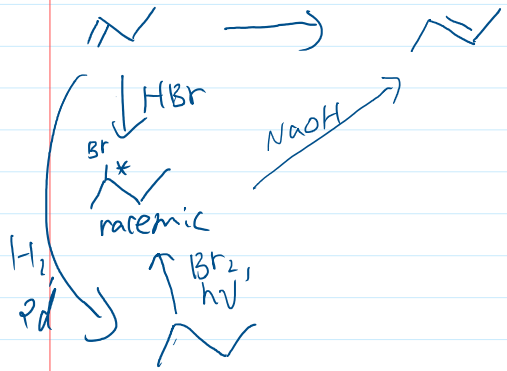
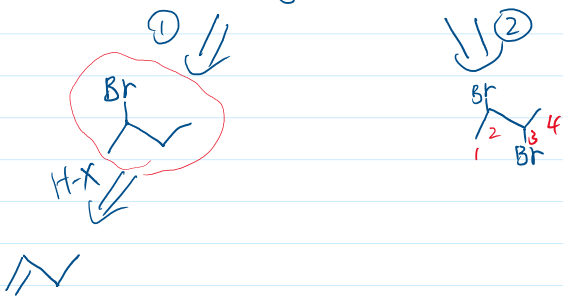


① Halohalkane (E2)

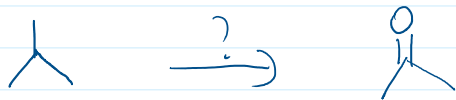
② Alkyne reduction

① " " " "

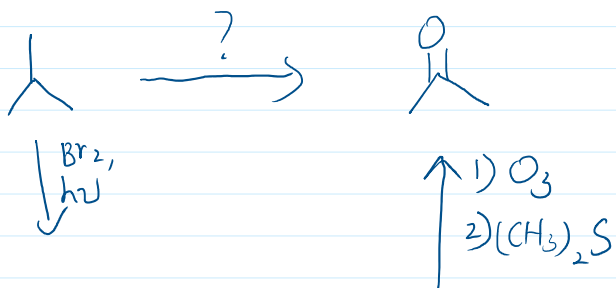
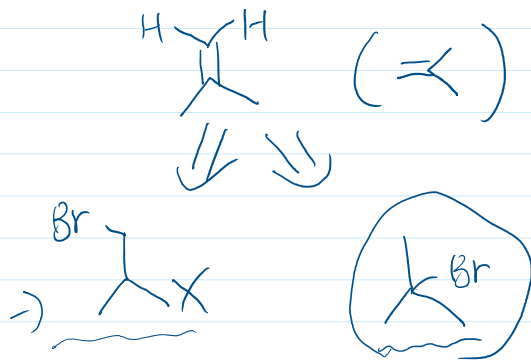
② Alkyne reduction

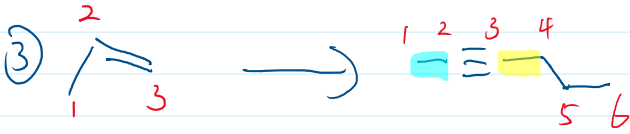
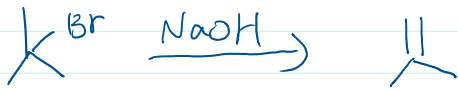


② 4C \rightarrow 3C



\Downarrow Ozonolysis, b/c: ① need C=O
 ② need to remove a C-atom





SN2 b/t $C \equiv C:O$ and 1° haloalkane

