Methods for Making Alkyl Halides Used in ChemCoach *Synthesis* Reactions from Carey Chapters 4 – 6

 R_3CH $\xrightarrow{Br_2}$ R_3CBr selective for 3° H; all 3° H must be equivalent also useful when all Hs in molecule are equivalent

ROH → RBr mostly used for 1° and 2° alcohols

R₃COH HBr R₃CBr most useful for 3° alcohols; avoid 1° and 2° alcohols that will rearrange

ROH \longrightarrow RCI mostly used for 1° and 2° alcohols

 $R_3COH \xrightarrow{HCI} R_3CCI$ synthetic utility mostly limited to 3° alcohols

C=C' $\xrightarrow{\wedge_2}$ -C-C- anti addition; for cyclic alkenes, halogen atoms are trans in product

C = C X = CI or Br X = CI or Br

H R HBr H-C-C-R Br adds to less highly substituted carbon

 X_2, H_2O X_2, H_2O X_2, H_2O OH adds to *more* highly substituted carbon