(23) **Today**

Chap 7: Carbohydrates

Next Class (24)

Chap 7: Carbohydrates

Chap 13: Glycolysis?

(25) **Second Class from Today**

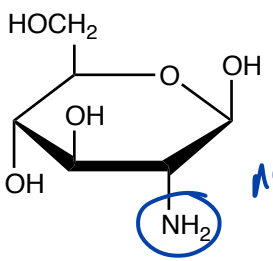
Chap 7: Glycolysis

Third Class from Today (26)

Chap 13: Glycolysis

Citric Acid Cycle

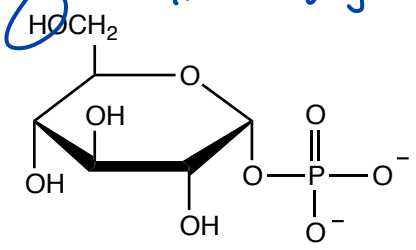
chitin



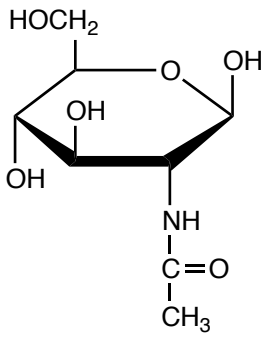
β-D-glucosamine

nucleophilic substitution

also gets phosphorylated in glycolysis



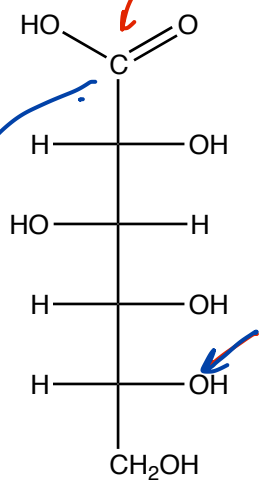
α-D-glucose-1-phosphate



β-D-N-acetylglucosamine

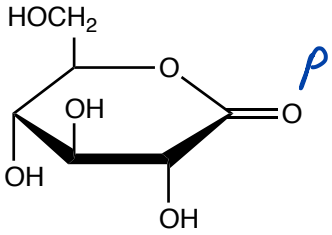
electrophilic

part of the glycolytic pathway



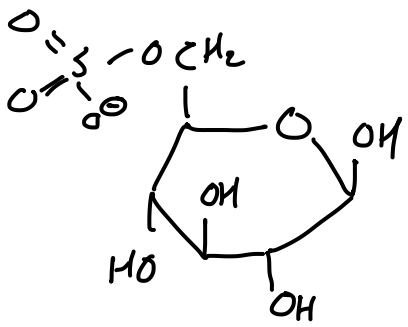
D-gluconic acid

nucleophilic O



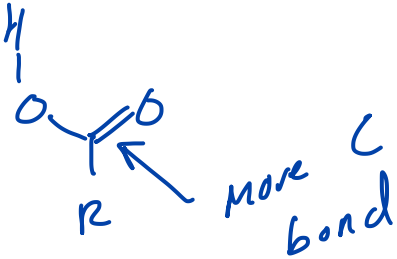
+ H_2O

part of the pathway to make ascorbic acid

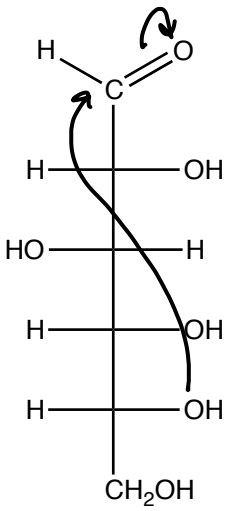


this was

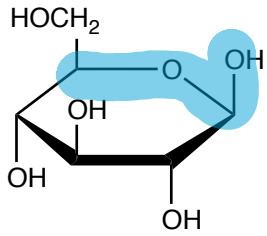
an aldehyde →

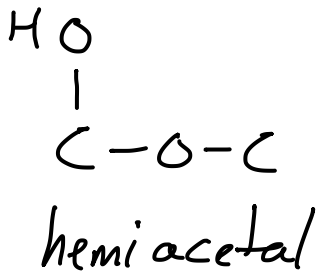


more C to O bond

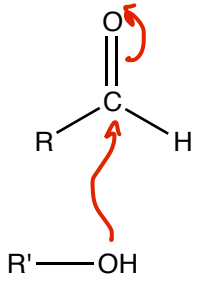


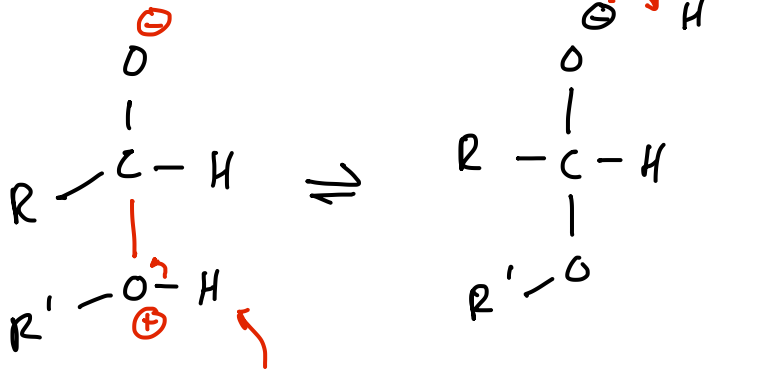
same steps as below

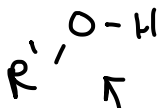




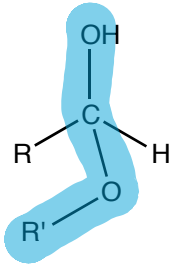
hemiacetal





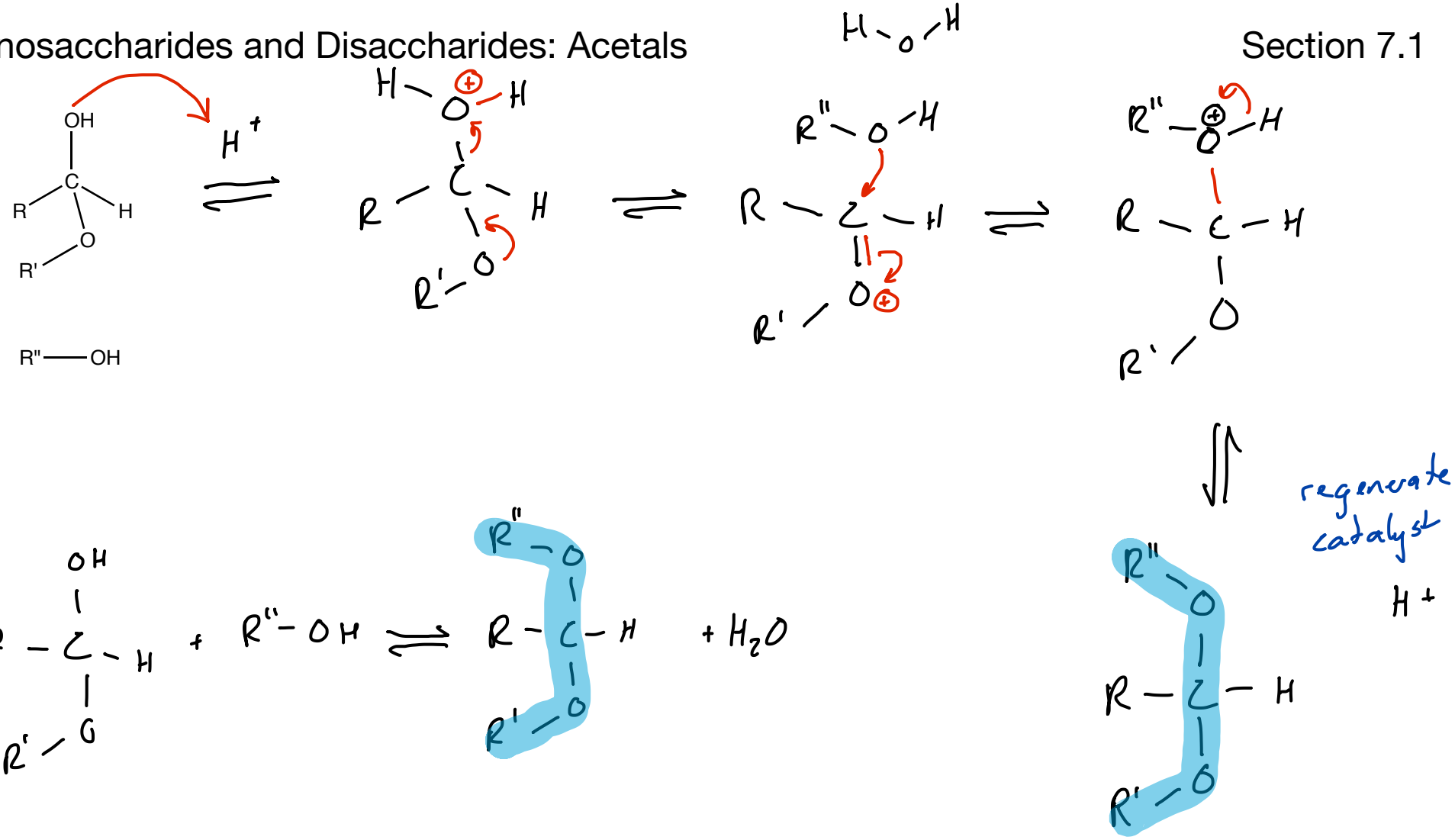


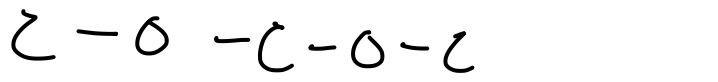
any weak base will do



nothing is lost in this reaction

Monosaccharides and Disaccharides: Acetals

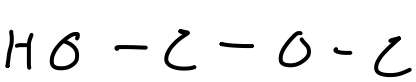




two ethers on the same C

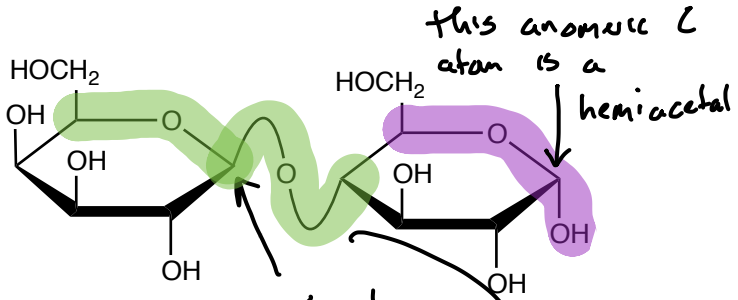
acetal water released

only reversible in the presence of H_2O

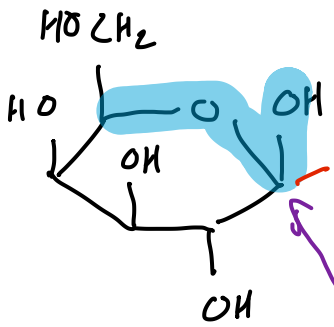


an ether + and alcohol on the same C nothing released

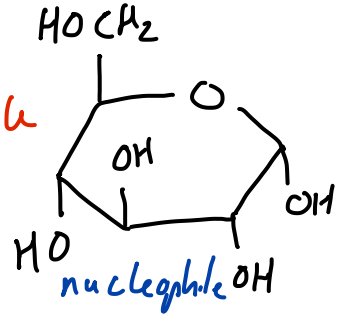
hemiacetal always reversible



lactose
(galactose-β-1,4-glucose)

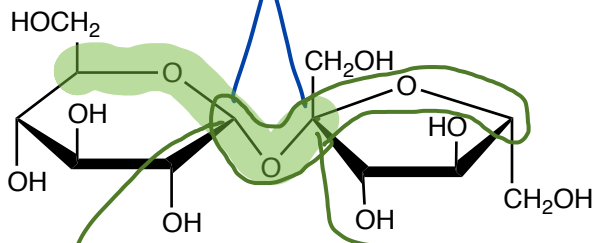


hemiacetal



hemiacetals react with alcohols to make acetals

squiggles are so we can still draw easily recognizable Haworth projections and indicate the direction of the C to O bonds



sucrose
(glucose-α-1,2-β-fructose)

sucrose is a diacetal both ends of the sugar are stable in the absence of water. lactose is less stable. one end is a hemiacetal... it can be opened and derivatized

acetal on glucose side

also a di-ether acetal (new school)
ketal (old school)