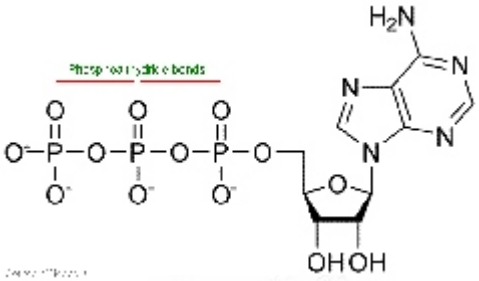
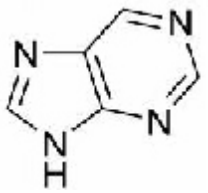
NUCLEIC ACIDS & POLYSACCHARIDES

rvdsd 27 Sept 95, 1 Oct 01, 7 Oct 02, 29 Sept 03, 1 Oct 03, 29Sept04, 30 Sept 05, 26 Sept 07, 3Oct08, 30Sept09
BKH: 63-73, BKH 5th: 54-66, BKH: 6th: 53-70, 7th: 54-66

NUCLEIC ACIDS: (Most saved for genetics course)
Monomers are nucleotides [-ide = chemical derivative]
= (base plus sugar = nucleoside) nucleotide has PO_4
PO_4 is added to 5' carbon of sugar

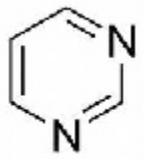


Play three major roles	genetic library	genes composed of DNA
	Protein synthesis:	rRNA, mRNA, tRNA
	energy carriers	ATP, GTP



learn heterocyclic amines: purine structure note location of R(p 56)

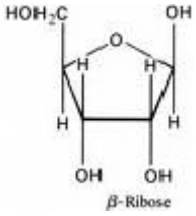
pyrimidines note location R (P 57)



Draw ribose

DNA and RNA are unidirectional, written 5' to 3'

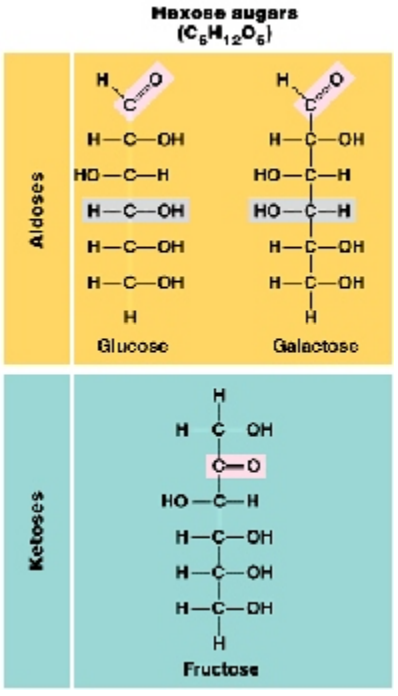
see p 58 for H bonding, antiparallel, complimentary
distance between sugar-PO_4, just right for packing of bases



Illustrate ATP, learn structure, phosphoester, phosphoanhydride [without-water]

CARBOHYDRATES
Primarily functions CH_2O
1. storage (plants & animals)
2. structure (plants, fungi)

Definition of sugar: polyhydroxy aldehyde or ketone.
Contrast Fischer (vertical) vs Haworth (ring) projections of glucose (p 62)
ring form can form either alpha or beta form (P 63)



LEARN monosaccharides: glucose, fructose, galactose (p 63)
Disaccharides: maltose (α1,4), sucrose (α1,2) and lactose (β1,4) (p 63)
polysaccharides (glycans)
starch/glycogen: polysaccharide bonds = glycosidic bonds
main chain is **α1,4,** branching by **α 1,6** (P 64)
glycogen every 8-10,
starch 12-25, side chains same length as interval
amylose is straight chain
amylopectin branched (**pecto**- means congealed, fixed)

cellulose contains more than half of the carbon in plants (P 65)
Substituted polysaccharides:
chitin, show NAG, NAM [NAM = NAG + 2-propanylic acid at C-3
polysaccharides structure: **α 1,4 forms helices**
β 1,4 forms stiff rods (P 66)

Cell walls: microfibrils of cellulose embedded in matrix of hemicellulose, pectin, and lignin and protein extensin