AP BIOLOGY
BIOCHEMISTRY
ACTIVITY #4

NAME Notes

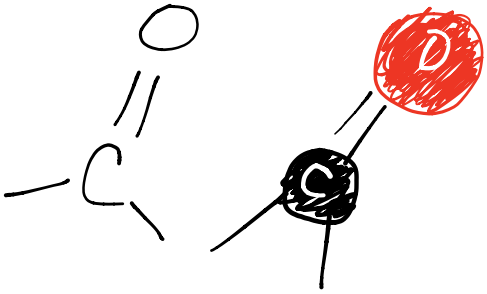
DATE_____HOUR_____

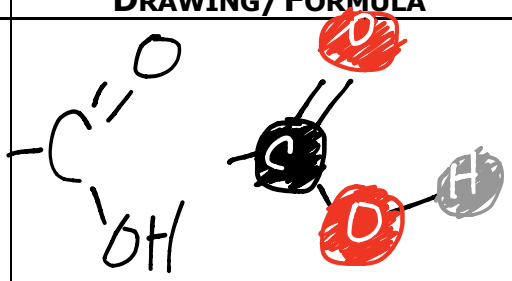
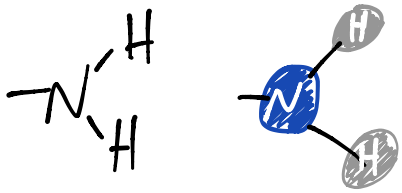
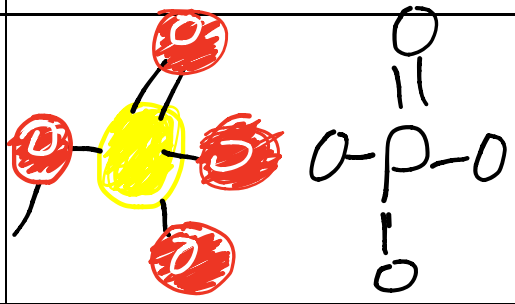
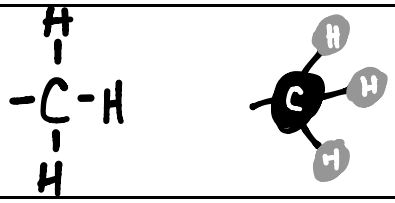
ORGANIC CHEMISTRY BASICS

PROPERTIES OF CARBON:

Carbon has 4 valence electrons
- Carbon can covalently bond with itself, forming chains
- Carbon can covalently bond with other elements
- Carbon can form a total of 4 covalent bonds, making the possible combinations of bio molecules endless

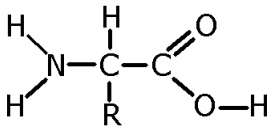
Carbon is less electronegative than other common elements like oxygen, nitrogen, phosphorus and more electronegative than hydrogen, this allows for the formation of both polar and nonpolar covalent bonds.

FUNCTIONAL GROUP	DRAWING/FORMULA	PROPERTIES
Hydroxyl	–OH 	•Alcohols •Makes Associated molecule polar • Forms H-bonds w/ water – H_2O soluble
Carbonyl		•Aldoses– sugars w/ Carbonyl at the end • Ketoses – Sugar w/ Carbonyl in the middle

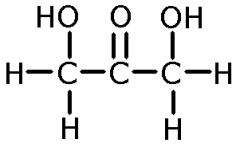
FUNCTIONAL GROUP	DRAWING/FORMULA	PROPERTIES
Carboxyl		• Acidic properties • Hydrogen often leaves the oxygen as a H^+
Amino		• Acts as a base Can pick up H^+ from solution becoming $-NH_3^+$
Sulfhydral		Two groups on opposite Amino Acids can bond forming a disulfide bridge in a protein
Phosphate		Can react w/ H_2O releasing energy (ATP & ADP)
Methyl		• Addition of methyl group to DNA regulates gene expression

QUESTION: CIRCLE AND IDENTIFY THE FUNCTIONAL GROUP(S) FOUND IN EACH OF THE FOLLOWING MOLECULES.

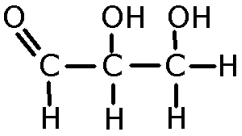
Molecule #1



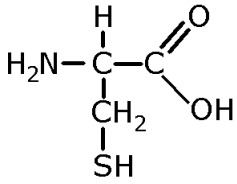
Molecule #2



Molecule #3



Molecule #4



Molecule #5