

*Carbon atoms can form diverse molecules by bonding to four other atoms*

1. Make an electron distribution diagram of carbon.

- a. How many valence electrons does carbon have? \_\_\_\_\_
- b. How many bonds can carbon form? \_\_\_\_\_
- c. What type of bonds does it form with other elements? \_\_\_\_\_

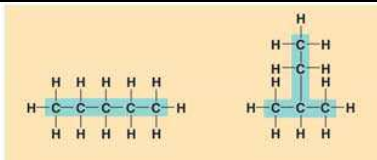
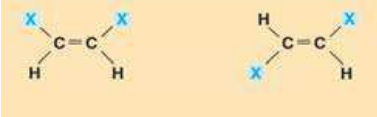
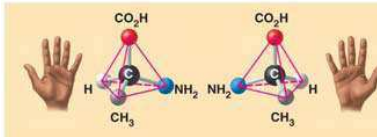
2. What is a *hydrocarbon*? Name two.

- a. Are hydrocarbons hydrophobic or hydrophilic?

3. CONTRAST (tell how they are different) ISOTOPES DIFFERENT from ISOMERES?

ISOTOPES	ISOMERS

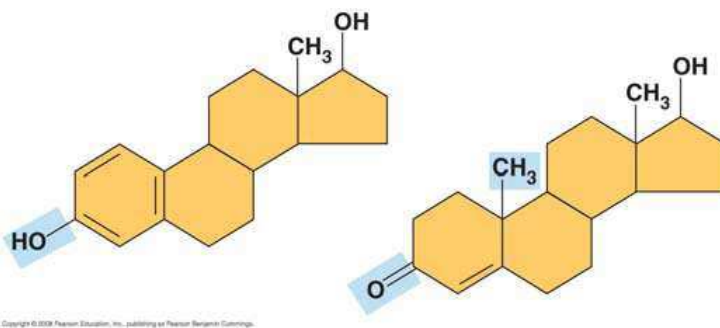
4. LABEL THE 3 TYPES OF ISOMERS SHOWN IN THE DIAGRAM BELOW

ISOMER	NAME	EXAMPLE
		
		
		

5. Give one example of enantiomers that vary in their pharmacological effect.

**Concept 4.3 A small number of chemical groups are key to the functioning of biological molecules**

Here is an idea that will recur throughout your study of the function of molecules: Change the structure, change the function. You see this in enantiomers, you will see it in proteins and enzymes, and now we are going to look at testosterone and estradiol. Notice how similar these two molecules are, and yet you know what a vastly different effect each has. Label each molecule in the sketch below, and circle the differences.



6. \_\_\_\_\_

7. Define *functional group*.

8. There are seven functional groups. Complete the following chart.

	Hydroxyl	Carbonyl	Carboxyl	Amino	Sulfhydryl	Phosphate	Methyl
Structure							
Example							
Functional Properties							