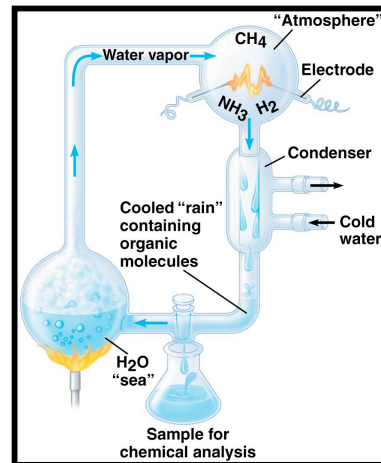


CARBON AND THE MOLECULAR DIVERSITY OF LIFEChapter 4
Guided Reading Assignment

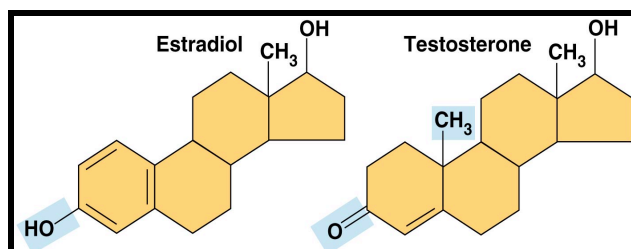
Using the Campbell textbook, outline the salient points of the chapter by answering the questions and labeling the diagrams. There is no need to write in full sentences.

1. In 1953, Stanley Miller, a graduate student at the University of Chicago with his professor, Harold Urey, conducted an experiment illustrated to the right. What was the conclusion of the **Urey-Miller** experiment?



2. Describe the unique chemistry of **carbon** that makes it the central atom in organic compounds.
3. There is a tremendous diversity of organic compounds arising from the variation in carbon skeletons. Describe *four* ways that organic compounds vary. You may augment your answer with sketches.
4. What is a **hydrocarbon**? Is it hydrophilic or hydrophobic? Justify your answer.
5. What is an **isomer**? *Sketch one below and identify it as structural, cis-trans or enantiomer.*

6. A common theme of biology is “STRUCTURE DICTATES FUNCTION.” The *two* steroid compounds illustrated below are the female and male sex hormones of vertebrates, respectively.



- The two hormones have significantly disparate physiological effects on an organism and yet are structurally very similar. They differ, however, in a few chemical groups attached to the carbon skeleton. What is a **functional group**?

Create a table below identifying and describing each biological important functional group

FUNCTIONAL GROUP <i>(draw the structure)</i>	GROUP PROPERTIES & NAME	EXAMPLES <i>(no need to draw)</i>