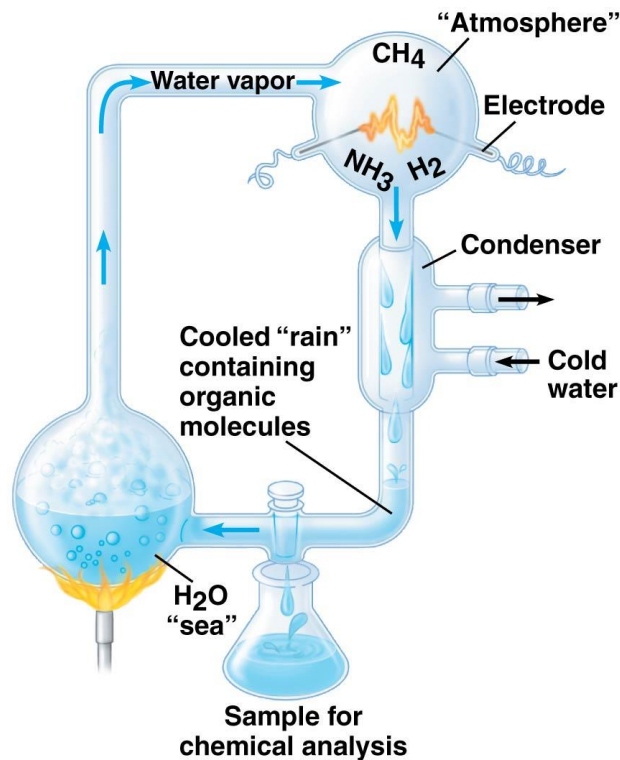


Chapter 4.1 and 4.2 Guided Reading: Carbon and the Molecular Diversity of Life  
10ed

- Study this figure of Stanley Miller's experiment to stimulate conditions thought at the time of the experiment to have existed on early Earth. **Explain** the elements of this experiment, **using arrows** to indicate what occurs in various parts of the apparatus.



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- What** was collected in the sample for chemical analysis? **What** was concluded from the results of this experiment?
- Make** an electron distribution diagram of carbon.
  - How many** valence electrons does carbon have? \_\_\_\_\_
  - How many** bonds can carbon form \_\_\_\_\_
  - What** type of bonds does it form with other elements? \_\_\_\_\_

4. Carbon chains form skeletons of organic molecule. **How** can the carbon skeletons differ?

5. **What** is a *hydrocarbon*? **Name two**. Are hydrocarbons hydrophobic or hydrophilic?

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6. In Chapter 2 you learned about *isotopes*. Students often confuse *isotope* with *isomer*. **Define** each term and **give an example**.

	Definition	Example
Isotope		
Isomer		

7. Variation in the architecture of molecules can cause variable biological effects. **Give an example of how** isomers can vary in their pharmacological effects.