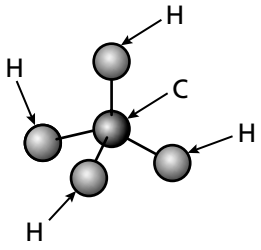
Section 11.3 Moles of Compounds

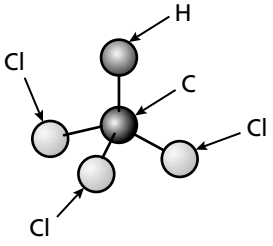
In your textbook, read about chemical formulas and the mole, the molar mass of compounds, and conversions among mass, moles, and number of particles.

Study the table and the diagram of a methane molecule and a trichloromethane molecule. Then answer the following questions.

Element	Molar Mass (g/mol)
Hydrogen	1.01
Carbon	12.01
Chlorine	35.45



CH_4



$CHCl_3$

1. What elements and how many atoms of each does a molecule of methane contain?

2. What elements and how many atoms of each does a molecule of trichloromethane contain?

3. How many moles of each element are in a mole of methane?

4. How many moles of each element are in a mole of trichloromethane?

5. Which of the following values represents the number of carbon atoms in one mole of methane? 6.02×10^{23}; 12.0×10^{23}; 18.1×10^{23}; 24.1×10^{23}

6. Which of the following values represents the number of chlorine atoms in one mole of trichloromethane? 6.02×10^{23}; 1.20×10^{24}; 1.81×10^{24}; 2.41×10^{23}

7. Which of the following values represents the molar mass of methane? 13.02 g/mol; 16.05 g/mol; 52.08 g/mol; 119.37 g/mol

8. Chloromethane (CH_3Cl) has a molar mass of 50.49 g/mol. Which of the following values represents the number of molecules of CH_3Cl in 101 grams of the substance? 3.01×10^{23}; 6.02×10^{23}; 1.20×10^{24}; 6.08×10^{26}