

Conservation of Mass: Chemical Reactions

Use the table below to construct ball and stick models. Draw a 2-D version of the model you built and count the number of bonds, and atoms.

Compound	Formula	2-D Drawing	Total # of atoms	Total number of bonds
Water	H ₂ O			
Oxygen 2 springs	O ₂			
Methane	CH ₄			
Carbon Dioxide 4 springs	CO ₂			
Ammonia	NH ₃			
Ethane	C ₂ H ₆			
Ethanol	C ₂ H ₅ OH			

Methanol	CH ₃ OH			
Urea 2 springs	NH ₂ CONH ₂			
Amino acid 2 springs	NH ₂ C ₂ H ₂ OOH			

Use the molecules from the table above to help you solve the following chemical reactions. Draw the chemical and name the missing chemical. Think about whether any atoms have been lost or gained in each reaction. Start by creating ball and stick molecules and use your models to predict and name the finishing molecules.

2 water + 1 Carbon dioxide	→	Methane + 2O ₂
Ethane + Water	→	? + Hydrogen Gas

2 ammonia + carbon dioxide → water + ?

Methane + water → Hydrogen gas + ?

? + water + ammonia → Urea + 3 hydrogen gas + carbon dioxide

Build your own reaction and write down your chemical equation