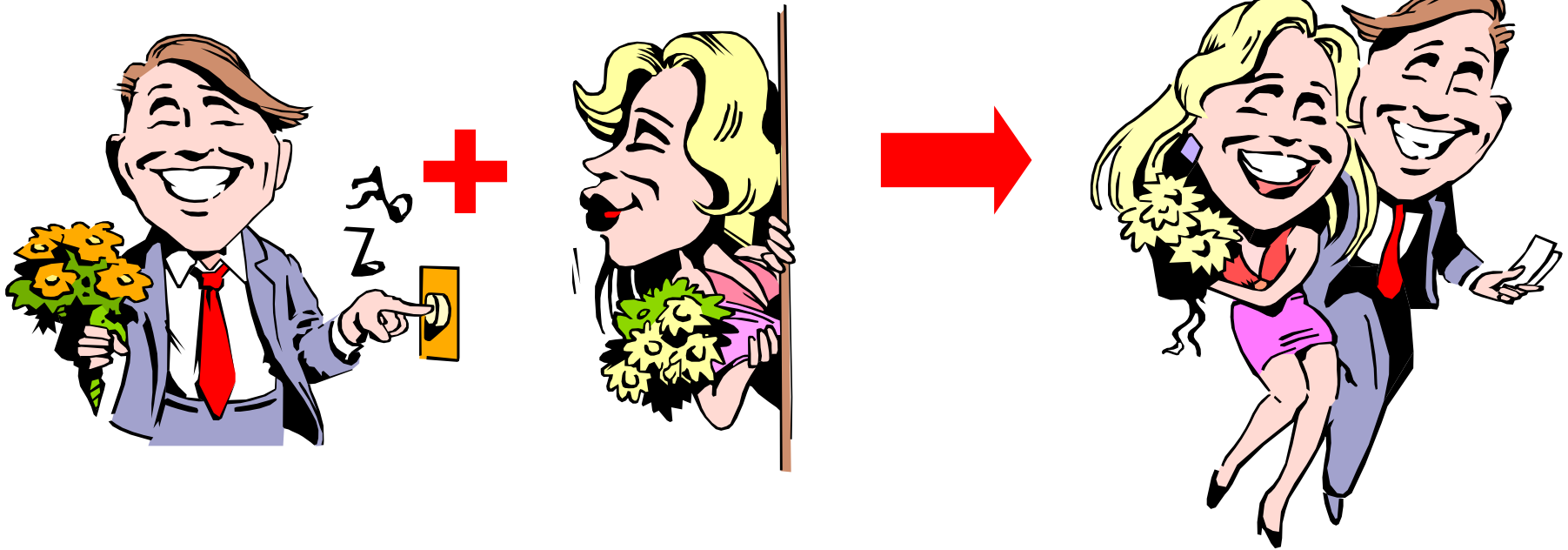


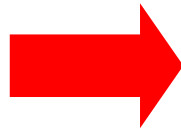
Composition

aka Synthesis, Combination, Hooking Up...



Decomposition Reaction

aka Analysis

$$AB \rightarrow A + B$$


Single Replacement Reaction *aka Substitution, homewrecker, etc.*



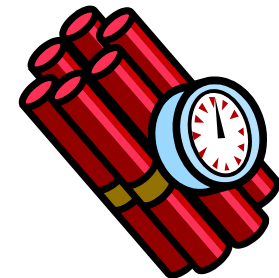
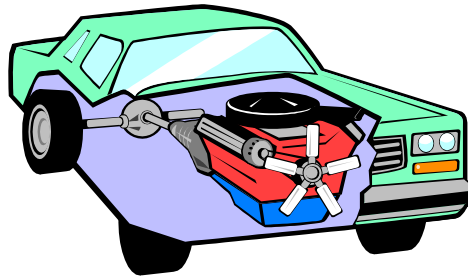
Double Replacement Reaction

aka Coupling Substitution, spouse-swapping, etc.



Combustion

aka Burning, Respiration, exploding, etc.



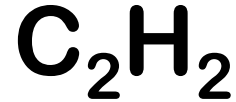
Connective tissue cell

Hydrocarbons

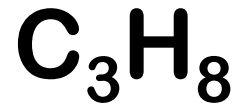
Methane



Acetylene



Propane



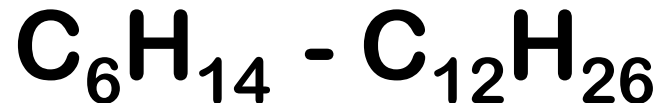
Butane



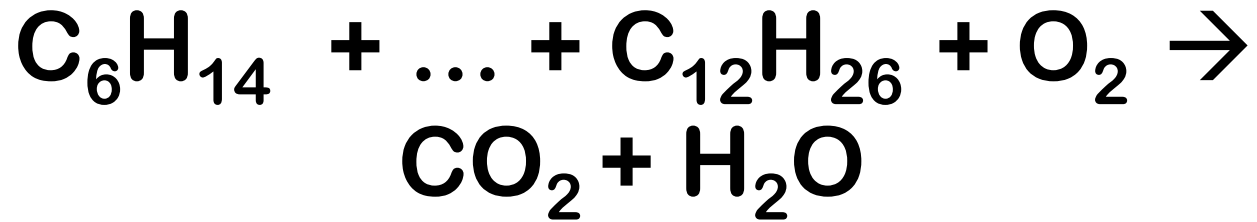
Octane



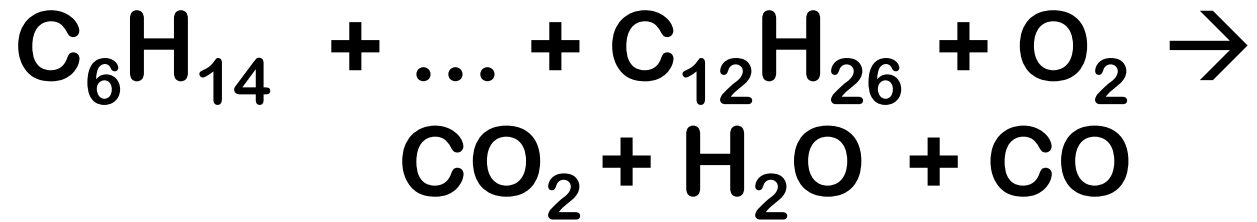
Gasoline



Burning Gasoline

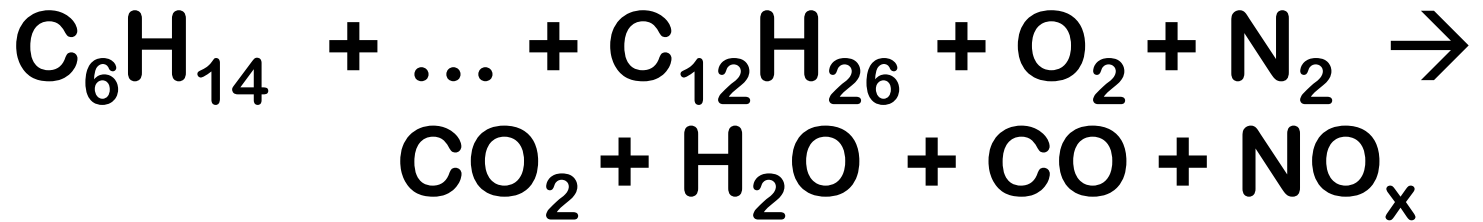


Burning Gasoline



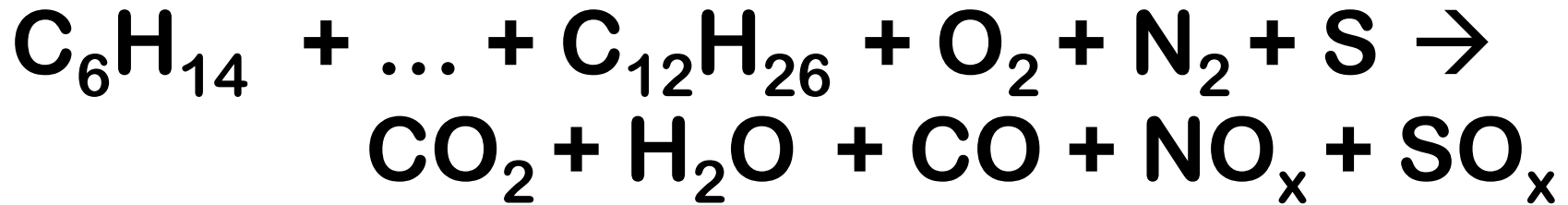
Incomplete combustion – not enough oxygen

Burning Gasoline



Incomplete combustion – not enough oxygen
Nitrogen in the air → smog

Burning Gasoline



Incomplete combustion – not enough oxygen

Nitrogen in the air → smog

Sulfur in the oil → rotten eggs



Acid rain

Types of Reactions

- **Composition** $A + B \rightarrow AB$
- **Decomposition** $AB \rightarrow A + B$
- **Single Replacement** $A + BC \rightarrow AC + B$
- **Double Replacement** $AB + CD \rightarrow AD + CB$

- **Combustion** $A + O_2 \rightarrow AO + \text{heat}$
 $C_xH_y\dots + O_2 \rightarrow CO_2 + H_2O + \text{heat}$