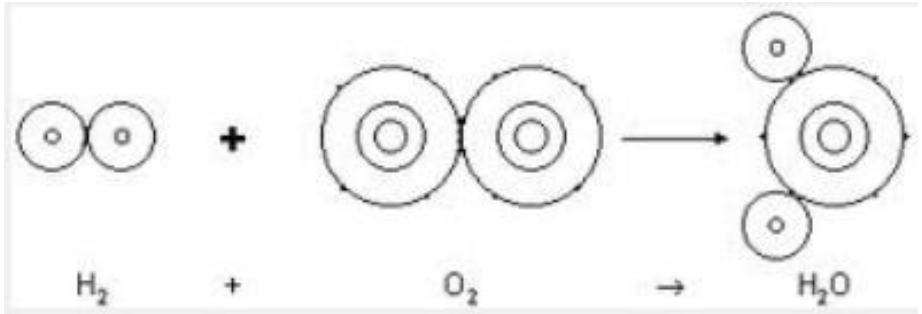
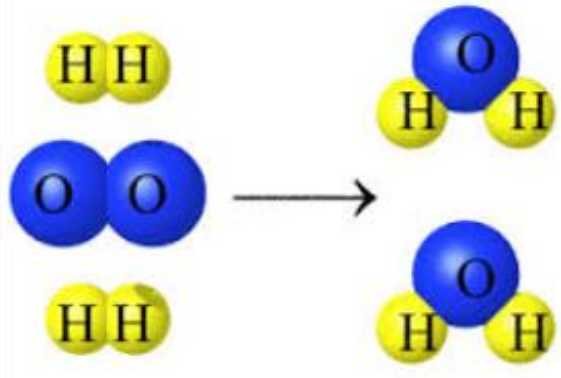
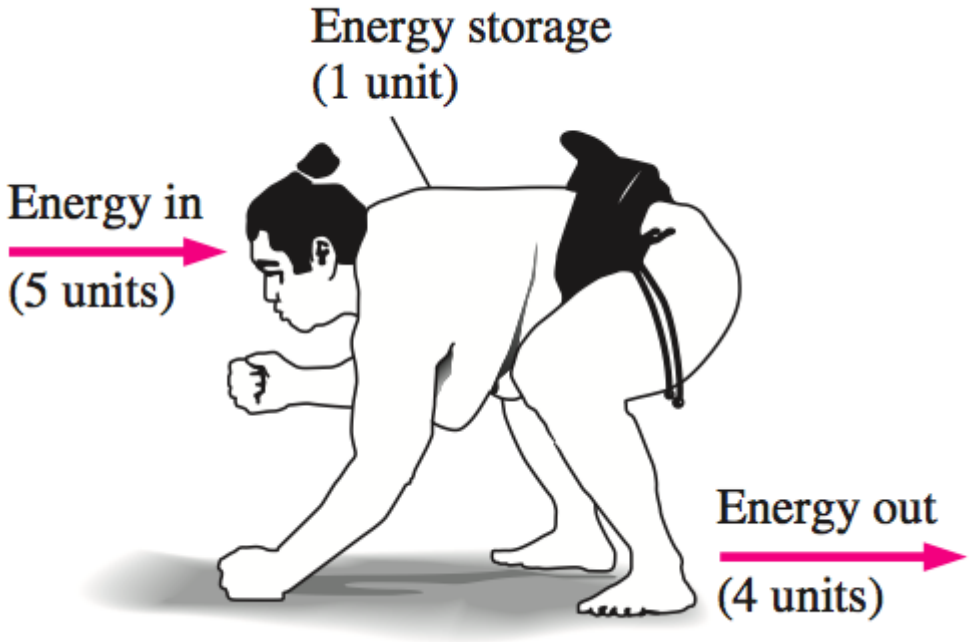
Balancing Chemical Reactions

Is this possible?



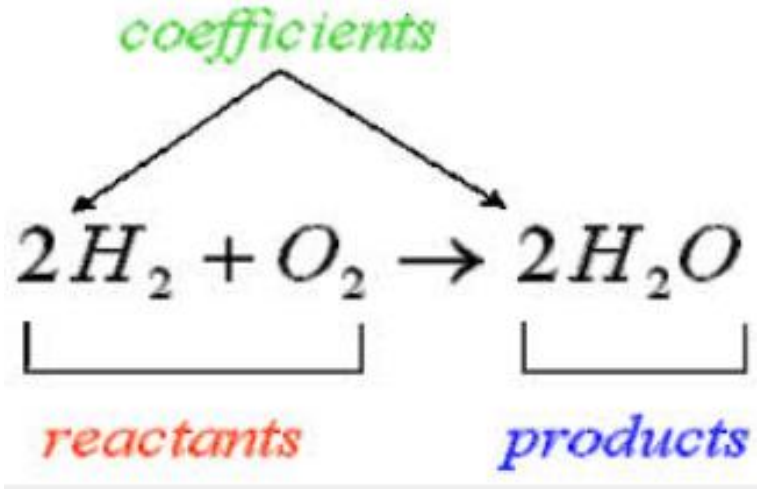


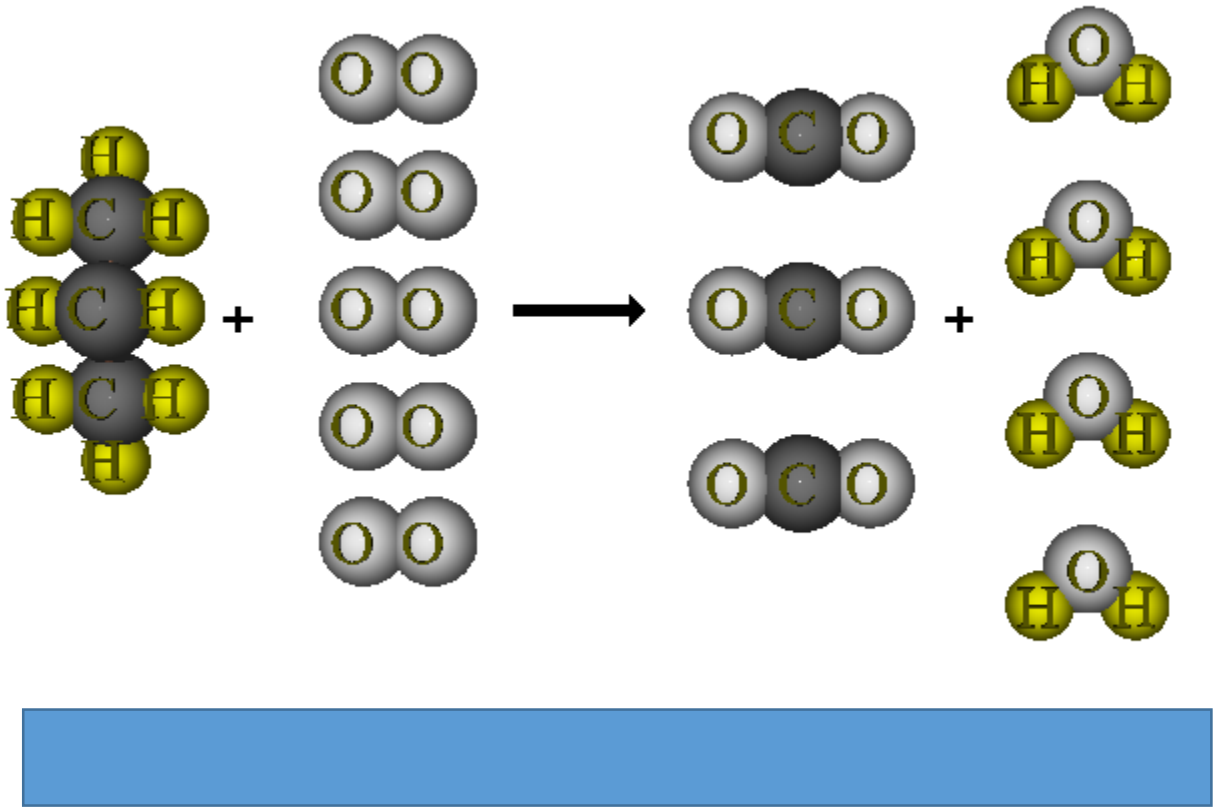
Why?



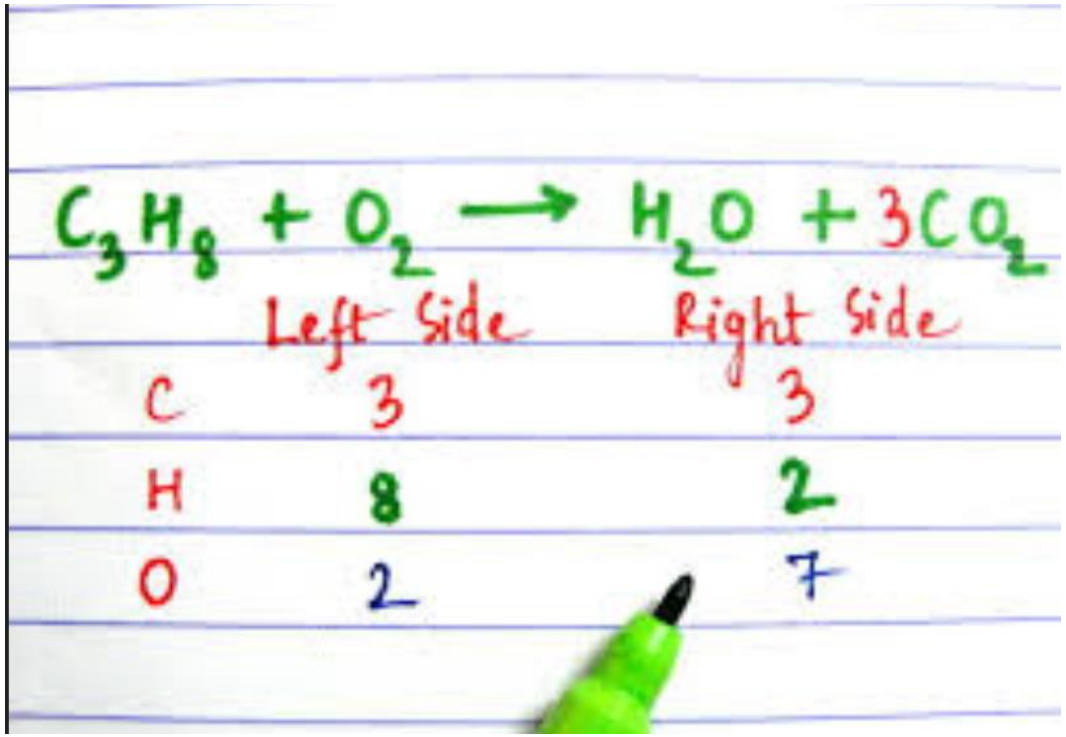
Energy cannot be created or destroyed, just transformed

Balancing Equations





Example…



$2\,NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2\,H_2O$

Element	Before	After
Na	2	2
O	6	6
H	4	4
S	1	1

Practice.

1. $\_\_Mg + \_\_Cl_2 \rightarrow \_\_Mg_2Cl_2$

   $2Mg + Cl_2 \rightarrow Mg_2Cl_2$

Element	Before	After
Al	1	2
O	2	2

2. $\_\_Al + \_\_O_2 \rightarrow \_\_Al_2O_3$

   $2Al + 1.5O_2 \rightarrow Al_2O_3$

   $2^* (2Al + 1.5O_2) \rightarrow (Al_2O_3) * 2$

   $4Al + 3O_2 \rightarrow 2\ Al_2O_3$

Element	Before	After
Al	1	2
O	2	3

Element	Before	After
Al	4	4
O	6	6

You try

1. __Na + __O_2 → __Na_2O

$4Na + O_2 \rightarrow 2Na_2O$

1. __Cl_2 + __KI →__KCl + __I_2

$Cl_2 + 2KI \rightarrow 2KCl + I_2$

1. __K + __Cl_2 →__KCl

$2K + Cl_2 \rightarrow 2KCl$

Practice.

- Do complicated molecules first.

$$\_\_C_2H_4 + \_\_O_2 \rightarrow \_\_CO_2 + \_\_H_20$$
$$\_\_C_2H_4 + \_\_O_2 \rightarrow 2CO_2 + \_\_H_20$$
$$\_\_C_2H_4 + \_\_O_2 \rightarrow 2CO_2 + 2H_20$$
$$C_2H_4 + 3O_2 \rightarrow 2CO_2 + 2H_20$$

Element	Before	After
Carbon	2	1
Oxygen	2	3
Hydrogen	4	2

Element	Before	After
Carbon	2	2
Oxygen	2	5
Hydrogen	4	2

Element	Before	After
Carbon	2	2
Oxygen	2	6
Hydrogen	4	4

Element	Before	After
Carbon	2	2
Oxygen	6	6
Hydrogen	4	4

Practice.

- Do complicated molecules first.

$$\_\_C_2H_6 + \_\_O_2 \rightarrow \_\_CO_2 + \_\_H_20$$

$$\_\_C_2H_6 + \_\_O_2 \rightarrow 2CO_2 + \_\_H_20$$

$$\_\_C_2H_6 + \_\_O_2 \rightarrow 2CO_2 + 3H_20$$

$$C_2H_6 + 3.5O_2 \rightarrow 2CO_2 + 3H_20$$

$$2\ (C_2H_6 + 3.5O_{2)} \rightarrow (2CO_2 + 3H_20)\ 2$$

$$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_20$$

Element	Before	After
Carbon	2	1
Oxygen	2	3
Hydrogen	6	2

Element	Before	After
Carbon	2	2
Oxygen	2	5
Hydrogen	6	2

Element	Before	After
Carbon	2	2
Oxygen	2	3
Hydrogen	6	6

Element	Before	After
Carbon	4	4
Oxygen	14	14
Hydrogen	12	12