ENTROPY

Name _____

Entropy is the degree of randomness in a substance. The symbol for change in entropy is ΔS .

Solids are very ordered and have low entropy. Liquids and aqueous ions have more entropy because they move about more freely, and gases have an even larger amount of entropy. According to the Second Law of Thermodynamics, nature is always proceeding to a state of higher entropy.

Determine whether the following reactions show an increase or decrease in entropy.

1.
$$2KCIO_3(s) \rightarrow 2KCI(s) + 3O_2(g)$$

2.
$$H_2O(I) \rightarrow H_2O(s)$$

3.
$$N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$$

4. NaCl(s)
$$\rightarrow$$
 Na⁺(aq) + Cl⁻(aq) ______

6.
$$CO_2(s) \rightarrow CO_2(g)$$

7.
$$H^{+}(aq) + C_{2}H_{3}O_{2}^{-}(aq) \rightarrow HC_{2}H_{3}O_{3}(l)$$

8.
$$C(s) + O_2(g) \rightarrow CO_2(g)$$

9.
$$H_2(g) + Cl_2(g) \rightarrow 2HCl(g)$$

10.
$$Ag^+(aq) + Cl^-(aq) \rightarrow AgCl(s)$$

11.
$$2N_2O_5(g) \rightarrow 4NO_2(g) + O_2(g)$$

12.
$$2AI(s) + 3I_2(s) \rightarrow 2AII_3(s)$$

13.
$$H^{+}(aq) + OH^{-}(aq) \rightarrow H_{2}O(l)$$

14.
$$2NO(g) \rightarrow N_2(g) + O_2(g)$$

15.
$$H_2O(g) \rightarrow H_2O(l)$$