

## Thermodynamics Worksheet

Fill the blanks in the following sentences with the correct thermodynamics term:

- 1) A(n) \_\_\_\_\_ is used to lower the energy required to make a reaction take place. It makes chemical reactions go faster without being consumed.
- 2) Another word for freezing is \_\_\_\_\_.
- 3) The thing we measure when we want to determine the average kinetic energy of random motion in the particles of a substance is \_\_\_\_\_.
- 4) The \_\_\_\_\_ is the energy needed to raise the temperature of a substance by one degree Celsius.
- 5) A(n) \_\_\_\_\_ reaction is one where the products have lower energy than the reactants.
- 6) \_\_\_\_\_ reactions require energy in order to take place.
- 7) \_\_\_\_\_ changes take place by themselves, without any help.
- 8) The \_\_\_\_\_ is the energy required to boil one mole of a substance, and its symbol is \_\_\_\_\_.
- 9) The measure of randomness in a system is called \_\_\_\_\_.
- 10) The \_\_\_\_\_ is used to describe how much energy is produced or used during a chemical change.
- 11) \_\_\_\_\_ is the amount of energy which a system has to have in order for a chemical change to take place.
- 12) \_\_\_\_\_ is the symbol which stands for the value equal to the enthalpy minus the temperature times entropy. It can be used to determine if a reaction will take place \_\_\_\_\_.

## Thermodynamics Worksheet – Answer Key

Fill the blanks in the following sentences with the correct thermodynamics term:

- 1) A(n) **catalyst** is used to lower the energy required to make a reaction take place. It makes chemical reactions go faster without being consumed.
- 2) Another word for freezing is **fusion**.
- 3) The thing we measure when we want to determine the average kinetic energy of random motion in the particles of a substance is **temperature**.
- 4) The **specific heat capacity (or “heat capacity” or “specific heat”)** is the energy needed to raise the temperature of a substance by one degree Celsius.
- 5) A(n) **exothermic** reaction is one where the products have lower energy than the reactants.
- 6) **Endothermic** reactions require energy in order to take place.
- 7) **Spontaneous** changes take place by themselves, without any help.
- 8) The **heat of vaporization** is the energy required to boil one mole of a substance, and its symbol is  **$\Delta H_{\text{vap}}$** .
- 9) The measure of randomness in a system is called **entropy**.
- 10) The **heat of reaction (or “enthalpy of reaction”)** is used to describe how much energy is produced or used during a chemical change.
- 11) **Activation energy** is the amount of energy which a system has to have in order for a chemical change to take place.
- 12)  **$\Delta G$**  is the symbol which stands for the value equal to the enthalpy minus the temperature times entropy. It can be used to determine if a reaction will take place **spontaneously**.