# 10.3 Energy and Chemical Reactions

# Due Date:

**A. Thermochemistry**

Define Enthalpy –

Enthalpy is designated by the letter \_\_\_\_\_\_\_\_

Write what each of the following variables represent:

What is a calorimeter?

How does a calorimeter work?

**B. Hess’s Law**

What is Hess’s law?

If a reaction is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the sign of ΔH is also \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The magnitude of ΔH is directly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the quantities of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the reaction. If the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a balanced reaction are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by an integer, the value of ΔH is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by the same integer.

# 10.4 Using Energy in the Real World

**B. Energy and Our World**

What is a fossil fuel?

What is petroleum?

What is Natural gas?

Where do petroleum and natural gas most likely come from?

Complete tables 10.2 and 10.3 below

Where does coal come from?

How does the burning of Carbon Dioxide effect our climate/environment?

**C. Energy as a Driving Force**

A major goal of science is to understand \_\_\_\_\_\_\_ things happen the way they do.

A gas is trapped in one end of a vessel (draw the picture from p. 346)

When the value is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, what always happens? The gas \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ throughout the entire container (draw the picture from p. 346)

You would be very surprised to see this process occurring spontaneously. So what does this process occur \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ but the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ process never occur? In many years of analyzing these and many other processes, scientists have discovered \_\_\_\_\_\_\_\_ very important \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Energy spread means that in a given process, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy is dispersed widely.

Matter spread means exactly what it says: the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a substance are \_\_\_\_\_\_\_\_\_\_\_\_ out and occupy a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ volume.

Define entropy –

Entropy (designated by the letter \_\_\_\_\_) is a measure of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. As \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ increases, \_\_\_\_ increases.

Fill in the following from p. 349

What is the 2nd law of thermodynamics?