**HEAT AND ENERGY** Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Notes can be completed by watching the Thermochemistry video linked below:

<http://www.gpb.org/chemistry-physics/chemistry/1301>

**Temperature**:

• a measure of the \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ energy of the particles in a sample of matter

• does *not* depend on the amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the sample

• symbol is \_\_\_\_\_\_\_\_\_; unit is \_\_\_\_\_\_\_\_\_

**Heat**:

• \_\_\_\_\_\_\_\_\_\_\_\_ amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy that flows because of a difference in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

• depends on \_\_\_\_\_\_\_\_\_\_\_\_\_ of sample

• symbol is \_\_\_\_\_\_\_\_\_ ; unit is \_\_\_\_\_\_\_\_\_\_\_\_\_ (1 J = 4.18 \_\_\_\_\_ )

**Kinetic energy** is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Potential energy** is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

• Potential energy is hiding and cannot be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

• Only \_\_\_\_\_\_\_\_\_\_\_\_\_ in P.E. can be measured.

In the analogy of the *Swiss bank*, the money hidden in the bank account represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy, and the money that is measured in deposits and withdrawals represents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy.

**Specific heat capacity**:

• amount of \_\_\_\_\_\_\_\_\_\_\_ required to raise the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of 1 \_\_\_\_\_\_\_\_ of substance 1 \_\_\_\_\_\_\_\_

• In the piggy bank analogy, which bank represents the higher specific heat capacity, and why? What happens to the temperature of a substance with a high specific heat capacity?

• In the piggy bank analogy, which bank represents the lower specific heat capacity, and why? What happens to the temperature of a substance with a low specific heat capacity?

• symbol is \_\_\_\_\_\_\_\_ ; unit is \_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Q = m x C x ∆t**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

• When heat (Q) is absorbed by a system, part of it (C) goes into storage as \_\_\_\_\_\_\_\_\_\_\_\_\_ energy and part of it is used

to make the molecules move around \_\_\_\_\_\_\_\_\_\_ , raising the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Δt).

• Why does sand get hotter in the day and colder at night than the water?

**Heating Curve for Water**

I: Heat is being used to raise the \_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy is changing.

II: Heat is being used to turn solid to \_\_\_\_\_\_\_\_\_\_. (phase change =

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy is changing.

III: Heat is being used to raise the \_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy is changing.

IV: Heat is being used to turn liquid to \_\_\_\_\_\_\_\_\_\_. (phase change =

­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy is changing.

V: Heat is being used to raise the \_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy is changing.

Information on conduction, convection and radiation can be learned from:

<http://www.teachersdomain.org/asset/lsps07_int_heattransfer/>