**Learning Goals for Thermochemistry**

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| Guiding Question: *Why* is heat absorbed or released in chemical reactions and physical changes and *how* can the change in heat be determined? |
| Content GoalsStudents will be able to:* Explain how potential energy in chemical bonds is converted to kinetic energy **OR** kinetic energy is converted to potential energy, in all chemical reactions
* Use calorimetry to measure changes in heat (enthalpy)
* Determine the specific heat of a substance based on mass, temperature change and heat absorbed or released
* Identify reactions as endothermic or exothermic based on data or observations
* Calculate the heat (enthalpy) of reaction or phase change using: -Hess’ Law, -heats of formation, -calorimetry data, or -stochiometry
* Predict change in entropy based on phases and nature of reactants and products
 | Skills GoalsStudents will:* Determine changes in heat using calorimeter
* Interpret and analyze graphs
* Explain the effect of error on results of a lab
* Summarize the main idea and key supporting statements in a scientific text
* Evaluate the reliability of a published text
* Use research to support or reject statements from a published text
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| Organizing IdeasStudents will:* Understand why every chemical reaction is accompanied by a change in heat and how to determine the heat change.
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| Assessment : How will I know if students have mastered content, skills, and big ideas?Students will:* Use calorimetry in the laboratory to determine specific heat of water and known heats of reaction
* Complete tests and quizzes on all topics in content goals
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| Vocabulary |
| TemperatureHeatEnthalpy EndothermicExothermicSpecific Heat (capacity)Calorimeter | ΔHHeat of CombustionHeat of FusionHeat of SolidificationHeat of Vaporization Heat of Condensation | Heat of SolutionHeat of Reaction Hess’s LawStandard Heat of Formation Entropy |



 