**Calculating Heat Energy (q = mHf/q = mHv)**

**YOYO**: Manipulate the q = mcΔT to solve for the following variables.

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| Solving for Heat (J) | Solving for Mass (g) | Solving for Specific Heat (J/g•C) | Solving for Temperature (oC) |

The Equations

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| The Symbols   * q = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Hf = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * On Table B for water   Relating Back to the Heating/Cooling Curve   * Heat of fusion is used when a substance is either freezing or melting | The Symbols   * q = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * Hv = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * On Table B for water   Relating Back to the Heating/Cooling Curve   * Heat of vaporization is used when a substance is either vaporizing or condensing |
| 1. What is the amount of heat required to completely melt a 200 gram sample of H2O(s) at STP? | 1. What is the total number of kiloJoules required to boil 100. grams of water at 100ºC and 1 atmosphere? |
| 1. The heat of fusion of a compound is 126 Joules per gram. What is the total number of Joules of heat that must be absorbed by a 15.0-gram sample to change the compound from solid to liquid at its melting point? | 1. At 1 atmosphere of pressure, 25.0 grams of a compound at its normal boiling point is converted to a gas by the addition of 34,400 Joules. What is the heat of vaporization for this compound, in Joules per gram? |
| 1. What is the total number of joules released when a 5.00-gram sample of water changes from liquid to solid at 0°C? | 1. The heat of vaporization of a liquid is 1,340 Joules per gram. What is the minimum number of Joules needed to change 40.0 grams of the liquid to vapor at the boiling point? |
| 1. What is the minimm amount of heat to completely melt 20.0 grams of icea at its melting points? | 1. What is the minimum number of kilojoules needed to change 40.0 grams of water at 100 degrees Celcius to steam at the same temperature and pressure? |
| 1. What is the total number of kilojoules to boil 100. grams of water at 100 degrees Celcius and 1 atmosphere? | 1. What is the total number of joules released when a 15.00-gram sample of water changes from solid to liquid at 0°C? |

