**SPH3U 6.3 Heat Capacity**

1. **Specific heat capacity**

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| Specific heat capacity: |  |

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| **Substance** | **Specific Heat Capacity, *c*** | **Substance** | **Specific Heat Capacity, *c*** | **Substance** | **Specific Heat Capacity, *c*** |
| water | 4.18 x 103 | aluminum | 9.2 x 102 | copper | 3.8 x 102 |
| ethyl alcohol | 2.46 x 103 | glass | 8.4 x 102 | silver | 2.4 x 102 |
| ice | 2.1 x 103 | iron | 4.5 x 102 | lead | 1.3 x 102 |

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| Quantity of heat: |  |
| equation |  |

When 200.0 mL of water is heated from 15.0 °C to 40.0 °C, how much thermal energy is absorbed by the water?

An empty copper pot is sitting on the stove, with a mass of 1.2 kg and a temperature of 130.0 °C. If the pot cools down to 21.0 °C, how much thermal energy does it release?

A block of iron starts off at a temperature of 22.0 °C. It is heated t o100.0 °C by placing it in boiling water. The energy required is 4.91 x 105 J. Calculate the mass of the iron block.

1. **The principle of thermal energy exchange**

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| Principle of thermal energy exchange: |  |
| equation |  |

A 60.0 g sample of metal is heated to 100.0 °C before being placed in 200.0 mL of water with an initial temperature of 10.0 °C. Together, they reach a final temperature of 15.6 °C. What is the metal?

A sample of iron is heated to 80.0 °C and placed in 100.0 mL of water at 20.0 °C. The final temperature of the mixture is 22.0 °C. What is the mass of the iron?

200.0 g of silver is heated to 90.0 °C. The hot silver is then placed into 300.0 g of ethyl alcohol with an initial temperature of 5.0 °C. What is the final temperature of the mixture?

**Homework:** page 287: #2, 5, 6, 8