|  |  |  |
| --- | --- | --- |
| energy practice  E.H.S. ©λ#M!$+rγ  Mr. Genest |  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Tutors! Adults! Help this young chemist by visiting **http:genest.weebly.com** with any smart phone |

1. Using your algebra skills rearrange Q = (m) (C) (∆T) to isolate the indicated variable in each case (isolate means ‘get it on one side of the equals sign by itself).

|  |  |
| --- | --- |
| Isolate C | Isolate ∆T |

1. How much heat is absorbed by 20g granite boulder as energy from the sun causes its temperature to change from 10°C to 29°C? (Specific heat capacity of granite is 0.1 cal/gºC)
2. How much heat is released when 30 g of water at 96°C cools to 25°C? The specific heat of water is 1 cal/g°C.
3. Decide whether heating (we called it Q) is entering or leaving the object in bold..

a) An *ice cube* is placed in a cup of hot **coffee**

An ***ice cube*** is placed in a cup of hot coffee

b) A pot of ***hot tea*** is sealed into a well-insulated thermos

c) Some cold cream is poured into a cup of hot coffee

d) You blow *air* across a bowl of hot soup

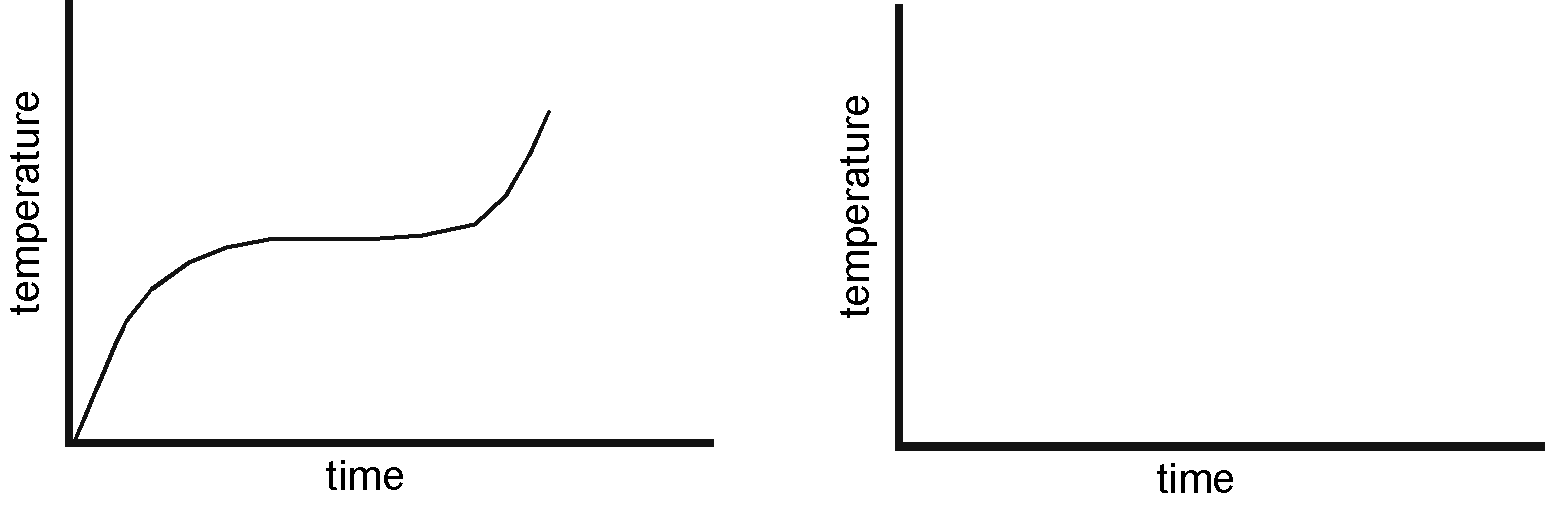
e) *You* jump into an ice cold pond

1. How much heat will raise a pot of 800 g of water from 20 °C to 90 °C?
2. What happens when you place two objects at different temperatures in contact with each other?
3. The temperature of a sample of metal with a mass of 10.0 g changed from 50.4°C to 25.0°C with the release of 95.1 joules of heat. What is the specific heat of this metal ?
4. A 4.50 g coin of copper absorbed 54 calories of heat. What was the final temperature of the copper if the initial temperature was 25°C? The specific heat of copper is 0.092 cal/g°C.
5. How much heat will raise a pot of 800 g of water from 20 °C to 90 °C? first find T
6. What is the specific heat of silicon if it takes 192J to raise the temperature of 45.0g of Si by 6.0oC?
7. Make an energy diagram: Some water you spilled on your shirt evaporates.



|  |  |  |
| --- | --- | --- |
| 1. Find the melting and boiling point of **Bromine** in the CRC Book in class or on Wikipedia at home. Write those two numbers in appropriate places on the Y-Axis. 2. In each line below, mark a letter to describe what phase is present.   \_\_\_\_\_\_ pure liquid \_\_\_\_\_\_ mix of gas and liquid  \_\_\_\_\_\_ pure solid \_\_\_\_\_\_ mix of liquid and solid  \_\_\_\_\_\_ pure gas |  |  |

1. The graph below left represents the heating curve for helium being heated from liquid state to a temperature above its boiling point.



1. Sketch the heating curve for a larger sample of the same liquid.
2. Put little P’s all along the line of this graph if it is a time when the helium is gaining mostly potential energy
3. Draw a circle around the part of the graph where you think Eth is increasing. Label it Eth

|  |  |  |
| --- | --- | --- |
|  |  | 1. Find the melting and boiling point of **Aluminum** in Table S and label the Y-axis of the graph at right with those two numbers.   In each line below,circle the correct choice to describe how the motion of the atoms is changing.   1. {atoms moving faster / atom position becomes farther apart} 2. {atoms moving faster / atom position becomes farther apart} 3. {atoms moving faster / atom position becomes farther apart} 4. {atoms moving faster / atom position becomes farther apart} 5. {atoms moving faster / atom position becomes farther apart} |

1. Which scientist improved the thermometer by filling it with mercury to make it smaller and portable so doctors could use it to take the temperature of a patient? (See the website for advice on how to get movie notes from the movie we watched. . .)
   1. Faraday
   2. Celsius
   3. Fahrenheit
   4. Rumford