

Identifying a Metal by Measuring Specific Heat: $\Delta Q = mc\Delta T$ **Heat in Joules = (mass in grams)(specific heat in $J/g^{\circ}C$)(temperature change in $^{\circ}C$)****Directions:**

- Various substances were heated and then dropped in water
- The initial and final temperatures of the substances and of the water are given
- The masses of the substances and of the water are given
- Use this information to calculate the heat lost by the substance and gained by the water (these values should be the same - think about it!)
- Then calculate the specific heat of the substance
- Use the table provided (or the internet) to identify the substances based on their specific heats
- Every box should be filled in

Substance	Specific Heat ($J/g^{\circ}C$)
Water	4.18
Iron	0.45
Brass	0.38
Magnesium	0.25
Aluminum	0.21
Granite	0.19
Diamond	0.12
Bronze	0.09

Substance	Mass (g)	Specific Heat ($J/g^{\circ}C$)	Initial Temp $^{\circ}C$	Final Temp $^{\circ}C$	ΔT	ΔQ
	123.2		90.5	25.5		
Water	43	4.18	5.5	25.5		

Substance	Mass (g)	Specific Heat ($J/g^{\circ}C$)	Initial Temp $^{\circ}C$	Final Temp $^{\circ}C$	ΔT	ΔQ
	12.29		95	24		
Water	40	4.18	22	24		

Substance	Mass (g)	Specific Heat ($J/g^{\circ}C$)	Initial Temp $^{\circ}C$	Final Temp $^{\circ}C$	ΔT	ΔQ
	1395		100	21.5		
Water	240	4.18	8.4	21.5		

Substance	Mass (g)	Specific Heat ($J/g^{\circ}C$)	Initial Temp $^{\circ}C$	Final Temp $^{\circ}C$	ΔT	ΔQ
	2370		52	17		
Water	178.58	4.18	7	17		

Substance	Mass (g)	Specific Heat ($J/g^{\circ}C$)	Initial Temp $^{\circ}C$	Final Temp $^{\circ}C$	ΔT	ΔQ
	35.7		100	26.2		
Water	100	4.18	25	26.2		

What is the specific heat of a substance if 10.6 Joules of energy are required to heat 2.5g of it from $10^{\circ}C$ to $27^{\circ}C$?
 What substance is this?

Specific Heat: _____

Substance: _____