Specific

This program should be useful for chemistry and physics teachers to speed calculations concerning specific heats.

```
'Specific Heat Calculator ver. 1.0
'by Scott Ausbrooks
'May 2012
'This program is written to be a solver for all specific heat
'calculations one might encounter in a general chemistry course.

nomainwin

 WindowWidth = 360
 WindowHeight = 320
 radiobutton #cfg.bQ,
"Solve for Heat gained or Lost ", [SolveForQ],[waitHere],100,75,230,20
 radiobutton #cfg.bM, "Solve for Mass ", [SolveForMass],[
waitHere],100,100,230,20
 radiobutton #cfg.bdeltaT,
"Solve for Temperature Change ", [SolveForDeltaT],[waitHere],100,
125,230,20
 radiobutton #cfg.bCp,
"Solve for Specific Heat ", [SolveForCp],[waitHere],100,150,230,20
 radiobutton #cfg.bTf,
"Solve for Final Temperature ", [SolveForTf],[waitHere],100,175,230,20
 radiobutton #cfg.bTf,
"Solve for Cp of metal ", [CpMetal],[waitHere],100,200,230,20
open "Specific Heat Solver" for dialog as #cfg
 print #cfg, "trapclose [quit]"
wait

[SolveForQ]
 prompt "Mass = ";m
 prompt "Starting Temperature = ";Ti
 prompt "Final Temperature = "; Tf
 prompt "Specific Heat = ";Cp
 q = m * (Tf-Ti) * Cp
 notice "Q = ";q
wait

[SolveForMass]
 prompt "Heat gained or lost = ";q
 prompt "Starting Temperature = ";Ti
```

```
 prompt "Final Temperature = "; Tf
 prompt "Specific Heat = ";Cp
 m = q/ ((Tf-Ti)) * Cp
 notice "Mass = ";m
wait

[SolveForDeltaT]
 prompt "Mass = ";m
 prompt "Specific Heat = ";Cp
 prompt "Heat gained or lost = ";q
 deltaT= q/(m * Cp)
 notice "deltaT = ";deltaT
wait

[SolveForCp]
 prompt "Mass = ";m
 prompt "Starting Temperature = ";Ti
 prompt "Final Temperature = "; Tf
 prompt "Heat gained or lost = ";q
 Cp = q/(m* (Tf-Ti))
 notice "Cp = ";Cp
wait

[SolveForTf]
 prompt "Mass of metal = ";Mm
 prompt "Starting temperature of metal = ";Tim
 prompt "Specific heat of metal = ";Cpm
 prompt "Mass of water = ";Mw
 prompt "Starting temperature of water = ";Tiw
 Cpw = 4.18
 w = (Mm*Cpm*Tim)
 x = (Mm * Cpm)
 y = (Mw*Cpw)
 z = (Mw*Cpw*Tiw)
 Tf = (w+z)/(y+x)
 notice "Tf = ";Tf
wait
[CpMetal]
 prompt "Mass of metal = ";Mm
 prompt "Starting temperature of metal = ";Tim
 prompt "Final Temperature of system = "; Tfs
 prompt "Mass of water = ";Mw
 prompt "Starting temperature of water = ";Tiw
 Cpw = 4.18
 Cpm = (Mw * (Tfs-Tiw) * Cpw)/(Mm *(Tim-Tfs))
 notice "Cp of metal = "; Cpm
```

```
[waitHere]
wait

[quit]
close #cfg
end
```