

Aim to Measure a Temperature Calibration Curve

Apparatus

Beaker, kettle, water, mercury thermometer, temperature sensor (shown), cbl2, calculator



The results clearly show that there are small but not significant differences between the temperatures recorded with the mercury thermometer and those recorded with the sensor. In the leaving certificate course the mercury thermometer is taken as the standard against which other thermometers, based on different thermometric properties, are compared. What is the actual standard thermometer and how can a version be set up with the cbl2?

Method

Setup mercury thermometer and temperature sensor in beaker. Add boiling water from kettle. Set up the cbl2 to trigger/prompt. Measure temperature with sensor and enter the temperature value recorded on the mercury thermometer. Adjust temperature of water and repeat. Plot line of sensor temperature against mercury thermometer temperature.

App Physics Enter

Setup probes One Temperature

Collect data Trigger/prompt +
enter_temperature_on_thermometer

More data (until Stop and graph)

Results

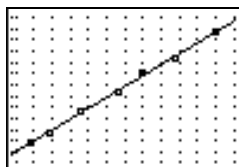
W1	L2	L3	1
90	88.615	-----	
79	77.111		
70	69.864		
63	62.038		
53	52.879		
44	43.947		
39	39.1		

L1 = {90, 79, 70, 63...

screen 1

LinReg
y=ax+b
a=.9750819304
b=.8471509449
r ² =.9996422128
r=.9998210904

screen 2



screen 3

Sketch graphs (labels / units) and note summary data.

Conclusions