

Later check · A changed setting

K4-D-T · A60 g covered liquid-water sample is placed in a chamber whose room/cup/lid/support stay at 19°C. Covered liquid water; no active heating/cooling, ice, phase change, direct sunlight or meaningful evaporative cooling. Room, cup, lid and supporting surfaces are at the stated surrounding temperature; it stays constant. Readings represent the sample temperature with a consistent procedure. This is a paper scenario, not apparatus instructions.

One chamber record

Constructed teaching data: these values were invented for this activity, not collected in an experiment.

Elapsed time (min)	Liquid water (°C)
0	9
6	12
12	14

K4-T1. Explain the pattern using readings, sample/surroundings and net-transfer direction. State what this table cannot prove.

This is a paper task. No chamber or water handling is required.

Later check · Idealized equal temperatures

K4-D-E · Conceptual case: liquid water, cup/lid/support and room are uniformly and exactly 22°C and remain so. The water is in thermal contact with its surroundings. No active source, phase change, evaporation or other energy input/output. These idealized conditions are stipulated, not inferred from readings.

Given conditions, not an experiment

Constructed teaching data: these values were invented for this activity, not collected in an experiment.

Idealized case	Water (°C)	All surroundings (°C)
Uniform temperatures throughout	22	22

K4-T2. Under these idealized conditions, is there net thermal-energy transfer due to a temperature difference? Explain. Does your answer mean particles stop moving?

K4-T3. In another scenario, one water reading is unchanged at 22°C. Does that alone establish thermal equilibrium? Name what else you would need to know.