

Thermal energy: choose and prepare a session route

Mentor Teaching · Teacher directions · 15 October 2026

Choose by the learning evidence

The paper route has six teaching sessions. The practical route has eight teaching sessions, several requiring continuation blocks. A session is a sequence, not a promise to finish in a single 45-minute period. Use the direct student selections and matching session directions on the resource page.

Paper route

1. Read measurements: 35–45 minutes.
2. Evaluate comparison conditions: 35–45 minutes.
3. Support a design choice with trials: 36–44 minutes.
4. Explain temperature change: 36–45 minutes.
5. Revise a particular claim: 45–55 minutes; allow a second supervised block.
6. Complete the paper design cycle: 55–70 minutes, usually two 45-minute blocks.

Practical route

1. Read measurements: 35–45 minutes.
2. Evaluate comparison conditions: 35–45 minutes.
3. Support a design choice with trials: 36–44 minutes.
4. Explain, then practise claim revision: 75–95 minutes with supervised continuation; often two or three 45-minute blocks.
5. Complete the paper design cycle: 55–70 minutes, usually two 45-minute blocks.
6. Assemble and run three first comparisons: 75–95 minutes plus adult preparation; continue after trial 1 when needed.
7. Commit the redesign and start retesting: 45–60 minutes; allow continuation and complete the first phase beforehand.
8. Finish retesting and explain the limits: 50–65 minutes; add supervised continuation for delays or repeats.

Print and disclose in stages

Give only the bridge/model/guided stage initially. Give independent records after teaching. For every initial/new pair, retain the original claim or proposal before revealing new evidence. Keep complete packets, keys, fresh rechecks and later assessments with the teacher. Quick Check in the first five thermal kits repeats that kit's independent task.

Practical preparation

Read the complete current cool-water operational guide and check all equipment/conditions before handling. Preserve three fresh paired trials per phase, phase instrument checks, actual 0/5/10 readings, reset/cleanup and supervised continuation. Do not replace repeats with three timepoints or send equipment work home. Use the separately staged supplied-data alternative if equipment or conditions are unsuitable; label its limits honestly.

Materials and access

Paper route: selected copies, pencil, optional calculator, number line and equivalent response modes. Practical quantities, probe suitability, fit, immersion depth, room/water limits and procurement are in the operational guide. No student internet access is required. The adult can download everything before class.

Matching files

The resource page links every session's student files, teacher directions and complete key:
<https://mentorteaching.com/resources/thermal-energy-session-routes/>

Science and sources

Selected Grades 6–8 science and engineering ideas, intended here for Grade 6 with the stated prerequisites. Supplied-data interpretation does not meet all construction/testing practices.

<https://www.nextgenscience.org/pe/ms-ps3-3-energy>

<https://www.nextgenscience.org/pe/ms-ets1-3-engineering-design>