Three Ways Heat Moves

TEACHER POURS, KIDS OBSERVE | RUN AT 11:35 | 20 MIN

The point

Heat travels three ways, and each gets its NAME said out loud: **RADIATION** (felt from the side), **CONVECTION** (warm air rising above), **CONDUCTION** (heat walking up the metal spoon).

Materials

- Thermos of near-boiling water (filled at home)
- Metal mug · metal spoon
- A pat of cold butter
- A timer

Steps

1. Teacher pours the thermos into the metal mug. Kids keep hands OFF the mug.
2. **RADIATION:** each child holds a palm near the mug's SIDE (not touching, not above). Feel the warmth arriving through the air. Name it.
3. **CONVECTION:** hold the palm ABOVE the mug — warmer than beside it! Warm air is rising in a column. Name it.
4. **CONDUCTION:** stand the spoon in the mug, press the butter pat onto the spoon's TOP end. **PREDICT the slump time.** Start the timer.
5. Watch the butter slump as heat climbs the metal. Stop the timer. Name it.

> *Say: "Three roads for the same traveler: heat BEAMS out sideways, heat RIDES the rising air, and heat WALKS up the metal — radiation, convection, conduction."*

PLATE 14: ILLUSTRATIONS OF HEAT TRANSFER AND GRAVITY.

TEACHER PREP

Fill the thermos just before session so the mug is properly hot on cue. Cold butter straight from the fridge slumps more visibly than soft.

What to watch for

- The above-the-mug hand always surprises — hotter than beside it
- The butter slump is slow — let the timer build suspense
- All three NAMES said aloud by the kids, not just the teacher

EXPECTED RESULT

Warmth beside (radiation), more warmth above (convection), and a slumped butter pat some minutes later (conduction) — three ways, three names, one mug.