

Metal That Melts in Your Hand

KIDS HANDS-ON

RUN AT 11:35

20 MIN

The point

Metals melt too — each at its own temperature. Gallium's melting point ($\approx 86^\circ\text{F}$) is **lower than a person**, so body heat alone turns a solid metal into a bright silver puddle. And it's reversible, just like ice.

Materials

- Gallium sample (30–50 g), fridge-cold and solid
- One small ceramic plate per child (never aluminum)
- Paper towels · soap and water for after
- Fridge (re-solidify over lunch)

Steps

- 1 Pass the cold vial. “Is this metal solid or liquid?” Solid — it keeps its shape, it clinks.
- 2 Recall Card 2: your hand is about 98°F . Gallium's melting number is about 86. “Who is hotter — you, or the metal's melting point?”
- 3 Each child **cups the piece in a bare palm over a plate** and holds still. Watch it slump, gleam, and pool — a real liquid metal.
- 4 Tip each puddle back into the vial (it beads like fast silver water — a liquid taking its container's shape).
- 5 Vial goes **into the fridge**: after lunch, show it solid again. Freeze is just melt run backwards.
- 6 Everyone **washes hands**.

Say: “You are warmer than this metal's melting point. To gallium, your hand is what the stove is to butter.”



Fig. 3 — body heat crosses gallium's melting line

SAFETY

Gallium is **non-toxic but never for mouths** — teacher hands it out and collects it. It can leave a faint gray smudge (washes off with soap). **Keep it far from anything aluminum** — foil, pans, jewelry — it destroys aluminum on contact.

TEACHER PREP

Park the vial in the fridge overnight so it is fully solid at go time. Cold hands melt it slowly — run this **AFTER** thermometer play, when hands are warm.

What to watch for

- It melts from the outside in — where it touches the warm skin
- The puddle is shiny, heavy, and **flows** — every liquid rule applies
- After the fridge: solid again — nothing was used up

EXPECTED RESULT

Solid metal → liquid metal in 2–4 minutes of patient holding, back to solid in the fridge. **Melting isn't a water trick — it's what matter does when heat crosses its own melting number.**