

# The Candle and the Cup

TEACHER DEMO

RUN AT 11:35

25 MIN

## The point

The outside air pushes water UP into the glass.  
Nothing sucks — ever. When the air inside pushes less, the air outside wins.

## Materials

- Shallow dish or pie plate
- Tealight or short candle • long-nose lighter
- Clear glass, taller than the candle
- Water (+ a drop of food coloring)

## Steps

- 1 Stand the candle mid-dish; pour about **one inch** of colored water around it.
- 2 **PREDICT** on the worksheet back (band 3):  
burning on / flame out and water climbs / cup pops off?
- 3 Light the candle. Lower the glass **straight down over it** until the rim sits on the dish, under the waterline all the way around.
- 4 Watch in silence: flame shrinks, gutters, dies... **then the water climbs** up inside and stops.
- 5 Argue it out: who pushed the water up? Nothing inside is left to pull — **nothing sucks**.
- 6 Explain: the flame **warmed** the air; when it died the trapped air **cooled and pushed less**; the outside air, pushing as hard as ever, shoved water into the weaker place.
- 7 Lift the glass — hear the little glug — and **run encores** on request.

*Say: "The air outside never stopped pushing. When the air inside got weaker, the outside push won — and shoved the water up. Nothing sucked. The outside air PUSHED."*



Fig. 3 — flame out first, THEN the climb — the order is the clue

## TEACHER PREP — THE DAY BEFORE

Test the pairing: the glass must be **taller than the candle** and its rim must seal **below the waterline**. About an inch of water — deeper drowns the flame on the way down.

## SAFETY

Open flame: **adult lights and lowers**; kids at arm's length; hair tied back; matches and lighter live out of reach.

## What to watch for

- The order: flame dies **FIRST**, the water climbs after, as the air cools
- Water rises only inside the glass, then holds steady

## EXPECTED RESULT

The flame goes out and water climbs partway up inside. **Cooled air inside pushes less; the unchanged outside air pushes water up** until the pushes balance. (Keep it honest: warmed-then-cooled air — not "the flame ate the air.")