

The Vacuum Jar Show

KIDS PUMP, TEACHER STAGES

RUN AT 1:10

20 MIN

The point

A vacuum is a space with the air taken out — a MISSING thing, not a thing. Five acts, one cause: watch what everything does when the pushing air goes away... and comes back.

Materials

- Hand vacuum pump + jar kit
- Marshmallows · one barely-inflated tied balloon
- Shaving cream + small cup
- Small cup of warm (not hot) tap water
- Loud beeping kitchen timer + folded cloth pad

Steps

- 1 **Predict before every act;** kids take turns pumping (the effort IS the lesson).
- 2 **Marshmallows:** they swell into giants... and shrivel smaller than they started when air returns.
- 3 **The lazy balloon:** a barely-blown balloon inflates itself — nobody blowing.
- 4 **Shaving cream:** a small blob billows into a mountain (a thousand tiny bubbles swelling at once).
- 5 **Warm water:** bubbles stream up from water that is only warm — the air's push helps keep water liquid.
- 6 **The timer:** beeping on its cloth pad, sealed in... the beep fades far away, and swells back with the air. **Sound needs air to carry it.**
- 7 After each act, **let the air hiss back in** and watch everything reverse.

Say: "A vacuum isn't a thing — it's a MISSING thing. A space with the air taken out. Watch what everything does when the push goes away."



Fig. 6 — the air inside them pushes out when the jar stops pushing in

TEACHER PREP — DAYS BEFORE

Test the kit once (seal, pump count, marshmallow dry-run) so there are no on-stage surprises. Moisten the gasket; stage the five acts in cups; fresh timer battery.

SAFETY

Use only the kit's own jar (made for vacuum) — never an ordinary glass jar. Warm water only; hot softens the seals. Marshmallows out of the jar are still snacks — ration accordingly.

What to watch for

- Everything reverses the instant air returns
- Pumping gets harder as the jar empties — the air fights to stay

EXPECTED RESULT

Marshmallows and balloon swell (their trapped air pushes out unopposed); cream billows; warm water streams bubbles (*the act a hand pump sometimes can't fully reach — bubbles streaming = win*); the beep goes **quieter and far away, not perfectly silent** — some sound sneaks through the glass and base.