The Solar Car Fair Test

KIDS HANDS-ON + MEASURE | RUN AT 10:40 | 25 MIN

The point

No energy in, no going. Light is the car's ONLY fuel — so dimming the light must change the going. A real **fair test**: change one thing, keep everything else the same.

Materials

- Solar toy car
- Tissue paper (several layers)
- Floor tape · a taped start line and lane in full sun
- A 5-second timer

Steps

1. Tape the lane where the sun lands. Same lane, same car, same start line, every run.
2. **HYPOTHESIS on the worksheet first:** more light means the car will go… (child's own words, grown-up scribes).
3. Run 1 — full sun: release at the line, time 5 seconds, tape-mark where it reached.
4. Run 2 — ONE tissue layer over the panel. Mark. Run 3 — TWO layers. Mark.
5. Run 4 — a hand fully shading the panel. Watch what happens. Mark (if there is anything to mark!).
6. Stand back and read the tape marks like a staircase. What did the light DO?

> *Say: "Same car, same floor, same five seconds. The ONLY thing we changed was the light — so the light is what makes it go."*

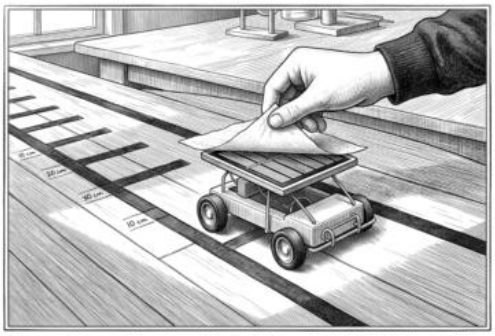

PLATE 7. FIG. 2. – *Observation of Solar Car Efficiency Under Varied Shading Conditions. A. Child's hand applying a thin tissue filter to the solar array. B. Experimental track with marked distance intervals. Note the influence of direct illumination and partial shading on propulsion velocity.*

TEACHER PREP

Charge nothing — the car has no battery, which IS the point. Scout the sunniest floor patch at the session hour; have the timer and tape pre-torn.

What to watch for

- The staircase of marks — each tissue layer shortens the run
- The hand-shade run: the car does not move AT ALL — say "no energy in, no going" out loud
- Fair-test talk: why the same lane? why five seconds every time?

EXPECTED RESULT

Distance falls as light falls, and dies to zero with the panel covered. The hypothesis is checked against the tape marks, not against opinions.