

Run and judge a fair test

**Plan. Repeat. Check.
Conclude.**

Use evidence to answer the question, and explain its limits.

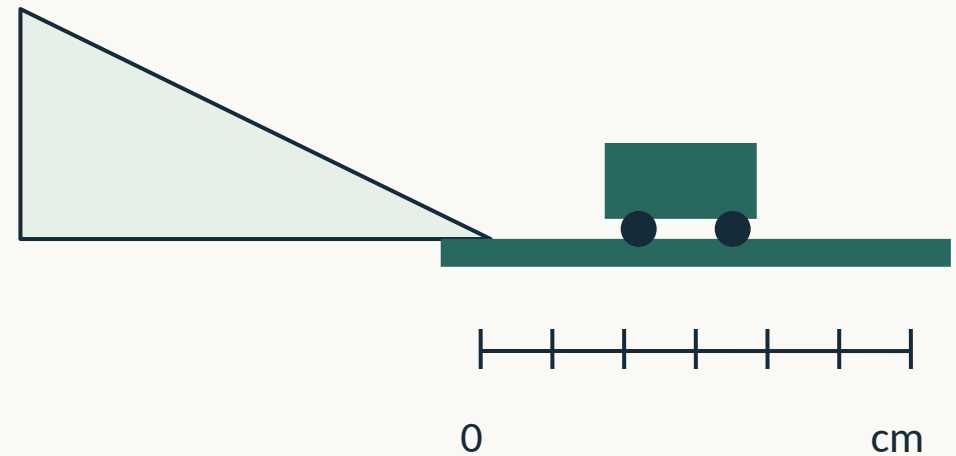


Recover the question and your plan

Does the run-out surface affect the trolley's stopping distance?

Choose two surfaces. Complete CHANGE / KEEP / MEASURE.

same release • no push



Check a safe, controlled setup

- 01 Adult secures a low ramp, clear run and padded stop.

- 02 Keep the trolley, ramp height and release mark fixed.

- 03 Keep the run-out level and the ramp join unchanged.

- 04 Agree the zero, trolley edge and no-push release.

Record in a useful table

- 01 Name each surface before testing.

- 02 Use columns: Trial 1 / cm, Trial 2 / cm, Trial 3 / cm.

- 03 Record from the same zero to the same trolley edge.

- 04 Keep notes about any method change or non-run.

Surface A: make three releases

- 01 Release without a push. Wait until the trolley stops.

- 02 Measure and record the first distance.

- 03 Reset to the same mark; repeat twice if practicable.

- 04 Keep every value and any method note.

Surface B: keep the controls

- 01 Change only the level run-out sample.

- 02 Recheck the ramp join, release and measuring zero.

- 03 Run three no-push trials if practicable.

- 04 Record distances in centimetres and note any issue.

Compare the repeated values

01

Are the three values for each surface close?

02

Is one run noticeably different? Keep it.

03

What did you observe about the method?

04

Use values from both surfaces in your explanation.

No kit? Interpret this model set

INVENTED TEACHING DATA

A: 48 cm, 50 cm, 49 cm

B: 27 cm, 29 cm, 28 cm

These are not your measurements.

WHAT MUST BE TRUE?

Same trolley and ramp?

Same no-push release and zero?

Only run-out surface changed?

Pause and inspect one uncertainty

01

Pause the kit. Compare the repeats.

02

Mark an unusual run or possible method issue.

03

Do not delete a result because it differs.

04

Decide whether one controlled retry would help.

Retry a method issue if time allows

01

Name the concern before repeating.

02

Correct it, then use the same planned method.

03

Label the retry separately from the original trial.

Optional: calculate a mean

Mean = total of the three distances $\div$ 3

Model A: $(48 + 50 + 49) \div 3 = 49$ cm.

Answer using the evidence

Our evidence supports ____ because the distances were ____.

This applies to this setup. One limit or method concern is ____.

Keep the plan with the results

- 01
Keep your plan, all results and conclusion together.
- 02
Label actual, adult-recorded or model-data work.
- 03
Reset the space and return the equipment.

Your feedback has an audience

- 01 What helped while you waited between trials?

- 02 What could make testing or recording more accessible?

- 03 Point, sign, speak, write—or pass privately.

- 04 Adult: agree a change, explain limits and check back.

Explain why the method matters

01

Supported: how many variables did we plan to change?

02

Standard: name one control variable from this test.

03

Stretch: why are repeats more useful than one result?

Check and improve your answer

We changed the surface and controlled the release. Repeats helped us judge consistency.

An unexpected result stays in the record, with any method concern noted.