

Friction: test the surfaces

**One block. Three surfaces.
Evidence.**

Use repeated results to explain what happened in this setup.



Return to your prediction

01

Find Monday's prediction. Do not erase it.

02

Which surface do you think will stop the block sooner?

03

Choose a role: tester, observer, director or recorder.

Set up a safe comparison

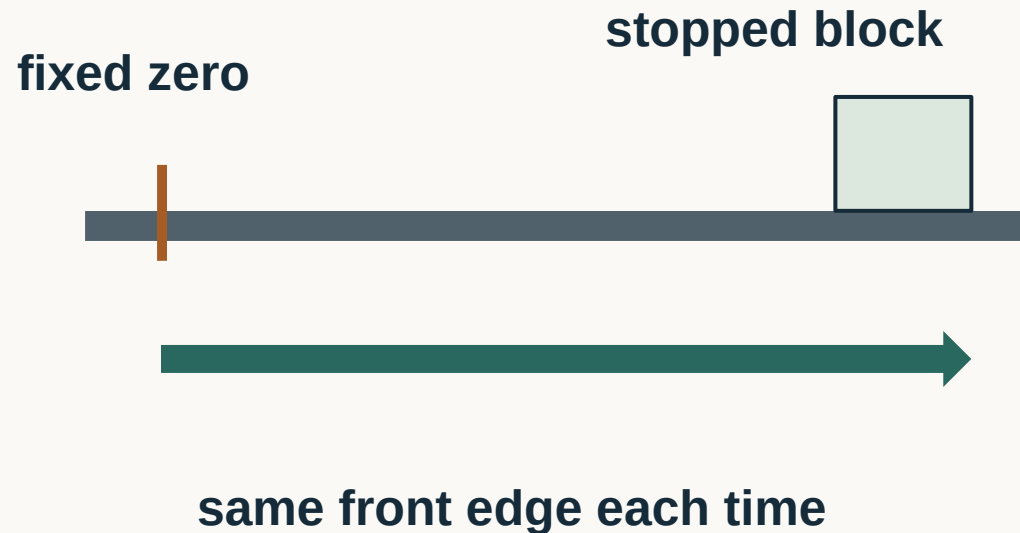
- 01 Adult checks the low ramp and padded stop.

- 02 Use the same block, release mark and ramp height.

- 03 Keep each surface level and the ramp join fixed.

- 04 Hands clear. Release gently; never add a push.

Where will you measure from?



Measure from the same ramp-foot zero to the same front edge of the stopped block.

Record centimetres: cm.

Surface 1: release, record, repeat

- 01 Name the surface in your results table.

- 02 Release from the mark without a push.

- 03 Measure the stopping distance in cm.

- 04 Reset everything and run Trial 2.

- 05 Keep both results, even if they differ.

Surface 2: change only the sample

01

Replace the level surface sample.

02

Keep the block, ramp, release and join the same.

03

Measure Trial 1 and Trial 2 from the same zero.

04

Write a note if the method changed.

Surface 3: finish the comparison

01

Check the controls before the first release.

02

Record two trials if time and access allow.

03

Which results are close? Which need checking?

04

Record unfinished trials honestly.

No equipment? Use model data

INVENTED TEACHING DATA

Card: 42 cm, 44 cm

Fabric: 25 cm, 27 cm

Rubber mat: 15 cm, 18 cm

DISCUSS THE EVIDENCE

Which stopped the block sooner?

What had to stay the same?

What can these values not prove?

Pause and check the method

- 01
Pause the equipment and compare your repeats.

- 02
Check one control: release, slope or measuring zero.

- 03
Mark an uncertain run. Keep the original value.

Repeat one doubtful run

01

Choose one specific method concern.

02

Correct that concern with the adult.

03

If time allows, repeat and label the new result.

04

Keep the first result and the reason for retrying.

Use numbers in your conclusion

In our setup, ____ stopped the block
over a shorter distance: ____ cm and ____ cm.

This supports ____ because _____. A control or uncertainty to check is _____.

Leave a clear record

01

Name and date your record; keep the prediction.

02

Label any model data or unfinished trials.

03

Return samples, block and measuring tools safely.

Your voice can change the lesson

- 01 What helped you test, observe or record?

- 02 What could make the next activity easier to access?

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

- 04 Adult: agree one change and explain any limit.

Explain one use of friction

01

Supported: name one place friction helps.

02

Standard: explain how a car's brakes help it stop.

03

Stretch: explain a helpful and a harmful effect.

Check and improve one detail

**Brake friction transfers movement energy to heat.
It helps slow the wheel.**

Rubbing in moving engine parts can cause unwanted heating and wear.