

PUPIL WORKSHEET

Friction: test the surfaces

Autumn 1 · Week 3 · Lesson B

Name: _____ Date: _____

Explain friction's effects using a controlled three-surface comparison and repeated stopping-distance evidence.

Use this sheet with Monday's prediction. You can test, observe, direct an adult, point or dictate. Keep the real results even if they surprise you. Choose the model-data route only if a safe practical is unavailable.

1. Prediction and controls

Retrieve Monday's prediction. Which of your three surfaces might stop the block sooner? Explain or point to your reason. Name the things that must stay the same.

- Prediction: I think ____ because ____.
- Controls: same block, ____, ____ and ____.
- My role: tester / observer / director / recorder.

2. Three surfaces, repeated evidence

Write, draw, point or dictate as agreed with your teacher.

Name each actual surface. Release the same block without a push. Measure from the same ramp-foot zero to the same edge of the stopped block. Aim for two trials per surface; record did not slide or not performed honestly.

Surface	Trial 1 / cm	Trial 2 / cm	Control or method note
1.			
2.			
3.			

A changed push, ramp or measuring zero makes the comparison uncertain. Keep all original values.

3. Alternative: model-data interpretation

Write, draw, point or dictate as agreed with your teacher.

Use this page instead of claiming a practical was performed. These values are invented teaching data from the lesson source. Compare the three surface pairs and explain one control needed to trust the comparison.

- Which stopped the model block over the shortest distances? Use two numbers.
- What had to stay the same?
- Why does this not prove one material always has the most friction?

Model surface	Trial 1 / cm	Trial 2 / cm
Card	42	44
Fabric	25	27
Rubber mat	15	18

4. Check, improve and conclude

Write, draw, point or dictate as agreed with your teacher.

Pause and check one control. If safe and time allows, retry one method concern. Keep the original result and label the retry separately. Use your actual results, or clearly name the model-data route.

- Result or method concern: ____.
- Retry, if performed: ____; reason: ____.
- My evidence supports ____ because ____.
- One limit or improvement is ____.

5. Feedback and exit

Write, draw, point or dictate as agreed with your teacher.

Tell the adult one observation or access need, or pass privately. Then choose one exit question. You may point, speak, draw or write.

- Feedback: what helped or could change?
- Supported: name one place friction helps.
- Standard: explain how a car's brakes help it stop.
- Stretch: contrast one helpful and one unhelpful effect.

CHOOSE A RESPONSE ROUTE

Ways to show your understanding

Choose the route agreed with your teacher. You do not need to complete every route.

Supported

Direct or observe all three surface comparisons with an adult. Point to start/stop marks, dictate values, and choose a conclusion supported by the record.

Standard

Record two releases per surface where practicable. Explain the comparison using measured distances in cm and one control.

Stretch

Compare repeats and a doubtful run. Explain an improvement, retain original data and qualify the conclusion to the tested surfaces and block.

Keep prediction, results and conclusion together. Next week's current sequence studies levers, pulleys and gears.