

PUPIL WORKSHEET

Planning a fair test

Autumn 1 · Week 5 · Lesson A

Name: _____ Date: _____

Identify independent, dependent and control variables, plan repeated measurements with units and explain fair handling of unexpected results.

Plan a test before using the equipment. Today's question is: Does the run-out surface affect a trolley's stopping distance? Use words, diagrams, pointing or adult dictation. Keep this sheet for Tuesday.

1. One question, clear variables

Complete the plan. Name what you will deliberately change, what you will keep the same and what you will measure. Give the measurement unit.

Planning frame	Our choice
Question	Does the run-out surface affect stopping distance?
CHANGE	
KEEP THE SAME	
MEASURE, with unit	

2. Diagnose the adult demonstration

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

In the first demonstration, the adult changed the surface AND pushed the trolley. The trolley travelled farther. Explain why this does not isolate the surface's effect, and tell the adult how to repair the method.

- Two things changed: ____ and ____.
- We cannot tell ____ because ____.
- Repair the method by ____.

3. Classify the variable roles

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

For this planned test, label each CHANGE, KEEP or MEASURE. Then explain how you would check the ruler zero.

Possible variable	Role in this test
Run-out surface	
Stopping distance	
Ramp height	
Which trolley	
Release method	

4. Sort and repair method claims

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

Use FAIR, NOT FAIR, NOT SCIENCE or NOT A UNIT. Explain one correction. A single good feature does not prove the whole test is fair.

Claim	Category / correction
Same ramp height; different surfaces	
Different ramp heights AND surfaces	
Three repeats per surface	
Ignore a result you dislike	
Measure in 'about a ruler'	

5. Keep the evidence and the plan

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

Trial 3 unexpectedly travels farther. What should happen to its value? What would you note if someone saw an extra push? Complete your planning sentence ready for Tuesday.

- The unexpected value should ____.
- A known method concern should ____.
- I will change ____, keep ____ and ____ the same, and measure ____ in ____.

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

Point to CHANGE/KEEP/MEASURE labels and dictate choices. Use one control at a time, with adult checking the zero.

Standard

Complete the plan and explain why two changed variables make the cause uncertain. Sort claims and correct one method issue.

Stretch

Distinguish an unexpected observation from a witnessed method mistake. Explain why repeats and a mean cannot repair an unfair comparison.

Stop here on Monday. Keep your plan for Tuesday's 32-minute workshop, 4-minute feedback and 4-minute exit.