

Autumn 1 · Week 4 · Lesson B

Name: _____ Date: _____

Compare two lever pivot positions and explain the relationship between effort force and effort travel for the same load rise.

Compare two lever positions with one light secured load. You may direct or observe an adult instead of handling the kit. Write what actually happens. If safe kit is unavailable, use the diagram explanation route and label it clearly.

1. Predict and prepare

Sketch the lever, or label a supplied diagram with EFFORT, PIVOT and LOAD. Predict what happens when the pivot moves nearer the load. Name the three main controls.

- My prediction: ____.
- Keep the same load, ____ and ____.
- My role: tester / observer / director / recorder.

2. Record both positions

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

With the adult, compare a middle pivot and pivot nearer the load. Raise the same load to the same small target height. Record effort as easier, similar or harder relative to the first position. Observe hand travel, or measure if suitable equipment is available.

What to compare	Middle pivot	Pivot nearer load
Same load and load rise checked?		
Effort: observation/comparison		
Hand travel: observation or value + unit		
Method or model concern		

Only write cm if measured. Only write force in N if an appropriate force meter was used. Similar or uncertain is an honest observation.

3. Check and explain

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

Pause and check load, lift height and effort point. Repeat one comparison if safe and time allows. Keep earlier observations. Then explain the gain and cost, or use a clearly labelled diagram explanation if no apparatus was used.

- One control checked: ____.
- A retry or revised label: ____.
- With the pivot nearer the load, ____.
- For the same small load rise, ____.
- One real-model limitation: ____.

4. Feedback and exit

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

Offer the adult one observation or access request, or pass privately. Choose one exit question and answer by pointing, speech, drawing or writing.

- What helped, or what could change?
- Supported: name the point a lever turns around.
- Standard: why can a pivot nearer the load help lifting?
- Stretch: why does the benefit have a cost?

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/observe both pivot positions. Point to effort, pivot and load; select easier/similar/harder and tell the adult if the effort felt similar.

Standard

Keep load and target rise constant, compare both positions and explain the change in effort arm.

Stretch

Compare hand travel for the same load rise. Use measured values only with appropriate equipment and units; explain a limitation of the real model.

Keep the labelled sketch, observations and explanation. Next week's current sequence plans a fair trolley test.