

Force: what is the pull being asked to do?

Middle school worksheet | OBML-007 | Free classroom and home copy

Name: _____ Date: _____

Goal: identify a pull and its direction, then use observations to choose a useful change. You need only a pencil and this sheet. No physical zipper activity is required.

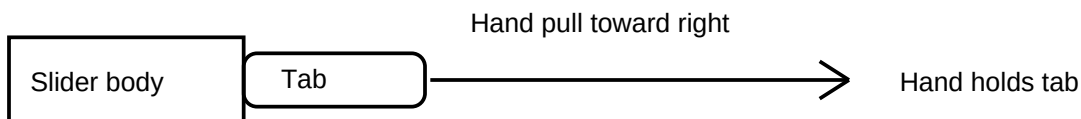
Start with a puzzle

Imagine an intact supply pouch packed so full that its opening edges spread wide. No cloth is visibly caught. Its slider resists. A classmate says, "The tab needs a bigger pull."

MS01 | Before reading the explanation, suggest one thing to inspect or change. What observation would guide your choice?

Concept card

A force is a push or pull. A hand pulling a zipper tab supplies a pull to the slider. The slider body has a passage that guides the rows into engagement or apart. The pull and the guiding shape have different jobs.



Direction only: no scale, measured size or guaranteed movement.

Diagram text: the hand pulls the tab toward the right. The tab is attached to the slider. This simplified direction arrow is not a force measurement and does not guarantee movement.

MS02 | Which object receives the hand's pull through the tab? What does the arrow tell you, and what does it leave unknown?

Change the conditions

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Manufacturer guidance for an overfilled bag recommends reducing contents and bringing the chain sides close before closing. Avoid forcing a resistant slider. Stop if gentle normal movement fails or damage is apparent. This is guidance, not a repair guarantee.

MS03 | Sketch the pouch before and after a useful packing change. Label contents, opening edges, slider and hand-pull direction. Do not draw a stronger arrow as proof of success.



MS04 | Compare two described cases: A has a cloth fold in the slider passage. B has no visible caught cloth, but contents spread the opening wide. Why might the same action miss the cause in one case? State a stopping condition.

MS05 | Transfer: imagine a hand pushing a book toward the left across a table. Name the push, the object it acts on and its direction. Explain why a direction arrow alone cannot tell you the push's size or promise the result.

Takeaway in your own words: before adding more pull, ask _____

Optional rabbit hole

Read Force: what are you asking the pull to do? Then see Quinn change the packed-bag condition in The Bag That Wouldn't Take One More Thing, section "One more thing." Both readings are optional; this worksheet supplies the needed concept.

Force micro-lesson: <https://thisworldexplained.com/okay-but/force-what-are-you-asking-the-pull-to-do/>

Zipper story: <https://thisworldexplained.com/okay-but/the-bag-that-wouldnt-take-one-more-thing/>

NASA, Toys in Space II, glossary p. 20: force means push or pull.

YKK, zipper structure: the slider guides joining and separation.

YKK, use precautions: different conditions need different choices; avoid forcing.