

The limits of reconciliation: Energy conservation

- C. We just saw how to reconcile “steeper means faster” with the conclusion, based on energy conservation, that the blocks have the same speed at the bottom. But does the reconciliation really help you understand what’s going on here? Here’s how one scientist responded:

The reconciliation brings attention to the fact that what’s going on with the *times* can be different from what’s going on with the *speeds*. But there’s no way the reconciliation can give you a deeper understanding of why the two blocks have the same speed at the bottom. That’s something you need to accept, because energy conservation says it’s true. My point is that reconciliation is worthwhile up to a point, but it’s not the core of learning this stuff.

In what ways do you agree and/or disagree with the scientist? Explain.

★ *POLLING: (i) agree, (ii) neutral, (iii) disagree*

- D. Let’s see if we can use the intuition-refinement reasoning of part B to gain deeper insight into why the two blocks have the same speed at the bottom of their ramps.
1. Review from part B: Which block has more acceleration?
 2. Review from part B: Which block takes more time to reach the bottom?
 3. Using what you just said about the accelerations and times, explain why the two blocks gain the same velocity.

- E. Look over what the scientist said in part C. Above, you expressed to what extent you agree and/or disagree. Is your view on this issue the same as it was earlier, or has your view changed?

★ *POLLING: (1) agree, (2) neutral, (3) disagree*