

Height into Motion

OKAY, BUT... HOW? · A closer look

Question: What does a higher starting point give a marble?

You'll be able to: Compare two release points and identify which supplies more energy from the drop.

A marble held above the finish has stored energy because of its position relative to Earth. Let it go without a shove: gravity can turn that stored energy into movement as it descends.

For the same marble near Earth, a bigger vertical drop supplies more gravitational energy. Measure straight down between the marble's center at the start and its center at the finish. The winding route between them is a different measurement.

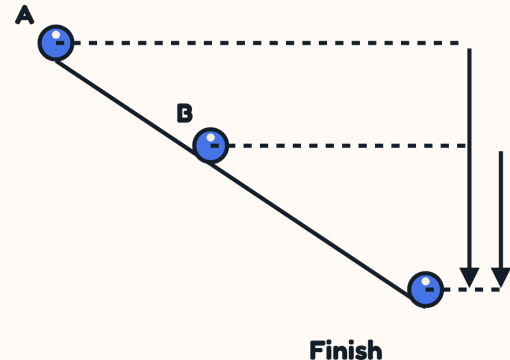
Quinn can move his release mark down the same ramp while keeping the finish in place. That reduces the drop. It gives him a useful energy comparison, but whether his particular cup holds the marble still needs an actual trial.



**OKAY, BUT...
HOW?**

A closer look with Quinn

Two releases, one finish



Finish

A: bigger drop B: smaller drop

Measure vertically between the marble-center heights. Same marble. No shove. Not to scale.

One finish, two release heights. The arrows measure vertical drop, not track length.

Diagram in words: Quinn points across the branded header above two release marks on one downhill ramp. Mark A is higher than B; both share a finish. Vertical arrows from the marble centers show a larger drop from A and a smaller drop from B.

[Open the full-resolution diagram](#)

Try the idea

Look at A and B. The marble and finish stay the same. Which release supplies more gravitational energy, and what measurement settles it?

Answer: A supplies more. Its marble-center height is farther above the finish. You need the vertical separation, not the number of bends or the length of track.

A little further, if you want

Optional: the stored energy belongs to the marble–Earth system. Choosing the finish as a reference makes the height comparison convenient; it does not mean energy vanishes at that height.

See it in action

One More Take — Quinn compares high and low release marks on the same track, then lowers the start when he moves the cup.

From the story? Return to One More Take at this concept. Arrived directly? Browse Okay But stories. Normal browser Back returns you to your previous page.

Sources

- [MIT: Potential Energy and Conservation of Energy](#) — Endpoint height and energy transfers; sections 14.2, 14.4.1, 14.8.
- [OpenStax: Gravitational Potential Energy](#) — Height change and stored energy.

[Download this lesson with its diagram and answer \(PDF\)](#)