



Curiosity Guide #403

Kinetic Energy

Accompanies Curious Crew, Season 4, Episode 3 (#403)

Dual Track Race

Investigation #7

Description

Keep on the straight and narrow, or take the scenic route?

Materials

- Two metal tracks of equal distance and height, but one has a short descent and ascent at either end, with a long straightaway in the middle. The other has a couple of descending and ascending hills at either end.
- Two balls of equal weight, like golf balls or large ball bearings

Procedure

1. Predict which ball will travel to the end of its track first.
2. Let both balls go at the same time.
3. Why does one of the balls arrive first?

My Results

Explanation

Each ball has an equal amount of gravitational potential energy because each one starts at the same height above the ground. However, the ball that travels on the straighter track does not fall as far, so this ball cannot change as much of its potential energy to kinetic energy. The one that falls faster ends up gaining more speed and then can travel further in a faster period.

Think about this! An object at rest has no kinetic energy, but when the object moves, it receives energy. Sometimes a moving object will collide with another object, like a bowling ball hitting pins or a hammer hitting a nail head. When the ball hits the pins, some of that energy transfers into the pins, making the pins move and making a sound, too. When the hammer hits the nail, the nail moves, too, but not so much, as the nail drives into the wood. In this case some of the kinetic energy transfers into heat energy and some of the energy into sound energy. Energy is not created or destroyed, but it can transfer into many forms!

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