

Roller Coaster Science

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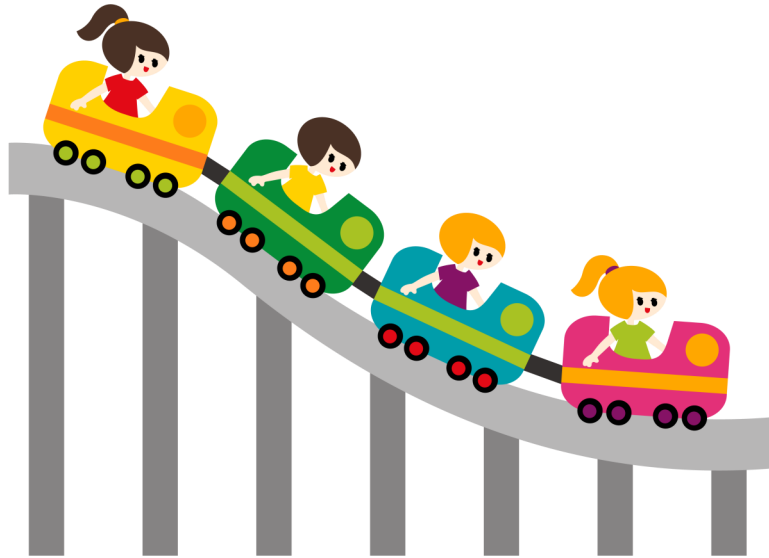
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Roller Coaster Science



Don't you just love roller coasters? Whipping around corners, feeling like you're going to fall out as you're hanging upside down in the center of the loop, and jerking to a stop at the end of the ride... but what makes you stay in your seat?

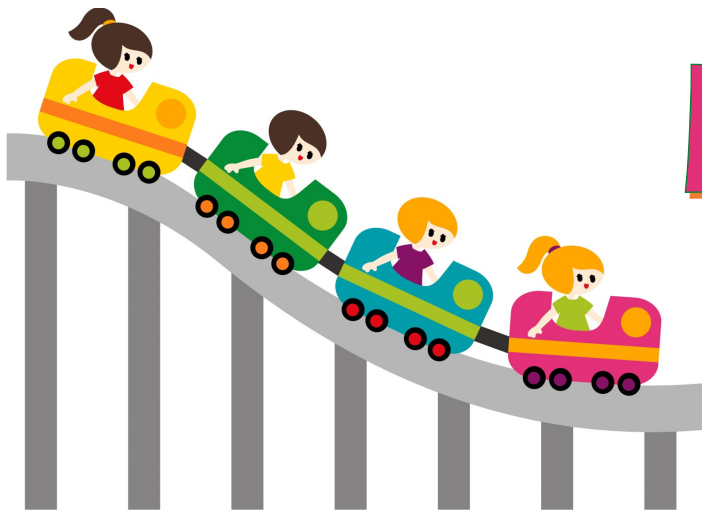
Science. Physics...to be exact.

When you leave the station, a motorized chain pulls you up that first huge hill. Click...click...click... **That first hill is typically the largest and the one with the most potential energy.** What's that? It's the amount of work that the train cars will be able to do with the energy it builds up from falling. That energy will be enough to propel you through to the end of the ride.

As the train speeds down the hill, that potential energy is converted to kinetic energy. {It's essentially changing from stored energy to motion energy.}

Newton's First Law states that an object in motion will stay in motion until an equal and opposite force acts upon it. While the coaster is cruising around loops and corners, and up and down hills, force is being lost to friction and air resistance.

By the end of the ride, it's lost enough force to come to a stop — with a little help from the air brakes.



Design a Coaster

You are a roller coaster designer. Knowing what you now know about how roller coasters work, design a new thrill ride. What will it be made of? How many hills will it have? What will be the feature that sets it apart from all the other roller coasters out there?

Write about your coaster below — selling it to thrill-seekers around the world, then use another piece of paper to draw your coaster, or use supplies from around the house to build a model of your theme park ride.
