Newspaper *in* Education

Newspaper in Education Presents

inquiziKidz

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What are the forces behind the roller coaster fun?

kidzbiz

Maximum Performance

Godfrey Sannon is excited about going to **Harllee Middle Magnet School** every day! Godfrey gained his enthusiasm in Linda Chambers' classroom where he learned the beginning principles of *Project Lead the Way*. He explored fundamentals of project design and modeling through exciting, hands-on units on like one where he actually built a miniature dragster.

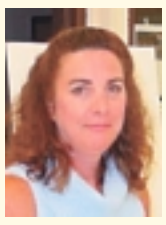
Godfrey Sannon

The dragster unit was his favorite. He learned how velocity could be influenced by aero-dynamic factors of the car's design. Using test trials that pitted his car against others, he was able to modify the car's design to achieve maximum performance. His class also gained knowledge of sketching and the different uses of electronics and robotics through the Inventa software, which is one of the computer technology components of the program. " I am interested in continuing to learn about technology. I hope to continue taking these fun classes," says Godfrey Sannon.

school biz

Leading the Way

Linda Chambers' career with technology began at **Harllee Middle Magnet School**. The school was being retrofitted and Linda was taught how to network the new system. Linda learned to handle the entire school's computer network, complete new installations, and conduct training for new staff. Her love of technology began at Harllee and continues to grow. Linda accepted the challenge to move to the cutting edge with the new pre-engineering magnet program, *Project Lead the Way*. Last summer she was thrilled to go to the Rochester Institute of Technology and was trained in the foundations of *Project Lead the Way*. Last year the students at Harllee received the benefits of her training. Students worked in groups to engineer machines, design and build racecars and create structural drawings. Linda is also the advisor for the Technology Student Association (TSA). The group competes regionally with other middle school students on topics related to pre-engineering and technology education. Linda believes that education in technical careers is very important to today's students. It exposes them to careers of the future – careers that will be in high demand and that will pay well.



Linda Chambers

Laws of Physics

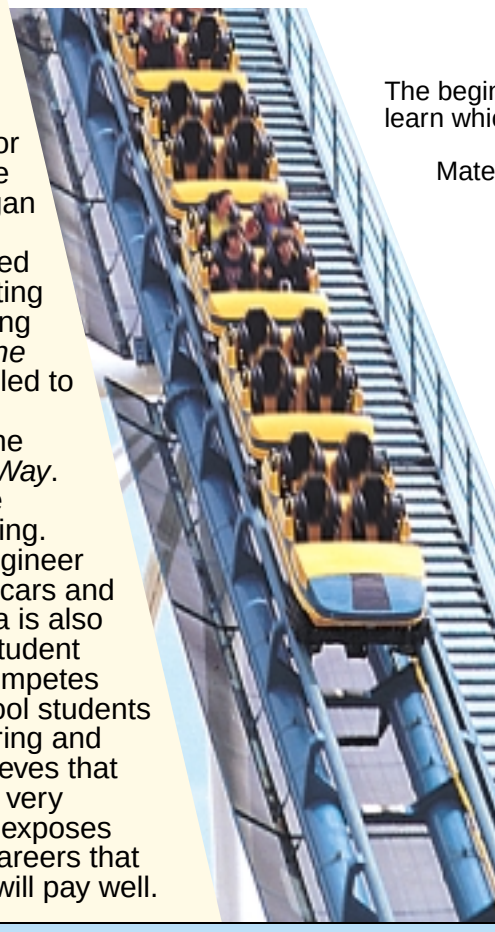
Roller Coaster Thrills

What could possibly be fun about sitting in a car that drops 135 feet or travels at 100 mph with only a safety harness holding you in? Millions of people actually pay to experience this roller coaster thrill at amusement parks around the world. The sensations produced by roller coasters are attributed to the laws of physics.

The roller coaster car itself does not have a motor. It is pulled by a motor-driven track to the top of a steep incline and is then released to follow the remainder of the track on its own. This is possible because of the basic principle of converting *potential energy* into *kinetic energy*. The potential energy is created as the car ascends and kinetic energy is released as the coaster drops with the force of *gravity*. The *velocity* created by the drop generates momentum that propels the coaster car into the next incline. The rider immediately experiences the sensations created by forces of gravity and the extreme changes in *acceleration*. The cycle is repeated throughout the ride. As the coaster car moves along, the wheels serve to guide it. *Friction* is the force that the wheels depend on to maintain the car's stability and keep it on track, even if inverted. What brings the ride to its conclusion? Compressed air brakes are used to bring the cycle of potential and kinetic energy to a halt – giving the rider a chance to take a breather from all the physical sensations he has just experienced due to the laws of physics.

Did you Know?

Busch Gardens Tampa Bay boasts that Kumba initially drops riders 135 feet and then another 110 feet before they dive into a 360 degree loop. The result is absolute weightlessness for 3 full seconds. Gwanzi is the Southeast's largest and fastest double wooden roller coaster. Gwazi's riders race at speeds of 100 mph while passing within feet of cars from the other track. Just think of the science that local thrill-seekers can experience!



Discover the Future

According to the Bureau of Labor statistics, 8 of the10 fastest growing occupations are directly related to math, science or technology. These same experts predict that there will be over 1.5 million new jobs in these areas by 2010.

Computer-Aided Draftsman
Structural Engineer
Mechanical Engineer
Computer Systems Analyst
Civil Engineer
Computer Programmer
Software Engineer
Genetic Engineer
Industrial Designer
Mechanical Engineer
Electrical Engineer
Electronic Engineer

For more career information see your school counselor and get information on-line at: **http://jobstar.org/tools/career/spec-car.cfm OR http://www.acinet.org/acinet/default.asp**

explore it

The beginning drop on a roller coaster sets the speed for the rest of the ride. Create your own mini coasters and learn which surface provides the best ride.

Materials Needed
- Cardboard (at least 15 x 18)
- Tape
- Aluminum foil or waxed paper
- Small fan
- Water
- Salt
- Cornstarch
- Butter
- Carpenter's square (to measure slope angle)
- 5 gamepiece checkers or 5 identical large buttons
- Pencil and paper to record results

1. Cut five strips of aluminum foil or waxed paper 12 inches long and 2 inches wide.
2. Tape the tops of the strips to a piece of cardboard. (Do not tape the bottom) Be sure that all of the strips are smooth.
3. Sprinkle salt and water on the first strip. Rub cornstarch on second strip. The third strip should have water only. Spread a thin coat of butter on strip number 4. Set up a small fan to blow on strip number 5.
4. Prop the cardboard up at a 45 degree angle using the Carpenter's square to measure.
5. Now it is time to see which surface will allow for the fastest race. Hold checkers at the top of the different strips. Countdown from five to zero and release the checkers at the same time.
6. Measure how far the checker travels on each strip and record the results.
7. Now change the angle of the slope and test your results. Experiment by increasing or decreasing the amount of salt, water or butter used on the strip

Did the friction created by the salt, water, or butter impact your results? How could you get better acceleration of your checker? These are the same lessons that designers of roller coasters must learn in order to make the ride as exciting and fast as possible.

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Ballard Elementary Magnet
Daughtrey Preporatory Magnet
Harllee Middle Magnet
Johnson Middle Magnet
Lee Middle Magnet
Lincoln Middle Magnet
Manatee Elementary Magnet
Rowlett Elementary Magnet
Tillman Elementary Magnet
Wakeland Elementary Magnet

Schools listed in red offer instruction in the subject area featured in today's InquiziKIDz

Next Weeks Inquizikidz - Is breaking a leg on the stage a bad thing?

webwize

www.pltw.org/aindex.asp

www.surfnetkids.com/engineer.htm

http://pbskids.org/zoom/pendulum/

www.eia.doe.gov/kids/kidscorner.html

http://library.thinkquest.org/C005075F/?tqskip1=1&tqtime=0623

www.discoverengineering.org/eweek/cool_things/rollercoaster/splash.htm

http://dsc.discovery.com/convergence/coasters/interactive/interactive.html

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