



the stars  
challenge

Explore, Imagine  
and Build  
Winter 2012



Wow! So many of you have enjoyed taking Stars Challenge programs as sixth and seventh graders and now you can add Explore, Imagine and Build to your successes! Your willingness to learn science inspired all of us to experience the excitement of discovering new ways to view the natural world that surrounds us.

We applied the concepts of inertia and forces to understand how a space probe could travel to the outer regions of our solar system without massive amounts of fuel. We watched with amazement as our classmates tried in vain to break an egg by throwing it as hard as they could into a stretched sheet held in front of them. We can explain why the "sad" ball doesn't bounce. We were mystified as an object seemingly passed through stacked cups. We can explain why it is necessary to "follow through" when playing baseball but when practicing the martial arts sharp jabs are used. We all enjoyed wearing the "inertia hat", making a tornado in a bottle, riding on the "inertia puck" and balancing the plastic man, and fork and spoon in seemingly impossible ways. We learned how to talk through a cup and string "telephone" and how to construct a cup that says, "Science is Phun". Showing our family and friends kazoo's made out of every day items and the sound of a struck hanger really makes learning science all the more enjoyable (although I am not sure if your parents enjoyed the kazoo!!) Investigating electricity led us to construct our version of the game operation and to an understanding of simple electric circuits.

Along our journey of science learning we challenged each other to build a slow descent rollercoaster, pull a dollar bill out from between two bottles without the bottles moving, and guide a loop around a wire without making a buzzer sound. We were all rewarded with the sweet taste of donuts!

I enjoyed our class very much. I hope that you will continue on your exciting journey of discovering new ways to experience the natural world that surrounds all of us.

Mr. Valente



Michael, Henry, and Dan succeed in pulling the dollar out from between the two bottles while Steven is planning his technique. Kevin enjoys showing off his new "inertia hat".





Eliza and the whole class show off their new fashion statement.



Jillian and Dan demonstrate to Nicole, Eliza and Aneesha how to cut the wood needed to build the inertia block. Then Holly and Nicole try their hand at the task. Nick and Steven discuss how the inertia block works.





Jillian, Jane, Michael Brennan, Ariana and Michael Palladino work hard to construct their inertia block while Henry is proud to show off the finished product.



Mr. V gives Matthew a ride on the "physics puck". Dan is excited to take a ride. Inertia in action.





Jillian takes her experience of inertia very serious while Michael enjoys traveling on a layer of air.





Bobby makes plans to construct his model swing ride while Holly and Ariana enjoy explaining why all the swings swing at the same angle regardless of weight.



Holly proves that the water will stay in the cup as it is swung in a circle. Ariana and Christian work together to construct their swing ride. Mr. V explains how circular motion requires a centripetal force.



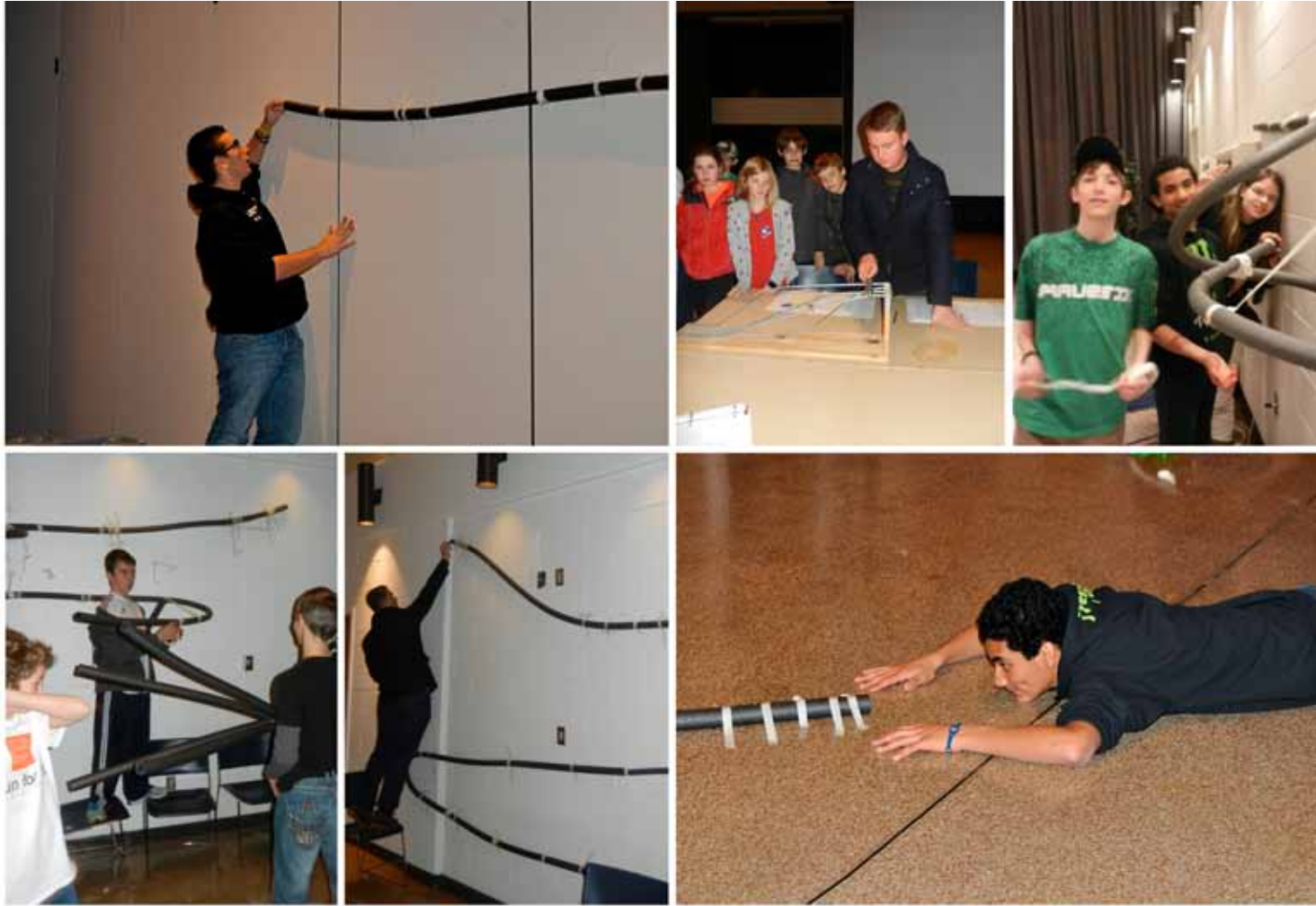


Aneesha makes a tornado in a bottle. Careful!! Don't let it out. As hard as they try, both Kevin and Christian can't break the egg by throwing it against the sheet. Physics rules!



Christian, Aneesha and Daniel succeed in making the penny balance on the swinging hanger. While Michael and Henry enjoy making a tornado in a bottle.





Cooper really gets into his design for the slowest descent roller coaster competition, while Kevin waits to see if the marble makes it through his design for the coaster.



Holly and Jillian show off their design for the slowest descent roller coaster while Copper, Grant and Christian plan their design.





Michael and Bobby demonstrate the spoon and fork balancing trick while Michael and Matthew prove Newton's third law of motion. Kevin and Henry try to master the torque feeler.



Grant is amazed that the smiley-man balances in gravity-defying positions. Aneesha explains how.





Dan and Cooper make noise for physics using their homemade kazoo while Holly, Steven, Christian and Jane look real cool in their rainbow glasses. So does Nick.



Eliza and Nicole can't believe their ears: a cup and string phone really works! Ariana gets it: she understands how the cup and string phone works. Mr. V demonstrates how a record can play music.





Jane and Bobby are very excited to start constructing the electrical circuit challenge device. Nick helps Kevin during the construction process.



Bobby and Henry construct their electrical circuit challenge device. Grant can't wait to try his hand at the challenge. Matthew observes as Dan explains the next construction step.







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The Stars Challenge at Monmouth University