Marble Coaster Competition

Students will utilize their new knowledge of physics concepts to build a Marble Coaster that will provide the **longest** timed “ride” possible. Select one of the following categories for the competition:

* **“Rockin Roller Coaster” Category:** The creation will be similar to a typical roller coaster that runs on a track.
* **“Off the Beaten Track” Category:** The creation will cause the marble to move but the design will not have a typical “track” for the marble to travel.

**Main Guidelines to be followed by both categories:**

1. Must be primarily made of scrap materials (newspaper, toilet paper/paper towel/wrapping paper tubes, recycled materials, soda bottles, scrap wood, sticks, cardboard, tape, scrap pvc pipe, fabric, etc.).
2. Do not spend more than $10.00 on materials used to construct your marble coaster (this amount does not include the cost of tape or glue). I’m not asking students to bring in receipts, but students should keep track of how much they’ve spent.
3. Must be NO MORE than 3 ft x 3 ft x 3 ft.
4. It must take a **minimum** of 10 seconds from start to finish.
5. Must include at least 2 changes between potential and kinetic energy. (This means your coaster should have at least 2 dips/hills/loops/inclines. Here is a website to help understand potential and kinetic energy: <http://www.teachersdomain.org/asset/mck05_int_rollercoaster/>
6. Can NOT use liquids (of any form), or store- made kits. Students must use materials around the house/yard.
7. It **does** have to be transported from your house to school, so keep this in mind when constructing your marble coaster. Students will have a short amount of time to adjust their creation once it arrives at school so the design should be sturdy enough for transportation and be designed so it can be set up quickly by the student.
8. Your teacher will provide a marble to use. (I don’t mind letting students BORROW them to try at home, but I would like to make sure I get it back ☺)
9. Students may work alone or with ONE partner. It’s up to the student(s) and parent(s).
10. This is an **AT HOME** project. Students will NOT spend any time at school constructing their marble coaster.

**Things to Think About:**

1. The winner for each category (from each STRIDE class) will be the person whose marble takes the longest from start to finish (minimum of 10 seconds).
2. Remember, friction helps to slow things down (Examples of materials to use for friction: pipe cleaners, felt, sandpaper, crumpled aluminum foil, fabric, pebbles, cotton balls, etc.).

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**Marble Coaster Competition - Levels of Parent Help**

Dear STRIDE families,

As your student begins to plan, prepare and construct their marble run roller coaster there are a few things I’m asking you keep in mind in reference to parent help during the project. I know firsthand (from being a mom of a 3rd grader) how “student” projects can easily turn into parent projects. I also know that it is never our intention (the parents) to get overly involved as we try to help. Please keep these points in mind as your child creates their marble run roller coaster:

* **Allow your child to come up with the plan without parent influence.**  I know this can be challenging. I promise they have learned and will learn a great deal during STRIDE about Newton’s laws of motion, gravity, friction, etc. to be super successful on this project.
* **Encourage them to do some independent research** on the internet/books/class website/STRIDE notes and resources to help formulate their plan **BEFORE** they begin.
* **Encourage them to sketch out their design and create a materials list.** I understand they will need your help gathering the materials and they may need help holding, gluing, and/or taping items into place.
* **Encourage them to double-check the project guidelines numerous times during the process** to ensure they are adhering to all stated rules/guidelines (front of this paper).
* **Encourage the trial-and-error process throughout the planning and construction process.** This is an important skill to learn and use throughout life.
* **If they become frustrated, offer some support and help as you feel fit and then quickly walk away to allow them to work independently.**  Remind them that it is okay to step away from projects for a small period of time in order to organize their thoughts and problem solve through any issues.
* **This is a student competition.** It is very obvious to the other students and teachers which projects were created by students and which projects had a great deal of help from adults. Please help keep the integrity of this project intact by allowing the students to compete against each other with projects that were **student created.**  It has been my experience that students feel more pride and are able to own their accomplishments when they know they completed something on their own.

If you have any questions/concerns, please don’t hesitate to contact me.

Thank you again for your support!

:) Mrs. Castro

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