**Fast Stop Car Challenge**

* 1. **Design and build a four wheel which uses the energy from a falling mass to travel along a straight path as quickly as possible and stop as close to a mark in the ground without going past the mark.**
  2. **The fast stop car must consist of a car and an energy propulsion system. These may be separate or combined into a single unit. In the ready to launch set-up the entire fast stop car and propulsion method must not exceed 1.00 meters in height, 1.00 meters in depth, and not wider than 0.75 meters.**
  3. **The fast stop car must stay within a 1.5 m track width before coming to a complete stop as close as possible to the mark.**
  4. **All energy used to propel the fast stop car must come from a falling mass not to exceed 2.00 kg. The mass must be part of the energy propulsion system and need not travel with the fast stop car. Any part of the fast stop car whose potential gravitational energy decreases and provides energy to propel the fast stop car after the falling mass is released is considered to be part of the falling mass.**
  5. **Teams must start the fast stop car using any part of an unsharpened #2 pencil with an unused eraser to actuate a release mechanism.**
  6. **Only the wheels of the fast stop car are allowed to contact the floor. If any piece falls off the fast stop car during the run it is a construction violation and points will be docked.**
  7. **No electrical of electronic devices may be used on the fast stop car.**
  8. **The cars will run on a clean and clear tile floor.**
  9. **The distance that the car will run for will be told to you the day before. It will be between 8m and 12m.**
     1. **Since you will not know the exact distance the car will need to travel you will need to have a method that can be quickly re-calibrated but still accurately stop the car.**
     2. **You will get 2 runs. With BRIEF time for adjustments between them but you cannot change the mass of the falling object**
  10. **The fast stop car must be able to remain stationary until it is started with the use of a #2 pencil**
  11. **If the fast stop car leaves the track then the run does not count.**
  12. **Best LOW score determines the 100% for the product section.**
      1. **Scores determined as follows.**
         1. **Distance in front of the mark in cm -or-**
         2. **Distance behind the mark is in cm x5**
         3. **Time in seconds x5**
         4. **Add the distance score to the time score**