

# POTENTIAL ENERGY CAR

SCOPE DOCUMENT 2021

## *Junior Skills (Team Competition)*

**Number of Competitors: 4 students max/team**

**Contest Length: 2 hours**

### **Purpose of the Challenge:**

Working in teams (max 4), contestants will use the potential energy of a 1-kg mass suspended 1 meter above the ground to propel a pre-built cart as far as possible across a level surface. This will be a distance event and the cart that covers the greatest distance along the course will be the winner.

### **Eligibility:**

Students in Grades 6 to 10.

### **Project Description:**

- Teams must pre build their cart and transport it to the competition event.
- The energy to move the cart must come exclusively from the potential energy of the 1-kg mass.
- The 1-kg mass will be provided and will be a standard physics hooked mass.
- The design must have the 1-kg mass start no higher than 1 meter above the ground (measured from the bottom of the mass) and stay on the cart all the way to the cart's stopping point.
- No projections, vaults, motors, springs or elastics are allowed. The movement of the cart must come directly from the 1 kg mass.
- The cart must not be pushed to get started and must not be touched after release of the mass.
- The cart must remain on the ground during the run on the length of the course.
- The course will be approximately 6-feet wide and 80 feet long.
- Carts that hit the PVC pipe side walls are allowed to deflect and keep going, but must do so on their own. (Remember, no touching the cart after it is released.)



## **Equipment / Tools / Materials**

Carts are to be constructed before coming to the event using any materials. Repairs may be made between the two trials using materials similar to those used in the original. The basic design may not be changed. Contestants are responsible to bring their own tools.

## **Safety**

Contestants will behave in a safe, courteous and respectful manner during the event. Any horseplay by a team member will result in disqualification of the entire team.

The Tech Chair will have final authority over matters of safety and appropriate behavior.

## **Judging Criteria**

The cart that covers the greatest distance along the course will be the winner. If more than one of the carts travels the entire length of the track, finalist heats will be run until there is a winning team.

## **Technical Committee**

Douglas Park

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