



# GRAVITY VEHICLE C – 2020

Rank: \_\_\_\_\_

Tier: \_\_\_\_\_

Final Score: \_\_\_\_\_

Team Number: C \_\_\_\_ Team Name: \_\_\_\_\_

Student Names: \_\_\_\_\_

**1. T F** 2.a. One Vehicle, one Ramp, any alignment devices, a Practice Log, any additional/spare parts, and any counterweights used to secure the Ramp are impounded. (If false, tier 5)

## Construction Parameters

**Run 1 Run 2**

T F T F 3.a. All propulsive energy comes from the gravitational potential energy of the mass of the Vehicle. The entire Vehicle starts from an elevated, non-horizontal position on the team's Ramp.

T F T F 3.a. A release mechanism is included as part of the Ramp to hold the Vehicle in the ready-to-run configuration until triggered by the participants.

T F T F 3.b. Any additional sources of kinetic energy for the Vehicle is in their lowest energy state in the ready-to-run configuration. Any pre-loaded energy storage devices used to operate other Vehicle functions (e.g. braking system) do not provide kinetic energy to propel the Vehicle.

T F T F 3.c. The Vehicle's total mass (including any sighting/aiming devices left on the Vehicle during the run)  $\leq 2.000$  kg

T F T F 3.d. Electronic Components and electric devices are not used.

T F T F 3.e. An approximately  $\frac{1}{4}$ " round wooden dowel is attached to the front of the Vehicle. When the Vehicle is placed flat on the floor, the dowel is approximately perpendicular to the floor, extending to within 1.0 cm of the floor and extend  $\geq 20.0$  cm above the floor. The dowel is easily accessible by the Event Supervisor and no part of the Vehicle (except the wheels) extend more than 0.5 cm beyond the front of the dowel.

T F T F 3.f. The Vehicle and the Ramp, together, in the ready-to-run configuration fit within a rectangular box with a 50.0 cm x 50.0 cm base and a height of 100.0 cm.

T F T F 3.g. All parts of the Vehicle move as a whole and no anchors, tethers, or other separate pieces are used. The only parts of the Vehicle that contact the floor during the run are the wheels/treads. There are no pieces falling off during the run.

**2. T F 9. T F** **DOES THE RUN MEET ALL OF THE CONSTRUCTION PARAMETERS ABOVE? (IF FALSE, TIER 3)**

## The Competition

T F T F 5.a. Once participants enter the event area, they do not leave or receive outside assistance, materials, or communication.

T F T F 5.c. Except calculator, electric tools are not used.

T F T F 5.d. In the ready-to-run configuration, the Vehicle and Ramp are entirely behind the Start Line. The Vehicle and Ramp remain at the starting position without being touched.

T F T F 5.f. Only non-electric sighting/aiming devices are used. If placed on the Track, the sighting/aiming devices are removed before each run.

T F T F 5.g. Teams do not roll the Vehicle on the floor of the Track on the day of the event without tournament permission. And if it is permitted, only participants are present.

T F T F 5.h. All substances applied to the Vehicle and Ramp are approved by the Event Supervisor prior to use and do not damage or leave residue on the track and/or event area. The track remains dry at all time.

T F T F 5.i. Team start the Vehicle by using any part of an unsharpened #2 pencil with an unused eraser, supplied by the Event Supervisor, to actuate a release mechanism on the Ramp. Team does not touch/push the Vehicle, or the Ramp, to start it, or hold it while actuating the release mechanism. Once the run starts, teams do not follow the Vehicle until called by the Event Supervisor to retrieve their Vehicle.

**3. T F 10. T F** **DOES THE VEHICLE MEET ALL OF THE COMPETITION PARAMETERS ABOVE? (IF NO, TIER 2 OR 3)**

## Run Parameters

4. \_\_\_\_\_ 11. \_\_\_\_\_ 7.c. Vehicle Distance: point-to-point distance, in cm to the nearest 0.1 cm, from the Measurement Point to the Target Point.

5. \_\_\_\_\_ 12. \_\_\_\_\_ Timer 1 7.e. Run Time: Starts when the Vehicle's dowel reaches the 0.50 m Line and ends when it passes the 8.50 m

6. \_\_\_\_\_ 13. \_\_\_\_\_ Timer 2 Line. Run Time is recorded in seconds to the precision of the timing device used. If the Vehicle passes the

7. \_\_\_\_\_ 14. \_\_\_\_\_ Timer 3 0.50 m Line but stops before the 8.50 m Line, record 60.00 sec as Run Time.

**8. T F 15. T F** 5.j. Failed Run: Any run that does not occur in the 8 minutes or if the time or distance cannot be measured for a Vehicle (e.g., it starts before the Event Supervisor is ready, it moves but does not cross the 0.5 m Line, the participant picks it up before it is measured.)

**16. Complete Incomplete Not impounded** 7.e. Is practice log complete, incomplete or not impounded? (Circle one)  
Complete means including 4 or more parameters (Target Distance, Vehicle Distance from Target, Run Time and 1 additional) for 10 or more practice runs.

**17. T F** General Rule: The team is disqualified (notify the team and their coach as soon as possible)