



## 2023 DIDI 500



### Rules and Judging Criteria

#### General Overview:

- **What is the DIDI 500?**
  - **Design It! Build It! Test It! Race It! Sell It!**

Competing in teams of four, students from area high schools design, build, test, race and market a rubber band powered car. The students have a designated amount in their budget for the project. Students test and tweak their cars before the final race in an effort to create a polished, marketable final product. Engineers from local manufacturing facilities are on hand to provide technical support. If a team wants to purchase the expertise of the engineer they can do so. Following the car race, students are given time to create a marketing pitch to be presented to a panel of judges. The winners are chosen based on creativity, team work, design, presentation and car performance.
- Teams must be composed of four students for each division (MS and HS) from the same school district. If your team has fewer than 4 students, your team will be paired with another team with fewer than 4 students at the event.
- Schools may have several teams for each division.
- Each division (Middle School and High School) will have a 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place winner.
- One “DIDI Spirit” award is given to the team that displays excellent sportsmanship as voted on by judges and volunteers.

#### Challenge 1: Design, Build & Create a Sales Pitch

- Student teams apply Science, Technology, Engineering, and Math (STEM) skills, budgeting, teamwork, marketing, and creativity to design, build, test, race, and market a self-propelled model car.
- Each team will be given some ‘basic manufacturing supplies’ to use towards the creation of their car.

- Students are given \$100 in ‘DIDI Bucks’ to purchase materials at the “DIDI Manufacturers Supply Store” to create their cars.
- Student teams will be given a list of available materials with pricing to help them use their budget wisely. Students are welcome to look at materials at the DIDI Manufacturers Supply Store while designing their cars.
- A variety of materials will be available to build, design, and propel the car. Some materials will be more effective than others to use, so getting to the DIDI Manufacturers Supply Store early is key to getting the best stuff! **That is why watching the videos and having a few ideas for the car design before the event is crucial.**
- No outside materials can be brought into the event. Students can only use the materials given to them or available through the DIDI Manufacturers Supply Store.
- Teams may also use their ‘DIDI Bucks’ to hire the consulting services of Manufacturing & Design Engineers during the event itself.
- Students must create a 30-second elevator (sales pitch) speech to market their cars to the panel of judges after the race is complete.

**Time:** Teams are given 2 ½ hours to design, build, test their cars, meet with consultants, and create their 30-second elevator speech.

## **Challenge 2: The Race**

- DIDIWNY will provide a measured track that will be used to determine the distance achieved by the car. The best distance from among the heats will be used for final judging.
- The race consists of 2 heats for best distance, allowing students to troubleshoot in between. Middle school student division will compete first then High School student division will follow.
- At race time, the vehicle will be placed behind the starting line with all its wheels in contact with the ground. No more than two team members will be allowed in the start area.
- At least one but no more than two members must wait at the end of the track to retrieve the vehicle after the distance is measured.
- Team members may not accompany or touch the vehicle while it is on the track before it is measured.

- Measurements will be made from the front of the start line to the front of the vehicle at the end of the heat.

### **Challenge 3: Deliver the Sales Pitch**

- Convince a panel of judges why they should purchase your self -propelled vehicle.

**Final Scoring:** Teams will be judged on the following criteria:

- Innovation/ Design
- Teamwork (Teamwork consists of assigning roles to each team member, collaboration, budget use. For example, each team may have a design and sketching leader, a bill of materials (purchasing) leader, a supervisor and an assembly leader)
- Performance (Performance is determined by distance traveled by car)
- Marketing (Creativity and effectiveness of the elevator speech)

Teams will be graded on each of the above criteria from a point range of “Basic” to “Exceptional.”

**Prizes:** Awards will be given to 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place winners for each division (Middle School and High School). In the event of a tie, the team whose car traveled the furthest distance will be declared the winner.

One ‘DIDI Spirit’ award is given to one team that displays excellent sportsmanship as voted on by the judges.

### **Tips:**

Before the event, students are encouraged to work with their team members and teachers to research various self-propelled car designs and how to create an elevator speech. Teams will not be given a list of materials before the event so think ahead and get your creative STEM juices flowing!

**Just to get you started, here are some helpful links:**

<https://www.scientificamerican.com/article/build-a-balloon-powered-car/>

<https://www.youtube.com/watch?v=TehQqDH9j5w>

[https://www.youtube.com/watch?v=\\_Nh1mkm9y2I](https://www.youtube.com/watch?v=_Nh1mkm9y2I)

<https://www.youtube.com/c/GrandadIsAnOldMan> (This site has a LOT of fun ideas!)

<https://www.instructables.com/Propeller-Powered-Car/>

[https://www.sciencebuddies.org/science-fair-projects/project-ideas/Phys\\_p099/physics/balloon-powered-car-challenge](https://www.sciencebuddies.org/science-fair-projects/project-ideas/Phys_p099/physics/balloon-powered-car-challenge)

<https://www.youtube.com/watch?v=b7zWwo9dbiU>

Check out these links for some winning “Shark Tank” pitches:

[https://www.youtube.com/watch?v=k3PY\\_p\\_M-8w](https://www.youtube.com/watch?v=k3PY_p_M-8w)

<https://www.youtube.com/watch?v=qknzGMaU81o>