

Metric 500 Dragster CONTEST REGULATIONS

I. Purpose:

SkillsUSA contestants in the Metric 500 Dragster contest are required to design, draw, and build a model dragster powered by a blast of air. Design, speed, craftsmanship, and a drawing of the dragster are the primary elements judged. The purpose of the Metric 500 is to provide a means for SkillsUSA members to demonstrate their ability to design, draw, and build a product within a rigid set of specifications.

II. Clothing Requirements:

SkillsUSA or appropriate conference attire. Your school name should not appear on any clothing.

III. Eligibility:

Any SkillsUSA Nebraska member who qualifies for SkillsUSA Nebraska Leadership & Skills Conference. **Chapters are limited to 3 vehicles.**

IV. Time Limitations:

Contestants or designee must present drawing and dragster at the time specified in the conference program and must remove the drawing and the dragster at the time specified in the conference program.

V. Specific Regulations:

All entries must be turned in at the time designated. Each contestant will be responsible for obtaining the time schedule at registration.

All entries must be free of needed repair and/or maintenance at time of check-in.

CO2 cartridge will be used. Cars will be propelled by a blast of compressed air at the start. Car kits made for CO2 cartridges are acceptable.

Drawings:

Every entry must be submitted with a metric drawing of the completed dragster. A two-view (top and side) drawing with metric dimensions shall be made on the following paper sizes: 11" x 17", or 12" x 18". A three-view (top, side and end) drawing is acceptable, but will not change point allocations. Standard engineering procedures should be followed. Drawing may be made using ink or graphite. Computer aided drawings will be accepted. Originals, prints, or copies will be accepted. Title block will only include "Entry Number ____" which will be assigned at registration time, and placed on entry prior to turn-in.

State Only Contest Rules

Specifications - Body Blank and Dragster: Body Blank - Beginning Dimensions
 Length - 305 mm Rear Height - 70 mm
 Front Height - 20 mm Body Width - 42 mm

Bottom to centerline of power plant chamber 31-35 mm

Power plant chamber - 20 mm diameter, 51 mm depth, and drilled parallel to the bottom surface.

A minimum of 3 mm thickness around entire power plant housing must be maintained on all dragsters for safety purposes.

The body of the model shall be one-piece, all wood construction: no parts, such as body strengtheners, fenders, plastic canopy, exhausts, or air foils, may be glued or attached to or enclosed with the dragster. Airfoils, fenders and other appearance enhancements are to be designed and engineered in the original body blank. Bearing and lubricants may be used in construction. Two or more like or unlike pieces of wood glued together will not be considered one-piece, all wood construction.

Dragster Tolerances	Minimum	Maximum
<i>Axles (diameter)</i>	<i>3mm</i>	<i>3mm</i>
<i>Axles (length)</i>	<i>42mm</i>	<i>70mm</i>
<i>Axles Bearing (diameter)</i>	<i>3.5mm</i>	<i>4.5mm</i>
Spacer bearing (diameter)	7mm	9mm
Dragster Body (length)	200mm	305mm
Dragster Body (height at rear with wheels)	56mm	75mm
Dragster Body (mass with wheels)	45g	170g
Dragster Body (width at axles Front and Back)	35mm	42mm
Power Plant (depth of hole)	50mm	52mm
Power Plant Housing thickness (Safety zone around housing)	3mm	
Power Plant Housing (diameter)	19mm	20mm
Power Plant C/L (from body bottom)	31mm	35mm
Screw Eye (inside diameter)	3mm	5mm
Screw Eyes (2) or C/L (of Bottom distance apart)	155mm	270mm
Wheels:Front (diameter)	32mm	37mm
Wheels:Front (width at greatest thickness)	2mm	5mm
Wheels: Rear (diameter)	30mm	40mm
Wheels: Rear (width at greatest thickness)	15mm	18mm
Wheelbase	105mm	270mm

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Dragsters which fail to meet the specifications will be disqualified.

Wheels must be made entirely from plastic.

All contest entries will be judged according to the Metric 500 Rating Sheet, which includes criteria for drawing, design, race, speed, etc.

No repair or maintenance on entries will be allowed after entries have been registered. Any entry damaged during the race will be judged by the contest coordinator to determine whether or not the dragster will be allowed to race again. In the event that conference personnel damage the dragster, the Contest coordinator will make a ruling as to whether or not the dragster will run. This is the **only** reason a student would be allowed to touch his/her dragster after registration. Undamaged wheels, which come off during the race, may be replaced as determined by the Contest coordinator. Damaged wheels may not be replaced.

Racetrack length shall be twenty (20) meters (65' 7_") from start gates to the timer and finish gate.

VI. Procedures

Contestants or designee will register with the Contest Coordinator at the time designated in the conference program.

Instructions and contest time lines provided at registration will be followed. It will be the responsibility of each contestant to obtain these instructions.

Dragsters will receive their official ranking (time - placing) during the time trials.

Based upon the time trial placing, the fastest 16 dragsters will compete in double elimination bracket to determine final placing in the speed portion of the contest.

VI. Required Personnel and Equipment:

Contest coordinator

Judges - three (3) or more

Two (2) persons assigned to check in/receive entries

Person assigned for security

Room - must be securable for equipment and entries. Size must accommodate a twenty (20) meter track and equipment. Two (2) rooms optional - one per level.

Table and chairs for judges.

Tables for entries (at least six -2' x 8' tables).

Twenty (20) meter track with start and finish gate.

State Only Contest Rules

VII. Scoring

Contestants shall be ranked in numerical order on the basis of final score to be determined by each judge without consultation with each other. The winner shall be that contestant whose total score is the highest. Other placing shall be determined in the same manner. In case of a tie, the judges shall consult each other to ascertain the winner.

Contest Coordinator will provide a sealed packet to the Competitive Events Coordinator containing the results.

All judges' ratings/results remain confidential.

Ratings shall be based upon the following maximum points:

Item Name	Total
Design	10
Appearance	5
Finish	5
Drawing	15
Accuracy	5
Neatness	5
Dimensions	5
Construction	15
Craftsmanship	10
Detail	5
1st Place	60
2nd Place	56
3rd Place	52
4th Place	48
5th	45
7th	40
12-Sep	35
13-16	30
17-24	25
25-32	20
All other finishes	10
Total Points:100	