

# Wotamalo District Pinewood Derby



## **PINEWOOD DERBY**

Rules and Regulations  
2020

## GENERAL RULES: (Applies to all Cub Events)

**G-1. Essential Materials:** All cars entered shall be constructed from parts of the exact type contained in the **Official Pinewood Derby Car Kit** or the **Official Pinewood Derby Wheel Kit** (referred to below as “**the kit**”) as sold by the Scout Service Center, 614 N.E. Madison, Peoria, IL and the BSA online store: [www.scoutshop.org](http://www.scoutshop.org). Kits and parts may be purchased elsewhere if they are of the exact type specified above. For these rules, substitution parts of identical geometry are considered to have been contained in the kit.

**G-2. Competitor Categories:** Cub Scouts will compete with others in the same "Cub Scout Year." In most cases this aligns with their year in school: Lion= Kindergarten; Tiger = 1st grade; Wolf = 2nd grade; Bear = 3rd grade; 1st year Webelos = 4th grade; 2nd year Arrow of Light = 5th grade. In those cases which don't match the alignment, reconfirm the information and enter the Cub Scout according to the Cub Scout Year. In cases in which the Cub Scout year is indeterminate, enter the Cub Scout according to their grade in school. If none of these rules apply, contact the event chairman for direction. In these rules the terms "Cub Scout Year" and "age group" are synonymous. The 5th grade Webelos/Arrow of Light category includes new 5<sup>th</sup> grade Scouts BSA Scouts who participated with their packs this year.

**G-3. Attendance:** Only the Cub Scout may enter their car or cars. This means that the Cub Scout must be present to enter their car into competition. In the case of Tigers and Lions, their Adult Partner must also attend and stay in the gym throughout the race.

**G-4. "New Work":** Construction of entries must not have begun before the previous year's Wotamalo District Pinewood Derby Races.

**G-5. One Design Entry:** The scouts “race” car will be automatically entered in the design category unless a second car is entered for design only. If a scout enters a “design car” then their “race car” will not be judged for design.

**G-6. Single Car per Scout per Event:** A Scout may enter only 1 car per event. If a scout only enters a “race” car, that car will also be considered for the design category.

**G-7. Single Trophy per Car per Event:** Each car can earn only 1 trophy per event.

**G-8. Role of the Q&A Document:** These rules are fixed and unchanging for the year as of their publication. Clarifications and interpretations will be published in the Q&A document on the Wotamalo District web site (<http://wotamalo.org/>) as questions are received and answered.

**G-9. Role of the Inspection Procedure Document:** The Inspection Procedure published on the Wotamalo District web site (<http://wotamalo.org/>) tells in concrete terms how the rules are interpreted.



## **EVENT: DESIGN**

### **Event Description:**

Entrants in each rank will be judged on Design, Workmanship, Speed, with 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> places being awarded).

### **Qualification:**

Any Wotamalo District Cub Scout may design, build and enter a car for the Design Event. All cars entered in the Fastest Car Event will automatically be entered in the Design Event, unless a scout enters a separate car for the Design Event only (Rule G-5).

### **Technical Standards for a Car Not Entered Into Fastest Car Event:**

All General Rules apply, but only Technical Standards T-1 Material, T-3 Wheels and Axles and T-4 Size, and T-5 Weight and Attachment apply. The following exceptions also apply:

- A. The block of wood from the kit, or portions thereof, must be prominent in the design.
- B. Kit axles need not be used.

### **Conduct of the Competition:**

Every car entered will be considered for all design categories. All Cars being evaluated will be on display in the designated impound yard, grouped with their competitors. Within each competitor category, judges will rank cars within each design category. Judges are impartial members of the communities of Wotamalo District who have been appointed by the Event Chairman.



## EVENT: FASTEST CAR

### Qualification:

Each pack may enter up to four Scouts from each Cub Scout Year: Lions through 2nd year Webelos/ Arrow of Light. In case of absence, a Cub from the same pack in the same Cub Scout Year may be substituted on the day of the race. The substitute must race their own car. No Cub may race two cars.

### Technical Standards:

The inspection judges at race-day check-in are responsible to evaluate each car's adherence to the technical standards. Their decision may be appealed to the inspection chairman and the event chairman, who, after consultation with the inspection team, the SCOUT, and their parent/assistant, shall render a final, binding decision.

After passing inspection, no car will be re-inspected except for the following special cases:

A. If the Track Chairman or a Finish Line Judge believes that there is cause, they may call for a car to be reweighed. If the car is found to be overweight, the heat results are overturned. The Track Chairman may require correction and have the heat rerun.

B. If a car is found to have lubricant on the exterior of the wheels, the lubricant must be thoroughly removed before the car is allowed to race.

C. If a car is repaired during the competition, the car must be inspected before it resumes racing. (C-5)

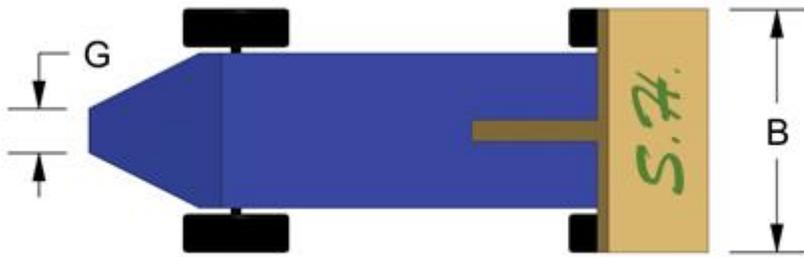
**T-1. Material:** Race cars shall be constructed for this event from parts as described in rule G-1. Those parts may be supplemented to improve weight or body appearance.

**T-2. Weight:** Race cars may weigh no more than five (5) ounces (total weight) as determined on the official scales during race day inspection. Official scale will go to (2) two places after the decimal point (example 5.00).

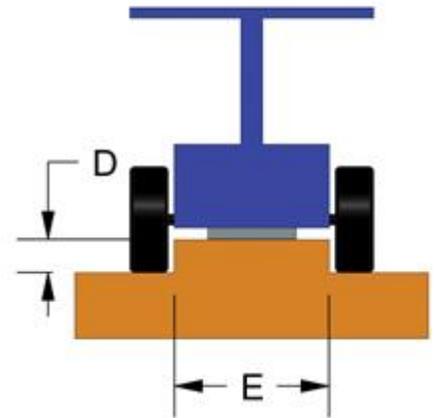
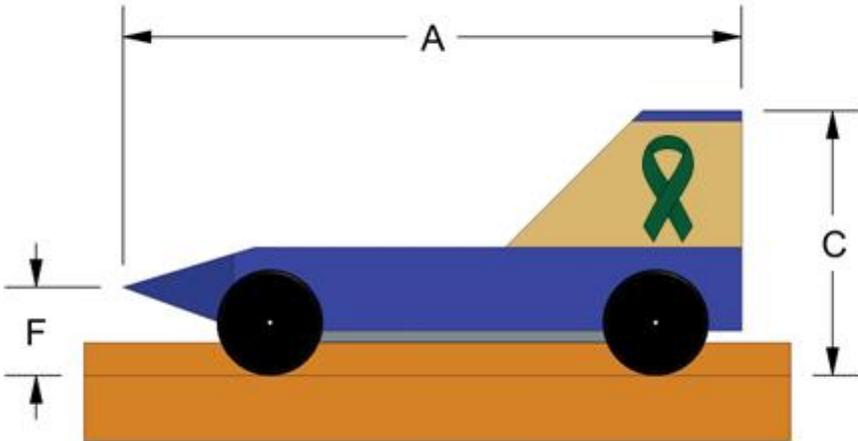
**T-3. Wheels and Axles:** The car shall roll on the wheels from **the kit**. The wheels shall turn about the axle nails from **the kit**. The axle nails shall be firmly affixed to the wood of the car body. The axle dimensions may not be changed substantially. The outside surface of the axle head (the non-contact surface) may not be changed substantially, such as, by polishing, painting or filing down. **It must be obvious to the judges that the wheels and the nails from the kit are being used.**

**T-4. Size:** Cars may be no longer than 7 inches, nor wider than 2 3/4 (2.75) inches, nor taller than 3 inches, as determined by the official gages during race day inspection. Cars must roll freely on a section of test track with a center guide strip 3/8 (0.375) inches tall and 1 3/4 (1.75) inches wide. No portion of the car, body or wheels, may contact the top surface of the guide strip. The nose height must be no more than 1 inch, so that the car will not affect the track's starting mechanism. To ensure proper activation of track electronics, the nose width of the car must be at least 1/2 (0.5) inches wide.

Cars which use blocks as provided in the kit without artificially extending the nose or tail of the car, and with wheels that do not extend beyond the block, will not fail the 7" Length Test.



- A - Maximum Length - 7.00 IN
- B - Maximum Width - 2.75 IN
- C - Maximum Height - 3.00 IN
- D - Guide Strip Height - 0.375 IN
- E - Guide Strip Width - 1.75 IN
- F - Maximum Nose Height - 1.00 IN
- G - Minimum Nose Width - 0.50 IN



**T-5. Weights and Attachment:** Weight may be added to the car and will be considered part of the car for purposes of all measurements. No inner wheel weights will be allowed. "Weight" is considered to be any material on the car that is not provided in **the kit**. All weight must be securely fastened to the car, e.g. by permanent glue, nails or screws, but not by "sticky substances", e.g. tape, putty, or tack spray. Weights shall be passive, i.e. non-moveable, non-magnetic, non-electric, non-sticky, etc.

**T-6. Wheel Treatment:** Wheel treatment (material removal, smoothing, and polishing) may only affect the wheel bore, hub faces, outside tread surface and inside tread edges that might rub the guide rails. Wheel tread surface must be cylindrical and no narrower than the original wheel tread surface. Some of each of the original "tread marks" on the wheel face must be intact.

**T-7. Unacceptable Construction:** The following may NOT be used in conjunction with the wheels or axles: hubcaps, washers, inserts, sleeves, bearings.

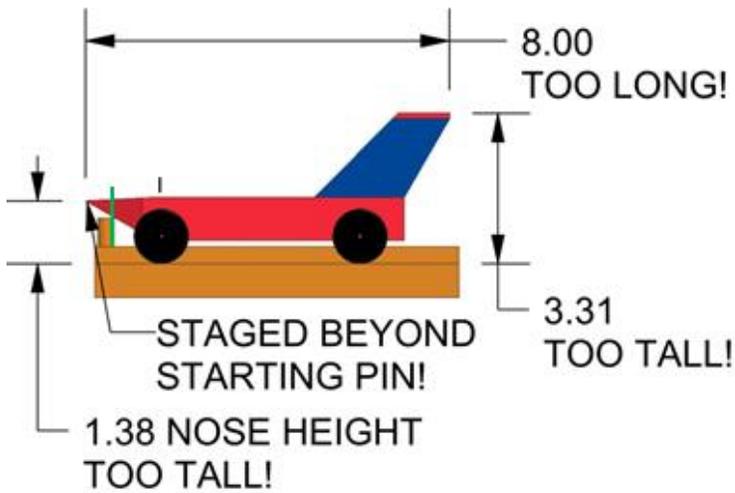
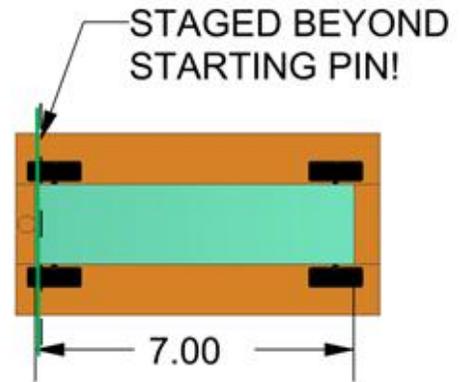
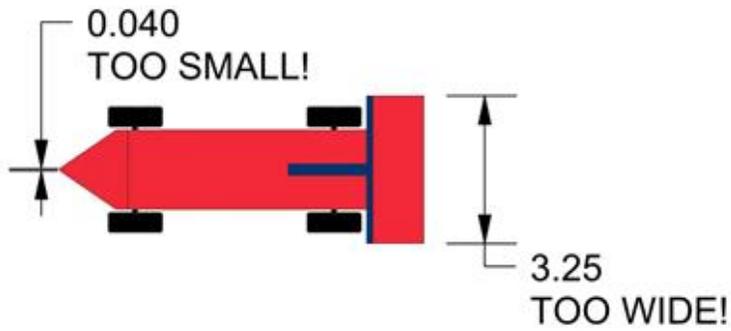
**T-8. Gravity Powered:** The race car may not be constructed or treated in such a way that the track's starting mechanism imparts momentum to the car. (For instance, this provision disqualifies cars with sticky substances on the front of the car and protrusions which may catch on the starting pin.)

**T-9. Lubricants:** Dry lubricant must be applied during the inspection process.

**T-10. Staging:** The entire car must stage behind the starting pin.

**T-11. Body:** The car body may have no moving parts.

# Examples of cars that would not pass inspection





## Conduct of the Races:

**C-1. Inspection Gauges:** All inspection will be conducted by one team at a special inspection area using scales and gauges approved by the Chairman. Please stress this fact to all members of your Pack: They should be prepared to make adjustments to their cars if necessary.

**C-2. Impounding:** Once the car has passed inspection and received its number sticker, the SCOUT will place their car on the table provided, and must not lubricate or otherwise improve that car until racing is complete.

**C-3. Car Handling Responsibility:** Scouts shall be responsible to stage their own cars at the starting line by eye, to retrieve their cars at the finish line (after the race has been called) and hold them in the line. Only the car may be brought into the racing area. If, in the opinion of the track chairman, a Scout's physical limitations prevent him from fully complying with this requirement, the Scout may nominate an assistant of approximately the same age who serves subject to approval of the track chairman. In any case, the Scout shall participate up to their limitations.

**C-4. Lane Assignment:** Lane assignments for each heat shall be determined by lot.

**C-5. Car Repair:** If, during the race, a wheel falls off or the car becomes otherwise damaged, then the SCOUT may to the best of their ability perform repairs. The SCOUT may seek advice for repairing the car, but may receive no other assistance. The car must be re-inspected before continuing to race.

If a car is damaged due to track fault or due to fault of another car or SCOUT, then the track chairman, at their sole discretion, may allow additional repair assistance. Only in this instance can replaced wheels be re-lubricated and the car must be re-inspected before continuing to race.

**C-6. Car Interference:** If, during a race heat, a car leaves its lane and, in so doing, interferes with another racer, then the cars will be reset and raced again. If a particular car jumps the track a second time without being interfered with, that car will be disqualified (However, see **C-9**.)

**C-7. Car Leaves Lane:** If, during a race heat, a car leaves its lane but proceeds down the track in a manner that does not interfere with its opponents, the car will be placed in the order it crosses the finish line. (However, see **C-9**.)

**C-8. Car Leaves Track:** If, during a race heat, a car leaves the track without interfering with its opponent, it shall be considered to have ended its heat at that point. (However, see **C-9**.)

**C-9. Track Fault:** If a car leaves its lane, at his or her sole discretion, the track chairman may inspect the track and, if a track fault is found which probably caused the initial violation, the track chairman may order the race heat to be rerun after the track is repaired.

**C-10. No Finishers:** If, during a race heat, no car reaches the finish line on the track, the car which went the farthest in its lane shall be declared as the heat winner.

**C-11. Call to Race:** Competitors will be called to race "by rank". If a racer leaves the area and rejoins the group after it has started its heats, placement in line is at the track chairman's discretion. Any Scout missing a heat may be returned to a track closer to the Silver Track than the track they left from at the discretion of the race chairperson.

**C-12. Appeals:** The Cub Scout must make all questions of rules interpretations, Procedure and fact to the track officials promptly.

**C-13. Track Champion:** The Champion from each grade's race shall be invited back for a Race of Champions. Cars will be inspected by the competitors and their assistant with issues reported to the Race Chairman.

**C-14. Opponent Assignment:** Until the finalist selection Scouts will be grouped with others of a similar record.

Scouts will be lined up and mixed as well as possible. The line will be raced in approximately that order with some random rearrangement resulting from the lane drawing procedure.

**C-15. Finish Line Judging:** intentionally left blank to maintain numbering.

**C-16. Competition Format:** Competition will be "15<sup>th</sup> Burlington."

**Format Summary: Preliminaries:** 3 racers per heat. During the preliminaries, the 1<sup>st</sup> Place Finisher will move one track towards the Gold Track, 2<sup>nd</sup> Place Finisher remains on their Track, 3<sup>rd</sup> Place Finisher moves one track towards the Silver Track. See the District website for a link to a video explanation of the format.

**Finalist Selection:** During the finalist selection period, racing will continue as before, however, only the 1<sup>st</sup> place finisher will move tracks. They will move one track closer to the Gold Track. At the Gold Track, the first place finisher will leave the Track and become a Finalist. At the end of the Finalists Selection race, Scouts remaining on the Gold, Silver and all tracks in between will be dismissed to their parents.

**Finalists' Race:** This race will take place on a neutral track and finishing place will be based on best cumulative time.



### **The Racing Environment:**

**R-1. Track Length and Drop:** The track shall have a racing surface (starting line to finish line distance) of approximately 28 feet with a drop of approximately 4 feet.

**R-2. Track Slope:** The track slope shall decrease from approximately 30 degrees at the starting line to approximately 0 degrees at the finish line. The profile will approximate the track profile shown in the Cub Scout Leader's HOW TO Book.

**R-3. Lanes:** The track will have at least 3 lanes. Each lane will consist of a straight, smooth strip approximately 1 1/2 (1.50) inches, but certainly less than 1 3/4 (1.75) inches, wide and approximately 1/4 (0.25) inches, but certainly less than 3/8 (0.375) inches, thick, centered on a smooth surface no less than 3-1/2 inches wide. Each race car shall straddle such a strip during its heats.

**R-4. Starting Mechanism:** The "starting line" shall consist of vertical pins of approximately 1/4 inch diameter, extending at least 1 inch above the track surface and approximately centered in each lane. (If such tracks are available the starting mechanism shall be of the "spring open" type which moves quickly enough that no car's motion is impeded once the gate starts opening.)

**R-5. Finish Line Sensor Location:** All tracks will have electronic finish lines for timing purposes; the "finish line sensors" shall be in alignment with the corresponding starting line pin and be approximately centered in its lane.

**R-6. Finish Line Judging:** Two impartial finish line judges, assigned by the track chairman, shall be at each track to call each heat. The track's electronic finish line sensor may serve as one of the judges.

**R-7. Finish Line Judge Backup:** Backup finish line judges shall be available in case a judge needs to be excused for any reason. A finish line judge will temporarily excuse himself if he knows that one of the heat contestants is a relative, friend, or member of his or her pack.

**R-8. Lane Selection:** If the track has more lanes than needed, the track chairman shall select the most evenly matched lanes for use by the racers. Because tracks frequently change their characteristics due to details of setup, the determination will be made after the track has been set up and made ready for racing on race day.

**R-9. Finish Line Electronics Sensitivity:** Track Finish Line Electronics, must trigger correctly if a lead pencil is passed  $3/4$  (0.75) inches above the track surface at a speed of 15 feet per second.

**R-10. Finish Line Clearance:** Track Finish Line Electronics and other track accessories, if used, must be no closer than 3 inches above the track.

