

North Florida Council Pinewood Derby Rules - 2010

April 24, 2010

General:

- G-1. **Essential Materials:** All cars entered shall be constructed from the Official Grand Prix Pinewood Derby Kit NO. 17006 or 17075, and Replacement Wheels & Axles Kit NO. 17007 (referred to below as 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: Tiger = 1st grade; Wolf = 2nd grade; Bear = 3rd grade; 1st year Webelos = 4th 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 his grade in school. If none of these rules apply, contact the Derby Chairman for direction. In these rules the terms "Cub Scout Year", "age group", "class" and "Division" are synonymous.
- G-3. **Attendance:** Only the Cub Scout may enter his car. This means that the Cub Scout must be present to enter his car into competition. An entry by "proxy" will only be allowed for special circumstances. Check with the Derby Chairman for details.
- G-4. **"New Work":** Construction of entries must not have begun before the previous year's North Florida Council Pinewood Derby Race.
- G-6. **Single Car per Boy:** A Scout may enter only one (1) car for the race.
- G-7. **The Derby Chairman** will be the final judge of these rules. The decision of the Derby Chairman will be final, and will be judged in the best interest of the boy, while maintaining a level of fair competition. Un-sportsmanlike conduct by any entrant or member of the audience will be grounds for expulsion from the competition and/or the race area.

Qualification:

- Q-1. **Qualifying Entrants:** Each District is responsible for pre-registering* their qualifying entrants. Each District may enter three (3) Scouts from each Cub Scout Year: Tiger through 1st year Webelos. The 1st, 2nd, and 3rd place cars of each Scout year from each District's Pinewood Derby are qualified to enter the North Florida Council Pinewood Derby. Each car must be registered by the Scout who built the car, and must pass inspection by the inspection team before it may be entered in the race (see Technical Standards). In case of an absence, the 4th place Cub from the same District in the same Cub Scout Year may be substituted on the day of the race (this extends to additional placements if the next qualifying Scout is not available to race). The substitute must race his own car. No Cub may race two cars. An entry by "proxy" will only be allowed for special circumstances. Check with the Derby Chairman for details.
- Q-2. **Attire and Appearance:** The Scout should be in a neat, clean uniform, either full field uniform or activity uniform. Packs are encouraged to all wear either full field uniform or activity uniforms as a unit, to promote uniformity and pride in each Pack. A Cub Scout will not be disqualified because he cannot afford a uniform; however, Packs should make every effort to ensure that their Pack winners obtain a uniform to wear at the Council competition. Packs are encouraged to pool resources from other Packs, as needed, as a gesture of goodwill.

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 Official and the Derby Chairman, who, after consultation with the inspection team, the SCOUT, and his parent/assistant, shall render a final, binding decision. Any car not meeting the technical standards will not be permitted to race. **The fact that a car passed inspection at the Pack or District competition does not guarantee that it will pass for the Council competition.** Any car, at anytime, up to and including the awards ceremony, may be subject to additional inspections. Any car discovered to have any violations of the technical standards, even if not previously discovered during check-in, or during the races, may be subject to disqualification. This decision may be appealed to the Inspection Official and the Derby Chairman, who will consult with any official who discovered or was made aware of any violations. The Track Official and the Derby Chairman will then consult with the SCOUT and his parent/assistant, and shall render a final, binding decision.

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- T-1. **Material:** Race cars shall be constructed from the Official Grand Prix Pinewood Derby Kit NO. 17006 or 17075, and Replacement Wheels & Axles Kit NO. 17007 (referred to below as the kit). Materials from the kit may be supplemented but not replaced.
- 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.
- 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 (wheelbase) may be changed and entrants do not have to use the precut axle slots. There must be at least four wheels on the car, however, it is not required that all four wheels make contact with the track surface. The wheels must be attached directly to axle and spin freely. The wheels and axles may be placed anywhere along the car body as long the car will straddle the lane guide, and the size and staging requirements are met (see T-4 and T-10). The outside surface of the axle head (the non-contact surface) may not be changed, such as, by polishing. This means you may not polish, paint, mark, or cover the outside (the top) of the axle heads, but you may polish or modify the axles (it is recommended that you do). It must be obvious to the judges and officials that the wheels and the nails from the kit are being used. You may camber the angle of the axles as long the meets rule T-4. (see Pictures & Notes)
- T-4. **Size:** Race 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. Underside clearance of at least 3/8 (0.375) inches and inside wheel to wheel clearance of at least 1 3/4 (1.75) inches is recommended, so that the car will run on the racetrack. Adequate clearance is the responsibility of the race car builder. (see Pictures & Notes)
- 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. "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 or epoxy, nails or screws, but not by "sticky substances", e.g. tape, or tack spray. Weights shall be passive, i.e. non-moveable, non-magnetic, non-electric, non-sticky, etc.
- T-6. **Wheels:** Wheel treatment (hub and tread smoothing and polishing) may not result in substantial removal of mass or in reducing the tread (track contact) width or thickness from the original kit wheels. You may not change the wheel dimensions. The exterior (tread) surface of the wheels may not be rounded, pointed, concaved, shaved or drilled. Wheel tread surface must be cylindrical. The words "BSA PINEWOOD DERBY" on the exterior (exposed side) and "OFFICIAL BSA MADE IN USA" on the interior (unexposed side) of the wheels shall remain intact and clearly visible to the inspector. Some of the original "tread marks" on the wheel face must be intact, i.e. apparent to the inspector. The mass on the interior of the wheel may NOT be removed to make the wheel lighter; however, a minimal amount of mass may be remove to balance the wheel. The outside diameter cannot be less than 1.180" as measured by the "official" digital caliper on race day. (see Pictures & Notes)
- T-7. **Unacceptable Construction:** The following may NOT be used in conjunction with the wheels or axles: hubcaps, washers, inserts, sleeves, bearings, bushings, springs, etc. The only exception to the "no springs" rule is if the body of the car is built in such a way that the actual body of the car (the wood) creates a spring-like effect without assistance from any accessory item, whether included in the kit or not. This spring-like car body (or "flex" chassis) would be considered acceptable construction.
- 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:** All lubricants must be dry at the time of inspection and racing.
- T-10. **Staging:** The entire car must stage behind the starting pin. The front of the car should have a 1/2" flat surface so it may be accurately placed against the starting pin. The front of the car may not have an inverse semi-circle, fork, or anything else that would allow any part of the car (including any supplemental additions, wheels, etc.) to extend beyond the starting line/pin. (see Pictures & Notes)
- T-11. **Body:** The car body may have no moving parts.

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Conduct of the Races:

Track officials are responsible for the proper conduct of the races. Decisions of track officials on questions of rules interpretations and procedure may be appealed to the Derby Chairman. Decisions of track officials on questions of fact may not be appealed beyond the Track Official.

Scouts AND PARENTS should also be familiar with these rules.

- C-1. **Inspection Gages:** All inspections will be conducted by one team at a special inspection area using scales and gages approved by the Derby Chairman. Please stress this fact to all members of your Pack. A “public pit” area containing tools and other accessories may or may not be provided by the race officials, so the Scout should be prepared to make adjustments to their cars, on their own, if necessary.
- C-2. **Impounding:** Once the car has passed inspection and received its number sticker, the inspection team will place his car on the table provided. No further lubrication, improvements, or handling of the car by anyone other than the race officials will be allowed. (However, see C-5 & C-13.)
- C-3. **Car Handling Responsibility:** A track official shall be responsible to stage the cars at the starting line, to retrieve the cars at the finish line (after the race has been called) and return the cars to the pit after their heat is finished. This is done to expedite the running of the race and not intended to hamper the participation of any scout. Each scout whose car is racing will be called forward to have “front row seats” so they can watch their car race without any visual obstructions. (see C-11)
- C-4. **Lane Assignment:** Lane assignment for each heat shall be determined by computer.
- 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 his ability, perform repairs. Any weights or cosmetic accessories that fall off are not considered damage to a car. The SCOUT may seek advice for repairing the car, but may receive no other assistance (Tigers may receive minimal assistance such as the parent holding the car, but the Tiger must make the repair). If a car is damaged due to track fault or due to fault of another car or SCOUT, then the Track Official, at his sole discretion, may allow additional repair assistance.
- C-6. **Car Interference:** If, during a race heat, a car leaves its lane and, in so doing, interferes with another racer, then that heat will be re-run. If, during the re-run heat, the same car leaves its lane and, in so doing, interferes with another racer, then the heat will be re-run without the interfering car, and the interfering car will be given a time of 5.00 seconds. (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 opponent, then the race will be called normally. (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 and the car will be given a time of 5.00 seconds. (However, see C-9.)
- C-9. **Track Fault:** If a car leaves its lane, at his sole discretion, the Track Official may inspect the track and, if a track fault is found, which probably caused the initial violation, the Track Official may order the race heat to be re-run after the track is repaired.
- C-10. **Not Finishing:** If, during a race heat, a car does not reach the finish line on the track, a time of 5.00 seconds will be given to that car.
- C-11. **Call to Race:** Competitors will be called to race by a racing official. Scouts are strongly encouraged to be present to watch their car race.
- C-12. **Appeals:** The Cub Scout must make all questions of rules interpretations, procedure and fact to the track officials promptly.
- C-13. **Track Champions:** The Champions from each Division's race shall be accompanied, with his car, from the awards area to Championship Impound by the Track Official or his designee. The car will be impounded at the Championship Impound until the start of the Race of Champions. Inspection, repair as necessary and addition of graphite, all performed solely by the Cub Scout, will be permitted just prior to the start of the Race of Champions. A post repair inspection and weigh-in may be conducted.
- C-14. **Opponent Assignment:** Scouts will be grouped with opponents decided by the computer. The race is based on cumulative time. The computer will attempt to provide the best variety of opponents in an effort to race against as many opponents as possible.
- C-15 **Re-Running of Heats:** If a heat is to be re-run for any reason stated above, the fastest time of the two heats will be the recorded time. (i.e. 1st run 2.977 seconds, 1st re-run 2.992 seconds, then the 1st run is recorded)

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The Racing Environment:

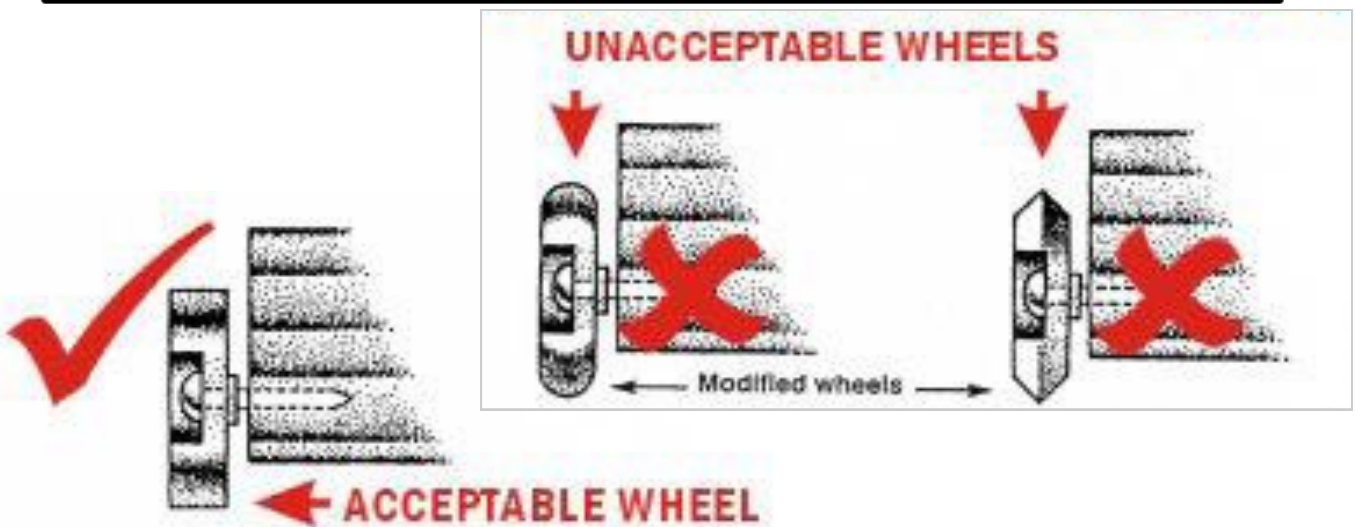
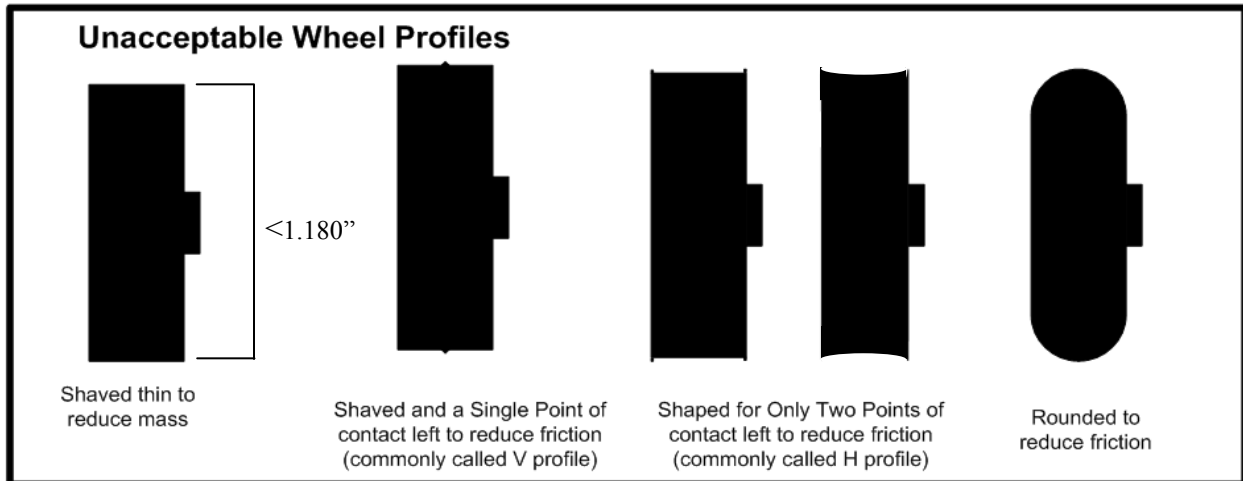
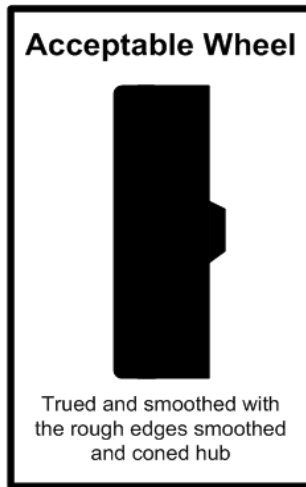
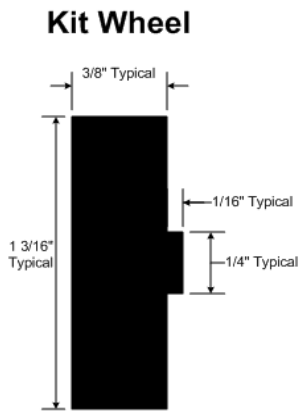
- R-1. **Track Length and Drop:** The track shall have a racing surface (starting line to finish line distance) of 49 feet with a drop of approximately 4 feet.
- R-2. **Track Slope:** The track slope shall decrease from approximately 30 degrees at the starting line to approximately 0 degrees at the finish line. The track will have a 4' section where this transition will occur.
- R-3. **Lanes:** The track will have 3 or 4 lanes. Each lane will consist of a straight, 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 4 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 approximately 3 inches above the track surface and approximately centered in the each lane. The starting mechanism will trigger an electronic starting sensor which starts the computer timer.
- R-5. **Finish Line Sensor Location:** 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:** The track's electronic finish line sensor will determine the order of finishing for each heat. In the event of an inconsistency brought to the Track Official or Derby Chairman's attention before the start of the next heat, the Track Official and the Derby Chairman will use, at their discretion, available resources to determine if the inconsistency is correct. The Track Official and the Derby Chairman will make the final decision whether to keep the finishing order as recorded or re-run the heat. Any discrepancy brought to the attention of the designated officials after another heat has started will not be eligible for appeal and the results of the heat will stand as recorded. Since the timer is accurate to 1/1000 of a second, a tie is rare; however, they do occur. In the event of a tie, the cars will not be re-run since scoring is based on cumulative time, not placement of finish, unless the tie is a result of a computer error, determined solely by the Derby Chairman. If after all heats are run and through cumulative computation (see R-10) any cars tie for 1st, 2nd, or 3rd place (so rare it should not even be mentioned; however...), the tying cars will run a 2 heat tie breaker race to determine placement (fastest cumulative time receives the better placement). All cars that placed after the tying cars will move down in placement respectively.
- R-7. **Lane Selection:** If the track has more lanes than needed, the Track Official (in conjunction with the computer's programming limitations) shall select the most evenly matched lanes for use by the racers. Each car will race in each lane an equal number of times.
- R-8. **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-9. **Finish Line Clearance:** Track Finish Line Electronics and other track accessories must be no closer than 3 inches above the track.
- R-10. **Cumulative Computation:** During a division race each car will run down the track 3 or 4 times. Depending on the number of lanes on the track. The slowest time will be eliminated and the 3 fastest times will be added together for the cumulative total.
- R-11. **Competition Format:** For each scouting year competition, every car races the same number of times and every car races in each lane. The competition format will attempt to maximize the number of opponents that each car races against. In most cases, every car races at least 4 times. The number of races in each round is dependent on the number of Scouts entered in the race.

*Pre-Registration: See the race schedule for details about pre-registration.

Revised: 12/31/2009

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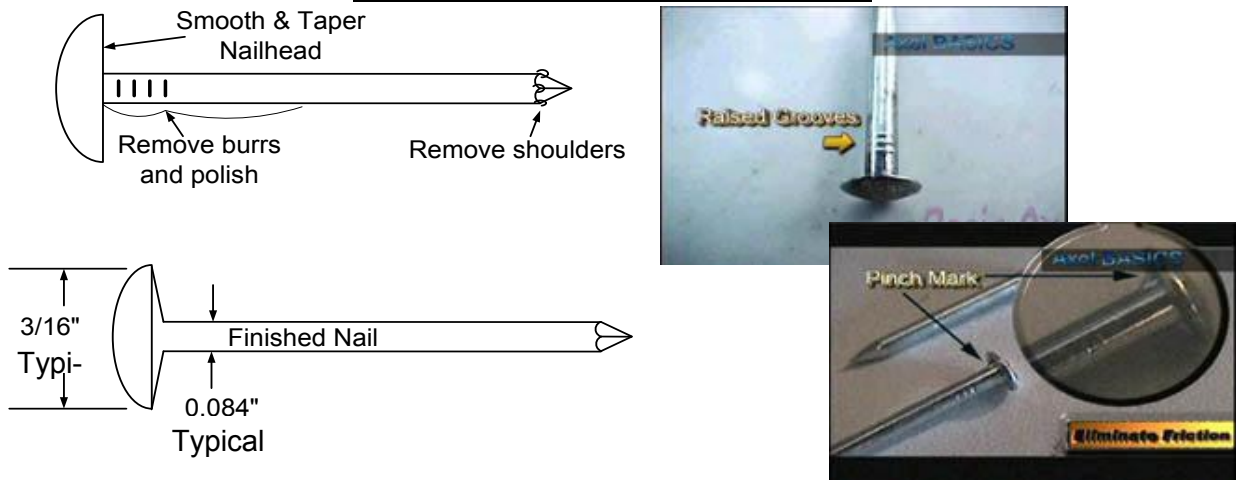
PICTURES & NOTES



Wheels may be sanded or lathed to remove imperfections and flattened but may not be reshaped or shaved. (Rule T-6)

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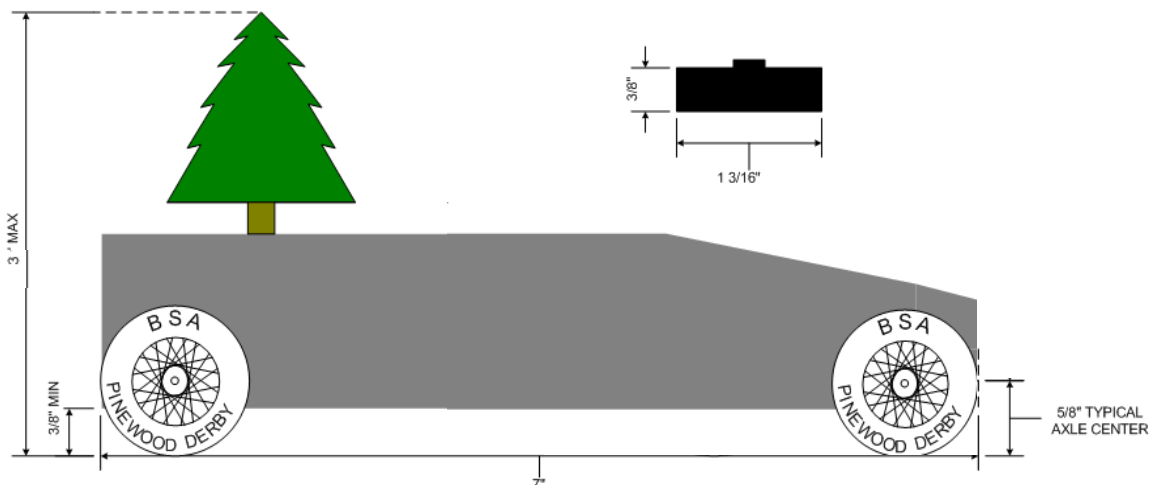
PICTURES & NOTES



Axel imperfections can be removed and axels may be polished. (Rule T-3)



Race cars may be no wider than 2 3/4 (2.75) inches and have inside wheel to wheel clearance of at least 1 3/4 (1.75) inches. The entire car must stage behind the starting pin. The front of the car should have a 1/2" flat surface so it may be accurately placed against the starting pin. (Rule T-4) & (Rule T-10)



Race cars may be no longer than 7 inches, nor taller than 3 inches, and have an underside clearance of at least 3/8 (0.375) inches. (Rule T-4) & (Rule T-10)

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To Parents of Pinewood Derby Participants: Council Rule Clarifications

Packs and Districts are allowed to develop their own rules but it is suggested that the Council Rules be used. This will ensure that all derby cars advancing to the Council Championship will have followed similar rules during previous races. I would like to address a few of the most commonly asked questions regarding the rules.

1. EXTENDED WHEEL BASE/ CAR BODY

The axel grooves provided in the block of wood do not have to be used. The wheel base may be extended but the wheels may not extend past the front or rear of the car body. Depending upon the track, the front of the car may rest against a short starting pin. It is required that the front of the car which rests on the pin is no higher than ¼" above the axle line.

2. LUBRICANT:

Dry powdered graphite is the suggested lubricant to use, but not required. Many other lubricants have been used over time; however, graphite has been proven to work best. Liquid lubricants may not be compatible with the plastic wheels and actually damage them. Our concern with lubricants is that anything other than dry graphite does not drop on the track affecting the operation of other derby cars. Cars using wet lubricants will not be allowed to race if any liquid is "dripping" from the wheels or axles.

3. WEIGHT:

Maximum allowable weight is 5.00 ounces. The scale used the day of the race and weight recorded will be considered "OFFICIAL". Even though a car may have weighed at or under 5 ounces using the same scale at a previous race we are concerned with the weight on the current race day. Once a car meets weight it will be impounded, weight is not allowed to be added. If the car is over-weight you will be allowed a limited number of opportunities to remove the excess weight and re-weigh the car.

4. WHEELS / AXELS

All wheels must have the raised BSA – PINEWOOD DERBY letters on the outside surface of the wheel **AND the raised OFFICIAL BSA MADE IN USA on the inside surface of the wheel.** The wheel surface may not be rounded, beveled, concave or shaved. There are many companies that sell supposedly "legal" wheels and axels. Only authorized wheels will be allowed.

5. GENERAL:

Each year the Cub Scout should construct a new car and we hope that cars are not used from previously years. The scout should play an active role in the design and construction of the car. It is understandable that a younger scout will need more assistance from an adult and we encourage this along with explanations for the reason the wheels are sanded, axles are polished, etc.

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6. SPEED TIPS: There are many factors that influence how fast a car travels down the track; the track itself, the weight of the car, where the weight is placed on the car, the placement of the wheels (wheelbase), how well the axles are polished (if at all), whether or not the mold marks were removed from the wheels, the camber of the axles, the shape of the car (aerodynamic or block), how well lubricated the wheels against the axles, etc., etc.

Here are some great Pinewood Derby informational sites:

1. <http://goaskgrandpa.com/sample01.htm> (my personal favorite)
2. <http://www.maximum-velocity.com/>
3. <http://www.pinewoodpro.com/>
4. <http://www.derbychamp.com/>