

Chain Bridge District Pinewood Derby Rules for 2019

The purpose of this document is to provide a reasonable and level playing field for all contestants. Please read and heed the information and the rules!

*One of the guiding principles of these rules is to provide guidance in the construction of cars for races at the pack-level. The **car construction rules** have not significantly changed in over 10 years, but more detailed explanatory clarifications of the rules have been added. **Additionally, we have made changes to reflect the addition of Lions and female dens to our program.** Race organizers advise that logistic information and the manner the races are conducted may change prior to the District Race.*

Additional regulatory information contained in the 2019 Chain Bridge District Pinewood Derby Information Summary is incorporated by reference into the derby rules, and will have equal force.

During the District Derby, any car violating any rule may be disqualified. Make sure your car is in compliance with these rules before the car is registered on the District's race day. Cars not in compliance with these rules may be challenged by other racers or the judges and the car may be disqualified at any time, including after a race/heat is run.

Eligibility of Contestants and Cars

- The 2019 Chain Bridge District Pinewood Derby Speed Competition is open to all Cub Scouts in the Chain Bridge District of the National Capital Area Council of BSA who placed first in their **rank** (not den) in their 2019 Pack Pinewood Derby. Due to time constraints, ***each pack in the District may only register one Scout from each Rank level (Arrow of Light, Webelos, Bear, Wolf, Tiger and Lions). If your Pack has multiple dens for a rank level (including female dens), the Pack cannot send the winner from each den. To sum up, each Pack may register a maximum of 6 Scouts per Pack, and only one Scout per rank (Lions, Tiger, Wolf, Bear, Webelos and Arrow of Light).*** Typically this is the division winner for each Rank from your Pack Pinewood Derby. If a first place finisher cannot attend, a Pack may send the second place finisher from that rank to represent the Pack. If the second place finisher is not available, the third place finisher may participate, and so on.
- It is important to emphasize that an invitation to the Chain Bridge District Pinewood Derby is extended **to the Cub Scout** for his or her accomplishments at the Pack level and **not an invitation to his or her car.** Cub Scouts must attend the event and be present to compete. Cars will not be accepted for drop off.
- Cars in this competition must have been made for this race season. Cars or parts of cars, such as wheels or axles, **from previous years may not be used.** Contestants may modify the car they used in their pack derby to conform to the Chain Bridge District Rules or optimize it for the track at these Chain Bridge District Races. However, all parts must be new for this season or from their Pack Pinewood Derby car made for this racing season.
- All cars must be constructed using the official BSA Grand Prix Pinewood Derby kit. The installation of non-conforming parts from other kits (which includes most modification kits and parts sold by non-BSA third party vendors) may lead to the car being disqualified.
- Ungentlemanly, unladylike or unsportsmanlike conduct by any participant or member of the audience will be grounds for expulsion from the competition and/or race area. If a participant or member of the

audience that has been expelled refuses to leave, all scouts from his Pack will be disqualified until the member leaves.

Race Format, Timing and Scoring

- All eligible contestants will compete in intra-rank competition. Pre-assigned “racing numbers” will determine the races for each car, based on a racing chart which is optimized for the size of the racing field and all determined by the Grand Prix Race Management Software.
- Races are started by race officials and cars are retrieved back to the starting area by race officials.
- Racing is computer controlled by the Grand Prix Race Management Software.
- Race Method - Perfect N Rotation
 - Each car races in each lane the same number of times.
 - Each car races each opponent the same number of times.
- Scoring is by total time – lowest total time wins.
- Worst time for each race car is thrown out.
- Tie Breaker rules if necessary (very remote chance of this – the race software and track equipment records car finishes to the thousandth of a second).
 - Total Points, based upon finish order - Points are awarded to each racer based on how they finished in the heat (1pt=1st, 2pts=2nd, and so on). The racer with the least number of points will win this tiebreaker.
 - Best results against Common Opponents - Each of the tied racer’s total time against their common opponents are compared. For this rule to be applied, the number of common opponents needs to be greater than or equal to the number of track lanes, for fairness.
 - Strength of Schedule - A racer going against stiffer competition will win the tiebreaker. Total times for each tied racer’s opponents are compared. This tiebreaker will not work if every racer races every other racer in that group.
- Two rounds of racing per rank unless there are 6 or less racers.
 - Round 1 will have the number of heats equal to the number of racers.
 - Round 2 (finals) will be the top 6 from round one.
 - If 6 or less racers just one round and it will be the finals.

Awards

- All participants will receive a Chain Bridge District PWD Patch.
- The top three finishers in each Rank Division will win trophies.

Track

- 35 foot, all aluminum, six lane track from BestTrack with electronic time and place finish.

Construction, Length, Width & Clearance Rules for All Pinewood Derby Cars Competing

- Cars may only be constructed from the official BSA Pinewood Derby kit sold either through the BSA Scout Store or Scoutstuff.org. ***Competitors may not substitute different wood or any other material as the main body of the vehicle.***
- Maximum overall width (including wheels and axles) shall not exceed 2-3/4”.
- Minimum width between the left and right wheels shall be 1-3/4” so car will clear the center guide strip.
- Minimum clearance between the bottom of the car and track shall be 3/8” so the car will clear the center guide strip.
- Maximum length (including wheels) shall not exceed 7”.
- Maximum height shall not exceed 3”.
- The wheelbase (distance between the front and rear axles, center to center) may not be changed from the kit body, and must be a distance of 4-3/8”.

Note: The official kit block has pre-cut slots which are correctly spaced. If desired, these slots may be pre-drilled before they are used. ***Competitors cannot cut new slots, or drill new axle mounting holes in the block to move the wheelbase either forward or backward of the pre-cut slots.*** However, competitors may pick either side of the block to be the front of the car.

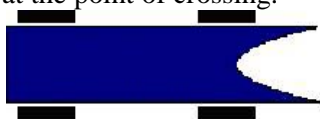
Wheels and axles

- The only the wheels that may be used come from either, (1) the official BSA Grand Prix Pinewood Derby kit, or (2) colored wheels purchased from the Scout Shop that are identical to the kit wheels in all other features except for color. The only axles that may be used come from the official BSA Grand Prix Pinewood Derby kit. **All other wheels and axles are prohibited.**
- Wheels and axles which have been modified by other parties are also prohibited, even if they are from the official kit. (e.g., websites or hobby shops that sell “matched,” lathed, polished, or graphite coated “official BSA” wheels or axles).
- Axles may be lightly filed, sanded and polished to remove imperfections. These are the only axle modifications allowed in so far as they do not alter the original shape of the axles. **Note: Beveling, rounding, tapering, thinning or any other significant altering of the shape of the axles or axle heads is prohibited.**
- Axles must be mounted directly into the wood body of the car. However, glue or putty may be used to hold them in place once mounted in the wood body. **Note: Metal frames and metal axle supports are prohibited. Single axles supporting two wheels are prohibited. Mounting the axles on top or on the bottom of wood body of the car with the use of any adhesive, glue, putty, bonding agent, or other material is prohibited.**
- Wheels may be lightly sanded and polished for balance and to remove imperfections. These are the only modification allowed in so far as they do not alter the original shape of the wheels. **Note: Beveling, rounding, peaking, “H”ing, humping, tapering, narrowing, thinning, perforating, or any other altering of the shape of the wheels or wheel hubs is prohibited. The rippled edges must remain completely intact on the entire wheel.**
- Modification of the cylindrical inner wall of the wheel which contacts the axle is prohibited.
- Wheel bearings, washers, or bushings are prohibited. This includes “wheel covers,” or graphite pads which serve to keep the wheel hubs from contacting the car body and “hub caps” or anything else that might serve as lubrication “well” or “tap”.
- The car shall not ride on any type of springs.
- The car must be free-wheeling with no starting device or other propulsion method or device, such as springs, moving weights, adhesives, magnets, rubber bands, motors, jets, etc.
- Four wheels are required to be on the car and affixed into (not onto) the wood body of the vehicle via axles as specified above.
- The **full tread** of at least three wheels must remain in contact with the track at all times. Cantilevering multiple wheels to reduce surface contact also increases the chance the car will leave the track and collide with/and or damage other cars, and will therefore be disqualified.
- A car may ride on three wheels with no more than one wheel raised. **Note: A car on three wheels must still ride straight as it will be disqualified if it jumps its lane guide and per below Ground Rules.**

Weight and Appearance

- Weight shall not exceed 5.0 ounces. The readings of the official race scale will be considered final.
- The basic structure of the car must be made of pine.
- The car may be carved, sculpted, and/or sanded in order to enhance performance and appearance.
- No loose or moving materials of any kind are permitted on or inside the car.
- Additional materials may be added to the car for the following purposes only:
 - Weights may be added to increase the weight and/or alter the weight distribution of a car as long as the total weight does not exceed the maximum of 5.0 oz. for the completed car.

- Cosmetic or aerodynamic details including painting, decals, add-ons such as steering wheel, driver, spoiler and interior details are allowed as long as nothing is loose or moving on the car and these cosmetic details do not cause the car to exceed the maximum length, width, height, and weight.
- Wood putty, or a similar wood-like substance, may be used to repair minor damage, holes for weights, etc.
- No part of the car may extend past the starting pin at the starting gate. The most common design feature that will cause a front end to extend past the near face of the start pin is a pointed nose, irregular shape, or an improperly installed “Quick-Start” design. **Questions of compliance with starting pin specifications raised on race day will be resolved by race officials and will be considered final.**
- Indented noses like below are *prohibited*. Cars like the one pictured below will “stage” further down the track, and thus are not traversing the same course as other cars. “Quick-Start” front ends are authorized, provided a solid bar or similar feature is permanently affixed along the entire length of the front of the car to ensure proper staging (by resting against the starting pin), and there is solid, opaque tape affixed to the bar (at least ¼” parallel to the ground) to ensure the electronic finish line is tripped at the point of crossing.



- Very pointed noses like below are *prohibited*. Cars like the one pictured below are difficult to stage and may not trip the electronic finish line at the point of crossing. This may result in a disadvantage to the racer.



Lubrication

- Only dry powdered lubricants, such as graphite or white powder Pinewood Derby Car Lubricant, may be used. Any wet lubricants, liquids, oils and sprays are prohibited.
- A car may be lubricated before the pre-race inspection only. This is the only time lubrication is permissible. Specifically, cars may not be lubricated while competing in a set of heats.

Ground Rules

- Pinewood Derby Race Cars are staged and retrieved ONLY by the race staff.
- During a race, if a car leaves its lane (even momentarily), jumps off the track or interferes with another car the heat will be run again. If the same car leaves its lane (even momentarily), jumps off the track or interferes with another car a second time in the same heat, the car will be disqualified from racing.
- If a car suffers a mechanical problem during a race and a repair can be accomplished within 5 minutes, the racer will be granted 5 minutes for the repairs. An adult may assist the racer with repairs in this circumstance and the racer may only use provided repair area for repairs. During repairs, the car may not be altered or lubricated, even if the malfunction occurs to a wheel or axle; and may only be repaired as close to the state that it was in before it broke. No additional speed aids or improvements may be added or made. The car must pass through inspection before being allowed to continue racing. If repairs are not corrected and the racer is not ready to go with the starter in 5 minutes, the car will automatically be disqualified.

Dress Code

Competing Scouts are required to be in Class A Uniform. Scouts and Scout Leaders observing the competition are encouraged to be in uniform.

Inspections

- All cars must have the name of the Cub Scout and his or her Pack number on the bottom of it.
- All cars will be placed in a measuring gauge/specification box to verify the above measurement requirements. If the car does not fit within the box it will fail inspection.
- The race scale has been calibrated with an official BSA Pinewood Derby lead weight of 5.0 ounces. This weight will be brought out to verify any questioning of the scale.
- Each car must pass inspection by the Official Race Inspection Team before it may compete. The Inspection Team has the right to recommend to the Chain Bridge District Pinewood Derby Director that a car be disqualified. Car owners will be informed of the violations and have the option to modify the car to meet these rules. Only the Race Director can make the decision to disqualify a Scout's race car. Any such decision is final.
- After the inspection, the cars are placed under the control of the race staff and neither the Scouts (nor the parents) can make further modifications, nor may they not touch their cars until completion of the race.
- All cars for each rank competition must be accepted by the Race Inspection Team at least 15 minutes before the scheduled start of that rank's competition. Therefore, we recommend Cub Scouts show up early in their registration time slot to insure the maximum time if necessary to bring cars into compliance, pass inspection and register by race time.
- Any participant not in attendance or ready to race at their scheduled race time will be disqualified. Attendance will be taken again just prior to the start of each ranks racing.
- Ungentlemanly or unsportsmanlike conduct by any participant or member of the audience will be grounds for expulsion from the competition and/or race area.

Disputes

Any participant, including parents of participants, may appeal to the Race Director for an interpretation of the rules. The Race Director will consider all appeals and consult with at least two of the Chain Bridge District Key 3, if available, and if not available, other members of the Chain Bridge Committee or race staff. After the consultation, the Race Director will make a final ruling.

Questions and Answers on Pre-Race Inspections

Why will my car be inspected? Inspection is necessary to check that all cars meet the race rules in terms of dimensions of the car, spacing of the wheels, size and type of wheels and the size and type of axle. This insures that all Cub Scouts will be racing their cars on a level playing field. In some years, in the Tiger Class alone, six out of twenty-six cars were initially disqualified, mostly for wheel violations. It is our sincere hope that this year *no scout will be excluded* on race day for a problem that could have been fixed before arriving at the District Race.

Why might my car not pass inspection? Pinewood racing is not solely a Cub Scout activity anymore. While it was started by Don Murphy back in 1953 as a scout competition many other organizations now have pinewood competitions, all with different rules and regulations. This has created a small industry of companies that make and provide pinewood products and services. As a result some of the pinewood products you see at craft stores (Michaels), Hobby shops (K & C Hobby Works), hardware stores, and numerous online shops may or may not be OK to use on your car at the District Race.

The Official BSA Pinewood kit is not complete. It does not include weights, lubricants, paints and other items like decorative car pieces which you need or may want for your car. When parents and/or guardians go out to buy weights and lubricant they might see other bits and pieces such as “speed axles” or “super wheels” and think that it is OK to use these items on their cars as well, and different Cub packs may allow the use of some or all of these parts. But our District Race rules are fairly strict in not allowing wheels or axles produced, enhanced or modified by third parties.

What might I do to a kit piece that would disqualify my car? Most disqualifications are due to wheel and axle violations. Wheels that are aggressively sanded may end up “rounded.” This puts less of the wheel surface on the track reducing friction and making a car go faster, but it is not allowed under District Rules. Some may also sand the middle of the wheels creating an “H” shape on the wheel surface accomplishing the same end; once again this is not permitted. Lighter wheels make a car go faster so some may sand or machine their wheels both inside and out to create very thin and light wheels. This is also not permitted under the District Race Rules.

Axles are another area to check. Excessive axle sanding can create very thin axles that some believe increases speed. Sanding and polishing of axles is permitted as long as you do not significantly reduce the size or shape of the axle. Some builders will also cut notches in the axles so that less of the axle touches the axle hole in the wheel, lessening friction and increasing speed. This is similarly not permitted at District. Using extra thick axles is also not permitted.

Other areas to check. *Do not glue weights to the bottom of your car* unless you know it will have at least 3/8” clearance (and 3/8” is the requirement, not that it worked without any issue on your pack’s track). If you do not have sufficient clearance, your car may stop mid-track, may damage track sensors or other track components, and is much more likely to depart its assigned lane and damage another competitor’s car. Make sure your car weighs as close to, but not over, five ounces. Light cars *NO NOT* go faster and adding significant additional weight to your car on race day is very difficult. Use the scale at your Post Office to get a preliminary check of your car weight.

2019 Chain Bridge District Pinewood Derby Design Competition

Separate from the speed championships, this year the Chain Bridge District Pinewood Derby will include a competition for Best Design. The purpose of the Design Competition is to recognize the wonderful creativity and craftsmanship of our Scouts (not the car) **who did not qualify for the District Pinewood Derby speed trial**. Awards will be given in each division: Lions, Tiger, Wolf, Bear, Webelos, and Arrow of Light. The rules are simple.

1. All* Chain Bridge District Cub Scouts are eligible to enter the car they raced in this year's pack race, regardless of the status of their cars in their Pack races.
2. Scouts cannot enter the same car in the Chain Bridge District Pinewood Derby speed trials and design competition, nor can scouts make two cars and enter one in the speed trials and one in the design competition, as the car has to have raced this year (and Packs should not be permitting scouts to race multiple cars).
3. Cars need to have been built **this year** and **raced** in your Pack's Pinewood Derby.
4. **Only work constructed predominantly by the Scout will be considered in the judging.** While the guide to Safe Scouting requires adults to operate power tools for Cub Scouts, and reasonable allowances for power tools are permitted, **at the sole discretion of the judges, cars that reasonably appear to be constructed by an adult, or are reasonably beyond the age and ability level of a scout at the rank being judged will be docked points, and will likely not be eligible for 1st, 2nd or 3rd Place.**
5. The Scout's name, rank and Pack number must be written and clearly visible on the bottom of his car.
6. Bring your car to the registration table at the District Pinewood Derby by the time of the speed competition for your Rank. The times are the same as the start times for the speed trials.

Design Competition Schedule:

Rank Division	Deadline to Enter Car
Arrow of Light	12:00 PM
Webelos	1:00 PM
Bear	2:00 PM
Wolf	3:00 PM
Tiger	4:00 PM
Lions	5:00 PM

7. Trophies will be given to the top 3 in each Rank Division. All participants will receive a Chain Bridge District Pinewood Derby Patch.
8. Judging will take place during the time of the speed trials. Scouts must pick up their cars at the completion of the hour-long speed trials. (During the judging hang around and watch the race!)
9. The awards will be selected by a panel of judges. In contrast to awards for speed, which are based solely on quantitative performance measured precisely by computer, awards for design will be based on qualitative factors solely at the discretion of the judges. Since the point of these awards is to recognize the **Scout's** creativity and craftsmanship (not the parent's), there are no preset criteria for the design awards. Some of the factors the judges may consider include creativity, originality, craftsmanship, painting, decoration, attractiveness, and humor.
10. Scouts should wear their Class A Scout Uniform.

* Cars entered into the Chain Bridge District speed trial are not eligible for a Best Design award.