



Chain Bridge District Pinewood Derby 2023 Official Rules

Welcome to the Chain Bridge District Pinewood Derby!

Contestants at the District Pinewood Derby all come from different packs, with each pack having its own track, timing system, equipment, and racing traditions. In order to successfully run a District-level race under these conditions, we have created these rules to provide a level and uniform playing field for all participants.

*The Chain Bridge District **strongly recommends** that packs also use these rules as much as possible in their pack races. By doing that, you help ensure that your pack's winners will have a successful and smooth experience when they compete in the District Pinewood Derby.*

*Make sure your car complies with these rules **before** registration & check-in on race day. A car must first pass an inspection (described in Section D.4 **(Inspection & Check-In)**, below) before it can race, **but a car can be challenged by other racers or the judges at any time, even after a heat or race has already been run.** Violation of any of the rules can lead to disqualification.*

Thanks for participating in the Chain Bridge District Pinewood Derby, and good luck on the track!

A. About the Event: The 2023 Chain Bridge District Pinewood Derby Speed Competition (the “District Speed Competition”) is a fun, day-long event presented by the Chain Bridge District of the National Capital Area Council, BSA. Racers representing the packs of the Chain Bridge District from each Cub Scout rank level (Lions, Tigers, Wolves, Bears, Webelos, and Arrow of Light; each, a “Rank Division”) will compete in a series of timed speed races to determine a “District Champion” for each Rank Division.

In addition to these official rules (“Rules”), additional instructions, guidelines and information about the District Speed Competition may be found in the official Chain Bridge District Pinewood Derby Information Sheet (the “Information Sheet”). The Information Sheet is incorporated into these Rules by reference. In the event of a conflict between the Information Sheet and these Rules, these Rules will control.

B. Contestants; Eligibility

To qualify for the District Speed Competition, you must:

- (a) be a registered member of Cub Scouts BSA in a Chain Bridge District pack (a “Pack”);
- (b) have either placed first in your **Rank** (not your den) in your Pack’s 2023 Pinewood Derby (your “Pack Race”), or be sent as a representative of your Pack (as determined by your Pack leadership) in the event the racer who took first place in your Rank competition at your Pack Race is not available, as further described below; and
- (c) be physically present for the entirety of the check-in/inspection and Rank Division race, in full field (“Class A”) uniform (see Section D.1. below for further information).

Any participant who meets all of the above criteria is referred to in these Rules as a “Contestant.”

A Pack may register one Cub Scout per Rank Division, for a maximum of six Contestants per Pack. If a Pack has multiple dens (including female dens) for a Rank Division, the Pack must determine a single winner for that Rank Division. If the first-place finisher from a particular Rank Division is ineligible under these Rules or cannot otherwise participate, a Pack may send the second-place finisher from that Rank Division as an alternate Contestant, if eligible. If the second-place finisher is not available, the third-place finisher may participate, and so on.

If you have transferred your registration to another BSA unit between your Pack Race and the District Speed Competition, you may still represent your former Pack at this event, provided your former Pack concurs.

An invitation to the Chain Bridge District Pinewood Derby is extended to the Contestant; it is **not an invitation to the Contestant’s Car**. As such, a Contestant **must attend the District Speed Competition in person and be present** at the time his/her car is racing; ***Cars will not be accepted for drop off.*** See Section D (The Race), below.

C. Cars

1. Construction & Materials

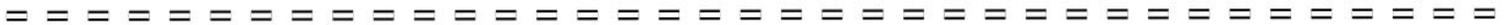
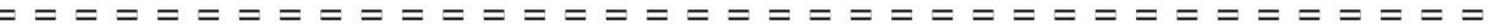
- All cars participating in the District Speed Competition must consist, *at a minimum*, of a pinewood body, four axles, and four wheels (collectively, a “Car”).
- All Cars must be constructed using official BSA Pinewood Derby kits or parts. Official kits and parts may be purchased through the BSA Scout Store or Scoutstuff.org. Using

non-conforming modification kits and parts sold by non-BSA third party vendors may lead to disqualification from the competition. See Section C.3 (**Wheels and Axles**), below.

- The basic body structure of each Car must be made of pine. **Contestants may not substitute a different species of wood or any other material as the main body of the Car.**
- Any Car competing in the District Speed Competition must have been built by the Contestant, with age-appropriate help from an adult.
- Any Car competing in the District Speed Competition must have been built for the current race season. Cars (or substantial components of cars, such as body, wheels or axles) from previous race seasons may not be used.
- A Contestant **may** modify his/her Car after a Pack Race in order to meet the requirements of these Rules, or to optimize performance on the District Speed Competition track.

2. Dimensions

All Cars participating in the District Speed Competition must meet the following dimensions, which will be confirmed during the pre-race inspection (see Section D.4 (**Check In & Inspection**)), below):



- **Maximum overall width** (including wheels and axles) shall not exceed 2-3/4".
- **Maximum length** shall not exceed 7".
- **Maximum overall height** shall not exceed 3".
- **Maximum overall height of any "Quick Start" front end** shall not exceed 1-3/4". See additional information under Section C.3.f (**Staging; "Quick-Start" Front Ends and Prohibited Body Types**), below.

- **Maximum weight** shall not exceed 5.0 ounces as measured by the official race scale.
- **Minimum width between the left and right wheels** shall be no less than 1-3/4”;
- **Minimum clearance** between the bottom of the car and track shall be no less than 3/8”.

NOTE: Cars not meeting these minimums *will not clear* the center guide strip on the District Speed Competition track and will be unable to race.

- **Required wheelbase** (distance between the front and rear axles, center to center) is 4-3/8”. This measurement is **required** and may not be changed. For reference, the official BSA Pinewood Derby kit block has axle slots pre-cut with the correct wheelbase measurement. If desired, these slots may be pre-drilled before they are used. ***Contestants may NOT cut new slots, drill new axle mounting holes in the block to move the wheelbase either forward or backward of the pre-cut slots, or flip the wood block over and drill axle holes in lieu of the pre-cut slots.*** Either side of the block may be the “front” of the Car.

3. Wheels and Axles

a. Official BSA Parts Only

- All Cars competing in the District Speed Competition must use wheels and axles that come from either: (1) the official BSA Grand Prix Pinewood Derby kit, or (2) ***unmodified*** official BSA Pinewood Derby wheel & axle kits (including BSA's colored wheel sets that are identical to the standard BSA Pinewood Derby kit wheels in all ways except for color). **All other wheels and axles are prohibited and may not be used in the District Speed Competition.**
- "Quasi-Official" BSA wheels and axles (that is, wheels and axles obtained from the official kits and sources described above) which have been modified by other parties *in any way* (e.g., websites or hobby shops that sell "matched," lathed, polished, or graphite-coated "official BSA" wheels or axles) are **prohibited** and may not be used in the District Speed Competition.

b. Wheels

- The Contestant may lightly sand and polish the wheels of his/her Car in order to improve the Car's balance and to remove imperfections, ***provided that any modifications do not significantly alter the original shape of the wheels.*** In particular, **the rippled edges on the wheel's outside edge must remain completely intact around the entire wheel.**
- **Beveling, rounding, peaking, "H"- or "V"-cutting, humping, tapering, narrowing, thinning, perforating, or any other altering of the shape of the wheels or wheel hubs is prohibited.**
- Modification of the cylindrical inner wall of the wheel which contacts the axle (the wheel bore) is **prohibited**.
- Wheel bearings, washers, or bushings are **prohibited**. These items include, without limitation, "wheel covers," graphite pads which serve to keep the wheel hubs from contacting the car body, "hub caps," or anything else that might serve as a lubrication "well" or "tap".

c. Axles

- The Contestant may lightly file, sand, and polish his/her axles in order to remove imperfections, ***provided that any modifications do not significantly alter the original shape of the axles.*** Axles or axle heads that have been **beveled, rounded, tapered, thinned or altered in any significant way are 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 pre-cut slots. ***Mounting the axles on top or on the bottom of wood body of the car, outside of the pre-cut slots, with the use of any adhesive, glue, putty, bonding agent, or other material is prohibited.***
- **Metal frames and metal axle supports are prohibited.**
- **Single axles supporting two wheels are prohibited.**

d. General Considerations

- The Car may not ride on any type of spring or suspension.

- The Car must be free-wheeling, with no starting device or other propulsion method or device, including, without limitation, springs, moving weights, adhesives, magnets, rubber bands, motors, jets, etc.
- The Car must race with four wheels, each mounted with an axle into one of the pre-cut slots on the body of the Car, as specified above.
- The **full tread** of at least three wheels must remain in contact with the track at all times.
- Cars that ride on three wheels, with no more than one wheel raised, are **permitted**. While canting axles (that is, intentionally installing them at an angle) to reduce the amount of surface area the wheels make with the track may increase a Car's speed, it also increases the chance the Car will leave its assigned lane and damage other cars. Cars found to have fewer than the full tread of three wheels in contact with the track during **Inspection** (described below) will be disqualified. **Contestants are reminded that any Car riding on three wheels must still ride straight in order to participate (and be successful) in the District Speed Competition. A Car that repeatedly jumps its lane guide for any reason will be disqualified.** See Section C.11 (**Mechanical Problems**), below, for more information.

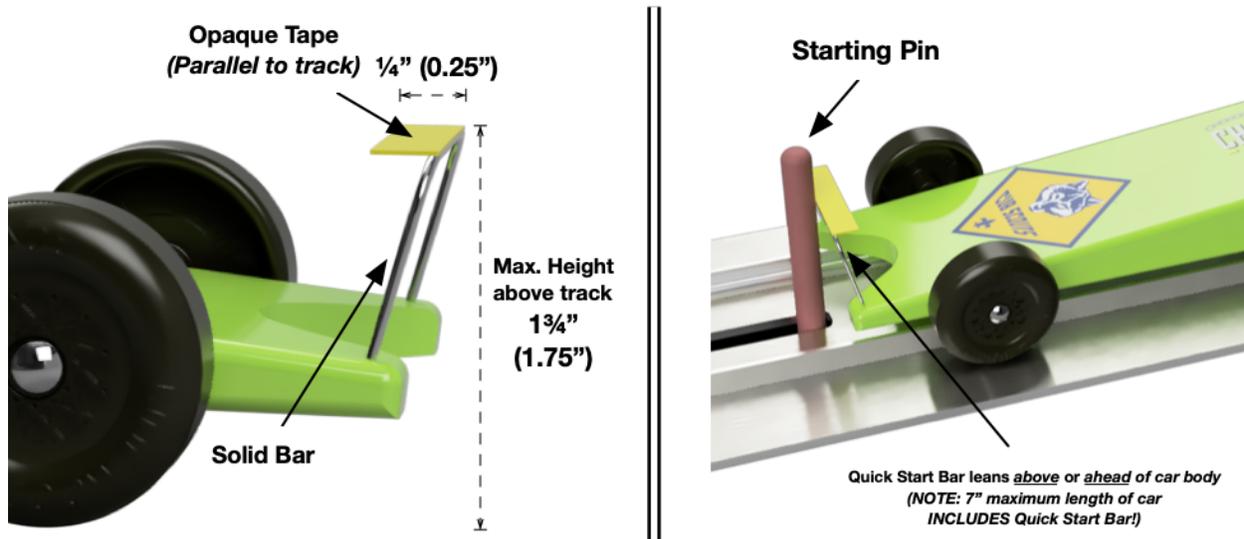
e. Appearance

- The Car may be carved, sculpted, sanded, painted, wrapped, and/or decorated 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:
 - 1) **Weights** may be added to increase the mass of the Car and/or alter the weight distribution of the Car, as long as the total weight of the completed Car does not exceed 5.0 ounces.
 - 2) **Cosmetic or aerodynamic details** including painting, wraps, decals, and additions such as a steering wheel, driver, spoiler or other exterior or interior details are **allowed** as long as nothing is loose or moving on the Car, and the Car complies with all measurements listed under Section C.2 (**Dimensions**), above.
 - 3) **Wood putty**, or a similar wood-like substance, may be used to repair minor damage, holes for weights, etc.

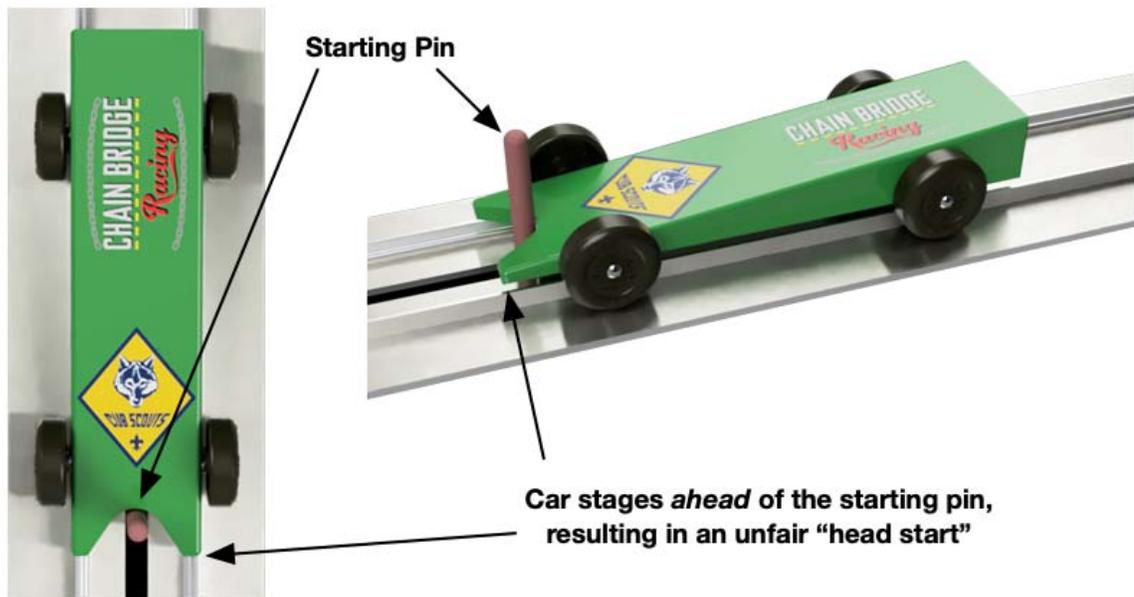
f. Staging; “Quick-Start” Front Ends and Prohibited Body Types

- On the District Speed Competition's track, each Car is set at the starting line (“staged”) using a narrow pin that extends up from the track floor. The pin holds the Car in position at the starting line, then drops down into the track when the race begins.
- In order to ensure a fair start, **no part of any Car may extend past the starting pin when the Car is staged at the starting gate.** Any questions about whether a Car complies with these staging rules and specifications will be resolved by the race officials on race day. **All such decisions are final.**
- All Cars are staged, started and retrieved **ONLY** by the race staff.
- **Cars with “Quick-Start” Front Ends are permitted**, provided that:

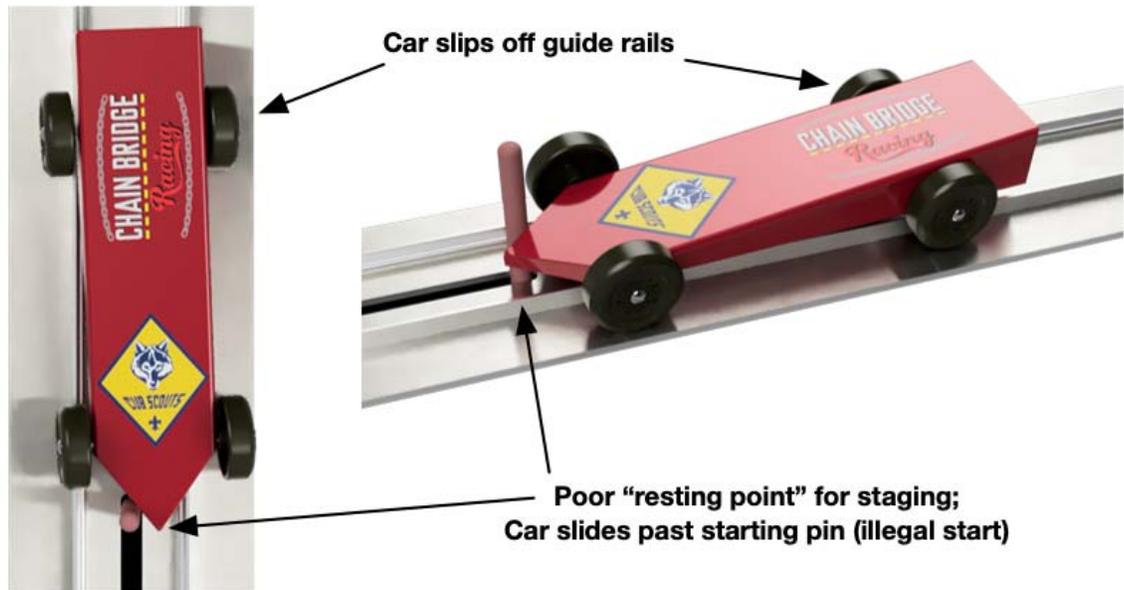
- (a) A solid bar or similar feature, **no taller than 1 $\frac{3}{4}$ "**, is permanently affixed along the entire width of the front of the car. This ensures that the car will properly rest against the starting pin; **and**
- (b) there is solid-colored, opaque tape affixed to the bar (at least $\frac{1}{4}$ " long, and parallel to the ground). The tape ensures that the Car will properly trip the electronic sensor when it crosses the finish line.



- Cars with Indented Noses like the one pictured below are **prohibited unless the Car is fitted with a properly installed “Quick Start” front end, as described above**. An indented nose causes the Car to stage further down the track against the starting pin, which unfairly shortens the Car’s course relative to the other Cars in the race.



-
-
- **Cars with Sharp or Very Narrow Pointed Noses** like the one pictured below are *prohibited*. Cars with this shape may not properly rest against the pin at the starting gate and can lead to false starts.



g. Lubrication

- Only dry powdered lubricants, such as graphite or white powder Pinewood Derby Car Lubricant, may be used. Any wet lubricants, liquids, oils, or sprays are prohibited.
- A car may be lubricated before the pre-race inspection **only** (see **Inspection**, below). Cars **may not** be lubricated between heats or racing rounds, or in the pit area in the event a repair is needed.

D. The Race

1. Attendance

- Any participant not in attendance or ready to race for the entirety of their scheduled race time will be disqualified or removed from the District Speed Competition. Attendance will be taken just prior to the start of each Rank Race.

2. Dress Code

- Competing Scouts are required to be in their field uniforms ("Class A"). Scout Leaders observing the competition are likewise required to be in uniform. Scouts observing the competition are encouraged to be in uniform. In the event a participating scout does not have a uniform, the Pack race representative should contact the Race Coordinator in advance.

3. Behavior

- The following behavior is strictly prohibited during the District Speed Competition:
 - (a) tampering or attempting to tamper with the entry process or the operation of the District Speed Competition;
 - (b) violating the Rules; and/or
 - (c) acting in an unsportsmanlike or disruptive manner, or with intent to annoy, abuse, threaten or harass any other person.
- Any such behavior by any Contestant, parent/guardian, participant, or other member of the audience is grounds for disqualification from the District Speed Competition, and expulsion from the race area. If any such expelled person refuses to follow the orders of leave, all Contestants from the Pack associated with that person will be disqualified from any further racing until that person leaves.

4. Check-In & Inspection

- Each car must pass inspection by the Official Race Inspection Team before it may compete.
- Refer to the Information Sheet for the registration period for each Rank Race (each, a “Rank Registration Period”).
- The closing of each Rank Registration Period will be announced in the race area. **All Cars for each Rank Race are due by the close of the Rank Registration Period. Late entries WILL NOT be accepted and CANNOT be added to another Rank Division’s race. In order to maintain the very tight scheduling necessary to run the District Speed Competition, there are absolutely NO exceptions to this rule.** We recommend you arrive **early**, to allow sufficient time to make any necessary modifications, pass Inspection, and complete registration before your Registration Deadline.
- Each Car must have the name of the Contestant and his/her Pack number on the bottom.
- The race staff will apply a sticker with a number the race staff will use to identify your Car during the competition. These numbers are pre-assigned before race day and cannot be changed.
- Each Car will be placed in a measuring gauge/specification box to verify the dimensions specified in these Rules (see Section C.2, **Dimensions**, above). Race officials may also use rulers or other gauges approved by the Race Director. If the Car does not fit within the specification box, it will fail inspection and may not participate in the District Speed Competition unless the violation can be corrected, as described below.
- The race scale will be calibrated with an official BSA Pinewood Derby lead weight of 5.0 ounces. The scale may be re-tested with the official lead weight if the accuracy of the scale is questioned.
- If one or more violations of these Rules are found, the Inspection Team will inform the Contestant, and may recommend to the Race Director that the Car be disqualified. A Contestant may appeal the disqualification or attempt to modify his/her car to correct the violation, but any such modifications must be completed, and the Car re-submitted for a successful Inspection, **prior to the end of Rank Registration**

Period. The ultimate decision about whether to disqualify a car will be made in the sole discretion of the Race Director, whose decision is final.

- After the Inspection, the race staff will take sole possession of the Car until the Car has completed its Rank Race. Once the race staff has possession of the car, neither the Contestant (nor any parent, spectator, or other non-race staff) may make further modifications or touch the Car until the Car is returned to the Contestant at the conclusion of the Rank Race, unless a Mechanical Problem occurs during the race (see Section 11, **Mechanical Problems**, below).

5. Race Format & Scheduling

- The District Speed Competition is conducted on a 35 foot, all aluminum, six lane track from BestTrack with electronic timing and place finish. (<http://www.besttrack.com>).
- All Contestants compete against other Scouts in their own Rank Division – Lions vs. Lions, Tigers vs. Tigers, and so on. The heat assignments for each Car are optimized for the size of the racing field.
- All races are structured using the “Perfect N” rotation method. Under this method:
 - a) Each car races in each lane the same number of times; and
 - b) Each car races each opponent the same number of times.
- The format of each Rank Division’s races depends on the number of Contestants competing in that Rank Division, as follows:
 - a) **Seven Racers or More in the Rank Division**
 - i) **Two rounds** of racing (each, a “Round”):
 - i. In Round 1 (the “Preliminary Round”), each Contestant’s Car will race in each lane, for a total of 6 heats. The number of heats in the Preliminaries will be equal to the number of racers in the Rank Division. At the conclusion of Round 1, the top six Cars by **lowest Cumulative Time** (as defined in Section D.7, **Scoring**, below) in the Preliminary Round will be named as “Finalists” and advance to Round 2.
 - ii. In Round 2 (the “Final Round”), the six Finalists from Round 1 will race in a second round of racing, with each Car racing in each lane.
 - b) **Six Racers or Fewer in the Rank Division**
 - i. When there are fewer than 6 racers in a Rank Division, the Preliminary Round is eliminated. Each of the racers will compete in a 6-heat “Final Round”, with each Car racing in each lane.

7. Scoring

- Rounds are scored by **cumulative time**. For each Round, each Car’s highest (worst) time is first thrown out. The sum of the remaining five heat times is the Car’s “Cumulative Time.”
- At the conclusion of each Round, the Car with the lowest Cumulative Time is the winner of that Round. In a Preliminary Round, the Cars with the six *lowest*

Cumulative Times will advance to the Final Round. In a Final Round, the Car with the lowest Cumulative Time is the winner, the next lowest is the runner-up, and so on.

8. Tiebreakers

The District Speed Competition timing equipment records car finishes down to four decimal places -- a ten thousandth of a second (0.0001). Ties between two or more Cars – especially when measured over each Car’s six races in a Round – are therefore *very* unlikely. However, should a tie between two or more Cars occur in any Round, the tie will be broken as follows:

- a) **Head-to-Head:** If two tied racers have raced head-to-head during the Round, the winner of that race wins the tiebreaker.
- b) **Total Points:** If the tie is still not broken, points will be awarded to each tied racer based on how they finished in each of their heats (1 point for 1st, 2 points for 2nd, and so on). The racer with the least number of total points for his/her races will win this tiebreaker.
- c) **Best Results Against Common Opponents:** If the tie is still not broken, each tied racer’s total time against their common opponents is compared. The racer with the lower total time against the tied racers’ common opponents will win the tiebreaker. 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.
- d) **Strength of Schedule:** If the tie is still not broken, the strength of each tied racer’s race schedule will be compared by adding up the total times of all the opponents faced by that racer. The racer whose opponents had the *lower* total time will win the tiebreaker. This tiebreaker does not apply when each Car races against every other Car in their race group.

9. Awards

- Contestants will each receive a Chain Bridge District PWD Patch.
- The top three finishers in each Rank Race will each win a trophy.

10. Interference or “Does Not Finish”

- During any heat, if the race officials determine that any Car (or portion thereof) disrupts the fair or proper running or timing of the heat, that Car may be charged with “Interference.” In the discretion of the race officials, the heat may be run again.
- Types of Interference include, without limitation, when a Car:
 1. Leaves its assigned lane during the race and makes contact with another Car; or
 2. Loses one or more parts that fall into an adjoining lane and are then contacted by another Car.
- If the same Car is charged with Interference a second time in the same Round, the Car will be disqualified from further racing.
- All decisions regarding Interference will be solely made by the race officials, and are final.

- In the event a Car fails to cross the finish line for any reason *other* than interference (e.g., the Car does not have enough momentum to reach the finish line, or departs the track without striking another Car), the Car will be marked as “Did Not Finish,” and a time of 9.999 seconds will be entered for the Car in that heat.

11. Mechanical Problems

- If, during a race, a Car suffers a mechanical problem that would prevent the Car from legally racing under these Rules (a “Critical Failure”), and the race officials reasonably believe that the failure can be repaired within 5 minutes, then the Contestant will receive a 5-minute “Pit Stop” to make the repair. See Section D.12 (**Pit Stops**), below.
- Critical Failures include, without limitation:
 - A. Loss of a wheel or axle,
 - B. Loss of a Quick-Start front end, without which the Car can no longer be legally staged; or
 - C. Loss of a key body part that holds an axle or wheel.
- For clarity, Critical Failures DO NOT include the loss of solely cosmetic pieces or one or more weights, *even if the loss of those parts lowers the weight of the Car*. In such cases, the Car must continue racing in its current state, and no repairs may be made.

12. Pit Stops

- If a Contestant is granted a Pit Stop (see Section D.11 (**Mechanical Problems**), above), an adult may assist the Contestant with repairs. All repairs MUST be made in the “Pit Stop Area” provided for this purpose.
- During repairs, the Car may only be restored to the approximate state that it was in before the damage occurred. No alterations may be made, including, without limitation, any additional speed aids or improvements.
- The Car may not be re-lubricated, even if the malfunction occurs to a wheel or axle.
- Any Car exiting the Pit Stop Area must pass through Inspection again before being allowed to continue racing. See Section D.4 (**Check-In & Inspection**), above.
- Any repairs to the Car must be completed within the 5-minute Pit Stop period. If the car is not returned to the starter in legally raceable condition by the end of that time, the car will be disqualified from further racing.

D. General Rules

1. Interpretation of Rules; Appeals

Any Contestant, or the parent/guardian of a Contestant, 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.

2. Acceptance of Rules; All Decisions Final

Each Contestant and his/her parent or legal guardian agree to be bound by the Rules and the decisions of the Race Director and race staff, which are final.

3. Compromised Race

If any part of the District Speed Competition is compromised for any reason, the Race Director reserves the right at his sole discretion to cancel or modify the affected race(s) and, if possible, select winners from the portion of the District Speed Competition that has not been compromised.

2023 Chain Bridge District Pinewood Derby Design Competition Rules

In addition to the District Speed Competition, the Chain Bridge District Pinewood Derby also includes a design competition (the “Design Competition”). The purpose of the Design Competition is to recognize the wonderful creativity and craftsmanship of those Scouts who did not qualify for the District Speed Competition.

Awards will be given in each rank division: Lions, Tiger, Wolf, Bear, Webelos, and Arrow of Light (each, a “Rank”). *Packs are not required to pre-register Design Competition competitors. Unlike the District Speed Competition, there is no limit on the number of Scouts that may participate from a Pack.*

1. The Design Competition is open to any:
 - a. registered member of Cub Scouts BSA in a Chain Bridge District pack (a “Pack”);
 - b. who, based on your performance at your Pack’s 2023 Pinewood Derby (your “Pack Race”), **did not qualify** for the District Speed Competition; and
 - c. (c) be physically present for the entirety of the check-in/inspection and Rank Division race, in full field (“Class A”) uniform (see Section D.1. below for further information).Any participant who meets all of the above criteria is referred to in these Rules as a “Contestant.”
2. The Design Competition for each Rank is held concurrently with the District Speed Competition for that Rank. All Contestants for a given Rank’s Design Competition must be physically present, in full field (“class A”) uniform, for the entirety of the check-in/inspection and racing period for that Rank.
3. All cars entered in the Design Competition must have built for the current race season and raced in the Contestant’s Pack Race. Cars (or substantial components of parts such as body, wheels or axles) from previous race seasons may not be used. Scouts cannot enter the same car in the Chain Bridge District Pinewood Derby Speed Competition and Design Competition, nor can scouts make two cars and enter one in each competition.
4. **Any Car competing in the Design Competition must have been built by the Contestant, with age-appropriate help from an adult.** While the Guide to Safe Scouting requires adults to operate power tools for Cub Scouts, and reasonable allowances for power tools are permitted, **in the sole determination of the judges, a car whose construction seems reasonably beyond the age and ability of the Rank Division level being judged may be docked points.**
5. The Scout’s name, rank and Pack number must be written and clearly visible on the bottom of his or her car.
6. All participants will receive a Chain Bridge District Pinewood Derby Patch. Trophies will be awarded to the top 3 in each Rank Division. In the event that there are an insufficient number of eligible entries in any Rank Division’s Design Competition, not all prizes may be awarded.
7. Judging will take place during the time of the speed trials for that rank. Scouts must pick up their cars at the completion of the hour-long speed trials. (During the judging hang around and watch the race!)
8. The winners will be selected by a panel of 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. The judges may consider factors such as creativity, originality, craftsmanship, painting, decoration,

attractiveness, and humor.

9. Cars entered into the Chain Bridge District Speed Competition are not eligible for a Best Design award.