



Choptank

2019 Pinewood Derby

Rules and Regulations

The Choptank District 2019 Pinewood Derby will be held on Saturday, March 30th, 2019. Registration and inspection will begin at 9:30 AM and conclude at 10:30 AM; races will begin at 11am.

The following rules and regulations will govern the event:

The **Pinewood Derby** is open to all Choptank District 1st and 2nd place finishers for all ranks (Lions, Tigers, Wolfe, Bears, Webelos, AOL). Cars should be built by the Cub Scouts with some adult guidance. We encourage the Scouts to design and decorate their race cars on their own as much as possible. The use of tools to construct the race car should be age-appropriate, and may require technical assistance from an adult. (i.e., the use of power tools is not allowed by Cub Scouts; the use of sharp cutting tools is not appropriate for Scouts who have not earned their Whittling Chip. An adult may provide assistance.) Any technical assistance should be fully explained to the Cub Scout so that he can use that knowledge on future projects. Along with adult/child participation, craftsmanship, good sportsmanship and learning how to follow rules, the safe use of tools is a primary learning objective of the Pinewood Derby. Appropriate safety gear (protective eyewear, hearing protection, face mask, etc.) must be used during construction.

Design and construction rules and regulations

Summary: Cars must be made from the parts of the official kit, including wheels and axles; weigh no more than 5.0 ounces; be no larger than 7 inches long, 2 $\frac{3}{4}$ inches wide, and 6 inches tall. Cars must allow $\frac{3}{8}$ inch clearance to the track, and 1 $\frac{3}{4}$ inch clearance between the wheels. All four wheels must be parallel to and in contact with the track. Only dry lubricants are allowed.

- 1) **Construction:** All Scouts of Choptank District will receive one (1) Official Pinewood Derby Car Kit. Racecars shall be constructed for this event from the parts contained in the Official Pinewood Derby Car Kit (referred to below as the kit). Materials from the kit may not be replaced, unless damaged; and then only with a part from another official kit. "Add-ons" may be used. The District will possess a limited number of replacement kits. In the event of receipt of a damaged or defective kit, please notify the Pinewood Derby Chairperson for replacement.
- 2) **New work:** Construction of all entries MUST have begun AFTER August 31st, 2018.
- 3) **Race Day Registration and Inspection:** Each racer must be present at registration to enter his car into competition, and during racing. RACING PROXIES ARE NOT ALLOWED. Each car must pass an inspection before it may compete. The Inspection Judges shall disqualify cars that do not meet the rules as described herein. If a car does not pass inspection, the racer will be informed of the reason his/her car did not pass. Cars that fail inspection may be modified and re-inspected, up until the close of registration at 11:45 AM. Cars that fail will only have until the end of the registration period to make modifications; otherwise the car will be disallowed. Racers who are in line for registration by noon will be allowed to register. However, RACERS ARE ENCOURAGED TO REGISTER AS EARLY AS POSSIBLE in order to allow for last-minute modification needed to abide by the rules and regulations herein.
- 4) **Car Numbers/Names:** At their option, racers can supply a car name at the time of registration. Racers may apply a number to their race car (paint, sticker, etc.) but this number may not correspond to the officially assigned registration number. Racers will be assigned an official number at registration. A sticker with the registration number will be applied to the car.
- 5) **Impound:** No car may be altered in any way after it has been registered (this includes the addition of lubrication). After a car passes inspection, the Pinewood Derby Officials will take possession of the car.
- 6) **Weight:** Racecars may weigh no more than five (5.0) ounces (total weight) as determined on the official scale during the inspection and registration period.
- 7) **Wheels and Axles:** The car shall roll on the wheels from the kit. All four wheels shall turn about the axles from the kit. The axles shall be firmly affixed to the wood of the car body. It must be obvious to the judges that the wheels and the axles from the kit are being used. (The words "Official B.S.A. Made in U.S.A." and other lettering on the wheels shall remain intact and clearly visible to the inspector.) Use of official, solid color wheels is allowed, but these wheels have proven to be slower than the stock black wheels in past races. Wheelbase may not be altered – you must use the pre-defined axle mount points

(grooves). Wheel bearings, bushings, hubcaps, washers, inserts, and springs are prohibited. ALL FOUR WHEELS MUST CONTACT THE RACE TRACK.

8) **Wheel and Axle Treatment:** Wheels & axles may be sanded / smoothed / polished to remove defects from the manufacturing process. Wheel & axle treatment (hub and tread smoothing and polishing) may not result in substantial removal of mass or in width reduction. Wheel shape may not be altered from the original condition (i.e. rounded, beveled, cupped, etc.). The portion of the wheel surface that contacts the track must remain parallel to the axle. Wheels may be colored / painted.

9) **Size:** Racecars may be no longer than 7 inches, nor wider than 2-3/4 (2.75) inches, as determined by the official gauges during registration. Racecars may not be taller than six (6) inches. 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 required, so that the car will run on the racetrack.

10) **Weights and Attachments:** Weights and attachments may be added to the car and will be considered part of the car for purposes of all measurements. Weights and attachments are considered to be any material on the car that is not provided in the kit. All weights and attachments must be securely fastened to the car, e.g. by permanent glue, nails or screws, but not by "sticky substances", e.g. tape, or tack spray. Weights and attachments shall be passive (i.e. non-moveable, non-magnetic, non-sticky, etc.). The addition of decals, driver, steering wheel, car trim, accessories, and painting are permitted as long as they do not cause the car to exceed the maximum dimensions or weight.

11) **Shape:** No portion of the racecar, when resting on the start pin, may extend forward of the start pin (no "U" shaped front ends unless a non-flexible brace holds the "U" shape behind the start pin). The racecar cannot be shaped such that it will interfere with cars in adjacent lanes, or that it cannot pass freely under the finish gate.

12) **Gravity Powered:** The racecar must be gravity powered (freewheeling) only. It 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 that may catch on the starting pin.

13) **Lubricants:** Only dry lubricants such as graphite or powdered Teflon "white lube" will be allowed for lubricating the wheels. Lubricants may not foul the track, so all-excess lubricant shall be wiped off. There will be a "Lubrication Area" set up at the race for application of all lubricants, as these can be quite messy. Once the car passes inspection and is impounded, no further lubrication will be allowed.

Racing rules and regulations

1) **Inspection Gauges:** The race-day "Inspection Area" will have the official scale, length box and clearance gauge. Check-in equipment will be the official equipment for the race.

2) **Race Day Lubrication:** There will be a "Lubrication Area" setup at the race. Lubrication may be applied before a car passes inspection, but once a car is impounded, no further lubrication will be allowed. Racers must supply their own lubrication.

3) **Car Handling Responsibility:** Racers 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 impound after each heat is finished. If a racer is not present at the time his car is scheduled to race, that racer will receive the maximum time for that heat (9.9999 seconds).

4) **Lane Assignment:** Lane assignments will be chosen at random, using race management software. To increase fairness, each racer will race the same number of times on each lane during each round. Each racer is responsible for placing his car in the appropriate lane for each race. If the racer places his car in the wrong lane his time will not be recorded correctly, and this may affect the standings for the final results. Once the heat is concluded, there will be no re-racing as a result of incorrect car placement.

5) **Car Interference:** If, during a race heat, a car leaves its lane and, in doing so, interferes with another car, then if applicable, 5 (five) minutes will be allowed to make repairs to the car (see, "Car repair," below) and then the heat will be rerun. If the problem occurs again, the car at fault will be disqualified and the heat will be rerun, without the interfering car.

6) **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, then the car that leaves its lane will receive the maximum time for that run. If the problem occurs again, the car at fault will be disqualified.

7) **Car Leaves Track:** If, during a race heat, a car leaves the track without interfering with its opponent then the car that leaves the track will receive the maximum time for that run.

8) **Track or Timing Fault:** If a car leaves its lane, or if the timing system malfunctions, the Official Starter will inspect the track and, if a track or timing fault is found which probably caused the violation, the Official Starter will order the race heat to be rerun after the track or timing system is repaired. In this case, the elapsed times from the faulty race will not be calculated as part of the overall scoring.

9) **Car Repair:** If, during the race, a wheel falls off or the car becomes otherwise damaged, then the racer may, to the best of his/her ability perform repairs with the assistance of his adult partner or a Pit Crewmember. If a car is damaged due to a track fault, or damage caused by another car or person, then the Pinewood Derby Chairperson may allow additional repair assistance to the racer. All car repairs will be conducted in the "Pit Area" and will be limited to 5 (five) minutes or until the car is scheduled to race in its next heat, whichever is greater. Only basic repairs may be conducted under these conditions and additional lubrication may not be added.

10) **District Championship:** There will be no modifications or re-lubrication of cars allowed prior to the start of the District Championship.

11) **The Race Area:** The Race Area is identified as that area including the race track, car staging area, inspection station, and timing station. This area will be marked by orange cones, checkered streamers, and other items. Only race officials may enter the Race Area, except for racers when racing. When racing, racers are restricted to the start area or the finish line. At no time will racers run in the race area or cross the track. Race area restrictions will be strictly enforced; repeated violations will result in disqualification.

How the races are conducted

1) There will be five rounds of competition, each with several heats. The first four rounds are divided into Cub Scout ranks. The fifth round will be the District Championship. The three racers whose cars achieve the lowest average elapsed times in each round will advance to the District Championship.

2) Within each round, each racer will compete in three heats. Each racer will race once in each lane during their round. We utilize a computerized race management system which is designed to schedule the races accordingly.

3) At the start of each heat, the Official Starter will call out the names of each racer and invite them to bring their car to the starting line. The Official Starter will inform each racer which lane they are to use. Each racer will position their racecar at the starting point of the lane to which they are assigned by placing their race car behind, and resting on, the starting pin for that lane. The wheels of their race car must straddle the center guide, and ALL FOUR WHEELS MUST CONTACT THE RACE TRACK.

4) When all cars are positioned at the start line, the Official Starter will begin the race by dropping the starting pins. This also automatically starts the electronic timer.

5) Once the race begins, each car will proceed along the track until it crosses the finish line. All race cars will be allowed a maximum of ten (10) seconds to cross the finish line after the race begins. An electronic sensor is built into each race lane which determines the exact amount of time it has taken for a race car to complete the race. If a race car does not reach the finish line in less than ten seconds, its time will be scored as 9.9999 seconds.

6) The official elapsed time for each racer will be calculated and recorded by the computerized timing and scoring system. Each racer will race once in each lane per round. The average elapsed times for each of the racer's three heats will be calculated (to 1/10,000 of a second) by the computerized scoring and timing system. THE THREE RACERS WHOSE RACE CARS ACHIEVED THE LOWEST AVERAGE ELAPSED TIMES FOR EACH ROUND WILL ADVANCE TO THE FINAL ROUND, THE DISTRICT CHAMPIONSHIP. In this scoring system, it is possible that a racer may win an individual heat, or have the lowest elapsed time within a given round, but not advance to the final round due to recording slower elapsed times in other heats. Consider the example below:

Scout	Elapsed Time in Seconds			Average Elapsed Time	Place
	Heat 1	Heat 2	Heat 3		
Bill	4	3	3	3.3333	2
Jim	2	4	7	4.3333	4
Joe	2.5	3	4	3.1666	1
Tom	3	4	4	3.6666	3

Jim won the first heat with a 2 second finish, which was the lowest elapsed time in the round. But, because of slower times in other heats, he placed fourth overall and does not move on. Joe is the round winner with the lowest average elapsed time for all three races. Bill, Joe, and Tom move on to the District Championship. Thus, it is important to remember that in general, RACERS ARE RACING AGAINST THE CLOCK, NOT EACH OTHER.

7) **District Championship:** The final round of racing will be the District Championship. The District Championship will be comprised of the racers with the three lowest average elapsed times from each of the four preceding rounds. Thus, the District Championship will include three Tiger Cubs, three Wolf Cubs, three Bear Cubs, and three Webelos. As in the previous rounds, each racer in the District Championship will race in three heats, once in each lane. The racer whose car achieves the lowest average elapsed time for the District Championship round will be declared the Choptank District 2019 Pinewood Derby Champion.

8) **Race Awards:** Trophies will be awarded to the racers whose cars achieve the three lowest average elapsed times in each round.

9) **Do Your Best Award:** The Cubmaster, Assistant Cubmaster, and Pinewood Derby Chairperson (the "voters") will vote for one racer whose car best exemplifies the Cub Scout Motto, "Do You Best." The award is designed to recognize the Cub Scout who worked with minimal adult assistance. The prize will be awarded at the sole discretion of the voters.

10) **Judgement:** The Pinewood Derby Chairperson will have final authority to make decisions regarding the conduct of the race, breaking ties, disqualifications, etc. The decisions of the Pinewood Derby Chairperson will be considered final, but will be governed by the data recorded in the computerized timing and scoring system, the spirit of fairness, the Scout Law, and the Cub Scout Motto.