

# Annual Chester County Council Grand Championship Pinewood Derby Rules

## Stock Car

### MISSION STATEMENT

*"I wanted to devise a wholesome, constructive activity that would foster a closer father-son relationship and promote craftsmanship and good sportsmanship through competition."*

Don Murphy, Cub Master of Cub Scout Pack 280C, Founder of the Pinewood Derby 1953

The purpose of the Pinewood Derby is for our scouts to learn, have fun and spend quality time with the adult helping them construct their car. The scout should perform as much of the design and construction of the car as their skills allow. The scout should observe all steps in the project that he does not do himself in order to learn more about the construction of the car. Please observe this spirit when helping your scout construct their car.

**The purpose of these rules is to make sure that no one gains an unfair advantage and everyone has access to the same materials and tools used for the construction of their cars.** The primary objective of the race is to instill in the scout the value of competition for enjoyment. Winning is not everything, but participation is!

**Overall:** All cars must be built for the current Pinewood Derby Racing Season, after September 1st. NO REPEATS or REPAINTS. The youth must be a registered Cub Scout at some point since January 1st. Scouts that began the calendar year as a Webelos Scout and have since transitioned to a Troop are eligible to compete. Only the top 5 finishing cars of their District Race will be permitted to enter. In a case where one of the top 5 finishers is not able to race, the next top finisher will qualify. Derby cars must be built from an Official Cub Scout Grand Prix Pinewood Derby Kit. All race heats will be run on time using Official Pinewood Derby Software and scoring system. Each racer will be allowed to race a predetermined number of times in each lane. The car with the lowest average finish time will be declared the Winner.

**Body:** The main body structure must be made of pine wood from an official BSA approved Pinewood Derby kit. No pre-cut blocks are permitted.

#### Car Specifications:

- **Width:** 2 ¾ inches
- **Length:** 7 inches
- **Weight:** No more than 141.8 grams (5.0oz)
- **Axle Width:** 1 ¾ inches
- **Height:** Must fit under the finish line mechanism.
- **Clearance:**
  - Center Rail Width: Must clear center guide rails, typically no less than 1-3/4 inches minimum.
  - Bottom: No less than 3/8 inches from track surface between center rails.
  - Other: Weights are preferred to be inset in the body or on top of the car to aid in a safe stop at the end of the track. Weights attached to the bottom of the car must be affixed so that the weight will not come off when it contacts the stop strip. No part of the car or attachment to any car, which is metal, pointed, sharp, and/or jagged, may be capable of contacting any part of the track. No loose parts inside or outside the car.
- **Axle Slots:** Factory axle slots must be used and visible, with the factory standard 4 & 3/8 inch wheelbase. Axles are positioned 1 inch from one end (usually the front bumper), and 1 & 5/8 inches from the other (usually the rear bumper). Slots may be trued or straightened. Axels cannot be drilled into the car body proper with the exception of into the factory slot. A factory slot may be filled with

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wood putty or other material and drilled only for axle placement. The tip of the nail axle must be visible to allow inspectors to verify nail axles are being used.

- **Wheels:** Use only Stock Official Scout Grand Prix wheels.
  - The wheels must be from the official B.S.A. Pinewood Derby kit provided by the Pack or bought from a kit at the Chester County Council store.
  - It is acceptable to use wheels with matching mold numbers from different sets of official Pinewood Derby kits provided they are purchased from the Chester County Council store.
  - All lettering/numbering inside and outside must remain complete and be visible. The fluting and other BSA markings on the outside wheel area must remain visible. Outer wheel surface may be lightly polished to remove surface imperfections or mold casting burrs (if present). Outer wheel surface must not be reshaped in any way in an attempt to lighten the wheel, minimize tread contact or alter aerodynamics.
  - Sanding, cutting down or lathing the wheel to reduce actual material, weight and diameter of the kit wheel is **STRICTLY PROHIBITED**. Out of round wheels should be replaced following aforementioned guidelines.
  - Tread surface must be flat and parallel to the wheel bore.
  - **Four wheels must be touching the track.** Four (4) wheels must be raced (two on each side of the car and adjacent to one another) No staggering of the wheels allowed. Both Front and Rear wheels must be positioned directly across from the other.
  - Camber is permitted as long as all four (4) wheels are in contact with the track surface at all times.
  - Installation of the wheels in a manner where only three (3) wheels contact the track surface or so that the one (1) wheel is intentionally lifted to gain a competitive advantage is prohibited. A slight variation as a result of a scout installing wheels and axles is permitted, provided that no attempt to gain a competitive advantage was made. The tech inspector will determine if a clear attempt at an advantage was made and may ask to have the wheels removed and installed correctly. This rule is to prevent three (3) full contact and one (1) feather touch for a competitive advantage.
- **Axles: Only Kit Axles out of the box may be used.**
  - Removal of the metal flashing on the underside of the axle nail is permitted. The axle may be polished. The axle SHALL NOT be modified in any way (other than described) including, but not limited to, scoring, slotting, pitting or flattening the outside of the nail head. Cutting grooves in the axle reducing contact surface to the wheel hub is PROHIBITED.
  - Only dry lubricants such as graphite powder, Teflon powder, or similar may be used to lubricate wheels and axles.
- **Car Design Criteria:** The car design may be enhanced by the addition of other stable materials such as plastic or metal. Any additions must be firmly attached and meet Car Size Requirements.
  - Details are permitted as long as they do not exceed size or weight specifications.
  - The car shall not extend beyond the starting pin when placed on the track. The nose of the car should rest flush to the starting pin. Cars that are shaped to a point and difficult to place on the starting pin will not be approved.
- **Installation of the following items are PROHIBITED:**
  - Springs
  - Starting devices or propellants
  - Electronic or L.E.D. lighting devices that interfere with the race electronics.
  - Liquids, wet paint, oil, sticky substance, or powders of any kind (other than axle lubrication).
  - Glass or excessively fragile parts

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- Bearings, bushings, washers, sleeves, hubcaps or inserts attached to or in contact with the axle, body or wheels.
- Loose objects on car
- Magnets
- **Mechanical Issues:**
  - If a car leaves its lane, Race Officials, at their discretion, may inspect the track and, if a track fault is found which may have caused the initial violation, the Race Officials, at their discretion, may order the race to be rerun after the track is repaired.
  - If a race car jumps off the track, the heat will be re-run one time. If the car jumps off the track a second time in the same heat, it will automatically be considered did not finish. If the same race car jumps off the track three times over the course of the entire race, it will be disqualified.
  - If a car suffers a mechanical problem, i.e. loses an axle, breaks a wheel, etc., and a repair can be accomplished in a timeframe determined by race operations not to interfere with the tournament, the heat will be run again upon completion of the repair. If the repairs cannot be accomplished within this time or the car is not repairable, the car will automatically lose the heat.

**Note: A parent or sponsor may accompany the scout to the pit area to make the needed repairs. The car will then be re-inspected before reentering the race.**

- **Race Format:** Racing format will be a Modified Perfect N type with Heat Racing on lowest average finish time determining placing.
- **Inspection:**
  - Each car must pass inspection by the Official Inspection Committee before it may compete. After cars have passed inspection, they will be placed in "quarantine" until it is time for it to be raced.
  - Race Officials may disqualify any car that in their determination is not in compliance with the spirit of these race rules. You are a Cub Scout, so Honesty is up to you.

### INSPECTION PROCEDURE

1. Cars will be inspected as they are registered.
2. Entrants' name spelling will be verified for accuracy. Last names will be abbreviated to conform to BSA privacy requirements. If duplicate names are encountered, the second and successive duplicate name will be modified with the entrant's middle initial.
3. The car will be placed on the official race scale to verify weight specifications have been followed. The readings of the official race scale will be considered final. Cars in excess of the allowable weight may be modified by the inspector and the individual registering the car to meet the requirement.
5. The car will be examined to verify there are no loose items, wet paint, or excessive lubrication.
6. The car wheels will be examined to verify specifications have been followed.
7. The car will be placed and rolled on a flat surface to verify all four wheels contact.
8. The car will be placed in an inspection box to verify car dimensions and clearances.
9. Once car specifications have been verified, the individual will be asked to verify which end is the front of the car and a car number will be assigned and placed on the car to identify the front.
10. Once the car has passed inspection it will be placed in the quarantine area until race day, where it will move to the pit area for staging.

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11. Once car specifications have been verified, the scout will again be asked which end of the car is the front and a car number will be placed on the bottom of the car.

**Note: A pit area will be set up for the repair of cars as necessary by the pit officials. Further lubrication or modification once the car has been registered by other people is prohibited.**

## **INSPECTION AND DISPUTES:**

1. Each car must pass inspection by the Race Committee before it may compete. The inspection team has the right to disqualify those cars which do not meet the provided specifications. The car owner will be informed of any violations and given an opportunity to modify the car to bring it into compliance prior to the end of the specified inspection period. Once the car has passed inspection it will be quarantined until race day.
2. Any participant (including the parent or sponsor of the participant) may appeal to the Race Committee for an interpretation of the rules prior to the end of registration and inspection.
3. In the event of an issue not covered specifically by these rules, the Race Committee will convene and make a ruling.
4. Any participant (including the parent or sponsor of the participant) may appeal to the Race Committee in the event that operation of the race may have resulted in an unfair result. This appeal must be brought to the Race Committee by a registered leader of the Cub Scout Pack that the participant belongs to. The Race Committee will convene and determine if action should be taken.
5. Decisions of the Race Committee will be considered final.
6. Only race officials and others authorized by the Race Committee will be allowed into the staging and track area. This rule will be strictly enforced.

**NOTE: Race officials reserve the right to perform a destructive teardown inspection of wheels, axles, or other systems on any car entered in the Official race. Any such inspections will be performed after all races have been completed, and should a car fail the inspection, the final race results will be adjusted. Race officials will return all parts to the participant, but will not be responsible for restoring the car.**

## **NOTICE**

**FOLLOWING THE GRAND CHAMPIONSHIP RACE, CARS THAT PLACE FIRST, SECOND AND THIRD WILL BE SUBJECT TO A POST RACE INSPECTION BY THE RACE COMMITTEE. IF SIGNIFICANT ALTERATIONS TO THE CAR ARE FOUND AND THE INSPECTION TEAM AGREES THAT THEY WERE MADE AFTER THE INITIAL INSPECTION AT REGISTRATION, THE CAR WILL BE DISQUALIFIED AND ELIMINATED FROM THE FIELD. THE NEXT PLACE CAR WILL BE MOVED FORWARD IN RANKING ORDER AND WILL BE SUBJECT TO THE SAME INSPECTION.**

# Basic Pinewood Derby Guidelines

These simplified rules can be used as a guideline for your Pack's Pinewood Derby race.

All cars should pass the following inspection to qualify for the race:

1. Width shall not exceed 2-3/4 inches.Length shall not exceed 7 inches.
2. Weight shall not exceed 5 ounces.
3. The Official Scale will not be questioned!
4. Axles, wheels, and body shall be from the materials provided in the kit. Additional wheels can be purchased separately.
5. Four (4) wheels must solidly touch the track.
6. Three (3) wheel configuration is not allowed.
7. Original axle slots must be used. The slots may be trued or straightened.
8. Wheel bearings, washers, and bushings are prohibited.
9. No wet lubricating oil may be used. Axles may be lubricated with powdered graphite, Teflon, etc..
- 10.The car shall not ride on any kind of spring.
- 11.The car must be free-wheeling, with no starting devices.
- 12.No loose materials of any kind are allowed in the car.
- 13.The Cub Scout must be present to run their car.
- 14.Cars must be built after September 1st.