



Official  
Pack 590  
Pinewood derby  
Event rules and procedures

**RACE DAY**  
**JANUARY 21, 2012**

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**Note: New Procedure for Car Numbers: D-11**

## I. Introduction

What is a Pinewood Derby? A bunch of fun! To an outsider looking in, it looks like a pack of Cub Scouts racing little wooden cars of various shapes and colors on plastic wheels down a track, but that is only a small part of it. The race is not the finale of the experience and shouldn't be regarded as the only reason the car was built. **The whole experience is a lesson in planning, work, cooperation and patience.** Hopefully it will create fond memories of the time that you and your child built the Pinewood Derby car and had fun learning together. Each Cub Scout gets a kit with a block of wood, four nails for axles and four plastic wheels which can form the basis of those memories.

Cubmaster Don Murphy organized the first Pinewood Derby, which was raced on May 15, 1953 in Manhattan Beach, California, by Pack 280. Murphy's son was too young to participate in the popular soap box derby races, so he came up with the idea of racing miniature wood cars. The cars had the same gravity-powered concept as the full-size soap box derby cars, but were much smaller and easier to build. Since 1953, millions of young people have built Pinewood Derby cars. The races remain very popular and are a highlight of each year in many Cub Scout packs.

The following guidelines are to be followed when building a Pinewood Derby racer. These guidelines are established to minimize controversy over the degree of parental involvement in the construction of the car. **Remember that, ideally, the building of a Pinewood Derby car is a father-son endeavor.** If a father is unable to assist the Scout in building the racer, help from a mother, older brother/sister, uncle, grandparent or other adult is encouraged.

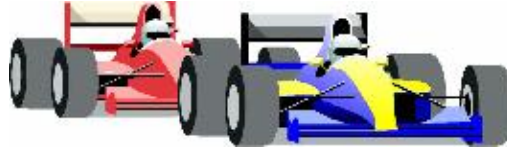
Please feel free to give guidance and minimal assistance to your Scout as he builds his Pinewood Derby car. This is a chance for your son to be part of a team (he and you), and to enjoy the spirit of friendly competition with his peers. Your child will also gain a sense of satisfaction and pride after building his car from the kit provided.

**Race Day Conduct** – Uniforms should be worn on Derby Day. When their cars are not racing, the boys should encourage the other scouts and root for their friend's cars. They can participate in raffles and other various race day activities as well. Please do not run around the GP room since this is a well attended event and quite crowded, especially with the presence of the track and other peripheral race equipment.



## **II. GENERAL RULES: (Applies to all Race Events)**

- G-1. Qualification:** All registered Pack 590 Tiger, Cub, and Webelos Scouts may design, build and enter cars that are eligible to participate in the "Cub Scout Race" event. Parents, guardians and siblings of Cub Scouts registered in Pack 590 may design, build and enter cars that are eligible to participate in the "Open Class" event.
- G-2. Essential Materials:** All cars entered shall be constructed from the "Official Grand Prix Pinewood Derby Kit" (referred to below as the kit) as distributed at the December 18<sup>th</sup>, 2009 Pack Night. Additional kits may be purchased from the Scout Service Center, 544 Broadway, Massapequa. (Kits may be purchased elsewhere if they are of the exact type manufactured by the BSA as specified above.)
- G-3. Competitor Categories:** All Tiger Cubs, Cub Scouts, and Webelos Scouts that are registered within Pack 590 Cub Scouts will compete with others in the Pack in the "Cub Scout Race." The "Open Class Race" is open to any person affiliated to the pack in any way. Leaders, siblings, relatives, alumni, and friends are welcome to prepare their own car following the rules defined in section VI and enter for fun and excitement.
- G-4. "New Work":** The car must have been built **during the current year** (the school year in which the Derby is held). Cars that have competed in a previous Derby are not permitted.
- G-5. Single Entry per Person:** Only one car may be registered by any scout in the Pinewood Derby.
- G-6. Inspection and Registration:** Each car must pass a technical inspection from the Pinewood Derby Committee before it may compete. Technical inspection and registration of all cars occurs on Friday evening, January 21, 2010 from 7:00 pm to 9:00 pm. The following car specifications will be strictly enforced.
- G-7. Failure to Pass Inspection:** The Inspection Committee shall disqualify cars which do not meet the rules as described herein. If a car does not pass inspection, the owner will be informed of the reason his car did not pass (too long, too heavy, altered wheel base, or the like.) Cars which fail the initial inspection may be modified and re-inspected as long as it is before 10:30 am on race day. Cub Scout Class cars that fail inspection, and cannot be modified to pass inspection by the official start time (11:00 am) or show up too late to be inspected, will not be allowed to race in the derby competition.
- G-8. Impound:** No car may be altered in any way after it has been registered. After a car passes registration, it will be stored by the Pinewood Derby Race Committee until after the race is completed. Damage repair shall be allowed during the Derby only if it does not delay the race, but no modifications shall be allowed. After passing inspection, no car shall be re-inspected unless repaired after damage in handling or in a race.
- G-9. Car Design Rules Interpretation:** Interpretation of the rules described in G1 through G-10, and D-1 thru D-11 are at the sole discretion of the Inspection Committee Judges present during the Registration and Inspection process.
- G-10. Race-Day Rules Interpretation:** On Registration-Day, the Cub Scout must make all questions of rules interpretations and procedures to the Pinewood Derby Chairman or Race Officials promptly. Decisions of Race Officials on questions of rules interpretations and procedure may be appealed to the Pinewood Derby Chairman. All decisions of the Pinewood Derby Chairman are final. Decisions of Race Officials on questions of fact (i.e. the result of a specific race) may not be appealed beyond the Trackmaster and/or Finish Line Judges. Note: Unsportsmanlike conduct by any participant or spectator will be grounds for expulsion from the competition and/or the race area.



### III. CUB SCOUT RACE CAR DESIGN STANDARDS

- D-1. Length:** The overall length of the car, including wheels and accessories, shall not exceed 7 inches.
- D-2. Width:** The maximum overall width of the car, including wheels and accessories, shall not exceed 2¾ inches. Minimum width allowed between the wheels will be 1¾ inches in order for the car to straddle the center guide strip.
- D-3. Height:** The maximum height is 5 inches in order to clear the finish line.
- D-4. Ground Clearance:** The minimum ground clearance should be 3/8 inch, including any accessories or weights, to allow clearance for the guide strip.
- D-5. Weight:**
- Cub Scout Class cars shall not exceed 5 ounces - **NO EXCEPTIONS**. The reading of the official scale will be considered final.
  - Solid weight can be added to the car provided the weight is securely attached to the car body and the car stays within all rule specifications. The car may be hollowed out and built up to the maximum weight by the addition of wood or metal only, provided the material is securely built into the body or firmly affixed to it. No liquids or loose materials (lead shot, marbles, etc.) of any kind are permitted in or on the car.
- D-6. Wheels:** Only **Official Cub Scout Grand Prix Pinewood Derby Car Kit Wheels** may be used - **NO EXCEPTIONS**. These wheels are provided in the kit. Wheels can be lightly sanded to remove any surface imperfections or to smooth out molding imperfections in the tread area but the tread must remain flat and parallel to the axle. Light sanding will not get the wheel out of spec. This light sanding is the only modification allowed. Beveling, tapering, thin sanding, wafering or lathe turning of the wheels is prohibited. Wheels must stay within spec of 1 3/16 inch diameter and a tread width of 3/8 inch. No material other than dry lubricant may be added to the wheel. Additional wheel kits may be purchased at the Scout Shop if needed.
- D-7. Axles:** Only **Official Cub Scout Grand Prix Pinewood Derby Car Kit Axles** may be used - **NO EXCEPTIONS**. Axles are provided in the car kit. Axles may not be altered in any way except for polishing. Axle diameter can not be altered. No material other than dry lubricant (such as dry graphite) may be added to the wheel. Additional axles are included in wheel kits available at the Scout Shop.
- D-8. Wheel Base:** The wheel-base (distance between the front and rear axles) may not be changed from the kit body distance of 4¼ inches. Either end of the kit may be used as the front end of the car.
- D-9. Accessories:** Accessories such as steering wheels, drivers, exhaust pipes, stickers, etc. may be used provided they are securely attached to the car and as long as these details do not exceed the maximum length, width or weight specifications. Wheel bearings, washers, bushings, and hub caps are prohibited.
- D-10. Lubrication:** Only **dry** lubricants such as graphite or powdered Teflon "white lube" will be allowed for lubricating the wheels. You may not use any other lubricants, especially oils or silicone sprays. *Lubricants may not foul the track*. There will be no lubrication allowed after you hand your car into the inspection team.
- D-11. Car Numbers:** New procedure. All cars must be numbered. We will use the self-stick labels provided with the kits, or the assigned numbers may be painted on the car. The numbers will be assigned by the Pinewood Derby Committee and affixed to the cars *at registration*. Please bring the number stickers with you to registration. If you want to paint the numbers on, your scouts # will be sent out by 1/1/12 for this use only. The numbers need to be on the front top (hood) readable if you are looking at the front of the car.
- D-12. Others:**
- The car shall not ride on any type of springs.
  - Wheel bearings, spacers, bushings, or washers are prohibited.
  - The car must be freewheeling with no starting device or other propulsion.
  - All paints and glues must be dry at the time of weigh-in or the car will not be accepted.
  - The official weigh-in scales are final.



#### **IV. CONDUCT OF THE RACES**

Competition will consist of random heat races, and a series of final heats. Track officials are responsible for the proper conduct of the races.

- C-1. Inspection Gauges:** The race-day "Pit Stop" area will have the official scale and length box. That check-in equipment will be the official equipment for the race.
- C-2. Race Day Lubrication:** In the interest of fairness, lubrication is only allowed before registration.
- C-3. Car Handling Responsibility:** Scouts shall be responsible to present their own cars at the "Pit Stop" area for lubrication and registration. Cars will be staged on the tracks by the "Starter Team." Only adults assigned by the Derby Committee will be allowed to handle the cars for the duration of the race. *At no time, will a Cub Scout or parent be allowed to handle his or any other car during the racing period unless approved by an official of the race committee.*
- C-4. Lane Assignment & Scoring:** To equalize differences among track lanes, each car will race in each track lane twice. The first heat will consist of a number of races double the number of cars running in that heat, and each car will run eight times. The scoring computer decides the order. For example, a heat with four cars would consist of eight races with each car twice rotating through lanes 1, 2, 3, 4. The second heat will consist of the top ten cars overall competing once in each lane, for a total of ten races. If there is a tie for tenth place after the first heat, all cars tied for tenth will advance to the next heat and the number of races in the heat will be increased accordingly (i.e.: 11 cars = 11 races). One point is awarded for first place, two for second, three for third, four for fourth, and five for a car that doesn't complete the race. The overall winner for the Pack will be the car with the lowest number of points after the second heat. Ties in the second heat will be decided by run-off races or additional heats per the Derby Chairman's discretion.
- C-5. 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. If the car leaves its lane and interferes with another car, the race will be re-staged and re-run. If the same car again leaves its lane and interferes with another car, that car will be judged last place and the race will be re-staged and re-run without that car.
- C-6. 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.
- C-7. Car Repair (Without Fault):** If, during the race, a wheel falls off or the car becomes otherwise damaged, if a car experiences mechanical trouble (looses a wheel or axle), an assigned adult will attempt to repair the car for the next round of races. If the car cannot be repaired the car will be removed from competition. No cars may be altered in any way after it has been registered. Damage repair shall be allowed during the Derby only if it does not delay the race, but no modifications shall be allowed.
- C-8. Car Repair (With Fault):** If a car is damaged due to track fault, or damage caused by another car or person, then the Trackmaster, at his sole discretion, may allow additional repair assistance to the Cub.
- C-9. No Finishers:** If, during a race heat, no car reaches the finish line on the track, the car which went the farthest in its lane shall be declared as the heat winner.
- C-10. Track Fault:** If a car leaves its lane, at his sole discretion, the Trackmaster may inspect the track and, if a track fault is found which probably caused the initial violation, the Trackmaster may order the race heat to be rerun after the track is repaired.
- C-11. The Race Area:** *Only race officials may enter the track area. This rule will be strictly enforced.*
- C-12. Rewards and Recognition:** The most important values in Pinewood Derby competition are parent/son participation, good sportsmanship and learning how to follow rules. The Awards Committee is responsible for recognizing and encouraging these qualities in addition to traditional racing awards. Racers will be recognized as follows:
  - Every participating Scout will receive a Pinewood Derby patch and certificate.
  - Trophies will also be awarded in appearance categories (Most Creative, Best Design, and Originality) at each Rank Level.
  - Trophies will be awarded to the first, second, third and fourth place finishers in the Pack.
  - The top 4 Pack finishers will compete in the Pequott District Pinewood Derby to be tentatively held on a Saturday in March (Date Time and Place – TBD)

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## V. THE RACING ENVIRONMENT

- R-1. Track Length and Drop:** The track shall have a racing surface (starting line to finish line distance) of approximately 29 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.
- R-3. Lanes:** Each lane consists of a modular aluminum 'Piantedosi Freedom' track, 3½ inches wide with raised guide strips that are 1½ inches apart, and ¼ inch tall, per BSA specifications. Track details can be seen at [www.pinewoodderbytrack.com](http://www.pinewoodderbytrack.com). Each race car shall straddle the strips in its lane during its races.
- R-4. Starting Mechanism:** The "starting line" shall consist of a vertical pin of approximately ¼ inch diameter, extending approximately 1 inch above the track surface and approximately centered in the each lane.
- R-5. Finish Line Sensor Location:** The track has electronics called "finish line sensors" that shall be in alignment with the corresponding starting line pin and be approximately centered in its lane.
- R-6. Finish Line Judging:** Slow motion video playback will be recorded for each race. Race scoring will be determined by the electronic finish line. If there is an electronic scoring error, the results of the video playback will be used to score the race and finishing positions will be manually entered into the scoring computer. If the video is inconclusive, the race will be rerun.
- R-7. The Score Board:** Competition shall be head-to-head multiple-elimination competition. The result of each heat will be displayed on scoring monitors placed around the room.



## **VI. PARENT'S RACE ("OPEN CLASS") CAR DESIGN STANDARDS** **(... or "Why should the kids have ALL the fun?")**

The purpose of the Parents Race event is to have a little fun, and to help finance this year's Pinewood Derby.

All adults are encouraged to build their own cars. The adults' race will be held between the heats of the Cub Race on January 21st. Any parent or guardian of a Cub Scout who is registered in Pack 590 may enter this race.

- P-1. Technical standards:** The Technical Standards for the Cub Scout race (above) will be used in the Parents Race with the exception that items D-1, D-5 and D-7 do not apply. Just remember it Must fit on track
- P-2. Entry Fee:** An entry fee of **\$0.00 (Merry Christmas)** will be paid prior to participating in the race.
- P-3. Number Of Entries:** 1 car per adult.
- P-4. The Car:** You may NOT use your son's current car for this race.
- P-5. Weigh-In:** will be inspected, weighed, and registered at registration...
- P-6. What Do The Winners Get?** Winners will be recognized with honor and glory!



## **VII. SIBLINGS RACE CAR DESIGN STANDARDS**

The purpose of the Sibling Race event is to spread the Pinewood Derby magic.

All siblings are encouraged to build their own cars. The sibling race will be held between the heats of the Cub Race on January 21st. Any sibling of a Cub Scout who is registered in Pack 590 may enter this race.

- P-1. Technical standards:** The Technical Standards for the Cub Scout race (above) will be used in the Sibling Race.
- P-2. Entry Fee:** An entry fee of **\$0.00 (Merry Christmas)** will be paid prior to participating in the race.
- P-3. Number Of Entries:** 1 car per sibling.
- P-4. The Car:** You may NOT use the scout or parents current car for this race.
- P-5. Weigh-In:** Cars will be inspected, weighed, and registered at registration..
- P-6. What Do The Winners Get?** Winners will be recognized with honor and glory!

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## VIII. SPECIAL NOTES TO ALL CONCERNED

This project is a parent and son event, and is recommended as such by the National Boy Scouts of America. The Pinewood Derby Committee **STRONGLY SUGGESTS** that each parent emphasize this idea with your son. In all of the events, we require that the cars be built this year.

### **Sportsmanship:**

*While everyone will be trying to win, it's always a good idea to start by remembering the Cub Scout Motto, "**Do Your Best**" and some of the basic ideas behind good sportsmanship*

Two things the Pinewood Derby requires each participant to learn are 1) the craft skills necessary to build a car, and 2) the rules that must be followed. Even more important, though, is how we act and behave while participating in the Pinewood Derby or any other group activity. This is called sportsmanship.

The first thing to remember about sportsmanship is that everyone's skills are a little different. You may be good at something like singing or drawing, but not as good at something else like basketball or computers. Parents have different skill levels, too. This doesn't mean that you are a good person one time and not good another time. You can always be a good person, whether or not you have good car-building skills. Remember, you and your friends are individuals first and racers second. This idea is often called having respect for others.

The second thing to remember is to follow the rules. Without rules, there would be no Pinewood Derby. You will never know if you are really good at doing something unless you follow the rules. This is often called being honest.

The third thing to remember about good sportsmanship is that there are winners and losers in every competition. You accept this when you choose to compete. There may be times when you win and feel happy, and times when you lose and feel unhappy. Being a winner is easy, and losing is sometimes hard. If you win, you must not brag or gloat. If you lose, you must not feel jealous or bitter. To be a good sportsman, you must be able to say "I did my best" and be satisfied with the results. You must also be able to appreciate and feel happy for someone else when they run a good race or build a neat car.



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## IX. SUGGESTIONS FOR CAR CONSTRUCTION

**Car Design** - The Scout should select and produce a sketch of the car design. Ensure that the width of the car is 1¾" or greater at the points where the wheels are attached. If the width is less than 1¾" at these points the car will not fit on the track.

**Shaping the Car Body** - In most cases, the adult is encouraged to rough cut the car body. This is particularly true if power tools are used. If hand tools are used, let the Scout assist in cutting the shape. Use this opportunity to instruct the Scout on the proper use, care, and storage of the tools that you are using. If power tools are used, ensure that all safety devices associated with the tools are employed. Use this opportunity to instruct the Scout on the safe operation of power tools. Make sure that safety glasses/goggles are worn by anyone around a power tool in operation. Check the axle grooves to ensure that each is at a perfect 90-degree angle to the car body. A car with untrue axles tends to steer to one side or the other, causing it to rub up against the side of the lane strip, slowing it down.

**Finishing the Car Body** - ALL sanding, painting, decal application, or other detailing of the car body shall be done by the Scout. Once the shape of the car body is established it is the Scout's sole responsibility to finish the car. Guidance by the adult is encouraged, but actual performance of the work falls to the Scout. Once again, use this opportunity to instruct the Scout on sanding, technique, painting skills, etc., but **don't forget to let the Scout do the work!!!**

**Wheels and Axles** - Adults should take the lead in preparing the wheels and axles. All of the steps that follow are critical if the car is to be a fast racer! As noted in the instructions that come with the racer, remove the wheel seams using a drill (electric or hand), a six-penny finishing nail, and a piece of fine sandpaper glued to a flat block. Let the Scout assist by having him hold the sandpaper (all ages), or using the drill (recommended for Webelos only). Insert the axles (without the wheels) into the car body to within ¼" of the head of the axle. Make sure that the axles are inserted perpendicular to the car body.

Gently remove the axles with a pair of pliers by slowly twisting and pulling on each axle. Prelubricate (a) the inside of each wheel and (b) the part of the axle near the head where the wheel will rotate with dry powdered graphite. **Do not** use regular oil or silicone spray. These lubricants can soften the plastic wheels.

Slide the wheels over the axles and gently tap the axles into the car body. A gap of 1/32" (How do you measure that?!!) is recommended between the wheel and the car body. In short, a slight gap should exist between the wheels and the body. Each wheel should turn freely.

**Name** **Don't forget to give your car a name!**





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## Important dates to remember

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**12/16** Derby kits distributed at Pack Night

**TBD** Pinewood Derby Committee Meetings

**1/6 & 1/13** Derby Workshops at 7:00pm at Matt Nealon's Garage  
84 Rhode Island Avenue Remember: 1/6 & 1/13

**1/20** Registration & Inspection at 7:00pm at Matt Nealon's Garage  
84 Rhode Island Avenue

**1/21 Pinewood Derby Day – R J Lockhart GP Room**

\*10:00 am to 10:30 am Late Registration and Inspection Weigh-In

\*(We encourage you to register your car Friday 1/21 – Any major issues not corrected by start time will lead to car disqualification)

11:00 am Racing Begins!

Raffles

Visits by local politicians & dignitaries

Bake Sale

Hot Dogs, Chicken Nuggets & Drinks

Parents Race

Sibling Race

Fun!!