

**Boy Scouts of America**

# Pack 46

**Union County District N.C. Council**

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Pinewood Derby Event Rules and Procedures

# Official Pack 46 Derby Guide

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BSA PACK 46

# Pack 46 Derby Guide

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<http://www.pack46.org>

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Last Updated: February 11<sup>th</sup>, 2008

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# 1. General Derby Rules

## G-1 Rules and Regulations

Pack 46 abides by the Pinewood Derby rules and regulations set forth by the Central N.C. Council of the Boy Scouts of America. These rules are posted on Pack 46's web site (<http://www.pack46.org>) and on the Central N.C. Council's web site at <http://www.centralnccouncilbsa.com/derby.html>. This Guide also covers additional rules specific to the Pack 46 Pinewood Derby event.

## G-2 Qualification:

All registered Pack 46 Tiger, Cub and Webelos Scouts may design, build and enter one car that is built to participate in the Pack 46 Pinewood Derby event.

## G-3 Essential Materials:

All cars entered shall be constructed from the official "Grand Prix Pinewood Derby Kit" (henceforth referred to as the "Kit") as distributed by Pack 46. Additional kits may be purchased from the Boy Scout Service Center. Kits may be purchased elsewhere if they are of the exact type manufactured by the BSA as specified above.

## G-4 Competition Format:

The Derby will consist of a Qualifying Race and a Championship Race. In the Qualifying Race, the Top 20/24 finishers with the fastest average times will advance to the Championship Race. In the Championship Race, the Top 5 finishers with the fastest average times will advance to the Union District Pinewood Derby.

Since the race track has four (4) lanes, each competitor will race in one heat for each lane for a total of four (4) heats per race. The average time for all four heats for each competitor will be calculated to determine the overall top finishers with the fastest average times for each race.

## G-5 Attendance:

The Scout **must** enter his own car. This means the Scout must be present at Inspection and Registration to enter his car into competition.

## G-6 "New Work":

Construction of **all** entries **must** have begun after last year's Pack 46 Pinewood Derby Races using an up-to-date B.S.A. Pinewood Derby Car Kit for the current year.

## G-7 Single entry per person:

Only one car may be registered by each Scout in the Pinewood Derby.

## G-8 Registration and Inspection:

Each car must pass a technical inspection before it can compete. Technical inspection and registration of cars will begin two (2) hours prior to the beginning of the scheduled races. For information on the exact times of inspections and the races, please refer the Pack 46 web site (<http://www.pack46.org>).

## G-9 Failure to Pass Inspection:

The Inspection Officials 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. Cars which fail the initial inspection may be modified and brought back for final inspection no later than the scheduled start time of the initial Qualifying Race.

## G-10 Impound:

No car may be altered in any way after it has passed inspection. After a car passes inspection, it will be stored in the impound area by the Inspection Officials until race time.

## G-11 Car Design Rules Interpretation:

Interpretation of the rules described in Sections G-1 through G-10, and T-1 through T-9 are at the sole discretion of the Inspection Officials present during the Registration and Inspection process.

## G-12 Race Day Rules Interpretation:

On race day, the Scout must make all questions of rules interpretations and procedures to the Pinewood Derby Chairman or race officials promptly. Decisions by Race Officials on questions of rules interpretations and procedures may be appealed to the Pinewood Derby Chairman. All decisions by the Pinewood Derby Chairman are final. Decisions by Race Officials on questions of fact (i.e. the result of a specific race) may not be appealed beyond the Track Master and /or the Finish Line Judges. Note: Un-sportsmanlike conduct by any participant or spectator will be grounds for immediate expulsion from the competition and/or the race area.

## 2. CUB SCOUT RACE CAR DESIGN STANDARDS

The following section covers the design standards required for each entry. The official gauges and scale will be made available to competitors during all Den and Pack meetings approximately four weeks prior to Race Day.

### T-1 Material:

Derby cars shall be constructed from the official “Kit”. See G-2: Essential Materials in the previous section for details.

### T-2 Dimensions:

Derby cars must not be greater than two and three quarters ( $2\frac{3}{4}$ ) inches wide (including wheels) by seven (7”) inches long (including accessories) as determined by official gauges during the Registration and Inspection. The original body (wood block) of the car must touch the starting gate (pin). No part of the car can extend in front of the starting gate (pin).

### T-3 Wheel Base:

Underside clearance must be at least three eighths of an inch ( $\frac{3}{8}$ ”). The inside wheel to wheel clearance (front and rear) must be at least one and three quarters inches ( $1\frac{3}{4}$ ”) so the car will run on the race track. Adequate clearance is the responsibility of the car owner. Wheels cannot extend in front or rear of the body of the car.

### T-4 Wheels and Axles:

Wheels and axles **MUST** be the ones furnished in the car kit. Solid, single-piece axles are not permitted. Replacement wheels and axles must be purchased from an official BSA kit. Axles may be polished and lubricated (dry lubricant only). Wheels may be sanded to provide a true round circle but must retain the original width and flat rolling surface. No purposely rounded wheels allowed. No “H” or “A” wheels. No attachments or adhesives will be allowed on the surfaces of a wheel. Wheels will be placed on a flat surface to verify that the entire width of at least three (3) wheels make simultaneous contact with the flat surface. Regardless of what they could be made out of, spacer bearings, washers, bushings or springs are prohibited, whether fixed or movable.

No car will be allowed to enter with a closed hub or totally enclosed axle (nail on wheel). Axles will need to be secured in pre-cut slots with clear glue (if glue is used) or if the axles are inserted in holes in the side of the car, then removed by the Cub Scout and parent (guardian) to verify that axles are not solid. Holes may be drilled in the bottom of the car so the points of axles (nails) can be seen. Axle (nail) points must be in view before a Cub Scout can enter the race.

The wheel shall turn about the axle nails from the kit. The axle nails shall be firmly affixed to the wood of the car body. It must be obvious to the judges that the wheels and nails from the kit are being used.

### T-5 Wheel Treatment:

Wheel treatment (hub and thread smoothing and polishing) may not result in substantial removal of mass or in reducing the wheel width from the original kit wheels. The original “tread marks” on the outer wheel face must remain intact (i.e. apparent to the inspector). Wheels may not be machined to a beveled condition and the portion of the surface that contacts the track must remain parallel to the axle.

### T-6 Weight:

Derby cars may weigh no more than five (5) ounces or 141.745 grams in total weight as determined on official scales during the pre-race check in.

### T-7 Weights and Attachments:

Weight may be added to the car and will be considered part of the car for purposes of all measurements. “Weight” is considered to be any material on the car that is not provided in the kit. All weights must be securely fastened to the car (i.e. by permanent glue, nails, or screws but **not** by “sticky” substances such as tape or tack spray). Weights shall be passive (i.e. non-movable, non-magnetic, non-electric, non-sticky, etc...).

### T-8 Unacceptable Construction:

The following may **not** be used in conjunction with the wheels or axles:

- Hubcaps
- Washers
- Inserts
- Sleeves
- Bearings

### T-9 Gravity Powered:

Derby cars must initiate forward momentum of their own accord. Cars may not be constructed or treated in such a way that the track’s starting mechanism imparts momentum of the car. For instance, this provision disqualifies cars with sticky substances on the front of the car or protrusions which may catch on the starting pin.

### T-10 Lubricants:

Only dry lubricants such as graphite or powdered Teflon “White Lube” will be allowed for lubricating wheels. Lubricants may not foul the track. There will be a lubrication table set up at the race. In the interest of fairness, one lubrication is allowed before the beginning of the first heat in the Qualifying Race, and then once again before the beginning of the first heat of the Championship Race.



## 3. CONDUCT OF THE RACE

Competitions will consist of heat races and a series of final heats at the Finals Level; track officials are responsible for the proper conduct of the races.

### C-1 Inspection Gauges:

The race day Registration and Inspection area (aka The Pit Stop) will have the official scale and gauge boxes to measure each entry. Scouts should be prepared to make adjustments to their cars, as needed, prior to the final inspection and impounding of their car.

### C-2 Car Handling Responsibility:

Scouts shall present their own cars at the starting line for staging. The “Starter Team” will stage cars on the tracks. If, in the opinion of the Track Master, a Scout’s physical limitations prevent him from fully complying with this requirement, the Scout may nominate an assistant. In any case, the Scout shall participate up to his limitations.

### C-3 Car Leaves Lane:

If a car leaves its lane during a heat, but proceeds down the track in a manner that does not interfere with its opponent(s), then the heat shall be considered to have completed successfully. If a car leaves its lane and interferes with another car, the race shall be considered incomplete and the heat will be re-staged and re-run. If the same car again leaves its lane and interferes with another car, that car shall be judged as having finished in last place for the heat.

### C-4 Car Leaves Track:

If a car leaves the track during a heat without interfering with its opponent(s), then it shall be considered to have ended its heat at that point.

### C-5 Car Repair (Without Fault):

If, during a heat, a wheel falls off or the car becomes otherwise damaged, then the **Scout** may, to the best of his ability, perform repairs with the assistance of his adult partner or a Pit Crew member. In this situation, the heat will not be re-run unless the damaged car interfered with another car during the heat.

### C-6 Car Repair (With Fault):

If a car is damaged during a heat due to a track fault or another person or car, then the Track Master may, at his sole discretion, allow additional repair assistance to the Scout. In this situation, the heat may be re-run at the discretion of the Track Master or Derby Chairman.

## C-7 No Finishers:

If no car reaches the finish line on the track during a heat, the car which went the furthest in its lane shall be declared the heat winner. The time assigned for each car in the heat will be decided upon by the Track Master and other race officials, as necessary.

## C-8 Call to Race:

Competitors will be called by name prior to each heat. When called, each **Scout** will retrieve his car from the Staging Tray and present himself, with his car, to the Starting Line. If the Scout does not respond, his name will be called a second and third time. If the Scout has not presented himself in time for his heat, he shall be judged as placing last for the heat. In addition, he shall be given a finishing time of DNF (equivalent to 9.9999 seconds). If no competitor is present for a given heat, the Derby Chairman may, at his sole discretion, defer the heat in a manner that does not impede the overall progress of the race.

## C-9 Track/Equipment Fault:

If a car leaves its lane or the track, the Track Master may, at his sole discretion, inspect the track. If a track fault is found which is deemed to have caused the initial violation, the Track Master may order the heat to be re-run after the track is repaired. If any other equipment faults are the cause of the initial violation, the Track Master or Derby Chairman may order the race heat to be re-run after the equipment is repaired.

## C-10 Race Area:

Only Race Officials may enter the track area. This rule will be strictly enforced.

## C-11 Awards and Recognition:

The most important values in Pinewood Derby competition are Parent/Scout 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 license card and participation ribbon.
- Cars will be awarded a certificate and/or a ribbon for winning its own unique appearance category (i.e. Most Creative, Most Patriotic, Best Scout Spirit, Most Technical, etc.).
- Trophies will be awarded to the First through Fifth Place finishers of Pack 46.

## 4. Racing Environment

### E-1 Track Length and Drop:

The track shall have a racing surface (starting line to finish line distance) of approximately 37 feet with a drop of approximately 4 feet.

### E-2 Track Slope:

The track slope shall decrease from approximately 30 degrees at the starting line to approximately 0 degrees at the finish line.

### E-3 Lanes:

Each of the four lanes will consist of a straight smooth aluminum surface with 3 1/2" centers less than 3/8 inches thick. The track is manufactured by Piantedosi Oars. Their web site is <http://www.pinewoodderbytrack.com/index.html>.

### E-4 Starting Mechanism:

The "Starting Line" shall consist of stainless steel pins protruding through slots in the track. These pins are affixed to a spring loaded aluminum hinge. Tripping a small catch quickly rotates the pins beneath the track and releases the cars.

### E-5 Finish Line Sensor Location:

The track has electronic finish line sensors that shall be in alignment with the corresponding starting line pin and be approximately centered in its lane. The Micro Wizard derby timers are accurate to more than one thousandth of a second.

### E-6 Finish Line Judging:

Two impartial Finish Line Judges shall be appropriately stationed to observe each heat. Heat finish judging is determined by a finish line sensor, but may be challenged by a majority rule of the Finish Line Judges. If the result of one or more of the finish line sensors is challenged by the Finish Line Judges, the race may be re-staged and re-run.

### E-7 Finish Line Judge Backup:

Finish Line Judges will temporarily excuse themselves if they know that one of the contestants is a son or relative. Backup Finish Line Judges shall be available in case a judge needs to be excused for any reason.

## E-8 Heat Results:

The result of each heat will be publicly displayed via an overhead projector at the conclusion of each heat. Any objections to results of a given heat must be presented to the Track Master or Derby Chairman prior to the start of the next scheduled heat.

# 5. Special Notes to All Concerned

## N-1 The Project:

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 each parent emphasize this idea with your son. In all of the events, we require that the cars be built this year.

## N-2 Sportsmanship:

Two things the Pinewood Derby requires each participant to learn are:

- 1) The craft skills necessary to build a car.
- 2) The rules that must be followed.

Even more important is how we 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 skills, 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. The idea is often referred to as 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 there are losers in every competition. You accept this when you choose to compete. There are 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.